

M4587 8807 V

T2V

# THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

La Revue des Radio Amateurs Canadiens

DECEMBER 1987



Canadian  
Communication  
Pioneers

— Page 16

Season's  
Greetings  
from



# ENHANCED FEATURES

*....making the best, better!*

## YAESU FT757GXII



### NEW FEATURES INCLUDE

- MORE MEMORIES: NOW TEN IN ALL
- IF NOTCH
- Mode Storage (with frequency) in Memory
- New Bandswitch allows 'CAT' control
- CAD/CAM Design and Construction

*Give yourself  
a Christmas present!*

# C.M. PETERSON CO. LTD.



220 Adelaide St. North, London, Ont. N6E 3H4  
519-434-3204

*We ship anywhere in Canada*

Store Hours:  
Mon.-Fri. 8:30-5:30  
Sat. 8:30-12:00

VISA & C.O.D.s  
WELCOME

(416) 1-800-265-7903  
(519) 1-800-265-4110



**CIRCULATION OFFICE**  
P.O. Box 356, Kingston  
Ont. K7L 4W2  
613-545-9100 (24 Hrs.)

**EDITOR**

George Sansom VE3LXA

**ASSISTANT EDITOR**

George Morgan VE3JQW

**COLUMN EDITOR**

Steve Campbell

**TECHNICAL EDITOR**

Bill Richardson VY1CW

**CONTEST SCENE**

John Connor VE1BHA

**AMSAT NEWS**

Ernie Welling VE3HD

**MICROWAVES**

Michael Ross VE2DUB

**CRAIG COLUMN**

Cary Honeywell VE3ARS

**DX EDITOR**

Paul Cooper VE3JLP

**QRP EDITOR**

Moe Lynn VE6BLY

**YL NEWS AND VIEWS**

Cathy Hrischenko VE3GJH

**VHF/UHF**

Walter D. Rawle VE1AWS

**PACKET RADIO**

Brett Delmage VE3JLG.

**COMPUTERS**

Lyle Blake

**TECHNICAL ILLUSTRATOR**

Don Jarvis VE2DWG

**AFFILIATED CLUBS**

George Morgan VE3JQW

**LOOKING AROUND**

Art Blick VE3AHU

**ADVERTISING****REPRESENTATIVE**

Don Slater VE3BID  
RR 1 Lombardy, Ont. K0G 1L0  
613-283-3570

**PRODUCTION**

Steve Campbell,  
County Magazine Printshop Ltd.  
P.O. Box 30, 71 Main St.  
Bloomfield, Ont. K0K 1G0  
613-393-3355

# THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

December 1987

Vol. 15 No. 12

EDITORIAL	3
LETTERS	4
FEATURES	
The Inuit and their Kublinait neighbours	11
On VLF, VE6BLY	12
Hello Cycle 221, VE1APG	14
DOC Spectrum Utilization Policy, VE3NR	18
Northern Alberta Hamfest, VE6BLY	19
Shack of the Month	21
News from Thailand, VE7TG	21
VE2KM— New Assistant Director	22
User Report— AAPRA TNC 3.0, VE6BLY	41
YL NEWS & VIEWS	27
DX	28
CONTEST SCENE	31
SWAP SHOP	32
LOOKING AROUND	33
FROM THE CLUBS	34
MICROWAVES	37
CROSSWAVES	38
QRP	39
TECHNICAL	
Sync Pulse for Loran C Scope Trigger, VE3OBE	43
ATV— the cheap and easy way, VE3EGP	44

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.

The contents of this publication are copyright and may not be reproduced without prior consent except by a bonafide Amateur organization which may reproduce them provided the source is acknowledged.

The Advertisement Department of The Canadian Amateur on behalf of the magazine wholly disclaim any responsibility for the content of any advertisement contained herein and make no representations on behalf of The Canadian Amateur as to the truth of any statement contained in any such advertising.

C.A.R.F. Publications Limited and the publisher and editors of The Canadian Amateur hereby disclaim any responsibility for any statement of opinion or other statement that may be contained in any article published by The Canadian Amateur and any such statement of opinion or other statement contained in such article is solely the opinion of the author of the article and not that of C.A.R.F. Publications Limited, the publisher or editors of the magazine unless it is specifically stated to be the case therein.

The Canadian Amateur is published by C.A.R.F. Publications Limited, 370 King St. West, P.O. Box 356, Kingston, Ontario, Canada K7L 4W2. It is recommended by the Canadian Amateur Radio Federation Inc. and its members receive it automatically. Indexed in the Canadian Periodical Index: ISSN 0834-3977.

Second Class Mail Registration Number 5073



# Executive

**C.A.R.F. President**  
John Iliffe VE3CES  
387 Selby Crescent  
Newmarket, Ontario  
L3Y 6E2  
(416) 898-4875

**Past President**  
Ron Walsh VE3IDW  
869 Haverhill Dr.  
Kingston, Ont.  
K7M 4V1  
(613) 389-3301

**Vice President**  
Earle Smith VE6NM  
P.O. Box 412,  
Grande Prairie, Alta.  
T8V 2A2  
(403) 532-4279

**Senior Vice President**  
Francis Salter VE3MGY  
14 Teresa St.  
London, Ont. N6C 3K8  
519-439-7779



## Committee Chairmen

**D.O.C. Liaison**  
Art Stark VE3ZS

**News Service**  
Dino Moriello VE2FSA,  
Box 241, Pierrefonds, Que. H9H 4K9  
Translation: VE2DDT Michel Ricard

**Electromagnetic Interference**  
Ralph Cameron VE3BBM

**Emergency Communications**  
Ken Kendall VE3IHX

**CSA Committee**  
Gordon Roberts VE3IMA,  
253 Tiffin St., Barrie, Ont. L4N 2N3

**CARF Contests**  
Norm Waltho VE6VW,  
Box 1890, Morinville, Alta. TOG 1P0

**CARF Awards**  
Garry Hammond VE3XN, 5 McLaren Ave.,  
Listowel, Ont. N4W 3K1 (519) 291-4813

**Reciprocal Licencing & International Affairs**  
Francis Salter VE3MGY

**Affiliate Clubs**  
George Morgan VE3JQW,  
687 Fielding Dr., Ottawa, Ont. K1V 7G6

**Publications Committee**  
John Iliffe VE3CES

**C.A.R.F. QSL Service**  
Jean Evans VE3DGG,  
P.O. Box 66, Islington, Ont. M9A 4X1

**CARF Head Office**  
Debbie Norman, Office Manager (613) 544-6161

**General Manager/  
Treasurer**  
Ollie Schijns VE3LXO  
730 Dempster Dr.  
Gananoque, Ontario  
K7G 2E7  
(613) 382-3867

**Secretary**  
George Sansom  
VE3LXA  
786 Selkirk Rd.  
Kingston, Ont.  
K7P 1A5  
(613) 389-5108

**Honorary  
Legal Counsel**  
Timothy Ray VE2KC  
Hughes, Laishley,  
Barristers & Solicitors  
116 Lisgar St., Suite 600  
Ottawa, Ont. K2P 0C2  
(613) 236-7333

**Mid West Director**  
Norm Waltho VE6VW  
Box 1890  
Morinville, Alta.  
TOG 1P0  
(403) 939-3514

**Ontario Directors**  
Pierre Mainville VE3LPM  
23 Chatsworth Dr.  
Brampton, Ont. L6X 2L8

Dan Holmes VE3EBI  
33 Crownhill St.,  
Gloucester, Ont. K1J 7K5  
(613) 746-0968

**Quebec Director**  
Michael Masella VE2AM  
19 Pheasant Street,  
Dollard des Ormeaux,  
Quebec H9B 2T4  
514-683-7785

**Pacific Director**  
J.F. Hopwood VE7AHB  
1209 Kilmer Rd.,  
North Vancouver, B.C.  
V7K 1P9  
(604) 985-1267

**Atlantic Director**  
Nate Penney VO1NP  
P.O. Box 10  
Shoal Harbour, Nfld.  
AOC 2L0

**ASSISTANT  
REGIONAL DIRECTORS**  
Stewart Harvey VO1OO  
Susan Harvey VO1OI

Ben Kean VO2CZ  
R.G. White VO1RW  
Jeanine Côté VE1BWP  
Camille Tremblay VE2DNO  
Tony Pattinson VE2KM  
Ben Cuperman VE2LRB  
Antonietta Avanzini  
VE2AAV

Gordon Roberts VE3IMA  
Mel Brown VE3ACD  
Geoff Smith VE3KCE  
Barry Baggs VE3IVV  
Francis Salter VE3MGY

Cecil Fardoe VE4AEE  
Max Geras VE4ACX  
Malcolm Timlick VE4MG

Vic Allen VE5AEN  
Bill Munday VE5WM  
Bjarne Madsen VE5FX  
William J. Wood VE5EE

Ken Schneider VE6COH  
David Roberts VE6XY  
Jim McKenna VE6SU

Gene Graham VE7GAS  
Vol Riley VE7EYG  
Larry Reid VE7LR  
George Stephens VE7YF  
Ron Banning VE7FFU  
Jim Voight VE7CWC  
Ron McFayden VY1AD

## WHAT IS C.A.R.F.?

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

## A Non Amateur's Perspective

*The following article originally appeared in Sept. '87 issue of The Algoma Amateur. Mr. Dewar comes to us as an 'outsider' but I think he has hit the proverbial nail right on the head. Your comments are welcome... Editor.*

**BY ROBERT DEWAR**

Amateur Radio, according to GRR Part II, is a "Radiocommunication Service for purposes of self-training, intercommunication or technical investigation carried on by persons who are interested in radio technique solely with a personal aim and without pecuniary interest." That is a short definition of the hobby of Amateur radio as outlined in the regulations, and is objective and unbiased.

Amateur radio operators, when asked what Amateur radio is, tend to stress certain aspects of the hobby, notably the benefits it provides in the area of emergency communications. To listen to this type of answer, especially if you know something about Amateur radio, causes you to notice a certain defensiveness, as if it were necessary to justify the existence of those portions of the spectrum.

Stop some average people on the street, ask them their views, and they paint a very different picture of Amateur radio. To them Amateur radio and the general radio service are synonymous. Their definition of the word Amateur refers to one who shows a lack of skill. The proper definition in this context should be of one who practices or performs for his own pleasure.

People don't want to be inconvenienced when it comes to watching television, and they view Amateur radio operators as a threat to this activity. The recent Houghtby vs. Ravenscroft court case exemplifies the fear of, or animosity towards, Amateur radio. There was also a recent court case in which an injunction was sought against an Amateur because it was thought that if he were allowed to erect an antenna tower it would ruin the aesthetics of the neighbourhood.

There appear to be three seemingly different views of Amateur radio; a hobby, a public service and a threat to society. The regulations merely state what the hobby is, or at least what it

should be. The definition is general in nature and is, for the most part, adequate. The position of the Amateur is at least partially understandable as it is human nature to emphasize or, to a certain extent, overemphasize those things which are positive when speaking of something which we feel is worthwhile. What is of some concern, however, is the defensive posture of a large number of Amateurs and the negative public image of the hobby.

Amateur radio is under attack. There are those who probably feel that this statement is an over-reaction, so let's examine some facts.

There have been a number of court cases involving Amateurs who are operating, were operating, or fully intended to operate within the regulations and with the benefit of a licence from the Department of Communications. Despite this, the plaintiffs in these cases saw the opportunity to seek a legal remedy to what they perceived as a nuisance or eyesore. There is no reason to believe that these actions will cease and, indeed, there is every indication that the number of litigations will increase.

We live in an information age. Communication is vital to the flow of information and therefore immensely important to society. The use of the radio frequency spectrum is experiencing tremendous growth. It is virtually impossible for a business to get a clear frequency assignment in the VHF band in some parts of the country. There is even frequency congestion in the UHF band in the Golden Horseshoe area. In most industrialized nations, the government agencies responsible for managing the spectrum are being hard pressed to find more spectrum for use by a large number of different groups. This creates a problem because the spectrum, as we know it, is a finite resource and, as such, it is impossible to manufacture more frequencies.

The answer to the problem is to use the spectrum more efficiently and to take spectrum away from those services which are not using it, in order to give it to those services which need it. A portion of the spectrum previously allocated to UHF

television channels has been re-allocated for land mobile use. There is also a current proposal in the Los Angeles, California area to take an additional two UHF TV channels and use those for land-mobile operations.

There are about 23,000 Amateurs in Canada. This number is likely to decline under current conditions. If it does not decline, it is certainly not going to experience the almost exponential growth of other services. The possibility therefore exists that certain portions of the Amateur band could very well be re-allocated and used by other services. The FCC in the U.S.A. has hinted that the 220 MHz Amateur band is the most likely candidate for re-allocation. It could happen, and if it does, other bands or portions of bands could follow. It is also quite likely that if it happens in the U.S.A. it will happen here.

The DOC released a 'Discussion Paper on Possible Restructuring of the Amateur Radio Service in Canada' in November of 1985. The stated purpose of this discussion paper was to summarize the results of a review of the Amateur radio service in Canada and other countries. The Discussion Paper was designed to solicit an opinion from both Amateurs and potential Amateurs. The document appears to be the DOC's attempt to increase the number of licensed Amateurs by changing the admission requirements to the hobby, without offending the majority of current Amateurs.

The DOC might be doing the Amateur community a favour by increasing the number of Amateurs and therefore protecting those portions of the spectrum currently allocated to the Amateur radio service. The cynics among you would like to believe that the DOC's motive is purely to increase licensing revenues by increasing the number of licences, however, an examination of the DOC's fee schedule clearly shows that more income could be realized by licensing other services.

The challenge now is for the Amateur fraternity to do what it can to increase its ranks. It must do so on its own, regardless of what changes, if any, are made to the regulations by the DOC.

*Continued on next page* ►

# LETTERS

## LETTER TO DOC

Mr. G.R. Begley, Director General  
Broadcasting Regulation  
Department of Communications  
Subject: B.P. 23, Issue 3  
Provisional

Dear Mr. Begley:

The current issue of the above Broadcast Procedure has been reviewed by the Canadian Amateur Radio Federation and there are sections which we believe require comment and in some cases revision.

a) Section 3.14 Interference from the cable system—

There would appear to be a variance of what constitutes harmful interference in Issue 3 as opposed to the previous issue of B.P. 23. The previously accepted definition of harmful interference was derived directly from provisions of the International Telecommunications Convention, Geneva 1959 and as revised by the partial Revisions of the Radio Regulations, Geneva, 1959, signed in 1963, 1966, and 1967. The definition reads, "Harmful Interference: Any emission, radiation, or induction which endangers the functioning of a radio navigation service or of other safety devices or seriously degrades, obstructs or repeatedly interrupts a radio-communication service operating in accordance with these regulations."

The Department has chosen to replace this reasonable and acceptable definition with, "If the cable television system causes

harmful interference, as determined by the Department, the system operator shall immediately take the necessary remedial measures."

Our concern is that the determination of harmful interference will be made at the Department's discretion and may or may not follow the definition as laid down by the ITU. We find the present reference unacceptable.

b) Section 4.11 Cable leakage—

The frequency range of most concern to Radio Amateurs is in the range from 54 to 216 MHz. The previous issue of D.B. 23 limits leakage to 10uV/M at 3 metres. The revised specification converts to 20dBuV/M in the standardization of units. Why was this arbitrarily increased to 26 dBuV/M when the current levels clearly cause interference? Similarly, there appears to be no technical explanation for the wide variance in leakage limits. Cable television systems in no way represent point sources but are distributed over many kilometres, thus making leakage problems more serious because they are colocated with the community. We find the increase in range 54-216 MHz unacceptable. Other ranges should be technically justified or all frequencies made to conform to the limit of 20 dBuV/M at 3 metres. This would simplify the regulation for all concerned.

c) Section 3.10.4.3 Cumulative Leakage Index—

Amateurs have always been proud of their hobby and eager to show it to their friends. While this is to be commended, it should be noted that too much enthusiasm, when exhibited to the uninitiated, is intimidating.

One further source of potential Amateurs is the group of people who have attended classes on Amateur radio but did not follow through and get their certificates. These people had an interest in the hobby at one time and probably still do. It would be interesting and perhaps beneficial to find out why these people have not received the certificates.

As the title of this article suggests, this is a non-Amateur's perspective of the Amateur radio service. It was meant to enlighten, but more importantly it was meant to get Amateurs thinking about their hobby and ways to ensure its growth and survival in the future. ■

## SILENT KEYS

John Williams VE3XY, a long-time sales rep. for C.M. Peterson (London, Ont.), passed away recently.

John was a very strong supporter of CARF and of *The Canadian Amateur*. He will be missed by the Amateur community. Our sympathy is extended to his wife and family.

Kenneth Austin Slack VE3PTG, from Agincourt, Ont.

D. Warden VE3OHO, from Stayner, Ont.

Jack Chapman VE3LYR, from Kingston, Ont.

George Ferguson VE5WW, from Regina, Sask.

Gord Offord VE3CJJ, from Napanee, Ont.

Jim Hildreth VE3B2Q, from Scarborough, Ont.

The importance of the levels measured using the formula presented for calculating CLI is not fully understood. Would systems having many sources with leakage field intensities of 45 uV/M be exempt? In order to comment on this new index of leakage it is necessary to know what the statistical distribution of leakage levels is for typical plant.

d) Section 3.10 Conditions re Aeronautical Frequencies—

We applaud the Department's regulation to ensure that potential leakage in these bands is prevented from interacting in any harmful way with established services. It is our request that Amateur frequencies are just as exposed to harmful interference as those of the Aeronautical service and as such need the same protection. This is appropriate because no other service operates in such close geographic proximity to the cable system.

The one final issue which we believe the Department did not address is that some provision should be included which would oblige the cable company to disconnect subscribers who are radiating interfering signals. There are many instances of interference being blamed on the cable-vision distributor when, in actual fact, the problem has been traced to an illegal extension, amplifier or unshielded drop. This issue should rightly be considered as part of this procedure.

We would appreciate consideration of the above requests in view of the provisional nature of this procedure and would welcome your comments. John Iliffe VE3CES

President

Canadian Amateur Radio Federation

## EDITORIAL (cont'd)

Amateurs must demonstrate the benefits which can be derived from the hobby to non-Amateurs and thereby increase the number of people with at least a slight increase in it. This in turn will eventually lead to more Amateurs.

Spreading the word about Amateur radio can be done directly or indirectly to a number of people at once on an individual basis.

Examples of the direct approach are displays which are put on at various Malls throughout the year. A more indirect technique would be to give demonstrations under 'live' conditions such as when providing communications for the Friendship Games and similar events. The crowds are a 'captive audience', so why not take advantage of the situation and use a little 'soft sell' technique.

## **POLAR UNIVERSAL NATURAL SCIENCE EXPEDITION 1986-88**

In 1986 the members of the PUNS expedition flew onto the island of Ward Hunt. This island is just located off the northern most coast of Canada, being some 450 miles south of geographic north pole (83 north 74 west).

Because of its location, this spot in the Arctic is often used by explorers as a starting point for possible journeys to the North Pole.

The canvas hut on Ward Hunt Island was used as the base for a varied science programme which included Fauna and Flora sampling; a full meteorological input into the world forecasting system; plus an air sampling programme as part of the AGASP project which is looking into the problems of industrial pollution in the Arctic region.

Around the Island is an extensive ice shelf. A drilling programme was conducted here using hand augers down to a depth of 10 metres. The ice cores taken from these sites were pulled by man-powered sleds back to base camp and then by air to the south for investigation. The ice shelf has a nasty habit of breaking off and large sections drift either East or West in the prevailing currents. This jeopardizes shipping and oil-related constructions far to the south.

Radio propagation studies using computer predicted optimum working frequency charts provided by Racal Communications were employed with tests covering from Europe to Antarctica.

Amateur Radio operated by Laurence GM4DMA was much in evidence in the guise of GM4DMA/P. VES. Operation was on all HF bands from 1.8 MHz to 30 MHz from locator FR23WB. The Racal transceivers were 100 watts PEP out, power being supplied from a 24-volt battery source charged by a pair of wind turbines. The temperature in the hut was sometimes as low as -52C but the equipment still operated without fault. The operator did, however, have to be fairly careful that his fingers did not freeze onto the radio gear.

The wildlife, which obviously had a limited diet in the late winter, supplemented its food with large lengths of coax cable which had been coated with a special silicone coating. The wolves and arctic foxes took a great liking to the taste!

Another project of the expedition members was to try to travel as far north as possible without any aid, mechanical or otherwise. They set out from Ward Hunt pulling their sleds behind them. The weight was in excess of 300 pounds! In 14 days they

had broken the existing record, even though the Arctic Ocean is not flat but can be made up of ridges and boulders of ice up to 30 feet in height.

In February, 1988, the four members of the group will return to the area to complete their science programme. They will try to reach the North Pole without any support or resupply, a pull of around 450 nautical miles (as the crows fly). Again GM4DMA/P. VES will be active, with possible 144 MHz activity, this time from base camp near Eureka (locator ER50AA).

Expedition Members— Sir Ranulph Fiennes BT. DSC Expedition Leader; Oliver Shepard; Dr. Mike Stroud; Laurence Howell, Base Commander.

Regards,

L.D. Howell GM4DMA

### **TO THE MINISTER OF COMMUNICATIONS**

Dear Ms. MacDonald

I am very distressed to learn that the Department of Communications is seriously considering allocating a frequency within the 'amateur' portion of the UHF radio spectrum for use by a proposed Environment Canada clear air doppler radar installation at Egbert, Ontario.

This frequency allocation could have a devastating effect on the very extensive UHF link networks used by Amateur radio operators throughout Southern Ontario and on the 'Oscar' satellite communications program.

Because of the importance of the UHF repeater network in providing emergency communications during disasters, and the international ramification of the interference with an established satellite program, I believe that the Department of Communications must make every effort to locate a suitable frequency outside the 'amateur' portion of the band for use by the radar installation.

The efficiency of Amateur radio communications under emergency conditions has been dramatically demonstrated during such recent disasters as the Edmonton tornado of 1985.

The communications equipment and systems necessary to respond to such disasters are installed, maintained and operated by Amateurs at their own expense and without thought of pecuniary reward. This vital service is available whenever and wherever needed through the generosity and dedication of Canadian Amateurs at no cost to the Canadian government or to the public.

During the Barrie/Grand Valley tornado disaster of May 1985, Amateur radio operators provided critical communication services to police, fire departments, The

Canadian Red Cross Society, other relief organizations, and the general public. They provided an essential service for several days.

The UHF link system which made this emergency communication possible in May 1985 could be forced out of operation should the Egbert radar site be allocated an interfering frequency.

A 'hub' Amateur repeater operating on 442.025 MHz from a site at Ballantrae, near Aurora, Ont., permits direct interconnection between local repeaters in Kingston, Cobourg, Campbellford, Peterborough, Barrie, Midland, Collingwood, Shelburne, London and Toronto.

The Egbert radar site is located within the communication paths of the VE3ULR 'hub' repeater and various outlying repeaters. Radar operation on an interfering frequency would obliterate these communication paths.

Should this particular Amateur UHF repeater network be forced off the air, and should a disaster strike an area served by the network, such as Kingston, Ont., Amateur radio operators would be unable to provide the same level of emergency communications that they have in the past.

The VE3ULR link system is just one of many in operation in Canada that rely on the UHF band for their communications. Operation of the Egbert radar within the 'amateur' frequency band would certainly have a very adverse affect on a number of these networks serving a great many communities throughout Ontario.

A dangerous precedent could be set which could prove detrimental to Amateur radio across Canada. Further advancements in telecommunications, some of which have originated from within the Amateur ranks, could also be stifled because individuals may be reluctant to experiment and develop systems that could be ultimately interfered with.

Operation of the Egbert radar within the 'amateur' portion of the UHF band could also have a very deleterious effect on the international Amateur satellite program which also shares frequencies within this part of the UHF band.

The technology used in the 'Sarsat' locating satellite was pioneered aboard an 'Oscar' series satellite built and funded by Amateurs. This is just one example of how Amateurs remain at the leading edge in the development of communications systems for the benefit of mankind.

It is not possible to change the frequency of an existing and operating satellite relied on by

*Continued on next page* ►



## LETTERS (cont'd)

Amateurs around the world. It is possible, however, for the Department of Communications to assign an operating frequency outside the established 'amateur' band for use of the Egbert radar installation.

It is my hope that the DOC will examine all the possible frequency allocations with a view to assigning a frequency to the Egbert radar which does not adversely affect established Amateur UHF networks, Amateur international satellite programs, or close-by commercial radio operations.

I would be most pleased to meet with or provide your officials with any additional information on Amateur operations within the UHF band should this be of value to them.

Thank you for taking the time to consider this matter.

Terry Darling  
Technical Director VE3ULR  
Link Network

### CARF'S POSITION

CARF has proposed that the frequency be moved as high in the band as possible, preferably near 448 MHz. The CRRL had proposed that a frequency near 442 MHz would be appropriate.

The difference between these two proposals is that 442 MHz is in the band presently occupied by repeater outputs, 448 is a repeater input frequency area. It is CARF's position that if interference occurs it would be easier, and cheaper, to protect the input of a repeater, either by antenna relocation or directivity or other technical means than to try to immunize many mobile and fixed privately owned stations. We also considered that, with better antenna locations and higher power, repeater outputs could conceivably cause more interference to the radar receiver than a mobile would. Mobile interference would more likely be transient in nature. Keeping in mind that Amateurs are secondary users in this band we would be required to protect the radar from harmful interference.

Finally, making the best of a bad thing, we would like to see the largest possible part of the band kept clear in case the DOC, at some future time, decided to remove us from parts of the band occupied by other users, thus the recommendation to be as near as possible to the band edge.

John Iliffe VE3CES,  
President

### ELECTROMAGNETIC IMMUNITY OF ELECTRONIC EQUIPMENT

Dear Miss MacDonald:

The Canadian Amateur Radio Federation fully supports the

recommendations and conclusions contained in the (RABC) report transmitted to you on March 30, 1987.

In the past nine months, CARF has become aware of at least three Radio Amateurs having been placed in a compromising position because of lack of any policy regarding immunity of electronic equipment. In the past, it has not been the policy of CARF to legally challenge the privilege to operate because of obvious equipment design deficiencies, although there are those who support this approach. Your statements at the Spectrum 20/20 symposium hit the nail on the head when you referred to the subject appliances as being of 'substandard' design.

The Radio Amateurs who have voluntarily refrained from using their transmitting equipment in order to avoid litigation and cooperate unilaterally, are located in Fredericton, N.B., Corner Brook, Nfld. and Dollard des Ormeaux, P.Q. I might mention that two of the Amateurs have made plans to relocate their residence.

In the United States, the FCC has seen fit to grant limited preemption in cases identical to the above. While circumstances obviously dictate Departmental action in such cases, it is recommended that a similar approach by your Department could obviate costly and frustrating exposure to the legal process. It is our understanding a simple letter, from the Regulatory authority, to complainants in such cases, has achieved the desired result. Such an approach would become feasible with an extension to your current mandate, under the Radio Act.

Recommendations 1 and 2 of the immunity report would provide a basis for limited preemption, not only for Radio Amateurs, but any station operating in accordance with the terms of its licence.

The observation is also made that most consumer appliances are of a type manufactured in Far East countries where population density is of less concern in the sense of requiring much immunity. Such is not the case in North America. Far Eastern countries were quick to respond to the FCC Part 15 requirements for emission control when the need became apparent.

Controls for product emission and immunity controls are very similar in nature and when incorporated at the design phase scarcely impact final cost. A benefit to the consumer and the manufacturer is an observation that reliability and safety increase.

The Canadian Amateur Radio Federation sincerely believes the

material presented in the Radio Advisory Board report and comments made here will be useful to the Department in maintaining its authority in matters pertaining to management of the spectrum.

Yours truly,  
Ralph D. Cameron VE3BBM  
Chairman, EMI Committee

*For more on the RABC Report, see this month's Crosswaves column.*

### RABC TO THE MINISTER

(This is RABC's response to DOC's suggestion that RABC act as the point of technical authority.)

Dear Miss MacDonald

I would like to express my appreciation for your letter of June 17, 1987 in response to a document submitted to your Department by the Radio Advisory Board of Canada entitled 'A Report on Electromagnetic Immunity of Electronic Equipment'.

In your letter, you expressed appreciation for our input on the subject of immunity of electronic equipment and made the suggestion that the RABC itself might consider becoming a 'point of technical reference' office to assist in the resolution of immunity problems.

Your suggestion has been carefully explored with members of the RABC EMC Committee and by the Executive Members of the Board. I can assure you that the opportunity and the desire to assist the Department in this matter was well received by all members of the RABC with whom your proposal was discussed.

However, the RABC is an organization consisting of voluntary members, albeit experts in their field, who, due to their vocational priorities, are not generally available to respond in a timely manner to the immediate needs of a concerned public. The Minister will further understand that disputes involving domestic complaints, in some instances, will demand quick resolution if litigative situations are to be forestalled. Participation in lengthy reviews or an involvement in detailed analyses could not likely be undertaken by the RABC or by its members.

The RABC does, nevertheless, wish to encourage an initiative in this area and as such, would be most willing to support the Department in a manner that is in keeping with its limited resources and the availability of its members.

It is, therefore, the opinion of the RABC that the DOC should accept the role of designated initial point-of-contact since this best fits the public's concept of the Department's

responsibility. This is also most appropriate as DOC District Offices are ideally located to serve the public and they have experience in dealing with such cases.

The RABC would be willing to provide advice on technical feasibility, equitability and reasonableness of proposed solutions to immunity problems where exceptional disputes arise. The RABC would also consider participating in appropriate training and awareness programs in concert with DOC initiatives.

To be successful, however, the RABC feels that a definitive public statement of interest and concern for immunity matters must first be made by the Department with emphasis given to the adoption of a policy of 'Repair, Replace or Refund' by suppliers of electronic equipment which malfunctions in an unreasonable way as the result of an immunity related problem.

The RABC again wishes to emphasize the importance of quickly establishing an awareness of the need for electronic product 'immunity' from the electromagnetic environment and we strongly recommend that the Department be seen as the initiating force.

We are most interested in maintaining a dialogue on this matter and would also welcome further discussion on the status of DOC plans in relation to the other recommendations in our Report.

The RABC awaits the Minister's further pleasure and is most willing to assist as appropriate.

J.J. O'Shaughnessy,  
President

#### VE3OSC

Since 1979 the ham station VE3OSC at the Ontario Science Centre has been shut down. Certain persons at this institution are basically opposed to it being re-established. The activities at VE3OSC were always very attractive to the public, and we had children talking to VE8RCS, asking what the weather was like near the North Pole. The station was operated by retired hams, who with the late VE3YY, set up their own schedule. Everything worked smoothly for three years until the station was closed down.

Please don't forget that we have emergency power generators, and in case of a serious emergency, one could use the station as a service to the public.

Similar institutions all over the world operate active ham stations. When VE3OSC was in operation there were schedules with the Kensington museum in London, The Hall of Science in New York, the Truscott

Mountain Science Centre, the Evoluon in Holland and many others.

The former Director General, Dr. Tuzo Wilson, promised that the station would be opened again soon, but that was eight or more years ago!

It is up to us!!!

Would you like to have VE3OSC back on the air? If so, please write a letter to the Premier of Ontario, Mr. David Peterson, at Queen's Park, Toronto, Ontario, asking to re-open VE3OSC.

One man cannot do it alone! Your help is needed... please write!

Anyone who is handicapped, or would prefer to use a form letter may send a SASE to me and I will mail a pre-printed letter addressed to Premier David Peterson. My address is:

Eric Kirchner VE3CTP  
2 Adirondack Gate  
Agincourt, Ontario  
Canada M1T 3E7

#### RAVENSCROFT CASE

I think we should all be grateful to Jack Ravenscroft and the 'case' he and his worthy neighbours (not to speak of the judicial component) have created.

There is nothing as stimulating as a good fight (although this one sounds more like black comedy...); reading about it in *The Canadian Amateur* makes the heart beat faster and adds some spice to the copy.

By now, Jack is known world-wide—a veritable cause célèbre!

Would he want to swap his position with anyone else? I guess not especially since he and we, in our hearts, all know that he is right!

F. Paul Kosbab NF4E,  
Associate Member, CARF

#### MORE ON BARRHAVEN

Dear Miss MacDonald:

In March of this year, the Barrhaven Community Association responded to complaints from residents and solicited a telephone survey of those who were experiencing various effects on their domestic electronic appliances, because of the proximity to several local high power broadcast transmitters.

There were about 50 respondents to the request and several residents made mention of being aware of several other neighbours so affected. This latter group has not been documented, however, the attached report should pique your interest. The results are indicative of what can happen and what is happening in this community, with due regard to the problem of susceptible appliances lacking any form of radio immunity being located too close to transmitters. The problem has been technically defined for at least 40 years.

The nuisance value of appliances

not able to function for the purpose purchased, as well as the malfunction of appliances installed after moving to Barrhaven, would appear to leave the door for legal action wide open. We will take responsibility for the problem which appears to be one of appliances reacting to radio energy without being designed to do so?

The observations relating to the survey need little explanation. The potential for many more homeowners moving to areas of Barrhaven and becoming outraged at finding some personal appliances useless, due to lack of immunity, will become much more evident as new dwellings locate within 200-300 feet of the antenna arrays. These effects will be inevitable and much more potential will exist for appliances to malfunction. Developers as well as municipalities should be concerned about land owned for residential use in proximity to high power installations similar to that which surrounds Barrhaven. There are now five such installations within a 2-3 km radius of this community.

As Canadians, we deserve a quality of appliance which functions in the present radio environment without the need of concern for malfunction or dysfunction. Lack of appliance immunity is an issue in this community and we urge you to take the necessary steps to ensure our interests are protected.

Douglas Collins, President

Barrhaven Community Association

#### JOCELYN LOVELL TRUST FUND

Shortly after the accident which left Jocelyn Lovell disabled, Libby Stevens VE3IOT, started a fund to assist Jocelyn in becoming a radio Amateur and obtaining equipment. Many individuals and clubs donated to the fund, both in direct cash payments and in tapes redeemed for cash at Dominion Stores.

Jocelyn subsequently declined the offer, and the fund was left in trust with the Thornhill Radio Amateurs Club. The availability of the fund was discussed with a number of organizations, together with the restriction that the moneys had to be used to assist aspiring or existing radio Amateurs who otherwise could not afford the hobby.

The CNIB Amateur Radio Program was selected as the appropriate recipient. The full amount of the fund, amounting to \$1,775 including interest earned, was forwarded on Sept. 17, 1987.

Michael Elkin VE3OGO,  
President, Thornhill  
Radio Amateurs Club

# MFJ TUNERS

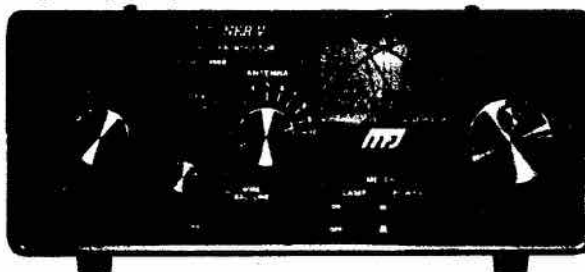
This may be the world's most popular 3 KW roller Inductor tuner because it's small, compact, reliable, matches virtually everything and gives you SWR/Wattmeter, antenna switch, dummy load and balun — all at a great price!

Meet "Versa Tuner V". It has all the features you asked for, including the new smaller size to match new smaller rigs—only 10 1/4" W x 4 1/2" H x 14 7/8" D.

Matches coax, balanced lines, random wires—1.8 to 30 MHz. 3 KW PEP—the power rating you won't outgrow (250pf-6KV caps).

Roller Inductor with a 3-digit turns counter plus a spinner knob for precise inductance control to get that SWR down to minimum every time.

Built-in 300 watt, 50 ohm dummy load, built-in 4:1 ferrite balun.



MFJ-989B \$539.95

Lighted Cross-needle Meter reads SWR, forward and reflected power all in one glance. Has 300 and 3,000 watt ranges. Meter light requires 12 VDC.

6 position antenna switch (2 coax lines, through tuner or direct, random/balanced line or dummy load). SO-239 connectors, ceramic feed-throughs, binding post grounds.

Deluxe aluminum low-profile cabinet with sub-chassis for RFI protection, black finish, black front panel with raised letters, tilt bail.

## MFJ's Fastest Selling TUNER

MFJ-941D \$154.95



MFJ's fastest selling tuner packs in plenty of new features. New styling! Brushed aluminum front. All metal cabinet. New SWR/Wattmeter! More accurate. Switch selectable 300/30 watt ranges. Read forward/reflected power.

New antenna switch! Front panel mounted. Select 2 coax lines, direct or through tuner, random wire/balanced line or tuner bypass for dummy load.

New airwound inductor! Larger more efficient 12 position airwound inductor gives lower losses and more watts out. Run up to 300 RF power output.

Matches everything from 1.8 to 30 MHz! dipoles, inverted vee, random wires, verticals, mobile whips, beams, balanced and coax lines.

Built-in 4:1 balun for balanced lines. 1000 V capacitor spacing. Black. 11 x 3 x 7 inches. Works with all solid state or tube rigs. Easy to use anywhere.

## MFJ's 1.5 KW VERSA TUNER III

MFJ-962B \$359.95



Run up to 1.5 kw PEP and match any feedline continuously from 1.8 to 30 MHz: coax, balanced line or random wire.

Lighted Cross-needle Meter reads SWR, forward and reflected power in one glance. Has 300 and 3,000 watt ranges. 6 position antenna switch handles 2 coax lines, wire and balanced lines. 4:1 balun. 250 pf, 6 kv variable capacitors. 12 position ceramic inductor switch. New smaller size matches new rigs: 10 3/4" x 4 1/2" x 14 1/2" inches. Flip stand for easy viewing. Requires 12V for light.

## MFJ's Best VERSA TUNER

MFJ-949C \$234.95



MFJ's best 300 watt tuner is now even better! The MFJ-949C all-in-one Deluxe Versa Tuner II gives you a tuner, cross-needle SWR/Wattmeter, dummy load, antenna switch and balun in a new compact cabinet. You get quality conveniences and a clutter-free shack at a super price.

A new cross-needle SWR/Wattmeter gives you SWR, forward and reflected power—all at a single glance. SWR is automatically computed with no controls to set. Has 30 and 300 watt scale on easy-to-read 2 color lighted meter (needs 12 V).

A handsome new black brushed aluminum cabinet matches all the new rigs. Its compact size (10 x 3 x 7 inches) takes only a little room.

You can run full transceiver power output—up to 300 watts RF output—and match coax, balanced lines or random wires from 1.8 thru 30 MHz. Use it to tune out SWR on dipoles, vees, long wires, verticals, whips, beams and quads.

A 300 watt 50 ohm dummy load gives you quick tune ups and a versatile six position antenna switch lets you select 2 coax lines (direct or thru tuner), random wire or balanced line and dummy load.

A large efficient airwound inductor—3 inches in diameter—gives you plenty of matching range and less losses for more watts out. 100 volt tuning capacitors and heavy duty switches gives you safe arc-free operation. A 4:1 balun is built-in to match balanced lines.

Order your convenience package now and enjoy.

## 2 KW COAX SWITCHES

MFJ-1702 \$34.95



MFJ-1702. \$19.95. 2 positions.

60 dB isolation at 450 MHz.

Less than .2 dB loss.

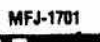
SWR below 1:1.2.

MFJ-1701, \$29.95.

6 positions. White

markable surface

for antenna positions.



## MFJ's Smallest VERSA TUNER

MFJ-901B \$94.95



MFJ's smallest 200 watt Versa Tuner matches coax, random wires and balanced lines continuously from 1.8 thru 30 MHz. Works with all solid state and tube rigs. Very popular for use between transceiver and final amplifier for proper matching. Efficient airwound inductor gives more watts out. 4:1 balun for balanced lines. 5 x 2 x 6 inches. Rugged black all aluminum cabinet.

## MFJ's Random Wire TUNER

MFJ-1601D \$64.95



MFJ's ultra compact 200 watt random wire tuner lets you operate all bands anywhere with any transceiver using a random wire. Great for apartment, motel, camping operation. Tunes 1.8-30 MHz. 2 x 3 x 4 inches.

## MFJ's Mobile TUNER

MFJ-945C \$124.95



Designed for mobile operation! Small, compact. Takes just a tiny bit of room in your car. SWR/dual range wattmeter makes tuning fast and easy. Careful placement of controls and meter makes antenna tuning safer while in motion.

Extends your antenna bandwidth so you can operate anywhere in a band with low SWR. No need to go outside and readjust your mobile whip. Low SWR also gives you maximum power out of your solid state rig—runs cooler for longer life.

Handles up to 300 watts PEP RF output. Has efficient airwound inductor, 1000 volt capacitor spacing and rugged aluminum cabinet. 8x2x6 inches. Mobile mounting bracket available for \$5.00.

AVAILABLE AT AUTHORIZED  
DEALERS ACROSS CANADA

## CANADIAN DISTRIBUTOR



SALES CANADA, INC.

4087 Harvester Road, Unit #10

BURLINGTON, ONTARIO

CANADA L7L 5M3

1-416-333-1344



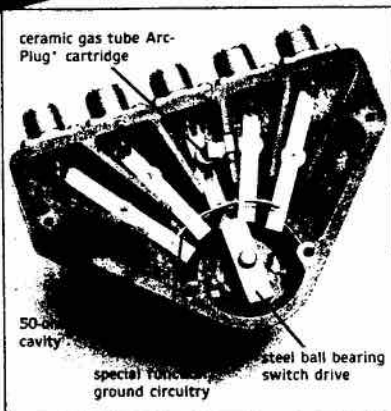
# Alpha Delta Model DELTA-4 Lightning Surge Protected 4-Position RF Coax Switch

Equipment  
protection for amateur,  
military and government  
communications stations.



- Exclusive center "off" (ground) position internally disconnects and grounds all antenna circuits for maximum protection when operator is away from the station — an Alpha Delta first!
- Incorporates the famous replaceable Arc-Plug® cartridge for continuous protection of the active antenna circuit. Unused antenna circuits are automatically grounded — an Alpha Delta first!
- The Model DELTA-4 Switch features a custom designed cast housing with constant impedance micro-strip cavity construction for outstanding performance through UHF. No lossy wafer switches are used.
- Positive detent ball bearing switch drive tells you which position you're in ... without guessing ... without looking.
- 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) ..... \$115.95  
Model DELTA-4/N (N-type connectors, 1.3 GHz) ..... \$149.95

## High Performance Antennas...

THE SOLUTION TO  
160-80-40 METER  
OPERATION IN SMALL  
AREAS!

Model DX-DD shown

- No trap design. Unlike trap antennas, there are no capacitors to break down under high RF voltages, and a tuner may be safely used for multi-band operation if desired.
- Direct 50 ohm feed. Tuners usually not required when operating in resonant bands.
- Full power operation.
- Uses "ISO-RES" inductors.
- Stainless steel hardware.
- Fully assembled.

Model DX-A 160-80-40 Meter Quarter Wave  
Twin Sloper —

- The premier low frequency DX antenna.
- Combines the tremendous DX firepower of the quarter wave sloper with the wide bandwidth of the half wave dipole.
- One leg is 67', the other 55'. Installs like an inverted-V. Ground return through tower or down-lead ..... \$84.95

Model DX-DD "Delta Dipole" 80-40 Meter  
Electrical Half Wave Dipole —

- Also covers 80-10 meters with a wide range tuner.
- Only 82' overall length ..... \$114.95
- Model DX-SWL Commercial shortwave band sloper —
- Provides world-class reception on AM broadcasts, tropical bands and 60 thru 13 meters.
- Only 60' overall length ... \$114.95



**ALPHA DELTA COMMUNICATIONS, INC.** AA



## The New Pro-Am Designer Series

- State of the Art designs
- Full line of amateur, two-way - commercial - cellular Antennas & Accessories
- 100% American made ... because it matters!
- The best kept secret, just got better

Here are just a  
couple models

## DUAL BANDER

Model	Frequency	Gain
*PA270	144-148 MHZ, VHF 440-450 MHZ, UHF	Unity 3db

## Suggested List

\$59.95



## 2 Meter Combo Magnetic Mount Kit



### Model CX5814

Dual combo magnetic mount kit includes one CX144, one PAQ3820 and one 301 utilizes standard 3/8-24 mounting.

## Suggested List

\$49.95

Now it's out! It's no secret anymore. So your next antenna system, why not make it Pro-Am. Have your dealer call us today, or write to:

pro-am

## CANADIAN DISTRIBUTOR

**TEXPRO**

SALES CANADA, INC.

4087 Harvester Road, Unit #10  
BURLINGTON, ONTARIO  
CANADA L7L 5M3  
1-416-333-1344

AVAILABLE AT AUTHORIZED  
DEALERS ACROSS CANADA



# NCG 10/160M

With enough features for full enjoyment without being complicated with other features your don't need or want!

## FEATURES:

- All Solid State - no warmup.
- Built in AC/DC - no external power supply needed.
- 4 Memories and 3-Way Scan
- Unique - RTTY and FAX Signal Plugs into Mic Jack for operation on SSB Mode.

**CHRISTMAS SPECIAL**

**\$1349.95**



**1 YEAR WARRANTY**

• We built this one for you.

• Mfg. by: Matsushita Electric Industries Co., Ltd.

**AVAILABLE AT AUTHORIZED  
DEALERS ACROSS CANADA**

**CANADIAN DISTRIBUTOR**



**SALES CANADA INC.**

4087 Harvester Rd., Unit # 10

Burlington, Ont. L7L 5M3

1-416-333-1344

# The Inuit and their Kublunait neighbours

*Moe Lynn VE6BLY is still seeking information on call signs of the NWT & YRS and personal experiences of radio operators. His search turned up this short story by Chuck Townley, not yet a ham but a retired radio operator from WWII.*

BY CHARLES W. TOWNLEY

In 1949 the Meteorological Department of Canada pleaded with the Department of National Defence to install more weather reporting stations in the vast unpopulated areas of the north West Territories barren lands. When a decision was made, the site selected was about 480 km (300 miles) north west of Churchill MB called Ennadai Lake. This would then become the 25th radio station in the North West Territories and Yukon Radio System. It was probably the most remote and isolated of all so far built and, if not, then a close second to Baker Lake which had a one-man RCMP detachment and Hudson's Bay store. Or would it be third after Fort Reliance with a two-man RCMP detachment and a few itinerant trappers?

Ennadai Lake had only a small nomadic band of Eskimos who were to become somewhat of a millstone around Signals necks in the coming months. One wonders in retrospect if it were not ordained they would actually be themselves lifesavers of sorts by keeping this small group of signallers occupied beyond their own little circle in the land of the midnight sun.

## THE BEGINNING

You might say my view was somewhat more clear being the radio operator on board a cat train during the winter of 1948/49. The cat train comprised three sections each made up of two tractors, five sleighs and one caboose with a combined payload of 1000 tons. Forty days and 40 nights on the tundra brought transmitters, building equipment and furniture to Ennadai Lake even though only six miles were covered some days.

My transceiver designated C52 was of World War 2 vintage having been used in Allied tanks and any other vehicle big enough to carry its more than 200 pounds. This same set was to become the mainstay of communications with Churchill during

construction and as a standby unit, as it was at most other stations down north.

## STATION & QUARTERS

Not unusual in those days, in military or civilian circles, was the practice of combining living/working areas, which often led to all sorts of unusual goings-on. Our building was 68' by 24' with (thankfully) a separate engine room, warehouse and ice house, each 20' by 20'. Despite oppressive wet weather, hordes of black flies and mosquitoes and lack of luxuries, we had everything almost completed by early October 1949. Two 150' steel towers for long-wave transmitting and three 48' steel masts for short wave transmitting and receiving also adorned the landscape. Outside painting would be finished later by the few of us who were staying to enjoy the fruits of those many labourers.

## WIRELESS

Regular daily weather reporting schedules with Churchill and Fort McMurray commenced on Oct. 8. A surplus Navy PV500 transmitter was used on long wave and an RCA TE176 for use on short wave combined with RCA AR88 receivers to round our complement of on-the-air equipment. Two 10 kW Lister Diesel electric plants alternated with one another on a 24-hour basis, although each was run until the oil changing was due. This regimen continued throughout RCSigs tenure up to 1954 when the system started handing over to the Department of Transport.

## SOCIAL INTERCOURSE

Many times during this same period RCSigs were called upon to render first aid to a group of Eskimos (Inhalmiut) scattered along the Kazan River area within a 50-mile radius of our station. These people depended entirely on the flesh of caribou for sustenance, clothing and food for their dogs. During the winter of 1949/50, the yearly migration of caribou bypassed their area, causing an extreme crisis. The prompt commendable actions of the Corporal in charge, and his three signalmen, probably saved the group from extinction.

When we became aware of their plight in April 1950, contact was made with the RCMP in Churchill advising them of the band's predicament. Arrangements were made to evacuate them (about 50 persons) by air to Nuelton Lake, 100 miles southeast of Ennadai where fish and game were said to be plentiful.

They were gathered together with the aid of Ohoto, a young member of the tribe who had earlier brought us news of this condition. Soon the muskeg and eskers around the station became dotted with partially-built igloos and skin tents. Our emergency rations were opened and distributed plus batches of biscuits baked by our benevolent French cook.

## AIR MEDICS

A check of families as they arrived disclosed that one notorious old character named Pongalak was minus his stepson. Questioned a little closer about the boy, it was revealed the lad had become weak from hunger and lagged behind on the trail but might arrive shortly. Being suspicious of this story, our Corporal despatched a party including two signallers with Ohoto to backtrack on the trail. The boy was located some miles from camp, semi-conscious and unable to walk.

On returning to the wireless station, medical advice was obtained by radio from the doctor at Fort McMurray who prescribed a formula of water with salt and sugar, followed by tea and soup. Within two days he was on solid food and on the road to full recovery. Subsequently it was learned that Pongalak had systematically starved his stepson ever since the first hunger privations and left him on the trail to die. The old man reasoned the boy was an unnecessary burden and would hinder his own chances of getting to Ennadai in time to catch the plane to Nuelton.

## NOMADS RETURN

By the spring of '51 most of this band had drifted back to the Ennadai Lake region and RCSigs were again faced with their original wards. However, arrangements had been made with the powers that be to

*Continued on next page* ►



# On VLF

## BY MOE LYNN VE6BLY

It is a metal detector to some people, but to a ham it is a VLF transceiver operating in the 15 kHz portion of the spectrum. No licence is required, by the way, and mine being a Christmas present did not come in to the motor-home wrapped in a mink coat. Lois must have figured the outdoor activity would get me away from underfoot during the daylight hours. Who can wander around at night with all the snakes and bugs out in force when 80 metres QRP is the place to be! Now all I have to do is get my 20 metre QRP portable packaged up and mount a whip on my packsack so as not to forget the code.

## THING

This word actually stands for Treasure Hunting or you might see THER to indicate Treasure Hunter. Our transceiver saw double service last winter because Lois would go hunting after my second four hour shift. She was also allowed the honor of digging the first 'find' after walking back a mile and digging down about eight inches. On our way home through Medford Oregon, Vic W7VSE looked it up in a coin catalogue where an 1890 Liberty V nickel (25% ni and 75% cu) was listed at \$600 if in VG condition. You know who isn't parting with this treasure even if someone were allowed to classify it as VG

because in her books it is better than that seen with all the copper corrosion.

## EXPERIMENTING

It was the beginning of an unforgettable experience tramping through cactii and over the Saguaro desert where General Patton trained before going to Africa in WW II. We found, but did not pick up, 50mm cartridges and lead as well as worn out hob nails the prospectors shed from their boots. Not to mention the ounces of buck shot and lead from .22 shells. Being in gold country it was only natural we would want to know how the machine responded to other than gold nuggets from Yellowknife. Using a plastic disk about the size of a 50 cent piece and crazy glue we attached a nugget weighing 18 grains (24 gr in a pennyweight, or dwt, and 20 dwt = 1 troy ounce). Once the unit had been 'ground adjusted' to compensate for natural minerals it would pick up the homebrew sample lying on top of the ground from a height of about two inches. We tested other less expensive makes and got good results at greater distances. On the other hand a more expensive make did not perform as well on the same sample.

## REVIEW

Unfortunately the company who made our particular model refused to

send me their schematic and other technical information. They also expressed concern that any report be sent to them prior to release. In reply to my question about significance of the numbers on the face of the 4" meter they admitted there was none, on this particular model. Their instruction manual leaves a lot to be desired and no reply was received to this reference and specific lack of diagrams that might clarify some statements. The manual does list two full pages of books they publish and another page touting membership in Search International for \$6 U.S., refundable if not pleased. They also included a glowing report of our model that was published in *Treasure Search* magazine but no date and unsigned, which suggests it was their company release. Included with the manual was a four-page booklet by Charles Garrett called *Treasure Hunting Secrets* and a brochure on the Garrett Gravity Trap Gold Panning Kit.

## SERIOUS THERS

Anyone seriously interested should try various makes and models including Radio Shack VLF model; they have a 'return if not satisfied' policy. Or if you are looking to build a simple BFO type for less than \$10, go to the library and borrow *How to build Metal/Treasure Locaters* by Robert Traister and John Traister, a TAB Books publication, 1977.

## INUIT (cont'd)

improve living conditions of the natives. They were supplied with rifles, ammunition and traps for hunting and fishing. Provision was also made to bale their furs at Ennadai before shipping them to the RCMP in Churchill. There the mounties would sell the furs, convert the proceeds into rations and ammo which was then flown back for distribution among the Kazan group.

## INFLUENZA

Three springs later, in '54, the Sergeant in charge at Ennadai saved the tribe once again but this time from the ravages of a flu epidemic. When discovered, a request was sent by radio for a doctor and, as weather conditions prevented the flight, the Sergeant assumed the role of medic. Acting on over-the-air instructions

and using the stations supply of penicillin and aspirin, he ministered to 22 stricken natives, pulling them all through successfully. He himself developed flu symptoms but managed to keep going. A citation from the Chief of the General Staff read: "His prompt action and sound judgement were in accordance with the best principals of medical practice."

Medical aid was rendered by RCSigs on innumerable occasions, ranging from ordinary lead-swinging and simple belly-ache to blood poisoning. The simple fact this band of Inuit continued to exist is a monument to the goodwill, perseverance and versatility of their neighbours the Kahlunait. Or as the original RCSigs hat badge says, "Velox, Versutus, Vigilans".

## NAME GAME

Everybody knows that Toronto is Hog Town, and Vancouver is Gas Town, but where is Iqaluit and Kalatdit Nunat? And what is its prefix? Here is a list of the old and new names, recently changed:

New Name/Old Name	Prefix
Iqaluit/Frobisher Bay	VE8
Belize/British Honduras	V3
Djibouti/Afars-Issas	J2
Kiribati/ Gilbert Islands	T30, T31, T32
Kalatdit Nunat/Greenland	OX
Bangladesh/E Pakistan	AP
Sri Lanka/Ceylon	4S
Surinam/Dutch Guyana	PZ
Namibia/SW Africa	
Zimbabwe/Rhodesia	Z2

—Roy VE7TG

# FREE high tech catalog



Most Accurate Clock uses NBS atomic clock signal to keep "perfect" UTS time.



Crossfire Visual Tuning Indicator tunes RTTY transmissions fast.



Build one of the finest multi-purpose ham rigs available and save.

See all of these products and many more at Heath/Zenith Computers and Electronics Centres located in Vancouver, Calgary, Edmonton, Winnipeg, Mississauga, Ottawa and Montreal.



Microelectronics make the HW-9 QRP CW transceiver small and light.



World's first low-cost handheld, microprocessor-controlled Real Time Spectrum Analyzer.



"Universal" terminal interfaces computer, ham station for RTTY.



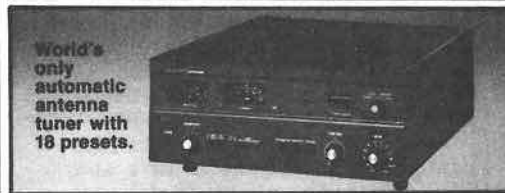
General coverage receiver has exceptional selectivity and sensitivity.



Precision test Instruments speed troubleshooting.



Hams! Get the latest in amateur technology including high-speed Packet Radio Communication.

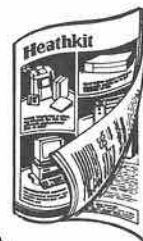


World's only automatic antenna tuner with 18 presets.

*More than just a catalog, a trustworthy guide to what's new in electronics and computers*

News about important product innovations is packed into every page of the quarterly, full-color Heathkit Catalog. For many years, the illustrated Heathkit Catalog has been a guide to new and exciting kit products for people like you to build. To enjoy and learn from them, while saving money in the process. What sets the Heathkit Catalog apart is its range of high quality products and accurate information to help make your buying decisions easy.

For your **FREE** Heathkit Catalog write:  
Heath Company  
1020 Islington Ave.  
Toronto, Ont. M8Z 5Z3



**Heathkit®**  
Heath  
Company

# Hello Cycle 22!

BY BRENT TAYLOR VE1APG

Well, we can finally officially herald the arrival of Solar Cycle 22, and it's about time! By the time you read this it should be quite plain that activity is on the rise! As hams all over the world start moving up to the higher HF bands and the six-metre boys fine-tune their stations in anticipation of great DX in the years ahead. Now that the experts are finally convinced that the new cycle is here the next question is: "When will it peak and how high?"

That's what I'll try to answer in this article. There are several methods for predicting peaks and values of new Solar Cycles and I won't go into detail about how it's done... but I will briefly outline what the actual predictions say and how confident we are in them.

If you're a ham, you obviously already know a little about sunspots and their effect on propagation. There is just not enough space to give a crash course here on the details, so I suggest you look up one of the several excellent sources on the subject. I suggest you scan any material you have on propagation theory if you're a little rusty.

## CYCLE 22 UPDATE

Most experts agree that our new Cycle started at the end of September, 1986. A new Cycle is said to begin when the smoothed sunspot number reaches a minimum value and in the past year the numbers have been on the rise, after bottoming out at 12.3 in the Fall of '86. Those who watch the situation surely recall the dismal Solar Flux readings of mid-1986!

Those values in the 60's and 70's contrast with readings of 90's and 100's which we have been experiencing lately, and the bands have been noticeably improved. The MUF between North America and Europe has even risen above 30 MHz on a couple of occasions! And it will just get better.

## PREDICTIONS FOR THE YEARS AHEAD

There are three fundamental methods for predicting the behaviour of future Solar Cycles. We'll call them A, B and C.

**Method A:** The activity of the Earth's magnetic field during the ending years of the previous cycle is used to make inferences about the coming cycle. Various scientists have used

this method to arrive at the following conclusions: The peak of Cycle 22 will occur in 1990 or 1991 and the highest smoothed sunspot number will be between 118 and 185.

**Method B:** This method examines the early phases of the new cycle to guess at its length and intensity. This early in Cycle 22, there is not much data for the 'Method B' types to work with... but there are some preliminary findings. They say the new cycle will peak in 1990 and the smoothed number will be between 136 and 172.

**Method C:** The followers of this method are on the 'fringe' of the science. They say that the behaviour of the coming cycle can be estimated by looking at long-term trends... cycles of cycles if you will. Those using this method have reported a prediction of 107 for the peak which they say will arrive in 1991.

What does it all mean? Well, it's something like forecasting the weather, which I'm sure you won't find encouraging, hi! Let me summarize the above figures and tell you what the experts at the Space Environment Laboratory in Boulder, Colorado, think.

Averaging all of the predictions from Method 'A' gives us a peak of 150 arriving sometime in late 1990. The most conservative of these theories is called the Sargent-Ohl method, forecasting a peak of 118 arriving in early 1991 (see Fig. 2). This would translate to a smoothed Solar Flux average of about 160.

Method 'B' was used by McNish and Lincoln. They predict a peak of 136 in late 1989 (see Fig. 1). This might mean an average Solar Flux of about 180 at peak.

Method 'C' is, by far, the most pessimistic. R.M. Wilson used this method to come up with a peak of only 107, which means an average of Solar Flux in the low 140's.

Whichever method you prefer, there are a few conclusions that the scientists at Boulder, Colorado have arrived at:

1. It is too soon to arrive at a prediction with a high level of confidence.
2. The new cycle will likely be average to above average in value.
3. The new cycle will likely fall within the extremes that the 'record' cycles have established.

Cycle 19 was the highest on record (1958) with a smoothed average of around 200 and Cycle 14 was the lowest (early this century) peaking only at 68. In other words, Cycle 22 will not set any records.

## WHAT DOES IT MEAN FOR US?

The foremost thing to remember is that all the above numbers are averages. There will undoubtedly be several instances where these averages are exceeded by tens of per cent. Even the Wilson method allows for short peaks of very high solar activity! These bursts will open up the higher HF (and low VHF) bands to all parts of the world on a frequent basis. If you've been planning to upgrade your station before things get really hot then you had better start right away! The glory days of DX are waiting around the east limb and you better be ready! Remember, it's always darkest before the dawn and the last few years have been pretty black! Enough cliches, let's look at how Solar Flux values can affect the bands:

**Solar Flux 80:** 80, 40 and 20 are in pretty good shape with the best openings to the southwest on 20, late in the day. Openings on 15 and 10 are rare and, when they occur, are usually associated with sporadic 'E'.

**Solar Flux 100:** 20 is definitely the best DX band with openings of all parts of the world a possibility during the run of a day—and 15 will open up to the deep south and southwest.

**Solar Flux 120:** Remember when 20 was open around the clock? Remember when 15 was open every single day? When the Flux hits 120, things like this can happen. There might even be QRM on 10, hi!

**Solar Flux Above 150:** Wall to wall on 20, 15, and 10. And even 6 will kick-in from time to time with openings to South America, the Caribbean, Oceania, Southeast Asia and VK/ZL.

## WHAT IS THE SOLAR FLUX TODAY?

To find out, monitor WWV at 15 minutes past the hour. The freshest data is after 1800 UT daily. Look for high Flux, Low 'A' and Low 'K' levels, and fire up the rig! Good DX!



## REFERENCE

Material for the preceding article was provided by the Space Environment Services Center, a division of the National Oceanic and Atmospheric Administration, Boulder, Colorado.

Brent Taylor VE1APG was first licensed in 1984. A long-time MW and SW DXer, he considers the study of propagation to be one of his main interests. He is an active member of the newly formed MUF Contest Group, and currently edits 'MUF & Stuff', a propagation column in FARC SPARK, the Frederickton Amateur Radio Club newsletter.

# Bonjour Cycle 22!

De VE1APG,  
Traduction: VE1BQL

Nous pouvons enfin saluer officiellement l'avènement du Cycle solaire 22. Ce n'est pas trop tôt! Au moment où vous lirez ces lignes, l'augmentation de l'activité solaire sera tout à fait évidente. Partout dans le monde, les amateurs commencent à peupler les bandes plus hautes tandis que les fervents du 6m fourbissent leur station dans l'attente de futurs grands DX. Pour les experts, le nouveau cycle a débuté mais une question demeure: "À quel moment se produira le maximum et à quelle hauteur?"

C'est à cette question que nous allons tenter de répondre. Pour prédire les maxima et les hauteurs des nouveaux cycles solaires, les experts appliquent des méthodes dans le détail desquelles nous n'entrerons pas. Nous nous bornerons à rapporter les prévisions émises et à en commenter la fiabilité.

Tout amateur connaît plus ou moins le phénomène des taches solaires et leur effet sur la propagation. La place nous manque pour évoquer ici ces questions. Nous vous suggérons donc de vous reporter, si besoin est, aux excellents exposés parus sur ce sujet dans diverses publications.

## CYCLE 22— DERNIERES NOUVELLES

La plupart des experts conviennent que le nouveau cycle a débuté vers la fin de septembre 1986. On considère que le début d'un nouveau cycle se place au moment où le nombre compensé (égalisé) de taches atteint sa valeur minimale. Au cours de l'année écoulée, ces valeurs ont pris une tendance ascendante après avoir

atteint un plancher de 12,3 à l'automne 1986. Les observateurs attentifs de la propagation n'ont pas oublié les désastreuses valeurs de flux solaire qui sévissaient à la mi-1986!

Oscillant entre 60 et 70, ces valeurs contrastent avec les chiffres dans les 90s et 100s que nous venons de connaître. Les bandes se sont notablement améliorées. La fréquence maximum utilisable (FMU) entre l'Amérique et l'Europe a même dépassé 30 MHz en certaines

occasions! Les choses ne peuvent que s'améliorer encore.

## PREVISIONS POUR LES ANNEES FUTURES

Pour la prévision du développement de futurs cycles solaires, on fait appel à trois méthodes fondamentales que nous appellerons A, B et C.

**Méthode A:** on se base sur l'activité du champ magnétique terrestre au cours des dernières années du cycle précédent pour émettre des conclusions sur le prochain cycle.

Continued on next page

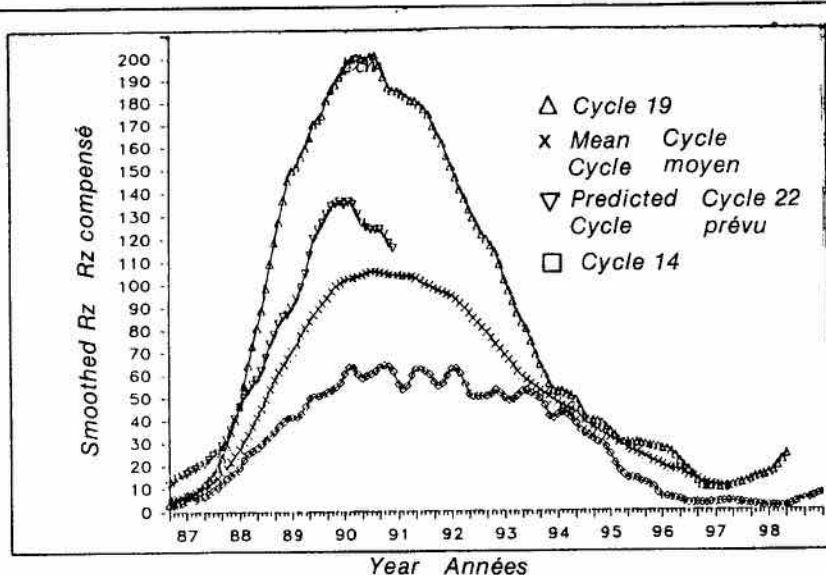
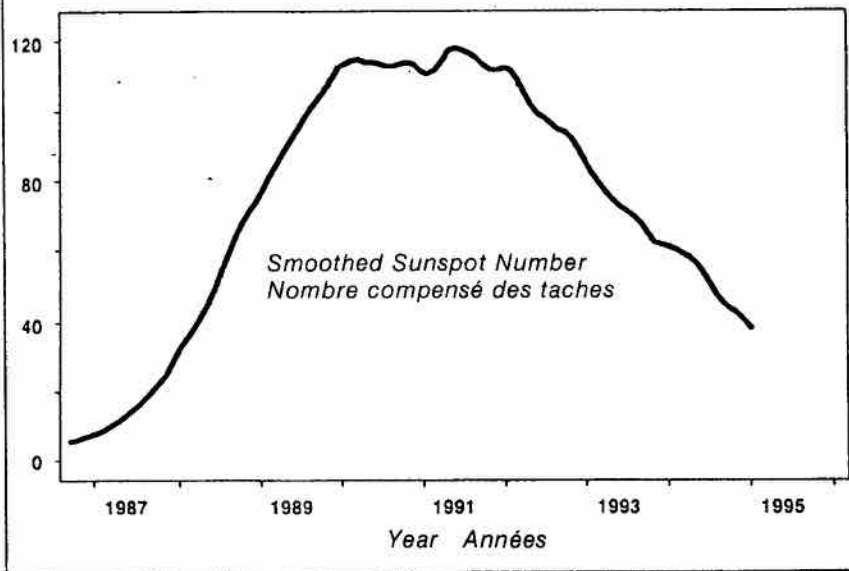


Fig. 1— Observed and predicted sunspot numbers from the McNish-Lincoln analysis.

Nombre de taches solaires observées et prévues selon l'analyse de McNish Lincoln.

Fig. 2— Predicted sunspot numbers from the Sargent-Ohl method. Nombres de taches solaires prévues selon la méthode Sargent-Ohl.



## ► CYCLE 22 (cont'd)

Différents experts se fient à cette méthode pour arriver aux conclusions suivantes: le maximum du cycle 22 se produira en 1990 ou 1991 avec un maximum compensé entre 118 et 185 pour les taches solaires.

**Méthode B:** Cette méthode étudie les premières phases du nouveau cycle pour évaluer sa longueur et son intensité. Nous ne disposons pas encore de données suffisantes sur le nouveau Cycle 22 pour nous servir de cette méthode mais nous avons néanmoins quelques points de repère avancés. Le nouveau cycle passerait par un maximum en 1990 avec une valeur compensée de taches se plaçant entre 136 et 172.

**Méthode C:** les partisans de cette méthode se situent dans un cadre scientifique un peu esotérique. Pour eux, le comportement du cycle nouveau peut être évalué dans le contexte des tendances à très long terme, sur l'étude d'un "cycle des cycles" en quelque sorte. Les adhérents de cette méthode prédisent un maximum de 107 se plaçant en 1991.

Que devons-nous en penser? La réponse s'apparente à la prévision météorologique, réponse guère encourageante, hi! Nous résumerons les chiffres avancés ci-dessus et nous vous livrerons les réflexions des experts du Laboratoire de l'Espace de Boulder, (Colorado).

En faisant la moyenne des prédictions obtenues par la méthode 'A', on arrive à un maximum de 150 vers la fin de 1990. La plus prudente

de ces théories, connue sous le nom de Sargent-Ohl, prévoit un maximum de 118 pour le début de 1991 (voir Fig. 2) ce qui se traduirait par une moyenne de flux solaire compensé approximative de 160.

La méthode 'B', utilisée par McNish et Lincoln, prédit un maximum de 136 à la fin de 1989 (voir Fig. 1) ce qui équivaldrait à une moyenne de flux solaire légèrement supérieure à 180 au moment du maximum.

La méthode 'C' donne, de loin, la prédiction la plus pessimiste avec un maximum prévu par R.M. Wilson de 107 seulement, soit une moyenne de flux solaire guère supérieure à 140.

Quelle que soit votre méthode préférée, les experts de Boulder (Colo) sont d'ores et déjà arrivés aux conclusions suivantes:

1. Il est encore prématuré d'émettre des prédictions à haute fiabilité;
2. Le nouveau cycle se montrera probablement dans la moyenne ou au dessus de la moyenne;
3. Le nouveau cycle s'établira sans doute entre les extrêmes établis par les records atteints au cours des cycles précédents. Avec un chiffre de 200, le cycle 19 avait atteint un sommet inégalé en 1958 avec une moyenne compensée voisine de 200 tandis que le Cycle 14 (au début de ce siècle) détient le record de faiblesse avec un maximum de 68 seulement. En d'autres termes, le Cycle 22 n'établira aucun record nouveau.

### QU EN EST-IL ALORS POUR NOUS?

Il convient de noter d'abord que

tous les chiffres cités se réfèrent à des MOYENNES. Dans certains cas, il est indubitable que ces moyennes seront dépassées par des dizaines de points de pourcentage. Même la méthode Wilson prévoit de courts maxima de très haute activité solaire! Ces sursauts ouvriront les bandes HF hautes et les THF basses sur tous les circuits du monde dans de fréquentes ouvertures.

Si vous vous êtes promis d'améliorer votre station en prévision de la propagation des grands jours, il est maintenant temps d'attaquer votre projet! Ces grandes ouvertures de DX sont en effet pour bientôt, vous devez être prêts à en profiter. Si les dernières années furent plutôt sombres dans ce domaine, souvenez-vous que la nuit paraît toujours plus noire avant l'aube. Mais laissons là les métaphores et examinons les effets des flux solaires sur les bandes:

**FLUX SOLAIRE DE 80:** A ce niveau, les bandes des 80 et 40m se comportent très bien, avec des ouvertures vers le sud-est le soir. Toutefois, les débouchages sur 15 et 10m restent rares et, lorsqu'ils se produisent, restent souvent liés à la propagation sporadique 'E'.

**FLUX SOLAIRE DE 100:** La bande 20m reste la reine pour le DX avec ouvertures possibles vers toutes les parties du monde au cours de la journée. Débouchages du 15m vers le sud et le sud-est.

**FLUX SOLAIRE DE 120:** Vous souvenez-vous de temps où la bande 20m restait ouverte 24 heures par jour? ou encore de l'époque où le 15m s'ouvrait régulièrement tous les jours? Ces conditions deviennent possibles avec un flux de 120. On peut même alors se battre avec le QRM sur 10m!

**FLUX SOLAIRE DEPASSANT 150:** Tous les espoirs sont permis sur 20, 15 et 10m, même des débouchages occasionnels sur 6m vers l'Amérique Latine, les Caraïbes, l'Océanie, le sud-est asiatique et les VK/ZL.

### QUEL EST LE FLUX ACTUEL?

Vous le saurez en écoutant WWV toutes les heures à la minute 18. L'information est mise à jour quotidiennement après 1800UT. Si vous entendez mentionner un flux élevé, un 'A' faible et un 'K' faible. Allumez la station. Bon DX!

### REFERENCE

La documentation ayant servi à la rédaction de cet article nous a été fournie par le Space Environment Service Center, division de la National Oceanic and Atmospheric Administration, à Boulder (Colorado)

## COVER STORY

# Pioneer Telegrapher

BY ROY PARRETT VEZTG

For Canada Day '87, Canada Post issued a block of four stamps featuring 'Canadian Innovations in Communications.' Pictured were R.A. Fessenden, for AM radio; C. Fenerty, for newspaper pulp; G.E. Desbarats and W. Leggo, half-tone engraving; and F.N. Gisborne, undersea telegraph.

Reginald Fessenden was featured in a recent issue of *The Canadian Amateur*. F.N. Gisborne completed the first telegraph line in North America, connecting Newfoundland to the mainland across the Cabot Strait, in 1856, after a great struggle with the wilderness on land, and the water stretch from Cape Ray to Cape Breton.

The 640 kilometres of Newfoundland wilderness nearly ruined him, but in 1853 he teamed up with Cyrus Field,

the American industrialist. Together they completed the line, which became a model for future lines in other parts of the world.

Field went on to tackle the North Atlantic, succeeding in 1866, after three previous attempts led to broken cables. High-voltage damaged the early trans-Atlantic lines, however they were restored to service at lower working voltages after it was realized that sensitive equipment, rather than high voltage, was required.

Gisborne became Superintendent of the Canadian Government Telegraph Service in 1879, and was a Charter Member of the Research Council in 1882. He held many patents for his own inventions. He died at Ottawa in 1892.

The communications stamps are still available at larger post offices.

BILL VE7CIM  
TONY VE7CPW

TOM VE7DQ  
ROLAND VE7ACI



MC-60A SP-940

TS-940S

SW-2000  
SM-220

TL-922

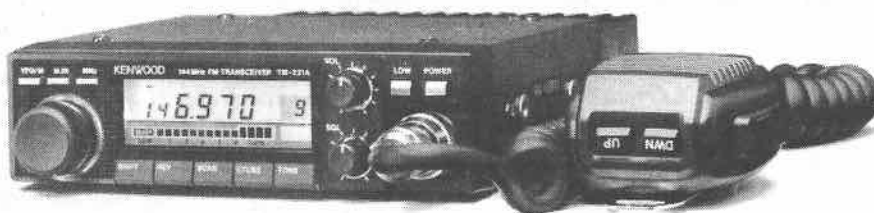
# GLENWOOD

PRESENTS

# KENWOOD



TM-2550A



TM-221A



TR-2600A



TH-21AT



TR-751A



MC-60A



PS-50

TS-440S

SP-430



**GLENWOOD TRADING COMPANY LTD.**

278 East 1st St., North Vancouver, B.C. V7L 1B3

**ORDER DESK**

**(604) 984-0405**

*These, and many other fine Ham radio products are detailed in our latest mail-order catalogue. Write for your free copy today.*



# DOC initiates competition for spectrum between 30 & 890 MHz

BY BILL WILSON VE3NR

DOC has issued its first paper on spectrum utilization policy in the 30-890 MHz part of the spectrum and, in so doing, have fired the starting gun in a competition that will involve Amateurs whether they want to be or not. And— DOC will be the final judge.

There will be three stages in the development of the new policy. The first paper, issued in late September, is a background paper which gives narrative and statistical background and invites "comment taking into account current occupancy, use and trends while considering overall longer term needs and technological innovation." Closing date for public comment is Feb. 1, 1988.

The second stage will be a paper laying out a proposed policy for utilization of this portion of the spectrum "that will accommodate users into the foreseeable future." Public comment will again be invited. The final stage will be a policy paper on which no comment is foreseen. DOC does not go on to say much more about this stage at this time.

In the paper now out for discussion, DOC poses a number of 'theme' questions. It is beyond the scope of this short article to repeat all the questions, but the following extracts will give an inkling of the breadth of matters to be discussed.

1) Low Power Devices: Should there be a more liberalized use in the bands 30.01-47 MHz? Are there suitable bands other than those currently available for such uses?

2) Introduction of New Technologies: What are appropriate bands in which new technologies, such as amplitude companded single sideband (ACSB), mobile digital radio and other techniques, should be introduced?

3) Personal/Business Radio Service: The Department would be interested in comments associated with the use of the band 220-225 MHz to satisfy personal communication needs.

4) Land Mobile & UHF TV Sharing: Would the introduction of mobile into the UHF TV bands preclude the introduction of high definition TV?

5) UHF Television Broadcasting: Comments are requested on the use of the UHF TV band for low-power video transmitters, wireless microphones,

multi-point data distribution systems, office local area networks, etc.

6) Strategies for Implementing More Spectrum Efficient Systems: Should there be a moratorium on licensing in larger urban areas in some bands until new technologies and systems can be introduced?

7) Industry Development: Should DOC actively participate in the development of the radio industry by promoting and encouraging the implementation of new technologies?

Now, let's look at the statistics describing present usage as given in the DOC paper. The mere fact that they give this information must be cause for concern among Amateurs because this invites the public to look at frequency usage. Amateur usage of their four bands between 30 and 890 MHz is very light when compared with that of other services in the same area of the spectrum.

These statistics can be 'arranged' in many ways. Just to show you how, let's look at a couple of examples. In Table 1 by region is the average number of commercial stations in a 4 MHz portion of spectrum between 156.8375 and 174.0 MHz, compared with the number of Amateur stations in the 144-148 MHz band, also 4 MHz wide. The interesting point is that DOC credits all the Amateur stations in Canada as being operational in the 2 metre band!

In Table 2 now, in selected metropolitan areas is the average number of commercial stations in a 4 MHz portion of the spectrum between the same frequencies mentioned earlier:

DOC does not show the actual Amateur occupancy of the 2 metre band in these cities and so stars have been shown instead. Amateurs in each of the above cities should be able to estimate the approximate number of Amateur stations on 2 metres. For

example, in the Ottawa area the commercial station usage is 12268, while it is doubtful if there are more than 75 Amateur stations active on 2 metres! It makes one wonder what would happen if the 'use them or lose them' rule were to apply.

It is clear that Amateurs and Amateur Clubs will just have to dig in and respond in a very comprehensive way to sell Amateur radio to the DOC if they want to keep the spectrum they have in the 20-890 MHz band.

There is one unknown— we do not know what the ITU World Administrative Radio Conference for the Mobile Services now meeting in Geneva will decide for this part of the spectrum. However, this should be known before the closing date for the first paper, Feb. 1, 1988.

Copies of the first paper can be obtained from any Regional Office of DOC or from Information Services, DOC Headquarters at 300 Slater Street, Ottawa K1A 0C8.

CARF recently learned that Mexico proposed a footnote to the International Frequency Allocation Table that would permit that country to use the 430-450 MHz band for mobile radio. In response to a request from CARF on behalf of Canadian Amateurs, DOC has instructed the Canadian Delegation to the Mobile Services WARC, now meeting in Geneva, to oppose such a Mexican footnote unless the footnote also includes an undertaking to protect fully the Amateur Satellite Radio Service now authorized by the ITU Table to operate in the 435-438 MHz band.

Head of the Canadian Delegation to the WARC for the Mobile Radio Services, now meeting in Geneva, is John Gilbert VE3CXL. He is well known for his work in Amateur Radio contests and DX, when he is most often heard using CW.

TABLE 1

	Pacific	Central	Ontario	Quebec	Atlantic
Commercial	48055	56882	36630	27964	12873
Amateur	4172	3732	9062	4159	2535

TABLE 2

	Vancouver	Winnipeg	Toronto	Montreal	Halifax
Commercial	9185	10730	12268	11462	3000
Amateur	*	*	*	*	*

# Northern Alberta Hamfest

BY MOE LYNN VE6BLY

This year the Northern Alberta Radio Club held their hamfest at a High School in the small town of Namao, about 15 miles north of Edmonton, and easily accessible off Highway 28.

Their program was well organized and laid out except for some displays and demonstrations that were not too easy for those in wheelchairs or otherwise handicapped to reach. More than enough activities were available for the ladies who had their workshop, handcraft displays and luncheon in the nearby community hall. Rave reviews were the order of the day when talking to anyone about anything the ladies had to show. There was probably the best of any homebrew items outside of the Basic Electronics Principles demo put on by Bob Moore VE6RM and the Radio Museum display by Roy Usher VE6EA.

All outdoor activities were duly completed as the weather on both days was most co-operative and not too hot or cold. RV parking was on the school grounds and overflow parking arranged when needed, not too far away. Total in attendance both days would amount to about 500 including children. The club reported a profit of about \$250, albeit unintended as they had allotted a typical \$1000 grant

and promises to pick up any red ink.

Commercial concerns were not to be outdone and had their equipment on display, although not the latest models. All were satisfied with sales. Other demonstrations were invariably based on commercially manufactured equipment but seemed to satisfy visitors as well as hams looking for 'how the Amateur Radio Service operates', or trying to pick up new ideas. Not to mention those looking for bargains amongst the flea-

market tables spread around the school gymnasium.

The DOC demonstrated their van load of electronic gadgets while parked outside the main entrance. Actually the van was not too far from the hamburger and soft drink stands where homemade buns were the main feature. You had to be awfully fat to get in on the homemade cinnamon rolls that came out on occasion, sponsored by the Namao Women's Auxiliary.



Above: Bob VE6RM adjusts his models, one of which was an aluminum disc revolving above a coil connected to AC or DC voltage source.



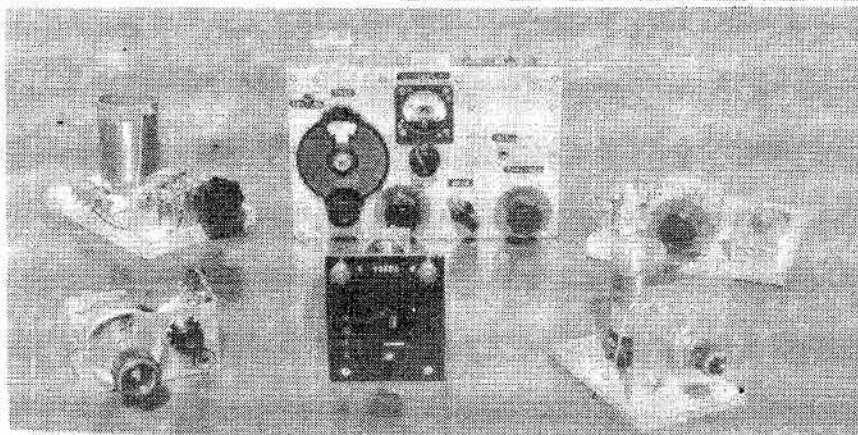
Right: Roy Usher VE6EA guarding post of his display.

## HOW MANY AMATEURS?

The FCC reports that there are 413,127 radio Amateurs in the United States. They break down into: Extra Class, 38,168; Advanced, 97,864; General, 117,268; Technician, 83,361; Novice, 76,466. Among new Amateurs is Rob Klaus, a third-grade student in Indiana, who has passed the Novice test, and is awaiting his call. Rob is eight years old. But, Rob is one of the few youngsters in our hobby. The FCC also reports our ages:

Class	Average Age (Years)
Novice	38.5
Technician	45.1
<b>AVERAGE</b>	<b>46.08</b>
Extra	47.3
General	50.0
Advanced	51.8

Where have all of the young Amateurs gone? Roy VE7TG



Front row, left to right: transistorized BCL set using 2N107; crystal BCL set using 1N34; crystal SW RX for 40m using planetary drive. Back: dual stage crystal set; 1946 replica TX/RX superhet; crystal BCL set with large coil for more volume.

**CENTURY 21**  
COMMUNICATIONS INC.

# TALK IS CHEAP!

*We put our promises  
in writing for you...*

## Lowest Price Guaranteed!

It is our policy to provide the very best value for your purchase dollar. You will **never** pay more at Century 21 Communications! If within 30 days of your purchase anyone else in Canada advertises for sale the same equipment under similar conditions of sale at a lower price, we will cheerfully refund the difference in full, with proof of lower price. Guaranteed **lowest** price at Century 21 Communications!

## Customer Satisfaction Guaranteed!

Century 21 Communications intends to be Canada's largest independent supplier of amateur and commercial communications equipment. It is the aim of every employee to ensure that you are completely satisfied with your purchase. If you have any problems or questions please inform us and we will be glad to assist you in any way possible.

## Service You Can Count On!

Century 21 Communications has an on-premises service facility for service of amateur, commercial, cellular and marine communications equipment. We are an authorized dealer and service centre for most major lines. We also have drive-in installation bays for in-vehicle installations. We service what we sell! And we do it well!

## "No-Hassle" Extended Warranty!

We believe in the quality and reliability of the equipment we sell. We provide a no-cost extended warranty on all amateur equipment which covers needed repairs long after the manufacturer's warranty expires. And if your equipment legitimately needs service more than three times under warranty we will gladly replace it with a new piece of equipment, free of charge! You can buy with confidence at Century 21 Communications!

## Before You Pick Your Rig— Pick Our Brains!

We are all radio amateurs — some with 20 years of experience. All of us keep up with the latest technology and we enjoy talking about it! So, whether you are an experienced amateur, or just a beginner, you'll find that we will be happy to take the time to explain anything you want to know. **AND**, since we carry **ALL** major lines of amateur radio equipment you will get an unbiased opinion! Pick our brains before you pick your rig!

## Free Delivery!

In keeping with our policy of offering the very best values to hams across Canada we will deliver your purchase of any transceiver, anywhere in Canada, free of charge! (Some remote destinations excepted).

## Why Settle For Less?

Authorized Dealers for

**KENWOOD** **YAESU**  **ICOM**

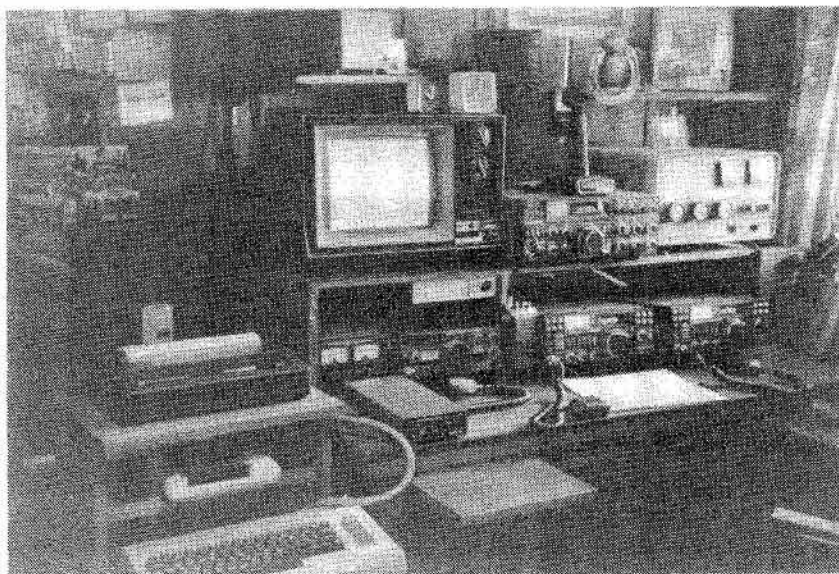
PLEASE SEND  
68¢ IN STAMPS  
FOR CURRENT  
FLYERS

**CENTURY 21**  
COMMUNICATIONS INC.

STORE HOURS:  
Tuesday-Friday  
10 a.m.-6 p.m.  
Saturdays  
10 a.m.-2 p.m.  
Closed Sunday  
and Monday

4610 Dufferin Street, Unit 20-B, Downsview, Ontario, M3H 5S4 • Telephone: (416) 736-0717  
(Just north of Finch Avenue. Take the Allen Expressway from Hwy. 401)





## Shack of the Month

Congratulations to Henry Traue VE7BL (ex VE7BYP) for his entry to our SHACK OF THE MONTH contest.

Henry writes: "The little beige box beneath the TV is a switching arrangement for the Packrat 64 (designed by VE7ESO). I am able to switch from HF to VHF and UHF; also for the different up and down modes when working satellites. Enclosed in the box are also circulatory switches for the satellite antennas.

We're sure there is an appropriate location in VE7BL for a CARF hat. It's on the way... Editor.

## News from Thailand

BY ROY VE7TG

The *Bangkok Post* has another fine full-page article on Amateur radio, in the March 29 issue. It is by Tony Waltham, an editor, who is also HS1AMH, an active member of the Radio Amateur Society of Thailand—RAST.

The article, complete with several pictures, tells a lot about the hobby of Amateur radio, and it outlines its history in that country, its current status and possible future.

Thai Amateurs operated in past years by joining RAST, which regulated activity and assigned calls. This loose arrangement ended when four Americans were caught in Thailand with two-way equipment. They were employed by the government agency but were not Amateurs. The Vietnam war has left its legacy on the Thai borders.

RAST has been meeting with the Post and Telegraphs, and with the National Security Council to get back on the air, Tony says in the newspaper article. In January 1986, the NSC assigned to the PTD full authority to draw up legislation to administer and control our hobby. Roy Parrett VE7TG, who has visited the club several times, forwarded copies of Canadian regulations and the DOC examinations as a possible guide.

### NEW CARF NUMBER!

CARF has installed a new phone system to serve you better! Note the new number, effective immediately: 613-545-9100.

This year RAST was authorized to operate 'special event' stations during contests, and at the Science Museum's 12-day exhibition last spring, using HSOHS. The station was also on the air for National Communications Day in August.

Although Thailand is listed as a 'banned country', RAST has never notified ITU that it has banned communication with that country, the club officials insist.

The club has 600 members, mostly

Thais, but with a sprinkling of Canadians, like Dave Segal of Toronto, HS1AMM, and a number of Europeans. Several religious organizations from the United States have Amateur stations that have been active in the past, and are only awaiting the go-ahead to operate again.

HSOB and HSOHS usually check into SEANET, 14,320 kHz, around 1200Z, especially on weekends, if you are looking for HS contacts.

## Silent Key-VE3CJJ

Napanee, Ontario, Oct. 12, 1987. A lovely cool sunny Fall day but unfortunately a very sad one for the family and multitude of friends and Amateurs who gathered at the funeral of Gordon Offord VE3CJJ (Canada's Jesse James). A well-known voice on the Amateur Bands, Gordie died on Monday, Oct. 12 of pneumonia following cancer surgery. He was 73—born in Trenton, Ontario, Sept. 13, 1914.

He lost his sight partially when he was nine and completely at 12, both due to accidents. He worked as a cabinet maker for Gibbard's Furniture Co., Napanee and later in his own workshop/ham shack for the Canadian National Institute for the Blind (CNIB).

Licensed in 1957 and an active member of the Kingston Amateur Radio Club, Gord was always ready to help at field days, club meetings and tower-raising parties where he loved



to climb to the top to "see what was going on".

His pleasant manner and cheerful voice made Napanee 'The Hub of the Nation', known across the airways to many thousands who, I am sure, will miss him very much.

To his wife, Marion, his daughters and his sons our deepest sympathy.

Goodbye Gord, you were a fine gentleman. VE3NB

(Marion Offord lives at: 30 Ann Street, Napanee, Ont. K8R 2L5 —Editor.)

# VE2KM— New Assistant Director

The telephone rings and, as always, is answered by my 13 year old daughter Christina. She gives me a surprised look— "Dad, it's for you!" The expression changes to a baleful one; how dare anybody not be calling her. How is it possible in 1987 that there are still some adults who don't know that from 16:00 to 21:30 the telephone is the exclusive communication lifeline of the resident teenager? I promise to be quick.

It's Mike VE2AM. He's following up on a couple of conversations regarding my becoming an assistant Director and asks that I prepare a pen sketch for *The Canadian Amateur*.

After hours of headscratching, soul searching, and otherwise examining the depths of my subconscious, I call back (after you-know-who has gone to bed— phew!) and admit that I couldn't sketch a pen, even if my life depended on it. I had thought of tracing an outline from a magazine ad but couldn't bring myself to be that dishonest. Mike's reply is unprintable, mainly because, like most latin types he used more hand signals than words. (You should SEE him in action on 20M.) At the end of the conversation, however, I was fully cognizant of what was required. He should have said curriculum vitae in the first place, it's the only latin I remember. Here goes.

I received my first ham licence in 1968 and was allocated callsign G3YAQ. Although this was a class A licence with full privileges, I chose to operate CW only. This was a very easy decision to make because, being a lowly apprentice, I couldn't afford any rice box equipment. I bought war surplus 'junk' and had an enormous amount of fun repairing, rebuilding, modifying, tweaking, redesigning, adjusting, and just plain tinkering with this gear. Little did I know that this was to be of great benefit to me later in my professional career. Before anybody puts pen to paper to apply for the job, I should explain that it's the knowledge and experience gained that was useful. I have not managed to make a career out of tinkering with government surplus equipment. On the contrary, I have been involved in designing and developing electronic systems which will become the government surplus equipment of the future. On reflection, maybe I have made a career out of 'tinkering'.

Like many hams, I had a period of



low activity due to work and family commitments. The former kept me extremely mobile commuting from Northern England to Southern England and Europe (all foreign parts as far as any northerner is concerned) and the latter kept me busier than normal due to the small amount of time spent at home.

My lust for key bashing during this period was satisfied by serving as a 'sparker' in the Royal Naval Reserve— a very valuable experience, culminating in the rank of Petty Officer and having seen the inside of many seedy establishments, some of them military! Whenever I hear somebody say that the copy is a little rough I remember the times I had to copy the full weather forecast for all areas around the UK on CW with a bucket between my knees. Anybody who had been inside a Ton class mine-sweeper wireless office will understand.

Despite all of the above, Canada let me in! Shortly after arriving I received an Advanced licence and was allocated callsign VE2FUP. By now, of course, my financial circumstances had changed, mostly because Canada let me in! I could now afford some rice box equipment. Old habits die hard though. I bought a 'pre-owned' FT101E and a 4-band trapped vertical. Both performed magnificently but I still tinkered with the rig.

In the space of a small number of years a few changes occurred in the shack and outside. A tower grew and a three element triband yagi flowered on the top. A newer but still 'pre-

owned' FT102 occasionally surfaces from the sea of junk in the shack. An FT77 rarely finds its way into my car and also serves as a portable station (sometimes /W6).

Another callsign was allocated, VE2KM— also 'pre-owned'. I am the licence holder for VE2CGG (Canadian Girl Guides).

I have organized a few Search and Rescue exercises for the Scouts and (separately) for the Girl Guides using 2M HT's and 'volunteer' operators. I have helped operate part of the comms network for the Canadian Ski marathon and have been a net controller on local 2M nets. I have taught ham radio classes, joined the Boy Scouts, was treasurer for the local Girl Guides and have stopped having children.

I enjoy occasional contesting and have taken part in the CARF contests, operating with callsign VE2VCA in the last three. In fact, I had to interrupt a work-related jaunt to W6 land to return to Montreal for the weekend to be able to take part in the last one. I told the boss I had a pre-arranged, fixed, urgent personal commitment. He agreed, despite the extra costs. He assumed it had something to do with increasing the size of the family. I didn't disillusion him. I really enjoy these contests and will continue to operate VE2VCA as long as allowed by the All Mighty (VE2AM, that is).

Well I probably failed miserably at pen sketching. It's too long, too detailed, too verbose and lots of other things. However, I had fun writing it. That's why I'm a ham—for the fun of it.

# 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 VE0 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

**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:  
Norm Waltho VE6VW, Box 1890, Morinville, Alberta T0G 1P0



# 1988 CALLBOOKS



The North American Callbook lists the calls, names, and address information for 478,000 licensed radio amateurs in all countries of North America, from Canada to Panama including Greenland, Bermuda, and the Caribbean Islands plus Hawaii and the U.S. possessions.

The International Callbook lists 481,000 licensed radio amateurs in countries outside North America. Its coverage includes South America, Europe, Africa, Asia, and the Pacific area (exclusive of Hawaii and the U.S. possessions).

1988 North American Callbook—\$35  
International Callbook—\$38  
PACKAGE DEAL - BOTH Callbooks—\$70  
Map Library & Atlas—\$19  
ARRL New Operating Manual—\$20  
Antenna Book—\$12  
Antenna Compendium—\$16  
HF Antennas for any Location—\$19  
Yagi Antenna Design—\$20  
87/88 Repeater Directory—\$6  
Log Book—\$3.25  
Tune in the World+2 CW Tapes—\$20  
Heil Amateur Radio Handbook—\$13.95  
Get Connected to Packet—\$15  
ARRL Code Tape Kit - 2 Tapes—\$15  
Zbarsky CRRL Study Guide—\$20  
CRRL Regulations Questions—\$10  
CRRL Amateur Question Bank—\$10  
CRRL Advanced Question Bank—\$10  
Passport to Worldband Radio—\$19  
WRTH World Radio TV Handbook—\$88  
Haruteq Ontario Scanner Book—\$15  
Haruteq Quebec Scanner Book—\$15

INSURED SHIPPING & Handling  
\$.50 for any Number of Books.

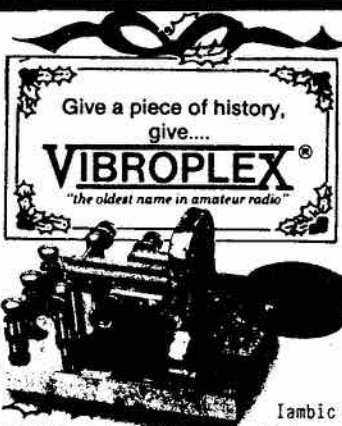
## THE 1988 ARRL HANDBOOK

FOR THE RADIO AMATEUR



HARDCOVER ONLY  
NEW EDITION \$29.00

The 1988 ARRL Handbook For The Radio Amateur carries on the tradition of the previous editions by presenting 1200 pages of comprehensive information for the radio amateur, engineer, technician and student.



Give a piece of history, give....  
**VIBROPLEX**  
"the oldest name in amateur radio"

ORDER NOW !!  
PRICE INCREASE Jan 1st.

Hear what experienced operators say about Vibroplex

Barney E. Severns WB6QGG  
"... It's a pleasure to find a few 'old-time' companies still doing business in the old manner. 73's..."

Richard M McGarry W4CXH  
"After more than 40 years of dealing with Vibroplex, I would like to thank you for the many courtesies extended to me. I think you are exemplary of the old-time American companies that provide service..."

Iambic Standard \$99 Deluxe \$125

Now that you have their word on it, take our word. Vibroplex guarantees satisfaction. Order your key today. Also available: carrying cases and other key gifts.

## MFJ's best selling TUNER



The MFJ-941D is MFJ's best selling (and probably the world's best selling) 300 W PEP antenna tuner. Why? Because it has more features than tuners costing much more and matches everything from 1.8 to 30 MHz for your solid state or tube rig: dipoles, inverted vees, random wires, verticals, mobile whips, beams, balanced and coax lines. New dual-range SWR wattmeter reads forward and reflected power in both 30 and 300 watt ranges. Convenient front-panel mounted 6-position antenna switch lets you select 2 coax lines, direct or through tuner, random wire/balanced line or tuner bypass for dummy load. New, larger, more efficient airwound inductor gives lower losses and more watts out. Plus... built-in 4:1 balun for balanced lines. 1000 V capacitor spacing, brushed aluminum front panel on all-metal cabinet. 11x3x7 inches.

## HI-Q BALUN

- For dipoles, yagis, inverted vees and doublets
- Replaces center insulator
- Puts power in antenna
- Broadbanded 3-40 MHz.
- Small, lightweight and weatherproof
- 1:1 Impedance ratio
- For full legal power and more
- Helps eliminate TVI
- With SO 238 connector
- Built-in DC ground helps protect against lightning



Only \$25

## PAKRATT™ Model PK-64



\$369  
HF-Modem \$169  
\$539  
PAKRATT™ Model PK-232 with Weather-FAX  
AEA'S FINEST

... Now Available — Especially For You.



MFJ 989B  
• 3kw Roller Inductor Antenna Tuner  
• SWR/Wattmeter  
• Antenna Switch  
• Built-in 300w, 50 ohm Dummy Load  
• Matches, Coax, Balanced Lines, Random Wires, 1.8 to 30 MHz

## We Make CW Fun Again

Black \$109  
Chrome \$129



- Gold Plated Solid Silver Contact Points
- Non-Skid Feet
- Stainless Steel Adjustable Spring for Different Fists
- Nylon & Stainless Self Adjusting Needle Bearings
- Stainless Fasteners
- Large Clear Plastic Handles

## Alpha Delta Model DELTA-4

Lightning Surge Protected 4-Position RF Coax Switch

- Exclusive center "off" (ground) position.
- Uses ceramic Arc-Plug™ protector.
- Micro-strip circuitry—no wafer switch.

Model DELTA-4 \$119  
(UHF Connectors)



PARAGON \$2799  
• Full Featured Synthesized HF Transceiver  
• General Coverage Receiver  
• 100w Output  
• SSB, CW, FSK, Optional FM  
• 62 Programmable Memories  
• Made In USA

# SPECIAL PULL-OUT CATALOG

Pull out your Personal copy of the ALINCO E CATALOG.

ATLANTIC HAM RADIO LTD. has Super Specials on ALINCO PRODUCTS til D

ALR-22T Reg.\$585 Special  
ALR-22HT-----\$670-----  
ALR-72T-----\$600-----  
ALD-24T-----\$900-----  
ALX-2T-----\$380-----  
ALR-206T-----\$540-----  
ALM-203T-----\$460-----  
ELH-230D-----\$155-----  
ELH-230G-----\$130-----  
ELH-260D-----\$225-----  
EP-2030-----\$230-----  
EP-3030-----\$280-----  
EPS-110M-----\$160-----

Remember these Special Prices expire Dec 31, 87.  
CALL US NOW !!

## R-X NOISE BRIDGE

\$109



• Learn the truth about your antenna

The Palomar R-X Noise Bridge tells you your antenna is resonant or not and not, whether it is too long or too short gives resistance and reactance read dipoles, inverted Vees, quads, multiband trap dipoles and verticals to 100 MHz.

## Merry Christmas

ATLANTIC HAM RADIO LTD.

Tues.-Fri. 10 a.m.-6 p.m.  
Saturdays 10 a.m.-2 p.m.  
After 7 p.m. Call (416) 222-2506  
For Orders.

378 WILSON  
DOWNSVIEW,  
CANADA M3H  
(416) 636-3636

# Yaesu's FT-736R.

NEW VHF/UHF Base Station with 2M and 430-450MHz  
OPTIONAL 220MHz 1.2GHz or 6M. Crossband Full Duplex,  
100 Memories, 25W, IF shift, IF notch, Filters.



Linear Amplifiers FM, CW, SSB

- LA-2035R 2M 5W in 30W out Preamp-----\$109.95
- LA-2060 2M 3W in 50W out-----\$179.95
- LA-2065R 2M 10W in 50W out Preamp-----\$199.95
- LA-2155E 2M 10-100 or 25-150W Preamp-----\$349.95
- LA-2155H 2M 1½W or 25W-150W Preamp-----\$399.95

CAVITY COAXIAL SWITCHES

- CS-201 2 position SO-239 Conn-----\$ 29.95
- CS-201G 2 position N Conn-----\$ 39.95
- CS-401 4 position SO-239 Conn-----\$ 99.95

CROSS NEEDLE POWER/SWR METERS

No need to forward set these meters on SWR

- CN-410M 3.5-150MHz 15/150W lighted-----\$ 99.95
- NS-660A 1.8-150MHz 30/300/3kW-----\$179.95
- NS-663A 140-525MHz 3/30/300W-----\$199.95
- NS-663AM as 663A with N Connectors-----\$209.95
- CN-650N 1.2-2.5GHz with N 2/20W-----\$239.95

- AF-606K Active Audio Filter-----\$189.95
- DK-210 Keyer with LED Speed Meter-----\$129.95
- CNW-419 Antenna Tuner 200W X-Meter-----\$329.95
- CNW-518 Antenna Tuner 1kW X-Meter-----\$499.95
- RX-110G 2M GaAs FET Preamp RF Switch-----\$ 99.95

- MR-750E Antenna Rotor with one Motor-----\$449.95
- MR-750PE above with Preset control-----\$499.95
- MR-750U Additional Motors MAX 4-----\$139.95

1 Motor = Ham IV, 2 Motors = I2X, ++

## ICOM VHF/UHF CLOSEOUTS



Features - all Models: Multi-mode (FM/SSB/CW) Base Station • 32 full function memories with lithium battery back-up • 32 built-in subaudible tones • PLL locked to 10 Hz • Two-color luminescent display • Scanning • Dual VFOs • Optional switchable receive preamplifier • 12V DC or 117V AC with optional AC supply • 11¼" x 4¾" x 10¾" d

- IC-271A 25 Watt 143.8-148.2MHz List \$1229 CLOSEOUT \$ 999
- IC-471A 25 Watt 430.0-450.0MHz List \$1429 CLOSEOUT \$1099
- IC-471H 75 Watt 430.0-450.0MHz List \$1769 CLOSEOUT \$1399

OPTIONAL AG-20 GaAsFET Preamp for 271A LIST \$99-----\$50  
OPTIONAL AG-35 GaAsFET Mast Preamp for 471H LIST \$149-\$75  
ONLY WHEN PURCHASED WITH 271A or 471H at above special...

- PS-35 \$269; PS-25 \$159; EX-310 \$65; HM-14 \$79; SM-6 \$59
- SM-8 \$119; SM-10 \$189; AG-25 \$149; AG-1 \$155; \*\*OPTIONS\*\*



## YAESU ICOM

**FT 237R**  
Mini HTs for 2m / 440 MHz  
\$349

**FT 727R**  
2m/440 MHz Dual Band HT  
\$689

**FT 767GX**  
All Mode Transceiver with CAT System  
\$2599

**FT 757GX Mark II**  
HF Transceiver with General Coverage Receiver  
\$1529

**FRG 9600**  
Scanning Receiver or 60-905 MHz FM/AM/SSB  
\$699

**IC 751A**  
HF Transceiver with General Coverage Receiver  
\$2099

**IC 3200**  
2m/440 MHz Mobile  
\$789

**IC 275A**  
All-mode Transceiver  
\$1569

**R 7000**  
General Coverage Receiver  
\$1499

**Micro 2AT**  
Mini 2m Handheld  
\$399

**IC 02AT/03AT/04AT**  
Handheld for 2m/220/440  
\$499

### FOR YOUR INFORMATION!

During the last two weeks of October the value of the Japanese Yen has risen 10%. Price increases are inevitable. Buy Now!

\$2599

**With AutoDial Mike**  
**YAESU**  
**FT-211RH/FT-711RH**  
45W/2MTR 35W/440 MHz

\$589

**FT-767**

- HF/VHF/UHF Base Station
- Plug-in Modules for 6m, 2m, 440 MHz
- Loaded with Features

**ICOM**  
**IC-761**

- Top-Of-The-Line High Performance HF Transceiver
- Built-In Power Supply
- Built-In Automatic Antenna Tuner
- SSB, CW, FM, AM, RTTY
- 160-10m General Coverage Receiver

Insured Shipping & Handling -- Please add 2% (\$5.00 Minimum) to all orders  
Some heavy or long items are subject to freight collect. ONTARIO RESIDENTS  
ADD 7% SALES TAX AFTER ADDING SHIPPING. All prices are subject to change  
without notice. Please send 2 first class stamps for catalogue and info  
requests. Special prices are based on cash or cheque with order. Credit  
Card orders add 2% to discount prices only.

## ATLANTIC HAM RADIO LTD.

Tues.-Fri. 10 a.m.-6 p.m. 378 WILSON AVE.  
Saturdays 10 a.m.-2 p.m. DOWNSVIEW, ONT.  
After 7 p.m. Call (416) 222-2506 CANADA M3H 1S9  
For Orders. (416) 636-3636

# CANADA CONTEST

0000Z to 2400 Z  
CANADA DAY CONTEST  
1 July every year.

YEAR

0000Z to 2400 Z  
CANADA WINTER CONTEST  
Last Sunday in December every year.

CALL \_\_\_\_\_ TRANSMITTER \_\_\_\_\_

NAME \_\_\_\_\_ ANTENNAS \_\_\_\_\_

ADDRESS \_\_\_\_\_ OPERATORS \_\_\_\_\_

\_\_\_\_\_

## SINGLE OPERATOR

☐  
☐  
☐  
☐

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

OTHER QSO's

BONUS QSO's

TOTAL QSO POINTS

MULTIPLIERS

TOTAL SCORE = QSO Points X Multiplier

X 10

X 4

X 20

PTS.

PTS.

PTS.

PTS.

See Chart

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.



## YLS & XYLs with CARF and TCA

As you know, there are many people involved in the operation of CARF and *The Canadian Amateur*.

I'd like to introduce you to the females involved. Having been taught to always go to the top or head first, we will start with Debbie Norman at CARF headquarters. Her background is quite impressive. Debbie has been in the management level in business for the past 10 years, eight years in Tourism and two years in CARF as office manager.

She enjoys music, cooking, crafts and travel. This fall she takes on a new job—that of Girl Guide leader. Seems she was recruited by Lorna Hill VE3IWH. Don't forget GOTA thinking weekend Debbie! More on that later.

Debbie enjoys working with people and would like to extend an invitation to you to visit the Kingston office. I asked her if she had any thoughts about getting her licence. Her answer was: "Will I ever become a ham? Who knows? I'm learning by osmosis!"

Jean Evans VE3DGG: VE3 Darn Good Girl they call her. When you see or hear Jean or her call you immediately think QSL bureau. She hasn't been involved as long Brit Fader VE1FQ, but who knows what lies ahead? Jean became licensed in 1961. She became involved in helping the blind become Amateurs. Also started a course for disabled at the Sunnybrook Hospital. In 1967 she started helping with the QSL bureau. She became Ham of the Year in 1972.

Susan Harvey VO1OI became a ham in 1978. OM Stuart is VO1OO. They have three children. She & OM are assistant Regional Directors. Susan is Vice President of CLARA. She is involved with Guides and has been quite active scheduling the East Coast for CLARA—Guides On The Air.

Jeannine Coté VE1BWP comes from a family of nine children. All born and raised in Edmonston, New Brunswick. OM Roger VE1BWQ is from a family of five children, but they are the only hams. They studied together. Jeannine, because of her involvement with music, found morse code easy to learn. In June 1979 she passed her first exam. Sept. 1, 1979 she said, "I can go on the air." I sat there listening for a couple of days before I had nerve to answer a CQ. Her first contact kept her on the air long enough for the rag chewing award. Her second was a YL. 1980 at the Maritime Convention she

won a trophy for being a first year ham with the most contacts. Being content with CW, there was no urgency to get her advanced, but now has it. 1983 she tried her first contest and now another interest within the hobby. She's been very active with Guides On the Air. She and Roger have been involved with emergency exercises and field days. She has over 260 countries confirmed, dozens of certificates. Even won the CLARA Cup and placed first in the 1984 Canada Day Contest. She checks with several nets including CLARA 20 & 40, Sparkettes 80, YL system and Maritime net. She read the CARF news bulletin and is assistant regional director.

Ollie Schijns VE3LXO became licensed in 1979. Her OM is Ferd VE3CPB. She is General Manager-Treasurer. Ollie and Ferd have been most active with GOTA since Ollie is a brownie leader.

Nancy Bradley VE2GFN is still a mystery to me, but know she's

involved with the design and Toni VE1AAV we had hoped to meet at '87 Celebration but have only corresponded. She is also assistant regional director. She has recently become a member of CLARA. Hope to hear more from these last two.

Me, you've heard and read and seen enough of. I'd like to say thanks to all the YLS that give of their time to support the interests of our hobby.

### CLARA—GOTA

Feb. 13-14, 1988 Thinking Weekend. This weekend was chosen so as not to interfere with other guide activities. More on this later.

The Chief Comm. 66 Canada attended the Clara '87 Celebration. The 66 are new holders of the call VE3GGC, Girl Guides Canada, with Cathy VE3GOH as sponsor.

Start planning your GOTA skeds now. Any questions contact Cathy Hrischenko VE3GJH new address is 2 Dalmeny Rd., Thornhill, Ont. L3T 1L9, Phone 416-764-6962



Clockwise from top left: Debbie Norman, Ollie Schijns VE3LXO; Jeannine Coté VE1BWP; Lorna Hill VE3IHW and Jean VE3DGG.

## ARRL AWARD TO FATHER MORAN

Last year the ARRL established an annual Humanitarian Award to recognize those licensed radio Amateurs, or groups of Amateurs, worldwide who by the use of their skills in Amateur Radio have provided extraordinary service for the benefit of others. This year's award goes to Father Marshall Moran 9M1MM. As most DXers know, Father Moran has lived in Nepal since 1950 where he founded St. Xavier Mission, a school and health facility for Nepalese children. Apparently this was the first Amateur licence granted in Nepal. Over the years he has been very active on the HF bands ensuring that 9N stays off the most wanted countries list.

I was particularly pleased to read of this well-earned award as I finally managed to work the good father in early October. I found his CW signal on 14,022 MHz at 1712 UTC. He was quite weak and had only been spotted by half a dozen other stations when I gave him a call and exchanged reports. I am sure all readers of *The Canadian Amateur* will join me in sending congratulations to Father Moran for receiving the ARRL's award this year. Long may he continue with his good works for the children of Nepal and long may his signal gladden the hearts of DXers worldwide!

## MOST WANTED COUNTRIES

Chod Harris VP2ML, who is editor of *The DX Bulletin*, has just published his annual survey of the most wanted countries on the DXCC list. Not too many surprises here, the current list looks like this:

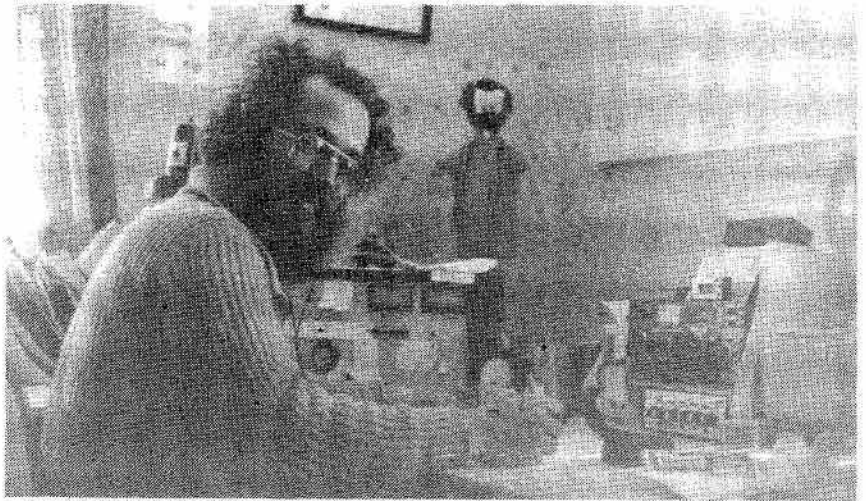
ZA Albania	YA Afghanistan
XY Burma	4W North Yemen
3Y Bouvet	XW Laos
70 South Yemen	S2 Bangladesh
XV Vietnam	1S Spratly

Interestingly enough, 39% of those who responded still needed Peter 1st Island even after this year's very successful DXpedition which made 15,841 contacts. The full survey results cover over three pages and are available from Chod at P.O. Box 50, Fulton, CA 95439-0050.

## COOPER'S BEEFS

While searching for items for this section I stumbled on this little gem which keeps turning up in the various DX newsheets. It covers no fewer than seven beefs that most of us have had to suffer through in the past.

I found it in the *NCDXer* and they credit *The DX News Sheet* via W6ISQ.



Kent Chown VE2LJ in his shack. Kent is very active, mostly on CW, handing out Zone 2 contacts from his Harrington Harbour QTH on Quebec's north shore.



The VE2LJ QTH and antenna farm. Kent uses a tri-bander for 10, 15 and 20 and wire antenna for the lower bands. Photos: Dave VE2ZP.

## "VOLUNTEERS PLEASE FOR W4BAA DXPEDITION

"Our radio club is planning a DXpedition to one of the 'Most Wanted' countries on the DXCC list. In order to be certain that this operation corresponds with current practices surrounding rare operations these days, we require the aid of accomplished volunteers in the following areas:

"1. TUNER-UPPERS. Three from each call area who can work split shifts to be certain someone is tuning up on our frequency at all times.

"2. RESEARCHERS. To come on frequency to ask such germane questions as 'What is his call?', 'Where

is he listening?', 'QSL info?' and 'When are you going to work 160?'.

"3. DYSPEPTICS. To make rude noises on frequency.

"4. RESTLESS HAMS who will demand that we work the 6s or 7s or whoever we aren't hearing at that moment.

"5. PATRIOTS who will come on frequency and demand: 'Work the Americans!' to endear us to hams all over the world.

"5. HEARING IMPAIRED. We need several in each call area to call when other areas are specified. For example if we ask for 9s, all districts call but the 9th. (This requires considerable



restraint and the job will be given only to the most talented.)

**"A DEMONSTRATION SUPER STATION.** To break the pile-up at least once a day with his lazer-like signal and carry on essentially as follows: 'Good morning, Gopal/Rasheed. This is your friend Bill/Ted in New York/Ohio. I haven't heard Bharathi/Mohamed since Wednesday and hope he/she is well... etc.'. This is intended, of course, to impress all waiting on frequency but it gives us time to refill the generator.

"Here's your chance to make a real contribution to DX. Please don't let us down. Submit call and references. Lucky winners will be announced prior to our departure."

Each month I read a number of news sheets and magazines preparatory to writing the column. The items I find from all over help to make 'CQ DX' a part of *The Canadian Amateur* that some people seem to like to read anyway. What I'm leading up to is that one of the lesser known magazines, at least in Canada, that I read each month comes from the U.K. on a swap with *The Canadian Amateur*. I'm referring to *Practical Wireless*, *The Radio Magazine* and particularly to Paul Essery G3KFE's column 'On the air on the HF Bands'.

Paul's column used to be in the *Short Wave Magazine* which some readers may remember. It is built around the reports of a number of faithful correspondents who send in extracts from their logs every month, to help Paul get a picture of activity on all the HF bands. A recent development in his column is a section headed 'Clot of the Month'. Paul reminds his readers that all entries in the section go in the hat for the 'Clown of the Year Award'! (Needless to say modesty forbids that I should speculate on where he might have got the idea for this section!)

The September column draws on Paul's own experience recently when he heard a Russian station with a T2 note, complete with parasitics up and down the band every 10 kHz— a really horrible transmission. Apparently our 'Clot of the Month' called him and during the QSO handed out a report of "T9 fb signal OM"! I sympathize with Paul's annoyance at the misplaced generosity of this report. Stations with distortion on their transmissions should be told about it, with no punches pulled. Otherwise how are they to know how bad their transmissions are and how can we expect them to clean up their acts?

Paul's experience reminded me of a South American station I worked early in October. He was operating contest style on CW and had the most appalling Donald Duck chirrup on

his transmission. It sounded as though his oscillator was running from an unregulated power supply and every time the key was depressed the frequency was pulled a kHz or so.

Anyway, I also noted that most of the stations working him handed out standard 599 reports. When I finally got through I sent him a 554, twice so he wouldn't mistake it. I could almost feel his annoyance as he paused before he sent me my report and moved on to the next contact! His call? PJ7A.

#### **BITS AND PIECES**

**XU Kampuchea—** Here's a rare one from Cambodia. XU1SS continues to be active, with a weak but workable signal into North America. Look around 14.165 MHz 1200-1400 UTC often in QSO with YB3CN. (QSLs may be a problem as there are no fewer than three address given for QSLs in the current issue of *QRZ DX*!)

**VK9 Cocos-Keeling Island—** Starting Nov. 25 Hans F6GVD and Victor G3AAG will be QRV from Cocos-Keeling for two weeks, no specific time or frequencies have been given. We understand they will be standing by for the first ten minutes of each hour for QRP stations only and at the half hour for handicapped operators. (Nice idea this, but how it will work out in the chaos of the pile-up remains to be seen!) The calls used will be Hans VK9YH and Victor VK9YV; QSLs to VK0YC or F6GVD.

**YB Indonesia—** If you heard or worked a station with the prefix 8A recently you were lucky enough to have contacted one of three special event stations in Indonesia which

were on the air for 'International Tourism Day.'

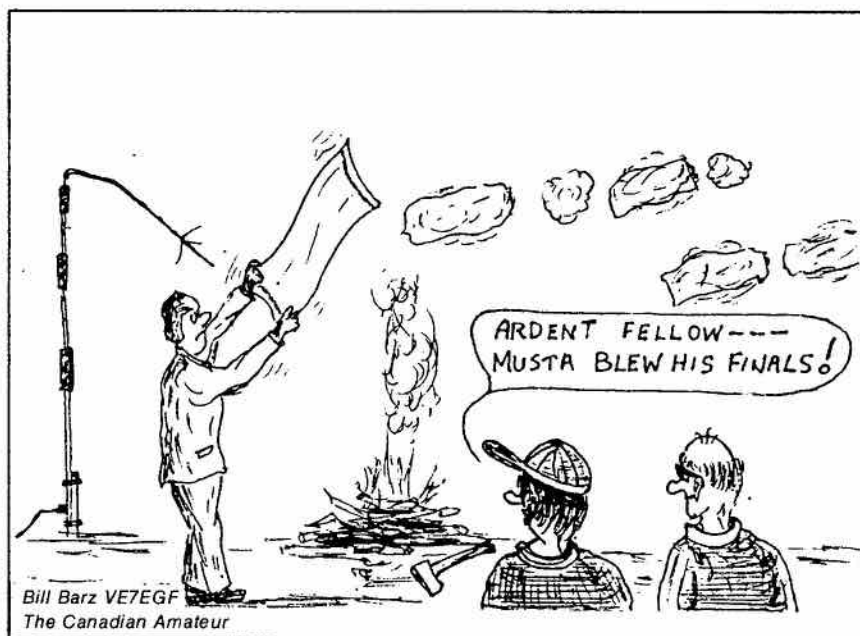
Normal prefixes for Indonesia are in the block YB-YH.

**5X Uganda—** Uganda's sole Amateur radio station, Gerry 5X5GK, has not been on the air lately as he has been on leave. Some local hams worked him when he was driving through Ottawa in October using the call VE7FXX. He mentioned his hope to mount a DXpedition when he arrived in Greece, so perhaps we shall finally hear him put Mount Athos, SV/A, on the air later this month... I shall be listening!

**JD1/7J1 Okino. Tori-Shima—** Long deleted from the DXCC list, this 'Wet Rock' is in the news again. The *DX News Sheet* reports that the Japanese government is preparing to save the island from disappearing beneath the waters of the Pacific as international law requires 'land' to remain above water at all states of the tide. If Okino Tori-Shima (which exists as two large rocks at low tide only) vanishes, it will mean the loss to Japan of 170,000 square miles of fishing rights. The Japanese Ministry of Construction will shortly carry out a survey on how to save the island and work could begin in 1990.

This news begs the question, if the 'wet rock' becomes a true island will it return to the DXCC list? The *DX News Sheet* says not.

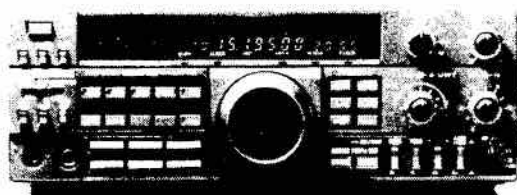
Thanks are due to the following sources for some of the material appearing in this column: *The Northern California DXer*, *The DX Bulletin*, *The DX News Sheet*, W6ISQ, G3KFE, *QRZ DX*, F6GVD, VE3JPP, VE2ZP.





# KENWOOD

FULL LINE AVAILABLE



R-5000 Superb Communications Receiver

## AMERITRON

### HF Linear Amplifiers

Designed and built to give reliable long-life performance. All four models cover 160 through 10 metres.

- AL-84 with 4 6MJ6 tubes - 600 watts PEP output.
- AL-80A with 3-500Z tube - 1000 watts PEP output.
- AL-1200 with 3CX-1200A7 tube - full legal output with 100 watts drive.
- AL-1500 with 8877 tube - full legal output with 65 watts drive.

SPECIFICATIONS ON REQUEST

## Cushcraft

MFJ-941D  
\$179.00

- A3 3el Tri-band ..... \$489.00
- A4 4el Tri-band ..... \$589.00
- A744 40mtr.adapter re A4 ... \$149.00
- R3 14,21,&10mtr. Ringo ..... \$495.00
- AV5 10-80mtr. vertical ..... \$209.00
- FM ANTENNAS
- ARX-2B Ringo 2 mtr. .... \$79.00
- A147-4 4el beam ..... \$59.00
- A147-11 11 el beam ..... \$95.00
- A-147.20T twist ..... \$159.00
- AFM-4D "four pole" ..... \$159.00
- BOOMERS
- 215WB 15 el. 144-148 MHz .. \$179.00
- 32-19 deluxe 16.2DB ..... \$219.00
- AOP-1 Oscar Satellite pack... \$295.00
- 424B 24 el 70 CM ..... \$185.00

## Mosley

- TA-33jr. 10-15-20 M beam ..... \$389.00
- TA-33 10-15-20 M 1 KW ..... \$495.00
- CL-33 Classic Feed Tri-band ..... \$549.00
- MPK-3 Conv. high power TA-33jr . \$159.00
- RV-4C @ RV-8C Vertical ..... \$229.00
- S-402 2el. 40M beam ..... \$639.00

## DELHI

### AND TRYLON HAM TOWERS

#### Bencher

- BY-1 paddle ..... \$94.50
- BY-2 chrome paddle ..... \$109.00
- ZA-1 super 1:1 balun ..... \$37.00



Special on glass Advantux  
2 mtr ant ..... \$65.00

#### MFJ

- MFJ-1274 PACKET UNIT ..... \$295.00
- MFJ-1229 deluxe interface ..... \$285.00
- MFJ-1224 RTTY interface ..... \$169.00
- MFJ-901B Versatuner ..... \$98.50
- MFJ-949C Super deluxe tuner ..... \$259.00
- MFJ-422 Econo c/w Bencher key ... \$219.00
- MFJ-407 Deluxe keyer ..... \$119.00
- MFJ-484C Deluxe Memory Keyer .. \$219.00
- MFJ-962B 1.5 KW Versatuner ..... \$349.00
- MFJ-989 3 KW Tuner ..... \$495.00

### Rotors

CD-45 11 CALL FOR  
HAM IV. LATEST  
T2-X- PRICES



## TELEX hy-gain

- 402BA 2el 40 mtr beam ..... \$639.00
- EX-14 4 el. 20-15-10 mtrs ..... \$678.00
- TH7DXX 7el tri-band beam .. \$1079.00
- TH5DXO 5 el. tri-band beam . \$869.00
- TH3jr. 3el Tri-band ..... \$389.00
- 204BA 4el 20M beam ..... \$589.00
- 205 BAS 5el. 2M beam ..... \$749.00
- DB-10-15 duoband beam ..... \$359.00
- 18AVT/WBS 80-10M vertical . \$229.00
- 2BDQ Trap doublet 80&40 ... \$149.00
- 5DBQ Deluxe 10-80 doublet... \$269.00

## YAESU

FULL LINE &  
USED GEAR AVAILABLE



# H.C. MacFarlane Electronics Ltd.

CHECK OUR  
SPECIAL PRICES  
ON USED GEAR

R.R. #2 Battersea, Ont. K0H 1H0, Phone 613-353-2800 VE3BPM  
IN BUSINESS SINCE 1958

Open Monday to Saturday 7:30 a.m. to 9 p.m. Closed Sunday.

YOUR ONE-STOP HAM SHOP

ANTENNA SYSTEMS INSTALLED WITHIN RADIUS 150 KM; EXPERTISE FREELY GIVEN ANYWHERE!

Dealer for Delhi Towers, CDE Rotors, Hy-Gain, Mosley, Cushcraft and Hustler Antennas, MFJ and B&W products.

SPECIFICATIONS AND PRICES  
SUBJECT TO CHANGE

John Connor VE1BHA  
18 Deerfield Dr., Apt. 1112,  
Nepean, Ont. K2G 4L2

# CONTEST SCENE

So, recovered from this year's CQ WW CW Contest yet? Or do car horns still sound like they are sending 59923? And still more importantly, are you going to let your Friendly Contest Editor know how you did, hmmm??

Well, a lot of VEs let CQ know how they did last year, and the results are published in the October issue of CQ. The Canadian results are tabulated below. I guess everybody thought that the great conditions of the phone contest would be repeated in the CW portion. Ha! It's the same thing every year—those phone guys wear out the ionosphere in October! The long suffering CW brigade in Canada didn't manage to set one single record this year.

That's not to say that they didn't try hard, though. The all-band single operator category was a battle between VE3IY and VO1MP, with both finishing over 1 meg. In the end, it was IY who took home the trophy. Just under a million, at 916k, was VE1AI.

In the single band competition, Mr. Ten Metres, VE2AEJ/3, dredged up 88 QSOs in 28 countries. Over on 15, VE3NBE found 116 QSOs in 41 countries for 17k. Anybody for some sunspots?

Things were a little livelier on 20M, where VO1QU came up with 1177 QSOs and 320k. Forty was pretty

Continued on next page

## CQ WW CW CONTEST— CANADIAN RESULTS 1986

CALL	SCORE	QSOS	ZONES	CNTRYS	CATEGORY
VE3IY	1,226,232	1456	113	265	All Band
VO1MP	1,110,525	1256	85	250	
VE1AI	916,175	1121	89	236	
VE3XN	688,101	876	98	249	
VE2AYU	584,835	804	83	224	
VE1ASJ	564,021	900	83	261	
VE3KP	551,134	999	72	167	
VE3ST	207,064	326	73	175	
VO2AC	40,326	301	29	37	
VE3MUV	37,454	115	44	78	
VO1AV	35,508	100	38	94	
VE6APN	30,328	210	26	42	
VE6DZ	25,542	178	33	33	
VE2WA	17,640	120	18	45	
VE7GEA	17,316	95	35	39	
VE1CGV	13,524	93	33	36	
VE3OMU	10,730	85	27	31	
VE5AAD	9,360	150	17	13	
VE2FFE	9,291	70	21	36	
VE3MCL	8,554	71	14	33	
VE3EZU	6,882	104	12	19	
VE7CXN	1,890	49	9	9	
VE1ATH	1,386	24	12	12	
VE2AEJ/3	7,560	88	12	28	10M
VE3NBE	17,346	116	18	41	15M
VO1QU	320,572	1177	27	80	20M
VE3AT	170,280	642	27	83	
VE7CXR	40,426	541	14	20	
VE7AV	2,516	30	15	19	
VE3OZB	128,760	493	34	82	40M
W7DRA/VE7	1,010	50	5	5	80M
VE3PN	12,390	141	12	30	160M
VE7BS	4,607	136	9	8	
VE2LJ	1,168,533	1749	75	205	MS
VO2WL	489,533	1179	64	127	
VE3WAA	243,533	625	65	113	
VE1CIT	162,400	505	50	95	
VE3RFX	26,826	410	10	24	

## ARRL CW CONTEST— CANADIAN RESULTS 1987

CALL	SCORE	QSOS	COUNTRIES	CATEGORY
VO1MP	618,000	1000	206	All Band
VE2AYU	316,872	652	162	
VE3KP	266,742	609	146	
VE1DH	178,416	472	126	
VE7WO	149,583	419	119	
VE3ST	92,412	302	102	
VE3NBE	64,728	232	93	
VE3XN	22,563	109	69	
VO1QST	17,328	76	76	
VE1NH	4,500	60	25	
VE3TEE	1,836	34	18	
VE3INQ	1,596	28	19	160M
VE7BS	684	19	12	
VE3CUI	4,620	55	28	80M
VE3NXQ	23,532	148	53	20M
VE2FFE	3,000	50	20	
VE2AEJ/3	324	12	9	10M
VE3IY	326,340	588	185	MS
VE8RCS	3,960	60	22	

## ARRL PHONE CONTEST— CANADIAN RESULTS 1987

CALL	SCORE	QSOS	COUNTRIES	CATEGORY
VE2AYU	396,990	802	165	All Band
VO1MP	367,233	733	167	
VE1DH	297,270	734	135	
VE3XN	118,170	303	130	
VE3ST	56,160	195	96	
VE4KE	34,569	167	69	
VE7XO	33,390	210	53	
VE4RP	19,557	123	53	
VE3TLJ	462	14	11	
VE1BNN	6,216	56	37	160M
VE3INQ	192	8	8	
VE3CUI	672	16	14	40M
VO1SA	643,560	1730	124	20M
VE1BDK	109,917	531	69	
VE5FX	40,896	213	64	
VO2WL	27,918	198	47	
VE3NXQ	23,532	148	53	
VE3GRA	11,685	95	41	
VE3NBE	8,118	66	41	
VE7FJE	8,568	102	28	15M
VE3HX	162	9	6	10M
VE4CAT	17,700	100	59	MS

## CONTEST (cont'd)

good to VE3OZB who tallied 128k with 82 countries. VE3PN was the top gun on 160M, making 141 QSOs on the way to 12k points.

Multi-single was popular in 1986, with five entries. First place went to the crew at VE2LJ, who ditted and dahed their way to just over a million points.

Well, as if that wasn't enough, we also have the results of the 1987 ARRL DX Contest to take a look at.

On CW, the all-band competition was won by VO1MP with an even 1000 QSOs for 618k. Second place belonged to VE2AYU with 316k.

Single band competition was sparse, with only six entrants. 160M was led by VE3INQ with a score of 1596. On 80, VE3CUI took the honours with 4620 points, while VE3NXQ was top banana on 20M with his 23k score. Ever-reliable VE2AEJ/3 was there on 10 metres with 12 QSOs for 324 points. That makes every year since 1983 that AEJ has been the top place VE on 10 metres, in this contest.

The multi-single winner was VE3IY, running up 588 QSOs for 326k points.

The VEs did quite well in the overall W/VE competition. VE3INQ was the number 10 scorer on 160M. In the

under 150W category, VO1MP was number one and VE1DH number six. You may notice that VO1MP managed to make 1000 QSOs running 150W. Gadi! How do I get transferred to Newfoundland?

Flipping the old mode switch to take a look at the results of the phone action, we find that it was once again a battle between VO1MP and VE2AYU for first place. They traded places, though, with AYU's 7 QSO margin proving the difference.

In the single band action, VE1BNN was high score on 160M, while VE3CUI took the 40M honours.

On 20M Rick VO1SA ran away from the pack with 643k, which was also good for the top W/VE spot.

Things were quiet on the higher bands, where VE7FJE used his 102 QSOs to garner 8,568 points, while VE3HX worked nine people in six countries on 10 to score 162 points.

Multi-single saw only one entry, VE4CAT with 17,700 points.

Whew! There should be enough in all that to keep all the statisticians in the audience busy for weeks. If you aren't fascinated by numbers, though, it could well be a perfect cure for insomnia. Therefore, I will refrain from using the other set of numbers that are sitting here, and give you something to look forward to next month. It really is hard not to use them, though, the little fellas are sitting here on the paper looking up at me with moist, pleading eyes, and hurt looks on their little cherubic faces.

Well, the Christmas season is upon us, and so I thought maybe if I put my gift list in print that Santa wouldn't be able to ignore it this year. Or my faithful reader (readers?) would be moved to send me a present. On second thought, forget that. I'd have to soak all my packages first, and knowing my luck, I'd soak the package of QSLs with my BY card in it. I'll just rely on Santa.

So, what I would really like is some sunspots. I would also like a better fist, and a 40 metre beam. What do you mean it wouldn't fit under the tree? So, we'll get a bigger tree. Better yet, just put it on a tower and leave it in the chimney. That way, I won't have to put it up. In that case, though, I guess I had better add a chimney to my list too. If all that is too much, how about a transfer to Newfoundland? Then I wouldn't need a big beam or sunspots.

But seriously folks... in closing, a reminder of the CARF Contest on the last Sunday of December, and a brief mention of Straight Key Nite on New Year's Eve. Best wishes for 1988. (There'll be more of them dang spots... I promise.)

# 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, 91 Varley Drive, Kanata, Ont. K2K 1H5.

**FOR SALE:** FOXX transceiver kits are available from Frank Hughes VE3DQB, Box 855, Hawkesbury, Ont. K6A 3C9. Diode tuner kit \$40, variable capacitor tuning \$50. Either kit \$5 postage and packing.

**FOR SALE:** H.V. Plate transformer - 115V 3 Tap Primary - 2500V centre. Tap secondary - new - weighs approx. 60 lbs. \$90. Oscilloscope 500 Series Hickock - Dual-Trace 5" CRT-Delay, Alternate sweep, Chop etc. - c/w manuals & additional differential amp plug-in. \$260. Oscilloscope - Eico 460 - 5", single trace - new tubes - recently aligned and calibrated - c/w original manuals & updates & R.F. monitor, 'sniffer' i.e. pickup. For use as monitor scope \$140. Power tubes: HCX 100 A (sealed in original package), 4-250 A's - Eimac, 4-125's, 813's, 572A's & Etc. Heath HW101 Transceiver assembled by Heath w/115V PWR supply - speaker and manuals - original owner purchased from Heath directly \$240. Heath - 12V Mobile Power Supply - All transistor for use with tube final transceiver, HW100, HW101 etc. \$160. Linear Amplifier 400 W, CW - 600 W SSB - Ameritron AL84 - New Tubes with 160 M. Barrie Coates VE7AQK, Box 3463, Langley B.C. V3A 4R8. 604-581-0924.

**FOR SALE:** Radio Shack printer model TP-10 \$35.00; MFJ-1224 interface RTTY/CW with PS and Kantronics software for Radio Shack Co-Co computer, instructions \$85.00. Radio Shack Co-Co computer 64 K \$70.00. TRS-80 Model 3 computer 48K basic (no DD) \$180.00. Heathkit UMatik keyer model SA-5010 C/W PS \$100.00.

Battery charger Powertronic model 614R 115vac - 24 VDC/12 amps float and equalize \$60.00. Geo. Towns VE3NIJ, 6 Horizon Crest, Agincourt, Ont. M1T 2G3. **ESTATE SALE:** Drake TR7 transceiver, AVX-7 board, noise blanker, filters, speech processor, speaker, microphone, PS-7 and manuals, MN7 Antenna tuner. Mint condition \$1200.00. Ham II Rotor, cables and control box \$100.00. VE3PTG, 153 Springhead Gardens, Richmond Hill, Ontario L4C 5C3, Phone: 883-9598.

**FOR SALE:** Apple 2 plus clone, all shielded and filtered, separate keyboard in metal housing, all cables shielded, daisy wheel printer, letter quality, lots of spare ribbon cartridges, green monitor, disc drive, much software including RTTY, CW, slow scan TV and word processor, RTTY and CW interface with built-in tuning scope and tunable fsk shift and tunable AFSK generator. All books and circuit description, desk and special diagnostic card for trouble shooting. 3000 kc invested, asking 1450 kc or best offer. For more info phone Eric VE3CTP, Toronto (416) 291-0088 after 6 p.m. Will consider taking in trade all mode 2 mtr transceiver.

Please send your 'Swap Shop' notices to *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. The Canadian Amateur accepts no responsibility for content or matters arising from ads. This feature is for the use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising.

## IS THIS YOUR LAST TCA?

Your label will tell you when your subscription expires.

To send reminders to you all by mail costs thousands of dollars a year. By using the label to carry the message, CARF can afford to serve you better!



# LOOKING AROUND

The 1987 Canadian Amateur Radio Symposium had, as one of its topics, discussions on the future of Amateur Radio. At the time of writing this article, I have no knowledge of what the results of these discussions were and the following paragraphs are a personal viewpoint.

It is apparent that the DOC will be wanting to give a national Amateur organization greater involvement in the management, etc., of Canadian Amateur affairs, particularly in the setting of standards and conduct of examinations for the various grades of Amateur certification and in setting such items as use of our sub-bands and operating practices. This will not come about until we have one national organization. As both CARF and CRRL are supported by relatively equal membership and have stable organization, administration and finances, neither will have a quick demise. The alternative is their merging to form a new society but, judging from the events of the past year, it could take many years before this new society could come into being. Frankly, it does appear that some officials of both CARF and CRRL are either not aware, or interested, that the majority of Canadian Amateurs want to support a unified organization and, instead of working together to achieve this aim, are pursuing narrow interests—those of the existing CARF and CRRL. Let us hope that the officials of both organizations will work toward this goal.

Canadian Amateur radio has had little growth since 1980 and, unless adequate growth is resumed and, with the steadily increasing average age of Amateurs, a decline in numbers will certainly commence in the next few years. There are several reasons for this lack of growth, the main two being a lack of interest by young adults in our hobby and the relatively high technical standards now in effect for what has become an 'operating' hobby. I am an 'old-timer' (licensed for over 40 years) and can see that the ability to work around the world on the HF bands no longer has the attraction of years ago. The average citizen today has television, on-the-spot coverage of international news, events and documentary coverage of people, customs, etc., of other countries. He, or she, also possesses the ability to use the telephone to contact persons virtually anywhere in the world at reasonable rates and the ability to use the telephone from cars, boats, etc.

Before retirement, I had the

opportunity to talk with many university Elec Eng students and found they were interested in Amateur radio to use, and develop, such things as processor controlled auto-repeaters, microwave systems, satellite communications and computer communications. They considered HF communications to be 'old fashioned' and use of CW to be unnecessary but many noted that, if they were able to obtain a VHF ticket they would probably go after an HF ticket to keep in touch with other Amateurs.

Other excellent prospects are those who are approaching retirement and looking for some worthwhile activity to fill their leisure hours. The stumbling block here is the time and effort necessary to acquire the technical knowledge and Morse code expertise to pass present day examinations. The restructuring proposed some time back would alleviate this problem but little progress has been made in implementing this proposal.

Several CARF officials have been able to study the recently released bank of questions of the Amateur grade examinations, and they are not happy. Many questions require rewriting to avoid confusion ('what answer is required?'). Some can be interpreted correctly in more than one way, so two answers could be considered correct; some have no correct answer in answers given and others are outside of the requirements stated in RIC-24. This is not understandable as, back in 1983, at the review of questions to be used on Amateur examinations, officials of CARF and CRRL attending were told that, in the future, no questions would

be put on the question bank until they had the approval of both organizations.

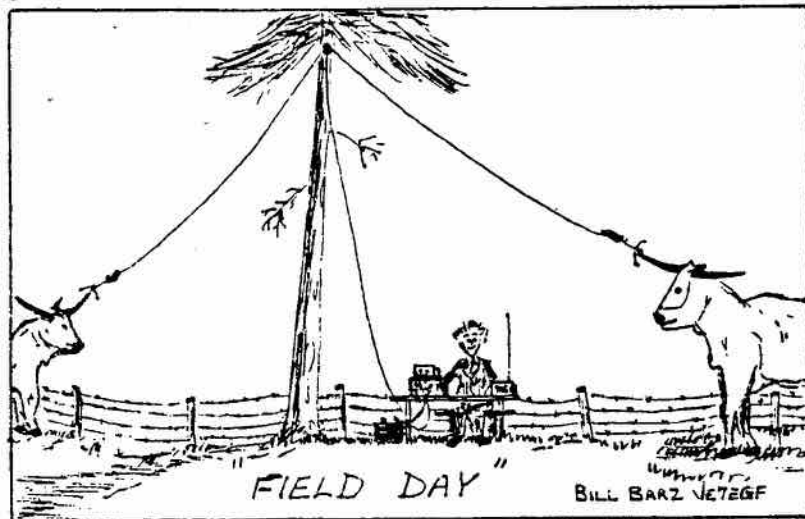
Sample questions are: (1) When measuring the SWR of an antenna system, a peak reading of 4 and a minimum reading of 3 was observed. The VSWR is 4:3 given as correct. This question only applies to measuring SWR on open wire lines, a system that is used by very, very few Amateurs of today. Why not ask about modern-day VSWR readings such as: Forward reading on VSWR meter is 10, reflected reading is 5. The VSWR is 3:1 correct.

(2) The area between the receiver and the outer reaches of the ground wave near the transmitter is called: skip zone given as correct. But what receiver and what transmitter are they talking about? And the correct definition of skip zone is the distance between the radiated ground wave of a station and the area where the initial wave refracted from the ionosphere touches the earth.

(3) When two 500 ohm 1 watt resistors are connected in series, the maximum total power that can be dissipated by the resistors is 2 watts, given as correct. This is probably a typographical error.

Again, we can only trust that both CARF and CRRL will make strong objections to those questions that are wrong, confusing, have more than one answer or are outside the specified requirements.

As I pointed out at the beginning of this article, comment made is purely personal. I certainly would like to hear from you as to your agreement, or disagreement, with statements made and further comment you may want to make.



# From the Clubs...

George Morgan VE3JQW  
687 Fielding Dr.  
Ottawa K1V 7G6

A couple of weeks ago I received a letter from Bernie VE1BLM and Jim VE1CHI of the Halifax ARC. Unfortunately, the material arrived too late to get it into the November *Canadian Amateur*. I'm sorry that it couldn't make it, because it would have been of interest. The item involved the third annual Amateur radio demonstration at Queen Elizabeth High School in Halifax on Nov. 24. Bernie and Jim were looking for Amateurs to check in and speak to the high school students and get a special Nova Scotia QSL card. This is certainly a great way to get some of the young people interested in and involved with Amateur radio. I really am sorry, guys, that I couldn't have got it in time, and I hope everything went well. How about letting me know?

Bernie and Jim did, at the same time, give me a run down of some other recent activities of the HARC.

The Halifax/Dartmouth Clubs' Annual Fleamarket was held on May 22/23 weekend at St. Mary's University in Halifax. A Friday pub and Amateur entertainment night started the weekend. Doors opened Saturday morning at nine, and over 400 Amateurs carried away various and sundry items from both Amateur and commercial vendors. The NSARA annual meeting was held at 1:30 p.m. chaired by president Peter Devanney VE1JJ. At 3:30, an on-foot transmitter hunt was held in Point Pleasant Park with several teams participating. Fleamarket weekend ended with a banquet and dance at the University.

Hartlen Point was the site of HARC's annual Field Day. The club's secret weapon was the potent V-Beam antenna. About two dozen Amateurs helped out in setting up, operating, cooking, looking after equipment, logging, visiting and dismantling.

A number of Amateurs assisted with the radio operation and display at the Scout Jamboree headed by Art Marshall VE1CJW during the second week of July at Dollar Lake, N.S. Art stayed at the site for the entire time while other Amateurs came out on a daily basis. Interest was very high and many scouts had the opportunity to experience a QSO.

And about 30 Amateurs from several radio clubs including HARC assisted with the various stages of the Highlands Car Rally again this year, reporting car numbers as they entered and exited each stage.

I received another interesting bulletin from the Charlottetown ARC with news that the annual Red Cross

Relay Race, bigger and better than ever, had a couple of new twists this year. First, Amateur radio provided communications. Participating were VE1's APC, ARB, BUN, BZO, CGO, CEN, CIS, GB and UA (with apologies to any others accidentally missed). Second, the MacEachern Family team came only third this year. On the overall winning team the canoers were Don Walters, son of the late ex-VE1GB, and Allan MacEachern, son of Bonnie VE1TY and Jim VE1UA (Bulletin Editor).

Also in the Charlottetown ARC's newsletter was the following item entitled 'Golden Rules for Easier

Living'. I don't know where it came from, but a copy is going up on my wall.

If you open it, close it. If you turn it on, turn it off. If you unlock it, lock it. If you break it, admit it. If you can't fix it, call someone who can. If you borrow it, return it (!). If you value it, take care of it. If you make a mess, clean it up. If you move it, put it back. If it belongs to someone else and you want to use it, get permission. If you don't know how to operate it, leave it alone. If it is none of your business, don't ask questions. If it isn't broke, don't fix it. If it will brighten someone's day, say it.

Thanks Jim. And, incidentally, thanks



Above: Cable 10 television's Harry VE1CAH interviews John VE1FH at Hartlen Point, N.S., the scene of the Halifax Amateur Radio Club Field Day.



Halifax and Dartmouth Amateur Club members struggle to put the equipment to rest after an exhausting Field Day weekend.



for all the plugs for CARF. We appreciate them.

The following item, written by Art VE7DKY, appeared in the *North Okanagan RAC*:

### HAM RADIO STRIKES AGAIN

"One of the most satisfying pleasures of Amateur radio operation is to be in the position of being of assistance to persons in some difficulty.

"On Sunday, Aug. 30, three stations were in this happy position. Apparently, a boat driven by an outboard motor had got into some difficulties resulting in the motor coming adrift and the transom being torn out. As a result the male operator and his female passenger were thrown against the windshield and suffered injuries such as apparent fractures and possible internal injuries.

"Luckily, Bob VE7BSL happened to be on or near the scene and put out a call on VE7RSS for assistance. For reasons which I will mention later, I was not monitoring at the time but the call was picked up by Denny VE7ASY in Winfield. Denny got on the phone patch and called the Vernon detachment of the RCMP. He had some difficulty in getting the story across to the dispatcher who couldn't

One of the most valuable assets in dealing with local EMI problems is being able to respond quickly to complaints. For this reason it is important to have one or more people in each club with the technical and personal skills to a) quickly diffuse a serious complaint, b) act as liaison with DOC, and c) play a mediator role in an EMI issue.

Canadian clubs are urged to form local EMI Committees. To assist, CARF is preparing some technical information and guidance for the Committees.

EMI problems will continue to grow. We should all be prepared by knowing what options exist or what to do when one hits.

Ralph Cameron VE3BBM, the Chairman of CARF's EMI Committee, is interested in hearing from you on this issue. Drop him a note to signify your interest.

As Ralph says, we are currently more vulnerable than we realize.

#### NEW CARF NUMBER!

CARF has installed a new phone system to serve you better! Note the new number, effective immediately: 613-545-9100.



*Don VE1BN demonstrates to QEHS students one of the many experiences in Amateur radio, the HF QSO.*

quite understand the location or the problem. I picked up the call on the scanner and offered to call land-line and clarify the matter for her.

"I was able to get the message across and they immediately dispatched a police car and an ambulance to the scene. I was then also in direct contact with BSL and with his information was able to feed directions and other information to the police dispatcher. Bob was able to give me the name of the owner of the boat, a person I know well, and I was able to finally contact him, with the assistance of Kevin VE7EGD, and advise him of the situation.

"As a result of the combined efforts of all involved, the injured were transported to the Vernon Jubilee Hospital. At this time the man is still in the hospital with a fractured pelvis. The woman had a fractured rib and has been treated and released."

The rest of this item takes the form of an editorial that I would not, normally, include. However, since it deals with a issue that is rather close to my heart and that is not unique to one area of the country, I am going to put it in, in the hope that it might cause some people to think.

"It is unfortunate that many Amateur operators are more than a bit thoughtless in the use of the RSS repeater. In this case there were two stations some 60 km away from the repeater but only about 1/2 km from each other who were carrying on a QSO through the repeater. Since I wasn't interested in the QSO, I had turned the rig off (haven't we all?). There are so many stations who tie the repeater up for hours when they could

be operating simplex. I am aware of the arguments that the repeater is there to be used but, especially during the summer, there are times when there may be people requiring assistance but the repeater is tied up with QSO's. This is especially noticeable when operators start a long QSO immediately after the Sunday morning net, when possibly many people would like to make contacts. This repeater covers some 350 km radius and I am sure that many stations do not monitor because of this factor. A little common sense and courtesy would go a long way!"

#### SUDBURY FIELD DAY

And speaking of Field Day (as we were earlier), the Sudbury ARC held its Field Day at Science North.

"Operations were conducted on the front lawn of the Science Center in a tent with a portable generator running two rigs. Each of these radios ran with 100 watts out. A third, using a lead-acid battery for power, operated QRP with an output of 10 watts. Under canvas, the call used was VE3BLZ; inside Science North, the call VE3SSN was used.

"The Onan generator, purchased with the help of an INCO donation, operated well all weekend.

"Various media once more featured our activities. A newspaper clipping appeared in the *Sudbury Star* on June 29. A local television station, MCTV, sent a crew out to cover the event and ran a news story the following day. The *INCO Triangle* sent a reporter and a photographer out to gather material for an upcoming issue. An electronic sign board at Science North also advertised the event."



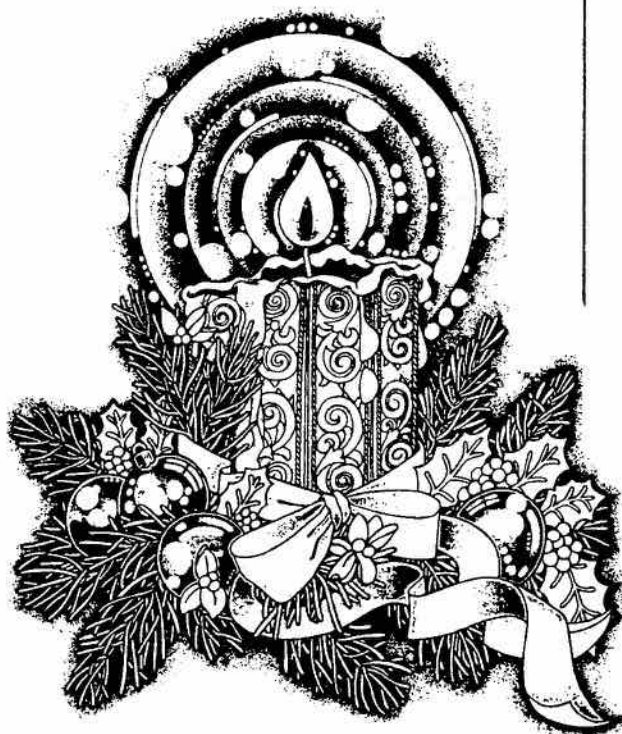
# Christmas Greetings From Mel, Linda and Claude

## Technician Required

We have an immediate opening for an experienced technician in Montreal. Ham Radio Licence is an asset. Bilingual candidate preferred. Please send resumé.

### Store Hours:

Mon ..... Closed  
Tue-Thurs ..... 9:00-5:00  
Fri ..... 9:00-9:00  
Sat ..... 10:00-2:00



1-514-336-2423

*Spécialistes en Communications / Communication Specialists*

8100-H Trans-Canada Hwy., St-Laurent, Qué. H4S 1M5

# Hobbytronique Inc.

Michael Ross VE2DUB  
988 Hudson, St. Bruno  
Quebec J3V 3Y2

# MICROWAVES

The first weekend of the second annual ARRL 1 GHz cumulative contest took place Aug. 21 and 22, 1987 with several stations in the Montreal area taking part.

Preparations began Friday night with a meeting at the downtown Montreal campus of Concordia University, to check out the equipment. Everyone was supplied with a map, with paths highlighted, a list of stations, IF frequencies of their transceivers and a checklist of items to bring with them.

There were to be five commercial 30 MHz IF stations and four homebrew 10.7 MHz IF station operations for the contest. The weather forecast did not look good for Saturday, with showers and thunderstorms predicted.

VE2FFS volunteered to take a station with him on a mountain climbing trip to the mountains south of Montreal but was kept from climbing the mountain by forest rangers who reported heavy rain and hail at the top.

VE2XL and VE2DWG set up at St. Joseph du Lac at about 500 feet, northwest of Montreal. The very heavy rain and high winds hit them first, causing the first retreat of the day.

VE2KW selected Westmount Lookout on Mount Royal also at about 500 feet, to be joined by VE2BAB, VE2EWH, VE2PGD and VE2TON each with a separate station. The rain kept several stations away.

VE2DKK at Covey Hill about 1,000 feet ASL on the U.S. border set up by the side of a country road was asked to move away from a farmer's field because of all the noise he was making trying to contact other stations. By the time he found another location the rain had come.

VE2DUB and VE2VXO were to operate from Mount St. Hilaire at 1350 feet but were turned away by the ranger as the mountain was closed due to a fire hazard. The next available mountain, Mount Yamaska, also about 1,300 feet was selected as an alternative and was climbed within an hour after almost losing the car up a 'road' that doubled as a stream bed. They had to leave the mountain before the storm turned the mountain road back into a stream. No contacts were made that morning.

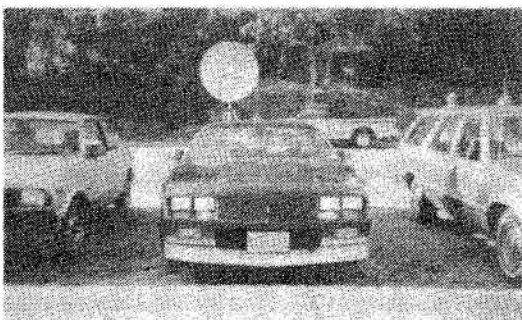
By noon everyone was headed home when VE2KW volunteered to head back to Westmount Lookout as the sky was beginning to clear. VE2DUB with VE2VXO contacted him from a park in St. Bruno over a distance of about 14 miles and decided to move the required 10 miles



*Above: Don VE2DWG adjusting the dish at St. Joseph du Lac.*

*Right: Site of VE2DUB in St. Bruno, Montreal in background.*

*Below: VE2PGD 10 GHz mobile.*



to Candiac, by the St. Lawrence River, to make another successful contact over the seven mile path.

Things were going so well VE2DUB and VE2VXO decided to climb Mount St. Gregoire, a small 800-foot mountain just 20 miles away. Arriving at the visitors' centre at the foot of the mountain, they checked the map and selected what appeared to be the best path to the top. After a short distance, the trail took a turn back down so they took the direct route, straight up the rock face of the mountain.

As the slope increased and the terrain changed from forest to large

rocks and boulders, a thunderstorm hit with heavy winds, driving rain and frequent lightning strikes. They found shelter at the top of an old stone quarry where they hid under a large rock till the storm blew over, all the time in contact via two metres with VE2KW patiently waiting at Westmount Lookout.

After the storm passed, they finally made their way to the top, soaked to the skin but happy to have found the peak. They quickly set up the station and completed another contact with VE2KW, over two miles, in record

*Continued on next page* ►

## The immunity issue—there's hope yet!

The comprehensive report, 'A Report on the Electromagnetic Immunity of Electronic Equipment', prepared by the Radio Advisory Board of Canada in January of this year may soon produce some interest and reaction from DOC. One of the recommendations made in the report was that a 'point of technical reference' would be required in order to attend to complaints of legitimate interference and to those that have simply reached a stalemate. All too often, it appears that a slow reaction to a complaint causes an automatic consumer reaction to limit, or even prevent, assistance in resolving the issue. Should this point be reached, the problem is serious.

On June 17 The Honourable Flora MacDonald responded to the RABC's submission and a request was made that the "RABC itself, being an assemblage of industry associations with strong intercorporate linkages, would be a much more appropriate forum for this activity."

### CARF'S POSITION

The Chairman of the RABC EMC Committee which prepared the Immunity Report, solicited member organizations for pros/cons of concerns and recommendations to the Minister's proposal. The following are the concerns as presented by your EMI Committee:

"... during discussion of this section of the immunity report, it was felt that the RABC personnel facilities were just too limited to be able to quickly render assistance."

If we are to support the Minister's suggestion, my concerns would be:

- 1) The area of appliance immunity is presently in 'legal limbo' and a "no man's land" in terms of responsibility.
- 2) The RABC has very limited experience in dealing directly with irate homeowners. The DOC does have this experience. They have defended this position for many years.
- 3) The role of 'point of technical authority', being of an interim nature, should be based on the premise of the acceptance of the basic recommendation in the report, i.e. 'Repair, Replace or Refund'. If the DOC accept this premise, then the role of the technical authority would be considerably simplified, and being authoritative, would have participation support. It would provide the 'reasonable responsibility' needed to answer such complaints. It could obviate civil litigation by dissatisfied consumers.
- 4) There is concern that, unless properly handled by those skilled in addressing consumer-type complaints a realization of what is realistic and what is practical in the circumstances could prevent a false commitment.

This requires some knowledge of the options available.

5) The question of 'who pays?' can be addressed by (3) above.

From my own experience, serious cases involving a non-technical user require not only diplomacy and tact, but a degree of humility combined with a fair amount of time. Can the RABC afford this?

As recommendations I would suggest:

- a) A definite statement of interest is needed from DOC before any organization assumes the role of mitigator.
- b) DOC has current responsibility for spectrum management of which EMC is a subset. They should be the initial point of contact as their District offices are ideally located and they have experience in dealing with such cases.
- c) Cases involving Amateur Radio operation can be referred to the EMI Committee of the Canadian Amateur Radio Federation, in the form of a phone call to the undersigned. To be effective, the policy of 'Repair, Replace or Refund' must be in place. I am prepared to assist the Department in resolving any cases of immunity involving the Public and Consumer appliances as long as time demands are reasonable and my employer concurs in this participation.
- d) A simple 'interim' procedure needs to be established that will consolidate: recording, discussing, effecting and concluding solutions to immunity related matters. User satisfaction should be paramount.

It is rather gratifying that the general members of the RABC expressed parallel recommendations in their letter to the Minister dated Sept. 29, 1987. The reply will certainly be of interest to all spectrum users for it should clearly state the position the DOC plans to adopt in the long term. (See Letters section.)

The situation which occurred with VE6KG is one which is directly addressed by paragraph four, i.e.... "disputes involving domestic complaints in some instances will demand quick resolution if litigative situations are to be forestalled." Quod erat dictum.

Read the details of VE6KG's plight in this issue.

Compliments of the Season. May your operating be compatible with those around us. What more could we wish for?

### ► MICROWAVES (cont'd)

time. There was just enough time for a few pictures and they were headed back down on a path that curved around the mountain and disappeared into the bush. They followed a gully to the main road, then had a half-hour walk back to the car. After climbing two mountains in a single day they were happy to get home to a hot supper because this was only the first day of the two-day contest!

Sunday they decided to take it a little easier, avoiding mountain climbing if at all possible. VE2DWG and VE2XL returned to their site at St. Joseph du Lac while VE2DUB, VE2PGD, VE2TON, VE2VXO and VE2KW headed up Mount Royal by car. After some initial equipment checks at Westmount Lookout, they all drove to the other side of the mountain and set up behind St. Joseph's Oratory (local shrine), a popular place on a Sunday afternoon!

Contacts were made between VE2DUB and VE2DWG, VE2KW and VE2DWG and VE2PGD and VE2DWG from the Oratory to St. Joseph du Lac, over a distance of 20 miles.

VE2DUB then moved to a location near Blue Bonnet Raceway and contacted VE2KW and VE2PGD over a distance of a few miles.

After breaking for lunch, VE2DUB drove East to the intersection of Route 10 and 20 to make contact with VE2KW who had moved back to Westmount Lookout, an easy 11-mile contact.

Driving further East on Route 10, VE2DUB got out of range of the two metre repeater being used for liaison and spent the rest of the afternoon driving around trying to get to a high spot to access the repeater. No further contacts were made that day but the weekend was still a success with several contacts made despite the rotten weather. ■



Moe Lynn VE6BLY  
10644-146 St.  
Edmonton, Alta. T5N 3A7

At least some of the mail came through in October, with a fat two-pager from Jim VE1AEQ plus photocopies of his log for June 20 to Sept. 21. Both Canada Day and Can-AM contests are covered throughout that period not to mention over three pages of other QRP QSOs. Hope you win something with your entry Jim!

## ISLAND PARADISE

One of the most astonishing contacts related by Jim could be while he was talking to Giorgio 5N9GM when Rafik J28EO injected a 5/5 report and asked, "Please, the name of your island." For the most part Jim admits he could be operating QRP alone from Prince Edward Island. He started out using a HW-8 with longwire and slopers to work over 50 countries on 20 and 15 metres. Moving up in style and equipment takes time when you are digging a hole for a 50' tower to carry a new ae.

## EXPERIMENTS

Other activities at VE1AEQ include a wire V beam using about 554'6" on each leg allowing operating on 10 through 80 metres. The angle is adjusted for 10, 15 and 40 metres being only 30' above ground pointing to eastern VK and ZL. In the morning around 1200 UTC his average contact is 900-1000 miles with one watt out on 40. He was up six hours earlier one day and snagged YU5CEF.

## CONTESTS

VE1AEQ totalled his points at about 8500 for Canada Day using five watts SSB and one watt CW. Since then he has resisted using high power with his Argosy to fill several pages of his log. From reading the pages he sent me it would appear he should be reporting to the DX editor if there is a QRP section there. Why anyone needs more power than Jim is using only boggles the mind.

## INVESTMENT RETURNS

His estimate of replies received to calls put out averages 80% which may even be better than most QRO stations. He doesn't say how long he has been operating but it is easy to see his technique is right on track. His results have far exceeded mine on packet which have clearly been discouraging and the "connected" to called ratio lies far below 5%. One phase of the packet experiment remains and that is an exchange of computer programs via HF. Then it can follow the fate of RTTY, ASCII, AMTOR and computer generated CW

which were buried some years back. They did not produce any better results on the air than did AM 40 years ago or SSB which was used recently for a week.

## INTERNATIONAL FLAVOUR

Again for Australia, Jo VK2KAA has sent me V4.0 of their AX25 Level 2 packet radio disk dated September 1987. It arrived complete with new instruction manual containing some professionally drawn schematics. Among the improvements are 40 or 80 column display, clock and calendar, facility to select or reject specific stations, parameter save, screen blanking and much more. No reason was given for removing the CW identification and CW text transmit feature which in V3 was icing on the cake. Another welcome addition is being able to preset the connect path; then should a

disconnect occur, two key presses will attempt a reconnect.

## PACKET QRP

To date my connects have been with stations in the S3 to 5 region on the S-meter and no one ever divulges his power output it seems. One exception was Wayne VE7FAQ running 500W who was S5 here while talking to a W6. It did not surprise me when my confuser announced "disc" VE7FAQ as 5W very likely stood little chance among the Harvey double kW's that day but even 100W could be considered QRP mixed in that conglomeration of modified 10 kW Harris rigs.

Something else that was very disconcerting and surprising for packet was a QSO between two W9s in Eau Claire, Wisconsin. One or the other was called to the telephone and

Continued on next page

# Amateur Radio



Davy VK4XX, doing the Sunday "shift" of VK4RAN in the W/T Office aboard the HMAS Diamantina.



See page 20



See page 41



See page 33

## Special Features

- Amateur Radio Plays a Part — Eastern Zone Repeater Plays a Role in Rescue by Col Pomroy VK3BLE ..... 41
- Cookie Cutter Rescue by Harold Tribe VK3AVH ..... 41
- Beacons — Repeaters by Tim Mills VK2ZTM ..... 20
- Centenary of Hertz's Birth of Wireless by Jim Linton VK3PC ..... 31
- International Travel Host Exchange by Ash Nallawalle VK3CITZLALM ..... 3
- Morseword 2 by Audrey Ryan ..... 46
- RNARS — Cover Story by Davy Inall VK4XX ..... 20
- The Problem With Digipeaters reprinted from Amateur Satellite Report ..... 61
- Vanuatu Tropical Cyclone AMU Disaster by Jim Linton VK3PC ..... 36
- VK/ZL/Oceania DX Contest 1986 Results ..... 35

## Technical Features

- Building Blocks Revisited — Part 1 by Harold Hepburn VK3AFQ ..... 4
- Classic Communications Equipment TRAP-21-A Transceiver by Colin Mackinnon VK2DYU ..... 22
- Great Circle Calculations on a Calculator by Ian Crompton VK5KIC ..... 18
- Modified X-Beam for 20 Metres by John Moyn VK2KA ..... 26
- Novice Notes — Cheap Radio — The Junk Box by Drew Diamond VK3XU ..... 27
- Omnidirectional Antenna for Space Communications by Joe Ellis VK4AGL ..... 8
- Photophones Revisited — Conclusion by Grah VK5AMG ..... 13
- SADCG AX25-X3 Protocol for use in Amateur Packet Radio Part 2 by Steven Blanch VK2KFI ..... 42
- Simple Antenna Tuner by E.C. Brockbank VK2EZB ..... 21
- Try-This — Noise Bridge by Gil Sones VK3AUI ..... 19
- Tune-up Protection Device by Fred Piesse VK3BYW ..... 6
- Want to Try RTTY? by Terry Morrison VK3RB ..... 17

## Regular Features

- Advertisers' Index ..... 64
- ALARA ..... 51
- AMSAT Australia ..... 43
- AR Showcases ..... 49
- Icom IC-2A ..... 49
- Icom IC-M55 ..... 49
- New Publications ..... 49
- Packet Radio New Releases ..... 49
- Awards ..... 36
- Arrhen Certificate ..... 36
- Australian DXCC List ..... 36
- Crimson Crusade Award ..... 36
- Diploma Republica De Chile ..... 36
- WIA 75 Award Recipient Update ..... 36
- Club Corner ..... 48
- Club Portrait — Land Forces Amateur Radio Group ..... 54
- Contests ..... 33
- Columbus Contest ..... 33
- County Hunters SSB Contest ..... 32
- Italian International Contest ..... 33
- John Moyle in pictures ..... 33
- Utah QSO Party ..... 32
- VK Novice Contest 1987 — Rules ..... 32
- VK/ZL/Oceania DX Contest 1986 overseas results ..... 35
- Editor's Comment — Are you one of a thousand? ..... 2
- Education Notes ..... 51
- Electro-Magnetic Compatibility Report — Equal Duties, Equal Rights ..... 39
- Five-Elph Waves ..... 57
- Hamade ..... 64
- How's DX ..... 26
- International News ..... 26
- Intruder Watch ..... 63
- Ionospheric Predictions ..... 46
- Listening Around ..... 46
- Novice Notes — Cheap Radio, the junk box ..... 27
- Obituaries — Bill Despaue, Alf Gower, Bob Jordan, Bob Smith, Bob Blyth ..... 62

- Over to you! — members have their say ..... 60
- Pounding Brass ..... 47
- QSP ..... 10, 12, 30, 36, 38, 39, 40, 48, 51, 57, 59
- Silent Keys — VK2BOD, VK5NCP & VK2B2 ..... 62
- Solar Geophysical Summary ..... 62
- Spotlight on SWLing ..... 45
- Try This — Noise Bridge ..... 19
- VHF UHF — an expanding world ..... 24
- VK2 Mini-Bulletin ..... 57
- VK3 WIA Notes ..... 52
- VK4 WIA Notes ..... 58
- WICEN NOTES — Exercise Southern Link by Paul Walton VK3PW ..... 40

## DEADLINE

An copy for inclusion in the July 1987 issue of Amateur Radio, including regular columns and Hamade, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 8 a.m. May 22, 1987.

## QRP (cont'd)

left instructions for the other guy to 'keep the frequency busy'. The guy then proceeded to call a dozen or more CQs before unloading two or three 'brag blurbs' of three lines each then resuming their nonsensical chat. All this was taking place on 14103 kHz which is well known to be an active packet frequency. These are the guys who are being written about by Wayne W2NSD in his editorials but we don't believe exist. One suggestion in 73 Magazine's July '87 editorial was for those of us to visit another who is a consistent offender of our sensibilities rather than just gripe about him. We band together to help others less fortunate so why not include this demented individual as being handicapped in another sense?

## AMATEUR RADIO

*Amateur Radio* is the Journal of the Wireless Institute of Australia (WIA), founded in 1910 whose issue for May 1987 Vo. 55 No. 5 was sent to me by the editor Bill Rice VK3ABP. Reproduced here is page 1 of 64 enclosed between four more (the covers) which are in full Laser Scanned Colour Separation making it a very attractive publication. Bill has given us permission to reprint whatever our readers request providing only that the source is duly acknowledged as they do not have a copyright as such on their magazine. Write asking for a reprint of anything that strikes your fancy. He also expressed interest in CARF, as he understood Canada is one of the few countries in which there is a second national society with some measure of IARU approval. Reprints of the Art Blick series in *The Canadian Amateur* might be satisfactory.

## ANOTHER ADDITION

The library is slowly expanding with news arriving sometimes from afar and other times closer to home. George W5YR sent me some literature on the Texas Packet Radio Society disk TNC64 Version 2.2. To make a long story short, it must be used with what George calls a TNC1, TNC2 or later generation of compatible controllers. In other words it will not work with my homebrew TNC even though he suggested the best way to find out was to send him \$25 U.S. and if it didn't work then find another packeteer in need of what their users have volunteered to be the best, easiest-to-use packet program available.

## HEIL HAM RADIO HANDBOOK

Available from ComTech Communications at \$13.95 or others who advertise in *The Canadian Amateur* is

soft cover of 168 pages measuring 153 mm x 230 mm with 20 chapters on varied topics of Amateur radio interest.

## REBROADCASTING

The majority of Amateurs heard on the bands using SSB today would do well to read this book, especially Chapter 1 titled *The New Novice—Day #1*. Bob is a sound engineer and speaks with authority when he says, "Pay considerable attention to microphone placement in the shack so that you can *close-talk* and keep the gain at a minimum." Too many Amateurs today have their mic on a stand about 8" high then sit back in a swivel chair for all contacts, ignoring the sounds from adjoining rooms, sniffles, teeth clacking, heavy breathing and burps.

## BEGINNERS:

This might also be entirely sufficient for anyone thinking of taking up a sojourn in the Amateur Service as it is easy to read and presented in everyday language. There are 40 home-builder projects plus chapters on techniques, setting up and simple electronics (the latter is worth the price of the book).

## POSTLUDE

This must be a musical term and used here for the last chapter just for nit pickers (those readers all editors abhor) who reads everything just to find a few misspelled words or a few left out here and there. Bob is also a professional theatre pipe organist with two recorded albums and a book on organ registration besides an earlier undertaking, *10 Metre FM Handbook* and recipient of the 1982 Radio Amateur of the Year award at the Dayton Hamvention.

If you are looking for a short refresher course in hamming or an introduction to the Amateur Radio Service, by all means get yourself a copy. Then, when you are finished reading it, donate the book to your local club library where newcomers can receive an introduction without too much burden.

## VE/QRP NET

Now we can report another NCS in the person of Jim VE1AEQ even though his efforts to date have not been too fruitful. The harvest is all in, the hay is covered and only the bank pounding on the door can be heard above the QRP din. Does anyone have the schematic for a Ten Tec powermite 20,40,80 metre rig and recent modifications that would care to do a review for *The Canadian Amateur*?

## GLEANINGS

Very little to report in this

department except word from Tom VE3ISJ asking of the schematic mentioned in an earlier column on the DC86 receiver by Drew VK3XU. Jim says he has received the 'bare bones kit' but was lacking the schematic and other drawings which were mailed in reply and hopefully the receiver is on the air by now. Remember the QRP QRGs 3560, 7030/40, 10106, 14060, 18106, 21060, 24960 and 28060 24 hours per day plus 14060 on Sunday at 1900 UTC + or — QRM. May everyone receive a QRP rig for Christmas and the wherewithall to put it to use in 1988. Merry Christmas and Happy New Year to all!!

## HELP WANTED

The CARF Office needs the current addresses of the following Amateurs, listed by name and last known address:

Paul Wagner VE7TL, 401-2239 Folkstone Way, W. Vancouver, B.C.

John Gillen VE3JUG, 73 Nonth Ave., Brantford, Ont.

Edna Tennent VE3LZH, RR3 Wasaga Beach, Ont.

Ed Hohertz VE7FZ, Box 502, Cranbrook, B.C.

James Birch VE7DJB, 22-440 Simcoe St., Victoria, B.C.

L. Best VE7UK, 1805 San Pedro Ave., Victoria, B.C.

Please tell Debbie if you have any information. Her address is P.O. Box 356, Kingston, Ont. K7L 4W2.

## WAVE & WACAN

WAVE (Worked all VE) and WACAN (Worked all Canada) are two internationally known awards sponsored by the Nortown Amateur Radio Club. In addition WAN (Worked all Nortown) is an award available to members only for contacting other Nortown members on the air (excluding during regular net sessions). For further details please write c/o Club Awards Chairman.

## WEST COAST AZIMUTHAL CHART

Most world charts showing azimuth projections are centred on the middle of North America, or on Eastern U.S.A. But, for \$2.50 you can get one from chart sales, centred on the Vancouver-Victoria area. This chart, #51, is printed on heavy paper, and it shows, as a straight line, the distance to any part of the world, as well as the bearing. It is sold wherever Canadian maps and charts are available.

# AAPRA TNC 3.0

## User Report

The Australian Amateur Packet Radio Association have come up with the best idea yet for getting on packet radio (under \$100) if you don't mind 'rolling your own' and have a Vic 20 or C64 in the shack. Their C64 package comes to you with a personalized disk, instruction book, and printed circuit board ready for you to assemble your parts. Total cost for these parts here in Edmonton was \$29.15.

The TNC is designed around Exar ICs 2206 and 2211 plus a 555 timer chip and provision for a relay depending on your transmitter keying circuit. It was not used on my ICOM 745 as the output tones are connected through a capacitor direct to the microphone input terminal. The instruction book is very good in respect to all leads from the TNC being connected to their correct terminations. My board was assembled for the HF configuration only, but could be wired with a few

extra parts to switch between VHF and HF.

### RTTY

If you consider Teletype as being the forerunner of today's modern digital methods of communicating, don't overlook morse code. SFBM no doubt had today's advancements in mind when he built his auto-copy teletype then reluctantly agreed to audible copying as an expedient. Digital communications is nothing more than the sophistication of morse code (on/off, high/low, mark/space, make/break, stop/go, +5/0vdc, etc).

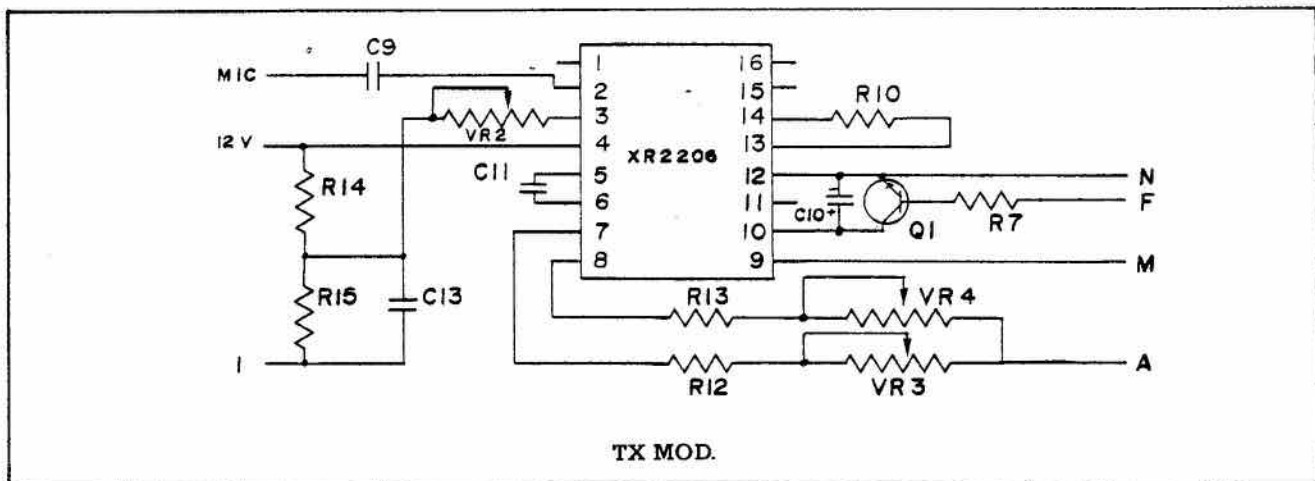
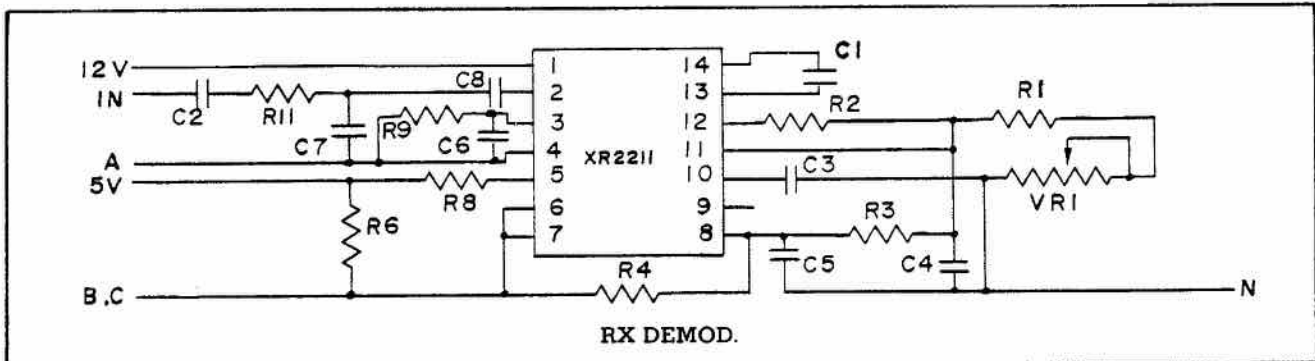
With packet, the computer takes over and we do not need the stop start bits required earlier to allow for worn teletype gears. Packet utilizes a start bit but is immediately followed with as many as 256 characters or one complete message in that split second. That particular batch or bundle of characters reminds me of when we used the grain binder to cut

and tie wheat into sheaves for stooking and curing before threshing. The TNC takes care of converting sheaves for the computer to use and converts the computer jargon to sheaves that your radio can accept.

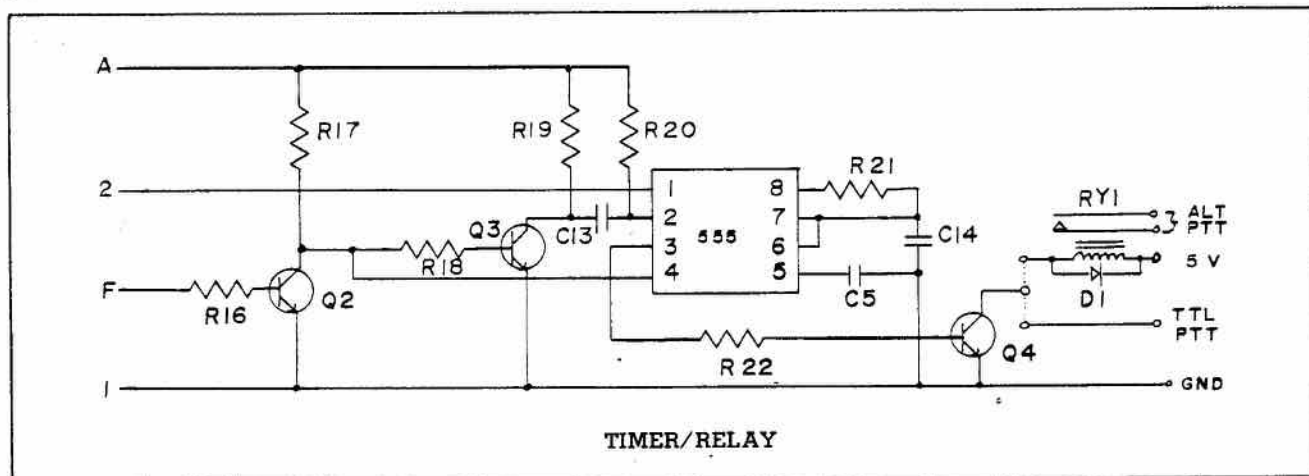
### TX THEORY

Pin 9 of the 2206 is connected to the Commodore 64 user port pin J which is where the transmit intelligence leaves the computer in the form of a 0 or 1. If a 9 is grounded and pin 8 selects the resistor combination R13 and VR4 to determine the frequency; in this case 1600 Hz. If the computer sends a 1 then pin 9 is high and pin 7 selects the resistor combination R12 and VR3 to determine the frequency; in this case 1800 Hz. These tones are chosen to permit the AFSK shift of 200 Hz required for Packet Radio. Resistor VR2 and associated filter components connected to pin 3 controls the peak to peak output of the sine wave leaving

*Continued on next page*







**USER REPORT (cont'd)**  
pin 2 of the XR2206 and fed through coupling capacitor C9 to your transmitter microphone input pin.

**RX THEORY**  
Tones received on the air are fed in to the XR2211 via C2, R11 and C8. The internal VCO has been tuned to 1700 Hz with a frequency counter while R1 and VR1 are adjusted. This

then becomes the operating or mid frequency of mark and space. Thus  $f_0 = (f_1 + f_2)/2$  where  $f_1$  is 1600 Hz and  $f_2$  is 1800 Hz. Data leaves via pin 7. C1 is the timing capacitor and along with R1 and VR1 set the center frequency of the PLL. In packet it is this timing that carries the intelligence and makes up your messages whether it is a simple CQ or complete computer program you have sent.

**CONSTRUCTION**  
Using the PCB as supplied and recommended parts presented only one difficulty after assembly and that was the variable resistors had end adjust screws where top adjust would be preferred. Debugging was relatively easy in my case because Comtech Communications (an advertiser in *The Canadian Amateur* magazine) courteously extended the use of their bench, test equipment and expertise. A frequency counter accurate to 1 Hz is required for the final tuning process. It was amazing to me how Hart VE6BRY seemed able to look inside these black boxes and diagnose external problems without throwing new parts hither and yon.

**REFERENCES**  
Everyone should pick up the Exar data sheets for the 2206 and 2211 and ask for their AN-20 sheet, 'Building a Complete FSK Modem Using XR-2211 and XR-2206'. Also their AN-01 sheet, 'Stable FSK Modems featuring the XR-2207, XR-2206 and XR-2211'. Anything else was far too technically involved for me to follow, mainly because the writer assumed all readers were fully versed in packet to his level.

**PROGRAM UPDATE**  
This service is available direct from AAPRA for \$10 with new disk or \$7.50 without new disk. The C64 or VIC20 package disk version is \$55. An Eprom version is available for the C64 for \$80 and they intend to issue an Eprom for VIC20 soon. Note that these funds are in Australian dollars and bank drafts only are accepted which means NO money orders, cheques or cash. Ordering address is AAPRA, 50 Westbrook Ave., Wahroonga, NSW 2076 Australia. See you on packet and tell them you saw it first in *The Canadian Amateur*.

## Microwave- powered aircraft

At 0800 hours on Oct. 6, 1987, Canada's Communications Minister Flora MacDonald helped launch the official inaugural flight of the test model of a revolutionary new plane, the world's first microwave-powered aircraft. The flight of the Stationary High Altitude Relay Platform (SHARP) prototype at the Communications Research Centre of the DOC puts Canada at the forefront of microwave-powered flight.

The unmanned SHARP model, with a 4-metre wingspan and about one-eighth the size of the projected final commercial version, was taken aloft under battery power. At a height of about 100 metres the battery was turned off and the plane was powered and controlled for its first public flight by microwaves beamed up from a dish antenna on the ground. A special receiving antenna on the aircraft transformed the microwave energy into direct current for the electric motor and propeller. At the end of its flight, the plane returned to earth under battery power.

Miss MacDonald said: "When fully developed, it is expected to be

capable of flying at heights up to 20 km above the earth for months at a time. It was developed by DOC researchers to fill a need for a less-expensive complement to communications satellites."

With a single microwave source on the ground, SHARP would fly in a circle above its power source and provide an excellent platform for regional broadcasting of radio or television, the relay of messages for regular or cellular-radio telephone services, radar monitoring and atmospheric pollution monitoring.

Because SHARP aircraft will be much less expensive than satellites, smaller countries could find it economical to use a number of the platforms for broadcasting. Each platform could cover an area with a 600-km diameter. The communications systems aboard SHARP will also be powered by microwave, and can be built to emit signals stronger than those typical of satellites. This will mean that SHARP receiving antennae or dishes can be smaller and less expensive than those used for most satellites.

## To generate the sync pulse every 89.7 msec for Loran C Scope Trigger

BY BILL de CARLE  
VE3OBE

### Parts needed:

- 3 74LS197 Binary counter
- 1 74LS74 Dual Flop
- 1 74LS00 Quad Nand Gate
- 1 Momentary switch - centre-off SPDT
- 3 diodes
- 2 pullup-resistors (10K or so).

### HOW IT WORKS

1. The input to our circuit is a 20 kHz squarewave. It can be easily obtained

by dividing down the 1 MHz output of a frequency standard.

2. This signal is applied to the clock input of a divide-by-2 flop, so the output (point B) is a 10 KHz squarewave. The period is 100 usec, the same coarseness as the Loran stations use (the rep-rate of any Loran station is specified as XX.X00 milliseconds).

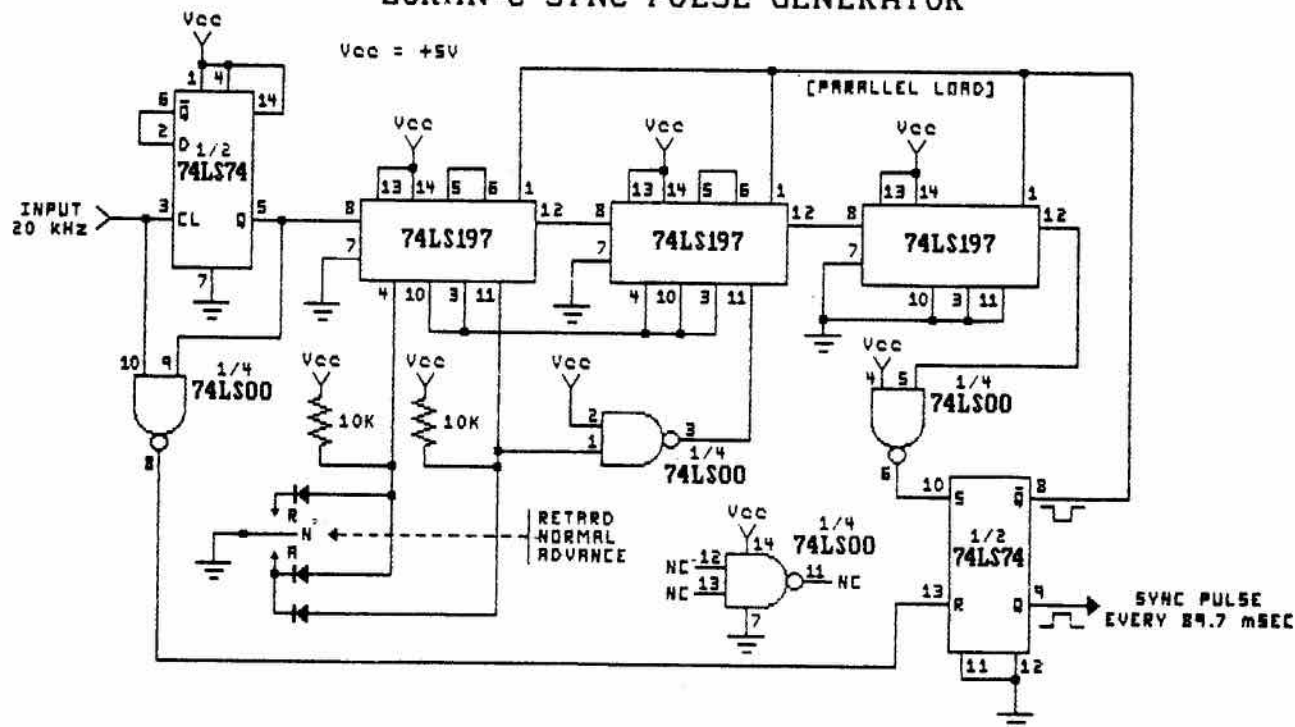
3. 10 kHz is fed to the input of an 11-stage binary counter, consisting of three 74LS197 chips connected in series. The count advances on each

falling edge (every 100 usec) of the input pulsetrain. The output from the last counter stage (TC = terminal count) will go high when the count value hits 1024. At this time we: 1) make our Loran sync pulse, and 2) reload the counter with an initial value from which it counts upwards again toward 1024.

The second half of the 74LS74 flop actually makes the sync pulse. The leading (positive-going) edge of this pulse coincides with terminal count.

Continued on next page

### LORAN-C SYNC PULSE GENERATOR



(LSB)	0	1	2	3	4	5	6	7	8	9	10 (MSB)	
	0	1	1	1	1	1	1	0	0	0		= 126 = RETARD
	1	1	1	1	1	1	1	0	0	0		= 127 = NORMAL
	0	0	0	0	0	0	0	1	0	0		= 128 = ADVANCE

### ► SYNC PULSE (cont'd)

The complementary output of this same flop generates the low-going pulse to reload the counter. The counter is pre-loaded and ready to count before the next clock pulse comes along.

4. For a period of 89.7 msec (from one leading-edge of the sync pulse to the next), using a 10 kHz input frequency, the counter must step through 897 states. Since it's an up-counter, and the terminal count is 1024, we achieve this by pre-loading the difference (between 1024 and 897) each time. Loading the counter with a value of 127 each time it 'carries out' will produce a 'carry-out'

every 89.7 msec exactly, and this is just what we want.

However, there is no guarantee this sync pulse will be emitted at the precise moment in time when the Loran pulse happens to arrive at your station. One solution would be to turn the power on and off repeatedly until we just happen to get it right. A better solution is to advance or retard the sync pulse electronically. If instead of loading the counter with 127 every time, we load it with say, 126, it would delay the sync pulse by 100 usec, because the counter would have to count through an extra state to reach its carry-out condition. Similarly, if we load it with a value of 128, it will reach

the carry-out condition 100 usec sooner than usual.

A momentary-action, centre-off double-throw switch can be used to pre-load any one of three initial states into the counter each time it carries out. (We could use two SPST switches instead.) In the normal (centre-off) position the counter is reloaded with 127 each time. In the 'Advance' position, the counter is loaded with 128 each time, and in the 'retard' position, the counter is loaded with 126 each time. In fact, we could get by with just slewing the sync pulses in one direction, but being able to shift the scope display EITHER left or right in small steps is much nicer. The slewing rate has been chosen as a compromise— if you go too slow it takes a long time to bring a Loran pulse into sync— if you go too fast, there is a tendency to overshoot and it is difficult to release the switch fast enough to single-step it.

Taking a look at the binary representations for 126, 127 and 128 counts shows that we can achieve the desired result with just an inverter, three diodes and a couple of pullup resistors, quite a stroke of luck really.

I used the 74LSXX chips because I already had them on hand, but 74HCXX equivalents would be okay if you want to save power. The circuit can be easily modified for other Loran-C stations— just pre-load the counter with other values. However, you only need to receive one station, and 8970 seems to be the strongest one around here. ■

## ATV— The cheap and easy way

BY JOHN SHIELDS VE3EGP

If you happen to monitor 145.67 MHz some evening and hear some strange, one-sided QSO's, take heart... it's not 'CB bandits' or exotic DX. It's more likely to be the London ATV producers at work and play.

Last year, I happened onto said frequency, and my curiosity was peaked. I recalled viewing an impressive demonstration of ATV at a LARC meeting some time ago, and remembered the excitement that the demonstration had generated. Listening to one side of the QSO once again aroused my interest, so I tried a simple little experiment.

By connecting my 2 metre antenna to the UHF terminals of a colour TV and tuning the bottom edge of the UHF band, I was able to copy a lovely full colour signal from John VE3JO. Voila!... a cheap and easy ATV solution.

John is only a few miles from my house in Byron and I thought it would be nice to see some of the other London and District producers at work, so a simple homemade ATV beam was obtained from Ced VE3BBI. The beam was mounted at about 35 ft. By the way, my QTH is very low in elevation, and there are high hills to the east and west which do not favour VHF and UHF operation. However, lo and behold, other ATV signals were picked up and I was hooked! Ed VE3EWO, Hugh VE3EWI, Frank VE3VU, Ced VE3BBI, Bruce VE3GMP, Jeff VE3NMJ and Norm VE3ETJ as well as John VE3JO are seen and heard regularly. Occasionally, we even see Woodstock, Ont. and Cleveland, Ohio just to provide a change of pace.

What is ATV? First of all, it is not to be confused with SSTV (Slow Scan Television) which appeared on the scene many years ago. ATV is full colour with unblurred motion and does not require a special TV receiver. Signals are rated P0 to P5, with P5 being comparable to the quality of a local TV station. Transmitter power levels range from 1 watt to 40 watts, with 8 watts being the norm. Pictures can be transmitted with a black and white or colour camera or camcorder. Any computer with simple graphics software can also be used for transmitting. Two metres is used by the receiving stations which pick up the audio subcarrier from the original station on 439.25 MHz. This is why the 2 metre QSO is one-sided on 145.67 MHz.

The antenna should exhibit a fair degree of gain (horizontal polarization) somewhere around 12 dB, and should be as high as possible. For best results, one should use low loss coax. If you are using the cheap and easy way to receive and have a TV UHF receive amplifier in line, then results will improve. By the way, the DX 2-metre monitor frequency is 144.34 MHz.

If you are tired of the same old routine, or if you would like to try a new and exciting medium, give ATV a try! If you can pick up the signals, a low power transmitter will be all you need to start sending. To keep things legal, you will require an Advanced Amateur Licence or a DOC endorsement to your Amateur Licence. (One must be active for at least one year to be eligible for the endorsement.)

—VIA LARC Oct/87

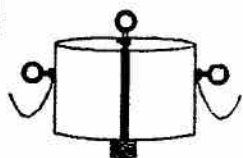
### IMPROVED RECEIVE AUDIO FOR DXERS

For DXing, most of the external speakers available for transceivers leave a lot to be desired. These speakers are tailored for fidelity in ragchewing. For DXing, where signals can be very weak and masked by noise, intelligibility is more important than fidelity. After trying most of the speakers on the market, I have settled on the speakers used with Motorola FM mobile radios.

These are the plastic cased units used with the Macom 70, Mitrek and MCX100. Although expensive to purchase new, they can often be found surplus. The MCX100 models are 4 ohms but this doesn't seem to cause a problem. The Mocom 70 units are 8 ohm.

The speakers come with an adjustable mounting bracket. They also provide superior performance for 2 metre mobile use.





ATTENTION ALL HFers!  
1000W-1:1-1.5 to 30MHz

A new Canadian made antenna balun is now available from your dealer or by mail from the manufacturer.

This balun is designed to replace advantageously in performance and price the W2AU used the world over.

Stainless steel and copper hardware ensure long lasting performance. Unconditional guarantee.

List price: \$17.95 (add \$2 postage)  
Dealer Inquiries invited.

COM-Q-PAC Inc.  
2264 Montee Gagnon  
Blainville, P.Q. Canada  
J7E 4H5

## ELSON HOLDINGS

### YOU CANNOT BUY FOR LESS

WIRE AND CABLE: 1 cond. P.V.C. Insulated  
No. 26 to 8 GA. inclusive

Multi Conductor Flex Cord  
Type S & SJ

Single & 2 Cond. Shielded Cable

Teflon Type - E. and E.E.  
Teflon Shielded Cable

Tubing P.V.C. - various sizes  
heat shrink - (1" only)

Also many other Ham Radio Parts

We will ship one or more spools  
Ontario - FOB Guelph orders less than \$200.00  
Other Provinces - FOB Guelph orders less than \$400.00

Ontario residents only add 7% P.S.T.  
Terms: Money order or Certified Cheque  
Personal Cheques require 4 weeks clearing time

Visit our Warehouse:

**ELSON HOLDINGS**

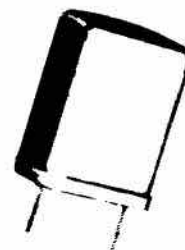
291 Woodlawn West, Unit 5B  
Guelph, Ontario Canada N1H 7L6  
Telephone (519) 822-0080 Telex 069-56638  
FAX (519) 836-4693

# LAND/MOBILE CRYSTALS

Fast, Reliable Delivery of a Quality Product  
Competitive Prices  
No Minimum Order



Maintaining Crystal Requirement Data for  
Virtually All Two-Way Radios and Pagers



Call Us For Frequency Changes of  
Channel Elements, TCXO'S, ICOMS, etc.

## LESMITH CRYSTALS

....People and Precision

Write or call for more information

**Lesmith Limited**

P.O. Box 846, 54 Shepherd Rd., Oakville, Ontario, Canada L6J 5C5

Telephone (416) 844-4505 • Telex 06-982348

TOLL-FREE "ACTION LINE" 1-800-387-4090 ANYWHERE IN CANADA

# CARF Publications

CARF Pens .....	\$1.00	_____
CARF Log Sheets (Package of 25) .....	\$3.00	_____
CARF Sew-On Crests .....	\$2.50	_____
Canada Flag Lapel Pin .....	\$1.00	_____

## TEXTS AND STUDY GUIDES

Certificate Study Guide .....	\$15.00	_____
Advanced Study Guide .....	\$15.00	_____
Instructors Guide For Amateur Licence .....	\$4.50	_____
CW into Foreign Languages .....	\$6.00	_____
Amateur Radio in Canada— An Overview .....	\$10.00	_____

**Special Club Discount** of 15% for orders of 10 or more of The Certificate Study Guide and/or the Advanced Study Guide to the same address. The price is now F.O.B. Kingston by your selection of carrier. Ask about our Large Order Discounts!

## CANADIAN AMATEUR REFERENCE GUIDE

Basic H.F. Antennas <i>By Art Blick VE3AHU, 23 Pages</i> .....	\$2.25	_____
Contests: Radiosport <i>12 Pages</i> .....	\$1.75	_____
The Amateur Bands <i>12 Pages</i> .....	\$2.25	_____
Routine Daily Operating <i>16 pages</i> .....	\$1.75	_____
DX <i>By John Gilbert VE3CXL, 15 Pages</i> .....	\$2.25	_____
Establishing An Amateur Station .....	\$2.25	_____
<i>By the late Bud Punchard VE3UD, 11 Pages</i>		
Monitoring And Reference Frequencies <i>19 Pages + Updates</i> .....	\$3.50	_____
Cable Television Signal Leakage .....	\$3.50	_____
<i>By Tony Van Wouw VE7CCI, 19 Pages</i>		
Emergency Communications <i>By Ken Kendall VE3IHY, 11 Pages</i> .....	\$1.50	_____
Amateur Radio Towers— Your Rights and Obligations .....	\$2.50	_____
<i>By Bill Wilson VE3NR, 15 Pages</i>		
Amateur Design of Printed Circuit Boards .....	\$2.50	_____
<i>By John Iliffe VE3CES, 19 Pages</i>		
Binder— 2" D-Ring with CARF Logo .....	\$9.00	_____
<i>For Reference Sections</i>		

## CASSETTE TAPES

The Amateur Bands .....	\$2.25	_____
Routine Daily Operating .....	\$1.75	_____

Add \$1.00 Postage and Handling ..... \$1.00 \$1<sup>00</sup>

Total— Please Remit by Cheque, Money Order, Mastercard or Visa .....

Name: \_\_\_\_\_

Call: \_\_\_\_\_

Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_

**Canadian Amateur Radio Federation**  
**Federation des Radioamateurs Canadiens**  
P.O. Box 356, Kingston, Ont. K7L 4W2

**613-545-9100**

# Amateur Design of Printed Circuit Boards

This new section of the Canadian Amateur Reference File describes a number of Amateur techniques for designing and etching printed circuit boards from simple methods suitable for trial runs to complex photographic systems that produce a quality rivalling some commercial jobs. The techniques are described with enough detail that any experienced experimenter should be able to reproduce the equipment and results in a typical home workshop.

Some hints and kinks are also included regarding easier or better ways to etch and layout the boards. This section is an updated and revised reprint of the series 'Amateur Design of Printed Circuit Boards' which appeared in *The Canadian Amateur* from December 1984 through June 1985.



**NOW AVAILABLE FROM THE CARF OFFICE**

*See Order Form on Page 46*

**TRANSMITTERS - RECEIVERS - TEST EQUIPMENT - LAB EQUIPMENT - COMPONENTS**

CARF

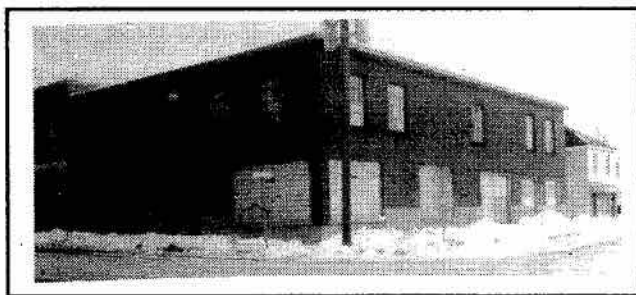
VE3 KHB

ARRL/CRRL

Wholesale/Retail

**W. J. FORD SURPLUS ENTERPRISES**

Buy/Trade



**WE HAVE MOVED !!**

Our NEW  
warehouse

21 Market St., Smiths Falls.  
(corner Market & William)

Mail to:

P.O.Box 606  
Smiths Falls, Ontario  
K7A 4T6

Phone:

(613) 283-0637 or (613) 283-5195

For the immediate future we are only open by appointment during the legal business hours of 5 am to 10 pm, Monday to Friday and 5 am to 6 pm on Saturday. Closed Sunday and Holidays.

We carry a vast assortment of items ranging from medical, laboratory, scientific, photographic, optical, antiques and other strange pieces for the experimenter and enthusiasts as well as schools, labs and electrical firms. If in the area when we are open, feel free to drop in and browse.

Always happy to answer queries by phone or mail. If we are not available and you are using 283-5195 (connected to our warehouse), a telephone answering machine will come on the line for any message. Our residence number is 283-0637 and has no answering machine facilities.





# Subscription Form

Full Voting Member

Membre a part entière avec droit de vote

\$25<sup>00</sup>

per year/pour un an

Associate Member

(Non voting, non licensed or foreign call signs)

Membre associé

(Adhérent sans droit de vote, sans licence ou détenteur d'indicatif d'appel étranger)

\$25<sup>00</sup>

per year/pour un an

Members residing outside Canada

Same as above, except in U.S. Funds to cover additional postage costs.

Membre résidant à l'étranger

Même que membre associé, mais en monnaie U.S. pour couvrir les frais postaux.

Additional Family Members

\$2<sup>00</sup> for each year extra per person; \$30<sup>00</sup> for life.

Membres d'une même famille

\$2<sup>00</sup> par année par personne; A Vie \$30<sup>00</sup>

Life Membership (Full or Associate)

Adhésion a vie (Membre votant ou associé)

\$375<sup>00</sup>

All members of CARF receive *The Canadian Amateur*.

Non-members may subscribe to *The Canadian Amateur* at

Tous les membres de FRAC reçoivent *'The Canadian*

*Amateur'*. Ceux qui ne sont pas membres de FRAC

peuvent souscrire à *'The Canadian Amateur'* pour le prix de

\$25<sup>00</sup>

per year/pour un an

Total

Name

Nom

Call

Indicatif d'appel

Address

Adresse

City

Ville

Postal Code

Code Postal

Membership #, if renewal

Date

No d'adhérent si renouvellement

Mastercard and Visa Service now available:

Master-charge et Carte Visa acceptées:

Card #

No de la Carte

Expiry Date

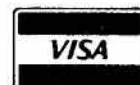
Date d'expiration

Signature

**Canadian Amateur Radio Federation**  
**Federation Des Radioamateurs du Canada**

P.O. Box 356/B.P. 356

Kingston, Ontario, Canada K7L 4W2, 613-545-9100



# Yaesu's FT-736R. Because you never know who's listening.

Why just dream of talking beyond earth?

With Yaesu's new FT-736R VHF/UHF base station, you can discover some of the best DX happening in ham radio. Via moonbounce. Tropo. Aurora. Meteor scatter. Or satellites.

You see, the FT-736R is the most complete, feature-packed rig ever designed for the serious VHF/UHF operator. But you'd expect this of the successor to our legendary FT-726R.

For starters, the FT-736R comes factory-equipped for SSB, CW and FM operation on 2 meters and 70 cm (430-450-MHz!), with two additional slots for optional 50-MHz, 220-MHz, or 1.2-GHz modules.

Crossband full duplex capability is built into every FT-736R for satellite work. And the satel-



lite tracking function (normal and reverse modes) keeps you on target through a transponder.

The FT-736R delivers 25 watts RF output on 2 meters, 220 MHz, and 70 cm. And 10 watts on 6 meters and 1.2 GHz. Store frequency, mode, PL frequency, and repeater shift in each of the 100 memories.

For serious VHF/UHF work, use the RF speech processor. IF shift. IF notch filter. CW and FM wide/narrow IF filters. VOX. Noise blanker. Three-position AGC selection. Preamp switch for activating your

tower-mount preamplifier. Even an offset display for measuring observed Doppler shift on DX links.

And to custom design your FT-736R station, choose from these popular optional accessories: Iambic keyer module. FTS-8 CTCSS encode/decode unit. FVS-1 voice synthesizer. FMP-1 AQS digital message display unit. 1.2-GHz ATV module. MD-1B8 desk microphone. E-736 DC cable. And CAT (Computer Aided Transceiver) system software.

Discover the FT-736R at your Yaesu dealer today. But first make plenty of room for exotic QSL cards. Because you *never* know who's listening.

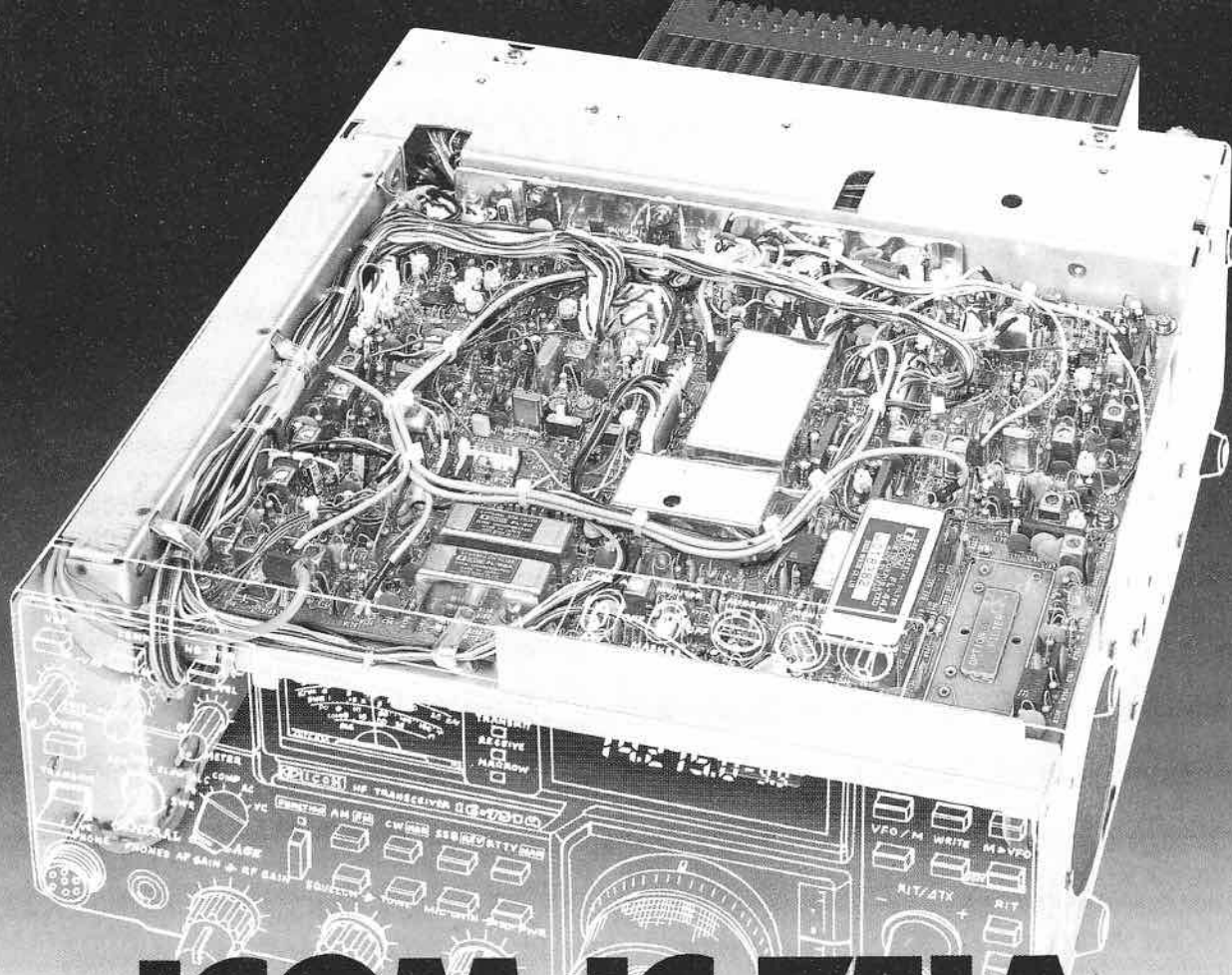
## YAESU



*Available from your authorized Yaesu Dealer.*

Contact Armaco Electronics Ltd.  
for colour brochure and  
name of nearest Yaesu dealer.

**Armaco Electronics Ltd.**  
P.O. Box 24625, Station "C"  
Vancouver, B.C. V5T 4E2



# ICOM IC-751A

## "IT'S WHAT'S INSIDE THAT COUNTS!"

- All HF Band Transceiver / General Coverage Receiver
- Advanced Circuit Designs
- All Modes Built-in USB, LSB, FM, AM, CW, RTTY
- Superb Frequency Stability
- Continuous Duty Operation
- Crystal Clear Signal Quality

**Midsized Masterpiece!** The deluxe IC-751A includes more high performance features and professional circuitry per cubic inch than any other HF transceiver. Its smooth-as-silk operation and long-term reliability produce the ideal contesting, DX'ing, mobiling and portable rig. Owning an IC-751A truly means "Going First Class!"

**Unsurpassed Quality and Reliability.** Quality and Reliability is important to you and it's important to ICOM. ICOM now covers you and your investment with its exclusive



one year warranty. There's more! The IC-751A's receiver boasts 105dB dynamic range for superb listening. The 100% duty cycle transmitter defies abuse and delivers 100 watts of exceptionally stable and clean RF output. Reliability. Quality. One year warranty. That's ICOM.

**All Bands, All Modes Included.** Operates 160 through 10 meters, it's easily modified for MARS operation, plus it includes general coverage reception from 100kHz to 30MHz. No compromise, no comparison!

**32 Tunable Memories.** Store both frequency and mode information. Use them to quick-access your favorite spots or as 32 preferred frequency-remembering VFOs.

**A Modern Amateur's Delight!** Special attractions include an electronic keyer, semi or full break-in rated to 40 WPM, panel selectable 500Hz/FL-32A CW filter, and volume control-tracking sidetone. SSB transmissions are enhanced with an RF speech processor and tone control to produce sparkling clear audio. PLUS there's a new rubberized tuning knob for velvet-smooth tuning and a full line of accessories and filters.

**RF Power Control.** Varies output independent of mic gain, ALC and speech processor action. Enjoy maximum "talk power" at any drive level!

**To see the IC-751A,** contact your local ICOM dealer.

 **ICOM**  
First in Communications

ICOM America, Inc., 2380-116th Ave NE, Bellevue, WA 98004 Customer Service Hotline (206) 454-7619  
3150 Premier Drive, Suite 126, Irving, TX 75063 / 1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349  
ICOM CANADA, A Division of ICOM America, Inc., 3071 - #5 Road, Unit 9, Richmond, B.C. V6X 2T4 Canada

All stated specifications are approximate and subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. 751A187