

Second Class Mail
Registration Number
5073

\$2.50

JUNE 1990

THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

La Revue des Radio Amateurs Canadiens

GO FOR IT!

CANADA DAY CONTEST 1990



Coming July 1, 1990

Details on Page 8

Com-West Price Spectacular!

Brand New

Kenwood TH-215AT Handhelds

for as little as

\$303.60 each*



Now is your chance to own a new Kenwood VHF Handheld at a super special limited offer while stocks last!

- If you buy one TH-215AT you pay only \$399 (regular \$529)
- If you buy two TH-215ATs you pay only \$699 for both (\$349.50 each)

Or

- *If you get a group together and buy five TH-215ATs, we'll give you the lot for only \$1549! Take advantage of our 2% cash discount (not valid with credit card orders) by enclosing a money order or certified cheque with your order, and the total price drops to \$1518.00, or \$303.60 each!

Features

- Wide receiver frequency coverage - 141 to 163 MHz
- Five watts output (with optional PB-1 battery pack)
- Multiple scan modes
- Large, easy-to-read LCD display
- Selectable CTCSS Tone Encoder built-in
- 10 memories
- Intelligent 2-Way Battery Saver Circuit
- Includes PB-2 Battery and Wall Charger

Also available: TH-415AT
UHF Handheld for
\$429 - very limited
stock!

Price

Breakthrough

Now Only \$299.95

A limited supply of Uniden 2600
10 meter rigs with RIT, ON/OFF,
Repeater splits, sub audible tone,
mike and power cable.

Cash price
\$299.95
incl. shipping



Optional Accessories

- | | |
|---|-------|
| • BC-7 Rapid Charger | \$179 |
| • BC-8 Compact Charger | \$69 |
| • PB-1 Battery Pack (12VDC 800mAh) | \$99 |
| • PB-3 Battery Pack (7.2VDC 800mAh) | \$76 |
| • PB-4 Battery Pack (7.2VDC 1600mAh) | \$109 |
| • BT-5 Battery Case (AA size batteries) | \$29 |
| • PG-3E Filtered Cigar Lighter Cord | \$32 |
| • SMC-31 Speaker Microphone | \$79 |
| • SC-12 Soft Case (for PB-2,3) | \$29 |
| • SC-13 Soft Case (for PB1,4) | \$29 |

Terms: Cheque or Credit Card only. Surface Shipping included to most Canadian points.

**COM-
WEST**
Radio Systems Ltd.

(604) 321-1833

Fax: (604) 321-6560

8179 Main Street Vancouver, B.C. V5X 3L2

Store Hours:

Monday - Thursday
Friday
Saturday

(PST)

9:00 am to 6:00 pm
9:00 am to 6:00 pm
9:00 am to 4:00 pm

CIRCULATION OFFICE

CARF Head Office
P.O. Box 356,
370 King St. West,
Kingston
Ont. K7L 4W2
613-545-9100

EDITOR

George Sansom VE3GWS

ASSISTANT EDITOR

Debbie Norman

COLUMN EDITOR

Clayton Bannister VE3LYN

CONTEST SCENE

Dave Goodwin VE2ZP

CROSSWAVES

Ralph Cameron VE3BBM

AFFILIATE CLUBS

J.P. LeBlanc VO1SK

CQ DX CQ DX

Paul Cooper VE3JLP

QRP COLUMN

Moe Lynn VE6BLY

YL NEWS AND VIEWS

Cathy Hrischenko VE3GJH

LISTENING TO THE WORLD

Sheldon Harvey

ARES

Bob Boyd VE3SV

LINE OF SIGHT

Robert Smits VE7EMD

NYBLES & BITS

Antonio Salvadori VE3NXQ

PACKET RAP

Bernie Murphy VE3FWF

IARN NEWS

Glenn Baxter K1MAN

OVER THE HORIZON

Bob Brown NM7M

TECHNICAL EDITOR

Bill Richardson VE6PN,
Box 68, Grimshaw,
Alberta T0H 1W0

LOOKING AROUND

Art Blick VE3AHU

THE GAIN GAME

Gerry King VE3GK

INDEXING

Bill Watts VE3DWV

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

Please address correspondence to the Editor at Box 356, Kingston, Ontario K7L 4W2, telephone 613-545-9100.

THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

EDITORIAL, VE7RD	3
LETTERS	4
FEATURES	
Canada Day Contest - 'Eh!', VE7RD	8
Antenna Structure Clearance	12
Algoma Amateurs catch Brier Fever, VE3ADP & VE3CWE	13
Development of Radio Regulations, VE7LR	15
The Nazi Weather Station in Labrador	16
REVIEWS	18
QUA	21
CQ DX CQ DX	27
ARES COLUMN	30
CONTEST SCENE	32
LINE OF SIGHT	33
LISTENING TO THE WORLD	35
OVER THE HORIZON	37
QRP COLUMN	38
CLUB CORNER	40
SWAP SHOP	41
THE GAIN GAME	42
LOOKING AROUND	43
TECHNICAL SECTION	
Simple VHF/UHF Mobile Installation, VE3EYS	44
Easy Foot Switch, VE4FP	45
Economical Feeder Spreaders, VE7BLU	45
Soldering Iron Blues, VE3PDK	46
Mounting Mobile Radios, VE6AGE	46

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



INC. EXECUTIVE

CARF 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

Clayton Bannister VE3LYN, 705 Fleet St., Kingston, Ont. K7M 5A4

SENIOR VICE-PRESIDENT

Earle Smith VE6NM, P.O. Box 412, Grande Prairie, Alta. T8V 3A5
(403) 532-4279

GENERAL MANAGER

Bernie Burdsall VE3NB, Box 356, Kingston, Ont. K7L 4W2

TREASURER

R.K. (Bob) Wanless VE3PSC, Box 356, Kingston, Ontario K7L 4W2

SECRETARY

Eric Ilott VE3XE, RR3 Yarker, Ont. K0K 3N0 613-378-2590

HONORARY LEGAL COUNSEL

Timothy Ray VE3RBK, 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. T0G 1P0
(403) 939-3514

ONTARIO DIRECTORS

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

QUEBEC DIRECTOR

PACIFIC DIRECTOR

J.F. Hopwood VE7RD, 1209 Kilmer Rd., North Vancouver, B.C. V7K 1P9
(604) 985-1267

ATLANTIC DIRECTOR

Nate Penney VO1NP, P.O. Box 10, Shoal Harbour, Nfld. A0C 2L0
709-466-2931

ASSISTANT REGIONAL DIRECTORS

Stuart Harvey VO100
Susan Harvey VO1OI
R.G. White VO1RW
Dr. Roger Côté VE1BWQ
Jeannine Côté VE1BWP
Burt Amero VE1AMA
Geoff Smith VE1GRS
Camille Tremblay VE2DNO
Tony Pattinson VE2KM
Ben Cuperman VE2LRB
Antonietta Avanzini VE2AAV
Gordon Roberts VE3IMA
Mel Brown VE3ACD
Barry Baggs VE3IVV
Charles Baker VE3PAP
Hans Zekai VE3ZHM
Cecil Fardoe VE4AEE
Max Geras VE4IX
Malcolm Timlick VE4MG
Vic Allen VE5AE
Bjarne Madsen VE5FX
William J. Wood VE5EE
Bob Shehyn VE5FY
Ken Schneider VE6COH
David Roberts VE6XY
Jim McKenna VE6SU
Gene Graham VE7GAS
Vol Riley VE7EYG
Larry Reid VE7LR
George Stephens VE7YF
Tony Van Wouw VE7CCI
Jim Voight VE7CWC
Hu Reijne VE7CHW
Ron McFayden VY1AD

WHAT IS CARF ?

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 Communications Canada;
4. To promote the interests of Amateur radio operators through a program of technical and general education in Amateur matters.



Committee Chairmen

CARF Head Office:

Debbie Norman, Office Manager (613) 545-9100

D.O.C. Liaison: Bill Wilson VE3NR

News Service: Bernie Burdsall VE3NB,
Box 356, Kingston, Ont. K7L 4W2

Electromagnetic Interference: Ralph Cameron VE3BBM

CSA Committee: Ivor Nixon VE3IHN,
17 Romney Rd., Islington, Ont. M9A 4E9

Canada Day Contest & Canada Winter Contest:

J. Parsons VE3IWF,
RR#1 Oxford Mills, Ont. K0G 1S0.

CARF Awards: Awards Manager,
Box 356, Kingston, Ontario K7L 4W2

Reciprocal Licencing & International Affairs:

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

Publications Committee: John Iliffe VE3CES

RABC Interference Committee: Ralph Cameron VE3BBM

RABC Land Fixed and Mobile Committee:

Paul Cooper VE3JLP

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

Government Relations: Dan Holmes VE3EBI,
33 Crownhill St., Gloucester, Ont. K1J 7K5

EDITORIAL

1-2-3 Canada!



By J.F. Hopwood VE7RD

1-2-3 CANADA! Sounds like a cheerleader's chant at a CFL game or girls rope skipping to the rhythm of a catchy tune! Actually it's neither! It's my way of introducing you to a very important occasion—our 123rd birthday as a Nation and some thoughts on three important notions on the continuance of Amateur Radio in Canada. 1 for Unity, 2 for Stability and 3 for Growth. Can we handle unity? Will it bring stability? And— are we ready for growth?

UNITY

The need for unity is self evident. Historically we've been of two minds. Continue the opportunities offered through close association with the ARRL or go it alone. The results of this dual approach have left its scars. Two camps of people competing and periodically quarreling over which approach is best for Canadian Amateur Radio. We can no longer afford this divisive state of affairs. We need the best of both worlds.

As we turn toward the 21st century, we must become 'professional' in running our business. We occupy very valuable spectrum territory. It's going to take the very best of our managing skills and resources to keep what we've got. We must move along and adapt new modes and new technology to Amateur Radio. We must encourage creativity and invention and improve our operating skills. We must develop and foster perceptions of ham radio in our communities which are 'positive and supportive'. We cannot do this effectively if our organizational leadership is focused on competing and not on co-operating.

The time for debate has ceased! CARF and CRRL will disappear and a new single unified organization will rise in strength and energy to take on the fight, not only to preserve what we have, but to steer us toward an exciting future. Issues which keep us apart will disappear as new people and new leaders emerge to dissolve the past in favour of the future. After all, our energies and wills are better harnessed working for a common cause. Our future hinges on our willingness to

work together in dignity and in harmony.

STABILITY

From a new-found unity will come stability. We will fashion and shape our future on the national scene as one body of Radio Amateurs. No longer concerned with what the 'other' group is or is not doing, we will concentrate all our energies to formulating and pursuing policies through internal discussion and deliberation and not from separate agendas. One body politic with representation region by region from coast to coast. All the issues we face will be resolved through dialogue, debate and decision as we put 'one face forward' at home and abroad. This will bring new strength and maturity to Canadian Amateur Radio.

Many things are crucial for stability! Organizations need talented people. Organizations need money. Organizations need ideas and energy. Organizations need rank and file loyalty and support. An organization, to be effective, needs a vision of its role, where it wants to go and how to get there! Canadian Amateur Radio must become mature and stable.

Perceptions are important! The respect of the communities in which we live is vital. We desire a good working relationship with our regulator, the DOC. We are more than just providers of emergency communications, however important that might be! The Amateur service adds much to the life of our country and we need to tell all who will listen, particularly those who could be persuaded to join our ranks. For this we need growth!

GROWTH

The debate is over! The DOC has decided for us! Like it or not, we are going to have a new re-structured Amateur Radio service. We believe an easier entry into the hobby will bring a marked increase in our ham population. This is not necessarily so! Things just don't happen, people make them happen! We are faced with a challenge and an opportunity—change and grow or face a limited and uncertain future!

Populating our bands, particularly

the VHF, UHF and SHF frequencies is a must. Marketing new products in communications is the lifeblood of a multi-million dollar business. Cellular radio, personal radio and public radio services, smart buildings, air traffic safety, medical electronics... et al. You name it and the radio communications electronics industry will develop and market it! Like Parkinson's Law— we must fill the space and time available or forfeit our spectrum territory to other contenders. Leaving our bands idle is inviting corporate raiders. Allowing other services to pre-empt our frequencies is to court strangulation and death.

Recruiting, instructing and examining potential Amateurs is more important now than ever before. We must develop programs to manage the growth of Amateur Radio in Canada. We need to plan and implement a recruiting program to make absolutely sure no strategy or opportunity is lost in our endeavour to attract newcomers. We know the DOC plans to pass the examining function on to us. Very flattering, but it needs organizing and it entails some expense. Is the DOC prepared to fund it? We must develop licence study guides and a teaching syllabus to manage a heavier student demand than ever before. Once again, dedicated people and good organization is the key to success.

CARRY ON CANADA

So there you have it— 123 years old this July 1st! We're proud of that! But, are we proud of our inability to bring lasting unity, stability and growth to Amateur Radio in Canada? No! Well then, now is the time to heal the wounds of division.

We have the chance to start all over again. That doesn't often happen to organizations. We have the opportunity to bring about true unity, real stability and solid growth.

Let's all pull together and support the formation of the new National Organization so that on a near future July 1st it is a fact! To do less is to break the faith, hopes and dreams of thousands of Canadian Amateurs!

Happy 123rd— Carry on Canada— Give It The Old 1-2-3 and Go For It!

LETTERS

RADIO FRAUD

I have enclosed a copy of a letter from the U.S. Postal Investigation Service in regard to Michael Harrison WB2PTI of Oceanside, N.Y. convicted on five counts of mail fraud. He is the guy who placed ads in *CQ-73 Magazine* under the name—The New Dentron Radio Co. He tricked many people who have sent him mail orders and equipment for repair which has never been returned.

More information is contained in the following from the U.S. Postal Investigation Service.

Larry Toulch VE2ME

"On Aug. 28, 1989, Michael Harrison was indicted by a Grand Jury in the Eastern District of New York on fifty (50) counts of mail fraud.

"On Feb. 14, 1990, Harrison was again arrested and incarcerated for violating the terms of bail including failing to appear in court.

"On Feb. 26, 1990, Harrison pled guilty to five (5) counts of Mail Fraud before Judge Jacob Mischler. Each count of Mail Fraud can carry up to a five year prison term and a \$250,000 fine. Harrison is expected to be sentenced on April 19, 1990, by Judge Mischler. Harrison is currently in jail while waiting sentencing.

"If you would like to write Judge Mischler to express your thoughts on sentencing or to advise him of any other relevant sentencing information, please address your correspondence to:

Judge Jacob Mischler
U.S. District Court
Long Island Courthouse
Uniondale Ave. & Hempstead
Turnpike
Uniondale, NY 11553

"On behalf of the United States Postal Inspection Service, I would like to thank you for the assistance you have provided me in the successful investigation and prosecution of Michael Harrison. Your co-operation in this case is deeply appreciated."

Martin T. Biegelman
Postal Inspector

RADIO RESCUE FOR OZONE

I'm sending you an article that I found in *Science Digest*, April-May, 1990, edition. They give as the source: *Comments on Plasma Physics and Controlled Fusion*, 1989 no. 5:223-234. I thought it might be of interest to the readers of *The Canadian Amateur*.

Radio Rescue for Ozone

Radio waves might be the salvation of the ozone layer, the chemical shield that protects life on Earth from the harmful ultraviolet light of the sun. Physicist Alfred Wong of the University of

California in Los Angeles says that radio waves can convert ozone-destroying substances in the upper atmosphere into harmless ones.

The ozone problem first begins when sunlight breaks down manmade chemicals such as chlorofluorocarbons into chlorine atoms. The chlorine, in turn, tears apart ozone molecules.

Wong's solution is to transform the chlorine atoms into negatively charged chlorine ions, which do not destroy ozone. He plans to beam radio waves into the upper atmosphere where they will energize loose electrons. The souped-up electrons will then smash into chlorine atoms and combine with them, turning the atoms into harmless ions.

Wong has been testing his theory in a laboratory chamber that simulates natural conditions. He plans a field test using a radio transmitter that will deliver about 100 megawatts of power more than 30 miles high.

(Sidebars)— One chlorine atom can destroy 100,000 ozone molecules.

—Radio bombardment of the stratosphere should energize 10,000 to 100,000 electrons per cubic centimetre.

Dave Bennett VE7YJ

LIGHTS! ACTION!

George Dew VE2OWW's story, 'The Case of the Humming Antenna' in the April issue ended it with the question "What do the headlights have to do with it?" and asked for answers. I may have one in the shape of an incident which happened to me many years ago.

It was the winter of 1953-54 and I was fumbling in the deathly cold and silence of my vintage 1940 Packard, using a flashlight to fix some wiring in the dashboard. I became aware of a faint high frequency buzz which was rather an eerie experience as I knew none of the car circuitry was on. I flashed the light under the dash and around the seats but could find no explanation of this faint, fuzzy audio note. It was too cold to explore further, so I switched off the flashlight and held it up to my ear again before stepping out of the car.

The audio had disappeared!

I figured that the only part of the flashlight which might act like an audio generator was the bulb, so I took it in the house and changed bulbs back and forth. The note could only be heard with the original bulb.

The conclusion I reached was that somehow, with the flashlight 'ON' the bulb filament, activated by the heat and some mechanical resonance in its structure, was vibrating at an audio

SILENT KEYS

VE7ADU - John Radcliffe on March 17th. A long time resident of Burton on the Arrow Lakes. John was well known and respected throughout B.C. His fine personality and cheerful disposition will be missed by all who knew him.

VE7DJA - Eric of Ladysmith on April 18th. He was active on 2 metres and could be heard on the B.C. Net especially on Swap and Shop. Eric will be missed by all his friends.

frequency. I offer this as a clue to the odd audio on George's signal. Could it have been a headlight filament doing the same thing as my flashlight bulb, with the concurrent electrical interference penetrating the various circuits in the car, including the cigar lighter circuit?

Doug Burrill VE3CDC

George Dew's article originally appeared in The Rambler, a publication of the Ottawa Valley Mobile Radio Club.

THE DEATH OF MORSE

I have been an Amateur radio operator for almost 20 years and it is most saddening to see Morse code slowly but surely being pushed out of the picture. I have been blatantly insulted by young would-be Amateurs who openly scorn Morse code as an antiquated pastime for a group of senile old imbeciles who have nothing better to do.

These so called budding Amateurs claim they can't learn Morse code. Absolute rubbish! We senile old imbeciles learned it, so just maybe we're not the dumb ones after all.

There is no such thing as can't when it comes to learning Morse code. Certainly it is difficult to learn, but shouldn't that make the task that much more challenging? A little bit of perseverance and determination is all that is required, and anyone who cannot muster a reasonable amount of both should never ever be allowed to obtain an Amateur Radio Operator's Licence. Such privileges should have to be earned and learning to communicate freely in Morse code should have never been removed as a requirement at any licence level.

During WWII navigators and wireless operators were given eight weeks to learn Morse code at a minimum of 20 wpm both ways. There was no whimpering, "I can't learn it." You learned it— period!

If these aspiring young Amateurs of today only knew how many lives have been saved in air and more particularly sea disasters by someone who could send out an SOS on a Morse key when all other modes of communication had

failed, perhaps it would be an incentive for them to learn Morse code and be proud they did.

But alas, I fear that in ten years—perhaps less—CW will have completely disappeared from all Amateur frequencies and then we'll have one glorified CB fiasco which I, for one, will have no part of. Think about it.

Bob Gillespie VE4GW

MERGER SUPPORT

We understand that an amalgamation of the CRRL and CARF is again in the negotiation stages.

I have been instructed by a unanimous vote of our club membership to write to both organizations to offer our encouragement in this most desirable endeavour.

Let it be known that our membership (approx. 170) has voiced their wish to have one strong central organization at the national level. We feel that a single voice speaking for all Canadian Amateurs would carry much more weight with the DOC and IARU conventions, etc.

We also feel that there are few enough Amateurs willing to participate at an organizational level, and to have these people working so hard against each other rather than alongside each other, is a waste of their valuable time and accomplishes little.

We think the average Amateur finds it too expensive to belong to both organizations and that many, rather than choose, just don't join either.

We earnestly hope that a resolution can be reached at an early date and that soon the Canadian Amateur community will be represented by a single strong leadership. We would like to offer our assistance to the negotiating team in any way possible toward this end.

Eleanor Cripps VE3TFC
Secretary,
Niagara Peninsula
Amateur Radio Club

TEN POUND WINNER

Our own Bob Eldridge VE7BS won 10 pounds for the following letter to the British magazine Ham Radio Today:

Letter of the Month

I remember I learned morse code by listening to commercial stations sending QRA QRA QRA de WKJ WKJ WKJ, etc. I soon recognized the 'QRA de' as a group, then got the W, next time around the K, then the J. I don't remember that I formally studied the code, except maybe for X, Y and Z and some of the punctuation symbols.

My granddaughter (about eight at the time) learned in a few minutes to send and recognize BOB (my name) and TAOMI (hers), then her mother's, her grandmother's, etc. She never studied the code, but a year later she could still recognize BOB and TAOMI. Maybe there is a principle there somewhere—

the sound pattern has to mean something. Surely, everyone recognizes CQ, don't they?

I saw an interesting idea from EA5DIX in the magazine of Union Radioaficionados Espanoles in March 89. A method of remembering the sound of code symbols by association with mnemonic words, a word starting with a specific letter and with the rhythm of it. The words were, of course, Spanish, but for example in English one could use ARRANGE (with the accent on the second syllable) for A. BASICALLY for B, CASANOVA for C, and so on. Perhaps if the student makes up the list personally, the very act of working it out may help to remember the rhythm of each letter. I suggest that a person who has tried unsuccessfully to learn the code tries this:

Say out loud:

A RRANGE di dah

BAY SI CA LEE dah di di dit

CAH SA NO VA dah di dah dit

And here is a thought that some may consider far out: one side of the brain is adept at language, the other side is adept at music. Maybe a student should experiment to find out which ear to listen with when learning the code.

I am just trying to be helpful. I have loved the code, and music, and language, ever since I can remember, and I feel sad that not everyone feels the same way.

Bob Eldridge VE7BS
(ex G3AGQ, D2GQ)
Pemberton, B.C.

Editor's Note: Does this mean that if I listen with the correct ear I'll learn music faster? Seriously— I'll try anything once. All learners should. I found mnemonics very like these helpful in learning guitar positions—much more helpful than 'thinking of colours', which is the conventional wisdom. Everyone should try to invent a personal system. In fact, Jack Hum has written about the subject of mnemonics in one of his Metrowave columns which we haven't published yet. It's no substitute for practice, but it does give your memory a kick in the behind when it needs it.

Now: has anyone got any mnemonics for basic maths?

MORE ON WARTIME BLACKOUT

My letter to the Editor in the February issue concerning who was, to quote a U.S. Civil War general, "the fustest with the mostest" of the Allies to land on Spitzbergen during WWII, elicited a very interesting reply from Bob Brown NM7M, printed in the April issue. Intrigued by it and his articles (Nov. & Dec. '89) on 'Ionospheric Disturbances and World War II' and his riposte to my words in *The Canadian Amateur*, I wrote to him to see if I could assist in his research.

In a later phone conversation with

Bob, I found him to be an enthusiastic retired physicist from UCLA who is pursuing his objective of determining whether 'solar proton events' (flares), 'geomagnetic storms and other ionospheric disturbances' and the resultant HF radio 'blackouts' disrupted military operations or strategic communications during WWII.

Part of my reply to him may be of interest to TCA readers, some of whom might have experienced this phenomena and would pass their observations on to him. His QTH is 504 Channel View Dr., Anacortes WA 98221. I wrote:

Dear Bob:

"The fascinating thing about Amateur Radio is the way one meets and hears from the most interesting people with the consequent pleasure of learning and discussing all sorts of topics. Your letter was certainly one which captured my interest because of the fact that we recently had a most enjoyable and informative talk at the Ottawa Radio Club on the subject of radio astronomy. The speaker, Ken Tapping, started in this field in Britain as a hobby and is now into astrophysics as a profession with our National Research Council.

"Ken told how the geomagnetic storm phenomena can be forecast by radio astronomy observations of solar activity. He recounted how Hydro Quebec was advised by NRC of the imminence of the March 1989 bursts of solar activity (flares) and of the likely consequence of a magnetic storm. Hydro Quebec, however, suffered an extensive and costly power outage due to the solar-sourced proton bombardment of long-distance power transmission lines and the resulting high currents induced on them."

Doug Burrill VE3CDC

URBANISM GROWS: AMATEURS ARE FADING AWAY

Urbanism, as a means of implementing forward-looking improvements on town-planning, appears to be taking over many aspects of communications, particularly where political muscle is absent, as in Amateur Radio. According to my sources at DOC Ottawa, they, meaning Canadian urban planners, have only a 'voice' in the field of communications. Unfortunately, the urbanists haven't yet been advised of the fact. Our national media in Amateur Radio, namely CARF, RAQI, CRRL, etc., could bridge this gap.

I've included a copy of my input to the proposed urbanism by-laws for Metis Beach, and the proposed plan on antenna restrictions, article 203. (Copy available from CARF or M. Bosse... Editor.) The urbanism technician who wrote up the article apparently has

Continued on next page

LETTERS (cont'd)

never heard of Amateur Radio, CB radio, areas where no TV cable exists, and where FM radio is extreme fringe reception. Even worse, these by-laws are in force in many municipal regional councils (MRC) areas. Unfortunately, Amateurs and other users of electromagnetic propagation are not alarmed, or even moderately aware.

What to do about it? I contacted the president of RAQI, VE2AB; he is vaguely aware of the Townsend Report, on a second-hand rumour basis, while DOC used the report as a bible to make new regulations, and solve complex jurisdictional problems.

Although the proposed by-law is ultra vires in its four paragraphs of Article 203, the last one should shock, or at least startle any Amateur into action:

"One antenna is authorized per main building..."

My antenna 'farm' on a 48 ft. tower, consists of:

- 1 Ringo (digipeater) (145.01)
- 1 Cushcraft 4-Pole for 144-148
- 1 20 inverted vee
- 1 VHF TV antenna
- 2 UHF TV antennae
- 1 Long wire for VLF
- 1 10-dB FM receiving antenna for CBC
- 0 Beams of any sort

If this by-law goes through, guess what happens to Amateur Radio? I put a message on the BBS yesterday "Urbanism: Your antennas in peril," and feedback indicates I'm not the only one with more than one antenna.

The feedback I get should reflect the interest of the Quebec Amateurs to save their hobby, give a good indication of what they know about their urbanism plan, and in general, what is happening across the country. To date, talking with local Amateurs truly scares me: they know virtually nothing about their town planning, what legal authority

urbanism planners have over antennas, or what they can do about it. "We'll install invisible antennas, install in attics, hide, etc., etc. These are head-in-the-sand attitudes. If the urbanism planner says only CB transmitters are authorized, will the Amateurs react by "too bad, there go our ham antennas"?

I appreciate your various articles on urbanism problems over the last few years, but Amateurs tend not to take it seriously. Just imagine the headache every time of budgeting for a new rig, I shall keep my 1976 Drake TR-7 for a long time, unless radical changes in urbanism planning take place, particularly at top government levels. Some ignoramus urbanism technician is deciding what and where I install my antenna; I'm obliged to pay \$25 for a building permit, pay the building inspector \$15 to look over the site so he can issue the authorization and another \$15 to have him tell me it's acceptable. This is beyond my humble imagination. If the different organizations, RAQI,

CARF, Amateur Clubs, etc., can't influence these bureaucrats, then we might as well forget about Amateur Radio. We won't need RAQI, CARF or other organizations.

Should Amateurs be interested in cracking this exploding situation, I would be most interested to help. You can get me on the BBS: VE2BTT @ VE2RCG, Tel: (418) 936-3968.

I asked the Amateurs in the Quebec BBS corridor to send me a copy of their urbanism plan, relating to antennas: there are around 1500 municipalities in Quebec. Once compiled, we could evaluate the average restrictions, abuses and exclusions, and come up with a plan to approach the town planners across the province, and Canada. In most cases, planners are everyday Joes who know as much about Amateur Radio as you or I do about nuclear submarines.

Please drop me a message on the BBS if I can help.

Gilbert R. Bosse VE2BTT

The Man from Down Under

On the 1st and 2nd of March 1990, CARF HQ at Kingston had the pleasure of a visit from John Aarsse VK4QA of Nambour in Queensland. John, a long time member of the Wireless Institute of Australia (WIA), has held many executive positions, is currently Divisional Secretary, and also a member of the WIA executive sub-committee known as 'The Future of Amateur Radio - Working Party'. This committee is charged with the responsibility of planning the future direction of Amateur Radio in Australia.

John was shown the workings of the CARF office by Debbie Norman, the Office Manager, and was very impressed by our efficient organization. (Hope the WIA doesn't lure her away to the sunshine state of Queensland.)

Besides visiting relatives, school-mates and 'old flames', he will have discussions with officials from VERON, the Dutch Amateur Organization, DARC, the Amateur Organization of the Federal German Republic, CARF in Kingston and Ottawa, and the Canadian DOC officials. His main interest will be in their methods of organization, membership communications, and publication of their respective Journals.

He also plans to attend the AGM of MARAC, the Dutch Naval Amateur Radio Club, and the Annual Day of the Amateur (Dag van de Amateur), organized by VERON. This year they will celebrate 60 years of legal Amateur



Radio in PA-land (keep on listening for their special prefix PA60). VERON's committee has said that time has been allocated during the official opening ceremony for VK4QA to say a few words on behalf of the Queensland Division and the Amateurs of Australia.

It is very interesting to hear about the workings of other Amateur organizations and to realize we all have similar problems. One is left with the feeling that the Canadian Amateur is well looked after by the DOC. Good luck, John, we are looking forward to a visit on your next peregrinations around the world. Please plan for a summer visit so we can show you more of Canada. ■

VE3NB

ANNUAL GENERAL MEETING

The AGM of the Canadian Amateur Radio Federation will be held on June 16, 1990 at the Donald Gordon Centre, Queen's University Kingston, Ontario, commencing at 0930 hrs.

All members are encouraged to attend this important annual event to hear about your Federation's past year's activities and to learn what is planned for the future. Come and take part. See how the Federation works and give it the benefit of your advice and suggestions.

Eric Ilott VE3XE,
Secretary,
Canadian Amateur Radio
Federation Inc.

SEAWAY COMMUNICATIONS CO.
3481 ROSEDALE AVE., CORNWALL, ONTARIO K6K 1V5

ORDERS, INFO, AND INQUIRIES: (613) 938-3896 **HOURS:** MON to FRI: 7 to 10 P.M.
FAX ORDER LINE: (613) 938-9723 **SATURDAY:** 1 to 6 P.M.

IF YOU CALL AT OTHER THAN THE ABOVE HOURS, YOU WILL USUALLY GET THE ANSWERING MACHINE. YOU CAN PLACE YOUR ORDER OR REQUEST PRICING, INFO, ETC, THROUGHOUT THE DAY IF THIS IS MORE CONVENIENT FOR YOU, AND WE WILL GET BACK TO YOU A.S.A.P. NOW PLACE ORDERS, INQUIRIES, ETC., VIA OUR FAX LINE AT (613) 938-9723.

KENWOOD - ICOM - YAESU - TEN-TEC - UNIDEN - HY-GAIN - CUSHCRAFT - BUTTERNUT - HUSTLER - LARSEN - SPI-RO - ALPHA-DELTA - VAN GORDON - AEA - MFJ - KANTRONICS - BENCHER - VIBROPLEX - ASTRON - SONY - DIAMOND - AMPHENOL - CERTIFIED COMM. - ALINCO - TRYLON TOWERS - BIRD WATTMETERS - CALLBOOK - A.R.R.L. PUBLICATIONS.

JUNE SPECIALS

KENWOOD TS-440S 100 WATT GENERAL COV. XCVR, 100 MEMORIES.....	LIST \$1799	\$1599
KENWOOD TS-440S/AT 100 WATT GENL. COV. XCVR W/AUTO TUNER.....	LIST \$1999	\$1799
YAESU FT-757GX/II FULL FEATURED GENL COV XCVR, CW FILTER, FM. LIST	\$1939	\$1499
ICOM IC-725 100W GENL COV XCVR, DUAL VFO's, 26 TUNEABLE MEMS. LIST	\$1299	\$1189
ICOM IC-726 LIKE IC-725 PLUS 6 METER ALL MODE, COMPACT.....	LIST \$1749	\$1599
ICOM IC-228H 45 WATT 2 METER FM MOBILE XCVR, 138-174 RX, TT..	LIST \$ 729	\$ 649
YAESU FT-470 2M/440 DUAL BAND HT, INCL. CHARGER & SOFT CASE..	LIST \$ 839	\$ 699
AEA PK-232MBX ALL MODE INTERFACE- PACKET,CW,RTTY,WEFAX, <u>MORE..</u>	LIST \$ 649	\$ 499
KANTRONICS KAM ALL-MODE HF/VHF, DIGIPEATING, GATEWAY,++++++	LIST \$ 579	\$ 459
MFJ-127B ALL-MODE HF/VHF PACKET,CW,RTTY,SSTV,WEFAX,MEM.KEYER.	LIST \$ 469	\$ 399
MFJ-941D 300 WATT ANTENNA TUNER, METER, ANTENNA SWITCH, BALUN	LIST \$ 189	\$ 159
MFJ-949D 300 WATT TUNER, CROSS NEEDLE PEP METER, DUMMY LOAD..	LIST \$ 289	\$ 229
A.E.A. AT-300 *NEW* 300W DELUXE TUNER, CROSS NEEDLE METER....	LIST \$ 399	\$ 329
ASTRON RS-20A 13.8V 20 AMP ICS/16 AMP CONTINUOUS POWER SUPPLY	LIST \$ 215	\$ 179
ASTRON RS-12A 13.8V 12 AMP ICS/9 AMP CONTINUOUS POWER SUPPLY	LIST \$ 159	\$ 139
HY-GAIN HAM IV ROTOR - 15 SQ.FT. WINDLOAD - MOST POPULAR.....	LIST \$ 899	\$ 549
HY-GAIN CD45 II ROTOR - 8.5 SQ.FT. WINDLOAD, W/LWR MAST ADPTR	LIST \$ 615	\$ 429
HY-GAIN EXPLORER 14 - 4 ELEMENT BROADBAND TRIBAND BEAM, 8.8dB	LIST \$1099	\$ 699
HY-GAIN TH3JRS - 3 ELEMENT TRIBAND BEAM, 750W PEP, 8.0dB GAIN	LIST \$ 699	\$ 479
CUSHCRAFT A3S - 3 ELEMENT TRIBAND BEAM, <u>NOW ALL STAINLESS HDW</u>	LIST \$ 699	\$ 499
CUSHCRAFT A4S - 4 ELEMENT TRIBAND YAGI - ALL STAINLESS HDWRE.	LIST \$ 819	\$ 619
CUSHCRAFT R-5 - 5 BAND 10,12,15,17,20M VERTICAL, NO RADIALS..	LIST \$ 529	\$ 429
CUSHCRAFT 215WB - 15 ELEMENT 2 METER BOOMER, 15' BOOM, 15.5dB	LIST \$ 209	\$ 169
A.E.A. ISOPOLE 144 - 3 dB GAIN 2 METER VERTICAL.....	LIST \$ 129	\$ 99
VAN GORDEN G5RV - MULTI-BAND 10-80M ANTENNA, FULLY ASSEMBLED.	LIST \$ 99	\$ 79

SUPER DISCOUNT PRICES ON NEW TRYLON "TITAN" TOWERS. SUPER JUNE SAVINGS ON TOWER, BEAM, AND ROTOR PACKAGES ... CALL OR WRITE FOR QUOTES.

PLEASE NOTE: ALL PRICING ON MONTHLY SPECIALS IS CHEQUE-WITH-ORDER PRICING.

* * PLEASE CALL FOR PRICING ON CREDIT CARD ORDERS * *

PLEASE ADD 2% TO YOUR ORDER FOR INSURED SHIPPING & HANDLING.

* * WE GUARANTEE THE ABOVE PRICES FOR THE ENTIRE MONTH. * *

SHIPPING: PLEASE ADD 2% (MINIMUM \$4.50) TO YOUR ORDER FOR INSURED SHIPPING AND HANDLING. SOME ITEMS OR LOCATIONS MAY BE SUBJECT TO FREIGHT COLLECT CHARGES.
ONTARIO RESIDENTS: PLEASE ADD 8% PROV. SALES TAX TO TOTAL AFTER ADDING SHIPPING. THERE IS SALES TAX ON THE SHIPPING. WE ACCEPT CHEQUE, MONEY ORDER, BANK DRAFT, MASTERCARD AND VISA. PLEASE CALL FOR CREDIT CARD PRICES. YOUR CHEQUE OR MONEY ORDER IS APPRECIATED WITH ANY ORDER. WE SHIP CANADA-WIDE!!

PLEASE CALL FOR SPECIALS ON USED EQUIPMENT. ALL USED EQUIPMENT CARRIES A FULL 30-DAY PARTS AND LABOR WARRANTY. ****WE TRADE**** CALL/FAX/WRITE FOR TRADE-IN PRICE ON YOUR CLEAN, UNMODIFIED HAM EQUIPMENT. WE SERVICE WHAT WE SELL.

Canada Day Contest - "Eh!"



CANADA DAY CONTEST - 'EH!'

By J.F. Hopwood VE7RD

Here we go again with our national fun day contest! No mistaking the day as we did with the 1989 Canada Winter Contest. Yes! It's CANADA DAY Sunday, July 1st! Dave Goodwin VE2ZP, our 'Contest Scene' columnist, tells us that the two CARF contests need overhauling. They lack serious competition. Some ingredient is missing! His assessment is shared by experienced testers. I'm sure he's right, but somehow the annual July 1st event is more than just a competitive activity.

Canadians, in general, sometimes get hung up on a national soul search—'an identity crisis'. We accuse ourselves of not really knowing who we are and were we fit in the affairs of the world. English and French languages and multi-

cultural backgrounds mix with Yankee economic and cultural pressure. Now our illustrious leaders talk of free trade, GST, Meech Lake and we're more confused than ever. However, there is evidence to suggest that Canadian hams have their own way of solving all this.

Come July 1st, just dust off the HF rig, check out the antenna and join the warmest, friendliest on-air national party you'll hear anywhere, anytime!

CARF calls it a contest, but really, the "Eh!" gang use it as excuse to say hello and best wishes to each other from coast to coast. Sort of all the VE, VO and VY guys saying, "We're one, we're Canadians and proud of it"! So, you see, it's more than just a contest.

Try it! You'll like it! Say hello to me in Lotus Land and pick up 20 points for VE7TCA. Talk to your July 1st, eh!

Be sure to check out the rules and forms elsewhere in this issue. ■

USE 'EM OR LOSE 'EM?— SPANS USED TO STUDY RADIO SPECTRUM

Tydac Technologies Inc. has announced that the Department of Communications (DOC) is using SPANS, Tydac's geographic information system, to study radio spectrum availability.

The DOC has developed a radio spectrum assessment system which uses SPANS to model channel availability for telecommunication services over large geographical regions of typically more than 200,000 square kilometres.

Data such as population density, land use and road accessibility are being integrated into SPANS to create radio spectrum profiles. Then, the remaining capacity of a frequency band can be determined by using SPANS to assess the availability of channels within a band and analyze the impact of changing technology on the spectrum.

Loyalist City ARC Awards Program

General Rules

The following award is sponsored by the Loyalist City Amateur Radio Club of Saint John, N.B. and is available to all radio Amateurs throughout the world regardless of calls held and QTHs operated from.

No date or band limitations. Available to SWLs on a heard basis. Any one band or one mode or mixed endorsement (AOMB/M) at time of original award application for no charge extra. Later band/mode endorsements for 20¢ or 2 IRC's.

Each award is available for \$1 or 10 IRC's handling fee. Higher class endorsements available for 20¢ or 2 IRCs.

General Certification Rule (CGR) applies, that is, have two licensed Amateurs certify that QSL cards have

been signed and are in your possession.

All applications to be sent to: Awards Custodian, Loyalist City Amateur Radio Club, P.O. Box 6552, Saint John, N.B.

GREATER SAINT JOHN AWARD —

Work stations located within 15 miles of downtown Saint John in the following listed classes. Post Offices within this region include: Saint John, Lancaster, South Bay, Ketepec, Grant Bay, Westfield, East Riverside, Rothesay, Gondola Point, Quispamsis, Ben Lomond, Musquash.

	Class		
	A	B	C
VE1	24	16	8
North America	12	8	4
Rest of World	6	4	2

Canada Contest Multiplier Chart

Province Province Territory Territoire	VO1 VO2	VE1 NS	VE1 NB	VY2 VE1 PEI	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VY1	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. Everyone works everyone.

Classes: In the single opr. section there are 10 classes of entry. These are: All Band Mixed Mode (CW-SSB), All Band CW, All Band SSB, Single Band Mixed Mode (CW-SSB). There are two multi opr. classes. These are: Single TX All Band (Multi-Single) and Multi TX all Band (Multi-Multi). No cross mode QSOs are allowed and Single Oprs. must use own station.

Exchange: Signal Report; Province, Territory, State or Country; operator's name.

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

Multipliers: As listed above for a possible total of 168.

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, QSOs, a list of multipliers and bonus stations. Also dupe sheets are required for logs with over 100 QSOs on any single band. Entries must be postmarked within 30 days of the Contest. Please send in your photos and comments.

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 will be awarded for All Band Mixed Mode, All Band CW, All Band SSB, Single Band 7 MHz, Single Band 14 MHz, Single Band 21 MHz, Single Band 28 MHz, Multi-Opr. Single TX and Multi-Opr. Multi TX. CARF official stations coast-to-coast may compete for the President's award under the same rules. Trophy winners may win the same award only once within a two-year period.

Contest Entries for both the CANADA DAY CONTEST and the CANADA WINTER CONTEST should be sent to:

J Parsons VE3IWF,
RR 1, Oxford Mills,
Ontario K0G 1S0

CANADA CONTEST

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

YEAR

0000Z to 2400Z
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

X 10 =

PTS.

OTHER QSO's

X 2 =

PTS.

BONUS QSO's

X 20 =

PTS.

TOTAL QSO POINTS

PTS.

MULTIPLIERS

See Chart

TOTAL SCORE = QSO Points X Multiplier

PTS.

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

(Signature) _____

Logs must be postmarked no later than 30 days from the date of the contest.

Results will be published in *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.

CARF'S CANADA DAY CONTEST

JULY 1st, 1990

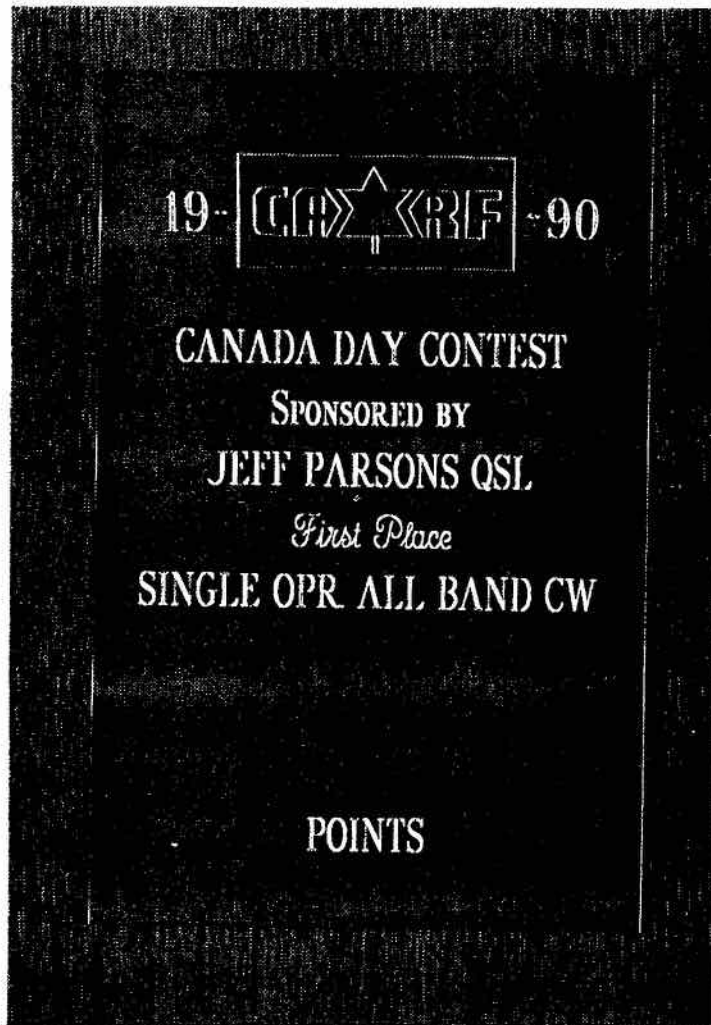
**Canadian
Larsen Electronics**
10 Metres
Single OPR - All Mode

Gem Quad Ltd.
15 Metres
Single OPR - All Mode

**R.T.I.
(Resonant
Technology Inc.)**
20 Metres
Single OPR - All Mode

Trylon Towers
40 Metres
Single OPR - All Mode

CARF Inc.
President's Award
For TCA/VCA Stations



Atlantic Ham Radio
Single OPR
All Band Mixed

**Seaway
Communications Co.**
Single OPR
All Band SSB

Jeff Parson's QSL
Single OPR
All Band CW

**Com-West Radio
Systems Ltd.**
Multi OPR
Single TX All Band

**H.C. MacFarlane
Electronics Ltd.**
Multi OPR
Multi TX All Band

**Twenty Beautiful Plaques
will be awarded this year!**

Antenna Structure Clearance

The following excerpt is from 'Antenna Structure Clearance', Communications Canada CPC-2-0-02.

1. INTENT

This circular provides information on the new procedures for the approval of proposed radio station antenna supporting structures and for proposed changes to existing antenna supporting structures from a hazard to air navigation point of view.

2. STATIONS OTHER THAN BROADCASTING STATIONS

Applicants for proposed radio station licences and licensees proposing changes to existing radio stations, other than broadcasting stations, should now submit antenna supporting structure clearance forms directly to the nearest Department of Transport (DOT) Aviation Group Office... Blank forms are available from any Department of Transport Aviation Group Office or any Department of Communications (DOC) district office.

The Department of Transport will notify applicants for antenna supporting structure approval of the acceptability of the proposed site from an air navigation hazard point of view. Applicants will also be notified of any painting and/or lighting that is required. The DOT will not advise the DOC of the approval or of the marking requirements for such stations.

Radio station licences are issued or amended without the prior approval of the antenna supporting structure by the DOT. However, applicants and licensees are reminded that antenna supporting structure approval is still required and that the issuance of a radio station licence in no way infers that a proposed site or structure will be approved from an air navigation hazard point of view. Conversely, antenna supporting structure approval from the DOT Aviation Group does not infer that a radio station licence will be issued.

3. BROADCASTING STATIONS

Due to the cost and complexity of

TCA COPIES

Copies of articles from *The Canadian Amateur* from Vol. 1 No. 1 Jan. 1973 are available. One article per issue \$2 post paid.

broadcasting station antenna sites, applicants proposing new stations as well as those proposing changes to existing stations should note that a Technical Construction and Operating Certificate will not be issued until proof has been submitted that the antenna supporting structure has been approved.

Antenna supporting structure clearance forms submitted as part of the broadcasting station application will be forwarded to the DOT with a request that the applicant and the DOC be informed simultaneously of the site acceptability from an air navigation hazard point of view and of any supporting structure marking requirements.

4. BACKGROUND

Since the creation of the DOC, applicants for radio station licences have obtained the Minister of Communications' approval for a proposed station prior to being granted a radio station licence. In addition, the Minister's approval was required before any changes could be made to an existing radio station. This approval was withheld until the DOT had evaluated and approved the proposed antenna supporting structure including masts, towers and other vertical structures with respect to the safe navigation of aircraft.

The *General Radio Regulations, Part II*, made under the *Radio Act* required that

such structures be cleared before a licence was issued.

Recognizing that the Department of Transport had the mandate for evaluating the hazard of an antenna supporting structure to air navigation, clearance forms were collected by the DOC as part of a radio station licence application package and sent to the DOT for evaluation and approval. After evaluation, the DOT returned the form to the DOC who notified the applicant of the Department of Transport's findings and recorded this information on the station's licence. Subsequent changes to the antenna supporting structure caused the process to be repeated.

The *Air Regulations, Chapter 2*, Sections 514.1 (2) and (3) made under the *Aeronautics Act*, permits the Minister of Transport to establish and publish the standards for obstruction markings and to require that a structure be painted and/or lighted in accordance with those standards.

The *General Radio Regulations, Part II*, has been amended to remove the requirement for the Minister of Communications to refrain from issuing a radio licence while awaiting clearance of an associated antenna supporting structure by the DOT. In all other respects, the Minister's approval of proposed radio stations and proposed changes to existing stations is still required prior to establishing new stations or making changes to existing stations. ■

VEO Callsigns

Recently CARF had reason to query Department of Communications headquarters, on behalf of one of our members, about the proper use of VEO callsigns.

The question we asked was "Under what circumstances should a VEO call be assigned and how should it be used?". Bill Wilson VE3NR, our Government Liaison, received the following reply:

"VEO calls are to be assigned to Amateur stations permanently installed on ships and are for use only on international waters, that is beyond the 200 mile limit.

"When the ship is in Canadian

domestic waters, the Amateur must use his VE# call and, when within the waters of another country, operation of the station is governed by the laws of that country. If a portable call is to be used in the other country, then it is the Amateur's VE# call, not his VEO one.

"If Canada has a reciprocal operating agreement with that country, then that is what details proper operation.

"The usual practice would be the country's call prefix/the Amateur's VE# (eg. FP8/VE3ABC) call except in the United States where the prefix will follow the Amateur's call (eg. VE3XYZ/W8)." ■

Algoma Amateurs catch Brier Fever

By Jim Scotland VE3ADP
& Walt Kimball VE3CWE

The Labatt Brier Canadian Men's Curling Championship has come and gone—a real challenge for the Algoma Amateur Radio Club and also for some 1300 other volunteers. From all reports, we met the challenge and did an outstanding job.

While the Soc Brier Committee had been working on the event for five years, the Club was invited to take part in it as trained radio operators in October 1989. A committee headed by Brent VE3OTL was set up to plan training and operations.

By mid-December the committee had finalized its program. During January and February, training seminars were given to over 400 non-Amateurs who were to have access to the radio system. The seminars emphasized proper procedures and allowed the prospective users to become familiar with the equipment. These training sessions were led by Robbie VE3APP and Jim VE3ADP.

The Communications Committee that we were under was responsible for all communications including telephones, pagers and radios. The radio system consisted of 3 base stations, 3 repeaters, 100 handheld portables and over 100 digital pagers. Five different channels in the UHF business band were used. The hams were primarily concerned with the channels for Transportation, and Personnel (mostly Security), and operated base stations in the Communications Office at the Memorial Gardens. It was a busy spot, handling all incoming telephone calls, two paging transmitters, and two base radio stations, operating from 8 a.m. until 2 a.m. every day.

The operators worked long shifts, sometimes boring and dull, and other times like a ham contest. Operators from the club, and other local hams included Jim VE3ADP, Robbie VE3APP, Ben VE3BPS, Ron VE3BVF, Sean VE3CTF, Walt VE3CWE, Wilf VE3EOW, Geoff VE3FGT, Roy VE3FOD, Ken VE3GWN, Howard VE3JIP, Cliff VE3JIX, Fraser VE3KOF, Brent VE3OTL, Garry VE3PHB, Susan VE3PHG, Gary VE3PHM, Alan VE3RET, Bob VE3SDX, Bill VE3SYS, Norbert VE3TNL, John VE3UFO, Dirk VE3UNX, associate members Jason and Jeff, and with special mention, Mark VE3MOU and his wife who drove down 150 miles from Wawa to take part on weekends.

Although everything was planned

out very carefully, all did not go as planned. It was discovered that the repeater for the security personnel working inside the arena was giving spotty coverage, so it was necessary to move it. The change improved things greatly.

No one seemed to give a thought to static electricity, but with very cold weather, carpeted floors, woolen uniform sweaters, etc. static did occur. It played havoc with the computers which were keeping track of telephone and paging calls. After the operators of the paging system were grounded, the problem was solved, but it is a point well worth remembering in any operation

involving computers in cold dry weather.

Comments from the Curling Executive and from the players themselves indicated that this was the best Brier ever, and that the Soc was a wonderful place to hold it. The radio club was certainly on display, and feedback from the National Executive and local committee was that we had done an outstanding job. Added to this were the comments from the radio operators themselves who really enjoyed the operation, and felt that they had been caught up the excitement of the occasion. All in all, the club can be proud of a job well done. ■



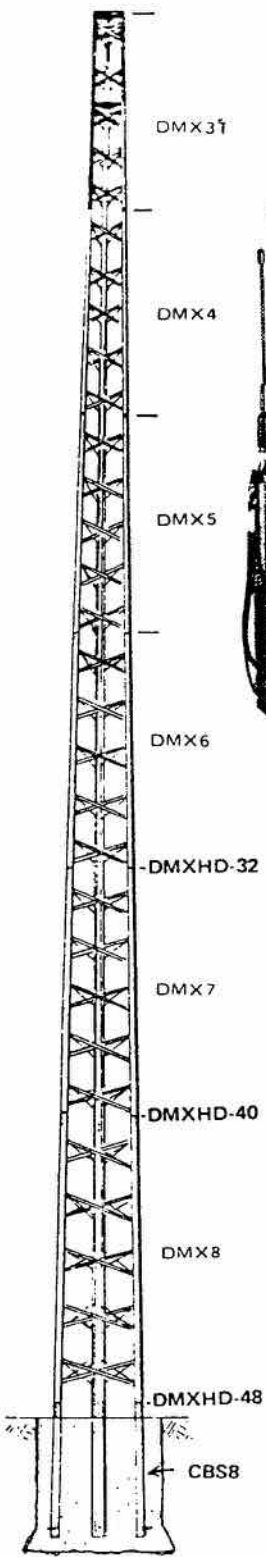
Back Row: Bob VE3SDX, Fraser VE3KOF, Dave, Garry VE3PHB, Jim VE3ADP, Robbie VE3APP, Geoff VE3FGT.

Middle row: Jeff, Ron VE3BVF, Gary VE3PHM, Alan VE3RET, Wilf VE3EOW, Jason, Walt VE3CWE, Bert VE3TNL.

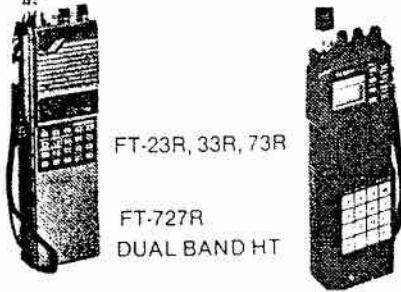
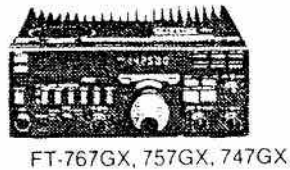
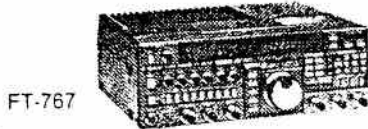
Front Row: Ben VE3BPS, Roy VE3FOD, Howard VE3JIP, John VE3UFO, Brent VE3OTL, Susan VE3PHG, Dirk VE3UNX and Cliff VE3JIX. Photo by Bert VE3TNL.



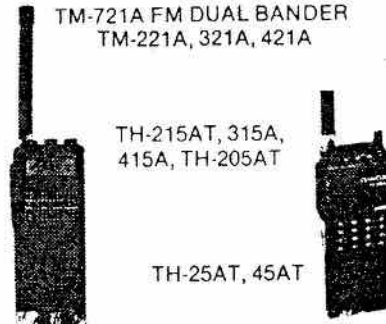
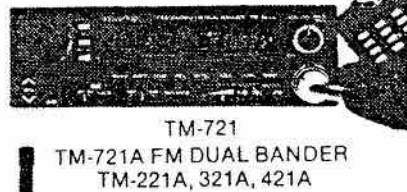
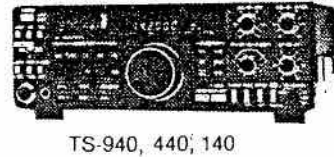
Seated at rigs left to right: Robbie VE3APP, Geoff VE3FGT. Photo by Bert VE3TNL.



YAESU

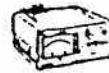


KENWOOD



Rotors

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



HYGAIN



ANTENNAS

Coaxial & Rotor
Cable

SPECIALS

KENWOOD

TS440SAT HF Transceiver General Coverage RX	\$1795.00
TS-940SAT Deluxe Transceiver C/W auto tuner etc.	\$3095.00
TS-140S HF transceiver, General coverage RX	\$1195.00
TM-721 2 mtr./70cm. 45 Watts 2 mtr. 35 W 70cm clearout.	\$849.00
TM-701A 2 mtr./70cm. 25 watt dual bander	795.00
TM231A 50 Watt 2 mtr. mobile	579.00
R-2000 Receiver (demo) Regular 995.00 to clear	895.00
TR-751A FM.CW. SSB 2 mtr. mobile transceiver	879.00
Yaesu FT-441 2 mtr, hand held with 140-174 RX coverage	449.00
Ameritron AL80A 1000 W. P.E.P. Linear 160-10 mtrs.	\$1395.00
Ameritron AL-84 600 Watts P.E.P. HF linear	795.00
A.E.A. PK-232 All mode controller C/W 'Pak-Mail'	549.00
MFJ-1278 All mode controller with 'Mail-Box'	449.00
MFJ-1229 Deluxe RTTY & CW interface to clear	269.00
MFJ-401 economy keyer	89.00
MFJ-422 Bencher BY-1 key and piggy-back keyer	229.00
MFJ-941D 300 watt tuner with SWR meter, etc.	179.00
MFJ-949D 300 watt tuner deluxe meter and dummy load	259.00
MFJ-989B 3 KW crossneedle meter, rollor inductor, etc.	595.00

FULL LINE AVAILABLE

Telex 103 BAS 3 element 10 metre beam	\$169.00
153 3 element 15 metre beam	\$259.00
TH7DXX 7 element Triband	\$1095.00
Cushcraft A3 Triband	\$479.00

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.

SPECIFICATIONS AND PRICES
SUBJECT TO CHANGE

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.

Development of Radio Regulations for the Radio Amateur Service

By Larry L. Reid VE7LR

It is a matter of speculation when the first Amateur station was established in Canada. The earliest one I have heard of was in 1904, when a Vancouver high school teacher claimed to have demonstrated to his students an operating station with a coherer receiver and spark transmitter. Undoubtedly there were others elsewhere in the country at or before this time.

In those early days, regulations governing the use of 'wireless' were non-existent and individuals set up stations at their discretion. When the first Wireless Act of Canada was passed in 1905, no mention was made of Amateur stations. Even the governing body of the day, the Department of Marine and Fisheries, seemed to ignore Amateur station existence.

The first official reference to Amateur operations that I have been able to find was a report to C.P. Edwards, Dominion Superintendent of Wireless, dated Nov. 25, 1910, prepared by E.J. Haughton, Pacific Coast Superintendent of Wireless, regarding interference to marine shipping wireless operations in the Vancouver area by Amateur stations.

Apparently this came to a head when the D.G.S. *Quadra* ran into difficulties while towing a disabled ship in a gale and her calls for tug boat assistance were unheard by the government coast station at Point Grey because of interference from Amateur stations.

Haughton met with the four Amateurs concerned and obtained their agreement to curtail operations when requested to do so by the Point Grey Station. His report further stressed the need for some regulatory control over Amateur operations and expressed concern that the fad was spreading.

Again, in 1912, Haughton had to solicit similar assistance from the Amateur stations in Victoria who were interfering with the Gonzales Hill coast station. Two of these hams, Bruce Restall and Sid Elliott later joined with Pacific Coast Wireless Service in which both spent the next 40 years.

In discussions with Sid Elliott in later years about his early ham activities, he revealed that they used their initials for call signs and, as their coverage was severely limited with their crude equipment, they broke the monotony of talking to each other by working the odd passing ship. Their DX, when

propagation was good, was to work a ham across the Straits in Port Angeles, Wash., 18 miles away.

In 1913 a new Radio Act was enacted which, for the first time, included 'Regulations To Govern the Operation of Amateur Stations'. These regulations limited the power input to the spark transformer to a maximum of 1/2 kilowatt; made provision for the issuance of call signs which commenced with the letter 'X' followed by two or more letters, e.g. XAA, XAB, etc.; required that every precaution be taken to prevent interference to the working of other stations and finally, required Amateurs, when operating, to listen for the signal 'STP' which, when sent by a government station or a commercial station, required Amateurs to cease all operations until the issuing station sent cancel STP. These regulations made no provision for the certification of Amateur operators or for the licensing of their stations.

It would appear that Amateurs applied to Ottawa for a call sign, and while some obtained call signs in this manner, many never bothered and continued making up their own calls.

With the coming of World War I, Amateurs were ordered off the air but, as Radio Inspectors had yet to be appointed and government services were stretched pretty thin, many Amateurs continued to operate knowing the chances of their detection was unlikely, particularly in the more rural areas.

Finally, in 1920, the first Radio Inspectors were appointed and new Radio Regulations were promulgated which included special regulations for Amateurs. These included special operator certification by the examination licensing of Amateur stations, and limitation of the lowest wavelength permitted which varied depending upon the distance from the nearest commercial station. This was to be specified on the station aerial.

The new regulations also divided the country into five call sign areas with provision for each station to be issued with a distinctive call sign commencing with their area figure and followed by two or more letters, e.g. 3AA, 5BB, etc. It was to be a few more years before prefixes were assigned. It was also specified that the station call sign was to be sent at least three times at the termination of each transmission. Annual licence fees were \$1, and there was no charge for the examination.

By today's standards the examination was very simple, with a 5 wpm code exam, an oral exam on the adjustment and operation of a receiver and spark transmitter, knowledge of Departmental regulations governing Amateur stations, some knowledge of the station operating regulations made under the International Radiotelegraph Convention, London, 1912 and the ability to distinguish from other signals the signals 'SOS', 'STP', etc.

The first examinations were held in Sault Ste. Marie on July 29, 1920 with certificates numbers 1, 2 and 3 being issued. It is interesting to note that, by the end of 1921, a total of 63 certificates had been issued and, of these, 57 were to Amateurs in the four western provinces.

It is not suggested that there were more Amateurs out west, just that more of them became legal during the period and that Walter Howard, the newly appointed Radio Inspector for all of Western Canada, was busy trying to legalize radio station operations within his area of jurisdiction. The records show he spent the major portion of his time during this period conducting inspections and examinations with the latter including commercial, Amateur and experimental operating certification exams at Victoria, Vancouver, Prince Rupert, Calgary, Edmonton, Regina and Winnipeg.

In 1922 the regulations were amended to permit the choice of examination on spark or CW transmitters or on both. The first CW examination was held at Chatham, Ont. on May 15, 1922 and resulted in the issuance of certificate number 67. While a number of exams continued to be given on spark equipment, more were selecting both the spark and CW option and by late 1923, selection of CW only became the most popular option.

The last pure spark examination was held at Brandon, Man. on March 21, 1924 resulting in the issuing of certificate number 402. The last combination spark/CW exam was held in Calgary, Alberta on Sept. 29, 1925, and resulted in issuing of certificate number 572. Thus, spark disappeared from both the Amateur and experimental operator examinations, but did continue for many more years on the commercial operator exam syllabus. ■

The Nazi Weather Station in Labrador

INTRODUCTION

In the correspondence between myself and Bob Brown, stemming from Bob's articles on Ionospheric Disturbances (Nov & Dec 1981), mention was made by Bob of a German weather station on Spitzbergen and this triggered a memory cell. I remembered reading about an automatic one which had a Canadian angle and dug up the fascinating story surrounding one of the 21 stations built and established in Arctic or sub-arctic regions. It was placed on Canadian territory on the northern tip of Labrador in the fall of 1943 by an intrepid U-boat captain but it did not function for very long.

The following article, reprinted from the *Canadian Geographic* magazine (Dec. '81) by permission of the author, is by the head of the National Defence History Directorate, Dr. Alec Douglas, a former Canadian naval officer, whose detective work in tracking down German records resulted in an expedition to the site in the summer of 1981.

What remains of the station is now stored in the Canadian war museum in Ottawa. It is interesting to note that some of the batteries used were nicads, which were not known to the public at large for some decades after the Germans made the stations.

— Doug Burrill VE3CDC

THE NAZI WEATHER STATION IN LABRADOR

Weather forecasting is not only a regular feature of our daily lives, it is vital to military operations. Just how vital it was in World War II is well known, but only this past summer did we learn that in 1943 the Germans actually placed their own weather recording instruments in North America. It was done in a daring exploit by a German U-boat on the remote coast of northern Labrador.

Geography favoured the Allies in obtaining weather information, and the Germans had to exercise great ingenuity to overcome this disadvantage. Their ingenuity manifested itself in several ways.

First, they were prepared to take exceptional risks to set up weather stations on remote territory, even when it was in enemy hands. Then, German

scientists developed some sophisticated systems of automatically obtaining and transmitting the temperature, barometric pressure, wind force and direction.

Once set up, these unmanned stations would be activated by a timing device which would switch on a radio transmitter every three hours for about three minutes: one minute for warning, and two minutes for transmission of coded weather information. The data would be picked up by receiving stations in northern Europe. This was possible because, although the battery-powered transmitter only had an output of 150 watts, it broadcast on the high frequency band, between 3,000 and 12,000 kilohertz.

The story of the recent discovery began to unfold about five years ago when Franz Selinger, a retired engineer living in Ulm, West Germany started to compile information for a book on German weather reconnaissance in the Arctic. Although the Austrian-born Selinger has the old-world charm one associates with that country, he also demonstrates bull-dog persistence and meticulous thoroughness in his research. Without his efforts this story would probably never have been told, because the U-boat concerned was sunk with all hands before the war was over.

In the course of his research he came across a reference to an automatic land weather station in Labrador. Of 21 stations built, 14 were established in Arctic or sub-arctic regions, but all except this one went to sites in the Barents Sea above Norway.

Selinger wrote to me in 1980 asking whether there was anything in our Canadian military archives about the Labrador station. I was intrigued but skeptical.

Even if a U-boat had slipped into Labrador coastal waters undetected (not too difficult on that lonely and unpatrolled shore), radio transmissions from the region would surely have resulted in a search and an intelligence report. Yet Canadian military archives are silent on the subject.

Unfortunately, the records of the Operations Intelligence Centre at naval headquarters in Ottawa were disposed of after the war. Files from the Flag

Officer Newfoundland, from the Commander-in-Chief Canadian Northwest Atlantic and from Eastern Air Command of the RCAF made frequent references to U-boat sightings, but none on the Labrador coast that had been accepted as authentic.

German records were more revealing. While investigating documents now in the possession of the son of a German scientist who had participated in the automatic weather station program, Selinger found one series of photographs which showed a different class of submarine (type IXC) and a different kind of terrain from the rest. Also, there was something peculiar about the U-boat in these old pictures: it did not have the usual quadruple anti-aircraft gun fitted on these craft.

Here were three important clues. First, the pictures evidently were not of Spitzbergen, or Bear Island, or other places where unmanned German weather stations had previously been identified. Second, the type IXC U-boat suggested a distant operation, for these were usually chosen for such tasks. And third, the submarine's distinctive armament was so obviously missing.

Selinger discussed the problem with the German naval historian, Jurgen Rohwer, and conducted intensive research into the U-boat logs at the German military archives at Freiburg.

At length he found what he was looking for—the log of the *U-537*. Launched in 1942, this submarine sailed on its first operational mission on Sept. 30, 1943. Its task was to set up an automatic weather reporting station on the Labrador coast. En route, in a storm south of Greenland, heavy seas washed the U-boat's gun mounting over the side.

The captain decided to choose a site as far north in Labrador as possible, partly to reduce the chances of detection, but principally—according to his log—because he thought there would be fewer Eskimos there.

Starting from a bearing off Cape Chidley at the northern tip of Labrador, he ran slowly down the coast. Taking depth soundings continuously in this poorly charted region—even today it is full of uncharted ledges and reefs—he crept in between Home and Avayalik islands, turned south to the entrance of

Martin Bay, and on Oct. 22, 1943, anchored just inside the southeast tip of land.

At this point, the timing was crucial. He had to open up all hatches to unload the equipment, place it in rubber dinghies and land it on the beach. He could neither submerge, run for it, nor defend himself if attacked. Working through the night, the crew manhandled 10 heavy canisters containing nickel-cadmium and dry-cell batteries, transmitter and weather measuring devices, as well as the tripod and mast, over the beach, and 170 ft. up a hill about a quarter-of-a-mile inland.

The U-boat stayed long enough to verify that the station was functioning properly on its frequency of 3940 kHz and then slipped out to sea. The operation had taken about 28 hours.

This story from the log of *U-537* convinced me, and I set about verifying the facts.

The Canadian Coast Guard was the logical agency to turn to. The CGS's director of fleet systems, Captain J.Y. Clarke, was quick to see the significance of the evidence, and invited Selinger and me to accompany the icebreaker *Louis S. St. Laurent*, commanded by Captain M.S. Tanner, on its summer passage from Halifax to Baffin Island. Here were the makings of a small expedition.

So it was that on July 21, Captain Tanner manoeuvred his vessel as close to Martin Bay as prudence allowed, and then sent us in by ship's helicopter.

Referring to wartime photographs in Selinger's possession, we easily recognized prominent land features and the helicopter pilot had no difficulty locating the bay. The question was, in what state would we find the site?

Only after several minutes of flying around the position did we realize that we were indeed seeing the remains of *U-537's* automatic weather station. It was not exactly what we had expected. Someone had been there before us.

Every canister had been opened, and the contents lay strewn about for a distance of 100 feet or so. Batteries and radio parts seemed to have been systematically dismantled. Parts of the transmitter, name plates and trade marks of various pieces suggested that the equipment had been deliberately smashed.

Selinger identified parts of the coding device. Nearby we saw a circle of stones suggesting a camp. Underneath one canister was a clue: a single .303 rifle cartridge bearing the inscription 'British Dominion'.

Initially, we thought that Inuit hunters might have visited the area. When one of the canisters turned out to be missing, we theorized that it might have been taken away for use as a stove, or to carry away parts of the station. But

there was a flaw to that theory: the cables had all been cut cleanly and entirely removed, suggesting tools not usually carried by a hunting party.

We then wondered whether the U.S. Navy's hydrographic team, which had surveyed the area in 1952, might have dismantled the station. However, U.S. Navy records of this survey— it was undertaken when Canada and the U.S. were establishing early warning radar station in the Canadian North— make no mention of such an incident.

The more we thought about it, the more possible it seemed that the previous visitors had been personnel sent to discover and destroy the station during the war.

From the log of *U-537*, we know that the station transmitted weather data for at least two weeks. On Nov. 4, however, the U-boat reported intensive jamming on the frequency. Was this by accident or design? One cannot tell from available evidence, but Canadian intercept stations could have heard the Martin Bay transmissions. Even though the transmissions lasted only three minutes, this would have provided a rough direction of where the station was located. Jamming the frequency would have been simple, but locating the station and getting to it, would have presented more difficulty. If this did occur, why is there no record of it in Canadian military documents?

A further entry in the submarine log may provide the answer. On Nov. 18, the captain recorded: "Frequency of weather station is jammed by unknown own (i.e. German) radio station. Weather transmissions not received at scheduled times." The jamming of Nov. 4 was likely from the same source. Canadian operators, after all, were listening for submarines, not shore-based transmitters.

Then came a surprising revelation. Soon after returning from Labrador I received a telephone call from Professor J. Peter Johnson, a geomorphologist at Carleton University in Ottawa. He had read about our discovery in the press and realized that he had himself stumbled across the site in 1977 without realizing what it was. He had been preoccupied at the time with shooting a traverse in the course of a geological survey, but formed the impression that the mast and canisters were the remains of some military relay station.

At that time the cables, missing in 1981, had still been lying on the ground, although the rest of the site had been in roughly the same state. Evidently, at least some of the damage has been done by recent visitors; but the station, we now know, was dismantled earlier.

So there are still many questions left unanswered. They may never be. Nevertheless, Selinger and I have

discussed the significance of the find.

The timing of events coincides with a crucial phase of the U-boat war. In May 1943 Admiral Karl Doenitz, unable to accept the loss rate of his U-boat fleet, had withdrawn most of these forces from the northern convoy routes. In late summer he launched a new offensive with wolf packs of U-boats using a new weapon, the homing torpedo. The *U-537*, delayed by several setbacks, sailed just as this new stage of the war began. Doenitz evidently expected to be making good use of the information beamed from Labrador concerning weather conditions in the northwest Atlantic.

As it happened, the new offensive collapsed because, although the homing torpedo achieved some early successes, the Allies soon developed counter-measures.

It intrigues us that in spite of this development Doenitz sent out another submarine in the summer of 1944 to set up a second automatic weather station on the Labrador coast. This suggests he was planning further attacks on convoys in the north Atlantic, presumably with the new generation of snorkel-equipped submarines. The second U-boat was sunk en route, and no further attempt was made to erect a weather station in the western hemisphere.

The technological expertise demonstrated by this 1943 station found in Labrador is impressive. Its operation was described in German technical journals in 1953, but officials in Canada's atmospheric environment service concede that we did not set up similar systems ourselves until the early 1960s.

Granted, modern stations are more sophisticated, use solar power, and provide a much wider and more precise range of information. There are 64 automated weather stations in the Canadian north today. It is doubtful, however, if any of them could have been packaged into 10 cylinders weighing no more than 220 lbs. each and capable of being loaded into and unloaded from a conventional World War II submarine.

The need for accurate weather information drove the Germans to extraordinary efforts. We now know the extent of the risks they were prepared to take with precious U-boats to acquire this information from our northern regions. ■

— Dr. Alec Douglas

TECHNICAL ARTICLES

The *Canadian Amateur* welcomes technical articles. Please send them to the Technical Editor, Bill Richardson VE6PN, Box 68, Grimshaw, Alberta T0H 1W0.

REVIEWS

THE BODY ELECTRIC

Electromagnetism and the Foundation of Life, by Robert O. Becker MD and Gary Selden copyright 1985. Published by Wm. Morrow and Co. Inc., 105 Madison Ave., New York, NY 10016. ISBN 0-688-0023-8 Hardcover, 365 pages.

Robert O. Becker MD is a pioneer in the field of research on regeneration and its relationship to electrical currents in living things. Gary Selden is a writer who specializes in medical and scientific topics.

There is an extensive index of some 12 pages; the first place I head to see what is written about magnetism. On page 266 the author states, "We must always be careful to place more weight on observation than current theory. We must remember that we don't yet fully understand magnetism. It now appears that the same single domain with both magnetic poles may not be the smallest unit of magnetism after all."

Other parts of the book are equally as interesting where the scientists were experimenting with growth and regrowth. Abraham Tremblay of Geneva encountered a green coloured animal about one quarter inch long resembling a squid. When dissected in many different ways, each section regrew to normal state complete with tentacles used for moving, walking and feeding the centre of the tentacles. He went one step further and splitting the head of what he had by this time named 'hydra', into several pieces from which grew a normal creature again. By a continued process he managed one animal with seven heads. All this leads up to de-differentiation in their salamander experiments where the subject grew back a missing bone. This only happens if the nerves are not cut during amputation. No doubt everyone has heard of the salamander phenomenon and can certainly gain a more scientific view from this book. The scientists even measured voltages along the salamander from head to tail, toes, etc.

Other experiments are described using electrical current somewhere between a picoamp and nanoamp on various subjects. Even the brain has been observed to regenerate large parts in amphibian subjects and encouragement prevails where humans may surely benefit in the near future. More scientists are experimenting with possibilities in cancer treatment, in that electrical de-differentiation may return cancer cells to normal. As far back as 1927, Elida Evans, a student of Carl Jung, documented a link between depression and cancer in a study

almost totally neglected in the intervening years.

Chapter 13 deals with a number of experiments (some on humans) in the field of acupuncture, neurophysiology and voltages and current sent to the injured area to guide cells in repairing the damage. They also found they could use currents to produce anesthesia. A strong enough magnetic field at right angles to a current magnetically 'clamped' it, stopping the flow. They also got the same effect by passing current through the brain from front to back.

In 1963 two scientists barely managed to measure the relatively large magnetic field produced by the human heart. A new electronic device (1964) called the SQUID (superconducting quantum interferometric device) was used to measure the head's magnetic field. Two kinds of magnetic fields were found, the back-and-forth ion currents in nerve and muscle produce a reversing AC field being strongest in the heart. The machine also confirmed that the brain produces steady DC magnetic fields one billionth the strength of earth's field of about one half gauss.

Measurement since 1975 made by the magneto encephalograph (MEG) are a more accurate reflection of mental activity than the electroencephalogram (EEG). This is possible because the magnetic field passes right through the skull bones and scalp without being diffused and the MEG locates the current source more accurately than EEG measurements.

Chapter 14 deals with how electromagnetic fields of earth, moon and sun affects life. "Following the curious dogma that what we don't understand can't exist, mainstream science has deemed psychic phenomena as delusions or hoaxes simply because they are rarer than sleep, dreams, memory, growth, pain or consciousness, which are all inexplicable in traditional terms but are too common to be denied."

Since the discovery of total magnetic rhythm being an innate timekeeper regulating the few obvious biocycles then known, many other cyclic changes in the energy structure around us have been learned:

- A cycle of several centuries is driven from somewhere in the galactic centre.
- In the 1970s it was learned that the sun's magnetic field is divided from pole to pole in sectors like the sectors of an orange, and the field in each sector is oriented in the direction opposite to adjacent sectors.
- Mention is also made of solar flares,

the earth's magnetic field and its origin, the earth's surface and the ionosphere, lightning releases bursts of radio energy at Hertz frequencies. The earth's surface and ionosphere act as the charged plates of a condenser and more.

The last chapter is entitled "Maxwell's Silver Hammer". It begins by discussing how the earth's electromagnetic activity, having such a profound effect on life, and electromagnetism can be talked about in two ways, in terms of fields and in terms of radiation. What force is exerted on a piece of iron that makes it jump through space to a nearby magnet? There is an altogether different discussion of EMF from a transmitter sometimes called EMR, to emphasize its outward-flowing aspect, which later is covered quite extensively throughout the remaining 50 odd pages of this same chapter.

Diagrams are included to show the relative exposure in microwatts per square centimetre around the user's head and body while operating a walkie-talkie. Another shows the same relation while operating from the cab of a half-ton truck.

Tables show Power Density at Various Distances from a 50,000 watt AM radio station; EMF in typical tall buildings; Power-Frequency Magnetic Fields of Household Appliances measured at a distance of one foot. The last table shows Power-Frequency Magnetic Fields of Household Appliances. Direct reference is made to the enormous transmitter near Kiev in the Ukraine and what different scientists believe is the intention of the woodpecker.

Possibly the public's conception of the scientist remains closest to its image of the philosopher— cold and logical, making decisions solely on the basis of the facts, unswayed by emotion. The lay person's most common fear about scientists is they lack human feelings, reads one part of the closing chapter.

All in all, it is good reading even if we don't heed the message that low power is still a Quaint Relaxing Pleasure. Ask your library or bookstore for a copy and let us know your interpretation of the various scientific findings.

— Moe Lynn VE6BLY

CURRENTS OF DEATH

By Paul Brodeur, published by Simon & Schuster, Price \$27.95 in Canada (or in U.S. \$19.95)

At a 1988 Amateur Convention in Portland, Wayne Overbeck N6NB talked on 'Radiation Hazards of Ham Radio'. The greatest hazard was the

number of Amateurs packed into the tiny room to hear the wisdom of Wayne's words. Now we can read Paul Brodeur without hazard.

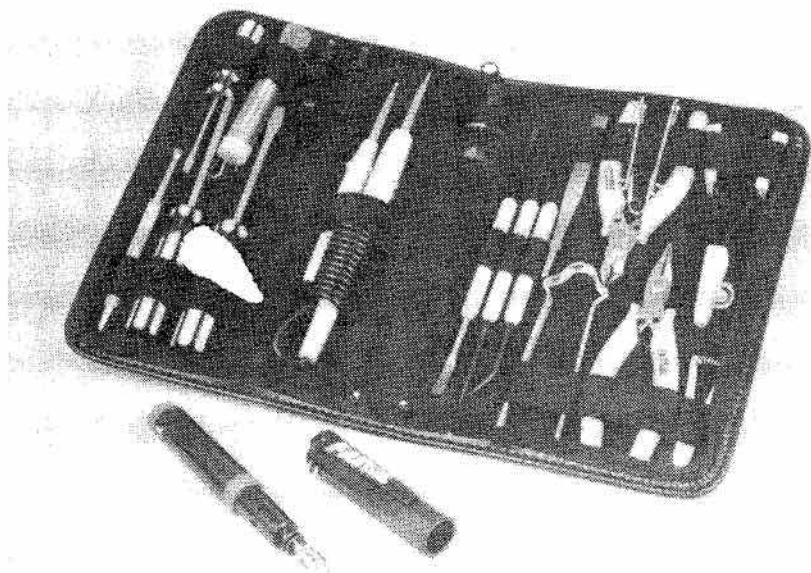
Currents of Death is a hardcover book covering initial research on Leukemia, in Denver, Colorado. Perils of power lines is the start, however, other fields are skillfully brought in and covered. One's eyes are opened as to what has been going on across North America and glimpses of European and Russian developments are given. Closing comments update one on video display terminals. From an experimental Amateur point of view, I know that there is 60 cycle leakage in my shack, my oscilloscope insists upon picking it up.

Currents of Death does not cover the technical procedure to obtain coherent readings, which would stand up in a court. After reading the book— maybe the authorities in power do not want us to know that information. Wherever possible avoid electrically heated waterbeds and electric blankets as they are reportedly NOT good. Because Radio Amateurs are mentioned and are handling all manner of devices, I recommend this book to them.

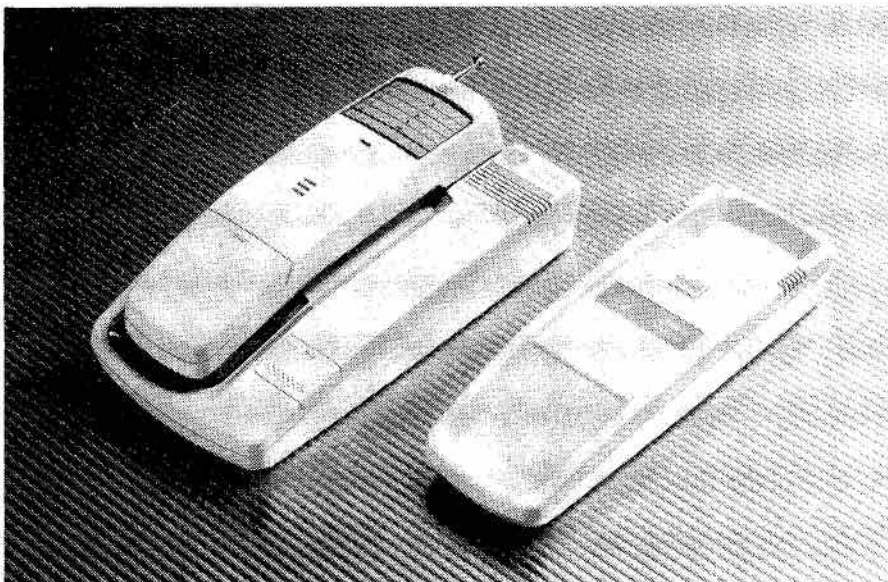
Dave Gilmour VE7YG

BRUNELLE SERVICE TOOLS

The main item of interest in the Fastool service tool kits is the butane energy source soldering iron and different tips which can be used for cutting and melting plastics, mini torch for heating small parts, etc. This soldering iron is ready to use at all times and needs no electricity, so it is very useful for service people who need soldering capabilities in areas where electricity is non-existent. In the R & D lab the Soldering Iron comes in handy



Brunelle Kit



GE 2-9515

for prototyping new projects such as cutting small pieces of plastic, etc.

Our new brochure explains the four different models available. The Tool Kit consists of cutters, heat sinks, screwdrivers, desoldering tools, tweezers, test lamp for voltage verification, etc.

For additional information, contact Brunelle Instruments.

NEW CORDLESS PHONE

Traditionally, cordless phones have had their share of various technical drawbacks. One of the most annoying quirks common to any cordless phone is the background noise emitted by the speaker. Thomson Consumer Electronics Canada, Inc. has eliminated this bothersome hiss with the introduction of the GE Deluxe Cordless Telephone with Crystal Clear Sound.

The new GE 2-9515 has a suggested retail price of \$180.

Guy Johnson, Manager of Marketing at Thomson says, "Through market research, we discovered that consumers found the radio-like background static a main concern."

The Crystal Clear Sound feature is exclusive to the GE 2-9515 model. The process is made possible by a dual crystal/dual conversion design which provides an enhanced filtering system. When speaking into the microphone end of the handset, one's clear voice range is extended and static reduced, due to a unique noise reduction circuit.

The Anyroom Recharge Cradle allows any room with a 110V AC outlet to have a fully charged cordless extension. This means that the handset does not always have to remain in the base.

All three components of the 2-9515 (base, handset, cradle) are lightweight and contoured for a fashionable look. The base and the Recharge Cradle are well- or desk-mountable, allowing for mobile positioning.

INDEPENDENCE DAY

While the new Lithuanian Republic and Soviet Union are locked in a controversy concerning self-government, the ham community seems to have already achieved independence. Lithuanian Amateurs are now using the LY prefix assigned before World War II instead of their Soviet designated UP. QSLs now go to Box 1000, Volnius 232001, Lithuania instead of Box 88 Moscow. Look for the Baltic states of Estonia and Latvia to be next.

— W5YI Report

The next Generation of Towers from Trylon...

TITAN™ TOWERS

Available in heights up to 96', the Titan is engineered to support even heavier, bulkier loads. At the top where the weather is at its worst, the Titan is even stronger than its predecessors. And at the bottom a newly designed base section gives the Titan more rugged stability than ever before.

 **TRYLON**
MANUFACTURING CO. LTD.

P.O. BOX 186, 21 HOWARD AVE. ELMIRA, ONT. CANADA N3B 2Z6
TEL (519) 669-5421 FAX (519) 669-8912



FOR FURTHER INFORMATION CONTACT:

Atlantic Ham Radio

378 Wilson Ave.,
Downsview, Ont. M3H 1S9
(416) 636-3636

Com-West Radio Systems Ltd.

8179 Main Street,
Vancouver, B.C. V5X 3L2
(614) 321-1833

Century 21 Communications Inc.

23 McLeary Court, Unit 23,
Concord, Ont. L4K 3R6
(416) 738-0000

H.C. MacFarlane Electronics Ltd.

R.R. 2 Battersea,
Ont. K0H 1H0
(613) 353-2800

Norham Radio Supply

4767 Steeles Ave. West
North York, Ont. M9L 2W1
(416) 745-1000

D & L Towers

4 Divadale Drive,
Toronto, Ont. M4G 2N8
(416) 467-1235

QUA

News and Views from around the world

THE GOOD OLD DAYS

The AM broadcast receiver has been allowed to degenerate, although it is rather better than the standard fridge-top 5-tube blooper of the 60s. But before WWII there were some excellent receivers, and Dennis Ciapura described one of them in *Broadcast Engineering* recently.

The Scott Philharmonic had a selectivity control variable from 2 kHz to 12.5 kHz by symmetrically detuning the intermediate frequency stages. At the same time the AGC characteristic was varied automatically to compensate for the change in gain. The sensitivity was 1 microvolt for 10 dB SINAD, maintained on all bands up to 30 MHz, and total harmonic distortion at 30% modulation was below 1%, and near 1% up to 80% modulation.

This set had four 6L6 tubes in push-pull parallel providing 40 watts output with negative feedback, and a gated noise filter that rolled off the high audio frequencies when no high frequency audio was present, not unlike the present Dolby concept. This was in the 1930s.

U.K. YOUNG AMATEUR OF THE YEAR

The award, jointly sponsored by the government, industry and the Amateur Radio community, seems to have paid off handsomely. The 1989 recipient was Ted Walker GOKAQ who received the trophy, certificate prize, of 250 pounds sterling, a receiver and converter, all-expenses-paid training course, a Navico 144 MHz transceiver and a Siskin TNC.

The standard of the nominees was so high that runner-up prizes were presented also to Paul Moss G1UUX and 13-year-old Rachael Oakley. Andrew Keeble, the 1988 winner, was presented with an ICOM IC2 handheld in recognition of his outstanding work on behalf of the project YEAR during his year of office. The profile of Amateur Radio has been highlighted during the year to such an extent that several new sponsors have joined the original ones in supporting the project.

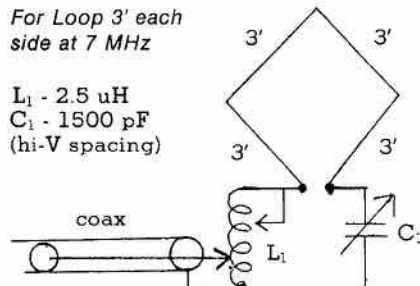
MOST SHAMBOLIC SHACK IN BRITAIN AWARD

This attracted 110 entries and was won by G3LMR. "His entry was marked down only because of the multitude of component drawers visible in Picture B, demonstrating a propensity for neatness, also the 13-amp sockets appear to be equally spaced from one another. The stool has a soft cover, hopelessly out of keeping with the

general ambiance of the shack. However, the exquisite shambles of Picture A redeems the situation, especially since the only visible seating is occupied by Mr. Eley's cat, thereby additionally demonstrating a proper sense of priorities. The judges were particularly impressed with the siting of the only visible rig, next to the drilling machine. Note also those splendid shelves, full to bursting and certainly not mutually parallel." The comments of the judges, and the criteria for judging, were very interesting, and maybe I can persuade the editor of *The Canadian Amateur* to run a copy of the whole article, with photographs. It should be possible to run an international competition along these lines.

For Loop 3' each
side at 7 MHz

L₁ - 2.5 uH
C₁ - 1500 pF
(hi-V spacing)



BALCONY LOOP FOR 40

G3MCK drew G3VA's attention to a horizontal loop antenna described in Sept 1952 *QST* by W4LW. It was used on a balcony and had 3 ft. sides connected in series with a conventional tank circuit. It was made of 12 wire, but would undoubtedly be better if made of copper tubing. The bigger the loop (and therefore the smaller the coil) the better— with sides each 2 ft. long the bandwidth was about 20 kHz on 7 MHz, and the system was remarkably free of TVI and local QRN. The setting of the tap for the centre conductor of the coax is very critical to obtain low SWR, accurate to about 1/4 turn.

— *Radio Communications* (RSGB)

WHOSE OX IS BEING GORED?

'In Practice' raises an interesting point in the RSGB *Radio Comm*. We all know that the neighbour who paid \$5,000 for his hi-fi gear assumes that because it costs that much, it can't be the fault of the hi-fi that it picks up interfering transmissions so well. But what about our assumption that if we paid \$4,000 for the latest super dooper PLL transceiver, it can't be THAT that is at fault! Touché.

BALANCING OUT QRN

An ad appears in U.K. magazines that

would raise hopes in many 80 and 160 metre enthusiasts. The S.E.M. QRM Eliminator connects in the antenna lead (you can transmit through it) and requires an auxiliary antenna (a VHF antenna or a few metres of wire will do). The interference arrives at the two antennas in slightly different phase, and by adjusting the controls you can "completely remove it before it arrives at your receiver." That's what the ad says.

It measures 6x2x3" deep, has SO239 sockets, needs 10 to 14 volts DC at 30 mA and covers 50 kHz to 60 Hz continuous. It costs 85 pounds sterling including VAT in the U.K. and the manufacturer is S.E.M., Union Mills, Isle of Man.

It isn't really a completely new idea, but it just might be a new approach to it. Tell 'em *The Canadian Amateur* sent you. The same company markets transmatchers and accessories for them, converters, wideband preamps, RF noise bridges, keyers, linears, filters, coax switches, and they offer a catalogue. This wasn't intended to be a commercial, but it seems to have turned out to be one.

U.K. RECEIVING LICENCES

The requirement for a licence to use a radio receiver was removed in Britain early in 1989, except for the reception of 'authorized TV broadcasts'. An 'authorized' TV broadcast is one made in the conventional terrestrial TV bands.

Broadcasts made from satellites and received on TVRO dishes are NOT from an 'authorized' TV station, and therefore do not require a receiving licence!

There are technical specifications for receivers, to ensure they do not cause undue interference, and anyone using a receiver that does not meet these specs is liable to a fine of close to \$1,000. It is also illegal to use a receiver with intent to receive messages not intended for reception by the general public, or to disclose any information about such messages. The fine for this can be up to \$4,000.

— *Shortwave Magazine*

RADIO/TV INTERFERENCE IN VK

The Australian DOTC has issued a booklet, *Better TV and Radio Reception*, part of an educational program aimed at consumers, power authorities and the electronics repair industry. It explains that well over half of all reported problems are caused by inadequate or faulty antennas. In 9 out of 10 of the

Continued on next page

► **QUA (cont'd)**

17,000 or so investigations made each year, it was found a reception problem existed, and the problem was not the result of genuine interference. The remedy could have been found by the householder or a service technician.

The booklet describes methods of

VE-VK ON 160M

This note recently appeared in *Amateur Radio*, the journal of the Wireless Institute of Australia. In the course of this propagation testing on 160 metres, VE7BS managed to work the required number of stations in each area of VK, including VK0 and VK9, and collect enough cards to qualify for the Worked All Australian Call Areas award endorsed for 160 SSB. VK3AJU's mention of "159 QSOs" should read "many hundreds of QSOs with 159 different VKs"!

It may not be a first, but it is novel in my experience: I've just sent a WAVKCA certificate to Bob Eldrige VE7BS in British Columbia, endorsed 'SSB 160 M'.

Bob only needed 22 QSOs to qualify for the award, but he kindly sent me a list of the 154 QSOs with VK stations on 160 M in the six years preceding Sept. 20 last.

Bob writes that during this period he made a special point of looking for VKs at his sunrise and that many of the QSOs were made with 100 Watts output, and the balance with 400 Watts. Among the stations worked, one used only 20 Watts and several ran on 50 Watts or less.

"I was surprised to find in 1985 that there was a path VE/VK almost every day throughout May to September. I have kept a list of VKs worked and heard on 160, and it is now nearing 200 different stations."

ISOLOOP ANTENNA

Advanced Electronic Applications, Inc., of Lynnwood, WA, has introduced a new low-profile, high performance HF IsoLoop antenna designed by Professor Don Reynolds especially for AEA in association with Mike Staal, president of M2 Enterprises. Staal is also co-founder of KLM Electronics.

The IsoLoop tunes 20 through 10 metres and is rated at 150 watts. The three-foot-square horizontal antenna is tuned remotely by a supplied control box. Because of its small size and weight (12 lbs.) it is the perfect balcony or attic antenna and is ideal for areas with restricted antenna ordinances. Omni-directional, a rotator is not necessary... nor are ground radials.

— WSYI Report

adding the necessary filters or precautions, including cures for interference from power lines, computers, electrical appliances. DOTC seeks to save the million dollars a year spent investigating unjustified complaints by setting up the education program, plus a toll-free number for advice.

In late 1990 or early 1991 a \$60 fee will be introduced for those who want DOTC field staff to visit their home to diagnose the cause of interference. The public will also be invited to send in a completed questionnaire reporting specific cases of interference, these being used to monitor the situation and compile statistics on the topic.

NEW ELEMENT DISCOVERED

The heaviest element known to science has been tentatively named

Administratium (Ad), It has no protons or electrons so its atomic number is 0. But it does have one neutron, 125 assistants to the neutron, 75 deputy neutrons and 111 assistants to the deputies, giving it an atomic mass number of 312. Since it has no electrons it is inert, however it can be detected because it seems to impede every reaction in which it is present. As yet no practical use or advantage has been found for Administratium.

— *Amateur Radio*

SOVIET ISLANDS

Just in case it hasn't appeared elsewhere, these prefixes are allocated to:

- 4K2 Franz Josef Land
- 4K3 Soviet European Islands
- 4K4 Soviet Asiatic Islands
- 4K1 continues to be Antarctica.



Worked Ontario Ports Award

Applicants need to work the required number of Amateur Radio stations located in the 'Ports' of the Province of Ontario, Canada.

No band or mode limitations. QSL cards are not required. Contacts may be made with either Fixed, Portable or Mobile stations.

A list of the required number of contacts showing Date, Time, Mode and definite location of the station worked must be submitted. All contacts for this Award must have been made after January 1, 1990.

North American Amateurs must contact TEN different 'Port' stations. All

others must contact FIVE different 'Port' stations.

Award is available to Shortwave Listeners.

The fee for the Awards is U.S. \$2 or 10 IRCs. The address for application is: Robert Morden VE3EM, 106 Renny Cres., London, Ont. N6E 2C5

Ontario Hams do your part to help others obtain the award and activate any of the above ports when you get time. Don't forget you don't have to send out any QSLs, so therefore the cost is minimal.

CARF Buyer Aid

Transceiver Comparison Chart 1

COMPARE

HF Transceiver Features

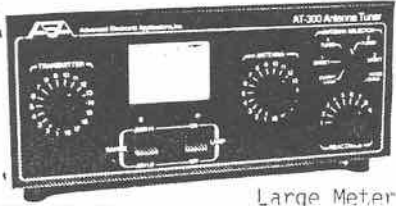
The tables on Pages 23 and 26 in this issue of The Canadian Amateur are designed to display the major features of each of the radios. Information courtesy HRO.

Feature	Icom					Kenwood				Yaesu			Ten-Tec		
	IC-781	IC-765	IC-751A	IC-735	IC-725	TS-940S	TS-680	TS-440S	TS-140	FT-767GX	FT-757GX	FT-747GX	561 Corsair	585 Paragon	562 OMNI V
AM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FM	*	*	*	*	Option	*	*	*	*	*	*	*	*	Option	Option
SSB	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CW	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FSK	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10 M	*	*	*	*	*	*	*	*	*	*	Option	*	*	*	*
12 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
40 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
80 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
160 M	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Gen Cov Receiver	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Digital VFO's	2	2	2	2	2	2	2	2	2	2	2	2		2	
Readout	CRT	Florscnt	Florscnt	LCD	LCD	Florscnt	Florscnt	Florscnt	Florscnt	Florscnt	Florscnt	LCD	Florscnt	Florscnt	Florscnt
Min Tune Increment	10 Hz	10 Hz	10 Hz		10 Hz	10 Hz		10 Hz				25 Hz		10 Hz	10 Hz
Variable rate tune	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Band select switch	digital	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Frequency lock	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
RIT control	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
XIT control	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Memories	99	32	32	12	8	40	31	100	31	10	8	20		62	25
Keyboard entry	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Battery back-up	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Memroy scan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Band scan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IF shift	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Notch filter	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SSB slope tuning	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Noise blanker	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
RF attenuator	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CW full break-in	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CW semi break-in	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Variable bandwidth	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Pass Band Tuning	dual	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CW pitch control	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CW zero beat	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
VOX circuit	*	*	*	*	*	*	Option	*	*	*	*	*	*	*	*
Speech processor	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Speaker	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Keyer	*	*	*	Option	*	*	*	*	*	*	*	*	Option	Option	Option
Power supply	*	*	Option	*	*	*	*	*	*	*	*	*	*	*	*
Auto antenna tuner	*	*	*	*	*	Option	*	Option	*	*	*	*	*	*	*
Pre-amplifier	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Solid state finals	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Height in(cm)	6(15)	6(15)	4.5(12)	3.7(9)	3.8(9.5)	5.6(14)	3.7(9)	3.8(9.6)	5.3(13)	3.7(9)	3.5(9)	3.5(8)	5(13.4)	5.8(13)	5.8(13)
Width in(cm)	16(42)	17(42)	12(31)	9.5(24)	11(27)	16(40)	11(27)	11(27)	13(33)	11(27)	13(34)	9.5(24)	15(38)	15(33)	15(33)
Depth in(cm)	16(42)	15(39)	14(36)	9(23)	11(28)	14(35)	11(27)	12(31)	13(33)	11(27)	9.4(24)	9.5(24)	14(36)	16(36)	16(36)
Weight lbs(kg)	51(23)	39(17)	19(8.5)	11(5)	14(6.5)	41(19)	13(5.7)	16(6.3)	28(13)	13(5.7)	11(5)	8(3.3)	14(6.4)	10.5(5)	10.5(5)

(Courtesy HRO - Ham Radio Outlet)

Special of the Month ..

WAS \$349 NOW SALE AT \$249 for AT-300



AT-300
\$249

Large Meter

AT-300 and AT-3000 Antenna Tuners

For tuning perfection, choose AEA's AT-300 300 watt or AT-3000 3 kW antenna tuners. Quality and exceptional engineering are built-in for maximum performance and long operating life.

The low-pass design provides more harmonic attenuation for lower TVI and allows matching to a much wider range of antenna impedances than common high-pass designs.

While some manufacturers promote the small size of their tuners, AEA knows that smaller size degrades the inductor's Q (quality factor), which results in less efficiency. Lower efficiency results in less RF energy reaching your antenna.

The AEA tuners feature a frequency compensated dual-movement SWR meter for ease of tuning with a front panel power range switch. Minimal SWR is achieved by inductors with 18 (AT-300) and 20 (AT-3000) taps created by AEA's exclusive patent pending CAM switch design for accurate tuning. The built-in front panel antenna switch allows you to easily select two unbalanced (coax-fed) antennas, a dummy load or a balanced antenna.

Specifications (Typical)

RF Power:	300 watts (AT-300); 3,000 watts (AT-3000), continuous
Frequency Range:	3.5 to 30 MHz
Transmitter /Antenna Tuning:	18 (AT-300); 20 (AT-3000) positions
Reactance:	Continuous
Antenna Selector:	6-positions: antenna 1 tuned and tuner bypass, antenna 2 tuned and tuner bypass, dummy load (external) and balanced antenna
Power Switch:	High and low (AT-3000 also has medium)
Lamp:	Light control for meter (12V DC or AC powered)
Dimensions:	AT-300, 12.8"(325mm)W x 15"(325mm)D x 5.8"(147mm)H; AT-3000, 15"(325mm)W x 14.2"(361mm)D x 6.75"(171mm)H
Weight:	AT-300, 8.14lbs.(3.7kg); AT-3000, 10.3lbs.(4.7kg)

Built in switch selects either HEIL HC-5 or HC-4 KEY Elements

HM-10 DUAL



THE microphone of the 90's - be it lengthy rag chews with the gang or capturing the top of the pileups, the HEIL HM-10 is THE microphone for you! Specify your radio - HEIL will install mating connector.

Magnificent Alinco Deals!

ALINCO DR-110T
2M-45 Watt Transceiver \$ 469



CLEARANCE DJ-100T \$299.95
ALINCO DJ-160T 2M Full Featured H/T \$ 379

ALL OTHER ALINCO MODELS

DR-570T Twin-Bander 2/70	\$829
DR-510T Dual-Bander 2/70	\$699
DJ-500T Dual-Band H/T	\$579

Big Savings on

Special Purchase of UNIDE



Local Communications! Worldwide DX! Mobile/Base! Clubs! Nets! Repeaters! Emergency!

UNIDEN HR-2600
10 meter transceiver

10M ANTENNAS: Cushcraft Ringo AR-10 \$99; New HAM-10 \$99; Larsen Magmount \$89; TenTec 10M Whip with Large Valour 5" Diameter Magmount \$98...ADD \$

- Single band - 10 meters
- All mode - SSB/CW/AM
- Power out - 25W SSB/C
- Selectable 10 kHz, 1 kHz VFO tunes with knob
- Up/Down controls • Memory
- Scanning, noise blanker
- 100 kHz offset & CTCSS
- 2 3/4" h x 7 1/4" w x 9 3/4" d • HR-2600 as low as \$239

Buy 1 @ \$279.95; Buy 5 @ \$249.95; Buy 10 @ \$229.95
ADD \$6 PER RADIO FOR 10M ANTENNA
ADD \$6 PER RADIO FOR 10M ANTENNA

The FSTV-430A, AEA's newest

The exciting FSTV-430 fast scan television transceiver makes getting on ATV easy and inexpensive...live or taped. Almost any video camera can be used. Simply plug it into the FSTV-430, connect to your 70 cm antenna and you're on the air. Use a standard TV for receiving signals and, of course, an amplifier will extend your range. It's reliable, portable and light weight and can be used in-station or mobile from any 12 VDC source. The only license required is a technician or higher.



The PK232/MBX by AEA

...the only controller offering Morse Code, Baudot, facsimile Transmission & Reception plus the automatic marine weather and navigational system...7 modes makes any RS-232 compatible computer or terminal operating position. All decoding, signal processing ROM. Only a simple terminal program (like those required to interface the PK-232 with your computer).

ALSO NEW AEA ET-1 Econo-Tuner \$149 June Special

IC-765



COMPETITION GRADE

IC-751A



PERFORMANCE PLUS VALUE

IC-725



ECONOMY HF

IC-735



PROVEN WINNER

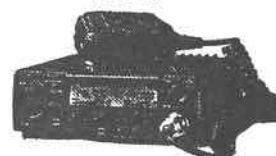
AUTOMATIC RANDOM WIRE TUNER AVAILABLE FOR THESE MODELS

IC-3210



DUAL BAND MOBILES

IC-2400



HANDHELDS



IC-2SAT



IC-2GAT



IC-32AT



IC-24

COMPLETE LINE OF ACCESSORIES FOR ICOM HANDHELDS

HR-2600's

only; 28.0 to 29.7 MHz
 V/FM • Mobile or Base
 CW PEP, 10W AM/FM
 Hz or 100 Hz step PLL dig-
 b. switches or microphone
 multi-function LCD display
 • RIT, automatic squelch
 encoder for FM repeaters
 Requires 13.8V DC @ 5A
 \$95 in quantities !!
 @ \$269.95; Buy 3 @ \$259.95
 @ \$239.95.
 INSURED SHIPPING...
 VISA OR MASTERCARD...
 Hole Mount \$79; Trunk Lip \$89
 \$9 SHIPPING PER ANTENNA.....



NEW: AEA ISOLOOP HF ANT.
 \$469

dot, ASCII, AMTOR, Packet, and
 ability to monitor the new Navtex
 des in one controller. The PK-232
 ninal the complete amateur digital
 using and protocol software is on
 used with telephone modems) is
 mputer.

il...

IC-781



SIMPLY THE BEST

IC-726

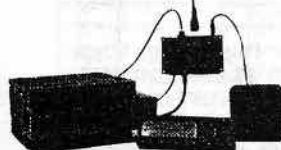


HF PLUS 6 METERS

IC-228H
 2 METER MOBILE



IC-901
 Versatile Multi-Band
 Remote System



4AT

KENWOOD

TS 140S/680S



ECONOMICAL FULL-FEATURED
 HF TRANSCEIVER
 TS-680 INCLUDES 6M

TS 940S/AT



DELUXE
 COMPETITION CLASS

TS 950 SD



DIGITAL SIGNAL PROCESSING
 FOR THE CLEANEST TRANSMITTED SIGNAL

TS 440S/AT



POPULAR HF TRANSCEIVER
 WITH OR WITHOUT AUTOMATIC TUNER

TM 631/731A



DUAL BAND MOBILES
 TM631A TM731A
 2M/220 2M/440

TH 75A



TH 225A



TH 26AT



TM 231A



COMPACT 50 WATT
 2 METER MOBILE

WE STOCK A COMPLETE LINE OF ACCESSORIES
 FOR THE KENWOOD HANDHELDS.

YAESU



FT 470



FT 212 RH



FT 747 GX

New Lower
 AEA Prices.....



HF ISOLOOP \$469
 ET-1 EconoTuner \$149

PK-232MBX \$499



MULTI-MODE CONTROLLER

MM-3 \$269



DELUXE MEMORY KEYS

\$199

PK-88



PACKET CONTROLLER

\$639

FSTV-430A



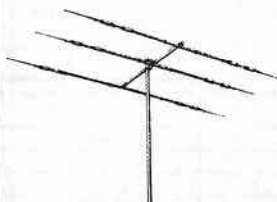
TV TRANSCEIVER

AT-300 \$249

ISOPOLE ANTENNAS



A3S
 BEAM



10-15-20 METERS
 40M KIT AVAILABLE
 STAINLESS HARDWARE

R5
 VERTICAL



10, 12, 15, 17, 20
 METERS
 NO RADIALS

ANTENNAS



TEN-TEC INC

OMNI V



HAM BAND TRANSCEIVER
 GREAT RECEIVER

TITAN 425



LEGAL LIMIT PLUS
 AMPLIFIER

AMERICA'S BEST

ABOUT PRICING !

Purchasing in the
 quantities that we do
 allows us to bring you
 the best products at
 the best prices.....
 PLEASE NOTE THAT WE
 MATCH ANY ADVERTISED
 PRICE BY ANY DEALER
 WHO IS AUTHORISED TO
 SELL THAT PRODUCT.
 Being the largest in
 Canada gives you fast
 service and plenty of
 inventory...
 THE NEWEST AND BEST
 PROMOTIONS ARE ONLY
 FROM US. ASK AROUND.

REMEMBER: SOME DEALERS ADVERTISING IN THIS ISSUE ARE NOT
 AUTHORIZED DEALERS OF THE PRODUCTS THEY ARE SELLING. USE
 CAUTION WHEN PURCHASING A PRODUCT AND MAKE SURE YOU HAVE A
 CANADIAN WARRANTY...

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 8% 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. New Fax Fone 631-0747

ATLANTIC HAM RADIO LTD.

Tues.-Fri. 10 a.m.-6 p.m. 368 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

CARF Buyer Aid— Transceiver Comparison Chart 2

Handheld Transceiver Features

Feature	Icom				Kenwood					Yaesu				Alinco			
	2AT 3AT 4AT	02AT 03AT 04AT	μ2AT μ4AT	2SAT	2GAT 4GAT 12GAT	32AT	25AT 45AT	55AT	205AT	215A 315A 415A	75AT	23R 33R 73R	411R 811R	470R	DJ100	DJ400	DJ500
2m	2AT	02AT	μ2AT	2SAT	2GAT	*	25AT	*	215A	*	*	411R	*	*	*	*	*
220 MHz	3AT	03AT		3SAT					315A								
440 MHz	4AT	04AT	μ4AT	4SAT	4GAT	*	45AT	*	415A	*		811R	*				*
1.2 GHz					12GAT			*									
Low power	0.15 W	0.5 W	0.1 W	0.5 W	1 W	1 W	0.5 W	0.5 W	0.5 W	0.5 W	0.5 W	0.5 W	0.5 W	1 W	2 W	2 W	.4 W
Std high power	1.5 W	5 W	1 W	2.5 W	7 W	5 W	2.5 W	1 W	2.5 W	2.5 W	2.5 W	2.5 W	2 W	2.5 W	2.5 W	2.5 W	2.5 W
Opt high power	2.5 W		2.6 W	5 W			5 W		5 W	5 W	5 W	5 W	5 W	5 W	6.5 W	6 W	5.5 W
Memories		10	10	48	20	20	14	14	3	10	20	10	10	10	10	10	10
PL encode		*	*	Option	*	*	Option	Option	Option	*	*	Option	*	*	*	*	*
PL decode				Option	Option	Option	Option	Option	Option	*	*	Option	*	*	*	*	*
Band scan		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Memory scan		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
S meter		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Extended rcv freq (2m Only)											Both	Option	Option	Option			Option
Std Low (2m Only)	141.5	140	138		138	138	141	1260	141	141	141	144	440	140			
Std High (2m Only)	150	151.5	163		174	174†	163	1300	163	163	163	148	450	150†			
DTMF pad	*	*	*	*	*	*	*	*	*	*	*	Option	*	*	*	*	*
Direct freq entry																	
Height (in)	4.7	6.3	5.7	4.8	5.9	7.1	5.4	5.4	6.8	6.8		5.8	5.8	6.7	6.6	6.8	6.6
Width (in)	2.6	2.6	2.3	1.9	2.6	2.6	2.3	2.3	2.6	2.6		2.3	2.3	2.5	2.3	2.3	2.5
Depth (in)	1.4	1.4	1.3	1.3	1.4	1.4	1.2	1.2	1.4	1.4		1.2	1.2	1.3	1.2	1.2	1.3
Weight (lbs)	1.2	1.3	1.2	.8	1.4	1.5	.88	.88	1.15	1.2		1.3	1.3	1.4	.55	.55	.95

† 440-450 MHz

VHF/UHF Transceiver Features

Feature	Icom					Kenwood					Yaesu					Alinco				
	275A/H 375A 475A/H 575A/H	28A/H 38A 48A	228A 228H 448A	3210	2500A	2530A 2550A	2570A	751A 851A	321A	711A 811A	4100	721A 621A	701A	3530	736R	212 712	4700	311RH	110T	510T
Type	Base	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Base	Mobile	Mobile	Mobile	Mobile	Base	Mobile	Mobile	Mobile	Mobile	Mobile
10m	575A/H																			
6m	575A/H														Option					
2m	275A/H	28A/H	228A/H	*	*	*	*	*	711A	*	*	*	*	*	*	*	*	*	*	*
440 MHz	475A/H	48A	448A	*	*	*	*	*	811A	*	721	*	*	*	*	*	*	*	*	*
220 MHz	375A	38A									621				Option					
1.2 GHz															Option					
FM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SSB	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CW	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
High power	(1)	(3)	25/45 W	25 W	35/10 W	25/45 W	70 W	25 W	25 W	25 W	45/35 W	(4)	25 W	25 W	45/35/25	45 W	50/40 W	45/25 W	45 W	45/35 W
Low power	(2)	5/5 W	5	5 W	5 W	5 W	5 W	5 W	5 W		5 W	5	5 W	5 W		3 W	5 W	5 W	5 W	5 W
Memories	99	21	20	20	40	23	23	10	14	40	10	40	20	23	100	21	18	10	14	14
Priority	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PL tones	38	38	38	38	38	Option	Option	Option	38	Option	Option	Option	Encode	Option	Option	*	*	Option	*	*
Battery back-up	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Band scan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Memory scan	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Speech Synthesis	Option										Option				Option	Option		Option		
Dual Watch																				
VFOs	2	2	1	1	2		2	1	2	2	1	1			14	2	2		1	2
Digital VFO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Readout	LCD	LCD	LCD	LCD	LCD	LCD	LCD	LCD	LCD	Fluores	LCD	LCD	LCD	LCD	Fluores	LCD	LCD	LCD	LCD	LCD
TTP on radio	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
TTP on mike	Option	*	*	*	*	*	*	*	*	*	*	*	*	*	Option	*	*	*	*	*
Hand mike	*	*	*	*	*	*	*	*	*	Option	*	*	*	*	Option	*	*	*	*	*
Internal speaker	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
External speaker															Option					
S meter	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Center meter	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Height ln(cm)	3.7(9.5)	2(4.5)	2(4.5)	2(5)		2.4(6)	2.4(6)	2.4(6)	1.6(4)	4(10)	2(5)	2(5)	1.5(4)	2.4(6)	5.2(12)	1.6(4)		2(5)	2(4)	2(4)
Width ln(cm)	9.5(24)	5.5(14)	5.5(14)	5.5(14)		7.1(18)	7.1(18)	7.1(18)	5.5(14)	11(27)	6(15)	6(15)	5.5(14)	7.1(18)	14(36)	5.5(14)		6.3(16)	5.5(14)	5.5(14)
Depth ln(cm)	9.4(24)	7(18)	6.3(16)	7.1(18)		8.5(21)	9.8(25)	7.7(19)	7(18)	10(26)	7(18)	8(20)	7.8(20)	7.7(19)	11(29)	6.3(16)		7(17.5)	6.8(17)	8.1(20)
Weight lbs(kg)	12(5)	2.2(1)	2.2(1)	4(2)		4.4(2)	5.2(2.4)	4.6(2.1)	2.6(1.2)	16(7)	3.9(1.8)	4(1.8)	3.1(1.4)	4(1.8)	11(5)	2.7(1.2)		9.3(4.5)	2.4(1.1)	3.8(1.7)

(1) 25 W on A models; 100 W on H models. (2) 1 W on A models; 10 W on H models. (3) 25 W on A models; 45 W on H model. (4) 45 W on 621/721; 35 W on 721; 25 W on 621.

•CQ DX•CQ DX•

Paul Cooper VE3JLP, RR 2 Metcalfe, Ontario K0A 2P0
613-821-2167



BHUTAN DXPEDITION

Last month I mentioned the possibility of Jim Smith VK9NS mounting an operation from this tiny kingdom in the Eastern Himalayas which lies north of Bangladesh and south of Tibet. There has been no Amateur Radio activity from A5 for 8 years now, so Jim's efforts to put Bhutan on the air again have been welcomed by DXers everywhere.

Early in April QRZ DX brought the good news that Jim had arrived and was QRV from March 22nd to around April 10th. We were warned not expect a big signal as Jim was operating barefoot, with only a vertical antenna. However, he was obviously getting out as I read that in his first two days he had made 3,500 contacts. Well I don't know where he was making his contacts but I don't think many of them were with VE3 stations. I searched diligently for him for four or five days, using the good services of 'Miniprop' and 'Bandaid' to spot when the band openings were most likely. All to no avail. I didn't hear a squeak from A51JS in the whole time he was there. I did find quite a few pile-ups though. There seemed to be a pattern to many of these operations, a remarkable reluctance on the part of the 'rare' station to send its call sign! You can see what happened, of course.

Half the world's DXers were desperately looking for Jim and every time they found a pile-up they would leap in hoping that they had finally found the elusive A5 station. The less-than-rare DX station at the other end then had a chance to work a small mountain of Europeans and North Americans before reluctantly admitting that he was, in fact UA1XXX, Vlad, just outside Leningrad!

I'm sure that a number of readers did manage to contact Jim and I'd appreciate a note from them on how they found him and whether they had any problems working him. A note on the back of a QSL card would be fine, by the way. I'll be asking the same questions of fellow DXers at Dayton in two weeks time, so we'll see what consensus develops on the problems, if any, of getting A51JS into the log.

SUNSPOT CYCLE 22

Most of the experts seem to be in agreement that we are at the peak of this cycle and we can now expect to start the gentle slide down to average conditions as the months slip by. It appears almost certain that we are currently experiencing at least the second highest, perhaps the highest, level of

AMSTERDAM Island
FT5ZB

ITU 68 - WAZ 39
OP. Dany F5CW (ex F6CZB J2BEI)

QSL manager :
F3CJ (ex F6ESH) - FD1JMH

TO RADIO **VE3JLP**

VIA

Day	Month	Year	UTC	MHz	2-Way	RST
09	06	88	0348	14	CW	559

A welcome recent arrival in your DX Editor's mailbox.

solar activity in recorded history. These high levels make for great propagation when the geomagnetic field is reasonably quiet. However, high solar activity inevitably results in more of those intense bursts of solar energy, called solar flares, that completely upset the ionosphere and knock out long range HF communications for periods of hours to days.

Watching the solar indices and using propagation aids are great tools for the serious DXer. Like most of us, I try to copy the vital figures from WWV at 18 minutes past the hour. This is not always easy, however. I have a decent receiver for only one of the frequencies, 10 MHz, and I frequently find that copy is quite poor, especially as they often under modulate their special voice announcements.

George Jacobs W3ASK has a useful suggestion to get round this problem. He mentioned it in the April issue of CQ magazine's 'Propagation' column. It assumes that you have a personal computer and a telephone modem. The Space Environment Services Centre in Boulder, Colorado, now has a special Bulletin Board Service which provides up-to-date solar, geomagnetic and propagation data. The service is free but you have to pay the long distance charges, of course. The BBS is menu driven and once you get the hang of it you can get in, download the 'Quick Look Solar & Geomagnetic Data' and hang up in about 1 minute for a

telephone cost of around 30 cents, from Ontario anyway. I wouldn't suggest doing this every day, of course, but for those special occasions when you can't hear WWV clearly this represents a very useful alternative.

The board handles Modem speeds of 300, 1200 and 2400 bps and you should dial 303-497-5042. The box printed here shows what a typical printout looks like. I've chosen the indices I downloaded for March 30. By the way, there is much more data available if you want to extend your connect time by a few minutes.

You can get a propagation report, MUF predictions, a solar report and so on. The BBS is menu driven and very user-friendly so it won't take you very long to get the hang of it. Oh yes, there is also a 'Help' menu that would probably be a good thing to download on your first call to save your pennies on subsequent calls.

I think for most purposes the 'Quick Look Data' will be all you need.

COOPER'S BEEFS

Looking back through recent columns, I've noticed that we haven't had any 'beefs' to air for a long time. Have we exhausted all the many problems that plague the Amateur bands, particularly as far as DXing is concerned? Seems a bit unlikely, doesn't it? Some of the more interesting items I have ventilated in the past have

Continued on next page ➤

DX cards

come from your letters, so I'll make a quick plug here for any items you find particularly annoying; please drop me a line and I'll be delighted to 'air' your views. Meanwhile, to keep things moving and at the risk of producing a great big yawn from some readers, I thank us time we talked about 'Lists' again.

Let me start by giving credit for bringing up the subject to a fellow TCA columnist, a very well-known Ottawa ham, Gerry King VE3GK. (By the way, congratulations Gerry, for being made a life member of the Ottawa Valley Mobile Club, a very well-deserved honour.) Gerry button-holed me at a recent club meeting and reminded me of the many weak points of working the

rare ones via a list.

He feels so strongly about it that he thinks the DXCC desk should either blacklist those DX stations that only operate via a list taker or, alternatively, institute two separate DXCC programs.

One would be for those who have used a list operation to catch some of the rare ones. The other program would be for those who have worked every country the hard way, through the rough and tumble of the DX pile-up. What do you think? I can see some obvious problems here. There are some DX stations in pretty rare countries that won't operate on their own but insist on using the services of a list taker.

I have some sympathy for a number of these stations, especially those operated by recently licensed hams.

They are comparatively new to the hobby and have no experience in controlling the cut and thrust of a big pile-up. They come on the air and by the end of their second contact there is a solid wall of stations shouting their call signs, desperate for a contact. What do they do? Sometimes they QSY in the hope of finding a quiet frequency and making a normal contact with a country that interests them. Otherwise they often close down in disgust. In these cases the list taker performs a useful service by making life easier for the DX station and allowing many more of us to make a contact with a rare DX country.

Of course there is no doubt that the contact made via the list taker is much much easier to make than fighting the opposition in a major pile. For that reason I find I usually experience a vague sense of guilt after working a country I need on a list; it was all so easy! And what does one say about those contacts made under very marginal conditions when the list taker

Band Reports

From the logs of Dave VE2ZP and Paul VE3JLP.

CALL	FREQ (MHz)	UTC	DATE	QSL (Remarks)
JY9SR	14.002	2200	FEB 24	W3FYT
SV9BAI	14.028	2250	MAR 20	[John]
SV9BAI	14.001	2320	MAR 31	
4K2BDU	14.050	2228	MAR 26	UA9MA [Franz]
4K2BDU	21.020	2040	APR 1	UAPMA [Jo Land.]
4J0QWJ	14.011	1530	APR 1	
4J0QWJ	21.021	0107	APR 2	
3W3RR	21.006	1750	MAR 29	[Wrking Europe]
4S7WP	14.013	2215	MAR 28	BOX 80, COLOMBO.
5B4SA	28.485	1543	APR 1	[Laurence]
TA3AO	21.017	0121	APR 2	[Istanbul]
J37AE	28.516	1911	MAR	
J37AE	21.018	2349	MAR	
V3AAB	28.458	2003		
V51NAM	14.138	2031	MAR	BOX 1100, WINDHOEK [ZS3]
S77A/J6	21.024	2347	MAR	[Slim????]
CE0MTY	28.505	0112	MAR	
FO0IGS	14.219	1039	MAR	
SOAEA	14.023	1043	MAR	EA2JG
KH6JEB/KH7	28.508	0146	MAR	
FH5EJ	21.018	2120	APR 3	[Mayotte Is]
J28SI	21.027	2035	APR 3	
9H1GZ	21.013	1950	APR 3	[Mario]
BZ4RC	21.012	0100	APR 6	BOX 538, NANJIGO [Chen]

LETTERS TO THE EDITOR

All signed letters to the Editor are eligible to be printed, space permitting. The Editorial staff reserves the right to omit libelous and slanderous material and make spelling and grammatical corrections. Please make an effort to type, print or write very neatly. Thank you... Editor.

MOVING?

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

INTRODUCING

QSL's

By VE3IWF

QUALITY CARDS AND FAST SERVICE!
USE YOUR OWN CUSTOM DESIGNS
OR SELECT ONE OF MY SAMPLES
-BOTH ARE PRICED FROM ONLY-
\$29.00 FOR 250 CARDS.

ACTIVE DXERS***

***CONTESTERS

SUPER LOW PRICES FOR ORDERS
OF 1000 OR MORE CARDS.
SEND OR CALL FOR FREE SAMPLES
AND A COMPLETE PRICE LIST.

O.M.PRESS

JEFF PARSONS, VE3IWF

R.R. #1

OXFORD MILLS, ONT. K0G-1S0
(613) 258-7131

virtually coaches both ends through the contact?

Even more questionable are those who, rumour has it, occasionally get on the list by telephoning the list taker and jumping the line-up for the next session! It's all a bit messy, isn't it, but I don't know whether we will ever see the list banned or the DXCC program amended to reflect the very different challenge presented to the DXer who decides never to work a list operation. Let's have your views on this contentious subject.

BITS AND PIECES

PYOT, Trindade Island— Also known as Martin Vaz Island, Trindade lies about 500 miles east of the Brazilian coast, 20 degrees south of the equator. While not in the super rare category, Amateur activity is not that common from this island, so look out for a two-month-long operation which is currently scheduled to start in the first week of June.

The Natal DX Group will be sponsoring this effort and the two operators will be Karl PS7KM, who will

look after SSB contacts, and Tino PT7AA, who will be hammering a key. No other details available at the moment, just look for the pile-ups and make sure they are not that fellow from near Leningrad again!

April 1st, 1990— Thanks to *QRZ DX* for a brief list of bogus stations that were active on this date. Did anyone work FOOL, CLOWN or CROOK?! XZ5CW was also heard and is assumed to be a phoney.

KHS, Jarvis Island— DXpedition is scheduled to be active from this island during the period April 13 to 23. This is of particular interest as the island is now the subject of an application to the DXAC for separate country status. The application is based on Criteria points 2(b) and 3(b). The wording of this second point is already considered by the DXAC as 'awkward' and they are working on a new version.

Thanks are due to the following sources for some of the material appearing in this column: VE3GK, SESC Boulder Colorado, W3ASK, *CQ Magazine*, *QRZ DX* and VE2ZP. ■

FCC orders 2M and 70cm Beacon bands moved

On March 7 the FCC issued its Report and Order in PR Docket 89-65, changing the frequency segments that can be used by automatically-controlled beacon stations operating in the 2M and 70 CM band. The decision was based on ARRL petition RM-6512.

"Because it continuously transmits a one-way signal, this (automatic) type of beacon is limited to low power and to narrow segments of certain Amateur service bands so that there will be minimal disruption from and to other types of Amateur station operations," the FCC said.

"For example, reception of a beacon station in the currently authorized segments can be disrupted by high power transmissions from Amateur stations engaging in moonbounce and other experimental communications. For this reason, the Notice proposed to change the segment where beacons can operate in the 2M band from 144.05-144.06 MHz to 144.275-144.300 MHz, and in the 70CM band from 432.07-432.08 MHz to 432.300-432.400 MHz."

The FCC received four comments to its NPRM, generally supportive of the proposed action. Although there was some divergence among the commenters as to exactly which subbands should be chosen, the Commission decided to adopt the changes as originally proposed.

The ARRL twice requested that a 1.25 M beacon segment be moved from 220.05-220.06 to 220.275-220.300 MHz. The FCC replied that "such relocation would serve no useful purpose in light of the fact that all types of Amateur station transmissions in the 220-222 MHz segment will be deleted when the land mobile service implementation is completed." The Commission said that another beacon segment at 222.05-222.06 MHz will remain as is.

The new rule 97.203 becomes effective May 18, 1990. It now reads:

(d) A beacon may be automatically controlled while it is transmitting on the 28.20-28.30 MHz, 50.06-50.08 MHz, 144.275-144.300 MHz, 220.05-220.06 MHz, 222.05-222.06 MHz or 432.300-432.400 MHz segments, or on the 33 CM and shorter wavelength bands.

— W5YI Report

Quick Look Solar & Geomagnetic Data

Solar Data For: 3/30/90

SESC Sunspot	Estimated	Ottawa
Number	RI Number	Radio Flux
165	145	178

Geomagnetic Data For: 3/30/90

	K-indices							A-index	
	00	--03	--06	--09	--12	--15	--18	--21	--24Z
Boulder	3	5	7	6	5	5	3	3	51
Planetary	4	5	7	7	5	4	3	2	59

Anyone know what an "RI Number" is?

ARES AMATEUR RADIO EMERGENCY SERVICE

Bob Boyd VE3SV, P.O. Box 356, Kingston, Ontario K7L 4W2



A MILESTONE IS REACHED

More than two years have elapsed since I was asked to write a monthly ARES column for Canada's two national Amateur periodicals. In this, my 24th column, it is time to review what has been covered and what has been accomplished. Right from the beginning, my objectives have been threefold:

1. To establish that 'it can happen here' by describing recent disasters and ARES' contribution to the rescue efforts. Columns have described hurricanes, earthquakes and an aircraft disaster. One column dealt with the very real possibility of a major quake in B.C.

2. To review the features and facilities of an effective ARES organization. Subjects include emergency plans, identifiers, emergency kits, generators, antennas, telephone trees, communications vehicles and publications. I inveighed against the 'ad hoc' approach to emergency operations and stressed the importance of training in message handling and net control. Suggestions for the makeup of emergency kits were made. One column was devoted to the important topic of working with volunteers.

3. To provide a medium for the exchange of information on the activities of ARES groups across Canada. Reports were carried on activities of emergency communications groups from Quebec to B.C. Numerous emergency exercises were described, ranging from simple tests of telephone trees to major tests involving several emergency response services.

Other columns described how various groups went about establishing ARES units in their areas. Hopefully, these reports have provided tips on how to run an emergency exercise, and on how to set up a new ARES group. A survey made of all ARES groups across the country gave each of us a basis for determining how our own group stacks up.

Tribute must be paid to the many Amateurs who provided reports of their activities and descriptions of their facilities and organizations.

What has been accomplished? That is mainly for you to judge. Amateurs from eight areas from Eastern Ontario to the Pacific coast have written to request information on starting an ARES group in their area. All provinces from Quebec westwards were heard from, and their activities were chronicled.

What of the future? I shall continue to stress the three objectives mentioned above by reporting on developments

across the country. Let us hope that actual disasters will be few and far between; if past history is a guide, however, there will be lots of them to write about. One of our ambitions is to provide coverage of the four maritime provinces as well. We know that ARES is active in most, if not all, of them, but there is a dearth of reports on what is happening. What about it, Atlantic Canada?

RECENT EXERCISES

Ken Oelke VE3AFO, Alberta SEC and CRRL Director, provided details on an emergency test of the Calgary ARES group. He reports: "The three Assistant Emergency Coordinators were activated by me and were requested to initiate the telephone tree. Contacts were attempted with all 70 of our registered ARES members who were to originate a message to the Emergency Coordinator stating year licensed, class of license, and emergency power capabilities. Those that weren't home, but mobile, were contacted via a callout on the various local repeaters and simplex channels.

"Don Cole VE6EY activated the SW area. There were 13 people, out of 22 registered, who were home. Frank Devitte VE6ANL activated the NW area. Ten people, out of 21 registered, were at home. Last, Randy Rowe VE6BOJ activated the NE and SE areas. Eleven out of 24 were at home. Hence, over 50% were able to be reached quickly, not to mention the mobiles. This would be an excellent turnout for any kind of emergency.

"The formal written traffic that was requested seemed to flow fairly well, although a great deal of 'on the net tutoring' was needed. Formal traffic handling procedures improved from 7% in our last exercise to about 75%. There is, however, still considerable room for improvement. Another area for improvement is in the length of the messages sent by most to answer the three questions asked. The average was about 16, which is a bit too long. The average should be about eight to ten words including X(rays)."

Bill Wilson VE3OZT, Niagara EC, reported on their recent exercise as follows: "An aircraft was reported to be down somewhere along the Canadian shore of Lake Erie; Amateurs were requested to come on the VE3NRS repeater and given an estimated time of arrival at the search site. VE3VM, operated by VE3OZT as net control, activated the emergency telephone tree. I feel the NPARC members provided an

excellent potential search group. Within 80 minutes a total of 66 stations came on frequency. Most of these could have been in the search area within an hour of call-up. Offers of mobile homes or trailers for use as base facilities, as well as several small boats and an extra aircraft were volunteered. We would also have had a complete repeater system (totally portable and independent). This exercise pointed up some minor discrepancies in our telephone tree, which will be addressed. Also, the need for some coordination with other area repeaters was revealed."

John Lester VE3MB, Hastings County EC, sent in a comprehensive report on their exercise to test the ARES response in his county. He says: "The operation used the repeater VE3RAA at Picton, and included VE3KKX, EC of Prince Edward County, and VE3GTF at Picton. Fifteen Hastings County Amateurs participated. The test proved the ability of the system to handle traffic between eight strategic points in the counties to places elsewhere. Through VE3AUU and VE3CTP, two high power HF links were available. Through the VE3RTR repeater at Baltimore and the VE3ULR link, a direct line to Toronto and Queen's Park was established.

"To provide for a link in case a weather emergency was involved, two Amateurs were at VE3YTR, the VHF station at CFB Trenton. VE3ALC at Loyalist College was also part of the net, in anticipation of health and welfare traffic. Net Control was kept out of town at the home of VE3MB at Foxboro. The repeater, the HF stations and the NCS were all equipped for battery-only operation. All the tactical stations also had HTs for use if required."

John concludes: "Congratulations to all who came out and made the exercise a very successful demonstration of Amateur radio communication ability. The enthusiastic support given to us as radio Amateurs by our county area police forces and civic leaders helps make us all a working emergency team ready to assist our communities." ■

It is hoped that this column, which is being submitted to both The Canadian Amateur and to QST Canada, can become an ongoing source of news and information for members of both organizations on ARES activities across Canada. ARES members and particularly ECs are invited to send along information on what they are doing and on any developments they would like to share with other ARES groups.

KENWOOD
ICOM
ALINCO
A.E.A.
CUSCRAFT
VIBROPLEX
BENCHER
ARRL

NORHAM RADIO SUPPLY

YAESU
TEN TEC
JRC
DAIWA
M.F.J.
KANTRONICS
UNADILLA
& MORE !!

WE SERVICE AND SELL
ALL MAJOR BRANDS !



NEW KENWOOD TH-26AT

- NEW 2M HANDHELD 136-174MHz
- 2.5 Watts OUTPUT, COMPACT
- 20 MULTI-FUNCTION MEMORIES
- 4 AUTO-DIAL STORAGE, EXTENDED WARRANTY

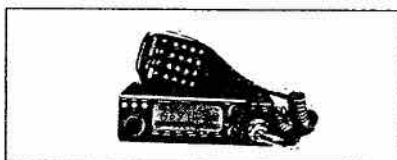
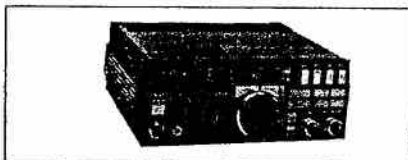
LIST \$399

SALE PRICE \$379

YAESU FT-747GX

KW TM-701A

T.T. OMNI V



- NEW COMPACT HF TX
- RCVR/GEN COV.
- 100W OUTPUT, 13VDC

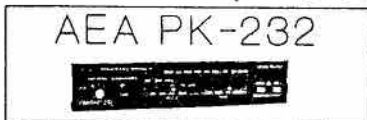
- DUALBAND 25W OUT
- 20 MEMORIES
- 136/174MHz REC

- EXCEL PERFORMER
- 2 YEAR WARRANTY
- DELUX HF TRANS

SALE \$1089

SALE \$649

SALE \$2899



AEA PK-232

- AEA-AT300-\$349
- AEA-AT3000-\$599
- AEA-MM3-\$289
- MFJ-1278B-\$449
- MFJ-1270B-\$219
- KANT-KAM-\$499
- KANT-KPC-II-\$269

- MFJ-989C-\$589
- MFJ-986-\$419
- MFJ-962C-\$349
- MFJ-949D-\$239
- MFJ-945C-\$139
- MFJ-941D-\$169
- MFJ-901B-\$109

- KW-TH-75AT
- SALE \$599
- YA-FT-411
- PRICE \$449
- ICOM-IC-32AT
- PRICE \$779
- AND MORE !

ALL MODE INTERFACE
RTTY/WEFAX/AMTOR
PRICE \$539

WHEN YOU PURCHASE ANY KENWOOD OR YAESU TRANSCEIVER OR ICOM VHF/UHF TRANSCEIVER WE WILL EXTEND THE MANUFACTURES WARRANTY

NORHAM RADIO SUPPLY

4767 STEELES AVE. W
NORTH YORK, ONTARIO M9L 2W1
HOURS: TUES 10am-8pm
WED-FRI 10am-6pm
SAT 10am-3pm

(416) 745-1000

PLEASE ADD 2% (MINIMUM \$5.00) TO YOUR ORDER FOR SHIPPING & INSURANCE

FOR PRICE LIST PLEASE SEND 78c IN STAMPS

CONTEST SCENE

Dave Goodwin VE2ZP, 15 Oval, Aylmer, Quebec J9H 1T9

CONTEST CALENDAR

June 2-3 RSGB Field Day
 Jun 9-10 ARRL VHF QSO Party
 Jun 16-17 All Asian Phone Contest
 Jun 23-24 ARRL Field Day
 July 1 CARF Canada Day Contest
 July 14-15 CQ WW VHF WPC Contest
 July 14-15 IARU HF World Champ
 July 20-21 World Champ.
 July 20-21 World Radiosport Team Chp.
 Aug 4-5 ARRL UHF Contest
 Aug 25-26 All Asian CW Contest

Courtesy John Dorr K1AR and CQ Magazine

WPX SSB

Conditions for this year's WPX SSB could most politely be described as challenging. One week before the contest, conditions were superb, with excellent openings on 10 and 15 metres deep into Asia from here, and similarly strong signals from Europeans on the low bands. It was too good to last. Along came a substantial solar flare three days before the contest, and the consequent magnetic storms on the contest eve set the weak, warbly tone of things.

For all the poor conditions, at least one record is known to have fallen, and what a record. The famous triple-Z crew, using the callsign CZ7Z, has finally bested the 11-year-old Multi-Multi record with a score over 17.7 Meg. Here is how they did it:

CZ7Z Multi-Multi

Band	QSOs	Px
160	46	5
80	293	38
40	709	86
20	1840	359
15	2132	365
10	157	191

Total 6617 QSOs 1044 Px
 Score: 17,791,848

The previous MM record was also a world record when it was set by CK7WJ, and helps mark the tenth anniversary of the VE7ZZZ team in fine style.

Other rumoured scores:

VO3MP A 2000+q
 CF2ZP A 1741q 640p 3.3M est
 VE3HX 28 120q 30k est
 CF7EIK 14 1102q 504p 1.27M
 CF6OU/3 3.5 700q est
 CF3CPA MS 2400q 803p 6.1M
 VY2CA MS 2200q? 3M?
 CI7U MS unknown

John CF6OU/3, normally an all-band entrant or multi-single host, went 80 single this year, less out of choice than circumstances. Sometime between the Commonwealth Contest and the WPX, an ice storm came along and gave him a summer project. I still think that with one yagi tied behind his back,

John's station is a superb performer.

George CF7EIK had originally been planning to try ten metres, but saw which way the solar wind was blowing and went to 20. Even there, George remarks in his letter, "propagation on 20 was not great." George tried using K1EA's software for the first time, and was extremely pleased with it, but complains that it does not indicate the RS(T) sent anywhere on the printed logsheets.

Armed with the Harvard Graphics package, George produced the two charts you see elsewhere in this column, showing QSO rate and the geographical distribution of his contacts. George notes: "... of all things, what I missed the most (were) the JA openings; these are

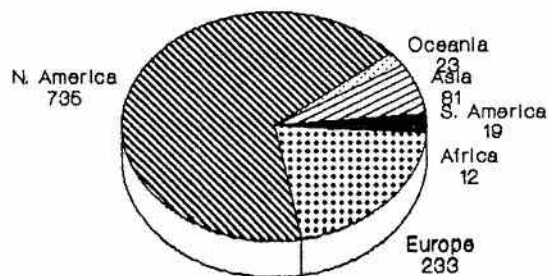
always good for a few hundred QSOs. On 20 metres, the best time for JA from the west coast was between 1400-1800 UTC, and this translates to the early morning hours in Japan." ... "I had to do a lot of calling before a few JAs stopped by."

CZ7Z and CI7U (VE7UBC in disguise) had the advantage of unique prefixes and the shortest possible callsigns. Let's hear it for the enlightened attitude of DOC in B.C. region for allowing them to use those calls. Maybe it's time for us all to start asking for them.

I'm sure many of you will agree with me in thanking Garry Hammond

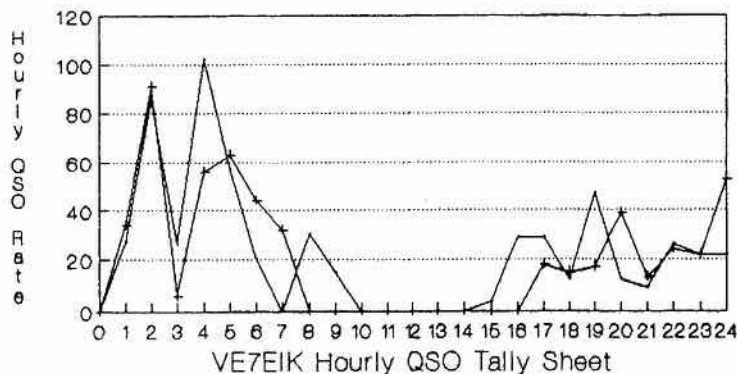
Continued on next page

1990 CQ WPX Contest



QSO's by Continent

1990 CQ WPX Contest March 24-25



— Day 1 + Day 2

14 MHZ.

Line of sight

Robert Smits VE7EMD, 13894 94A Ave., Surrey, B.C. V3V 1N2

Top Band and the Sling Shot



By VE7BS

NM7M's article on the 'dawn peak' on 160 metres ('Over the Horizon' page 19, April 1990, TCA) was timely, as we seem to have started on the way down the second half of Cycle 22 towards what topbanders regard as god DX conditions. Bob Brown's comments spurred me to put together some of my own, mostly in support of his thesis.

But first I must defend those topband DXers whose feelings must be hurt by the implication that they use only low abbreviated antennas! There are dozens (probably hundreds) of full length quarter wave verticals, many of them in phased clusters, lots of taller monopoles like K7VIC's and N7SC's 145 foot sticks (which do use capacitive top loading, but load them out to 3/8th wave), and there are dipoles at 200 ft. or more.

WOZV's (well over TWO hundred

CONTEST (cont'd)

VE3XN for his efforts in petitioning DOC for the Canada-wide use of the CF (and other prefixes) to commemorate the 25th anniversary of the flag. Garry, while not a serious entrant this time, did show up to hand out plenty of CF25A QSOs and, again, let's thank DOC for their flexibility in allowing this unique call sign to be used by Garry and his colleagues in the Maple Leaf ARC.

You will notice VY2CA among the multi-single entrants. That is the new identity of VE1IDX, now the Island Contest Association, enjoying their new, and hard-won, prefix. Many islanders have changed to the new prefix and a number of new two-letter calls have started appearing in New Brunswick and Nova Scotia. When Garth VE1DX became VY2DX, Andy VE1ASJ became VE1DX, so look for Andy in his new identity in the pile-ups.

At time of writing (10 days before Dayton), there was still no news of either the WPX CW results, or the high-claimed scores from the CQ WW DX SSB. The first, and possibly the second will be subjected to the traditional entrail-reading next month. ■

countries on 160) highest dipole is a half wave above the surface of the ground— goodness knows how far that is above the EFFECTIVE ground plane. And as for our 'brief DX encounters', on what other band could two or three North American stations have an hour's conversation with half a dozen VKs?

Based on many years of sunrise operation, WOZV switches from his low angle antennas to the higher angle ones as sunrise approaches, exactly as NM7M's UNSTABLE.BAS program predicts he must. I have to wait for the 'high angle time' because my horizon towards VK is more than 20 degrees above the horizontal, and any signal trying to come in lower than that gets bogged down in the ice fields of the Coastal Range or has to diffract over the mountains lining our valley.

But I believe in the common lore that says there ARE no really low angle DX signals for land-based stations on the low bands. Not because of the antennas; because of the absorption in the lower layers, and because of the poor ground around us. I am satisfied after much hauling up and down of antennas that higher antennas are not necessarily better on top band (or for that matter on 80). So NM7M's conclusions, and his program, are a great comfort to the little gun living in a valley.

Here are some summaries of actual experience showing that signals do come in at the time UNSTABLE.BAS calculates they should. The first chart is of my own operation at sunrise through the summer of 1987. Summer is the best period for working to the southern hemisphere from VE7, and '87 was a good year, though not as good as '86, and nothing near as good as '85.

The second chart shows a summary of 1985. Of course Bob Brown's program predicts the time and arrival angle of signals if they have made it over the rest of the path. It looks only at the unstable control point nearest to the coordinates entered, so sometimes (if you look East for example) the layer is unstable at the refraction point but there is broad daylight beyond it— you have to use common sense as well as the computer! (Sometimes strange things happen in

daylight though— In 1986 DJ8WL had a QSO at local noon with 9H1CG 900 miles away.) And some signals arrive by other ionospheric routes and from unexpected directions.

Bear in mind also that to some extent the times of contacts are dictated by human need rather than by conditions— even Australians have to go to bed sometimes, and Canadians have been known to stay in bed longer than a topbander should.

I was usually there when the band opened, and usually managed to keep someone there from down under until it closed. They were often talking with WOZV before I could hear them, and the path to me opened up just about as it closed to him (a look at GRAYLINE or DX EDGE clearly shows why). As the path began to fail for me half an hour or more later, it peaked for the stations in Oregon.

Although the opening almost always extended past my sunrise, signals were stronger before sunrise. As the solar flux numbers rose to 200 and beyond in 1988 and 1989, this changed (just as UNSTABLE.BAS shows). Conditions were nothing like reliable, openings were shorter, started earlier, and the path usually failed by sunrise or before. (This is being written in April 1990, and VK contacts on 160 are very few and far between, probably because of the flares that push the absorption levels so high.)

The third chart is from DJ8WL (taken from Ivan VE3DO's 1988 *Top Band Annual News Digest*). This is a consolidation of records from 1980 through 1987. These contacts were within the northern hemisphere, so were made during the northern winter 'DX season' on 160. The same general pattern is there— many contacts before sunrise and a few flowing over into daylight. You can also see some concentration on the 'dark' side of the W2 sunset.

You get the definite impression from this chart that at least one DJ8 sleeps only during the day, or doesn't sleep at all! The presence on the chart of a sunset line for VE1 is probably an unspoken tribute to VE1ZZ, who also never sleeps.

Continued on next page ▶

LINE OF SIGHT (cont'd)

If there is any exotic Pacific DX around, or rumoured to be around, all a VE7 has to do is monitor VE1ZZ working it, then pray the DX stays awake long enough for the E-layer to get unstable at the right spot to bend the ray down to VE7.

Peter DJ8WL uses an inverted L with about 65 ft of vertical element, and through the winter a two-element switched phased array with top loading, about 180 ft. spacing and 30 or 40 radials below each element. He completed his 160M WAZ in 1988, made WAS in three months in 1985; must be well over 200 countries by now.

SOME NOTES ON THE UNSTABLE.BAS PROGRAM

NM7M notes that the program is sensitive to the solar flux number. It is also sensitive to the frequency, and a shift of 75 kHz is a big percentage change when operating on 160. Bob showed two examples to illustrate the effect of using SF75 and SF200, and chose 1.9 MHz as the frequency. The VK stations are not permitted to operate as high as that in the band, so I checked the readout on the frequency most used by the group I check in to (1825 kHz).

The predictions shown here are run on the Commodore 64, much slower than NM7M's IBM-compatible, so I used much coarser time and vertical-arrival-angle increments. There are also some minor changes to accommodate the 40-character screen. Compare the 20-degree opening time

FROM PEMBERTON TO SYDNEY ON 1.825 MHZ
 DAY: 1 MONTH: 5 SOLAR FLUX: 90
 ANTENNA HEADING: 243

TIME OF SLING SHOT EFFECT (#):

.....\$..... 40
\$..... 35
\$\$..... 30
\$\$..... 25
\$\$\$\$..... 20
 : : : : :
 10 11 12 13 14 UTC

(Flux level typical of summer 1985)

FROM PEMBERTON TO SYDNEY ON 1.825 MHZ
 DAY: 21 MONTH: 3 SOLAR FLUX: 200
 ANTENNA HEADING: 243

TIME OF SLING SHOT EFFECT (#):

.....\$..... 45
\$..... 40
\$\$..... 35
\$\$..... 30
\$\$\$\$..... 25
\$\$\$\$..... 20
 : : : : :
 10 11 12 13 14 15 UTC

(Compare with NM7M graph for 1.9 MHz)

shown on NM7M's second graph with the SF = 200 one; the only difference is the result of entering a different frequency of operation.

NM7M has drawn attention to the wheel that has been sitting there waiting for us to make use of it, and

more important than that, has drawn attention to the importance of the high angle rays. Now if he can come up with a way of predicting chordal hops, so we can get the wheel working both ends at once and see what is happening in between as well.

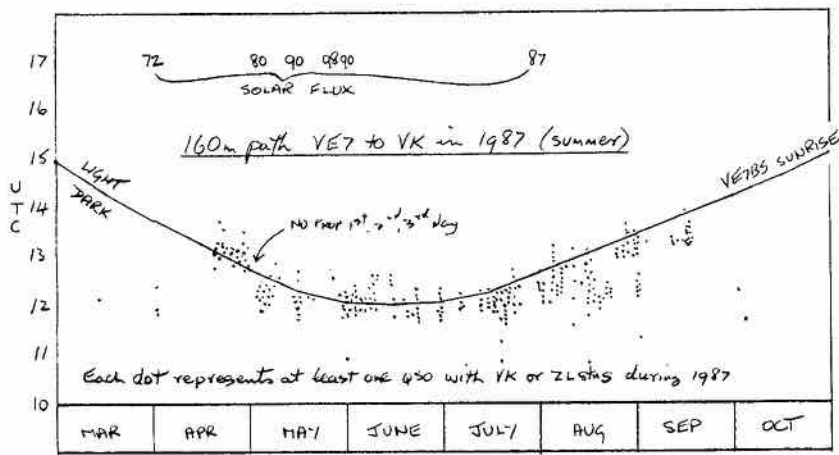


Chart 1 - 1987

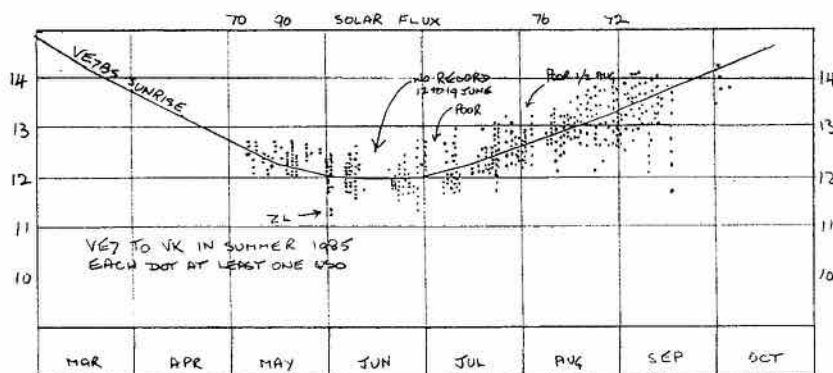


Chart 2 - 1985

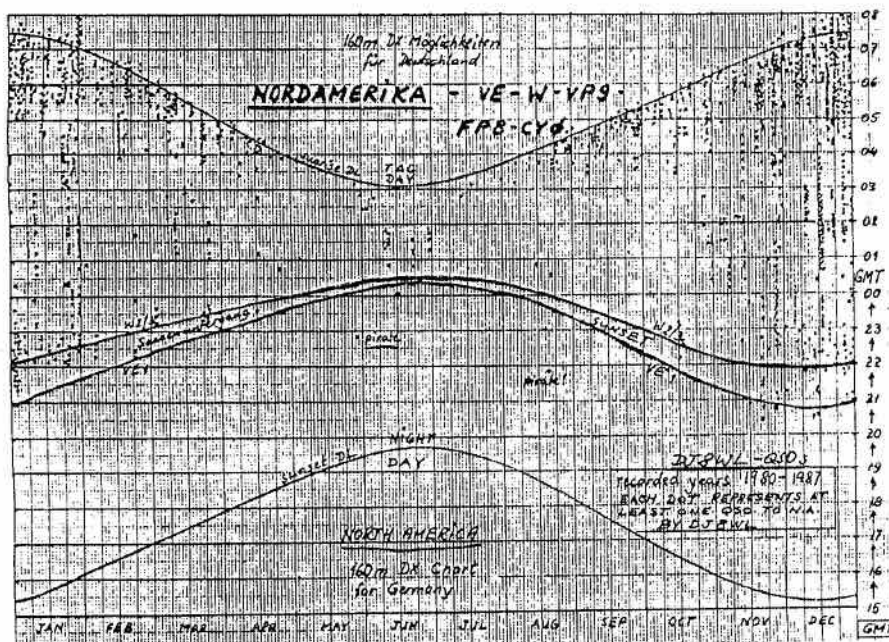


Chart 3

Listening To The World

Sheldon Harvey, 79 Kipps St., Greenfield Park, Quebec J4V 3B1



Changes continue to take place in the world of international broadcasting. It seems that almost every day we are hearing of changes to the medium of shortwave broadcasting. By the time you read this, two interesting developments will have taken place.

In April, Radio Prague Czechoslovakia decided to shut down their external shortwave service in order to do a sort of house cleaning, or purging of the staff. Much like the changes which took place in 1967 when the Soviet Union occupied Czechoslovakia and the voice of Radio Prague was dramatically changed, Radio Prague, now with its new-found democratic system, has decided to change the shortwave service again. It was decided in April to shut down for about six weeks to develop a new mandate for broadcasting, as well as to reorganize the staff, purging any of those employees who may have been sympathetic with the old regime.

News also came from South Africa where the external service of Radio RSA— The Voice of South Africa announced that, due to budget constraints, all transmissions of Radio RSA beamed outside of the African continent, including the North American service would cease to exist as of the end of April. This is really a dramatic step considering the changes going on in the country.

One would think that the external service would be a useful tool in keeping the world up-to-date on developments. It is unknown at this time whether any of the broadcasts destined for other parts of Africa might be audible here in North America. I'll have further details on this in the months ahead.

COUNTRY OF THE MONTH

We head off this month to a rather small country with a very powerful and well-respected voice on shortwave. The country is Switzerland and the station, Swiss Radio International (SRI).

Unlike most of the international services on shortwave, SRI is not government-operated. Radio and television broadcasting in Switzerland is run by non-profit company, the Swiss Broadcasting Corporation.

SRI runs like the proverbial Swiss watch; just like clockwork. It is very professional and very modern. Their broadcasts are highly polished and reflect the neutrality which is the history of the country itself. Technically speaking, SRI is a complex, but sophisticated, operation with an

extensive network of transmitting equipment.

Here is a rundown of the transmitter installations: Schwarzenburg— four 250 kW and two 200 kW, Beromunster— two 250 kW, Lenk— two 250 kW, Arnen— one 250 kW and Sottens— one 500 kW. SRI also uses relay station transmitters in the following locations, Moyabi, Gabon— one 500 kW, Beijing, China— one 120 kW, Funjing, China— one 120 kW and Brasilia, Brazil— one 250 kW. The studio facilities are located in the city of Berne.

SRI broadcasts to the world in nine languages: German, English, French, Spanish, Portuguese, Arabic, and two unique languages, Esperanto and Romansch.

The programming is a balance of international and Swiss matters, often focusing on the Swiss observances of events around the world. The schedule of English programmes consists of news, Dateline, the Shortwave Merry-Go-Round, The Grapevine and Round-about Switzerland.

You will have two chances to tune in the daily broadcasts in English here in Canada. For the East Coast, 0200 to 0230 UTC or 10 to 10:30 p.m. Eastern Daylight Time on the following frequencies: 6095, 6135, 9725, 9885, 12035 and 17730 kHz. For the West Coast, 0400 to 0430 UTC or 9 to 9:30 p.m. Pacific Daylight Time. For those in the central or mountain zones, adjust yourselves accordingly.

From time to time Swiss broadcasts to other parts of the world in other languages will also be audible in North America. If you are interested in these transmissions, I would suggest that you write for a detailed schedule. You will be put on a regular mailing list for updates to this schedule. SRI also welcomes your reception reports and will QSL all reports. You can write to them at the following address: Swiss Radio International, CD-3000, Berne 15, Switzerland.

In addition to the SRI broadcasts, the station also loans their transmitters to a very unique service. On the last Sunday of each month, the International Committee of the Red Cross (ICRC) organizes transmissions broadcasting Red Cross news from their headquarters in Geneva.

In times of a major crisis, ICRC will broadcast information on prisoners of war and civilians on 7210 kHz and other frequencies lent by the Swiss authorities for up to 12 hours per day. Requests for a detailed operating

schedule as well as reception reports for the ICRC broadcasts can be mailed to Red Cross Broadcasting Service, 19 Ave. de la Paix, 1202 Geneva, Switzerland.

CHOOSING THE RIGHT RECEIVER

Probably the most difficult task of anyone interested in getting involved in international radio monitoring is choosing the right receiver in which to invest their hard earned money. With so many receivers on the market and so many reviews in commercial magazines and club publications, it can be very difficult to make the choice and even more difficult to decide which review is really telling you the whole story.

My personal feelings are that the best review is to have the opportunity to try out the equipment prior to laying your money down, but that is not always possible.

Another good choice is to talk with someone who is already using the equipment. This might not always be possible either. Therefore we are left with having to rely on equipment reviews from various sources. I have found one particular source to be very reliable and well-respected among shortwave listeners. This is the series of detailed equipment reviews known as

Continued on next page ▶

CUSTOM QUARTZ CRYSTALS

Common Amateur Crystals

\$11.85 each

Add \$1.25 per order for shipping.

Ontario residents add 8% P.S.T.

Delivery 2 - 3 weeks. Specify manufacturer and model of radio and TX & RX frequencies.

If you are not sure of details or prices, drop us a note, we will return a quote.

LESMITH CRYSTALS

P.O. Box 846,

54 Shepherd Road,

Oakville, Ontario L6J 5C5

Phone: (416) 844-4505

Fax: (416) 844-2274



▶ LISTENING (cont'd)

The Radio Database International White Papers Produced by the firm IBS—International Broadcasting Services, the publishers of *Passport to World Band Radio* this group has tested over 100 pieces of equipment since 1977 and have prepared reviews for publications and broadcast worldwide.

The following is an excerpt from the RDI publication *How to Interpret Receiver Specifications and Lab Tests*.

The RDI White Paper examines fully and precisely what each helpful laboratory measurement means and how they relate to your own radio needs. Handy rules of thumb are also included so you can convert performance measurements into everyday terms."

All receivers are put through a battery of tests under all types of conditions in order to give you the most complete review possible. The reviews range from 10 to 30 pages per report and give you the full range of measurements and opinions prepared by IBS's award winning, hands-on and laboratory experts. The findings are organized for ready reference and the results—good or bad—are revealed. Nothing is held back, whether for reasons of space or editorial policy. A wide selection of these reviews are now

in print and I am able to offer them to you through this column.

Here is a list of the White Papers currently available:

How To Interpret Receiver Specifications & Lab Tests
Popular Outdoor Antennas
Popular Indoor Antennas
The Grundig Satellit 650 Receiver
The Grundig Satellit 500 Receiver
The Icom IC-R71 Receiver
The Icom IC-R9000 Receiver
The Japan Radio NRD-93 Receiver
The Japan Radio NRD-525 Receiver
The Kenwood R-5000 Receiver
The Lowe HF-225 Receiver
The Sony ICF-2010 Receiver
The Sony CRF-V21 Receiver
The Yaesu FRG-8800 Receiver

These reports are available at a cost of \$8.95 per report, including postage costs, and can be ordered through my address indicated above. Payments should be made payable to me by cheque or money order. Not being a technically inclined person, I have found these reports to be informative, thorough and easy to understand. I am sure that they will help you greatly in making the choice of a receiver which is right for your needs.

Some of you in your letters have asked me what equipment I use for my monitoring. I have been using the

Kenwood R-5000 receiver for the last three years and am very satisfied with it. I have a 50-foot inverted L antenna and a 150 random wire antenna which I use for shortwave monitoring. For medium-wave DXing I use the Sony ICF-6800W receiver with an indoor 3 foot box loop antenna. Unfortunately this receiver is no longer made by Sony. It is also an excellent performer on shortwave.

I have had the opportunity to use various receivers over the years and should you wish to ask me any questions about particular receivers, please feel free to drop me a note and I'll try to pass along the answers. That's it for another month. Have a good summer everyone. Until next month. ■

IARN BROADCASTS

The International Amateur Radio Network broadcasts and coordinated nets may be heard on 3.975, 14.275 and 28.475 at 1400, 1800, 2200, 0100 and 0500 UTC. One hour earlier during Daylight Saving Time.

BACK ISSUES

Back issues of *The Canadian Amateur* magazine for 1988/89 are available from the CARF office for \$2.50 each post paid.

16th Annual ONTARIO HAMFEST '90

Presented by the
Burlington Amateur Radio Club
P.O. Box 836, Burlington, Ontario L7R 3Y7

**Saturday, July 7, 1990
at Milton Fairgrounds**

Starts at 9 a.m.

\$5 Adult admission includes
Super Door Prize Ticket

\$3 Spouse/Children under 12 Free
PLAN TO SPEND THE WHOLE DAY!

Activities for children
Radio demonstrations
Inside Vendor Flea Market
Outside Ham Flea Market

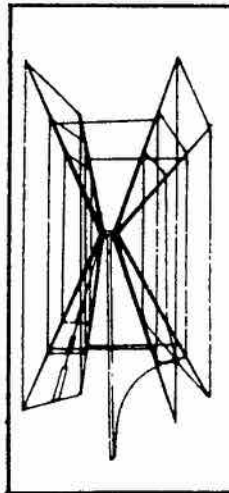
(No Charge for space, bring your own tables!)

Hourly Door Prize Draws

**For information contact:
Rick Jones VE3WRJ 639-0724
Ted Barrette VE3TED 639-5878**

GEM QUAD PRODUCTS (1987) LTD.

Chosen By Amateurs For Over 15 Years.
Winner of the Manitoba Design Institute
Award of Excellence.
Will Accommodate New Bands From
2 To 20 Meters.



Fiber Glass
Quad Antenna
For 10, 15, and
20 Meters

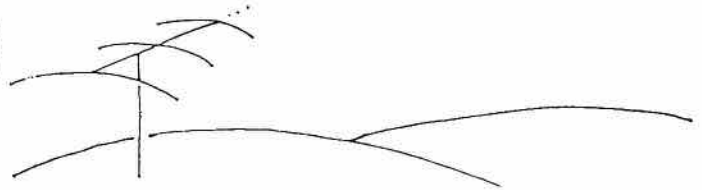
2 Element \$290.00
3 Element \$459.00
4 Element \$618.00

Price is F.O.B. Boissevain
Includes U.S. Customs Duty
Kit includes:
Spider, Arms, Wire, Balun
Kit and Boom Where Needed

Gem Quad Products Ltd.
P.O. Box 291, Boissevain, Manitoba,
Canada R0K 0E0 • (204) 534-6184

OVER THE HORIZON

Bob Brown NM7M,
504 Channel View Dr.,
Anacortes, WA, U.S.A. 98221



My literary friends tell me that the famous line "Mad dogs and Englishmen go out in the noon-day sun" is due to the late Noel Coward. Ionospherically speaking, those same sentiments would apply to any DXers, particularly on the low-bands, who try to work on paths that are well-illuminated by the sun. In the first instance, the problem is simply one of personal discomfort but in the second, it would be a matter of frustration trying to operate when D-region absorption simply devours one's signals sent out in quest of DX.

It's not all that hard to understand what's meant by discomfort when tropical temperatures and high humidities are involved; but ionospheric absorption is another matter, somewhat beyond common terrestrial experience. Having said that, let me dig into the matter a bit and try to give you an appreciation of what's behind it so you'll be a bit wiser for reading 'OTH'.

First, as we're considering the D-region of the ionosphere, I need only remind you that's the region below 90 km and I will add that it's pretty well mixed as far as the constituents go, thanks to weather processes going on below. And it's a region that's lightly ionized by the sun during the day and relatively free of ionospheric electrons at night. It all sounds so simple, radio waves zipping through at the speed of light, shaking what free electrons are there at frequencies in the MHz range.

But if you look at it more closely, it turns out to be a bit more complicated. For one thing, those free electrons excited into oscillatory motions by the passing RF wave may collide with neutral constituents and impart energy to them instead of re-radiating it, thus keeping the RF signal from going on its merry way. That is equivalent to having the wave add energy to the atmosphere, in essence heating it. Since RF energy is lost in the process, the signal is attenuated and that is spoken of as ionospheric absorption. The lower reaches of the ionosphere are where such collisions are most frequent, hence the term D-region absorption.

If that wasn't complicated enough, let me remind you that there's a big chemistry lab in the D-region, with atoms, molecules and charges sloshing around all the time. Thus, while the frequency of one's signal is of importance, just which negative particle it's shaking up there is important too, a free electron or heavy

negative ion. Now, one doesn't need to know all the details involved but there is merit in realizing that collision processes in the D-region determine one's success in communicating between your QTH and points elsewhere.

As for the complications in all this, let's turn to the chemistry first. There, free electrons are present in the D-region from sunrise to sunset, formed by photo-ionization of the atoms (nitric oxide and oxygen) and molecules (nitrogen and oxygen) present there. Also, beside positive ions, heavy negative ions of oxygen are formed in that region by electrons attaching themselves to oxygen atoms, oxygen molecules or ozone; however, they are readily detached to become free electrons again by the action of solar UV light or by collisions with other neutral constituents.

At night, the production of free electrons is greatly reduced, then only being due to the low flux of cosmic rays going through the D-region. Further, without solar radiation working on the negative ions, the majority of the electrons become attached and give rise to heavy negative ions as indicated above. As a result, free electrons are largely removed and, with only massive negative ions in the region, collisions and ionospheric absorption are reduced to a great extent.

Normally, chemistry is a subject presented to the beginning student without any quantitative reference to speed or rate of the reactions in the discussions. In the present instance, however, the time-scale for reactions in the D-region is short, charge transfers taking place in much less than an hour. On that basis, the D-region comes to an ionic or chemical equilibrium rather quickly, in contrast to the dilute F-region where reactions proceed at a much slower pace.

Moving beyond the chemical processes in the D-region, the statements made at the outset indicated that free electrons are the cause of the ionospheric absorption of signals so we'd better address that point next. But in doing so, we must turn to the time-scale of the frequencies mentioned above, all in the MHz range with periods of oscillation all less than a microsecond.

As indicated above, ionospheric absorption amounts to a heating, albeit weakly, of the atmosphere. The mechanism involves electron collisions at the expense of their re-radiation of RF

energy. Now the balance, energy loss vs. re-radiation, depends on how often the electrons collide with nearby atoms and molecules or, putting it another way, whether the electrons execute a significant number of oscillations back and forth before colliding or not. With those terms, we come directly to a comparison of the electron collision frequency and the frequency of the RF wave, indeed a comparison of the two with height in the D-region.

The collision frequency of electrons in the D-region has never been something of common knowledge among Amateurs, only the effects which result from it. So we can add to Amateur Radio lore by giving out the secret, to wit: the collision frequency falls from about 100 MHz at 50 km altitude to 0.1 MHz at 100 km altitude. As a result, the losses for HF waves (3-30 MHz) at the upper reaches of the D-region are quite low. But the losses per D-region electron do depend on the frequency at lower altitudes, peaking around 60 km for 3 MHz as well as 50 km for 10 MHz and 40 km for 30 MHz.

But the altitude for peak absorption is one thing, the magnitude of the absorption of the peak is another and beyond that, there's the total effect, summed over the entire D-region. There, the lower frequency (3 MHz) walks off with all the honours, as the low-band DXers well know. If you're interested in the details, you should look into a fine article by George C. Reid of NOAA's Aeronomy Laboratory; it's published in a book *Physics of the Sun* by D. Reidel Co. (1986).

All of that discussion was on a 'per electron' basis. The next question, of course, involves how many electrons are in the D-region and how they're created, day and night. In that regard, night-time conditions are the best for escaping the D-region absorption. Thus, without solar radiation (UV or Xrays) to produce numerous electrons, the residual ionization in the D-region is only due to the pervasive cosmic rays of galactic origin.

As a result, paths such as from the West Coast to Europe with darkness in the polar regions are quite good for DXing on 14 MHz. On the other hand, on 28 MHz, the absorption falls to the extent that the same paths are open even when the polar regions are illuminated. But for low-band DXers, it has to be darkness on the path, all the way.

Continued on next page ►

QRP

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

The National Research Council is working toward including the conventional IC (Integrated Circuit) with fibre optics so that the whole assembly is powered from power running in the fibre optic cable. According to word received from Ralph VE3BBM, this low level source of power will make our present-day QRP look like a kilowatt while running one watt. Don't give up the ship though, as we expect Morse Code to be around for a long time yet (or something resembling dots and dashes).

The Morse Telegraph Club members news medium called *Dots & Dashes* arrived here with a flurry and flash via Canada Post, being quite regular on a quarterly basis. We here in Canada will have a 'live wire' for use between various club headquarters on April 28, 1990 to help celebrate the birth of Samuel F.B. Morse on April 27, 1791, and keep the Morse code alive in perpetuity. The line begins here, call signs in brackets, Edmonton (MO), Winnipeg (WG), Toronto (ON), Ottawa (GO) and Montreal (QU).

Our meeting place is owned by the Junior League of Edmonton and is a replica of the Calgary & Edmonton Railway (1891) Station situated alongside the CPR main line from

Calgary to Edmonton not far from where the tracks cross the North Saskatchewan river atop the High Level Bridge built in 1911. Our U.S. counterparts will be without the Western Union wire this year as it was discontinued at the close of the 1989 celebration. There is a list of 55 members however, who have Morse code facilities at home and compatible with their telephone system on a dial-up basis. If anyone phones me they will get a reply from my KOB (Key On Board) which is the nomenclature for a telegraph practice set.

Bud VE7AVA sent me the Premier Edition (March 1990) of *The BCEN News* being the 'Voice of the B.C. Emergency Network'. It was the issue where a feature was written on their new Net Manager, Bill VE7DDL. He himself was also pleading for net members to keep traffic flowing through the ether on a regular basis. Unfortunately Bill did not live to see the results of his efforts. He passed away Feb. 22, 1990 at the age of 64. Besides serving overseas in WWII he also served with the North West Territories and Yukon Radio System (NWT & YRS) where we met and with United Nations in Egypt before retiring in 1971 with 28 years service.

Bill was one of the very few with the

combination of exceptional capabilities of an accomplished technician and superior radio operator talents. We hope to read about one of his experiences Down North at Baker Lake in a future issue of *The Canadian Amateur* as we have the permission of Bud VE7AVA who first published it in *The BCEN News*. It is the type of story once solicited by myself for inclusion in 'The History of the NWT&YRS' in these pages sometime ago and would also be welcomed by The Society of Wireless Pioneers, of which Bill was a member.

The World Wireless Beacon, the quarterly newsletter of the SOWP, arrived the latter part of March. New members are listed, QSO Roundup results published and lists Olive VE7ERA as having placed 5th overall with 164 points. First place went to Esther KA4IFF who amassed 215 points. We won't mention where Ted VE7CHE placed, but at least he did make the list what with all his setbacks recently! Hope you are at least somewhat improved Ted!

Olive VE7ERA has featured Russ VE1BPP in her column 'Buoys and Gulls'. Ursula VP2MT dropped the Society a line from Montserrat explaining that she does not operate after 6 p.m. due to the light plant not being able to supply lights and run her Corsair together. John WOAP wrote giving his thoughts about returning to sea duty after 50 years ashore, going aboard the *MV Sea Venture*. The newsletter closes with a list of Nets & Schedules held by SOWP and high speed practice runs on 3523 and 7023 kHz throughout the year at 0130 UTC from 20-65 wpm Monday through Thursday.

GLEANINGS

Requests for *Far Circuits* sheet came from Bill VE3LEA and Rich VE3NGL, while John VE6MT asked for the W7EL info kit as he was now in an apartment and needed something compact.

Ralph VE3BBM sent me his reply from Health and Welfare Canada on the physiofield device stating they have no jurisdiction in the area of the *Physiofield Newsletter*. Be aware it could be subject to strong fields of RFI or become a source of QRM, as we mentioned before, if it is tuned up near an FM receiver and radiates somewhere around 27 MHz.

Dick VE7GC sent a complimentary letter along with some schematics from his homebuilt QRP efforts but presently the sketches are above my head. He took a circuit from *Spratt* called the Spiffin that called for an NPN transistor



HORIZON (cont'd)

On the basis of this discussion, you can sense that sunrise can shut down a DX path. But even paths which do not qualify as 'real DX' can be shut down by D-region absorption if they happen to be on the sunlit side of the earth when a large solar flare occurs. Some of those events can give rise to intense bursts of energetic X-rays which penetrate all the way into the D-region and give something of an 'artificial sunrise', only more so! But the bursts of X-rays are usually brief, measured in the tens of minutes, and the path recovers after the flare is over.

But that is not the case for some of the largest solar flares; they can send solar cosmic rays toward the earth and then bombard the polar caps not for minutes but for days at a time! The difference between the two cases is that solar protons, in contrast to solar X-rays, are charged particles and they can be trapped or contained in magnetic fields in the solar system. X-rays, on the other hand, just zip through, on their way to infinity!

The solar protons trapped in that fashion can create ionization deep in the D-region as the earth moves in its

orbit through the interplanetary magnetic field. The electron density which results can actually produce 'blackout' conditions but it is limited to paths which cross the polar caps, north or south. The limitation is due to the fact that the solar protons are not very energetic and the geomagnetic field limits their access to the polar regions.

I hope I didn't spoil your day by giving this discussion. In a sense, it's at the 'birds and bees' level when it comes to DXing. Put another way, we're all at the mercy of the sun and what it does with its own, inexorable processes. The more we understand just what are the consequences of solar-terrestrial interactions, the more effective we can be in our personal pursuits.

Myself, I happen to be a DXer, others may have somewhat different confessions to make. But face it, the D-region plays a big factor in all our lives. A friend of mine who's a distinguished anatomist specializing on the brain says, "Use it or lose it!" Thinking there ought to be some glib phrase like that for the D-region, I came up with "Understand it or rue it". How about you? Any suggestions? ■

QRP (cont'd)

driving a PNP and since his PNP was not of sufficient power he reversed the circuit using a PNP to drive an NPN transistor.

Reports from his test 'lash-up' give it a grade of 'very good'. His 26-foot sailboat is a far cry from the Cessna 170 he flew for 19 years along the coast of Vancouver Island in pursuit of his electronic business. An FT-77 serves him for marine mobile and helps him adapt to the change in travel speed.

Frank VE7DSN dropped a line via packet to let us know he is QRP mobile with an Argonaut 509 that he received as a consolation prize while the rest of his family travelled to ZL-land for holidays.

The March issue of *CQ* magazine carries an article by Frank KB4ZGC on how to build your own 'QRP Dummy Load/Wattmaster'.

The March issue of *73 Amateur Radio* has an article by Mike N8KDD on how to extend the range on the Ramsay HR-4, their 40 metre receiver. Ramsey have an article on their SA-7 Broadband RF amp in the February issue of *73*. Mike WB8VGE in the same issue has his regular QRP column with a carry-over article for improving on the 30 metre transmitter in his January column.

Also in February Mike shows you how to build a 17 metre receiver/converter designed by Jerry NR5A around the NE602 mixer/oscillator. Although Mike has not built the unit, he cautions any builder and recommends contacting Jerry direct using the address in the February column. Mike regresses just a little in his March column where he says "Real Radios Glow in the Dark" which is his reference to the tube type QRP activity and gives an example.

CARF sent me page 2 from *SAR Communicator* (one of the Sudbury A.R. Club newsletters) with three articles signed by VE3s. Barry VE3ZLB does say in his opinion, "The Canadian Amateur continues as one of the best all round radio magazines available." Now that could only mean those of us that contribute must also keep trying to come up with more and better articles. Thanks Barry!

Ivan VE8ID wrote to advise all that he will be QRP from a 200' fire observation tower located between Fort Providence and Yellowknife in the North West Territories. "Imagine the possibilities for antennas," he wrote. He will also be responsible for monitoring the movements of a fairly large herd of wood bison that has grown to some 3,000 head in the area. His letter brings back memories of flying road survey crews in that same area back in '57 with a float-equipped Cessna 180 and, at that time, it seemed to me there was more water than trees. But that could only be an illusion because trees do not

present a favourable landing site for floats in event of an engine failure do they? Having QSO'd with QRP a couple of years ago we will now look for you operating from CAEN Tower this summer and thanks for the bouquet Ivan!

John VK2CFJ wrote saying he had received the Digicom 64 interface and will write again when he has the modem operating with V3.15 which he saw on a local BBS.

Bob VE7BS wrote again and included documentation for a Public Domain Computer Assisted Drawing (CAD) program. Depending on how long it takes to produce a schematic, it may be what I have been trying to find and was available locally all this time under an obscure name. Mine is V4.0, Bob and, thanks to you, I will get to look at it in more depth soon.

NETS & OTHER ACTIVITY

We have not been too successful in trying to establish a VE-QRP net on 14060 kHz each Sunday at 1900 UTC. Kyp WZ6N answered again last Sunday being home sick from his flying instructor's job in Kilpitas, CA.

ARCI QRP continue with a large number of check-ins to their TCN (Trans Continental Net) each Sunday at 2330 UTC. Roger W5LXS and Bob NM7M can really pull in the QRP signals. Our QRP projected activity if it were to develop into any consistency could work in with IPARN (VHF) by serving areas without 2 metre traffic handlers, something which is even in short supply on HF these days. In other words, we should keep CW activity up front in readiness for any eventuality; even the extremely portable QRP rigs have a role to play.

Dave VE6LX is the new president of our local Northern Alberta Radio Club (NARC) and advises they are making progress toward establishing a permanent station VE6SSC at the Space Sciences Centre owned by the City of Edmonton. Members are responding well to the call for operators during the present limited hours of operation. Spence VE6BOY draws up the monthly shift roster and welcomes any volunteer to register on his standby list, especially since Jack VE6BOX became a silent key. The next repeater to go up should carry VE6BOX in memory of Jack and what he did at other repeater sites.

Visitors to Edmonton from out of town or province are advised to enquire over one of the repeaters as to where the Saturday morning gathering is held because we no longer meet at the Edmonton Flying Club lunch counter. Seems the regular members of the Flying Club could not hear an engine warming up above the din of voices or a paging call over the intercom. Yesterday, Saturday, April 14 was no different when held in the dining room of a hotel across the street from the Club and they asked that we not return.

Another 'on the knees' plea for QRP enthusiasts to check our Sunday net on 14060 at 1900 UTC followed by TCN on the same frequency at 2330 UTC. Remember the QRP International frequencies 1810, 3560, 7030/40, 10106, 14060, 18106, 21060, 24906, 28060 kHz all on a 24-hour basis.

From Hamlet by Shakespeare: "Neither a borrower or a lender be; For loan oft loses both itself and friend." Sit down now and build your own QRP rig for some fun on Field Day! ■

CARF Annual General Meeting June 16, 1990

at the Donald Gordon Centre,
Queen's University,
Kingston, Ont.

CLUB CORNER

J.P. LeBlanc VO1SK/VP9LA, Box 356, Kingston, Ont. K7L 4W2



It's been a very busy month for this column editor. The highlight was the 1990 Newfoundland and Labrador Winter Games which were held in the town of Lewisporte. Amateur Radio operators from the central portion of Newfoundland handled the communications for the Games, which went off without a flaw. A 2 metre repeater was set up in the area, as well as an HF station with special call VO9WG.

Over 300 contacts were made on voice and CW throughout the world. Taking part were Don VO1GE, Chris VO1PS, John VO1DC, Brad VO1VA, George VO1MB, Aubrey VO1MA, Lew VO1EK, Carl VO1PE, Terry VO1TH, Joe VO1JC, Neil VO1IB, Bill VO1CY, Clyde VO1BS, Lloyd VO1GI, Harry VO1QG, Don VO1PN, Albert VO1PF, Joe VO1IJ, Tom VO1TF, Arch VO1AP, Ewan VO1QA, Angus VO1UR, Jerry VO1ET, Bruce VO1TC, Eric VO1FA and myself.

The main topic of interest reading various club bulletins from across Canada is the revived merger talks between CARF and CRRL. Amateur Radio is alive and well in Canada, as many clubs are conducting Amateur Radio classes, and by the time you read this column, our fraternity will have increased in numbers thanks to the unselfish devotion of volunteers teaching our future Amateurs. It looks like ATV is the latest area of growth in Amateur Radio, as quite a few clubs have or are in the process of setting up ATV repeaters.

Another subject making the pages of newsletters is the restructuring of the Amateur Radio Service. I quote Drew VE3AAU, President of the Peterborough Club: "The approaching changes to our hobby signal some exciting times ahead. New ways of doing things, new ops in areas traditionally under-utilized. Let's face this upcoming challenge in true Amateur spirit! and get involved. Now is not the time to sit back. Amateurs, by their very nature, have been and, I believe still are, 'doers'."

I've received for the first time the *Newsletter* of the Barrie Ontario Club.




CANWARN


Weather Warning System

Amateurs of Elgin, Middlesex and Oxford counties in Ontario have committed themselves to Environment Canada's new Weather Watch system—

Newfoundland & Labrador 1990 Winter Games



VO9WG



STATION	DATE	UTC	MHZ	RST	MODE
VE3VCA	25 FEB 90 TO 3 MAR 90	/	/	/	/

Lewisporte, NFLD - GATEWAY TO THE NORTH

CANWARN. A meeting of club presidents was held to discuss mutual cooperation and the decision was made to form a coordinating committee with representatives from each of the groups. This committee's responsibilities are to examine the Amateur Radio capabilities available and to determine what is needed to develop an action plan and implement it.

NON-AMATEUR OF THE YEAR

The Calgary Alberta Club has established a trophy for 'Non-Amateur of the Year' which will be given to a non-Amateur who serves the club in an exemplary manner.

SNOWARAMA

The Algoma Amateur Radio Club in Sault Ste. Marie once again supplied communications for the Rotary Club Snowarama. This year for the first time, Amateurs were used at checkpoints. The system worked out over the years went well. Taking part in the activity were Gary VE3PHM, Jeff (Associate), Roy VE3FOD, Susan VE3PHG, Bob VE3SDX, Fraser VE3KOF, Brent VE3OTL, Garry VE3PHB, John VE3UFO, Howard VE3JIP, Ben VE3BPS and Stan VE3AYJ.

SHUSWAP ARC

From the Newsletter of the North

Okanagan B.C. club, we have learned that the Shuswap ARC of Salmon Arm has decided to disband, as there isn't sufficient interest to keep it active. What a shame. I hope that this sort of sad news is not repeated.

THIS MONTH IN THE MAGS

This is the title of a column in the Newsletter of the Sudbury club by Barry VE3ZLB, who describes himself as a magazine addict. Barry gives a condensed version of the contents of various Amateur magazines, like *The Canadian Amateur*, *QST*, *73*, *CQ*, for the month. Here is what he had to say about this magazine: *TCA* "in my opinion continues to be one of the best all around Amateur Radio magazines available." A lot of hard work goes into making *The Canadian Amateur* what it is and it's very gratifying to see that this hard work is paying off.

Snowflake Festival '90



Another Snowflake Festival has come and gone and the Sudbury Amateur Radio Club did its very best to help it succeed again by manning a commercial VHF base station rig. Glynn Clark VE3PVE, who coordinated



Volume 1 No. 4

THE SARC COMMUNICATOR

The Newsletter for the Sudbury Radio Amateur



the club's efforts, reports that there were no real incidents to speak of, and for the most part, the Festival went off without a hitch. Helpers were Murray VE3IFP, Don VE3MOW, Claude VE3CPD, Wayne VE3WLJ, George VE3GIE, Arvi VE3NNQ, Roy VE3DBW, Al VE3AJB, Antti VE3ANH, Jean VE3ZOO, Peter VE3PYM and his brother Edward.



The club provided radio communications for two ski events and one skating event. At the ski event radio operators assisted event organizers with re-organizing the event when mild weather forced changes to the event. This assistance was greatly appreciated by the ski event organizers.



After an unsuccessful search for a relatively free 2 metre frequency, Pioneer Amateur Radio Club President Farrell Hopwood VE7RD and Vancouver's Totem Amateur Radio Club President Alex Knox VE7CSK signed an agreement between the two clubs to share frequency assignment and equipment facilities. The repeater, built around the RC-850 controller, communicates with users using a digital synthesized voice. The repeater can remind the users of nets and meetings, tell users their signal strength, and describe conditions at the site using external sensors. It can warn of intrusions, read mail to the user, provide telephone autopatch, handle reverse patch calls, pocket paging and enhance public service benefits to the community at large. It includes 240 user autodial numbers, 10 emergency numbers with message feedback.

AWARDS

The Peterborough club held its 2nd Annual Valentine's Dinner which was also Awards Night. The Amateur of the Year Award was presented to Rick Page VE3IQZ. Rick has worked tirelessly on the repeater for many years. This is the 4th time Rick has received this award. Receiving the Silent Key Award was Jim Liscum VE3JLL for his effort in upgrading himself and his varied interests in Amateur Radio and helping new students on course.

Ian Kennedy VE3ONK, manager of staff development services at Fanshawe College, has received the John Fry

Award for Individual Merit at the National Council of Staff, Program and Organizational Development (NCS POD). NCSPOD represents 140 community colleges in Canada and the U.S.

Dave Oszvari VE3MMN, was voted Amateur of the Year for the second time by the Brantford Club.



A few interesting items in the Peel ARC newsletter in Brampton. First of all, the editor Orv Marshall VE3ATL recognized the long time contribution of Paul Miller to the club's newsletter. As we all know, a great deal of work is involved in preparing a monthly newsletter to keep the membership informed of club activities and other aspects of Amateur radio. Paul keeps a

computerized list of club members and prepares the mailing labels each month. Marcel VE3MLT was also mentioned for his assistance in reproducing the Newsletter and mailing it. The club is also organizing a Fox Hunt. When was the last time your club had a fox hunt? A contest to design and build a code oscillator is also in full swing. The newsletter also has a series of articles about individual members in the club. The purpose is to inform club members about the varied interests of other members.

OTTAWA MERGER

The subject of a merger between the Ottawa ARC and the Ottawa Valley Mobile Radio Club was discussed at the last meeting of the OARC. The consensus at the last OVMRC meeting seemed to favour maintaining the status quo. The point was also made that there are more than two clubs in the Ottawa area, while the merger discussion seemed to be focusing exclusively on the OARC and OVMRC. It was agreed that it would be a good idea to continue to pursue joint efforts, such as Field Day. A show of hands indicated that most of those present were generally in favour of the idea of a merger between the two clubs. ■



FOR SALE: MOVING - purchased new Aug./89 Kenwood TS-440 SAT transceiver w/built-in antenna tuner and PS-50 power supply, Hygain TH3JRS antenna, Ham IV rotor system, Delhi 55 ft. heavy-duty tower, Shure 444 mic., etc. etc. Contact Howard VE3HRH (416) 738-5885.

FLORIDA QTH: For Rent, Indian Rocks, St. Pete's, 1 bedroom condo, Beach, Year Round Sun, Pool, tennis, hot tub. Contact Ron VE3NKS, week/monthly rates. Call: 416-875-2621.

WANTED: Good used Ten-Tec 2510-B or 2510. Phone 519-845-3517. Adrian McManus, Wyoming, Ontario, RR 1, NON 1T0.

FOR SALE: Yaesu 290R2 2 metre all mode transceiver. CW/FM/SSB. Mint condition. Includes Rubber Duck, 10@C size nicads in battery case for portable operation, wall charger, op manual, tech manual, TT mic, spkr mic, case. \$525 + UPS. Monty Hart VE3TA, 55 Highland Ave., Barrie, Ont. 705-737-2252.

WANTED: by enthusiast. Communications receivers such as those by Bretting, Eddystone, Howard, MacKay, Marconi and Racal. Also SX88, SX112, SX115, NC400, PRO310 and units of

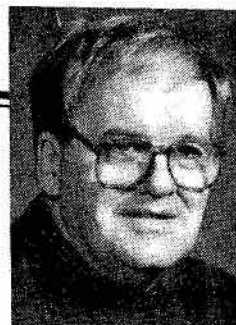
Canadian or European manufacture. Write with details, price. Jim VESBQ, Box 658, Rosthern, SK S0K 3R0.

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 TYPE OR PRINT CLEARLY! 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 not open to commercial advertising.

CQ ONTARIO AMATEURS

Windsor, Ont. A.R.C. is asking VE3 Amateurs to support their petition to the Government of Ontario (MTC) to change the wording on call sign licence plates from 'Yours to Discover' to 'Amateur Radio'. For info please write Bob Gammon VE3CJX, 3640 Byng Road, Windsor, Ont. N8W 3H9

— CARF News Service



Antennas for the 160M Band

AN END FED ZEPP AND A TOP LOADED VERTICAL GP

When one imagines antennas for the 160 metre band, words, such as monstrous and unmanageable, come to mind. It's true, full size antennas are large, but there are other alternatives.

Take a look at the following two 160 M radiators, one full size, low profile, and the other, a vertical, electrically shortened by inductive and capacitive loading.

THE END FED ZEPP

For two years in the early 50s, I worked 160 M about 80% of the time with a full size, almost invisible, end fed ZEPP. This antenna originated on the Zeppelin, (lighter than air) airships. They could end feed them and let them drag out the back of the ship with some type of aerodynamic elevator to hold up

the end. Maybe they just let them hang straight down, who knows?

I was able to work G3GGN on CW five mornings in a row, using the end fed ZEPP antenna. He was running only 10 watts. I think 10 watts was their legal limit at that time. I was running about 50 watts from a old Hallicrafters HT9. The ZEPP was about 270 feet long about 20 feet above ground in the middle. I remember I used aluminum clothesline wire for the radiator so I could run it tight, not too high, above the deck. I also used a swinging link, plug-in, coil tuner to tune the thing. Any of the new tuners should do the job.

When an antenna is fed at one end by a double wire open line it is important to be critical when cutting the antenna to the 1/2 wavelength size. Also stay away from multiples of quarter wavelengths when cutting the feedline. This is done

so that radiation from the feedline is minimized. I used #14 solid copper wire for the open wire line with the conductors about 4 inches apart. The spreaders were made from strips of fibre about 3/4 inch wide.

Have fun!

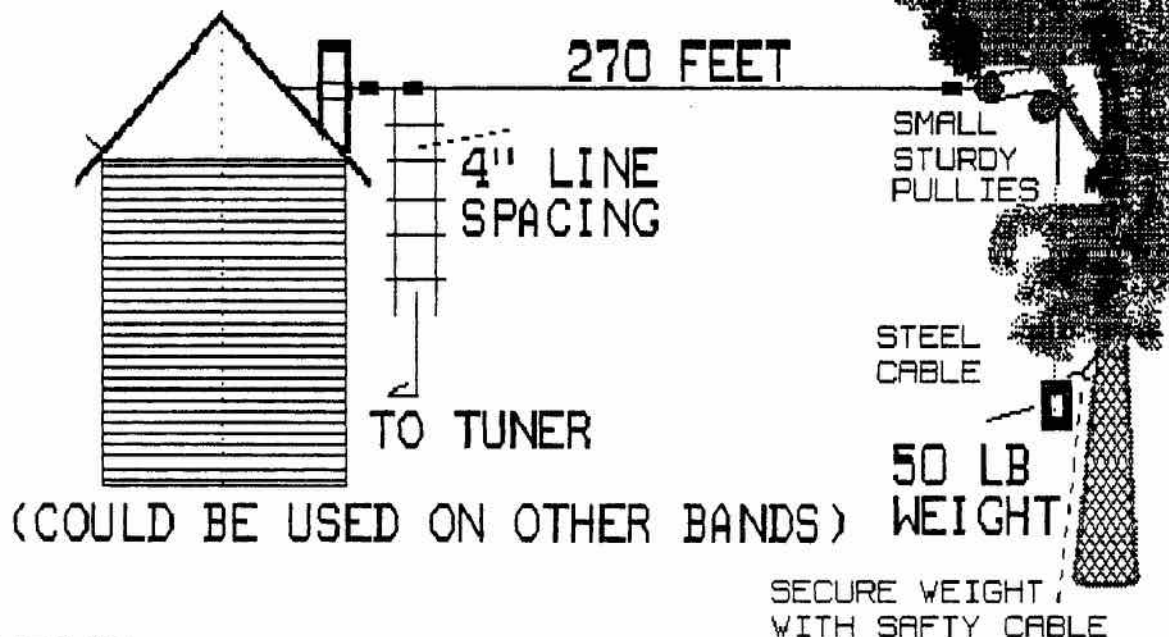
VE3VCA

CARF would like to invite Amateurs who are in the Kingston area to come operate the club station, VE3VCA. If you'd like to visit the station, just contact the CARF Office and make an appointment.

TECHNICAL QUESTIONS?

Questions of a technical nature may be directed to the CARF TECHNICAL EDITOR. Please include SASE.

END FED ZEPP FOR 160 M



VE3GK

LOOKING AROUND



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

There is one problem using modern SSB transceivers on CW and that is the zero-beating of your transmissions with those of the station you are working. The instructions given are, typically, "Adjust the main tuning for about an 800 Hz beat and your transmit frequency will be tuned (zeroed) to the transmit frequency of the station you are receiving." The problem is to judge the 800 Hz best note. (The instructions given are from the Operating Manual of the TS-830S transceiver and your set may have a slightly different offset frequency that will be equal to the tone produced in your speaker/earphones when your set is set for CW operation and key is pressed.)

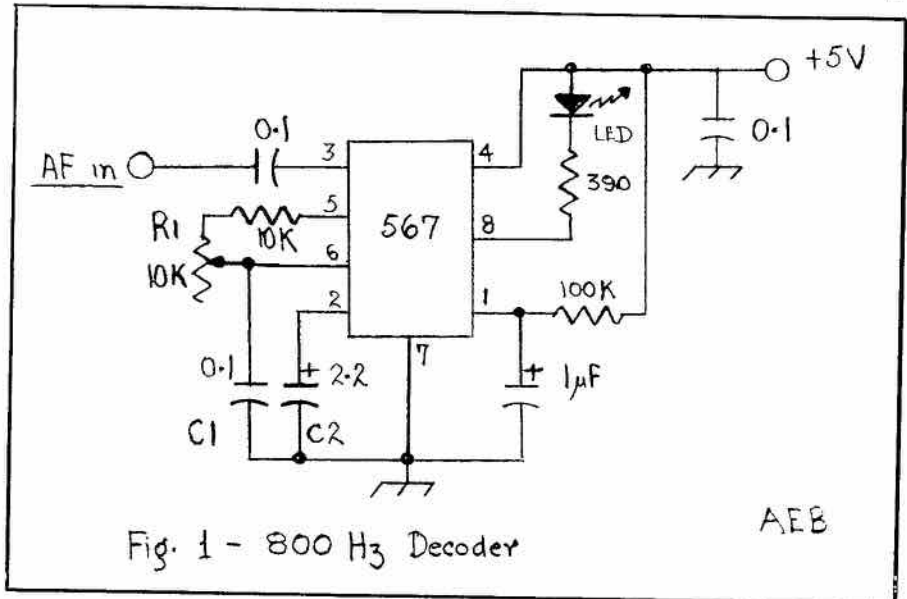
A simple method to ensure that you are exactly on frequency is to feed the audio from your transceiver to the circuit given below (Figure 1). This circuit is taken from the Application Notes published by SIGNETICS for the Tone Decoder integrated circuit 567. The 567 chip's function is to drive a load whenever a particular frequency is present at its input with its bandwidth centre frequency determined by external components.

In Fig. 1, the variable potentiometer, R1(10K ohms), and capacitor C1 (0.1 uF) determine the centre frequency, with capacitor C2 (2.2 uF) the bandwidth. The 2.2 uF capacitor shown gives a bandwidth of about 70 Hz and this can be increased slightly, to about 100 Hz by using a 1 uF capacitor. To set circuit to your offset frequency, use your transceiver on CW— with carrier control at minimum— feed audio output to input of the tone decoder and adjust R1 until the LED lights. In operation adjust your main tuning knob until the received signal desired turns the LED ON and you will then be zero-beat to that signal when you transmit on CW.

Using the narrow bandwidth of Fig. 1 requires careful tuning. The bandwidth can be increased, and tuning simplified, by applying the audio input to two identical Figure 1 circuits and

offsetting the centre frequency of 1 slightly higher, and other slightly lower (say 50 Hz) than that desired. Correct tuning is made when both diodes light with the incoming signal. The double

circuit has been used for CW work for several years now, is very easy to tune and has not required any adjustment, nor maintenance, since installation in my station. ■



The Ubiquitous 6L6

By Gerry King VE3GK

I was changing a 6L6 vacuum tube in the pass current-voltage regulator circuit in the screen supply of my HF amplifier recently (some of us still use them HI), and it brought back some interesting memories. The 6L6 has been a fun tube for me because it resulted in so many interesting home-brew projects. The tube is still available in a varied assortment of glass and metal envelopes and filament voltages. My first mobile transmitter, the ELMAC AF67, used two special rugged 6L6s as AM modulators. These were in smaller, more efficient bottles with a numbered name— 5881.

In the early '50s I ran a single metal-enclosed 6L6 upside down in a pot of water and was able to run about 200 watts of input power with this water cooled arrangement. My first commercial transmitter was a Hallicrafter HT9; a brute of a transmitter weighing about 100 lbs. The HT9 used four 6L6s in a push-pull parallel to modulate a single 814 in the RF output amplifier in Class 'A' modulation. This is about 100 watts of audio to modulate

100 watts of RF. A super rig in its time if you liked AM communication.

OVMRC Bulletin,
The Rambler



VE3PHL'S DICTIONARY

Overtone Crystal: A quartz crystal cut so that it will operate at a harmonic of its fundamental frequency, or at two frequencies simultaneously, as in a synthesizer.

— via Hi-Q

Marriage teaches you loyalty, forbearance, self-restraint, meekness and a great many other things you wouldn't need if you had stayed single.

— Tx PARC

TECHNICAL SECTION

Richardson VE6PN, Box 68, Grimshaw, Alberta T0H 1W0

Simple VHF/UHF Mobile Installation

By Mike Hoare VE3EYS

What could be simpler than installing your new or not-so-new radio into the car?

In most cases there isn't all that much to it if common sense prevails. A few things should be considered before you talk your wife into having the box under the dash or elsewhere. The first and most important thing is to have the antenna on the roof; anywhere else is a compromise.

After being involved with hundreds—possibly thousands—of installs, it's the best location, even if only a quarter-wave whip is used. It is superior to a gain antenna on the fender or the trunk. If you must go on the fender, keep the following in mind: We did some tests and found that a quarter-wave whip on the fender worked better than a 3 dB gain antenna in the same spot. So try the whip first, before you spend the big bucks on that superduper antenna.

Having the antenna on the roof also makes it easier to find your car while shopping; your wife might like that! I also advise that you never re-use antenna cables that age more than a year only. They could be damaged or corroded internally, and provide no end of problems with the radio operation.

Another important item is the wiring to the battery or ignition block. Use a new piece of wire on the appropriate size, which usually means the bigger the better for the higher powered radios. Put a properly rated fuse in the B+ line and locate it close to the battery end. I have seen lots of power cables eaten by salt and muck that show up as 'receive OK' but poor or no transmit.

When the radio is bench tested it works great; so keep the connections dry and clean. When you can, keep the ground wire short to the radio, to reduce the chance of noise pick-up. If noise is a problem, try to identify the source. There are lots of people around with ideas on noise reduction, if filters or wire rerouting don't work.

Another item to ponder is the physical install of the box: bolt the sucker down. Most rice burners aren't built for the shake, rattle and roll on our highways and byways. If security is the issue, use a release type mounting bracket, with a lock. The only problem with the lock is

that it spells 'expensive', so sometimes it's more of a challenge for the crook. Can't win can you?

I guess once the radio is in and operating, the antenna must be checked. Use a wattmeter of the correct power and frequency range for this test. Some people cut corners and use a cheap one or meter designed for HF. It doesn't tell the real story. If you're going to adjust the antenna, use or get someone with a proper meter to help. You should read the correct power and show almost nil reflected; any variance from this can mean trouble. Something as simple as soldering the braid on the

PL259 coax connector can make the difference. Try to avoid el-cheapo connectors; they are hard to solder to, and can sometimes crossthread easily, causing damage to the new rig. A safety hint for the owners of micro-type radios: turn them off if you're the booster or boostee on a cold morning.

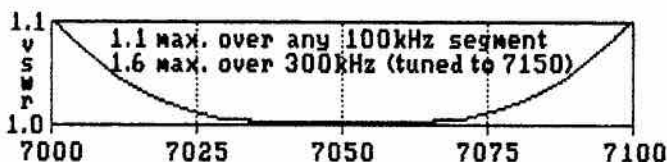
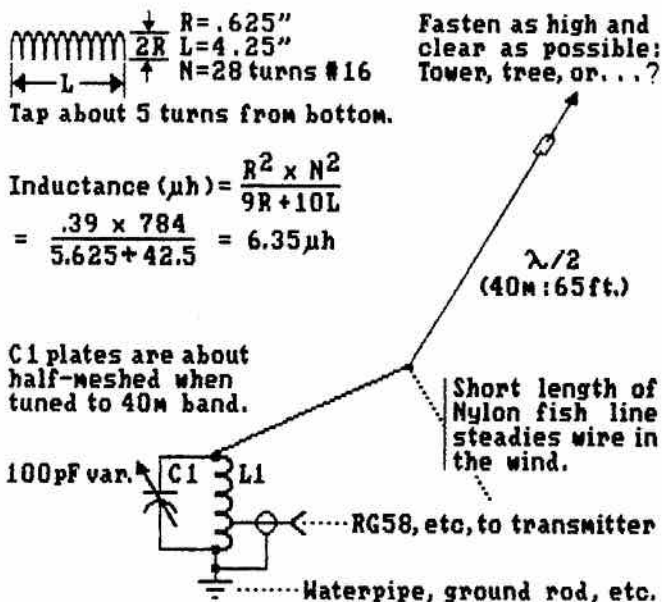
In a nutshell, that covers the subject. I hope someone finds these tidbits of value, or at least a useful review of common practices. Let's try to eliminate the old problem that your signal always sounds crummy, or maybe can't hit the repeater at all.

— Splatter

Simple 40 Metre Antenna

By A.R. Williams VE6AXW

The antenna shown is very simple to construct as shown in the sketch and provides reasonable performance. ■



Easy Foot Switch

By Al Funnell VE4FP

The following might be considered either a hint & kink, a construction project, or just a junk box exercise. This idea may have been used many times before, but it is new to me:

As I am involved in SSB traffic handling, I recently purchased a Heil BM-10 boom-mike headset as the answer to hands-free operation to allow me to keep my hands on the typewriter keyboard. The original intent was to use VOX operation, but that idea went down the tube when I found that my quiet electronic typewriter would trip the VOX no matter what settings were used unless the mic gain was reduced to the point where my TX output was only about 10 watts. Ten watts for daytime traffic handling on 40 M SSB is not conducive to efficient communications! I normally run about 100W with compression.

Eureka! The answer obviously was a foot switch and a search of the junk box and the radshack catalogue turned up various spring-loaded momentary contact switches which would require the construction of a quite complicated arrangement to perform a very simple on-off operation. I then rounded up various clamps, bits of wire, springs, hinges, etc. and was getting very frustrated; I went to the kitchen, got a cup of coffee, a pencil and paper and sat at the table mumbling to myself, not very quietly.

Out of clear blue sky, my wife Lolly made an inspired suggestion. Before I say what that was, I must make mention of the fact that my wife (I don't care for the derogatory term XYL) is one of those rare soul-mates that encourages my hobby or obsession as some might put it and helps me put up antennas on various sticks and into tree branches and also helps to take them down quite frequently.

Her suggestion was: Why not use the foot switch from the old Singer sewing machine? Why not, indeed! It was a simple matter to disconnect the AC wiring from the switch and replace it with a length of microphone cable (shielded) and wire it into a new 8 prong mic connector.

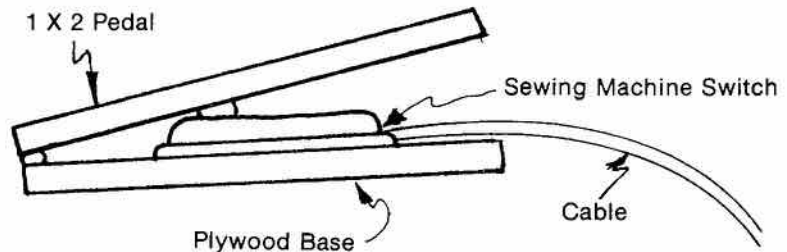
It worked fine, but I was having trouble with my sock foot sliding off of the slippery black button on the sewing machine controller. The solution was simple and consisted of one small butt hinge, a piece of scrap plywood for a base, a length of 1 x 2 lumber for a foot paddle (pedal?), and some packing tape to fasten the switch to the plywood. The simple sketch shows the basic construction, but that should be self-evident to anyone who can obtain one of these sewing machine switches.

One note: the sewing machine switch

I have is basically a variable voltage dropping resistor which controls the machine speed and when fully depressed, two contacts close applying full voltage to the motor. The resistor aspect appears to cause me no problem, as I just stomp it right down when I wish to transmit. Incidentally, the switch has a built-in return spring which has sufficient strength to pop the pedal instantly to the off position when foot pressure is released.

Construction of the wood and mechanical portions of the project was done by my son Greg, but I did the wiring and also put on the packing tape myself!

This method does not harm the original switch, which can very easily be returned to its original use. Best of all, it costs nothing; which is any good junk box tinkerer's prime objective! ■

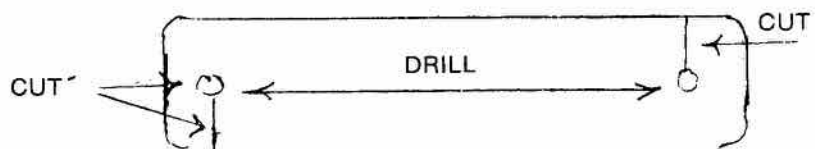


Economical Feeder Spreaders

By Ken Orton VE7BLU

These spreaders are cheap and easy to use. Simply clip them on and they will remain in place for years; through ice storms and all. First keep your eyes open for a house in which vinyl siding is

being used. Cut some into strips as shown and drill holes for feeder wires, making sure the holes are smaller than the feeder wires. Cut slots to each hole as shown. One can twist them on. The space depends on the impedance required and wire size. I usually use 14 TW stranded wire. ■



CW NOT DEAD

A glow worm with tendencies
coarse

Used to tell shady stories 'til
hoarse

But he kept up his vice

By the clever device

Of learning to blink them in Morse

— CARF News Service

Soldering Iron Blues

By Chas. King VE3PDK

Getting around to actually putting the soldering iron to a project usually takes me a while and unplugging it between operations caused too much waiting time for the iron to reach operating temperature.

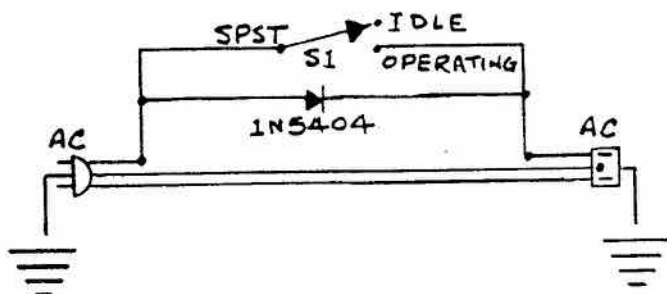
How I have longed for one of those fancy gadgets that keeps the iron warm in the idle state and brings it up to full temperature when needed. I could never afford one so, as a result, I've had to put up with burned elements and a lot of cleaning before each soldering job—until recently. I came across the idea in

the following schematic in an old electronic hobby magazine.

When the switch is open, as shown in the schematic, pulsating DC produced by the diode keeps the iron warm at a temperature below normal operating level. When the switch is closed, the diode is bypassed and the soldering iron receives full AC voltage. It reaches operating temperature in seconds.

This soldering iron idler cost me less than five dollars. I found the AC plugs in my junk box and the single-pole, single-throw switch was a give-away at a recent OARC meeting. The rectifier diode came from Radio Shack (Cat. No. 276-1144) and the bakelite outlet box from Canadian Tire. Try it—you'll like it.

— The Rambler,
Ottawa Valley Mobile
Radio Club



Mounting Mobile Radios

By Denis A. Gagnon VE6AGE

Tools needed: Screwdriver, drill, and a package of Drive Wallgrip Hollow Wall Fasteners for walls 1/8 to 5/8". The brand I used was 'Star'. Washers are optional but recommended.

Procedure:

Mark the dash where you want the

holes for the bracket. I found Liquid Paper works very well. Drill the holes large enough to accept the fasteners. Push the fasteners through the dash with your fingers. If you wish, place washers on either side of the dash. Screw in the provided screw in order to open the arms of the fastener under the dash. Remove this screw and proceed to mount your rig in the usual manner. ■

HELP WANTED

The CARF Office needs the current addresses of the following Amateurs, listed by name and last known address. Let Debbie know at P.O. Box 356, Kingston, Ont. K7L 4W2.

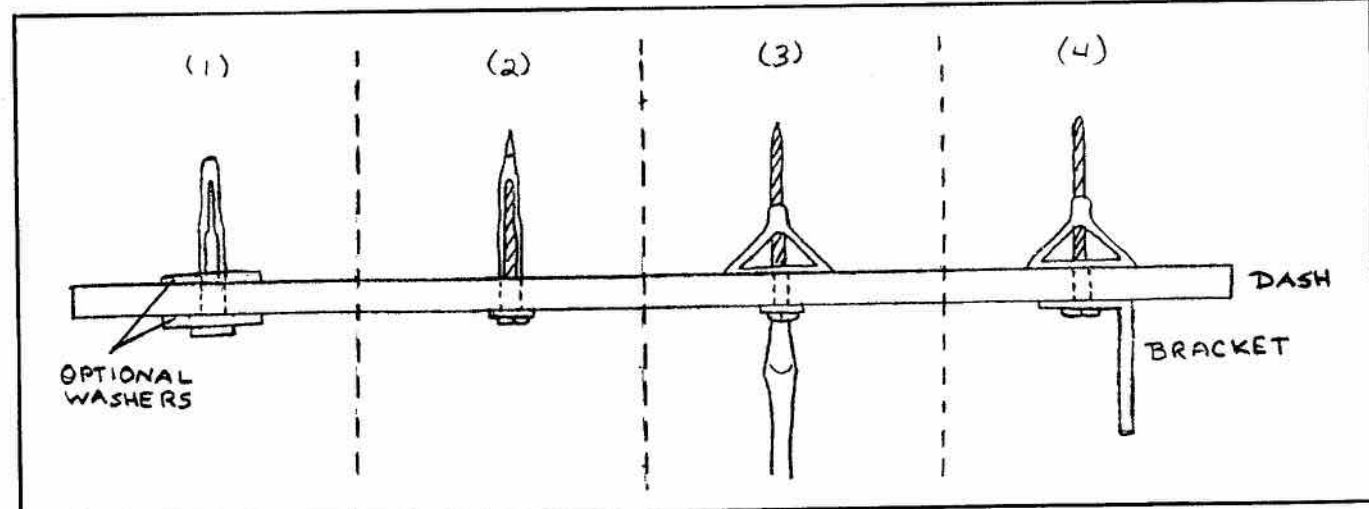
John Agar VE4EI, 4323 Roblin Blvd., Winnipeg, Man.

Gordon Gilmour VE7CIG, 710 Vance Ave., Kelowna, B.C.

E. Brazill VE8SB, FSI Dewline 570A Ferry Rd., Winnipeg, Man.

John Erskine VE3OTC, Thunder Bay, Ont.

Tim Montroy VE3YTV, 2115 Ridgeway St., Thunder Bay, Ont.



QSL CARDS FOR THE CANADIAN AMATEUR SINCE 1965



*ONTARIO RESIDENTS
ADD 8% SALES TAX

- ITEM B - RED MAP, BLUE PRINTING ON BUFF BRISTOL
- ITEM W - RED MAP, BLUE PRINTING ON WHITE BRISTOL

250 - \$37.95

ADDITIONAL 250's
\$14.70 (when ordered
at the same time)

Subject to Goods & Services Tax
when in effect

Price valid until December 1st, 1990

CALL _____ NAME _____

ADDRESS _____

QUANTITY _____ PRICE _____

OST _____

TOTAL _____

INDICATE CALL SIGN STYLE
1. (as sample)

4. VE3GDZ

ENGLISH FRENCH CARF CRRL

INDICATE LOGOS TO BE PRINT
(maximum of 3)

FOR SAMPLES SEND A 6x9 SELF-ADDRESSED ENVELOPE. SEND YOUR ORDER WITH FULL PAYMENT TO: CANADIAN QSL PRINTING SERVICES: 1128 BRYDGES ST. (rear), LONDON, ONTARIO, NSW 2B7. PLEASE PRINT CLEARLY ON YOUR ORDER. APPROX. 4 TO 6 WEEKS FOR PROCESSING AND DELIVERY BY CANADA POST.

When replying
to advertising...

Say you saw it in

THE
CANADIAN
AMATEUR

Canada's Amateur Radio Magazine

NEW! Canadian made commercial portable HF radio. 10 Watts—SSB—10 channels—3 to 9 MHz (DOC App. #1237801031). Dealer inquiries welcome. For parts & service on all MARCONI products, HF-VHF-UHF... Please contact VE2GFC at:

COM-O-PAC INC.

2264 Montee Gagnon, Blainville, P.Q. J7E 4H5
Tel (514) 435-2739, Fax. (514) 437-0586

BEAT THE GST!

Memberships and magazine subscriptions will be subject to the 7% GST. This is scheduled to be imposed on all payments commencing **September 1, 1990.**

SAVE NOW by pre-paying your CARF membership. We can accept payment **UP TO THREE YEARS IN ADVANCE**, but the payment must **REACH** our office by **AUGUST 31, 1990** to be eligible for exemption.

1-year rate	\$25.00
2-year rate	\$50.00
3-year rate	\$75.00
LIFE Membership	\$375.00

PAYMENT MAY NOT BE POST-DATED



CANADIAN AMATEUR RADIO FEDERATION

P.O. Box 356, Kingston, Ontario, Canada K7L 4W2 613-545-9100

TEXTS AND STUDY GUIDES

- Certificate Study Guide*
- Advanced Study Guide*
- CW into Foreign Languages*
- CARF Callsign & Address Book*
plus Ont. residents 8% tax
- Question Bank, Amateur*
- Question Bank, Advanced*

CARF REFERENCE FILES

- The Vertical Radiator*
- Amateur Design of Printed Circuit Boards*
- Binder - 2" D-ring*

MISCELLANEOUS

- Repeater Directories, 1990 POST PAID*
- CARF Log Sheets (50/pkg.) POST PAID*
- Back issues of The Canadian Amateur, each POST PAID*

VIDEO TAPES

- HAMMING IT UP—*
- Write for information on rental to clubs*

TOTAL

POSTAGE
ADD \$2.50
MAX. 4 ITEMS

\$16.95 _____
\$15.00 _____
\$ 6.00 _____
\$13.95 _____

\$ 5.00 _____
\$ 5.00 _____

\$3.00 _____
\$2.50 _____
\$4.50 _____

For Bulk Order Discounts and Postage, Contact CARF Office.

Subscription Rates

\$25.00 CDN/yr. Residents

\$30 U.S./yr. Non-Residents

\$2.00/yr./Additional Family Member

\$375.00 LIFE MEMBERSHIP

\$30.00 Additional Family LIFE Member

All members of CARF receive THE CANADIAN AMATEUR

Non-members may subscribe to THE CANADIAN AMATEUR

TOTAL ENCLOSED _____ (CHEQUE/MO/CARD)

VISA/MASTERCARD EXP. DATE _____ NUMBER _____

CALL _____

EXTRA FAMILY CALL _____

CARF NUMBER IF RENEWAL _____

NAME/NOM _____

ADDRESS /ADRESSE _____

CITY/VILLE _____ PROV _____ CODE _____





Century 21 Communications

738-0000

FAX LINE: (416) 738-1169

STORE HOURS

MON-FRI 9 AM - 5 PM
SAT 10 AM - 2 PM

	Jane	McLeary Ct
400	Credstone	Hwy 7

23 McLeary Ct.,
Concord, Ontario

KENWOOD

TS 140S/680S



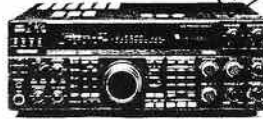
ECONOMICAL FULL-FEATURED
HF TRANSCEIVER
TS-680 INCLUDES 6M

TS 940S/AT



DELUXE
COMPETITION CLASS

TS 950 SD



DIGITAL SIGNAL PROCESSING
FOR THE CLEANEST TRANSMITTED SIGNAL

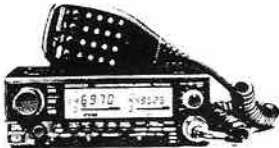
NEW

TS 440S/AT



POPULAR HF TRANSCEIVER
WITH OR WITHOUT AUTOMATIC TUNER

TM 631/731A



DUAL BAND MOBILES
TM631A TM731A
2M/220 2M/440

TH 75A



TH 225A



NEW

TH 25AT



TM 231A



COMPACT 50 WATT
2 METER MOBILE

WE STOCK A COMPLETE LINE OF ACCESSORIES
FOR THE KENWOOD HANDHELDS.

ICOM

IC-765



COMPETITION GRADE

IC-781



SIMPLY THE BEST

IC-751A



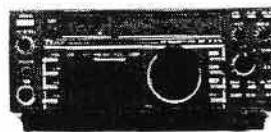
PERFORMANCE PLUS VALUE

IC-725



ECONOMY HF

IC-735



PROVEN WINNER

IC-726



HF PLUS 6 METERS

AUTOMATIC RANDOM WIRE TUNER AVAILABLE FOR THESE MODELS

IC-3210



DUAL BAND MOBILES

IC-2400



HANDHELDS



IC-2S2T



IC-2G2T



IC-32AT



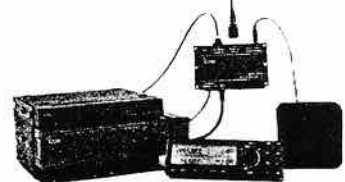
IC-24AT

NEW

IC-228H
2 METER MOBILE



IC-901
Versatile Multi-Band
Remote System



COMPLETE LINE OF ACCESSORIES FOR ICOM HANDHELDS

ONLY ICOM COULD BUILD THIS MANY FEATURES INTO SUCH A TINY RADIO

ICOM'S AMAZING NEW MINI FM HANDHELDS

ICOM's new "S Series" mini handhelds deliver top performance on the 144, 220 and 440MHz bands with super easy operation and a kaleidoscope of features. Built to fit your needs today, tomorrow, anywhere and anytime.



Wide Frequency Coverage. Plenty of overlap for scanning, monitoring, CAP and MARS use. IC-2SA/IC-2SAT: 138-174 MHz Rx. IC-3SAT 220-225MHz Rx. IC-4SAT: 440-450 MHz Rx. All units transmit all U.S. Amateur bands.

Flexible Size And Power. The IC-2SA packs 2.5 watts with supplied BP-62. The IC-2SAT, 3SAT and 4SAT's internal battery packs 2 watts of output on high power. All models deliver five watts when powered via optional BP-85 battery pack or via top-mounted 13.8 volt socket. A small rig with a big punch!

48 Memories. Store your present frequencies and expand your future interests. Offset frequencies are independently programmed in memory channels 0-9. Memories 10-47 use offset frequency elements of the VFO. Also includes soft-sector memory masking. Use only the number of memories you need!

Band and Memory Scanning with programmable limits, memory skip

function, plus selectable pause times while scanning. Additional features include: **Automatic Power**

Shut-off. Built-in programmable timer automatically switches off transceiver when you forget. **Optional DTMF Paging Function.** Silently monitors any selected frequency for your preprogrammed 3-digit DTMF keyed calls, then beeps and displays calling station's code.

All ICOM's "S Series" handhelds are supported by an extensive line of optional battery packs, chargers, cases, speaker/mics and other accessories. See the exciting new ICOM mini-series handhelds at your authorized ICOM dealer today!

ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004
 Customer Service Hotline (206) 454-7819
 3150 Premier Drive, Suite 126, Irving, TX 75083
 1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349
 ICOM CANADA, A Division of ICOM America, Inc.,
 3071 - 85 Road, Unit 9, Richmond, B.C. V6X 2T4 Canada

All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. 2SAT983

Four Power Selections

10 Memory DTMF Autodial

DC Socket For Charging and Mobiling

24 Hour Clock With Timer
48 Memories

ACTUAL SIZE

Optional Battery Packs Vary Size

Easy Knob or Keypad Frequency Selection

ICOM
First in Communications