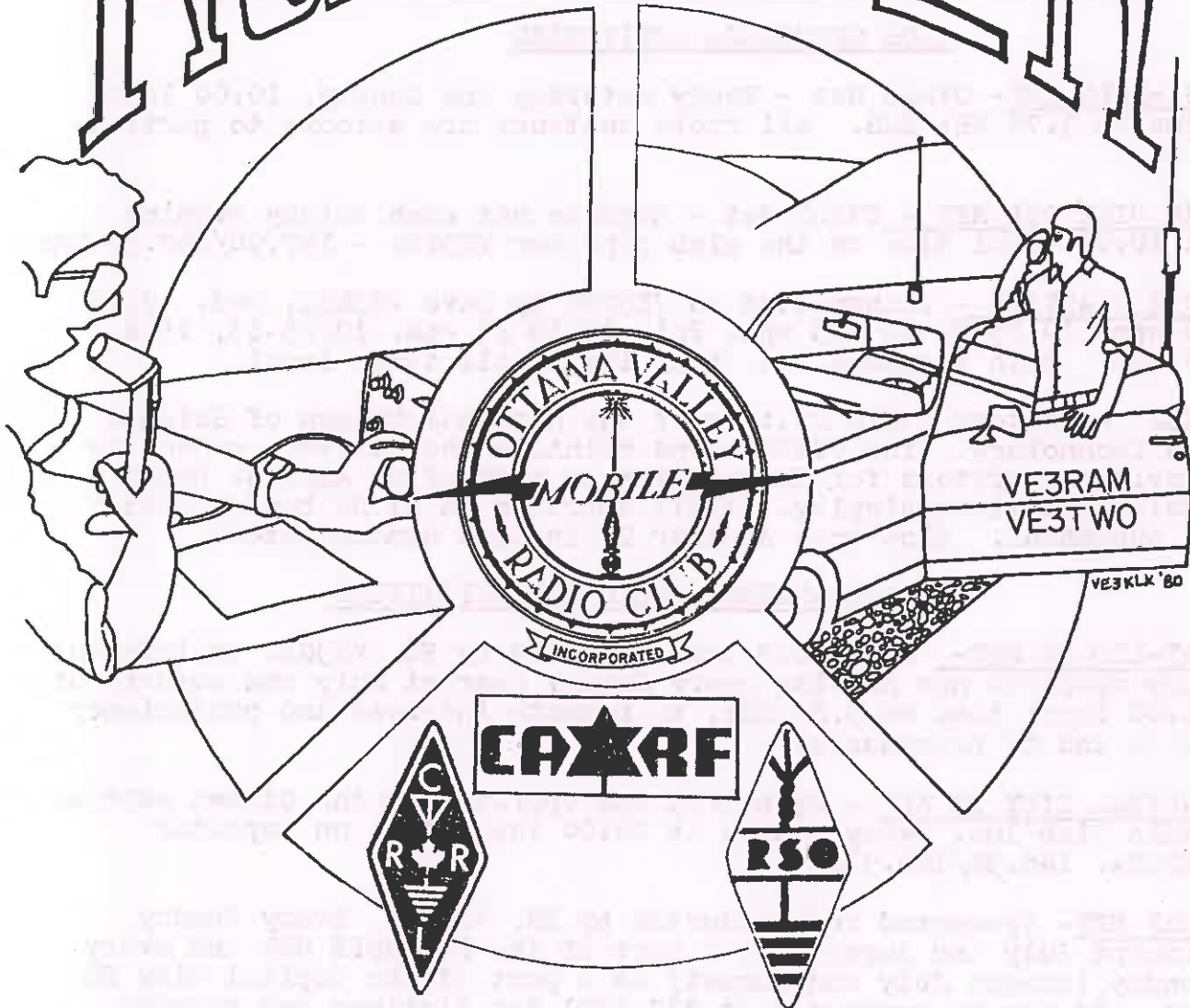


RAMBLER



FEB 17 1983

THE OTTAWA VALLEY MOBILE RADIO CLUB INCORPORATED

1982-1983 EXECUTIVE

PRESIDENT	Russ Pastuch	VE3FSN	828-9235
VICE PRESIDENT	Dave Coutts	VE3KLX	829-2537
SECRETARY	Tim Evangelatos	VE3EWE	722-1358
TREASURER	Pat Brewer	VE3KJQ	725-1528
TECH ADVISOR	Dave Harris	VE3KMY	234-7812
PUBLIC REL.	Mike Shacklock	VE3LAR	523-1571
EDITOR	Jerry Wells	VE3CDS	225-7374
PAST PRESIDENT	Ray Perrin	VE3FN	225-8132

CLUB SPONSORED ACTIVITIES

POT-HOLE NET - OVMRC Net - Every Saturday and Sunday, 10:00 local time on 3.76 MHz SSB. All radio amateurs are welcome to participate

THE WISE OWL NET - OVMRC Net - Ragchew net each Friday evening at 20:00 local time on the club repeater VE3TWO - 147.90/147.30 MHz.

CODE PRACTICE - Transmitted on VE3TWO by Dave VE3KLX. Wed. 19:10 20 wpm, 19:25 7, 10 & 13 wpm, Fri. 19:10 25 wpm, 19:25 13, 15 & 18 wpm. Both sessions end about 19:55; all times local.

VE3JW - Amateur Radio Station of the National Museum of Science and Technology. The OVMRC helps maintain the station, schedules provides operators for the station as part of an Amateur Radio public relations display. VE3JW operates on all HF bands, both CW and phone. Slow scan Amateur TV is also demonstrated.

LOCAL AMATEUR RADIO NET ACTIVITIES

POT-LID CW NET - Sponsored and conducted by Ed, VE3GX. An informal slow speed CW net meeting every Sunday (except July and August) at 11:00 local time on 3.62 MHz, to promote interest and proficiency in CW and CW procedures.

CAPITAL CITY FM NET - Sponsored and operated by the Ottawa Amateur Radio Club Inc. every Monday at 20:00 local time on repeater VE2CRA. 146.34/146.94.

SWAF NET - Sponsored and conducted by Ed, VE3GX. Every Sunday (except July and August) as a part of the POT-HOLE NET and every Monday (except July and August) as a part of the Capital City FM Net. Ed may be contacted at 733-1721 for listings and queries.

ALL CONTRIBUTIONS TO THIS BULLETIN GLADLY ACCEPTED

Membership in the OVMRC is open to all those interested in Amateur Radio. Regular Club Meetings are held on the third Thursday of each month (except July and August) at 20:00 local time unless otherwise posted. Meetings normally take place in the auditorium of the National Museum of Science and Technology on St. Laurent Blvd. (south of the Queensway).

THE PREVIOUS

By the time this Rambler hits your mailbox, the amateur radio course will have finished and the students will have written the exam. Now comes the hard part, waiting. The students waiting and praying for a pass and myself to see how good a teacher I am.

Was it worth it? I think the answer is a definite yes. There was certainly more work involved in such an undertaking than anyone at first thought. Deadlines seemed to come and go regularly with work still to be done. More than once, a stack of rough transparencies was given to Dave (KLX) with a "I need these in two days so I can copy them."

The other common comment was the 12 hours-before-the-class, "My Apple has quit" or "the program has another bug." More than once I showed less than perfect patience when receiving the news from Pat (KJQ). However, Pat also came through with, at least in my opinion, super code for practice. How he kept the different text and speeds separate I am afraid to ask.

Questions, questions and more questions. The groans from the students showed that we were indeed pushing them. Twenty weeks of quizzes and homework must have certainly improved Mike's (LAR) knowledge of amateur theory.

Mentor coordinator Tim (EWE) also had his share of fun organizing the volunteer help and deciding using map, compass, phone book and magic beans, which mentor was closest to which student.

As for myself, I had a great time. It was gratifying to see the glint of understanding in a student's eye when a concept was grasped. I never realized how much material had to be learned for the amateur exam until being forced to teach it in 20 weeks.

Would I do it again? Yes!!! No matter how many pass the exam, one more amateur is one more than we have now. Some changes will be necessary as far as emphasis on certain material, but the course itself is ok.

I would like to thank the people mentioned above who were so important in presenting the course and other volunteers who assisted.

After that, I think I'll call it quits for this month. Time to start planning my Tuesday evenings.

Russ VE3FSN

PR PRATTLE

The beginning of February finds no visible evidence that the VE3JW station is to be remodeled however I assure you work is still on-going behind the scenes. The latest estimate has the new display for VE3JW at the Museum of Science and Technology going in in March (83). There may well be a time when the display will not be operating, however as soon as details are available the volunteer operators will be advised.

I plan to update a few things at the station in terms of guidelines and QSL procedures. These too will be communicated as soon as they are developed.

I now have an opening for the third Saturday of each month. If you feel you and a friend would like to operate the station between 1300 and 1600 Hrs., please let me know.

Cheers and 73
de Mike, VE3LAK

TECHNICAL TALK

Many hams, regardless of background, have chosen to buy a personal computer. Besides being a fun (and time-consuming!) pursuit, micro-computers can be applied to a wide range of ham oriented applications, from satellite tracking and contest logging, to remote control and tone selective calling on VHF.

While admitting a sneaking admiration for those who made the do-it-yourself (generic) Apple a reality, much of my attention has been directed towards small, cheap computers. Just one such device is the Sinclair ZX81, which has now been superseded by the Timex-Sinclair 1000, which is only slightly different. This little gem comes with its own keyboard, a small amount of user memory (1k, 1024 bytes), video output for use with any UHF TV, and a cassette tape interface for storing and reloading programs. BASIC programs may be entered from the keyboard, or from cassette, which gives excellent utilization of the "canned program" phenomenon. All this will cost you only \$130, plus tax, plus TV set, plus cassette deck, plus extra memory when it runs out!

Am I suggesting that all you dedicated Apple and TRS-80 users dump your machines in favour of this small plastic box? Hardly. The Apple has 48k of user RAM, floppy disk capability, sockets for expansion boards, and a vast amount of software currently available for it. In short, it makes no sense to compare apples with oranges (excuse the pun). The Sinclair computer finds its niche with people who want a reasonable small computer with a minimum of cash outlay, especially those who are just getting started. There is also a distinct advantage to using the wee beastie for dedicated applications, when it would make no sense to tie up a more expensive piece of hardware. So what if you have to irreversibly modify it to suit the project? You can always buy another!

As can be expected, there are a number of drawbacks to the ZX81. The built-in keyboard is a flat membrane type, which is small and gives no tactile feedback (key clicks?). Also, it's not hard to fill up the 1k or 2k of memory, despite the computer's efficient utilization of it. Fortunately, plug-in memory packs are available from several sources, so memory can be expanded to 16k, 32k, or even 64k. Some companies now offer programs on cassette tape, which I haven't had a chance to check out firsthand.

The success of the application depends on the user's own creativity and his ability to translate ideas into a workable program, and the connection of any external circuitry, if needed, to the computer. BASIC, being a general-purpose language not inherently meant for controlling things, is usable in a good many cases. The BASIC program is interpreted line by line, which is a slow process, so if speed is critical, one might have to write a program in machine language (the basic instruction set of the Z80 microprocessor). This can be awkward, but like anything else, this is a trade-off for costing what it does. With a few inexpensive ICs, some 8-bit parallel input or output ports will allow digital data to be passed to and from external circuits.

In the short time I have been using the ZX81, one interesting application kept coming to mind. I had already designed a 4-digit touch-tone decoder circuit, which amateurs could use for selective calling. This can be useful especially for alerting people for exercises or real emergencies. Of course, the 4-digit code corresponding to a particular amateur or group can be sent manually.

A new twist would be to have a list of amateurs and callsigns stored in the computer. On entering one, the computer could, by controlling a touch-tone generator, send the proper sequence, when connected to a 2 metre rig. To boot, the computer could also generate a CW identifier. These functions have already been tested separately, and they are not really very difficult.

Other ham-type applications might include a smart home security system, a random-word CW generator (great for code practice) or a cheap RTTY terminal unit. With renewed interest in VHF RTTY around Ottawa, the TU is particularly appealing. Someone has already got the ZX81 to transmit RTTY; although there are likely more problems on the receive side, I'm currently looking into that angle. Should anyone have any useful information, please try to contact myself, or any of the RTTY group on VE3TWO.

Dave Harris
VE3KMV

THE BOTTOM LINE

February has finally arrived! So what you say. February is usually THE dull month of the year. This month does, however, mark the end of the amateur radio course. In fact I have just finished the code tape for the last class on February 8th. Finally I can get on to more fun things with the computer like writing Rambler articles. Actually I have enjoyed working on the course very much. It has taken a lot of my time, but there is a lot of satisfaction in this sort of thing. I'm surprised that the original "gang of four" is still speaking to each other. It has been a long haul, but we made it without making a mess of things.

Our class shrunk from 27 down to about 12 as the course progressed. I hope that those who gave up will try again. Many of us did just that, including myself. For those who are writing the exam this month or later, please let us know how you do. If you don't make it, don't give up. Many of us also tried the exam more than once. DOC doesn't hold it against you. Try again at the next sitting. You will, at the very least, know what to expect. People always have trouble with the code. It just takes a LOT of practice. When I didn't get the code first time I spent 15 minutes practicing every night for a month and then went and passed it.

We have committed ourselves, or so Russ tells me, to run the course again next year. Having learned from experience, we will change a few things next time around. We were too easy on the students at the beginning and then found ourselves having to push them at the end.

I would like to take this opportunity to thank all the people who helped us out, including Tim VE3EWE and his team of mentors, Jerry VE3CDS for his words of wisdom from time to time, and to Bob Toole who is not even a radio amateur. Bob gave me a great deal of help with the morse code computer program that was used for the practice tapes. Bob spent many hours on his computer and mine to refine the program. The current version is number 14. We keep finding neat things to add. It may never be finished.

Now on to club business. Our current book balance is \$2464.98. We now have 100 members! Art Stark VE3LS had that honor. The final payments for course expenses will be made this month. This will be between \$550 and \$600, leaving the club with a net gain on the project of about \$290 excluding the 27 club memberships gained.
Pat VE3KJQ

VIGNETTE

"Why is a mouse when it spins?"
Because the higher the fewer
Ancient riddle

The little red eye on the TS520 went out as the beeping of my keyer's side-tone died away with the final CL. I turned to the YL reading on the chesterfield at the end of the shack. Well, I said, I finally got that chap in Novi Bazaar.

Goody, the YL said kindly; I don't know how your faraway pals can hear those tiny sounds coming out the end of that wire on the balcony. Why, I can hardly hear them from where I am now, not ten feet away.

I paused, drawing a deep breath. Its because of the frequency, I began. The YL filled the gap at once, as usual. But you weren't on the air more frequently this week than last, she said.

It was no good. Yes, dear, thats right, I answered humbly.
Serge, VE3JRG

THE STUDENTS CORNER

Feb 9, the big day has come and gone. After twenty weeks of hard work some of you are, no doubt waiting to hear how you did on the big day. I am sure that quite a few of you will be successful on all counts. Some of you may miss one part of the test. In any event there is the April test to get what you may miss. I would certainly like to hear from you as soon as you get the word. Our next issue of the Rambler will list all of the new amateurs.

If any of you have comments that you would like to pass on to the club about the course, please do so. As you have read elsewhere in the Rambler it is our intention to run the course again next year. Your comments will be appreciated.

Jerry VE3CDS

FROM CARF NEWS SERVICE

The city of West Vancouver is contemplating a by-law to restrict towers and antennas but is uncertain of its legal authority to do so. It has asked the B.C. and Canadian Associations of Municipalities to look into the matter; however, as a matter of fact, DOC's jurisdiction over federally-licensed radio stations, commercial and Amateur, was confirmed in January 1981 by the Supreme Court of Ontario when the town of Grimsby lost an action to the Rogers Radio Company in a move to prevent Rogers from erecting new broadcast towers. Amateurs running into similar trouble should contact CARF for further information.

AMATEUR NETS

As a radio amateur one can hardly miss running into a net while listening on the bands. Most of us do far more listening than transmitting and nets are interesting to listen to. The following comments are as a result of a lot of listening to the many nets on several amateur bands.

Let's look first at nets on the two metre band. We have several in the Ottawa area, a traffic net which is part of the N.T.S., a club net on Monday, a club net on Friday and another on Sunday. We also have a net for ex-service amateurs. All of these nets follow a different format, from formal traffic handling to club information and what is generally called a round table net. All the local two metre nets use repeaters and provide a wide range of topics to those who check in. The success or appeal of the two metre nets is largely dependant on the net control station or net manager. Generally speaking two metre nets are quite enjoyable as there is a minimum of effort required to listen in or check in, and most everyone knows everyone else.

Let's now look at the HF bands. There are again, many nets available to the Ottawa area amateur. Formal traffic nets like the Ontario Phone net, Round table nets like the Quarter Century nets,, Independant nets like ONTARS and the C.J. net. The C.W. nets, E.C.N. Pot-Lid net, Southern Ontario net are also easily heard in the Ottawa area. In listening to nets on the HF bands a few comments are in order. Some nets start up on the exact frequency regardless of the QRM on the frequency. Why not move up or down half a kc to avoid QRM. Then we have the station that checks in 500 kc off the net controllers frequency - right on the published net frequency but not on the NCS frequency. Some nets on H.F. seem to have two or sometimes three Net control stations. How frustrating for the NCS to try and hear a weak station with two or three helpers talking at the same time. Let the NCS decide who he wants to act as a relay station. The NCS is supposed to control the net. I switch off the nets that have more than one N.C.S. Some nets like ONTAKS and the CJ net seem to have a lot of appeal. I think it's the informality which most hams like. The Quebec Radio net is a good net to listen to as is the Laurentian net.

There appears to me to be a reluctance on the part of many hams to check into the nets which are part of the national traffic system. In my own case where I am in amateur radio for enjoyable diversion from my 8 to 5 job, I was quite frankly not too keen to check into an NTS net on H.F. because of the apparent rigid procedures. In fact the first time I did check into an NTS net the NCS preamble made me feel that if I made a mistake I'd be breaking the rules or something. Hence the appeal of the less formal nets by the majority of hams.

Anyway listen in to the nets and check in once in a while.
Jerry VE3CDS

AUCTION- SURE SIGN OF SPRING

Here we are, still in the middle of winter - such as it is and a sure sign of spring is the auction. The date is April 23, at the Canterbury High School.

Dig into the junk box now and get all those good items you've been saving all these years. Take them to the auction and bring home a different pile of junk.

OVMIC GENERAL MEETING JAN 20, 1983INTRODUCTION:

President Russ VE3FSN opened the meeting at 20:03 hours.

MINUTES OF DECEMBER MEETING:

Dave - VE3KLX moved that the minutes be amended. The introduction should read Jack Flower - VE3NVI. Seconded by Bob - VE3KIK the motion was carried.

OLD BUSINESS:

President: Russ - VE3FSN reported that the 17th week of the amateur radio course has been completed with two more weeks to go. The students have absorbed a lot of knowledge.

DOC has been contacted again in an attempt to obtain action to get the pager output, that is interfering with VE3TWO, cleaned up.

Past President: Absent.

Vice President: Dave - VE3KLX reported that Friday, Jan. 21, 1983 will be the 3rd anniversary of the Wise Owl Net. Hams who check in for 10 consecutive Fridays from Jan 21 to March 25, 1983 will be given Class "A" "Wise Owl" certificates. Others who check in for 5, not necessarily consecutive, nets will be given Class "B" certificates. The net manager's choice award for 1982 goes to Frank - VE3MSC for the most check-ins during 1982.

Technical Advisor: Dave - VE3KMV, reported that a kit (circuit board and parts) for a quick Ni-cad battery charger is available from him. Cost, between \$13 and \$17 depending upon demand. Dave is also looking for information on VHF RTTY (circuits, programs) for a potential club project. A few members interested in VHF RTTY are holding an informal net on VE3TWO on Wednesday night after the code practice (20:00 hours approximately).

Secretary: Nil report.

Public Relations: Absent.

Treasurer: Pat - VE3KJQ, reported that Art Stark - VE3LS has just become the club's one hundredth member for this year.

Editor: Jerry - VE3CDS, reported that the auction is scheduled for April 23, 1983 at the Canterbury High School. The club is requesting donations from any ham who wants to clean up his shack and get rid of old stuff that can be resold. Contact any member of the executive to make arrangements for pickup.

Field Day: Pres. Russ asked for a volunteer to co-ordinate field day activities - no response.

VE3JW: The station at the Museum of Science and Technology needs operators on weekends: Rene - VE3JKR suggested that a guest book should be kept at the station for visiting hams. This suggestion will be pursued when the new location is ready.

NEW BUSINESS:

Elections: President Russ reminded the club that elections are coming up in June and its time to start thinking about running for office and/or to nominate those you would like to have on the executive.

VE3TWO: Power was down last weekend and it was discovered that the backup batteries had gone dry. Due to the high temperature environment (both summer and winter) it was recommended that maintenance free batteries be purchased. Bob - VE3KIK moved that the executive be given permission to buy new maintenance free

batteries. Seconded by Bill - VE3NR the motion was carried.

Bill VE3NR announced that he had built a wind direction indicator to complement the wind speed indicator built earlier. He had it on display at the front of the hall for the members to examine.

Entertainment: Assistant Chief Paul Seguin of the Ottawa Fire Bureau gave the club an interesting and informative lecture on fire prevention and fire fighting. A topic all hams need to know about, the various types of fires and the techniques for fighting them were described. The film "Knowing How To Use Portable Fire Extinguishers" was also shown. A discussion followed and the members received many good tips.

Executive Meeting: To be held on Thursday, Jan. 27, 1983.

Next Meeting: To be held on Feb. 17, 1983 at the Museum of Science and Technology at 2000 hours.

Adjournment: Moved by Lloyd - VE3FHC and seconded by Dave - VE3KLX, the meeting was adjourned at 2126 hours.

T.V. Evangelatos, VE3EWE
Secretary

FROM CARF NEWS SERVICE

A U.S. ruling that reserves a slice of the new 10 meg band for its government service is being ignored by some U.S. operators who are being tagged by the FCC. Canadian Amateurs may legitimately use the whole band but could keep good relations with the U.S. by avoiding this slot if possible.

To mark World Communications Year, CARF has requested special call sign prefixes. The prefix 'CY' was requested for VE; 'CK' for VY and 'CI' for VO. If present DOC plans are carried out the optional prefixes should be available from May 27th, World Communications Day, to July 27th of this year.

FROM CRRL NEWS

DOC has released some interesting data on EMI. Complaints of electromagnetic interference are up, but very little of this interference is caused by amateurs. Amateur interference falls into DOC's "other" category. In 1981 DOC had 17,420 complaints in this category. The six most severe causes of interference were: swamping by GRS fundamental (2581), spurious radiation from land mobile (1752), unidentified transmitter deficiencies (1408), fundamental radiation from broadcast stations (1082), faulty antennas and grounds (1041), and frequency sharing (1013). Remember, none of these are from amateurs. Now here's our track record: swamping by amateur fundamental (208), fundamental radiation from amateur stations (64), spurious radiation from amateur stations (57), harmonic radiation from amateur stations (43), and swamping by amateur harmonics (13). Canadian amateurs may take a bow!

How many amateurs are there in Canada? It's hard to be sure, but in the recent CRRL membership mailing and survey, CRRL mailed to addresses for 22,751 callsigns. Some were for club and school stations, but the majority was for individual amateurs. 22,000 Canadian amateurs would be a close guess.

An excellent publication was received this past week from Larry VE3GT, SCM for Ontario via VE3KLLK, Dave.

The publication is the ARRL Net directory for 82-83.

It is loaded with good information on the National Traffic System, how to use the nets and prepare messages in the recommended format. It also provides a net listing by state and province as well as the wide coverage nets. Lots of good stuff.

One very useful table which was printed in the Rambler last year is printed again for your info.

TWO LETTER ABBREVIATIONS FOR PROVINCES & STATES

Alaska	AK	Nevada	NV
Alabama	AL	New Brunswick	NB
Alberta	AB	New Hampshire	NH
Arizona	AZ	New Jersey	NJ
Arkansas	AK	New Mexico	NM
British Columbia	BC	New York	NY
California	CA	Newfoundland	NF
Canal Zone	CZ	North Carolina	NC
Colorado	CO	North Dakota	ND
Connecticut	CT	Nova Scotia	NS
Delaware	DE	Ohio	OH
Dist of Columbia	DC	Oklahoma	OK
Florida	FL	Ontario	ON
Georgia	GA	Oregon	OR
Guam	GU	Pennsylvania	PA
Hawaii	HI	Prince Edward Island	PE
Idaho	ID	Puerto Rico	PR
Illinois	IL	Quebec	PQ
Indiana	IN	Rhode Island	RI
Iowa	IA	Saskatchewan	SK
Kansas	KS	South Carolina	SC
Kentucky	KY	South Dakota	SD
Labrador	LB	Tennessee	TN
Louisiana	LA	Texas	TX
Maine	ME	Utah	UT
Manitoba	MB	Vermont	VT
Maryland	MD	Virginia	VA
Massachusetts	MA	Washington	WA
Michigan	MI	West Virginia	WV
Minnesota	MN	Wisconsin	WI
Mississippi	MS	Wyoming	WY
Missouri	MO	Virgin Islands	VI
Montana	MT		
Nebraska	NE		

For the convenience of those of you that want to cut out the above table cut along the dotted lines.

WHEN WAS THE LAST TIME YOU SENT SOME ENVELOPES AND STAMPS TO THE
ONTARIO QSL BUREAU?

FEBRUARY MEETING

At the regular February meeting of the OVMRC (17 Feb 83), John Bartlett, VE3DHB, will present a talk on "Understanding Transceiver and Antennae Parameters Leading to the Ultimate Station". Some of the areas John will touch on are noise floor, IMD, sensitivity, selectivity, dynamic range and antenna sizes vs height above ground. See you there!

THE CANADA CALL BOOK

The "Canada Call Book", listing the over 24,000 amateurs in the provinces and territories of Canada, will be available very soon. \$10.95 is the list price, however an introductory club discount of 15% has been offered to the OVMRC. To take advantage of this offer, a list will be available at the 17 Feb 83 meeting. Your cost will be \$10.00, payable at the time of ordering. It is intended that the order be sent off immediately following the meeting so ensure you or your representative puts your order in. For those of you who can't make it to the meeting send your \$10.00 to Mike, VE3LAR, by 17 Feb 83.

Mike Shacklock
2133 Lemay Cres.
Ottawa, Ont.
K1G 2X5

If you would like to deal directly with the supplier, you can send your \$10.95, plus tax, to:-

Pen Publishing Co.
P.O. Box 4386
Hamilton, Ontario
L8V 4L8

The Canada Call Book listing will be by Call Sign alphabetically arranged on 300 pages of 8 1/2 x 11 paper pre-punched for a standard 3 ring binder (a plastic spine is provided).

VICE VOICE

Well January really wasn't that bad, was it! A bit cold in spots but all in all despite O.C. Transpo ransom Friday things went fairly smoothly.

By the time this article hits the street we should have some honour graduates of the first annual OVMRC amateur radio course.

There are some things to keep in mind over the next 4 months.

First of all there is the auction. Now, you're going to hear a lot about this fine event between now and April 23. Jerry, VE3CDS will be in charge and will be looking for assistants in the way of auctioneers, loggers, luggers, talk-in, money, commercial displays, money, flea market and of course money.

Secondly, metres for millions. That should happen first or second weekend in May. We shall be looking for volunteers soon.

Thirdly, ladies great ride for cancer. Mike VE3KMG usually spearheads this. Mike will be looking for help sometime in May to get ready for June.

And finally the Wendover horse trials are no doubt going to happen again in June. Volunteers will be urgently needed for that

one too!

So keep all of this in mind and remember that these are mobile club activities and it is up to you to keep them that way.

Well I have the January blahs out of my system. Since my thing is the Wendover activity I will be looking for about 10-15 helpers sometime in early June.

I guess that's enough for now. See you at the Feb. meeting.

Dave VE3KLX
Vice President

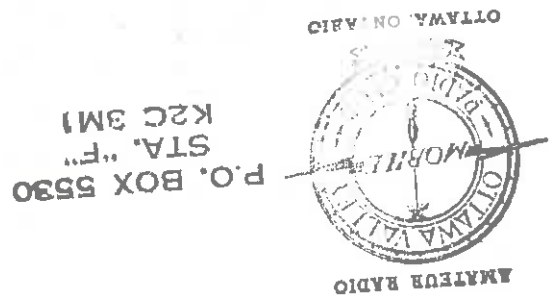
MATERIAL PUBLISHED IN THE RAMBLER DOES NOT NECESSARILY REFLECT CLUB POLICY OR VIEWPOINT. ANY ITEMS MAY BE REPRINTED BY AMATEUR RADIO OR SIMILIAR PUBLICATIONS WITH THE PROVISO THAT CREDIT BE GIVEN TO AUTHOR AND SOURCE.

PUBLISHED AND DISTRIBUTED BY
THE OTTAWA VALLEY MOBILE RADIO CLUB INC.
P.O. BOX 5530 STN. F
OTTAWA ONTARIO
CANADA
K2C 3M1

EDITOR
Jerry Wells
VE3CDS

JAMES A. HAMILTON, VE3GJY
2038 ARCH ST.
OTTAWA, ONT.
K1G 2H1

OTTTAWA VALLEY MOBILE RADIO CLUB



OTTAWA VALLEY MOBILE RADIO CLUB
P.O. BOX 5530
STATION F
OTTAWA ONTARIO
K2C 3M1