

Second Class Mail Registration
Number 5073

TCAR



SEPTEMBER 1985

The Canadian Amateur
Radio Magazine

La Revue des Radio
Amateurs Canadiens

AGM Reports — Net Directory



Jean VE3DGG discusses the CARF QSL bureau at the AGM.

**Coherent CW — Computer column
— BY reciprocal licensing —
Deregulation — \$20 transceiver**



Yaesu HF radios

C.M. PETERSON CO. LTD.

Communications Electronics Division
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As standard equipment you get AM and FM modes, electronic

keyer with dot-dash memory, 600-Hz CW filter; noise blanker, AF speech processor and 25-kHz marker generator. All at no extra charge.

The FT-757GX's high-performance general coverage receiver lets you listen from 500 kHz up to 30 MHz. The transmitter covers 10 to 160 meters, including the new WARC bands. Dual VFOs and single-button VFO/memory swap make split-frequency operation easier than ever before.

Use the 8 memories to store your favorite frequencies on any of the bands. Then touch a button to jump to any programmed frequency without worrying about a bandswitch.

For base-station use, the space-saving FP-757GX flatpack power supply shown in the photo is ideal. With this supply, the rig delivers

100 watts output on sideband, FM and CW.

In addition, a massive heatsink permits continuous RTTY operation at full power output for up to 30 minutes. Full power for long periods does require the use of the FP-757HD heavy-duty supply.

To the right of the transceiver is the FC-757AT, a fully-automatic antenna tuner designed especially for the FT-757GX. This optional tuner stores in its memory the antenna selection and matching network settings for each band. When you operate that band again, the tuner automatically recalls the matching network settings and chooses the proper antenna.

With an optional interface unit, you can control VFO frequency and memory functions via your personal computer.



THE CANADIAN AMATEUR

September 1985

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

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



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Electronics Today
May 1986
Vol. 9 No. 1

TCA

THE CANADIAN AMATEUR

QST

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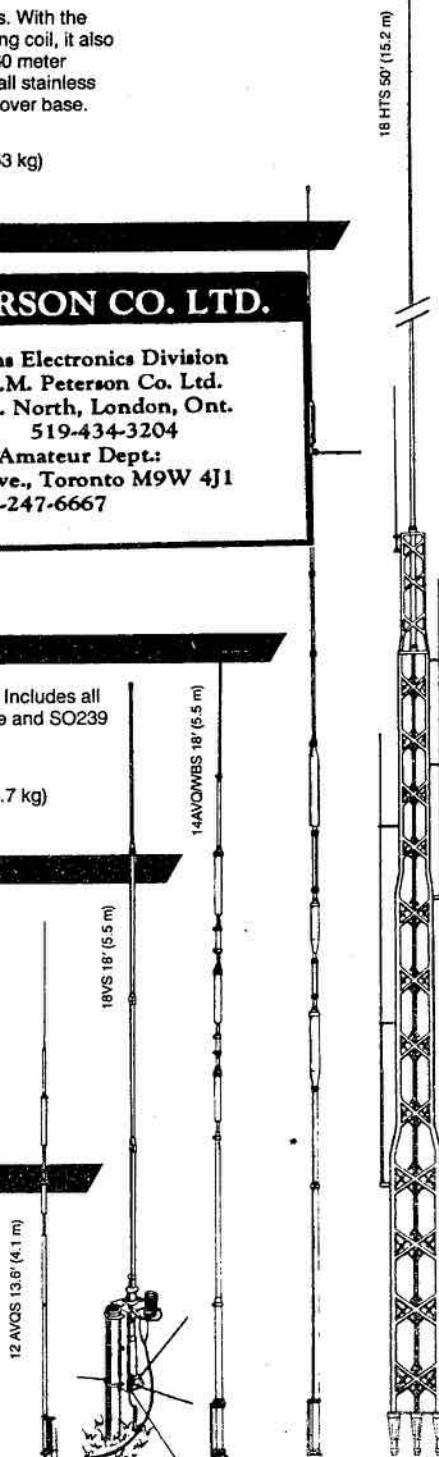
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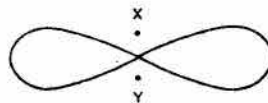
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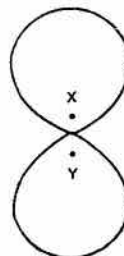


Phase for Gain

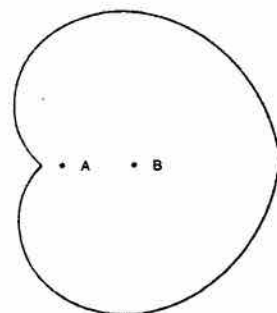
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IC-735



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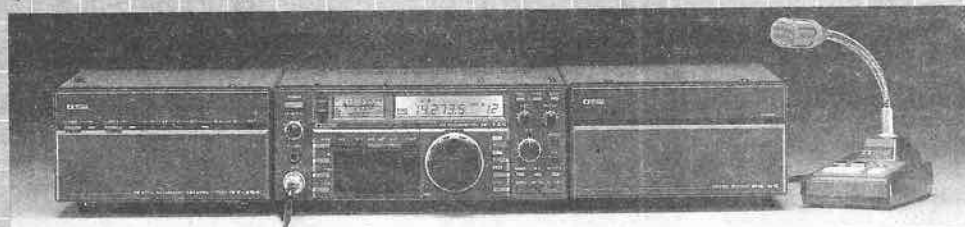
Dollar-for-dollar the IC-735 includes more standard features...FM built-in, an HM-12 scanning mic, FM, CW, LSB, USB, AM transmit and receive, 12 tunable memories and lithium memory backup, program scan, memory scan, switchable AGC, automatic SSB selection by band, RF speech processor, 12V operation, continuously adjustable output power up to 100 watts, 100% duty cycle and a deep tunable notch.

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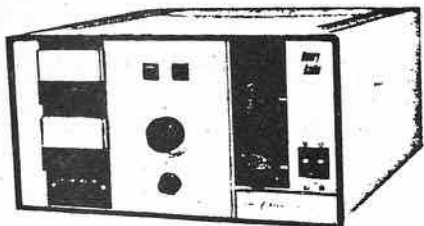
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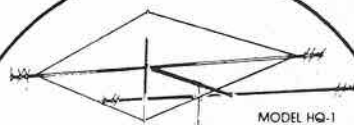
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FT-757GX + HD PWR SUPPLY + FC-757AT TUNER = \$1749

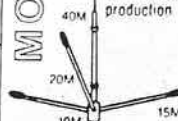
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4 BAND MOBILE

W90KM MEMORIAL

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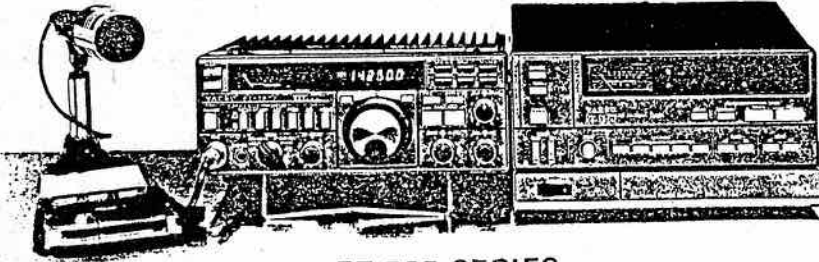
FT-209



5 watts
\$ 389.00

OPTIONS

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- MH-12A2B Speaker/Microphone
- PA-3 DC/DC Car Adapter/Trickle Charger
- MMR-21 Mobile Hanger Bracket
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- FRB-4 12V, 500 mA Ni-Cd pack
- CSC-11 Soft Case for FT-209R/RH w/FRB-4



FT 757 SERIES



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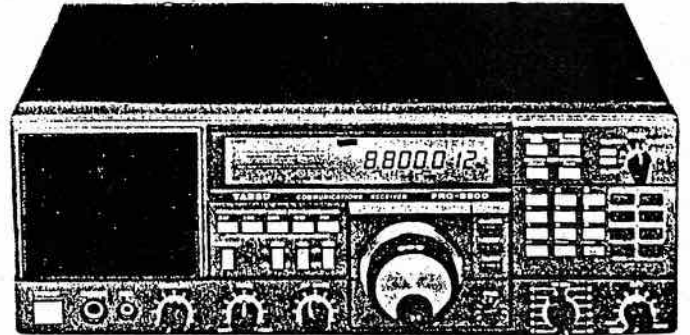
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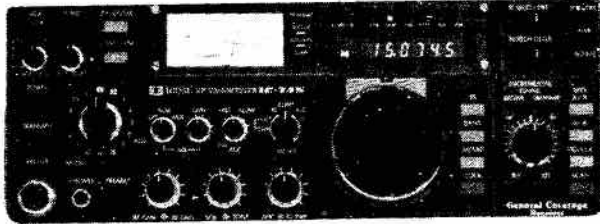
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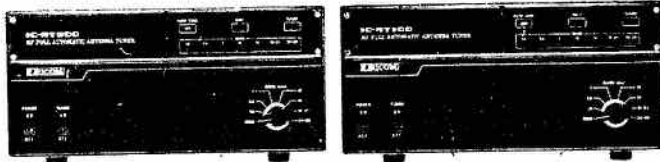
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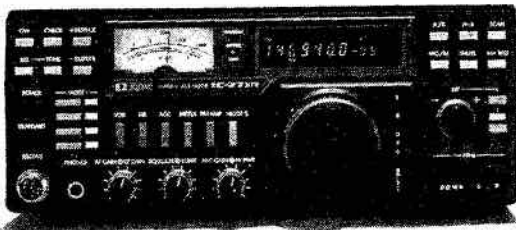
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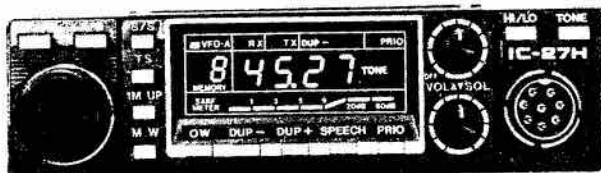
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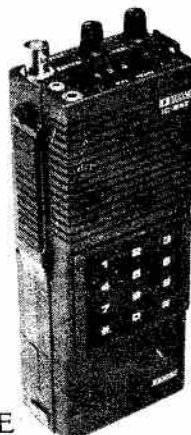
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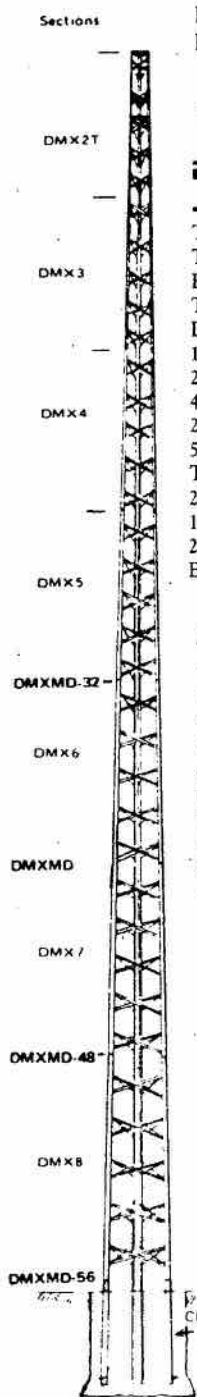
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Please address correspondence to the Editor at Box 855, Hawkesbury, Ontario K6A 3C9, telephone 613-632-9847.

COVER PICTURE

Most of us owe Jean VE3DGG a 'thank you.' She handles CARF's QSL bureau, and with other volunteers sorts, parcels and despatches your cards worldwide. Here it is, then, formally, from all of us: Thank you very much, Jean! (That's Norm VE6VW, beside her.)

Here I sit before my typewriter, facing the prospect of writing 500 words for an editorial with all the enthusiasm I used to bring to an essay in high school. Not that I am not flattered that the editor has invited me to write a guest piece. But to write an editorial, it seems, you have to be upset about something.

I just finished reading another of the on-going diatribes in another magazine about the sorry state of Amateur Radio in the world today and to tell the truth, I just can't get that upset about it.

Sure, there are people in Amateur Radio who raise the hairs on my neck when I hear them on the air, but this is a hobby, and they have the right, I suppose, to enjoy themselves in whichever way appeals to them. So long, of course, as they don't interfere with my legitimate use of my station.

Rather, I want to think about the things I have gained from Amateur Radio. It would take several sheets of foolscap to list the friends I have made, in radio clubs, on the air, and through my directorship in CARF. I am proud of the spirit of cooperation that can get me a crew of four or five or six for an antenna raising with a call on the repeater.

I am proud to know the people who work behind the scenes for Amateur organizations, not just CARF, but others as well, that bring us services we could not afford individually such as this magazine, the QSL bureau, DOC symposia, the TRC-24 committee which reviews the exam

questions for fairness and appropriateness.

And how about the group in Kingston who last summer rallied round when CARF had the first of several computer failures and searched the cashbooks, correspondence and old membership records to recover the missing membership data.

I am proud of the service provided by the assistant directors who represent CARF in many areas by attending Flea Markets and club meetings. The club educational committees and teachers who year after year put on courses that rank with the best available commercially, and at little or no cost to the students, to increase the number of hams on the bands.

Even from something as far removed from a hobby as my job, I can credit a good part of the success I have had to Amateur Radio. Where else is better to train one to meet people and immediately start talking and get to know a total stranger than the QSO that follows a CQ? What better way to learn to chair a meeting than to serve on the board of your favorite club?

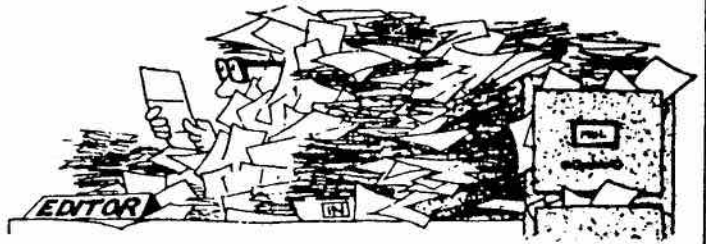
If you are shy in front of an audience a few nights at your radio club or a session on a net will go a long way to improve your poise. That I work in a technical job that I got as a direct result of Amateur radio is irrelevant, I would have benefited in any event.

Amateur Radio in trouble? Not with these advantages! Δ

John Iliffe VE3CES



LETTERS



AMATEUR RADIO LICENCE FEE

The January 1985 issue of *TCA* reported on page 22 the proposal made by the Canadian Owners and Pilots Association (COPA) for the elimination of the yearly renewal of Amateur radio licences.

At the Spring 1985 meeting, the Executive and Board of Directors of the Amateur Radio League of Alberta (ARLA) decided to fully endorse the proposal made by COPA to the DOC, that annual renewal fees for Amateur radio licences be replaced by a one-time license fee.

Guss Ruitenbeek VE6CFS
Secretary, ARLA

TWO VIEWPOINTS

Those whose first language is neither English nor French are at a disadvantage when answering essay questions, especially if they are over 60 years old. Moreover, people so old fear the Morse code examination.

Some of them who struggled to pass the Morse and multiple-choice examinations and attained their first certificate do not dare to attempt the 15 wpm and essay questions for the Advanced certificate. They have lost interest in Amateur radio because they are restricted to 10 metres, a band currently dead most of the time.

I suggest, then, that the first Certificate Morse examination be the only one. This would comply with International law. The examination, I suggest, should return to the multiple choice format.

Something should be done to help these old people.

—Adib VE5BBU.

I just finished working a ham on 20 metre CW (14.064 MHz) I

think you will be glad to hear about. His call is KT3O (Bob) and he lives near Philadelphia. He does not have the use of his arms or legs, yet he sends code better than most of us, he uses a tube that he sucks on for dashes and blows on for dots. He copies in his head, completely. Now, if that's not something special in ham radio, I've never heard of anything in my 25 years of being a ham.

I've been off of CW for over 23 years, and the last few months I've been trying to relearn it with not too much progress. I told Bob that I was discouraged and about ready to get the mike back out. However, after hearing what Bob told me (and good copy too), I'm reminded of something my Dad used to say: "I complained about not having any shoes until I met a man that had no feet."

Let the Ham fraternity hear about this courage that Bob has shown. It's sure to give many of us a shot in the arm.

I'm 68 years old and was thinking that this code for me to upgrade was just too hard. Now you bet that W1AW will have this old ham on every day.

73, Dudley K5ZOZ

From Nanaimo ARC's Static

SCHOOL RADIO DAY

In recent discussions with our Physics teacher at Oilfields High School, regarding electromagnetic radiation around a wire, I suggested that "we do it." Accordingly we constructed a dipole antenna for the 20 metre band which was promptly strung up between two buildings by eager volunteers.

In one morning's operation, despite the weird band conditions, we managed several contacts on 20 with a typical Field Day type installation. Power was provided by a car battery on loan

from the Automotive Dept., and the antenna was ably supported by heavy duty string.

With the assistance of a number of Amateurs, we enjoyed several QSO's on the 20 metre band and succeeded in contacting California, British Columbia and Michigan all in a one-hour period.

With this encouraging start we can make Ham Radio Day at Oilfields High School a yearly event.

73, Wallace VE6BGL

ONE PROBLEM, TWO SOLUTIONS

I became an Amateur last September and have since been having one heck of a good time. I simply did not know there existed such a wide world of enjoyment.

As a teacher my natural impulse was to share this hobby with my charges thereby filling a need for me to repay my debt to the many hams who made my licence easier to obtain. Aside from this selfish motive it answers (for me) the question of how we can interest young people in our hobby.

Inasmuch that I live in an area where equipment is not readily available, this is where a need exists. At present a school station has been set up under the call VE7KRS (Kelly Rd. Secondary). Students are actively learning their code at noon but, without equipment such as old radios, on-air experience is not readily forthcoming.

This then is the reason for this letter— may I ask any hams who are cleaning their shack to consider forwarding to our school station any unwanted equipment. I fully realize this appeal has been made on many occasions by different groups— but now more than ever during these times of restraints plus the declining



number of hams— let's keep the old gear and our membership active and growing.

— Hugo VE7EPH. (VE7KRS. Kelly Rd. Secondary, Att: H. Martin, 4540 Handlen Rd., Prince George, B.C. V2K 2J8.)

Yes, Hugo, old receivers should not go rusting idly away in the shack— offer them to the nearest radio club's class instructor for loan to students.

There is another way of attacking the problem, though. In this TCA there is an article on building an all-band transceiver, total cost, about \$20 (that's right, twenty dollars). This, with a crystal, phones, key, antenna and ground, will get a student code practice and, when licensed, provide a local net with the other successful students as well as world-wide contacts when conditions are right.

There's no better introduction to Amateur radio. To build equipment with your own hands beats all the reading and lecturing about transistors you'll ever hear. On the air, with a low-power transmitter, means first-class hands-on experience, and no visits from the DOC inspector because too powerful a transmitter has been put on the air by an Amateur with too little experience to adjust it properly.

The rice burners are well designed, skilfully made, very expensive examples of technology, but the pendulum has swung, perhaps, too far in their direction. You come to Amateur radio to learn, and you learn about transistors by building one in a circuit and seeing what happens when you change things about. This will eventually cost you 75¢ for a new transistor, but the knowledge gained is priceless.— Editor.

HERCULES, WHERE ARE YOU?

Just got May issue of TCA today! (On May 31.) Can you do anything about this lousy mail delivery?

— W. Taylor (SWL)

(No, Mr. Taylor, we cannot. You can, though. Write to your MP and tell him to prod the government to institute Operation Augeus immediately.— Editor.)

TCA pays competitive rates for technical articles.

THE TRANS PROVINCIAL NET

Many Canadians in Ontario, Quebec, Maritime Provinces and Manitoba are happily participating in the now well-known Trans Provincial Net. We operate daily on 40 metres, USB at 7.055 MHz from 10.00-16.00 EDT. When propagation returns to normal the operating hours will be extended. As well, it is hoped that participation will extend from coast to coast.

The net operation is often interfered with. Mostly by U.S. C.W. operators who do not know why we are there, and by some who think we should not be there. We get questions like— "What are 'phone stations doing this end of the 40 metre band"? Or statements like, "40 metres is a traditional CW band".

U.S. operators don't have a monopoly of these questions, some Canadian operators must share the guilt of this type of ungentlemanly conduct. Most operators, in true Amateur tradition, gladly QSY when asked to do so. The inevitable few will argue the point and continue to QRM the net. Good management, responsible controllers and the good-will of most check-ins combine to give good service despite these incidents.

The TPN is authorized by joint agreement between DOC and the FCC to operate SSB in this portion of the 40 metre band, but it has very good reason for being there. It is most important that this frequency be kept open because the Trans Provincial Net has agreements with both Provincial and Federal government-sponsored emergency groups to use this frequency in time of emergency. Our strength is our wide coverage and the fact that we have experienced controllers readily available. The following may help to broaden understanding of this net operation.

Ontario alone is a big area, occupying over 412,000 square miles, without counting the other provinces involved. The distance between Ottawa in the southeast and Kenora in the northwest, for example, is nearly a thousand miles.

Over 65% of the seven million

plus population of Ontario live within four miles of the U.S. border. That leaves a lot of country for the rest of us to be scattered around in, with long distances between towns and Amateur operators. Much of the densely-populated south has two metre repeater links that can access to vital services in times of emergency.

We in the north and those in the central areas do not have this facility. If landline service is interrupted, our access to emergency services depends in large part on HF Amateur radio. We use 40 metres because it is the most reliable band during daylight hours.

We use USB, although it is not conventional, because it enables CW stations to check into the net easily. We use phone because more information can be handled in a given length of time, but CW capability is always there if conditions require its use.

The net changes controllers every hour, and they all welcome check-ins with or without traffic from all stations, CW or 'phone, Canadian and of course U.S. by CW. The purpose of the net is to provide service. The more operators who use it, the better the service becomes. It is, if necessary, bilingual, and every-day between 15.00 and 16.00 hours EDT the net operates from Montreal with full bilingual facilities.

Historically the net started operations in 1982, as an Ontario 'phone net, under the management of Bill VE3EFX. In 1983, Ron VE3LZI, who was Bill's assistant manager, assumed control. At this time the net adopted its present title, Trans Provincial Net. This net has grown to include Quebec, the Maritime Provinces and Manitoba.

Check-ins come from all over; Vancouver, Calgary, Saskatoon, the U.S. ships at sea and aircraft. The net manager looks forward to having regular check-ins from all the Western Provinces and perhaps controllers located in all Provinces. This is Ron's aim.

Anybody wishing to commun-

Continued on next page ▶



icate with the net should write to Trans Provincial Net, P.O. Box 1, R.R. 3 Stayner, Ontario. LOM 1SO. If you have ideas you would like to see incorporated into the net, let's hear from you. If you can give the time to help your fellow Hams enjoy their hobby, add your name to the honour roll of TPN controllers and check-ins. You are all more than welcome. If you do not wish to use the net please give us the spectrum room we need to continue effectively. Some day you may need us and be very glad we are there. See you on 7.055 all 365.

73, David VE3WC

I would like to add one other important item to David's interesting letter. Every weekend Bill VE3EFT edits and reads our own TPN news. In addition, we also read the CARF news bulletin.

We are happy when three hundred or so daily check-ins have shared their news and views with us. Of course, a few get their 'kicks' from grumbling about taxes, the weather or any other handy target but it is all part of this great hobby of Amateur radio; long may it beguile us.

We do indeed thank you for your past support. As well, we would like to thank all those who use the net, both in Canada and the U.S. for keeping the TPN open for forty metre contacts.

73, Ron VE3LZI
Net Manager

△

Photo Competition

TCA will give a \$50 prize to the best photograph published in the magazine during October-November-December 1985. This is in addition to the regular payment to contributors.

Generally, sharp black-and-white pictures of Amateur interest, with every recognizable Amateur's name and call included, stand the best chance to win.

Bob VE3MFG has kindly consented to be the judge.

George Murphy VE3ERP wrote last issue's Swailer article.

The Barrie tornado's lessons

by Casey VE3NGT

The May 31 tornado in Barrie, Ontario took out the hydro lines in the area and disabled the telephone system, both by downing lines and overload. The police and fire services were busy with search and rescue efforts, and patrolling the area. As a result, the only possible way of communicating with the disaster area was by Amateur radio.

Welfare enquiries and Red Cross coordination.

Both Barrie repeaters (VE3LSR and VE3TTB) were off the air because of power failure. After an hour or so, power was restored and the Barrie ARES group began to coordinate on VE3LSR. Attempts to contact Red Cross on HF were not successful because of the high electrical noise generated by the storm.

Some early traffic was passed informally through VE3ULR/2, VE3UGB and VE3MJR. Later in the evening 2 metre facilities were established at all evacuation shelters to help the Red Cross

The lesson is clear. Simulated emergency tests should be scheduled on the second Thursday of the month preceding the actual emergency.— Editor.

coordination and to handle welfare enquiries on VE3LSR.

At midnight on the evening of the disaster (May 31) a VHF/UHF link was established, at the request of the Red Cross at VE3RCO, between VE3GER, Toronto and VE3LSR, Barrie. This was accomplished using the Frequency Agile Remote Transceiver at the VE3ULR site.

To avoid unnecessary interference, the FART was left on 'link listen' unless there was traffic to or from Barrie.

Observations

The Net Control Station was not aware of facilities available in

the area, such as the second repeater and the link. As a result, too much low-priority traffic on one repeater (VE3LSR). The NCS often neglected to break into the low-priority traffic for any possible high-priority traffic.

In their eagerness to assist, too many stations disrupted relief communications on the repeater by announcing their availability.

Recommendations

- All ARES members should be aware of all active communications facilities in their area, and know who to ask to activate them.
- If possible, lower-priority ARES coordination in the affected area should be conducted on simplex or on a second repeater, not on the designated emergency repeater.
- All traffic on the designated emergency repeater should be coordinated by the NCS.
- The NCS should define acceptable traffic for the designated emergency repeater and this definition should be reinforced and updated regularly throughout the crisis period.
- Stations in the affected area who wish to provide assistance should coordinate with the ARES coordinator in their respective areas. The ARES coordinators can then register their collective facilities with the ARES group in the affected area.
- If a station wishing to provide assistance cannot coordinate through an ARES representative, they should monitor the designated repeater and respond only if the NCS issues a general call for facilities or services which they can provide. △

Cal Nixon VE6BSN will be sailing the Pacific between Aug. 1 and December, then again in 1986 from February to June. He has skeds with the Quam and San Fransisco nets, is looking for a Calgary patch, and would probably like news from home from anybody.— from KEY KLIX



AGM Highlights



ONTARIO DIRECTORS' REPORT

The Ontario Directors made the rounds of the various Ontario hamfests and fleamarkets. Stops include Milton, Brantford, Hamilton, London, Newmarket, St. Catharines, Pickering and Guelph. In addition to the usual chores associated with such events, the Directors spent an inordinately large amount of time attempting to deal with the criticism leveled at the Federation by its members, virtually all of which involved non-performance.

This in turn led to the next activity: massive re-organization of the Kingston office, including new office personnel and new computer equipment.

A number of recommendations are being presented as motions at the AGM.

John Iliffe VE3CES
Geoffrey Smith VE3KCE
Ontario Directors
1985 04 25



MID-WEST DIRECTOR'S REPORT

Well, this has been quite a busy year for me. In June I moved from Moose Jaw, Saskatchewan to Morinville, Alberta. I did manage

to find some time for this position by attending the Saskatchewan Hamfest in Swift Current, Sask. last July and I conducted a short CARF forum.

Most of my time from June to April has been taken up with the sorting out of the CARF Contests. It has taken a year and now I feel that the Contest scene is in good shape with the exception of the CARF Commonwealth Contest for the past three years.

Most of my other time in the past year is involved with the QSL Bureau in Alberta, and operating the Amateur radio promoting the good-will for the CARF organization. Being as my area coverage is so large, I try to do most of my CARF business either via the Amateur radio or resorting to the Mail service. I would like to see two (2) new director positions made up in the west, one to cover the Yukon/N.W.T. area and one to cover the Manitoba/Northern Ontario area. If we want to expand then we will have to look at getting more people into the organization.

The news service has been working well out west.

Parks Canada Centennial

The Parks Canada Centennial is being well received in the west, with most of the activity happening in Manitoba. They seemed to have had a jump on this item.

The advanced TCA 10 copies has started to arrive at this destination, these are used for promotional and membership giveaways. They arrive at least two weeks prior to my own issue.

I would still like to see the directors receive a monthly newsletter from the General Manager as to what is going on down there in Ontario.

The VE4-5-6 VCA callsigns have been picked up by myself and these should be billed via the K office.

This is my report for the AGM and for the past year; I hope that I can serve CARF as well this coming year as I have in the past.

Norm Waltho VE6VW



PUBLICATIONS COMMITTEE REPORT

The publications committee has been dormant, due to lack of funds for the majority of the last year. Nonetheless we have managed to do some things that didn't cost CARF anything.

Since the last AGM we have prepared for publication three reference guide sections, Cable TV Leakage, Towers, the Legal Aspects, and Printed Circuit Boards. The latter is currently running as a series in TCA.

We have checked into the possibility of producing material on cassette tape for the blind. We have an agreement from Doug VE3CWO to read them for us and are awaiting an appropriate date to get together with him. The blind sections will have major differences from the printed sections because the 'reader' cannot refer to diagrams, and sometimes parts become irrelevant.

We have considered making a video tape for club distribution of material now used in the 'CARF Technical Presentations' that we hope will be usable to get us invited to area clubs. (See notice in TCA).

The rates of pay for authors have been formalized and the total number of copies printed are being tracked. New ads are being

Continued on next page ▶



run in *TCA* regularly. We hope to be able to determine what kinds of publications sell well and which ones should be dropped.

We have arranged for the book 'CW Into Foreign Languages' by Frank Salter VE3MGY to be carried in the office and have sold about 25 copies at a profit of \$1 each to CARF.

We have made arrangements to carry a book of exam questions from previous exams and an analysis of where to find them in the various study guides, and suggested answers, written by a committee chaired by Bill Rook, our TRC-25 committee Chairman.

The format of the various publications is being improved and we intend in the future to make more use of pictures in the Reference File material, coloured dividers, etc. We will also try to standardize on a format of page layout and typeface.

All in all, I feel the publications committee has made some impressive strides in putting the CARF publications on a business-like basis and I would like to thank, on behalf of CARF, the members of the committee, Bob Bell VE3NZQ, Steve Holland VE3LLD and Geoff Smith VE3KCE.

John Iliffe VE3CES,
Chairman.



EDITOR'S REPORT

The year 1984-85 saw some progress in CARF's magazine, *TCA*. The number of editorial pages increased from 24 to 28, with a special edition (85 June) of 32, to accommodate the Repeater Directory.

The magazine receives many compliments, a typical one being "Keep up the good work with *TCA*, it's looking better and better all the time" (VE3BBM). No uncomplimentary calls or letters have been received to the date of this report.

The main reason for this acceptance by the readership is the splendid work by our team of columnists and writers. Our columnists now cover the spectrum from DC to 10 GHz, including AMSAT. Our writers give us a wide range of feature articles, as well as our technical section.

If contributions continue to arrive at the editorial office at the present rate, there is the attractive possibility of expanding the number of editorial pages yet further.

The Future

In view of the consistent comments that the publication is steadily improving, the steady increase in the number of contributions, and a perceptible upgrading of its quality and attractiveness, the editor has set himself a target of 1000 new CARF members and other subscribers per year for the next five years. Only with an increased income can the vital improvements— colour, better paper— be attained.

Competition

The editor reviews the competitive market consistently. Naturally, no American magazine can give any attention to Canadian affairs, no Canadian advertiser spends much of his budget in American magazines.

Only *QST* gives much attention to the detail of American affairs, and it goes *ad nauseam* in 7 point type on detail of little interest to the average Amateur. *73* has an International section (Canada not being a foreign country in *73*'s mind, for it is not represented there). *CQ* is the operator's magazine, *Ham Radio*, the constructor's.

TCA, then holds the Canadian niche in the competitive world, and there is no competitor on the horizon.

Magazine Delivery

A salient point from the March Questionnaire is that about half our members received *TCA* on time, before March 1, that is. Others receive theirs up to six weeks late. This is unconscionable, and all who call or write the editor about late delivery are now

referred to their M.P.'s, who alone can take action. The editor plans to call editors of other magazines to make Operation Augeus a general one.

Correspondence

Judging by the number of stamps purchased, the editor writes over two letters per day— 800 or so during the past year. A substantial proportion of these letters between November and March were written to members missing *TCA* copies, to whom the editor seemed a last resort. The cessation of this burden is welcome.

Conclusion

The targets the editor set last June, a substantial improvement in the appearance of the magazine and a broadening of the regular columns to cover every interest, are well under way. If this continues, we may hope to attract other members than those who join us for patriotic reasons.

Vitally needed are Canadian net and club directories.

F.P. Hughes VE3DQB
Editor, *TCA*



SPECIAL PROJECTS REPORT

Special Projects

- **Cable TV Interference.** This is a matter for the EMI Committee and an up-date is in its report.

- **Canadian Repeater Advisory Group (CRAG)** Cary Honeywell VE3ARS is now carrying on with this activity and writing a 'CRAG' column for *TCA* Magazine. He has produced a 1985 repeater directory, kept up-to-date on his computer. He produced a small quantity and test-marketed them at the Smith's Falls flea market. The 20 pocket-sized copies lasted just about that number of minutes— at 50¢ each. I recommended that one be produced in Kingston and made available for a SASE to members



and non-members alike (CRRL charges 25¢ to non-members). It should be sold at flea markets for 50¢ as that is still cheaper to the buyer than sending in a SASE for a total cost of 68¢... soon to be more.

• **Correspondence.** Since March the correspondence has dropped off as the complaints levelled out. Most correspondence has been with CARF News recipients.

• **Tower Rights Committee.** I have kept up liaison with Al Law VE3LAW and have passed various bits of information to him which I have found in U.S. publications. He said yesterday that there has been little action in this area since last year and that regretfully he has to relinquish the committee due to pressure of work.

• **Flea Markets.** Booths were set up for the Ottawa and Smith's Falls Flea Markets in conjunction with Mailes Dier. These are primarily for publicity and a method of membership sales and renewals. If a flea market covers expenses, it can be deemed very successful.

• **Complaints of TCA Non-Delivery** These continued for some time after March but most were satisfied by shipping back copies and explanations. I have had only three in the past month... one involving ten year's subscription.

• **TCA Contributing Editor.** I have continued to keep in touch with the Editor and have furnished copy from time to time, including CARF News Service bulletins.

CARF NEWS SERVICE REPORT

Since March I have been carrying out an extensive updating of the mailing lists of the bulletin stations and the clubs. Cary Honeywell has been keeping a computer record of these.

George Morgan is now taking over the affiliated club work. He will up-date the lists and reconcile the one used by Mailes Dier in the Parks Canada mailing, those updated by me and a two or three

year-old list which I found in my files.

There is a problem in delivery. Many addressees on the club list have complained that the news is so stale when they finally get it in the monthly mailing that it is not circulated or printed in their club papers.

One way to cut down this delay is mail to the clubs every two weeks, along with the bulletin station mailing.

The opportunity to include promotional material with every mailing of the News bulletins should not be overlooked. Quite often there are special supplements mailed with it to give details on regs changes or special events like the story on the Jack Ravenscroft lawsuit and the request for support of his defence fund. CARF News and TCA are the only way that Amateurs can learn quickly of regulations changes unless they subscribe to the Canada Gazette at \$125 a year... an unlikely prospect.

• **French Translations of CARF Publications.** Two years ago DOC Information Office agreed to supply us with photo-ready copy of French translations of the two Study Guides and the Regulations Handbook. To date this has not been done, although I believe that the Regulation book and maybe the Amateur Certificate Study Guide may be either finished or close to completion.

D.R. Burrill VE3CDC



CARF CONTEST REPORT

I have restructured the two major CARF contests.

First of all I have changed the point system to add a bit more involvement from the south of the border and to compensate for the diminishing band conditions. The points for stations in other countries changed from 1 point to 4 points and the bonus points for

the VCA/TCA callsigns have been changed from 10 to 20 points.

After running the Canada Contest 84, the Amateurs seemed to receive this point change very well and all but one comment was in favour of the changes. Next there were a couple of frequency changes to coincide with the band expansions and keep the contest away from some of the DX windows.

To coincide with a better operating time and after several suggestions, the Canada Contests will be run between the Xmas and New Year holidays, preferably on the weekend. Next Canada Contest will be on the 29th of December 1985. There is also a new multiplier, the VEO call sign.

Contest Rules

Canada Day 82: I have issued 33 certificates to cover this contest. There were several inquiries about this.

Canada Contest 82: There were 50 certificates issued on this contest also.

Canada Day Contest 83: The All band trophy went to VE5GF, sponsored by: Atlantic Ham Radio Ltd. The Multi op All-band went to VE6CAW sponsored by: Dollard Electronics Ltd. There were 45 entrants and 23 certificates issued.

Canada Contest 83: The all band trophy went to VE7VX sponsored by: C.M. Peterson Co. Ltd. The Multi op all-band trophy went to VE2FSM sponsored by: Glenwood Trading Co. Ltd. There were 22 entrants and 14 certificates issued.

Canada Day Contest 84: The all-band trophy went to VG1BWP sponsored by: Atlantic Ham Radio Ltd. The Multi op all-band trophy went to VE6CAW sponsored by: Dollard Electronics Ltd. There were 60 entrants and 20 certificates issued.

The CQWW CARF Award: This was presented to John Sluymer VE6OU who worked 14 MHz with 138330 points in the CQ WW CW Contest 1983.

Canada Contest 84: The all-band trophy went to VE7VX sponsored by: C.M. Peterson Co. Ltd. The

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Ave... Michael Masella nouveau directeur québécois

J'ai obtenu mon premier certificat en 1978 et on m'a assigné les lettres d'appel VE2FSM. J'ai acquis mon certificat supérieur en 1980. En 1984 j'ai changé mes lettres d'appel VE2FSM pour VE2AM.

Je suis actif comme radioamateur sur les bandes comprises entre 1.8 MHz et 450 MHz. J'utilise aussi le satellite OSCAR.

J'aime placoter à la radio, je participe aux concours et je travaille beaucoup sur le DX.

Je suis membre de plusieurs clubs locaux, je suis impliqué dans la formation de nouveaux radioamateurs à l'école de radioamateur WESTMINSTER.

J'anime depuis plusieurs années le marché aux puces sur le répéteur RM et je suis l'un des contrôleurs de réseau pour le réseau local ARES.

Je suis membre depuis plusieurs années de FRAC.

Je crois à une organisation vraiment canadienne représentant les amateurs sur les plans National et International.

Il est très important que nous soyons forts et unis pour défendre les intérêts de la radioamateur au niveau du Ministère des Communications.

Des changements vont avoir lieu dans le monde de la radioamateur canadienne et nous devons rester unis si nous voulons survivre.

Pour conclure, la radioamateur est un passe-temps formidable et très amusant. Faisons tout pour qu'il le reste. Michael Masella VE2AM.

Licensed as VE2FSM since 1978, advanced in 1980, and as VE2AM since October, 1984. Active on 1.8 MHz to 450 MHz and Oscar. Likes to ragchew and dabble in contests and DX.

Active member of several local ham clubs; involved in teaching ham radio with the Westminster Amateur Radio School. Has been running Swap Net on VE2RM for several years, and is one of the net control stations for the local ARES net. Has been a CARF member for years.

"I believe in one truly Canadian



organization representing Amateurs nationally, and internationally. It is imperative that we have one strong united voice representing Amateur concerns at the DOC level. Changes are coming in the Canadian Amateur world and we must all pull together if we want to survive. And lastly, I say Amateur radio is fun, it's great fun, and a terrific hobby— let's keep it that way." Δ

Michael Masella VE2AM

... Atque vale. VE3CDC retires



After 14 years of working on the executive of CARF in various capacities, Doug Burrill VE3CDC decided that at 67, meeting deadlines for CARF News Service and pursuing the tasks that are part of a vice-president's job are better left to younger enthusiasts. He told the CARF Board of Directors meeting in June: "The Federation has come a long way since I first joined it. Now that it seems to be well on the way to a healthy existence, and since it takes more of my time than I feel able to give nowadays, I most regretfully do not wish to stand for any office in the Federation."

Doug said, however, that he would be happy to remain as contributing editor of TCA. Editorship of CARF News Service has been passed to Raymond Mercure VE2BIE and Pierre Couture VE2BCQ. Δ

Photo:
Bob Baillargeon VE3MPG



Qu'est-ce que l'UMS?

par Bernard VE2LC

Suit

Devant la difficulté de procéder séance tenante à la formation d'un bureau de direction, il fut proposé et d'une façon spontanée que les personnes présidant la présente assemblée forment un comité provisoire jus qu'aux élections prévues pour septembre ou octobre. Gaby VE2AIT acceptait le poste de président, tandis que Jean-Marie VE2HM et Adrien VE2BLN respectivement acceptaient les rôles de vice-président et de secrétaire. Lors de cette assemblée, on établit le coût de la cotisation de membre. Ce coût fut porté à \$2.00, la carte de membre était valable de septembre à septembre.

J'espère que ces quelques données sur ce que l'on pourrait appeler la préhistoire de l'UMS, ont su vous plaire et vous éclairer

▷ Continued from Page 21

Multi op all-band trophy went to VE7ZZZ sponsored by Glenwood Trading Co. Ltd. There were 67 entrants and 32 certificates issued. Out of 67 entrants, 49 or 73% were VE's.

The CARF Commonwealth Contest will be run this year in April but the timing is too late to have the results in this report. This Year the Canada Day Contest 85 is run on July 1st.

The President's Award: This is a new award that has been implemented this year to give incentive to the Amateurs that use the CARF Official Station calls. The first one has been awarded to B.J. Madsen VE5ADA who used the call VE5VCA to take the first place honours in the recent Canada Contest. As a CARF Official Station is not eligible for a trophy, this will give other users some incentive to use the CARF Official Calls.

I finally mailed all of the above certificates and trophies on the 1 April 85.

Norm Waltho
Contest Committee Chairman

△

sur les origines de cette organisation que tous vous soutenez si bien. Enfin, il semble que la période actuelle en soit une de stabilisation de notre club francophone.

Adrien St-Martin VE2BLN

Secrétaire de l'UMS

Que'est-ce que l'UMS depuis, et à la fin de l'année 1982-83? Revenons brièvement en arrière sur certaines activités du club et de ses membres.

L'UMS c'est une session annuelle de cours radio amateurs qui se répète au Collège Marie-Victorin. La plupart des membres y ont fait un stage, que ce soit comme étudiant, ou en session de rafraichissement pour la 'grosse licence' ou tout simplement pour assister aux nombreuses conférences.

L'UMS c'est une succession de professeurs qui se sont relayés au fil des ans, certains y ont passés de nombreuses années entre autres Adrien VE2BLN, jusqu'à tout récemment; en 82-83 on retrouve Pierre VE2GFH; Gaby VE2AI; Yves VE2FCO; André VE2AEO; et le coordonnateur auprès des autorités du Collège, Robert VE2FKD.

L'UMS c'est un réseau de trafic les vendredi soirs à 19:30 hres et depuis l'automne dernier les mardi soirs à 19:00 hres sur le répéteur VE2RMB (Mont Bruno). Mario VE2GMD; en plus de son rôle d'animateur sur le répéteur VE2TA et VE2BG a animé notre réseau à maintes reprises et a quand même réussi à trouver d'autres meneurs de réseau pour lui venir en aide.

L'UMS c'est le marché aux puces qui suit le réseau du vendredi soir sur VE2RMB. Depuis les tout début plusieurs animateurs se sont succédés; il y a eu Bernard VE2ACT; Jean-Guy VE2DHA (lire VE2 desachats.); Michel VE2UU; Denis VE2FYZ et Pierre VE2AGC.

L'UMS c'est un répéteur, VE2RMB sur la fréquence de 146.70/10 MHz (VE2XW au début) qui possédait un vrai son de cloche. Son titulaire, Jean-Guy

VE2AIK en a pris bien soin tout au long des années. Le répéteur a célébré son 10e anniversaire en 1979. A cette occasion une magnifique cloche (signe distinctif) fut remise à Jean-Guy pour le remerciement de ses valeureux services, elle était offerte par les utilisateurs du répéteur. Lors du mini encaissement de février dernier, 500\$ ont été recueillis pour soutenir le fond de VE2RMB.

L'UMS c'est un journal d'information qui a changé d'aspect au cours des années tout en évoluant et étant pressé par certaines restrictions budgétaires. Se sont succédés à la tâche d'éditeur/rédacteur Jean VE2BGJ; Bernard VE3EDM, Richard VE2FBD; Marcel VE2FEM et Michel VE2GMS. Ceux-ci, avec leur équipe souvent très réduite et avec les quelques membres qui ont fournis des articles et projets au cours des années, tous ont participé selon leurs capacités et c'est ce qui a permis de rejoindre tous les membres, quelque soit leurs aspirations techniques.

L'UMS c'est une succession d'équipes qui ont eu à coeur de mener à bien les destinées du club, les présidents avec au départ Jean VE2ZO; le regretté Adrien VE2AN; Gerry VE2AW, Pierre VE2JO, Marcel VE2GAJ et Robert VE2FKD, ils ont su bien choisir leur équipe pour accomplir cette tâche. △

À suivre

INSURE THOSE SHIPMENTS!

An Amateur has recently had a disturbing experience. He returned a new \$300 HH for repair by registered mail. The Post Office obtained a signed receipt for it on delivery, but it is not the signature of any of the vendor's staff. The Post Office has only paid \$100— their maximum— against the Amateur's claim. The Amateur should have insured it.

When sending valuable equipment by mail, be sure that it is adequately insured against loss.



DOC DOINGS



Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications

300 Slater Street
Ottawa, Ontario
K1A 0C8

Your file / Votre dossier

Our file / Notre dossier

1024-3-5 (DOS-PR)

MAY 10 1985

Mr. Ronald E. Walsh, VE3IDW
President, C.A.R.F.,
P.O. Box 356,
KINGSTON, Ontario
K7K 4W2

Dear Mr. Walsh:

Thank you for your letter of February 26 about the forthcoming discussion paper concerning a possible re-structuring of the amateur service.

We have not as yet established a date for the distribution of the paper to the public but expect that it will be this summer. As you are probably aware, the intention of this paper is to provide a basis of discussion and therefore, we will be inviting public comments. Publication of this paper will not represent any final decisions.

Prior to the distribution date, we plan to invite representatives from your organization and those of C.R.R.L. to a meeting with my staff to provide you with advance copies of the paper and to discuss it. Following the meeting, we would hope that your organization will take the opportunity to publicize the availability of this paper so that maximum input will be obtained from both existing and potential licensees.

In closing, I wish to congratulate you on your assumption of the position of presidency of C.A.R.F. and look forward to meeting you and receiving your views on matters related to the amateur service.

Yours truly,

R.W. Jones,
Director - Spectrum Management
Operations Branch.

Canada

The Department has recently received approval from the Privy Council Office to proceed with two regulations related to Amateur radio. The first is rather extensive and involves Loran A. The second regulation will clarify the standards for morse code, diagrams and oral examinations. These two regulations will be published in the Canada Gazette Part II after the Minister has had a

chance to review and approve them.

Other Amateur regulatory initiatives are being held in abeyance pending the outcome of a review of the structure of the Amateur service. A paper containing proposals for a possible restructuring of the service will soon be published for public comment. It is anticipated that a copy will be available for discussion this summer. △

Try these!

1. Telegraphy by amplitude modulation without the use of a modulating audio frequency (on/off keying) is designated by the symbol:

1) A1. 2) A0. 3) F1. 4) A2.

2. The use of cipher codes by Amateur stations is:

1) permitted when communications are transmitted on behalf of a Federal Government Agency.

2) Permitted when communications are transmitted on behalf of third parties.

3) permitted during Amateur organized contests.

4) not permitted under any circumstances.

3. The call sign of a Canadian radio Amateur station would normally start with the letters:

1) GF or GK. 2) VE or VO. 3) W or K. 4) J or U.

Essayons!

1. La télégraphie par modulation d'amplitude sans modulation par une fréquence audible (manipulation par tout ou rien) est désignée par la symbole:

1) A1. 2) A0. 3) F1. 4) A2.

2. L'utilisation de messages chiffrés par une station d'amateur:

1) est permise dans le cas des communications transmises au nom d'un organisme du gouvernement fédéral.

2) est permise dans le cas des communications transmises au nom de tiers.

3) est permise dans le cadre de concours organisés par des radio amateurs.

4) est interdite en toutes circonstances.

3. Au Canada, l'indicatif d'appel d'une station de radioamateur commence normalement par:

1) GF ou GK. 2) VE ou VO. 3) W or K. 4) J ou U. △

Answers / réponses:
1. 1. 2. 4. 3. 2.



Let's Help Ourselves

By Art Stark VE3ZS

From what I hear on the air, at club meetings and from discussions with other Amateurs, there is still considerable misunderstanding about sub-bands.

Some 60 years or so ago in the early 1920's, Amateur operation was primarily by Morse Code—mostly CW but still some spark. ICW (interrupted CW) was also used for the benefit of those without receivers capable of receiving CW signals. About this time, by using vacuum tube transmitters and some means of imposing a modulating signal on the carrier, it became possible to communicate by voice.

A lot to learn

However there was a lot to learn. Oscillators were hard, if not impossible, to keep on frequency. Crystals, if you could find them, were expensive, and locked you in to one transmitting spot. So signals had the bad habit of drifting, even out of band. Single

side-band (SSB) was an unknown term, so was FM unless you ran into real trouble and upset your oscillator with a poorly-designed power supply. If you were wise, you did not modulate the oscillator directly but had at least a power amplifier to take the shock of your voice.

To make sure your voice would be heard, a good loud signal was needed. While, of course, 100% modulation was the theoretical maximum, surely a little more would help! Splatter? So what if our signal was a bit broad—more stations would hear you! Unfortunately some of these stations were not Amateurs. They were commercial stations on adjacent frequencies, who quite rightly objected.

Guard Bands

So the 'Radio Branch,' took action to ensure that Amateur phone signals stayed where they were supposed to be—within the Amateur bands. 'Guard Bands' were established at both ends of

the Amateur bands where only CW signals were permitted. It should be clearly understood that these guard bands were brought into force only to protect adjacent commercial services; they were not intended to separate CW and phone Amateur operations.

Lost in the mists of time over the ensuing years and possibly because of improved frequency and modulation stability control practices, the guard bands at the upper edges of the Amateur bands disappeared from the regulations governing frequency usage.

There is now a complete misunderstanding by many Amateurs that CW operation is restricted to lower edge segments of the bands. Nothing could be further from the truth. CW is permitted by legislation, to all portions of the bands. The restrictions apply to modulated modes of emission. From the early days of 'phone' operation, the

Continued on next page ▶

More news from DOC

The following letter from Mr. R.W. Jones, of DOC, was received by Ron VE3IDW, CARF President recently:

Dear Mr. Walsh:

I am writing to inform you of recent events that have transpired in our attempts to negotiate a reciprocal Amateur radio operating agreement with the Ministry of Foreign Affairs of the People's Republic of China, and a third party traffic agreement with the Ministry of Communications in Brazil.

We have recently received word from the Department of External Affairs that the Chinese administration is not ready to formally enter into an agreement of this kind, at this time. They are, however, interested in establishing contact between their China Radio

Sports Society and the Amateur Radio Associations in Canada, with a view to promoting friendly contacts between radio Amateurs in China and Canada. If you concur with their suggestion, I would appreciate receiving the names of persons within your organization that you consider appropriate for participation in this exchange. These names will then be forwarded to our officials at the Canadian embassy in Beijing, who will subsequently send them to the China Radio Sports Society. Such a move may lay the ground work for concluding a reciprocal agreement at some point in the future.

You may also be interested to learn that Mr. T. Clark of our Canadian embassy in Beijing, has

been permitted to use the Chinese radio station 'BY1PK' seven times so far, for a total of 9 hours and 50 minutes, making contact with 19 countries and 203 stations.

On a closing note, we have recently been informed by the Brazilian administration that their current domestic radio policy prevents them from concluding a third party traffic agreement with Canada.

I look forward to any recommendations that you may wish to make.

Yours truly,

R.W. Jones

Director—Spectrum Management Operations Branch. ▲

"Mr. T. Clark" is Tom VE3OMC. He's looking for skeds, any day. Write him at 10 San litun Rd., Chao Yang, Beijing, People's Republic of China. He uses the Quing Hua University Club station and is on 14.160 or 14.200 Saturday 0900 to 1600 Z.

Les fonds de défense 'brouillage' de VE3SR

Le 3 mai, 1985 Jack Ravenscroft, VE3SR (ex VE2NV) de Kanata Ontario a reçu un avis légal attestant que son émetteur pourrait mettre en danger et nuire au bien-être de son voisin (le plaignant).

Le document porte sur les points suivants:

- a) Dommages pour le dérangement général, au montant de \$25,000, à cause de l'opération de l'émetteur.
- b) Dommages spéciaux (indéfinis) au montant de \$10,000.
- c) Une injonction permanente empêchant d'opérer l'émetteur ou alternativement dommages pour blessures ou dépenses provoqués par les transmissions de VE3SR.
- d) Les frais de Cour.

'Nuisance' peut-être interpréter comme l'anxiété et l'inconvenience causés par les dangers créés par l'interférence de transmetteur avec les

appareils domestiques, dans la maison du plaignant.

La décision d'intenter un procès sera rendue la mi-juin, basée sur les évidences obtenues après deux audiences et recherches de preuves.

Les fonds sont accumulés dans le but de partager le fardeau avec VE3SR— les coûts légaux excéderont probablement \$2,300. Des Amateurs généreux ont déjà contribué \$1,400 en réponse à l'aide demandée. Advenant un procès, ses coûts pourraient doubler.

Nous envisageons maintenant la possibilité de créer un fond pour venir en aide à tout Canadian Amateur dans des situations similaires.

Aujourd'hui VE3SR— Demain, peut-être vous. On a besoin de votre support.

Contribution S.V.P. à 'J.R.S.D. Fund', C.P. 8873, Ottawa K1G 3J2.

Merci Bien... 73

Ralph Cameron VE3BBM
Président, J.R.S.D. Fund

△

IS YOUR CLUB A CARF AFFILIATE?

Amateur radio clubs that want to be affiliated with CARF can do so by simply writing to the Federation, to the attention of George Morgan VE3JQW, and asking to be put on our club list. Clubs receive the CARF News Service Bulletin and any other

notices of things which may affect the Amateur Service. The address is CARF Inc., Box 356, Kingston, Ont. K7L 4W2. If your club is already affiliated, check the last address which was sent to CARF and make sure that it is current.

► Let's Help Ourselves

portions of the bands on which such signals are permitted have been set out by legislation in the Schedules appended to the General Radio Regulations, Part II. It is important to remember that these Schedules form part of formal legislation which now takes up to two or more years to amend.

A Three-year wait

Sub-bands are most desirable to maintain some semblance of order in the sharing of our resources. Sub-bands, however, should *not* be controlled or 'locked in' by legislation. This method is far too restrictive when it takes the government literally years to make changes made in response to Amateurs' desires.

Here is just one example of the delays being encountered. Soon after CARF's Winnipeg Symposium of 1982, DOC was requested to lift the restriction imposed on the 160m band, and to permit visitors from ITU Region 1 to use the 146-148 MHz portion of our 2

metre band, among other things. As of this writing we are still awaiting formal approval. *Three years!*

If changes to current regulations deleted reference to sub-bands and in particular to schedules then changes could be made as desirable by gentlemen's agreements by Canadian Amateurs without waiting for government to unwind so slowly. Canada and the U.S. are, at the present time, the only two major countries controlling sub-bands by legislation.

Only in Canada

Such a change in legislation would affect only Canadian Amateurs. It would *not*, as some Canadian Amateurs appear to believe, permit U.S. Amateurs to do the same, so swamping our 'Canadian' sub-bands. At the present time U.S. Amateurs are locked in to a formal legislative plan tied to 'incentive licensing.' I cannot subscribe to the contention that Canadian Amateurs cannot, or will not, comply with self-administered

band plans. Look at the plans already in effect— teletype, DX windows, slow-scan, the 2m repeaters and many others. If an odd 'rotten apple' does turn up, just don't hear him; he'll soon get tired of making futile calls.

I can think of only one reason why some Amateurs may not want to de-legislate sub-bands. They may have to do some work in helping to develop plans, instead of sitting back and letting DOC do it for them. We already have co-ordinating groups for VHF/UHF repeaters. Why not a group for HF sub-bands?

It boils down to this: Do we want to be controlled in every little facet of our service by government rules and regulations which take years to change? Or do we want to be self-regulating and in a position to quickly react to changing conditions and procedures without waiting for bureaucratic slothfulness to raise our blood pressure and impede our development?

(Letters and articles on deregulation are invited— Editor.)

△



Tear-out Supplement— Net Directory

NOVA SCOTIA NETS

Jack's Net	Sun	1800 Z	146.28/88 MHz
Sydney VHF Net	Sun	0000 Z	146.34/94 MHz
Take 15 Net(Halifax area)	Mon	0045 Z	146.34/94 MHz
Truro Area Net	Daily	0100 Z	146.19/79 MHz
Atlantic Prov Net	Daily	0000 Z	3654 kHz
Cape Breton Net	Sun	1730 Z	3735 kHz
Happy Gang Net	Daily	0200 Z	3755 kHz
Maritime Phone Net	Daily	2300 Z	3750 kHz
Maritime Sparkets	Wed	1440 Z	3770 kHz
Maritime Swap & Shop	Tues	2330 Z	3750 kHz
Maritime Weather Net	Mon-Fri	1100 Z	3750 kHz
Maritime White Cane Net	Daily	2200 Z	3770 kHz
Nova Scotia ARA Net	Mon	2200 Z	3762.5 kHz
Old Timers Net	Sun	1200 Z	3750 kHz
Professional Loafers Net	Mon-Sat	1300 Z	3780 kHz

QUEBEC NETS

Le Reseau de la Mauricie	Daily	0045 Z	146.07/67 MHz
Le Reseau de U.M.S. (MTL)	Sat	0030 Z	146.10/70 MHz
Le Reseau VE2TA	Daily	0015 Z	146.19/79 MHz
Western Quebec			
VHF/UHF ARES Net	Daily	0030 Z	146.40/7.00 MHz
Happy Gang	Daily	1300 Z	3765 kHz
Le P'tit Train du Matin	Daily	1300 Z	3750 kHz
Le Reseau de la Metro	Tues-Sat	2320 Z	3780 kHz
Le Reseau de la Detente	Daily	2200 Z	3750 kHz
Le Reseau du Quebec	Daily	2345 Z	3780 kHz
Quebec Radio Net	Daily	0030 Z	3775 kHz
Quebec Section Net (QSN)	Daily	0000 Z	3648 kHz
Montreal Region	Daily	1815 local	VE2REL 147;915 MHz
Abitibi	Daily	1815 local	VE2RON 146;820 MHz
Trois-Rivieres	Daily	1815 local	VE2RGM 146;910 MHz
Beauce	Daily	1815 local	VE2FX 147;330 MHz
Quebec	Daily	1815 local	VE2UX 146;820 MHz
Lac st.Jean	Daily	1815 local	VE2ES 146;880 MHz
Rimouski	Daily	1815 local	VE2RWM 146;610 MHz
Mont-Joli	Daily	1815 local	VE2RAC 147;730 MHz
Perce	Daily	1815 local	VE2RLC 146;790 MHz
Sept-Iles	Daily	1815 local	VE2RSI 146;940 MHz

ONTARIO NETS

Kinsmere Traffic Net	Tues, Thur,Sat	0200 Z	147.96/36 MHz
London, Elgin, Mdx, Oxf'd Net	Sun	2345 Z	147.66/06 MHz
Open line Net	Daily	2330 Z	147.66/06 MHz
Seaway Valley Net	Wed	0130 Z	147.78/18 MHz
Thousand Is Net	Tues,Thurs	0130 Z	146.22/82 MHz
Twin Soo Mini Net	Daily	0200 Z	146.34/94 MHz
Wise Owl Net	Sat	0100 Z	147.90/30 MHz
York Region Net	Sun	0100 Z	147.825/225 MHz
ARES Net	1st Sun	1900 Z	7060 kHz
Grey Bruce Net	Daily	0300 Z	3645 kHz
Grey Bruce Net	Daily	2315 Z	3645 kHz
Laurentian Net	Daily	2345 Z	7070 kHz
Northwest Ontario Net	Daily	0015 Z	3750 kHz
Ontario ARS	Daily	1200 Z	3755 kHz
Ontario Phone Net	Daily	0000 Z	3770 kHz
Ont Southern Region Net	Daily	2100 Z	7045 kHz
Ont Southern Region Net (Evening)	Daily	0000 Z	3667 kHz
Ont Southern Region Net	Daily	0300 Z	3667 kHz
Trillium Net	Sat	1600 Local	3775 kHz
ARES	Daily	1100-2200	3755 kHz



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YAESU FT-209RH 2M FM Handie, with NC-18B Charger & Leatherette Case.	\$ 359
YAESU FT-270RH 2M FM Mobile, 45 Watts, with cooling fan, TT Mike.....	\$ 479
YAESU FT-757GX HF General Coverage Transceiver	\$1039
YAESU FT-980 HF General Coverage Transceiver	\$2099
ICOM IC-735 NEW HF General Coverage Transceiver	\$ 999
ICOM IC-745 HF General Coverage Transceiver.....	\$1049
ICOM IC-02AT 2M FM Handie with BP-3 Nicad and BC-25U Charger.....	\$349
ICOM IC-27A 2M FM 25 Watt Mobile with TT Mike	\$ 425
KDK FM-2033 FM-4033 FM-7033 2M or 220MHz or 440MHz FM Mobile.....	\$ 299
KENPRO KT-200ET 2M FM Handie, Similar to ICOM IC-2AT.....	\$ 199
DAIWA CS-4 4 Position BNC coax switch:.....	\$ 29
KURANISHI 5 Watt Power Meter for Handies.....	\$ 29
ROBOT 450C Colour Slow Scan Converter was \$1299.....	\$ 999

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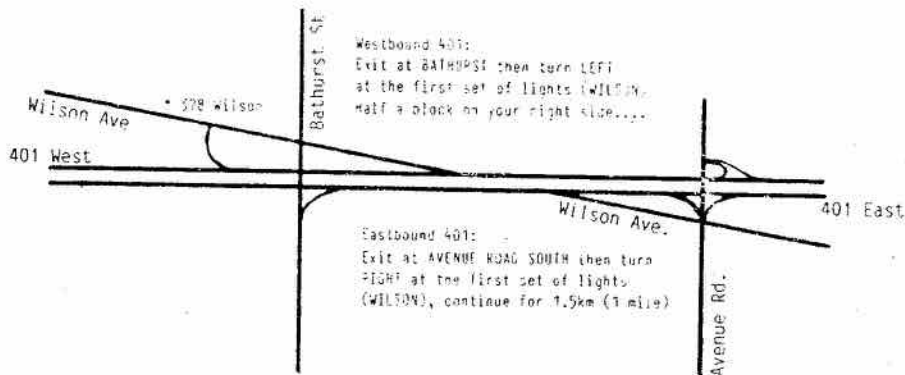
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Net Directory

By Norm Waltho VE6VW

Here is the CARF net directory. It is as up-to-date as we can get it at press time. Certainly there will be omissions, and we ask for your help in completing this list.

Please write, call, or radio me (Box 1890, Morinville, Alberta, TOG 1P0. 403-939-3514) if you have any additions or corrections.— Norm.

Besides this directory and the CARF repeater directory, an Amateur's car should also carry a fire extinguisher, a first aid kit, and a few flares. While on the road, the driver (or passenger) should know the frequency of the nearest repeater and the exact location of the car.

If you come across an apparent accident, appraise the situation quickly. If people are walking about, use the rig and be seen using it. Don't get out of the car until you're sure it is safe to do so.

The Hawkesbury police tell me that the information needed is, first, the exact location of an emergency, so preferably tell the officer the nearest kilometre post number, and the direction in which you are travelling, or name two places between which the accident is situated.

Then tell him how serious it is. If it is property damage only (PD) or, more important, if there are persons injured (PI). If so, will an ambulance be needed? Is there spilled fuel, needing the fire department's attention? Is the road blocked? Is a wrecking truck needed?

If you are staying until the emergency is secured, park well off the road, and be ready to tell the police of any changes in the situation.

CANADA-WIDE NETS

Aurora Net	Daily	2130 Z	7062 kHz (USB)
Trans Canada Net	Sat	1800 Z	14140 kHz
	Sun Hol.		
Canada Dx Net	Sun	1600 Z	14173 kHz
Canadian: 10 M Club	Sun	2100 Z	28400 kHz
Trans Canada Net	Daily	0230 Z	14040 kHz
Eastern Canada Net	Daily	0045 Z	7040 kHz
Eastern Canada Net	Daily	0130 Z	3652 kHz
Clara Net	Tues	1800 Z	14160 kHz
X G Net	Sun	1630 Z	14155 kHz
Trans Provincial	Daily	All Day	7055 kHz (USB)

BC NETS

B.C. Public Service Net	Daily	0200 Z	3758 kHz
B.C. Northern Net	Wed & Sun	0300 Z	3775 kHz
B.C. Emergency Net (cw)	Daily	0300 Z	3650 kHz
Alaska Highway Net	Mon, Wed, Fri	0400 Z	3782 kHz
Aurora Net	Daily(USB)	0230 Z	7062 kHz
VHF 2 Metre Vancouver	Wed	1400 Z	146.34/94 MHz
VHF 2 Metre Kelowna	Wed	1400 Z	147.00/60 MHz
Dogwood Net	Thurs	0300 Z	3775 kHz
Dogwood net (cw)	Last Thurs.	0300 Z	3675 kHz

ALBERTA NETS

Alta AR Communications Net	Wed	0200 Z	3750 kHz
Alta Public Service Net	Daily	0130 Z	3772 kHz
Alta Traffic Net (CW)	Daily	0115 Z	3685 kHz
Wee Net	Sun	1600 Z	3770 kHz
Alta 2 Metre Info Net	Tues	0130 Z	146.46/06 MHz
Wild Rose Net	Mon	0300 Z	3775 kHz

SASKATCHEWAN NETS

Moose Jaw ARC 2 Metre Net	Daily	0300 Z	146.34/94 MHz
Regina ARA 2 M Net	Daily	0330 Z	146.46/7.06 MHz
Rock Point 2 M Net	Non	1345 Z	146.13/73 MHz
Saskatoon ARC 2 M Net	Daily	0300 Z	146.19/79 MHz
Prairie Weather Net	Daily	1430 Z	3780 kHz
Sask Amateur Traffic Net	Daily	0400 Z	3695 kHz
Sask ARES Net	Sun	1530 Z	3780 kHz
Sask Phone Net	Daily	0100 Z	3785 kHz

MANTOBA NETS

BDN 2 Metre Net	Wed	0130 Z W	0030 Z S	146.34/94 MHz
Winnipeg Info Net (WRIN) and 147.81/21 link	Fri	0300 Z W	0200 Z S	146.01/61 MHz
Winnipeg Info Net (WRIN) and 147.81/21 link	Sun	1900 Z W	1800 Z S	146.01/61 MHz
Manitoba Evening Phone Net	Daily	0100 Z W	0000 Z S	3765 kHz,
Swap & Shop after net Sun & Wed				
Manitoba Morning Net MMN	Daily	1430 Z W	1330 Z S	3765 kHz
Manitoba Traffic Net (CW)	Daily	0030 Z W	2330 Z S	3660 kHz

NEWFOUNDLAND NETS

Humbars 2 Metre Net	Sun	2215 Z	146.34/94 MHz
NFLD Phone Net	Daily	2230 Z	3785 kHz
NFLD Swap & Shop	Mon	2245 Z	3785 kHz
SONRA Sun Morning Net	Sun	1400 Z	7200 kHz

NEW BRUNSWICK NETS

Loyalist City ARC Net	Sun	0000 Z	146.22/82 MHz
New Brunswick ARA Net	Sun	1315 Z	3750 kHz

PEI NETS

Prince Edward Is ARA Net	Mon	0100 Z	146.34/94 MHz
Maritime Sparkets	Wed	1000 Atlantic time	3770 kHz

YUKON NET

Alaska Highway Net	MWF	2000 local	3782 kHz
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Amateur Radio at Fr. Bressani High

To: Mrs. Debbie Norman,
CARF Office
Dear Debbie,

I am sending you two pictures of the display I held at Fr. Bressani Catholic High School in Woodbridge, Ontario, on June 6. Many students, mostly boys, visited the display and several were very interested in the Amateur activities. They were given the copies of TCA, pamphlets and sheets which you so kindly sent me.

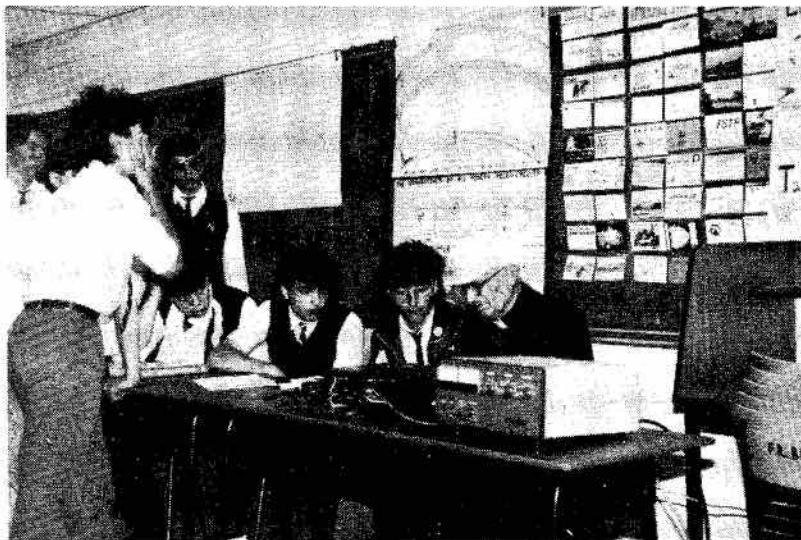
The principal of the school, Mr. Dan Di Rocco, and all the staff supported my initiative after I wrote them a letter about Amateur radio activities and their utility for youth.

The display was informative and educational. Graphics about the principles of the radio receiver and transmitter and of radio wave propagation were exhibited and explained.

I hope to repeat the display next year with even more students. I thank you very much for your kind help and hope to continue with your cooperation in this field. △

Sincerely yours,

Fr. Eugene Baggia VE3OYT



(Above) Youngsters watch as Eugene VE3OYT tunes for a dip on the meter. Standing, L to R, Richard Pitini, John Di Censo, John Moscardelli. Sitting, Sam De Caprio, Gaetano Guadagnino, Michael Carlone and VE3OYT.



(Right) John Di Censo and Gaetano Guadagnino give a hand with the antenna.

I don't know what it is, but it isn't CB

by Francis Salter VE3MGY

If they can't be a LARC in the park, the London Amateur Radio Club will settle for having a ball in the mall. This year it was White Oaks Mall on March 16 and Northland Mall on April 20, when they set up a demonstration station and operated portable for the day. The sojourn at White Oaks Mall was made in the cool of the winter, and antenna installation by Al VE3GAM and John VE3MBP, who organized the excursion, was done quickly. Operation from the mall was made during the VP9 contest, and contacts included UA-land, who did not appreciate our Russian,

and F-land, who did appreciate Hugh VE3WM's French.

On April 20, the club station was set up in Northland Mall, where ATV, RTTY, 2 metres and HF were in active use. The WXman smiled graciously, and no feet, fingers or rotors were frozen. Amateur radio modes were well represented here, prompting one mall visitor to comment that, "I don't know what it is, but it isn't CB." Finally we were getting the message across! And we hope to continue to get the message across.

Richard VE3LRB photographed the participants with his

ever-ready camera. Al VE3GAM, Deren VE3NMD, Jack VE3GV, Hugh VE3WM and Don VE3MGD were on hand for the White Oaks Mall outing, and Deren VE3NMD, Rob VE3NMT, Richard VE3NMH, Tom VE3OEP, Richard VE3JEV, Brad VE3NRJ, Jack VE3ASF, John VE3JO, Don VE3MGD and Earl VE3AGV were at Northland Mall. Richard VE3LRB provided his services and the pictures. △

TRINIDAD/TOBAGO AGREEMENT

A reciprocal Amateur operating informal arrangement has been concluded with the government of Trinidad and Tobago, effective April 1, 1985.



High School Amateur Radio Day

By Jim Cleveland VE1CHI

The idea of a high school Amateur radio day first surfaced in January of 1984 when the Halifax ARC established the New to Amateur Radio Committee (NARC). It took a year to incubate and then it finally came to pass...

On Friday, Feb. 15, members of the Halifax club met at Queen Elizabeth High School in the early morning to begin a daylong 'show and tell' of Amateur radio. This event had been in the active planning stages for about a month after the acquisition of volunteers at the January meeting of the club. The committee was overwhelmed by the response from the members and went head-long into plans for the day.

Local radio, press and our cable channel were contacted. As well, handouts were requested from CARF and CRRL. Both groups replied and sent us information.

The first real action took place on Valentines Day with the erection of the 20 and 40 metre dipoles on the school roof.

They're off!

The following morning, the club volunteers began to arrive and set up their equipment in the school's all-purpose room. We had transceivers on 40 and 20 metres, several 2 metre rigs and a variety of handhelds to operate the local autopatch and repeaters, two QSL card displays, an SWL display by a local enthusiast, a ham code computer program, an RTTY demonstration, a code oscillator table, a W5LFL STS-9 mission table, several display panels with prefix maps, spectrum allocation charts and two metre repeater operation diagrams, as well as a table for handouts and brochures on Amateur radio... gasp for breath...

The purpose of the day was to give students and staff of the

school the opportunity to learn about the intriguing avocation of Amateur radio, and to establish a school club if enough interest was generated.

The code computer program proved to be very popular, especially with those students interested in computers. This was used continuously throughout the day, enabling students to select a variety of menu options which taught and tested the dahs and dits.

At the code oscillator table, students and staff could earn a certificate for the club (VE1FO) if they successfully sent their name in code. This display proved to be very popular and it was busy most of the day with a good number of certificates issued by club members.

Lucky George!

The Space Shuttle Mission table featured the poster and special QSL of George Snow VE1CAW, who was one of the lucky 350 that made two-way contact with Owen Garriott aboard STS-9 in November-December, 1983. The display also included a cassette tape of the highlights of the W5LFL contacts, also provided by George.

During the day QSO's were made using the callsign VE1QEH, which was secured for the school through the local DOC office in late January. It is hoped that the callsign will be retained by the future QE-HARC.

The highlight of the day was to see the perpetual crowd around Bob Boudreau VE1CKR, the only licensed student at the school. Bob, a blind operator, amazed many students and staff members with his ability and skill as an operator by pulling in the DX stations such as OH, I, PA and ON with an ungrounded portable antenna.

John Perkins VE1FH, the HARC club president, attended for most of the day even though a belt beeper tied him to his regular

job. John was continually talking to students about Amateur radio and was obviously pleased with the day's events and efforts by all the volunteers.

The community cable channel technical crew appeared about noon and with the help of the school's television production crew form QETV (the High School's own TV show), they took enough video tape for a half-hour program on the event which included several interviews with club members. This was aired in early March on the community channel 10 in Halifax.

Results, thanks and coffee

The day's events ran until about four p.m., with some students still present, as volunteers began to pack it in. All in all, about 250-300 students and 30 or more staff members visited the displays during the day. The school has a student population of about 1400 and a staff of 90, not a bad turnout.

The committee would like to thank the following Amateurs who freely volunteered their time for this event: John Perkins VE1FH, Don Watters VE1AHO, Fred Benjamin VE1BSY, Bob Clayton VE1QX, Clarry Pelley VE1AVP, Bruce Phillips VE1AVH, Bill Delahay VE1APZ, Bob Boudreau VE1CKR, Bob Swinwood VE1PQ, Don Blackburn VE1CEM, George Snow VE1CAW, Walter Rawle VE1AWS, Herb Bradley VE1ADA, Cyril Buffett VE1CBG and Ted Norwood VE1VL.

By the way, if your club is planning a similar event, be sure to have a large coffee urn to keep everyone happy (volunteers and visitors) and if you are wondering how to attach dipoles to a flat roof, just use a chimney or flagpole for the center support and a bucket of preserved frogs at either end of the dipole— two hundred preserved grass frogs on 40 metres will ensure that the band will be hopping! Ours was!! Δ



Social Events

"Città di Firenze" award

All licenced Amateurs and SWLs are invited to try for this award. From Sept. 1, 1985 0000 Z to Oct. 31 2400Z, work three members of the Florence Radio Club SSB or CW, or one on RTTY or SSTV. Above 28 MHz, one contact is needed. Moonbounce or satellite acceptable. Mail application with U.S. \$5 or 20 IRC to SEZ. ARI (Firenze) P.O.B. 511 50100 Firenze (Italia). Include QSLs. Final date: Feb. 28, 1986.

Special prefix CH has been authorized for Amateurs in Manitoba for the period Oct. 16 to Nov. 16, 1985 to commemorate the 100th anniversary of Louis Riel.

ON4CLM (Canadian Liberation March) station of the Knokke club will be on the air from Oct. 26 1985 until Nov. 11 on 3.685, 7.045, 14.145, 21.245, 28.545 and 144.250 MHz on SSB and 3.515, 7.012, 14.020, 21.020, 28.020 and 144.020 MHz, CW and 145.400 MHz, FM. U.S. \$5 or 10 IRC to Radio ON4CLM, P.O. Box 140, 8300 Knokke, Belgium. Profits towards a welfare fund.

London ARC flea market
Sunday Oct. 27, Poto' Gold Bingo Palace, Hamilton and Gore Roads, London, Ontario. Admission \$2.00. 0900-1400 local. Talk-in 52 simplex or 146.66/06. Reservations and payment to London ARC Inc., c/o Dave Noon, VE3IAE, p.o. Box 82, Station B, London, Ontario N6A 4V3 (519) 453-2292.

The Saskatoon ARC announces the 'WHEAT BELT AWARD,' available to any Amateur submitting proof of QSOs with members of the club: in North America; five contacts, in Saskatchewan 10, DX stations, three. Mixed modes or bands acceptable.

North American stations send one IRC or SASE. Outside North America, two IRCs. Direct applications to the Awards Committee, S.A.R.C., Box 751, Saskatoon, Saskatchewan, Canada S7K 3L7.

Cathy VE3GJH is recovering from her car accident in May; her YL column will appear again in next month's issue. She thanks all those who sent her the lovely get-well cards.



Bob VE1CKR, who's blind, shows his fellow-students how to work DX. (Story opposite.)

CALENDAR

Aug. 14-Sept. 2: VE3CNE operates from the Canadian National Exhibition. Details June TCA.

Sept. 21: Central Ontario Packet Radio symposium and flea market, Georgian College, Barrie. Details July TCA.

Sept. 27-29: RSO/CRRL Convention, London, Ontario. P.O. Box 73, Hyde Park NOM 1Z0. Details Jan. TCA.

Oct. 16: DOC licence examination.

Sept. 1-Oct. 31: 'Città di Firenze' award. Details Sept. TCA.

Oct. 16-Nov. 16: Special prefix CH authorized for Amateurs in Manitoba. Details Sept. TCA.

Oct. 26-Nov. 11: ON4CLM award. Details Sept. TCA.

Oct. 27: London ARC flea market. Details Sept. TCA. 1986

Jan. 16: Applications for DOC licence examination.

Feb. 12: DOC licence examination.

March 19: Applications for DOC licence examination.

April 16: DOC licence examination.

May 21: Applications for DOC licence examination.

June 18: DOC licence examination.

Sept. 17: Applications for DOC licence examination.

Oct. 15: DOC licence examination.

Publicize your get-together here. Write the Editor, TCA, P.O. Box 855, Hawkesbury, Ontario K6A 3C9.

Let TCA know about your events three months in advance to list them in the Calendar.

A group in Montreal is running a 220 MHz repeater. The machine is on 223.3/224.9 MHz with autopatch, and is situated on the north side of Mount Royal. They plan two new repeaters. One will be set up on Mount Rigaud (VE2RM site) on 223.1/224.7 MHz, to link Montreal and Ottawa.



Compu-stuff

By Lyle Blake
5-136 Woodridge Cres.
Nepean, Ont. K2B 7S9

Here is your new computing column, by your new columnist, Lyle. I'm still a few months away from getting my licence, so cross your fingers for me next exam day. I consider it an honour to present a computer column to the Canadian Amateur.

If anyone would like to have programs put into this column, please send them along. Please make sure that your printouts of programs are printed with a good new ribbon on white paper, and are error-free.

For my first column, I am happy to present "A VIC-20 net controller's program," by Francis VE3MGY.

A VIC 20 NET CONTROLLER'S PROGRAM

by Francis Salter VE3MGY

Net controllers who do not have perfect memories and who would like a fast reference to a QTH or call sign will find the program below to be of assistance. With the use of a VIC 20 and a cassette recorder, the program will open a tape file #1, 'NETFILE,' log the time, call sign, name, QTH, signal reports and comments of stations contacted.

These items must be entered in some discrete form or the file read will not sequence properly. The operator may ask for a search for a call sign or QTH, end the file by logging off, review the tape file and ask for the entire array to be displayed for entry into a logbook before terminating the program.

The arrays are dimensioned for 50 entries in line 20. This may be expanded, but unless the net is lengthy or contacts heavy, 50 contacts in an hour seems like a reasonable number. If a disk drive is used, the device entry in line 900 and 5010 must be changed.

The prompts in this netminder are self-explanatory and should present no problem. The file review routines are set up so that a character must be entered the first time it is called and the file record is displayed, and after that a carriage return will bring another record to the screen. Any character except 'N' will continue the routines in the program (despite what the prompt says about using 'Y'), but this is not unique to programming and presents no problem to the operator.

Users of other computers will have to change the file opening devices and the file writing systems to satisfy the requirements of their computer. The only machine code address used in line 5000 references the number of files open (which, in this instance, must be 0 or you cannot review the file). A look at the reference manual for the 'number of files open' address* in other machines will satisfy the peek value and insure a quick exit from the subroutine if the file is still open.

The structure of the netminder program is, of course, modular. If you wish to make changes, 10 to 50 dimensions and opens the files, sets the timing device, 60 to 150 recycles the menu, 900 opens the file, and the menu value times 1000 performs the menu functions called. For those who use REM's for location markers, 901, 1001 etc. are open for use. 73 and happy inputting!

* Note: This address is seldom documented (Lyle).

Next month I'll be starting a series explaining the computer from input to printer. △

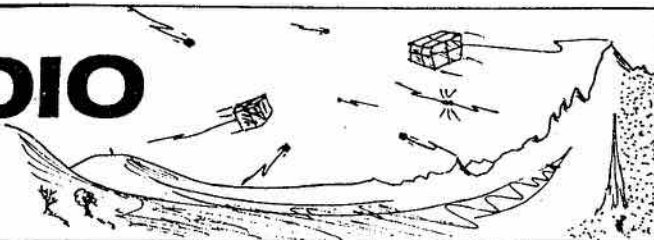
```
10 PRINT "J"
20 DIM#(50),CA$(50),NA$(50),HS$(50),MS$(50),LQ$(50),CH$(50)
30 GOSUB 900:PRINT"TYPE IN TIME-HOUR-MIN-SEC-"
40 INPUT T$:TIS=T$
50 PRINT "J"
60 PRINT "J":PRINT " SELECTIONS":PRINT
70 PRINT " 1. LOG A CALL":PRINT
80 PRINT " 2. CHECK CALLS":PRINT
90 PRINT " 3. CHECK QTH":PRINT
100 PRINT " 4. LOG OFF":PRINT
110 PRINT " 5. REVIEW FILE":PRINT
120 PRINT " 6. END":PRINT
130 INPUT N
140 ON N GOSUB 1000,2000,3000,4000,5000,6000
150 GOTO60
900 OPEN1,1,1,"NETFILE"
910 INPUT"DATE",D$
920 PRINT#1,D$
930 PRINT "J":RETURN
1000 PRINT "J":X=X+1
1010 TS(X)=T$
1020 PRINT#1,TS(X)
1030 INPUT"CALLSIGN",C$
1040 CA$(X)=C$
1050 PRINT#1,C$
1060 INPUT"NAME",N$
1070 NA$(X)=N$
1080 PRINT#1,N$
1090 INPUT"QTH",L$
1100 LQ$(X)=L$
1110 PRINT#1,L$
1120 INPUT"THEIR SIGNAL",H$
1130 HS$(X)=H$
1140 PRINT#1,H$
1150 INPUT"MY SIGNAL",M$
1160 MS$(X)=M$
1170 PRINT#1,M$
1180 INPUT"COMMENT",C$
1190 CH$(X)=C$
1200 PRINT"CONTINUE (Y) OR (N)?"
1210 INPUTANS
1220 IF AN$(0)="N"THEN1000
1230 RETURN
2000 PRINT "J"
2010 INPUT"CALLSIGN",A$
2020 FORI=1TOX
2030 IF A$(I) THENPRINTT$(I),NA$(I),LQ$(I),CH$(I):PRINT
```

```
2040 NEXTI
2050 PRINT"CONTINUE (Y) OR (N)?"
2060 INPUT AN$
2070 IF AN$(0)="N"THEN2000
2080 RETURN
3000 PRINT "J":INPUT"QTH",B$
3010 FORI=1TOX
3020 IF B$(I) THENPRINTT$(I),CA$(I),NA$(I),CH$(I):PRINT
3030 NEXTI
3040 PRINT"CONTINUE (Y) OR (N)?"
3050 INPUTANS
3060 IF AN$(0)="N"THEN3000
3070 RETURN
4000 PRINT "J":A$="STOP"
4010 PRINT#1,A$
4020 CLOSE1
4030 PRINT"FILE CLOSED":RETURN
5000 IFPEEK(152)>0 THENRETURN
5005 PRINT "J":PRINT"REWIND TAPE":PRINT"PRESS ANY KEY"
5006 GETCC$:IFCC$="" THEN5005
5010 OPEN1,1,0,"NETFILE"
5020 INPUT#1,D$:PRINTD$:PRINT
5030 INPUT#1,R$:PRINTR$
5031 IFA$="STOP" THEN5050
5032 INPUT#1,C$:PRINTC$
5033 INPUT#1,E$:PRINTE$
5034 INPUT#1,F$:PRINTF$
5035 INPUT#1,G$:PRINTG$
5036 INPUT#1,H$:PRINTH$
5040 INPUT Z$
5050 GOTOS030
5055 GOTOS030
5060 CLOSE1
5070 PRINT"FILE CLOSED"
5080 RETURN
6000 PRINT "J":PRINT"REVIEW (Y) OR (N)?"
6010 INPUT AN$: IFA$="N" THEN6070
6020 FORI=1TOX
6030 PRINTT$(I),CA$(I),HS$(I),MS$(I),LQ$(I),NA$(I),CH$(I)
6040 INPUT K$
6050 NEXTI
6060 PRINT"THE END"
6070 END
READY.
```



PACKET RADIO

By Brett Delmage VE3JLG
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Ottawa, Ont. K2B 8J6



Digital Certificate not required to operate Packet Radio

It's true! Packet radio is a communication technique, not a modulation mode. Much confusion has arisen over the requirements to operate a packet radio station since the DOC first introduced it to Canadian Amateurs in 1978. The certificate was intended to promote growth of the hobby by providing an entry into Amateur radio for people who had a higher technical knowledge and wished to avoid learning morse code.

It was not designed to restrict holders of the other two Amateur certificates. A great deal of confusion was generated because the DOC simultaneously set aside 221-223 MHz for packet transmissions and defined power and bandwidth limitations for this sub-band.

You can, too!

If you hold any class of operator's certificate— basic, advanced or digital, then you are eligible to operate all currently popular forms of packet radio. Presently, the most common modulation used is audio frequency shift keying (AFSK) a 2 metre FM transceiver. That's transmitting standard Bell '202' tones— 1200/2200 Hz, from the microphone input of your rig.

This is the same technique that has been used for RTTY on both HF and VHF for many years. The DOC refers to this modulation as 'F2' or 'F1' if the tones are modulating an SSB rig. Now get out your TRC-24 rules and regs (you really should have an up-to-date copy in your shack, they're free from the asking from the DOC).

Check out the modes you are permitted, according to the schedules in the back of the

document. You might also compare the privileges of the holder of a digital certificate vs. the holder of a basic Amateur certificate.

Become a believer— then join the fun!

Barrie Packet Radio Symposium

Mark your calendar now— plan to attend the Central Ontario Packet Radio Symposium and Fleamarket on Saturday Sept. 21 in Barrie, Ontario. The HEX 9 group of the Barrie Amateur Radio Club is working hard to make this first Canadian symposium an educational and entertaining event. Sessions will include topics of interest for all— from setting up that first packet station to advanced protocols.

More details appear in July TCA, page 26.

Barrie-Kingston-Ottawa linked

The EASTNET Packet Radio Network has taken a turn for the better. A sharp turn left that is, at Ottawa! On June 22 the VE3DVQ AX.25 digipeater was installed at Lavant, Ont., completing the circuit between VE3PAK in Ottawa, and VE3PBA in Essonville, which was installed several weeks earlier by members of the HEX 9 group in Barrie, Ont.

Members of HEX 9 had also put into operation the VE3LSR digipeater near Orillia, Ont. The system extends packet communications from Barrie through Ottawa, to Plattsburgh N.Y. and the rest of EASTNET, extending to Miami FL. VE3LSR provides coverage over a wide area, and stations as far away as Georgetown (VE3IHG) have been worked from Ottawa.

A Kingston station, VE3NWV, regularly works through the

network. The VE3HHW Packet Bulletin Board System (PBBS) in Barrie provides a facility for network users to leave messages for each other and read bulletins of general interest.

CRAG Repeater Directory and CARF News Bulletins on Packet

CARF Radio News Bulletins are available on the Packet Bulletin Board System (PBBS) VE3FXI as they are issued. Packet ops. throughout the EASTNET packet network now also have access to the most up-to-date national repeater directory available; CRAG secretary VE3ARS will be providing regularly updated electronic editions.

H.A.P.N. adopts AX.25

John Lantry VE3NEC, Toronto area director of the Hamilton and Area Packet Network, a large established group of packet radio operators in the Southern Ontario region, has announced that members have agreed to convert to AX.25, the defacto standard link layer protocol for Amateur packet radio.

The conversion will enable members to establish communications with a rapidly growing number of packateers outside HAPN who have been using AX.25. Experimental work using the Canadian-developed V2 link layer protocol will continue.

Field Day Packet Activity

For the first time, packet radio was incorporated by the ARRL into Field Day this year. Entrants operating packet radio stations were eligible for 100 bonus points by making one or more contacts using this technique.

Continued on next page ▶



From the VE3RC field day site, five club stations were worked, from as distant as Halton, Ont. (VE3OD) and Plattsburgh, NY (W2UXC). The use of digipeaters was permitted for this event.

Computer Hobbyists meet Packet Radio

Many readers of *TCA* will have read the recent series "On Expanding Our Numbers." There is a large group of young people who already enjoy working with technology and could really appreciate packet radio—the computer hobbyists. Why not introduce them to the exciting world of Amateur Packet Radio. Tell them how they can access their home computer or favorite mainframe from anywhere—at the beach, in the car, from the cottage. Demonstrate the ability of a linked packet network to span the miles (sorry—kilometres) while minimizing charges from anywhere—at the beach, in the car, from the telephone company.

I gave a talk and demonstration of packet radio to about 40 people at a regular meeting of the local computer club. There was a great deal of interest in the subject and many interesting technical questions were put forward by the audience. Information about Amateur radio and packet radio was handed out. Several members of the audience are now in the process of studying to obtain their Amateur tickets.

How about introducing Amateur Radio and packet radio to your local computer enthusiasts? Clubs frequently appreciate offers of presentations for their club meetings. Don't forget to write and let us know about your experiences.

UI Frames

Your comments, news items, photographs, technical articles and other input to this column are welcomed. Direct them to me at the VE3FXI PBBS, Ottawa or as a last resort, use Canada Post! Δ

MOVING?

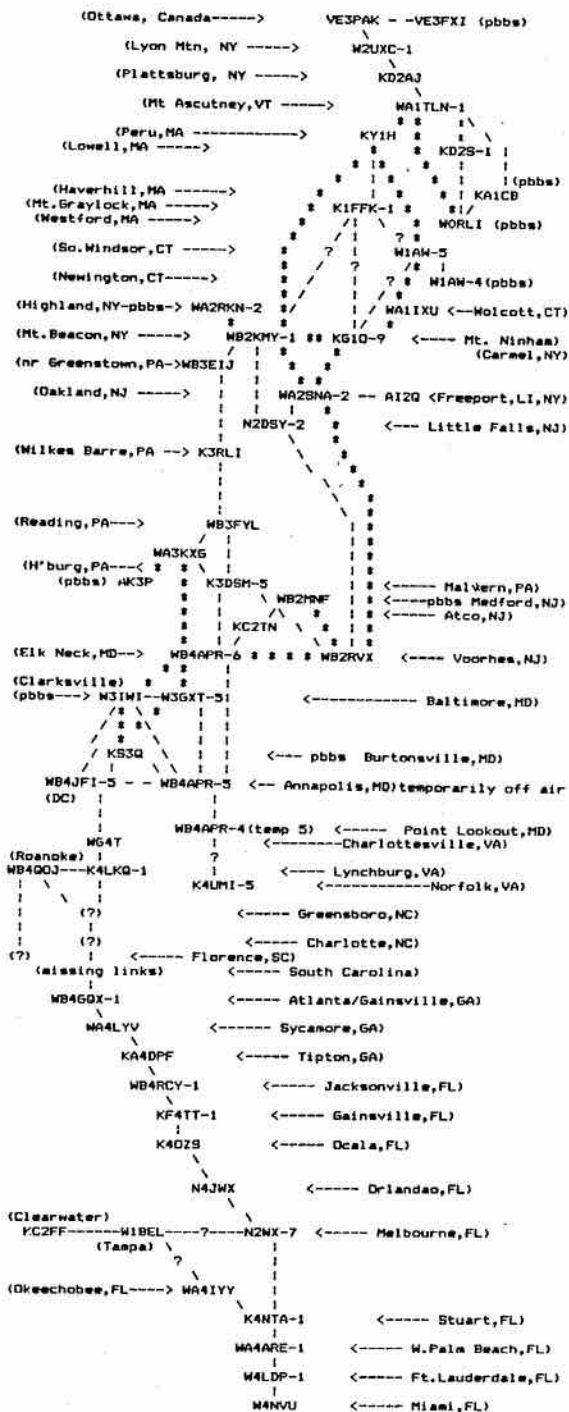
If you're moving, please let Debbie know your new address. Write her at P.O. Box 356, Kingston, Ontario K7L 4W2.

EASTNET Map

This is a graphic representation of Packet Radio links which are believed to exist on 145.010 MHz on the East coast of North America, from the U.S./Canadian border to Miami, Florida. Included are digipeaters, PBBSs, and home stations usually left on

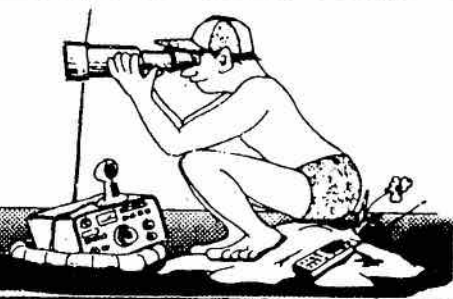
for digipeating. The primary routes used for mail forwarding in EASTNET are marked with asterisks (*). Those links which are marked with a question mark (?) indicate a link of unknown reliability.

Δ



DX

By Douglas W. Griffith VE3KKB
33 Foxfield Drive
Nepean, Ont. K2J 1K6



My sincere apologies for the less than regular appearance of this column in *TCA* these past months. Unfortunately, due to a series of ham-related misadventures, and increasing duties at work, I have had little free time.

The major mishap occurred on the Saturday of the Easter long weekend in April, and involved the major wind storm that affected most of Ontario. The 121 km/hr winds torqued the top section of my tower, causing it to list at about a 15 degree angle, necessitating removal by crane (and a scary/hairy two and a half hours that was too!). By the time all of the replacement bits and pieces arrived, and the tower was back in place, over a month had gone by. Add a few more weeks of landscaping where the crane destroyed my front lawn, and another few weeks of getting antennas sorted out, and one can appreciate just how time consuming the affair was.

Needless to say, I am somewhat 'gun-shy' about what size/weight antennas are to be used now, and in the future, and even a stiff breeze has me pacing the floor, and no doubt elevates many of my physiological functions (blood pressure, and heart rate to name two). And this is supposed to be a relaxing hobby, designed to alleviate stress resulting from the rest of our environment!

I think that with my penchant for fairly large stacked arrays, and my desire to live a long and fruitful life (stress and high blood pressure definitely do not fit into these plans), I will be putting up a much larger tower in the near future. The Tylon B200 looks about right. Then it can blow all it wants, and I shouldn't have to worry quite as much. As an aside,

I was insured, and anyone who is not covered for wind damage should look into obtaining a rider for their tower(s) from their insurance companies. A competitive rate runs around \$20 per year per thousand dollars coverage. What I saved on my last little escapade has paid for my premiums for the next 20 years.

Having arrived on the Amateur radio scene in 1978, at the beginning of the ascension of sunspot cycle 21, I have enjoyed pretty phenomenal HF conditions for the better part of my Amateur 'career.' While conditions on 20 metres were relatively poor last Winter (certainly in the evenings, which is when I do most of my operating), I was unsure as to what to expect this Summer. I certainly did not anticipate some of the tremendous openings observed, particularly to Asia, the Indian Ocean region, and far East.

I would expect that as we move into the Fall/Winter of 1985/86, that once again high band conditions will wane with the daylight hours, but in spite of the projected bottom of cycle 21 next year, I suspect that 20 metres will provide the deserving with lots of DX again next Spring/Summer. In addition, conditions on the lower HF bands should come back into their own once again, with the approach of Winter, due to less QRN, and at this phase of the sunspot cycle, less D-layer absorption. Forty, 80M and 160M will be where it's at this Winter.

With the decreasing availability of some of the higher HF bands, concomitant with the decline of cycle 21, and to alleviate any potential boredom, I began looking at various alternative venues. In some cases, it has meant re-defining 'DX'. For

example, while W6 is pretty tame stuff for HF, it is damn good DX on 6M during an Es (sporadic E) opening. On 2M (144 MHz), 135 cm (220 MHz) and 70 cm (432 MHz), anything over 800 km (500 miles) may be considered to be DX. So, this Summer, I tried my hand at VHF/UHF DXing, and found it both exciting and very rewarding, and oh so different.

The attention to detail as far as equipment and feedlines is concerned sets it worlds apart from HF, but I firmly believe that it is an incredible training ground for future weak signal work on the HF bands. Someone once said that on HF, a weak signal is S5, whereas on terrestrial VHF/UHF, a strong signal barely moves the S-meter. I am thoroughly hooked, and I have one more aspect of Amateur radio to play with when conditions are poor on the HF bands.

Another DX mode to try is via satellite. Amsat Phase IIIB/OSCAR 10 with its high apogee eccentric orbit lends itself to worldwide communication. There are over 100 countries active on Oscar 10, and with new 'birds' from France, Japan, Russia, and the United States poised for launch over the next year and a half, satellite DXing can only improve. There is even a packet radio satellite (Pacsat), scheduled for launch in 1987. Recently, the ARRL began accepting contacts through Oscar 10 for DXCC i.e. a non-endorsable DXCC certificate is available for this mode. Credit is retroactive to the start of Oscar 10's operation in June 1983. There we are! Something for everyone.

Bits and Pieces

Xantek has available a computerized version of their DX

Continued on next page ▶



Edge, designed to run on the Commodore 64. While a major complaint of the earlier version of this program was its slow speed, the current offering is much improved in this regard. Holders of the original disk may update by sending their old disk and \$1.00 to the publisher (Xantek). The program sells outright for \$34.95 (U.S.). Write to: Xantek Inc., Box 834, Madison Square Station, New York, N.Y., 10159, U.S.A.

VE7RG has a computerized, separate, DXCC listing for CW and Phone, designed for the TRS-80 Model III. If you send a disk to Jack's CBA, he will run you off a copy. (Tnx Long Skip).

The following is a list of stations from the Cyprus Sovereign Base Areas (SBA) that are being accepted by the ARRL's DXCC desk for credit: ZC4's: AB AK AKR AM ASG AU BBSG CB CI CN CS CT CW CZ DA DY EPI ES ESB ESG FE GB GM HC HMS HS ID IK IO JB JE JH JK JU JV KF LC MR MT NL PC PM RAF RB RM RP SC SJ SS TEN TI TX UHF VHF WD WW ZN.

The address of the ZC4 buro is: BFPO 53, GPO, London, England.

If QSL cards are still required from the CE0AA operation, send details of the QSO, and the usual goodies (IRC's etc.) to Mickey Gelderstein CE3ESS, Box 9834, Santiago, Chile.

3A, Monaco— Apparently 3A2TO, often on 20M SSB, and giving his QSL route as via EA5AGY, is a pirate. Another SLIM possibility (pun intended) is 3A2CZ.

9K2, Kuwait— Yousef 9K2YA, on 14.182 at 2124Z. QSL to Box 13210, Kaifan. 9K2IA on 14.228 at 2330Z. 9K2MQ on 14.167 at 2353Z. QSL to his CBA.

BY1QH, China— Tom VE3OMC— on Sat/Sun. at 1200Z on 20M SSB, thru Sept. QSL direct to Box 2654, Beijing. DO NOT send 'green stamps' i.e. \$1.00 bills.

D44BS, Cape Verde Is.— This station is now QRT, and the op. is on an extended visit to the U.S. He has all logs from 1980 thru present, and will QSL from state-side. Cards for outstanding QSO's go to: A. Mendes, 137 Chestnut St., New Bedford, MA. 02740.

D44BC is the only active station on Cape Verde at the moment.

S92, Sao Tome— S92LB has been reported on 14.183 with KA1DE at 1930Z, and 21.300 from 2145-2230Z, in a list opn. QSL to Box 147, Sao Tome. S90A, and S92P have been reported on 15M CW. **TT, Chad**— Lee N7DF to be QRV for about 3 months from around July 13. He plans to spend most of his time on 15/20M CW, with plans for low band activity later. QSL via K0HGW. Also, Eric TT8AQ on 14.227, at 2215Z. QSL to F6GXB. KA4JRY/TT8 on 14.220 at 1917Z. QSL to his CBA. John G3KQL/TT8 will be QRV agn from July 26, and will be operating intermittently until he goes QRT in Dec. 1985. QSL to W4BWS.

TZ, Mali— TZ6WC on 14.137 at 2000Z, and 21.255 at 1930Z. QSL to DL4BC.

VE2/Zone 2, VE3JKC/2— Kent to be on from Harrington Harbour from about July 6, for 2 years. He will make a sked for any band/mode for zone 2. QSL to VE3JDO.

5X, Uganda— 5X5GK QSL's good for DXCC from Aug. 28, 1984. 5X5BD and 5X5WR QSL's are also now ok for DXCC.

Alan Leith, VE3FRA, past editor of *Long Skip*, and currently the editor of Canada's only Canadian DX-oriented information sheet (*DX Report*) has made a proposal for a new callsign system for Canadian Amateurs. His proposal in its entirety is reprinted here.

A NEW CALLSIGN SYSTEM FOR CANADIAN AMATEURS

by Alan Leith VE3FRA

Sometime in the reasonable future, the third call area of Canada will probably run out of suffixes for the Amateur Service. Since the possibility is real, now might be the time to assess the situation and make some plans for the day, if it indeed comes.

There will be some opposition to the system that is proposed below. There was considerable opposition in the Maritimes a few years ago when several surveys were done to ask Amateurs there about the possibility of providing distinct prefixes for each of the Maritime Provinces.

Newfoundland and the Yukon both have distinctive prefixes and numbers that do not fit into the existing VE-callsign system. When the prefix for the Yukon was introduced, there were no great cries from the Amateurs there. Mind you, there weren't all that many to make a fuss.

The USSR and East Germany have both undergone massive callsign/prefix changes in recent years. Portugal has proposed a similar change that will probably become effective later this year. Brazil has done the same.

The following proposal is one that would provide a distinctive prefix for each of the existing call areas in Canada, rather than just VE/VO/VY. All the prefixes would come from the VA-VG, VO, VX-VY available prefix allocations and would provide callsigns galore. Indeed, there would never be a problem with callsigns in Canada again.

In each case, the numerals from 1-0 would be utilized and callsigns would consist of single, two-letter or three-letter suffixes. The proposal calls for a complete change on an arbitrary date, let's say Jan. 1, 1987. It is an extremely logical system and there would be a deadline made for those who wished to apply for specific callsigns, based on numbers of years licensed. Those people who wished not to change their callsigns would have the option of doing so, except that they would have to change their prefix on the implementation date.

The Maritimes would become VA1-0, Quebec VB1-0, Ontario VC1-0, Manitoba would keep VE1-0, Saskatchewan would be VF1-0, Alberta VG1-0, Newfoundland and Labrador would retain VO1-0, British Columbia would be VX1-0 and the VY series would be divided, because of the numbers of Amateurs there, as follows: VY1A-3ZZZ for the Yukon, VY4A-6ZZZ for the Northwest Territories (and this could be further subdivided in the event of political changes), VY7A-7ZZZ would be used by Atlantic Marine stations, VY8A-8ZZZ for the Pacific Marine, VY9A-9ZZZ for the DXCC Country of St. Paul Is. and VY0A-0ZZZ for the DXCC



Country of Sable Is. All club stations would be issued callsigns only with three-letter suffixes and all repeaters for any VHF frequency that requires a CW identification only, would be issued, in no particular order, callsigns from the VD1-0 series, from AAA-ZZZ.

A station, now signing VE3ZZ for instance, who has been licensed since 1950, would have the option of keeping his call. He could be VC3ZZ under the new system. But he would also have the opportunity of choosing any call sign from the VC block, before a particular cut-off date. Then would follow those licensed later, until we finally get to the holders of Amateur Licences. They would have until another fixed date to upgrade and get a new call. Otherwise, they would get a new prefix and retain their old suffix. Our friend VE3ZZ could choose VC1A, VC4G, VC7F or VC5WW!

The system offers 260 single-letter suffixes for each of the areas, 6760 two-letter suffixes and tens of thousands of three-letter suffixes. The prefix hunters of the world would be grateful for years to come. The inconvenience of learning to use a new prefix for those who wish not to change anything but the prefix would be forgotten soon after the new calls were implemented.

Sooner or later we are going to have to face the problem. There is no attempt to create the havoc that occurred in the U.S. The prefixes are not movable. VC1A could get VX1A if he moved from the Maritimes to British Columbia, or VE1A if he went to Manitoba and those calls were open. A station applying for a DXpedition call to Sable or St. Paul would be able to get a five year licence for, let's say \$100. But the prefix would be distinctive for each area of the country.

Since the VD prefix block is not a desirable one, these calls would be used on repeaters. Since we have ten areas, VD1-0 could be used to show location by area, but that is quite silly. There's no reason why a repeater in New Brunswick can't sign VD1AAA and one in British Columbia sign

VD1AAB, one in Saskatchewan sign VD1AAC, etc.

Special prefixes would still be available, from the CF-CK and XJ-XO blocks, under guidelines set down specifically for such meaningful events that would require special callsigns. Administration would not be difficult.

With today's computers and Amateurs who are more than capable of designing systems that could be used, DOC should have no difficulty in handling such a system as the one outlined.

Certainly there are those who

will disagree. In fact, there are not likely to be many who will be willing to give up the VE prefix they have now. But if you're told to do it, undoubtedly you will. And if the administrators who are looking for a logical solution to a problem see the simplicity of this plan, maybe you'll be sporting nothing more than a new prefix one day soon. Maybe you'll get to choose something exotic, like VG9H! Or VF6D! or VCOJ! Think of the fun, fooling the guys on 75, or 2, or better yet, the pileups you'll create on 20 CW! Δ

QSL Information

CALLSIGN	QSL Via	CALLSIGN	QSL Via
4S0AA	0N50S	JY9CL	G3MUL
4S7/0N50S	0N50S	JY9MG	JR3XMG
5N8BAV	I2ZGC	KH2/KB6DAW	KB6DAW
8R1J	8R Buro	KH4/WH6D	KH6VR
9X5WP	WB6VKD	KX6/N6HR	N6HR
A35FP	ZL4QS	P29LB	KC2ZH
A4XYX	G4CWL	T31AT	G4GED
A71AU	DJ9ZB	T32AB	N7YL
A92DZ	G3VIE	TF5BW	W3HNK
AP2SQ	W3HNK	TF5EP	W3HNK
C21BD	WB0TEC	TTB/G3KQL	W4BWS
CT4KQ	W3HNK	TW6IPA	F6IPA
CX5AO	LU9FFA	UH8EAA	W3HNK
DU1/K4YT	KE3A	UK1P60	W3HNK
DU2/N7ET	N7ET	V2AGW	WB40SN
FM5BW	FM7BW	VF9/AD8J	AD8J
FM5WD	W3HNK	VF9/NJ2D	K2JF
F00ASJ	N5DD	VR6AB	ZL4DW
F00FB	WB6GFJ	VU2ISV	N4JR
HL9AA	NJ7Q	YB0ARA	WA6AHF
HS0A	HS BURO	YN4RC	WB8SSR
IJ7ET	I7OYT	YZ9A	YU3MY
IJ7ONU	I7OYT	ZC4MR	G4SDJ
IM0/IS0CPU	IS0WON	ZC4WW	G3ZNF
IQ0RAI	I0KBL	ZK1CY	W6KNH
IX1ONU	I1NHK	ZK1XN	W3VH
JY4MB	DJ3HJ	ZP5JCY	LU8DPM

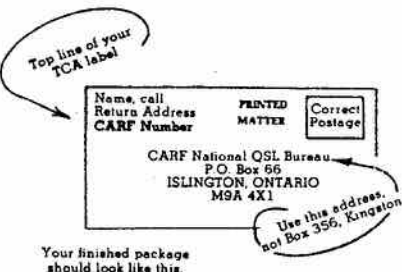
Free CARF QSL Service

The CARF Outgoing QSL Service will forward your QSL cards to anywhere in the world. This service is **free to CARF members**.

- Sort cards alphabetically by prefix.
- Sort Canadian cards numerically by call area.
- Place small lots of cards in strong, heavy envelopes and seal securely. Include the label (or copy or facsimile) from your current copy of TCA. Wrap heavier packages in strong paper or put in a cardboard box. Tie securely. **Do not staple.**
- Address your package as shown in the diagram.
- Do not register the cards!** This only delays them, costs more and is not really necessary.

6. If you want proof that CARF received your cards, enclose a self-addressed, stamped postcard or envelope with 'Receipt' marked on it.

7. If a package should be damaged on arrival (very rare), CARF will send you a list of cards received so you can check to see if any were lost.



VHF/UHF

By Bob Morton VE3BFM
8 Thornbay Dr., RR 2
Stouffville, Ont. L0H 1L0

VE3EMS made the first 10 stations to obtain WAS on 220 MHz. He also made #5 on the VUCC Awards for 220 MHz. He will be receiving a special award for both.

Peter is the first Canadian station to qualify for any of the VUCC awards.

Hans VE3CRU recently qualified on 432 MHz for the VUCC Award. I don't know if he was one of the first 10 or not but he is the first Canadian to achieve this award on 432 MHz.

'The Southern Ontario VHF & UHF Group' was the name of the original group when they held their first meeting on Sept. 15, 1950 at VE3AGW's Riverside lodge in Oakville, Ontario.

Forty-three people attended this meeting. A list of what bands were active gave the following:

6 m	31 people active
2 m	26 people active
235 MHz	3 people active
420 MHz	2 people active
2300 MHz	2 people active
10000 MHz	1 active

Quite a showing for that time.

This group has had several waves of activity over the past 35 years; it is presently quite active again.

Meetings are held in Toronto on the first Saturday night following the ARRL-sponsored VHF/UHF contests (3 times a year).

Presently there are eight trophies available to participating VE3's. They are as follows.

6m VE3AS Trophy—top score 6m only.

2m Plaque Top 2m score low power (25 watts max)

2m VE3BQN Trophy top score 2m
220MHz VE3BQN Trophy—top score 220MHz

432MHz— George Sinclair Trophy— Top score 432 MHz.
1296 MHz— George Sinclair Trophy— Top score 1296 MHz.
432 MHz & up VE3DKW Trophy— Top score all bands combined from 430 MHz and up.
Best overall— in memory of VE3AIB Trophy— top score all bands combined.

All except the best overall trophy, these are for single operator only. These trophies are awarded 3 times a year. To qualify any VE3 Amateur in Ontario must simply bring his score to the meeting and follow up by sending it to ARRL for publication.

A notice of meeting is sent out prior to each contest. Those who are interested (you don't have to be VE3 to receive it) please drop mailing address to VE3BFM and it will be added to list. △

QUA 

Programmed Learning Course

For many people who wish to become Amateurs, there are no others with similar interests nearby. For others, due to shift work or other reasons, it may not be possible to attend classes at the local radio club consistently. When these problems arose in the Orillia Amateur Radio club some years ago, their response was to develop a programmed learning package.

This package selects appropriate texts and provides a course of study based on them, with self-test material at appropriate intervals so you can see how well you are retaining what you are learning. Code practice on cassette tape is a part of the material supplied, with cipher group tests (so you can't memorize the text).

The package consists of:

- a binder of recommended lessons, with page numbers in the text material and self-tests for each lesson.
- two programmed learning texts (from Sams Books) on basic electronics.
- copies of the CARF Certificate Study Guide and the Regulations Handbook.
- DOC material (TRC-24, TRC-25).
- eight cassette tapes.

Since the CARF texts are not programmed learning texts, special programmed learning sheets have been provided for them in the master binder.

This material is available as a package, postage paid, from Fred Western VE3FYW, P.O. Box 113, Beaverton, Ontario, L0K 1A0. The cost will be in the range of \$75.

The quality of the package seems to be high, and if you live in a remote area this may solve the ongoing questions of what to read and what is required to earn your Amateur Radio Operator's Certificate.— VE3CES △

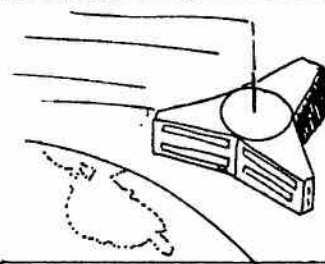
The Nanaimo club got a thank-you letter from the Canadian Legion, for supplying communications to their Tattoo on June 15. "The success of this event could not have been what it was without the radio communications that you provided for us. It was essential to have the participants ready and on time for their entrance and performance, and it was the communications link that you provided that made it possible."

— From Nanaimo STATIC.



AMSAT NEWS

By Gordon Wightman VE5XU
3637 Victoria Ave.
Regina, Sask. S4T 1M4



Antenna Requirements for AO10

For those stations considering *AMSAT-OSCAR 10* (AO10) satellite communications, the following calculations should prove beneficial. At Perigee (closest pass and minimum path loss) the distance is 4,039 km; at Apogee (furthest point of orbit and maximum path loss) the distance is 35,417 km. Since apogee is the point where antennas can be aimed and generally left for several hours, plus the path loss is greatest, we'll use this for calculation purposes.

Refer to Figure for free space path losses for Modes B and L transmit and receive.

To review what was covered previously:

Minimum Detectable Signal (MDS) = $-174 + NF + 10 \log_{10}(BW)$

NF is noise figure (in dB)

BW is bandwidth (in Hertz)

Path Loss L (dB) = $10 \log(16,364 / [F \times D]^2)$
(log base 10)

F is frequency in MHz

D is distance in feet

($\times 0.305 = m$)

AO10 Mode B— Satellite Receiver

Input: 435.17-435.04 MHz

Rx Bandwidth: 150 kHz

Noise Figure: 2 dB (assumed)

MDS =

$-174 + 2 + 10 \log(150,000)$

= -120 dBm

Path Loss (at apogee) = 172 dB

(see Fig.)

Path Loss — MDS = $-172 + 120$
= -52 dB

For MDS or 0 dB S/N at satellite input, an effective radiated power (ERP) of +52 dBm is required. This is about 160 watts into a pair of circularly polarized dipoles, or...

Satellite Antenna Gain +3 dB

Base Tx Power +40 dBm
(10 watts)

Base Coax Loss -3 dB

(Tx to antenna) (60 ft RG213)

NET +40 dBm

$-52 + 40 = -12$ dBm

Minimum base antenna gain = +12 dB

AO10 Mode B— Ground Receiver

Input: 145.82-145.97 MHz

(tuneable)

Rx Bandwidth: 2100 Hz (SSB)

Noise figure: 2 dB (assumed)

MDS = $-174 + 2 + 10 \log(2100)$

= -139 dBm

Path Loss (at apogee)

= 162.5 dB

(see Fig.)

Path Loss — MDS

= $-162.5 + 139$

= -23.5 dB

If satellite ERP maximum is 10 watts and it is fully used with equal signals every 5 kHz, then there are $150/5 \rightarrow 30$ signals and $10/30 \rightarrow 300$ mW per signal or +25 dBm.

$25 - 23.5 = +1.5$ dB signal

level above noise if received with single dipole system on ground

station. This means the satellite signals are detectable with a dipole antenna.

AO10 Mode L Satellite

Receiver

Input: 1269.04-1269.83 MHz

Rx Bandwidth: 800 kHz

Noise figure: 2 dB (assumed)

MDS = $-174 + 2 + 10 \log(800,000)$

= -113 dBm

Path Loss (at apogee)

= 181.2 dB

(see Fig.)

Path Loss — MDS

= $-181.2 + 113$

= -68.2 dB

Required uplink ERP = +68.2 dB for MDS.

Satellite Antenna Gain: +8 dB (estimated)

Base Tx Power: +44 dBm (25 watts)

Base Tx to Ant. Coax Loss: -5 dB (60' RG213)

NET +47 dB

$-68.2 + 47 = -21.2$

Antenna gain of +21.2 dBd minimum required for MDS at satellite receiver.

AO10 Mode L— Ground Receiver

Input: 436.15 to 436.95 MHz (tuneable)

Rx Bandwidth: 2100 Hz (SSB)

Noise figure: 2 dB (assumed for calculations)

MDS = $-174 + 2 + 10 \log(2100)$

= -139 dBm

Path Loss (at apogee) = 172 dB

(see Fig.)

Path Loss — MDS = $-172 + 139$

= -33 dB

If satellite ERP is 10 watts and it is fully used with signals every 5 kHz, then there would be $800/5 = 160$ signals and $10/160 = 0.0625$ watts per signal or +18 dBm.

Continued on next page ▶

Figure

Freq. (MHz)	Path Loss at Apogee (35,417 km)	Path Loss at Perigee (4,039km)
145.90	162.5 dB	143.6 dB
436.0	172.0 dB	153.1 dB
1269.5	181.2 dB	162.4 dB



▷ Continued from Page 41

-33+18 = -15 dB

Therefore, to obtain a MDS, the antenna gain must be a minimum of 15 dBd. Any coax loss must be made up with additional gain in the antenna.

As can be seen for Mode B, the satellite can be easily accessed with a 10 watt transmitter and only medium gain antennas. Near apogee I have made successful CW contacts with an ERP of only 50 watts. That is 10 watts output from the transmitter, 3 dB coax loss to the antenna, and a pair of cross 7-element Yagis (10 dBdc gain).

Receive antennas need not be much at all. A pair of 3-element Yagis will give adequate performance as will a 3-turn helical antenna. My own station uses two 10-element Yagis cross-polarized on a single boom. The reason for this is to peak up better on receive so transmitting antennas will also be peaked.

After a few contacts with stations in Japan, Hawaii, Korea, Greenland, U.S.A. and Canada, I wanted more of a challenge. Using my higher gain Yagis and 100 watts, I was able to scatter enough signal over the horizon to make several contacts.

Comments from a station in British Columbia were rewarding: "You shouldn't be able to work the satellite from your location, it is at the western horizon for me."

Aiming the antennas becomes less critical once it is over the horizon, especially if it is on a northern pass. Several times I have been able to hear it and rotate my antennas +/-30 degrees from its actual location, without noticing much signal strength change.

Get your receiving system(s) working first; you can't work them if you can't hear them. Δ

CALL FOR NOMINATIONS

Members have been asking for the names of their Atlantic or Pacific directors. Both offices are now vacant.

Please send nominations for Atlantic and Pacific directors, signed by five members, to Debbie at Box 356, Kingston, Ontario K7L 4W2.

MICROWAVES

By Michael Ross VE2DUB
2285 St. Mathieu, Apt. 1401
Montreal, Quebec H3H 2S7



For the last few months I have been writing quite a bit about 10 GHz beacons, stressing their simplicity and low cost. On June 30th I completed the construction of my own 10 GHz beacon by applying a final coat of paint to the feed support arms and wooden tower bracket that would hold the 2 foot dish to the tower. By mid-afternoon it was perched at the 30-foot level on my 50-foot tower, just high enough to clear the surrounding trees, giving a clear shot to the West towards Montreal. Four-conductor phone wire was strung from the motion detector oscillator to the WB5MAP modulator in the basement shack. An endless loop tape was prepared for the beacon repeating callsign, location, power, elevation and a phone number to call if the signal was received. Initial tests from the driveway confirmed the beacon was operational and provided the opportunity for a few curious neighbours to see what the dish was being used for. With the frequency already set, the other 2-foot dish, equipped with gunplexer transceiver, was loaded into the car and we headed to Montreal for Sunday dinner.

Trying it out

Shortly after dinner we excused ourselves and headed for Mount Royal in the center of Montreal. We chose Westmount Lookout as the site to listen for the beacon. Upon arrival we noticed that St. Bruno was only visible between the branches of the surrounding trees and was partially obstructed by some large downtown buildings. Optimistically, I set up the dish on the camera tripod, hooked up the 12-volt battery for power and turned on the receiver. To my surprise, there was the beacon, reading about S-5, loud and clear. Having the frequency

preset, and using Mount St. Bruno to visually aim the dish, contributed to the quick reception. Several interested sightseers took a keen interest in the equipment and took turns listening to the beacon. When they were through we packed the equipment and headed for home, content that a reliable 10 GHz signal source was now available to Montreal area Amateurs.

Next Job

Plans are now being made to listen for the beacon from lower elevations in and around Montreal. These will include looking for diffraction over Mount Royal and reflections from the mountain and downtown highrise buildings. I will also be looking for a suitable station just beyond the line of sight distance to install a similar dish to watch for enhanced propagation. The next phase of the project would move the beacon to a suitable repeater site for extended range. Δ

ARRL Bulletin NR 23 from ARRL headquarters— in short— VUCC Awards now available on the microwave frequencies.

Band	Number of grid squares required for award
2.3 GHz	10
3.4 GHz	5
5.7 GHz	5
10 GHz	5



For TCA Subscription problems, call the Kingston office 613-544-6161 anytime.

For enquiries and membership information, please quote top line of TCA label.



Coherent Signaling Techniques

By Bill de Carle VE3OBE

When sending a radio message using CW, RTTY or Packet modes, the data recovery may be improved by synchronizing both stations and using digital processing at the receiver to enhance the signal, similar to the way in which pictures from space are computer-enhanced before viewing. Earlier experimenters using CW have coined the term 'coherent CW' or CCW.

Normally the ear recognizes a CW note by its pitch and is able to discern when it starts and stops in time well enough to enable the operator to copy the message. However, when the signal is very weak, it is not easily copied by ear—it is still there, of course, but it is masked by the noise.

The amount of background noise getting through to the headphones is determined by receiver bandwidth, so the first step is to reduce our bandwidth drastically. It can be shown that the optimum bandwidth for recovering a 12 wpm CW signal is a mere 10 Hz. In general, we can improve the S/N as needed by reducing the sending rate. A further gain results if the receiver 'knows' when the signal can change (turn on or off).

Achieving narrow bandwidths

Achieving these narrow bandwidths with conventional analog filters is impractical, due to ringing. However, if the receiver can be synchronized with the signal, it is possible to design a digital sampling filter to do the job. The audio waveform is sampled at a rapid rate, the instantaneous voltage levels being converted to digital quantities which are stored in a computer's memory.

We can number-crunch these readings to calculate (in real-time) the amplitude response of an 'ideal' filter and use this result to control a sidetone oscillator at

the receiving end. Now what is heard in the headphones is a pure, crisp CW signal which follows the original keying, although it is delayed by one bit of time since the computer waits until the end of each signaling interval before deciding whether the key was up or down at the transmitter during that period. This Digital Sampling Filter (DSF) may be used to copy non-coherent signals on the band, but it does not produce the superb results which are possible with true CCW signals.

What's needed

To put a CCW station on the air, we need three (3) components:

- 1) An accurate clock or frequency standard. With some care, an oven stabilized crystal oscillator will stay on frequency within one part per hundred million over the duration of a typical QSO (one hour). This standard is either periodically recalibrated or continuously phase-locked to WWVB's 60 kHz carrier from Fort Collins, CO. It is also possible to derive our standard from the VLF Omega or Loran-C transmitters, which are controlled by atomic clocks.

Our standard has two purposes: to ensure that once synchronized, the clocks at both stations will continue to show the same time for at least an hour, and to stabilize the local oscillators in our transceivers. Modern synthesized rigs are very good, but still we must take steps to stop them drifting apart during the QSO.

You say your rig doesn't drift—wanna bet? If we are using a bandwidth of 10 Hz (typical), a combined relative drift of only 5 Hz will seriously degrade our signal, and a drift of 10 Hz would be catastrophic. In CCW work, we try to keep the signal tuned in at all times with a maximum

allowable drift tolerance of only plus or minus one Hertz.

Generating CCW

- 2) We need a means to generate CCW at the transmitting end. I use a keyboard with a CMOS microprocessor chip, obtaining accurate timing pulses from the frequency standard. There is a switch to permit either 'ordinary' or 'coherent' CW generation, allowing the same unit to be pressed into service (e.g. during field day) without the external high-stability timebase.

The CPU can also generate the 'known pattern' preamble (a long string of dots) used for CCW synchronization at the receiving end. A buffer memory of 256 characters is provided, as well as a visual warning when the memory is getting full.

- 3) We need a DSF after the receiver to enhance and recover the weak signal. This is the most sophisticated part of the system. I use a dedicated 8085 CPU chip with multiply/divide hardware, a 'sample and hold' circuit, fast 8-bit analog-to-digital converter (ADC), a digital-to-analog converter (DAC) for the output, and a sampling-strobe synthesizer which can resolve down to a hundredth of a Hertz (the samples must remain phase-coherent over many consecutive cycles of the audio input waveform).

The 'filter' can operate on any frequency between 100 Hz and one kilohertz, tunable in 1-Hz steps, crystal controlled. Bandwidths down to 1 Hz are available. In order to perform the high-speed sampling and carry out all the filter computations in real-time, machine language programming is mandatory.

The DAC latches are undated after each complete cycle of the input waveform (typically 800 times per second), driving an

Continued on next page ▷



analog meter to show the filter response (the computed amplitude of our 800 Hz audio tone averaged over the last 80 cycles). Headphones may be plugged in for normal copy.

The sidetone oscillator (STO) signal is synthesized as a pure sine wave at the same pitch as the signal we are trying to copy. It is amplitude-modulated by either the DAC voltage (which varies with the strength of the incoming signal) or by a direct digital line from the CPU which simply turns it on or off.

Either way, there is absolutely no noise on this signal, regardless of whatever noise may have been present at the input to the filter. Incoming raw audio may be mixed in if desired for monitoring.

Modifying the transceiver

The station transceiver must be modified to improve its frequency stability both on receive and transmit. I use a TS-430-s whose master reference oscillator is phase-locked to my station frequency standard. This involves a minor mod inside the rig and an external box containing two PLL's. One loop keeps the 36 MHz master crystal on frequency, the other is used to digitally synthesize the 800 Hz CW offset shift on transmit.

The 430 readout shows the operating (transmit) frequency with 10 Hz resolution. In this case, the readout is accurate to well within one hertz over the entire HF range. There is no warm-up period required for the 430, since the station frequency standard is never turned off.

The mods to the rig were done in such a way that it reverts to normal standalone operation when the plug from the PLL box is disconnected.

CCW experiments to date have used low power (QRP) transmitters to dramatize the spectacular advantages of the mode. I am told contacts between Japan and the U.S. west coast are made consistently with as little as 100 mW.

For a CCW QSO to take place, both stations must agree in advance on: 1) the precise

frequency to be used (typically some multiple of 10 hertz), 2) the keying rate (usually 10 baud or 12 wpm) and 3) the exact time the QSO is to start (within one second). A well-calibrated GMT station clock is essential.

It is impractical to just 'tune around' looking for a CCW signal. With 100 discrete frequencies to check in each 1 KHz of spectrum, the task would be formidable! On the other hand, the system is very useful for keeping reliable skeds, and it is

virtually immune to QRM. Since most Amateur stations lack the frequency stability and precise timing required, they could not QRM a CCW signal even if they wanted to.

Coherent signaling takes us a big step forward in being able to achieve reliable copy of very weak signals even under the most adverse band conditions. It has great promise for improved RTTY demodulators and packet receivers as well. Let's get busy and put more stations on the air.

△

'Hot Watch' for lost gear

Hot Watch is for all Amateurs that have lost a rig, or any other Ham gear. When you see a good deal, sometimes it's not. It could be stolen. How do you know if it's hot? Well, all you have to do is get Hot Watch and it'll tell you.

Hot Watch will be made up by the 15th of each month. How can you get it? That's easy. Just send me 12 self-addressed stamped envelopes (one for each month), and I'll send you or your club Hot Watch. This bulletin is available

to all hams, clubs and businesses. But you MUST send me the envelopes as mentioned.

If we all join together and make it harder for stolen gear to be sold, maybe we can also cut down on the theft of it. Now if you want to report stolen gear, antennas, computers, etc. send it to me following the sample outline shown below and it will appear in the next month's issue of Hot Watch.

Sample:

MAKE	MODEL	SERIAL No.	Special Markings
Kenwood	538s	D999999	VE3))) on back of rig
	gear of VE3)))	Bob London 455-))	
Commodore	C-64	D888888	VE6))) on board inside of set
Home brew	Ant. match	in box 6x10 gray with white front, pin no. on bottom of box.
	gear of VE6)))	Bob Calgary 455-))	

This is a sample of how the list will look, hope it's always this short. (Hi,Hi). Note, and I say NOTE, do NOT call the Ham Operator, call your local Police Dept... Let the Law look after it. Your duty is to notify the Police when you come across stolen gear.

If you are buying a rig, get some I.D. from the party selling it.

If they are ok and the gear ok they won't mind, especially if it makes the sale.

You can mail me the articles to be listed to:

HOT WATCH,
c/o VE3CEC, Bob Fletcher,
208 Admiral Dr.
London, Ontario
N5V 1H8
Phone No. (519) 455-9547

△



The Saga of Northern Radio

By Thomas R. Roach*

Continued from July/August issue.

The network expanded from four stations in 1937 to 54 by the summer of 1939. Unexpectedly, they had a much greater impact on domestic life in the Arctic than on the Company's commercial operations. For the women, radio significantly reduced one of the worst aspects of life in the North, its isolation.

Emergency traffic

Invariably the sets were used soon after their installation for emergency calls. Often the post managers used their radios to talk to the Canadian government doctor attached to the station at Chesterfield Inlet. One post reported sending over 12,000 words in International Code in a year on medical matters alone.

The records show that many of the first flights into northern posts were mercy missions. The radio operator at the post would inform the pilot of local weather conditions and tell him where to land. The existence of the radiosets significantly speeded up the expansion of air service into Canada's North.

Rescue

Probably the most dramatic use of the combination of radio and aircraft for rescue purposes occurred in 1943. The Company had opened an isolated post, Fort Ross, on the shore of Prince Regent Inlet where pack ice often made access impossible.

In the summer of 1942 and again in 1943, the *Nascopie* failed to reach the post. With insufficient food, fuel and supplies left for the winter of 1943-44, the decision was made to attempt a rescue of

the manager, Bill Heslop, his wife Barbara and Darcy Munro, the clerk at the post.

One of the largest transport planes in the United States Army Air Forces was used to fly two trips into Fort Ross. The trading post was at the extreme limit of the aircraft's range for a return flight. The first trip carried in supplies which, along with a man to help Bill Heslop choose and prepare a landing site, were parachuted to the beleaguered post.

A few days later, the rescue mission was successfully completed when the plane landed on the smooth ice of a nearby

"Over the aerial at Arctic Bay was flashed a proposal of marriage, an account of a wedding, news of a birth, instructions from a doctor, and the story of a christening."

The Beaver, Dec. 1939

lake. The trip was touch and go! Bad weather was moving in fast and, because of weight, the Heslops and Darcy Munro had to leave most of their personal belongings and a pet husky behind.

The task would have been impossible without the radio set at the post and the wind-powered generator that kept its batteries charged. The radio provided all the information needed by the pilots before they took off and its signals guided the aircraft during the long flight north. In the two years or more that the post had been inaccessible, the radio had provided the Heslops and Darcy Munro with their only link to the outside world.

In the spring of 1940 the fur-

trade radio network was integrated into the war effort by the Canadian government. Personnel at selected radio-equipped posts in the eastern Arctic were enrolled in the Aircraft Detection Corps and given the task of reporting strange aircraft, thereby guarding against the possibility of an air raid.

The daily weather information provided by some of the posts greatly increased in importance after the decision was taken in 1942 to fly aircraft directly across the Atlantic. To enable meteorologists to make more accurate forecasts, the number of posts supplying data was increased.

Most of the posts concerned were small— a manager and a clerk or an apprentice and perhaps their wives. The women played a key role when the men were away by taking over the task of data collection and transmission.

By the end of the war, all of the Company's 101 northern trading posts were equipped with radio transmitters and receivers. Because it was no longer possible to find the time to train personnel in Morse Code, the Company introduced voice equipment in the late 1940s. Then, in the early 1950s, the problem of interference from other stations severely threatened the reliability of the network.

George Horner therefore carried out yet another series of experiments and came to the conclusion that a switch from AM to FM or SSB was the answer.

Re-equip with SSB

The network was by now so important to the business of the Company and the well-being of its personnel, there was no question that the large sum of

Continued on next page ▶

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money required to re-equip the posts would be forthcoming. By 1959, the Company owned the largest and most northerly SSB network in the world. It was for this pioneering work that, in 1956, George Horner was elected a Fellow of the American Institute of Radio Engineers.

The move to SSB transmission provided the Company with a private, interference-free communication system of enhanced range and clarity. But telecommunications is a rapidly changing field and when George Horner retired in 1970, there were only 72 stations left in the network.

The radio sets were being replaced by telephone microwave systems, a process that has continued through today with satellite communications which brings television to the most isolated communities. Although a few trading posts still have their radio sets, there is no longer a formal network and there are no scheduled calls made to the government radio stations, many of which have been closed.

The radio transmitters and receivers broke down the communications barrier and eased travel by speeding up the use of aircraft. Both the radio sets and the aircraft significantly improved medical services in the Canadian North in the same way as they had in the Australian outback, even though no official 'Flying Ambulance Service' was ever created in Canada.

The Company's northern personnel and their families made an important contribution to Canada's war effort by joining the Aircraft Detection Corps, collecting weather data and supporting major research efforts. All this would have been impossible without some means of communication with the outside world. (In contrast, the Company's arctic posts did not hear of the outbreak of the First World War until September 1915.)

A remarkable achievement

Above all, radio had the greatest effect upon family life. Radio gave the wives of Company

personnel a means of relieving their sense of isolation by increasing their social and business contacts and allowing them to communicate with far-off family and friends.

The fur-trade radio network was a remarkable technical achievement. On the surface, it appears as if the early stations were nothing more than a collection of 'off the shelf' items. Yet this simple fact is an important point. Horner did not have the time to carry out a great deal of research into possible equipment. Nor did the Company have the capital to finance a research and development programme.

The wind-charger battery sets, the automobile voltage inverters and the transmitters and receivers were items commonly available and therefore reasonably priced and with known

standards of performance. What was more, spare parts for them were readily available.

The network fulfilled its designed purpose well and the Company did not hesitate to continue its investment in it. To the Company's credit, there was never any attempt to limit the use of the network to Company business. All who lived in the North shared in its benefits.

The fur-trade radio network was an important factor in the development of the North and the efforts of the Company and George Horner deserve to be a recognized part of northern history.

(Author Tom Roach of Ottawa, a freelance writer, based his article on a paper 'Brass Pounders of the North,' presented to the Canadian Service and Technology Historical Society, in 1983.) △

SWAP SHOP

FOR SALE: Sell 45 year collection vacuum tubes: Limited Supply of 3-500Z finals new boxed 70.00 each. WSQJT M. Levy P.O. Box 13151 E.P. TX 79913

FOR SALE: Robot 400 Slow Scan TV converter, with the colorscan 403 color conversion. Has 3 memories for 8 second RGB or black and white. Includes filter lens for mounting on black and white camera, all you need to get on color or black and white SSTV. First \$695.00 takes it. Phone 1-519-824-1157, Rocco Furfaro VE3HGZ, 49 Wells St., Guelph, Ont., N1E 6B7.

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FOR SALE: Microlog ATR6800 RTTY-CW with #1 Module and 15 inch Sanyo Video 1275.00, also ICOM 720 A with CW & AM filters P15 pwr supply 850.00. VE7DVR Ed Broadfoot #510-9805 - 2nd St., Sidney, B.C., V8L 4T9 604-656-0520.

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TECHNICAL SECTION

TECHNICAL EDITOR
Frank Hughes VE3DQB
P.O. Box 855
Hawkesbury, Ont. K6A 3C9



A transceiver on a 2"x2" PCB

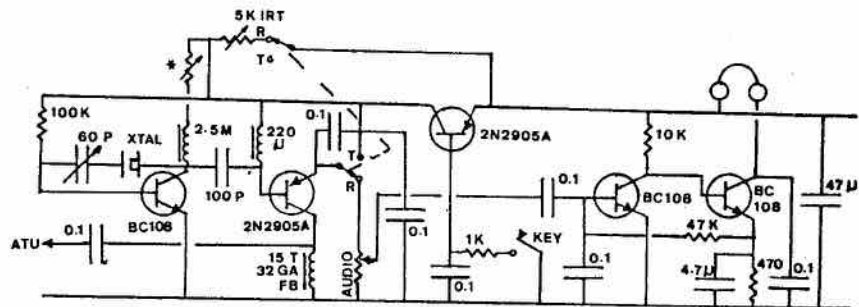
The FOXX minitransceiver

By George Burt GM3OXX

After chatting to people at the QRP club stand during the RSGB convention at the NEC, it was obvious that what was needed was a simple transceiver with no expensive or hard to get bits, like MD 108s. The first thing was to build a very simple transmitter, then try to convert it to a transceiver.

The STX was built and several separate receiver sections were tried without much luck. Then by sitting and looking at the STX circuit, the idea of using the PA as a detector came to mind. Why not, after all, it is only two diodes. So the PCB was cut and a 47 k ohm potentiometer was connected to the emitter along with an audio amplifier.

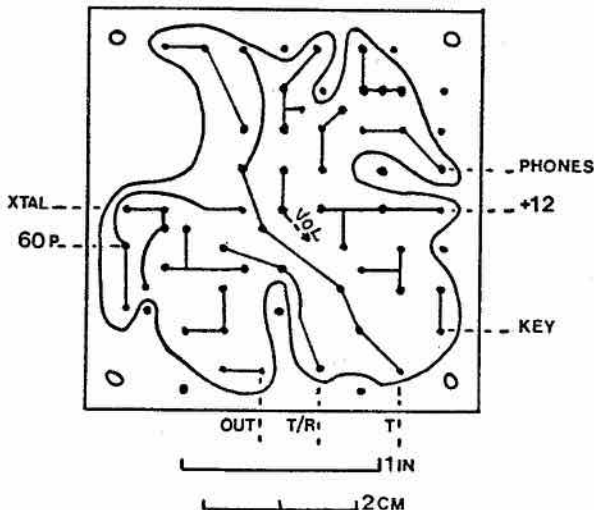
Great, it worked. Next step was



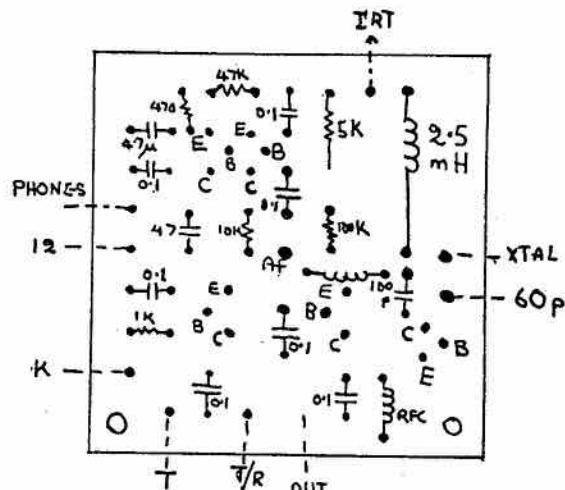
Five transistors, a thimbleful of other bits, and there's a real, live, all-band 160 through 10 metre transceiver.

to wire in a toggle switch. With it spread all over the bench and a quickly-made Z match for the RF coil, on loading up it gave 2½ watts of RF out on 40 metres. Using R* the drive was reduced to 1 watt out. Try to leave some R* in circuit otherwise the transistor will be working very hard.

After a quick CQ call, back came an LA6, followed by Frank ON5AG and G4GXI, Peter, both club members. A trim pot of 5 k ohm had been wired in the receiver side to try and adjust the oscillator injection for the PA/detector. It was found that it altered the drive until the oscillator stopped, but better still it altered the frequency.



A two-inch square PCB mounts all the components except crystal and controls.



Here's where the parts go.



On 40 metres, with the series crystal capacitor at full value, it pulled the crystal by 1.5 kHz before it stopped, now we had IRT as well, on 20 metres it pulled the frequency by 3 kHz. Alas, on 80 metres, it pulled the frequency only 400 Hz, still you cannot win 'em all!

The other nice benefit that turned up was on transmit. When there is no detector thump and the audio is left on, a smooth click sidetone is produced. It is even possible to receive on zero beat, depress the key and this shorts out the IRT control, and one can tune on the crystal capacitor.

Now what more could you want? A simple transceiver with crude IRT and side-tone with a PCB that measures 2x2 inches. So have a go, it is fun and easy. Both Nor GM3RKO and Iain GM4HBG have built one and Iain has already improved the receiver by placing a small RF choke between the base of the PA and the supply rail.

So have a go, there is no reason why the PA/detector idea cannot be used with a VFO transmitter and a better audio side.

(From SPRAT by permission.)

—||—

Mark Space, our resident tyro, had been proofreading this article with me, and when we finished he looked at me with astonishment.

"A little thing like that is a transceiver?"

"It certainly is. Do you think I'd publish it if it wasn't?"

"Well, no. But it can't get very far, can it?"

"Mark, what's the power output of a CB rig?"

"About four watts, I think."

"Yet under good conditions a CB rig works foreign countries. Mark, it is an American illusion that high power is a necessity. It is a folk memory, I think, of the spark days, when equipment was so inefficient that you needed a quarter-kilowatt to get anywhere at all. To an American, QRP is less than 100 watts! In other countries, it's five watts or less."

I pulled a magazine from the rack. "Look at this. CQ for last March, results of the 1984 CQ world wide WPX SSB contest.

Look at the world top scores, single operator: VK2WU, nearly 6 million points, was top scorer. Now look at this table; QRP/p. H44R got one and a half million points with less than ten watts!

"Notice that QRP/p. Americans denote what we call QRP as QRP/p! Anyway, the score should tell you that QRP is a practical mode on HF."

Mark looked at me narrowly. "But two inches square... surely that can't do very much?"

"The output is about one watt. I'm publishing this because of letters TCA has received about the need for newcomers to get on-the-air experience.

"I've told you before, but it hasn't registered, that ten watts to a rhombic antenna gives the same signal at a distant station as a 100 watt rig to a good 3-element beam, or a kilowatt badly matched to a short vertical. So what will one watt do?"

"I suppose it can do quite well."

"Provided you make sure that all that one watt gets out in the correct direction at the correct angle."

Mark's eyes went back to the diagram. "How ... how much do you think one would cost?"

"You know where I keep the catalogues, price it out yourself."

That earned me twenty minutes of peace to continue fitting copy to this month's TCA. I turned up the audio of the rig to monitor a local net.

"It comes to less than twenty dollars!" Mark shouted at last.

"Including the PCB?"

"No."

"Aerial and tuner?"

"No."

"Solder and iron?"

"No."

"Fortunately you have a lovely pair of headphones."

"Yes!"

"The PCB we can make. Possibly a CARF member may produce them in bulk, quite cheaply. Lesmith will send you a crystal for ten bucks or so. You'll have to scrounge wire for the antenna."

"Would— would you build it for me?"

"Mark, I spend far too much

time putting this sanguinary magazine together. In my spare time I'd like to do a bit of operating so's I don't forget my code in my old age. Build it yourself."

"But I don't know how!"

"Well, now's your chance to learn. Look through my junk box to see what you can find. Pay me what you costed out the parts list for, and I'll take it in mown lawn." (He doesn't realize yet that you can get resistors and capacitors cheap if you buy by the hundred. And he owes me lawn mowing and snow shovelling through 1988 already!)

"Don't get too excited about the prospects, Mark. The idea of this rig is that clubs like ours can get their classes to build FOXXs, then a licensed member can send them code practice at a convenient time. Then, as soon as they get their tickets, they can go on the air with each other in a little local net.

"Since they will use the international QRP frequencies, 3.560, 7.030, 14.060, 21.060, 28.060 megahertz, when conditions are right, they will meet other, distant, QRP stations.

"They will attain skill in code, in the handling of equipment, in ensuring that all the power they produce goes where they want it to rather than in warming coax, and in good operating practices.

"More than this. They will know, as others will not, what diodes, transistors are and what they do. You've seen pictures of integrated circuits, thousands of transistors on a chip, how did the designer of that chip start his career?"

Mark looked blank, and did not feed me the line I wanted, so after a short pause I continued.

"He started by learning how one transistor works. Someone suggested that the FOXX should be modified with an op amp for the audio. I'm sure this would improve the audio, but the constructor will learn less than he would building one with discrete transistors."

The sound from the rig speaker came up loud. "Listen to that." I beckoned Mark over, switched to 500 Hertz bandwidth, and slowly tuned across the signal.



"Splattering over twenty kilohertz!" The signal went off, and the net controller came on. "Not only that, he's far off zerobeat. He's got a rig, an

amplifier, and a big antenna— thousands of dollars worth of stuff he doesn't know how to use. And I'll guarantee he never built a piece of equipment in his life."

Mark will be building the FOXX over the next few weeks. We'll report on his progress next month.

△

L'Apothéose du ZX-81

Répétitrice Informatisée

Par Roger Coudé VE2DBE
90 Notre-Dame, Apt. 1
Alma, Quebec

Introduction

Ne laissez plus votre répétitrice radio-amateur vingt ans derrière au point de vue technologique. Faites-lui faire un bond vers le futur avec ce projet.

Voici une nouvelle approche dans la conception d'une répétitrice. Elle amène une simplification des circuits traditionnels (contrôles logiques, minuterie, identificateur et interface téléphonique) par une utilisation maximale de la possibilité qu'a l'ordinateur de répondre à des stimuli tels: la présence d'un signal, la réception de tonalités, l'interrupteur d'alarme (en cas d'intrusion dans l'enceinte sacrée que constituent nos cabanes perchées loin de toute civilisation!) et aussi de la réception d'un appel téléphonique en mode inverse; ou encore la possibilité d'actions telles la mise en onde, la production de l'identification CW, le déclenchement d'une sonnerie d'alarme et le contrôle complet de la ligne téléphonique (composition par impulsion = économie sur les frais d'abonnement). L'ordinateur contrôle en plus la direction des communications audio, ce qui entraîne une meilleure efficacité des transferts d'énergie, en plus d'avoir l'avantage d'espionner la ligne pendant une seconde pour vérifier son occupation, sans que cela ne transparaisse à l'interlocuteur (cas d'un branchement sur ligne partagée).

Finalement, une économie substantielle est réalisée par l'emploi du ZX-81 et de composantes peu coûteuses pur l'interface d'entrée-sortie.

Voici donc une vue d'ensemble de ce système centré sur le ZX-81, la partie électronique et un exemple de programme. (Le système est en opération depuis plus de six mois à Alma et possède une réserve énergétique de dix minutes en cas d'interruption du service électrique: VE2RCM 147.36 MHz + 600).

Vue d'ensemble

On remarque sur la figure 1¹ que toutes les composantes sont soumises au contrôle de l'ordinateur, ce qui donne toute sa souplesse au système.

Toutes les informations sont acheminées via l'interface d'entrée-sortie (INTERFACE). Le bus d'entrée reçoit de l'information de la part du récepteur (RX), du décodeur de tonalités (TONE DECODER) de l'interrupteur d'alarme et de la sonnerie de téléphone (RELAYS et TELEPHONE LINE). Le bus de sortie contrôle le PTT du transmetteur (TX) via un relais, produit un son en CW alimentant le mixage audio (AUDIO MIXER). Le récepteur et le transmetteur sont du type employé normalement sur nos répétitrices. Les tonalités reçues sur les PLL (567) correspondent aux quatre rangées et trois colonnes standardisées de nos radios. Elles servent soit comme commandes de contrôle soit pour composer des numéros de téléphones. La section des relais sert à la commutation de diverses lignes.

Section Electronique

L'interface (INTERFACE) de l'ordinateur constitue en quelques sorte l'organe de communication avec le monde extérieur. On y trouve le circuit schématique dans la figure 2. On utilise des 74LS244 comme ports d'entrée pour transformer en équivalent binaire les tonalités reçues. Pour effectuer les opérations du programme on utilise deux 74LS175 comme ports de sortie. Sur la sortie, on a placé des relais afin d'isoler le système des bruits électriques. Le 74LS138 est un décodeur partiel d'adresse; il permet que les transferts (entrée/sortie) s'effectuent au bon moment. Le voltage de +5V nécessaire pour ces circuits, est pris à même l'alimentation +5V de l'ordinateur. Toutes les connections peuvent être faites près du bord de façon à laisser le connecteur libre pour brancher la mémoire 16K.

La détection des tonalités (TONE DETECTION) constitue la partie la plus difficile du montage. Consultez la figure 3 pour le circuit du décodeur. L'emploi de sept LM567 permet la détection de toutes les tonalités téléphoniques standardisées. Sur le schéma on n'a reproduit que le premier LM567; le circuit se répète pour les autres à l'exception des composantes spécifiques. Il suffit de relier la sortie (pin 8) à l'entrée parallèle de l'interface. On doit prendre des précautions particulières dans le montage des circuits PLL. Les sept LM567 et leurs composantes

¹ Les figures ont paru au TCA, 1985 juin, page 42.

Continued on next page ▷



peuvent tenir dans un paquet de cigarettes. On doit disposer les LEDs et les résistances variables pour faciliter la calibration. L'alimentation +5V doit être stable et propre pour la performance maximale. Les condensateurs de dérivation sont absolument nécessaire au LM7805! N'utilisez que des condensateurs mylar (pas de céramique S.V.P!) dans les circuits RC.

Le raccord téléphonique (PHONE PATCH) demeure tout à fait inutilisable s'il n'est pas sous le contrôle de l'ordinateur. On retrouve dans la figure 4 le circuit schématique de la section des relais et du raccord téléphonique. Il sera très efficace avec un petit transformateur audio (comme celui que l'on trouve près des transistors de sortie d'un petit radio transistor). On y ajoute un condensateur de filtration.

La section du mixage audio (AUDIO MIXER) se trouve à la figure 5 et elle permet le transfert du signal audio aux différentes parties.

La disposition de la réception (RX) et de la transmission (TX) est très simple. Du côté réception, vous interfacez le COR avec un transistor 'open-collector' (voir le schéma).

Le transistor 2N2222 sera court-circuité en réception. Il alimentera directement l'interface de l'ordinateur.

Un bloc d'alimentation de +8V DC est nécessaire pour alimenter le ZX-81. On peut utiliser une alimentation de +12V que l'on réduit à 8V avec un régulateur (7808). On peut utiliser une commutation à diodes pour brancher le circuit à des batteries rechargeables en cas de panne de courant.

Programme

Quand un signal reçu enclenche le COR, l'entrée de la ligne 7 devient basse sur l'interface. La réponse de l'ordinateur sera en fonction du programme. Il pourra mettre le transmetteur sur l'air et commencer à compter jusqu'à la fin de la période. Ensuite il fermera le transmetteur puis attendra une période sans signal.

Si on envoie une tonalité '1' d'une durée suffisante, l'ordinateur l'acceptera et attendra une combinaison de trois tonalités pour une durée pré-fixée maximum. Si les chiffres correspondent à une commande valide, ou un nombre, il émettra deux 'beep' en générant une tonalité de 600 Hz sur la ligne de sortie 1. La tonalité alimente directement le mixage audio du transmetteur. La même sortie est utilisée pour l'identification CW. On peut modifier rapidement le programme pour fixer une nouvelle identification.

Le programme principal (MAIN PROGRAM) illustre les opérations multiples qu'on peut accomplir avec un minimum de composantes (voir le listage. APPENDICE B).

Un REM identifie chaque section du programme. On peut varier à loisir les paramètres. Ne vous gênez pas pour le faire!

L'instruction POKE 16661, (nombre) suivie par RAND USR 16660 est plus difficile à comprendre. Elle fait appel à une sous-routine en langage-machine pour une instruction de sortie (OUT). Par exemple, POKE 16661,109 placera la ligne des données comme suit:

```
lignes: D7 D6 D5 D4 D3 D2 D1 D0
volts:  0 -5 +5  0 +5 +5  0 +5
état
logique: 0  1  1  0  1  1  0  1
```

(équivalent binaire du nombre décimal 109)

La ligne LET IN=USR 16650 entre dans la variable d'entrée IN, l'équivalent décimal de l'entrée binaire de la ligne des données.

Pour protéger votre répétitrice des 'pirates,' changer les codes de contrôle qui se trouvent aux lignes 5000-5490.

Si vous n'avez pas besoin de la réception téléphonique en mode inverse, effacez les lignes 1050, 8000-8060, ou de l'alarme, effacez 1060, 7500-7540.

Ce programme signale automatiquement un '9' pour rejoindre le service téléphonique. Si vous n'avez pas besoin de cette caractéristique, effacez 6010, 6015, 6020, 6031, 6032, 6033, 6125 et changez la ligne 6030 pour 'FOR I=1 to 7'.

Procédure de Chargement des Programmes

- 1) Entrez le INITIAL PROGRAM (Voir APPENDICE A, TCA juin)
- 2) Tapez RUN
- 3) Entrez les données (dont la liste apparaît sous le INITIAL PROGRAM) telles que demandé aux adresses de mémoire.
- 4) Effacez les lignes 2 à 9. Faites attention de ne pas toucher à la ligne 1 REM (...)
- 5) En utilisant le mode Edit, changez le numéro de la ligne 1 pour le numéro 9900. Ensuite, effacez la ligne 1; ceci permet l'emploi sans problème de la commande LIST.
- 6) Entrez le MAIN PROGRAM (Voir Appendice B, TCA juin). Sauvez-le (SAVE) fréquemment durant le processus. Ce programme est assez long et il est bien frustrant d'avoir à le recommencer!
- 7) Quand l'entrée du programme est complétée, avant de l'utiliser (RUN), avec le mode Edit, changez de nouveau le numéro de ligne 9900 au numéro 1. Puis, effacez la ligne 9900.
- 8) Sauvez (SAVE) le programme en tapant GOTO 9000 de façon à ce qu'il débute automatiquement après un chargement (LOAD). N'oubliez pas de mettre le nom de votre programme à la ligne 9020. Ceci est la version finale, conservez-en plus d'une copie!

Utilisation de Programme

Le programme fonctionne comme suit. Si vous appuyez sur "" pendant une seconde vous entendrez un double 'beep' (//) et vous aurez 5 seconds pour entrer un code de trois chiffres. Si vous dépassez ce temps, vous entendrez un message d'erreur de huit 'beep' (////////) et l'ordinateur attendra que vous pressiez de nouveau "". Les codes de trois chiffres se répartissent comme suit:
000 à 099— codes de contrôles
100 à 199— numéros de téléphone pré-encodés

Par exemple: "" suivi de
000 Transmission de l'identification CW
050 Met le transmetteur ON
051 Met le transmetteur OFF
096 Met l'alarme On et



L'autopatch inverse ON
097 Met l'alarme OFF et
l'autopatch inverse OFF
098 Met l'alarme OFF et
l'autopatch inverse ON
008 Signale de nouveau le
dernier numéro de téléphone

013 Efface de la mémoire un
numéro de téléphone pré-codé
Ex: * // 013 // 105 //
099 Entre dans la mémoire un
numéro de téléphone à coder Ex: *
099 // 105 // 6623556
105 Signale le numero de

téléphone pré-codé au 105
088 Permet la composition
directe du numéro Ex: * // 088 //
6623556
090 Sauve le programme et les
entrées sur ruban

△

From the Bench

Unsoldering Components

By Rob Bareham VE7CFK

Printed circuit board construction has caused major improvements in electronic packaging. It allows a circuit design to be repeatable easily and at a very low cost. It permits high density circuitry impossible with the older point-to-point style of wiring. It also causes much grief to the non-technician Amateur who must remove a defective component from a tightly packed circuit board.

Tools of the Trade

The technician's job is to remove the defective component and install the new one without damaging the circuit board foil or adjacent components. Although many tools have been devised for this, only a few have proved to be worth their expense.

Any standard component can be removed with a combination of seven essential tools. Solder braid, pump type solder sucker, heated type solder sucker, a good pair of 4-inch needle nosed pliers, 4-inch flush cutting side cutters (not the pair you use for cutting cables), a soldering iron and a dental pick. All of these tools are available from most large electronic suppliers.

Using the Tools

Power desoldering irons (electric solder suckers) are available from a variety of suppliers. Prices range from \$200 to \$1500. The price of these units make them unfeasible except for professional maintenance centres.

OK Industries Ltd. has come out recently with a low-priced electric unit consisting of a hollow-tip soldering iron and a

standard manual pump type solder sucker used as its handle. A novel idea. It is priced in the \$35 range and available from Active Components company or any electronic jobber who has the OK Industries line of tools. OK part number SA-6-115.

This and other solder sucking tools must be cleaned regularly while hot by inserting a stiff piece of wire up into the tip to remove hardened debris. This is quite important. Practice in using this type of tool will greatly assist your component removal efforts.

Manually-operated solder sucking tools are good for single-sided boards. The trick with these units is to remove the soldering iron and apply the solder sucking tool before the solder has an opportunity to solidify. Ensure the tool has good suction. Disassemble the tool and grease the O rings often. If you can activate the tool while holding your finger over the tip, the tool requires maintenance. The tool must have sufficient suction to lift molten solder **WITHOUT THE TIP TOUCHING THE BOARD**. Otherwise the cold tip will speed solder solidification.

Desoldering Braid

This copper braid is used in much the same way as a blotter is used to absorb ink. It is made in eight various widths. The smaller widths allow you to heat the braid to solder melting point faster than the wider widths, however, they can hold proportionally less solder. Sizes 2, 3, and 4 are enough for general use. The use of the wrong size braid for the job can result in lifted foils. Again,

practice is required to develop the proper technique.

Getting the part out

Small components—with your mini side cutters shear off all the pins and remove the component. On double-sided boards remove only the pins from the pads that have a trace connected to them. Then flip the board and remove the remaining pins from the opposite side. This is because pads which have no traces connected to them are more easily lifted by the heat from your soldering iron. On single-sided boards the procedure is identical except all desoldering will have to take place on the one foil side of the board of course. After removing the pins the holes should be cleaned out with the dental pick. If you are working with plated through holes, take care not to remove the plating from the sides of the holes.

The removal of larger components such as power transistors is a subject for a future article. We will go into point-to-point circuit components and terminal strips at that time.

If you have any questions on this or other repair techniques please write to 'From the Bench' via the technical editor. We will publish any questions and replies in order to assist others. △

John VE3CES, in his tutorial on PCBs, mentioned using a laundry pen for marking the boards. Your editor noticed one in Woolworth's, and handed over his 98¢ + tax. When he got it home it turned out to be a ballpoint, quite unsuited for PCB work. If you get one, make sure it's a felt tip before you buy.



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•••••••• FEATURES ••••••••



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- PRODUCT DISPLAY
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- RSO/CRRL BANQUET
- CONTESTS & PRIZES
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Here are a few sale items from CARF Publications.

Our Printer made a mistake and you can benefit. The 1984 edition of the CARF Regulations Guide has 1983 printed on the cover. This is the current edition.

Regular price is \$9.50, while supplies last only \$7.00, postage paid. All are three ring punched, but some copies are also bound with spiral plastic holders.

Electronique D'Amateur

This book was published by the Radio Amateur Du Quebec (RAQI) in 1977. It contains an up-to-date discussion of electronic theory, descriptions of tubes, semiconductors, and integrated circuits. Receivers, and transmitters and accessories are covered in detail. Transmission lines and antenna theory occupy a chapter. This is a basic electronics theory book, without the operating and legal aspects usually found in certificate study guides. We have 24 of them in stock, available on a first come - first served basis for \$3.00 plus \$1.00 postage and handling.

Ce livre a été publié par "Radio Amateur du Quebec" en 1977. Ils contient jusqu'a date discussion de Theorie Electronique, description des tubes, semiconducteurs et circuit intergré. Receveurs, et transmetteur avec accessoires sont couvert en detail. Theorie de lignes de transmissions et antenne occupe ce chapitre. Ceci est un livre a base Electronique sans opération et aspect légale souvent trouver dans le guide des etudes certifié. Nous en avons seulement 24 pour les interessés qui commenderons les premiers aux prix de \$3.00 et \$1.00 pour frais de postage.

And something new to take up the summer doldrums:

Emergency Communication

A new Reference Guide section by Ken Kendall VE3IHX. This short (11 page) section discusses the types of emergencies an Amateur may expect to encounter and the correct procedures to follow. Sample copies of forms, lists of emergency equipment, and sample procedures make up the bulk of the material. Directions are included to set up an Amateur emergency communications group.

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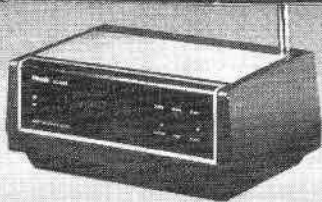
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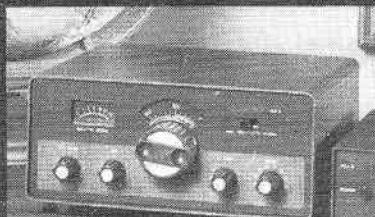
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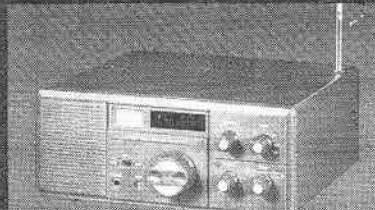
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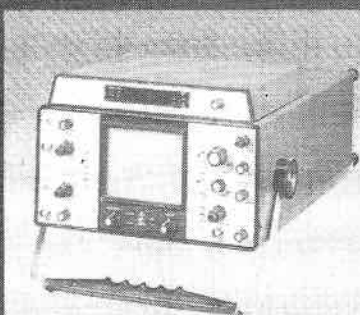
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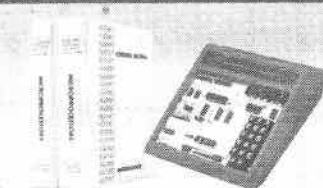
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