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Feed Back

VE3OSR

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President: Don Richards VE3IDS

Vice. Pres. Harvey Smith, VE3FOT

Sec.-Treas. Cy Weaver, VE3DQA

Editor: Jim Harron, VE3BFV

Asst. Editor: Harvie Smith, VE3FOT

Send FEEDBACK correspondence to R. James Harron, R.R.2, Kemble, Ont. N0H1S0

FEEDBACK IS A MONTHLY PUBLICATION OF THE GEORGIAN BAY AMATEUR RADIO CLUB. MOST OF THE MATERIAL PUBLISHED IS CONTRIBUTED BY THE READERS OF FEEDBACK. AND ALL CONTRIBUTIONS ARE MOST WELCOME. AMATEURS AND SHORT WAVE LISTENERS ARE INVITED TO JOIN THE CLUB. YEARLY FEES ARE \$7.50 OR \$5.00 IF PAID BEFORE DEC. 31ST OF THE PRECEDING YEAR. APPLICATIONS FOR MEMBERSHIP SHOULD BE SENT TO THE SEC.-TREAS. MR. CY WEAVER, VE3DQA, 197 8TH ST., HANOVER, ONT. N4N 1J4.

ANNOUNCEMENTS -

THE OCTOBER MEETING OF THE GEORGIAN BAY AMATEUR RADIO CLUB WILL BE HELD ON OCTOBER 16TH AT 8.00 PM IN THE O.S.C.V.I.

SOME MEMBERS OF THE GEORGIAN BAY AMATEUR RADIO CLUB AND THE BRUCE AMATEUR RADIO CLUB WILL ASSIST IN PROVIDING COMMUNICATIONS FOR A CAR RALLY ON OCTOBER 18TH IN THE AREA NORTH AND EAST OF BURKE'S FALLS.

A TOUR OF THE BRUCE NUCLEAR FACILITY IS SCHEDULED FOR OCT. 9TH

A TOUR OF CKNX TELEVISION STATION IS SCHEDULED FOR OCT. 15, 8:00 PM.

THE PRESIDENT'S MESSAGE

A GOOD START ON THE NEW SEASON WAS MADE AT OUR SEPTEMBER MEETING. A GOOD ATTENDANCE WAS RECORDED, 18 MEMBERS PRESENT, ALONG WITH 2 VISITORS. THE FEATURE TALK BY BILL, VE3EFX, ON USING OSCAR SATELLITES, WAS BOTH INTERESTING AND TIMELY. THERE IS NO DOUBT THAT COMMUNICATION VIA SATELLITE IS THE COMING MODE FOR DX OPERATION, OFFERING AS IT DOES QRM FREE OPERATING ON THE VHF BANDS. THOSE OF US WHO ARE INTERESTED IN THIS PHASE OF AMATEUR RADIO CAN GET OFF ON THE RIGHT COURSE BY CALLING ON BILL'S EXPERIENCE AND KNOW HOW. HE WILL BE MORE THAN GLAD TO HELP YOU.

WE ARE STILL OPTIMISTIC ABOUT GETTING OUR OWN QUARTERS, AND PERHAPS THE POSSIBILITY OF GETTING ACCOMODATION TO SET UP OUR OWN STATION. JIM, VE3CRV, IS STILL WORKING ON IT. MAYBE HE WILL HAVE SOMETHING TO REPORT AT THE NEXT MEETING.

AFTER THE SEPTEMBER MEETING, SEVERAL MEMBERS HAD COFFEE AND DONUTS AT VERN'S (NOT TO BE CONFUSED WITH THE CHESLEY ESTABLISHMENT) AND HAD A GOOD EYEBALL. NOT AS MUCH FUN AS OUR SESSIONS AT C.I.A.G., BUT WE CAN RECOMMEND IT AS A HAPPY WIND-UP FOR FUTURE MEETINGS. THIS IS ANOTHER REASON FOR HAVING OUR OWN QUARTERS.

YOUR PREXY MAY BE FORCED TO MISS THE OCTOBER MEETING DUE TO REAONS BEYOND HIS CONTROL. HOWEVER, SINCE NO ONE IS INDISPENSIBLE, THE CHAIR WILL BE OCCUPIED BY A WORTHY REPLACEMENT.

WE ASK THE MEMBERS TO PASS ON ANY IDEAS FOR A PROGRAM FOR ANY OF OUR MEETINGS. ANY SUGGESTIONS WILL BE FOLLOWED UP. REMEMBER TO KEEP THE SUBJECT MATTER IN LINE WITH THE GENERAL AIMS AND PURPOSES OF THE CLUB. ALSO GET YOUR TIMELY AND INTERESTING ITEMS FOR FEEDBACK INTO VE3BFV, KEMBLE JIM. HE WILL REMEMBER YOU IN HIS WILL, HE WON'T LEAVE YOU ANYTHING BUT HE WILL REMEMBER YOU.

The President's Message

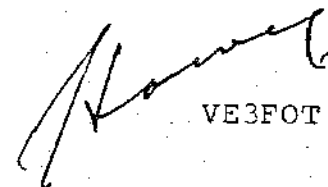
At the outset, your Prexy wishes to thank you for your trust in making him the recipient of this great honour; which is to say, putting him to work. He also wishes to remind you that the privileges of the democratic process carries with it the responsibilities of your actions. You can always blame yourself! However, with the able assistance of the Executive and the continuing loyalty and interest of the members, we hope to HAVE ANOTHER SUCCESSFULL SEASON. I wish to thank all the members for their kind words, and expressions of their friendship and understanding, in the events which ^{took} place in the last few months of my personal life. They were very much appreciated.

I am sorry to have missed the April and May meetings; and the June meeting (the Yachting Party) being called on account of rain, it seems to have been a long period since I saw most of you.

The field day was A SUCCESS, although we could have wished for more operators. A fuller account of this will be given later on. We hope to be able to advise you of the re-scheduling of the boat trip before this goes to press.

One last word. The success of the Club will depend on all of us. Suggestions for programs and speakers will help Mo to keep the meetings interesting, and informative. And Kemble Jim can use more articles for the Bulletin. Here's to a good year.

P.S. The typeing mistakes are mine; the spacing louse-up I can blame on the machine.



VE3FOT

Canadian Amateur Satellite Project Moves Ahead

The failure of the Arienne III launch vehicle and the demise of the first Phase III amateur satellite brought disappointment to thousands of amateurs around the world. Despite this setback, there are still many reasons to be hopeful. The Phase III satellite which went down on May 23 was by no means the only amateur satellite project under way.

Since 1978, a dozen or so amateurs in the Ottawa area, members of the Radio Amateur Satellite Association, Canada, generally known as AMSAT-CANADA, have been developing a Phase III-type satellite package of their own. As with other Phase III packages, the design is for high orbit and long life. Members of AMSAT-CANADA have been working only on the transponder, the antennas and the control circuitry. Unlike the Phase III satellite that recently went down, the Canadian satellite package is not designed to become a totally independent unit. It will remain "on the bus", that is, on the final stage of the launch vehicle, and share a power collection, storage and distribution system with a number of commercial units mounted on the same rigid frame. This new configuration marks the end of "backyard satellite building". A malfunction in the amateur package could adversely affect the operation of the commercial units, and the Canadian amateur satellite package is being designed and built to the strictest commercial standards.

Mode M, the primary mode of the Canadian satellite package, will take advantage of the frequency allocations made at WARC '79. There will be a 1261.6 MHz uplink and a 435.6 MHz downlink. Such frequencies might frighten amateurs whose VHF-UHF experience ends with 2 meter repeater operation, but they offer many advantages. Ground station requirements become reasonable. 10 watts of RF fed to a simple antenna mounted over a 4 foot dish will easily access the package's transponder. The same dish can supply gain needed for the receive antenna. The particular relationship between these uplink and downlink frequencies, and the small amount of Doppler shift expected with the geostationary or near-geostationary orbit, will make transceive operation viable and net operation easy. The minimum bandwidth of 100 kHz and perhaps 200 or 300 kHz, and the projected height of over 10,000 km, will make the Canadian satellite package accessible to hundreds of amateurs, in over one-third of the world, at a given time.

How soon might the Canadian satellite package be placed into orbit? The project has been slowed down, due to difficulty in obtaining parts which will maintain their tolerances in the harsh space environment. Conventional components degrade quickly when constantly bombarded by minute solar particles. AMSAT-CANADA President John Henry, VE2VQ, who also sits on the AMSAT board in Washington as an AMSAT director, estimates that everything necessary could be assembled, tested, and made ready for a launch within a year and one-half. He also adds that the Canadian satellite package, as a whole, might never be placed into orbit. Instead, parts of the package, such as the transponder IF strip, or some of the control circuitry, might be incorporated into one or other AMSAT project.

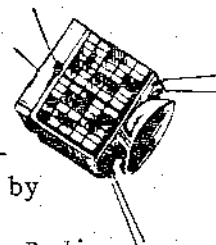
Whatever happens, however, Canadian amateurs can be proud that some of their number are making significant contributions to the amateur space program.



AMSAT

AMSAT-CANADA is related to AMSAT in much the same way that CRRL is related to ARRL. While remaining part of the larger, parent-organization, it is incorporated in Canada,

and independent in many respects. Amateurs interested in learning more about AMSAT-CANADA, or supporting its work, may write to AMSAT-CANADA, Box 7306, Vanier, ON K1L 8E4.



There's no limit to what you can do...as long as you don't care who gets the credit!

BRUCE AMATEUR RADIO CLUB

The Canadian Open Horse Trials were held on September 13th at Rose Hill Farms near Owen Sound. Amateur radio operators had provided communications at similar events in the Toronto Area, and the people concerned with organizing these equestrian competitions were impressed with the quality and efficiency of the service given.

Before the final plans were made for this event I was asked to go and meet the organizers in order to plan our part of the operation. Although the competition ran for three days there was only a need for our services on the day of the outdoor events when the riders were competing in the crosscountry and roads and tracks.

The weather left a lot to be desired as it rained heavily during the previous night and it was still raining when we reached the site. Seventeen amateurs drove out to the farm from places as far away as Kincardine to the West and Meaford to the East. We also had some of those from the Toronto area who had been involved in earlier competitions and wanted to assist. There was a briefing at 9am and then we dispersed around the three courses that required communications. Some amateurs were equipped with portable radios and they were assigned to ride with jump repair crews or officials who were required to move around but had to be contacted easily.

Approximately 50 riders were taking part in the competition and the course was slippery with all the rain. Fortunately, although a few riders came off their horses there were no serious injuries and there was only one horse that had to be removed from the course with a broken leg.

The Rothman Caravan was on the course, set up as a communications van with commentators who gave a running commentary on the events over the P.A. System. These people were able to cover the entire course as we had a base station beside them and they caught the information as it came in on the radio. This meant that the crowd was kept right up to date on events as they happened as we had a situation board in the caravan that showed the position of each horse in the event.

The amateurs enjoyed the day and the organizers were pleased with our efforts, in fact they have asked us to help at two events that are scheduled for next summer. We used the 2 metre band for the operation and using low power we were able to communicate for the full six and a half hours with battery operated portable radios. We had no equipment failures and no real problems during the whole operation.

Bill Hardie VE3EFX

Participating Amateurs included - VE3AEO, BFV, BIS, EFX, FCW, FOT, FTK, HIR, IDS, IXB, IYQ, KHQ, LPD, LPF, MLF, TY

Box 190, Tiverton
Ontario, NOG 2T0

Hi Jim,

Our first operation as an ARES group will be history by the time the September issue of Feedback comes out, but there is a chance for us to get involved in public service in October when the car rally up near Burkes Falls is held on the 18th.

Everyone has had the information packages for three months now so I expect that the group is familiar with the traffic format as there have been no enquiries on the subject. As there were no requests for antenna wire I assume that everyone has a spare antenna that they can take out for emergency operation if needed. Certainly a small beam or groundplane is a must for 2m in case you have to operate from a poor location.

The simulated emergency test in October will be a chance to practice making up formal traffic and routing it through the nets. I'll be talking about this on the air in the next few weeks.

The new repeater directory is available from ARRL for \$1.50 and this is indispensable for anyone travelling around with a synthesized rig. It would be a good idea for all ARES members to get a copy of the Net Directory also as it assists you to find the best net for your traffic.

Time has just about run out for you to write to the Minister of Finance regarding the removal of tariffs on imported amateur gear. Get a letter sent off to him right away requesting that he give consideration to the Tariff Board recommendation. The club should send a letter too, but a pile of individual letters has more clout than one from a club with twenty signatures on it. The letters must reach him before the budget is brought out. Complete information on this is in TCA.

The only other thing to report was our Field Day operation when Tess and I went out and made 370 contacts with an FT-101-E and a trapped dipole over an 18 hour operating period. We set up in 30 minutes and dismantled the station in the same time so we are confident that we can handle an emergency operation without too much trouble if the need arises.

Bill Hardie

VE3EFX

NEWS ITEMS-

VE3AEO, TED AND HIS XYL RUTH HAD A NINE WEEK VACATION THIS PAST SUMMER TOURING WESTERN CANADA AND WESTERN UNITED STATES. AS A TRUE AMATEUR TED TOOK HIS TS-820 WITH HIM AS WELL AS 2-METER GEAR. OCCASIONALLY HE WOULD CONTACT VE3KPK, FRED, ON 20 METERS. TED HAS PROMISED AN ARTICLE FOR FEEDBACK PRESENTING HIS VIEWS ON A PRACTICAL APPROACH TO A TRAVELLER'S LOW FREQUENCY ANTENNAE.

VE3AKC, ART, OF WOODLAWN BEACH (SUMMER RESIDENCE) HAS HAD A THREE WEEK STINT AT KEEPING BACHELOR'S HALL. HIS XYL, BETTY, HAS BEEN VISITING HER SISTER IN ROME, ITALY. SHE MANAGED TO RETURN HOME JUST BEFORE THE STRIKE AT TORONTO AIRPORT.

FROM WILF, VE3IYU, COMES THE NEWS THAT REPEATER VE3DRW, HAMILTON, IS NOW LINKED BY A 420 MHZ LINK TO VE3RPT AND VE3MTR.

FEEDBACK IS PLEASED TO ANNOUNCE THAT BILL, VE3EFX, AND TESS, VE3HIR, ARE NOW THE EDITORS OF THE ONTARIO AMATEUR. GBARC WISHES THEM SUCCESS IN THEIR JOINT VENTURE.

A NUMBER OF AMATEURS FROM THIS DISTRICT ATTENDED THE R50 CONVENTION IN THE PRINCE HOTEL IN TORONTO ON OCTOBER 3, 4, 5.

~~AS OF OTHER YEARS THE FLESHERTON SPLIT RAIL FESTIVAL WAS SUPPORTED BY GBARC IN HAVING A BOOTH AND AN OPERATING AMATEUR RADIO STATION IN THE ARENA. THANKS TO ALL THE AMATEURS AND SHORT WAVE LISTENERS WHO PARTICIPATED.~~

VE3HXX, IAN, CAME HOME FROM WORK THE OTHER DAY TO FIND A NEW 5-ELEMENT 20 METER BEAM MOUNTED ON THE TOP OF HIS TOWER. CONGRATULATIONS IAN, HAVE FUN!!

JEFF, VE3KPT, IS ABSENT FROM OUR MEETINGS THIS YEAR. HE IS IN TORONTO ATTENDING COLLEGE IN PREPARATION FOR A CAREER IN ELECTRONIC INSTRUMENTATION. HE WAS DELIGHTED TO FIND A COMPUTER AND A VIDEO READOUT AS HIS SOLE INSTRUCTOR FOR ONE OF HIS COURSES.

VE3BIS, DICK, WAS IN KINGSTON FOR THE CORK REGATTA AGAIN THIS YEAR PARTICIPATING IN THE AMATEUR RADIO COMMUNICATION NETWORK. IT MAY BECOME A HABIT, DICK, BUT YOU ARE TO BE COMMENDED FOR YOUR PARTICIPATION IN THIS ANNUAL EVENT.

CHANGE OF ADDRESS -

KEITH A. FERGUSON, VE3IDQ, AND CATHERINE T. FERGUSON, VE3LED,
OLD ADDRESS - 155 CENTENNIAL ROAD, WEST HILL, ONT.
NEW ADDRESS - P.O. BOX 1318, PORT ELGIN, ONTARIO, N0H 2C0



For what we are about to receive . . .

One thing you can be sure of: to upset someone immensely tell them that they are not free to do something. Their interest in the subject will reach new heights and their efforts to do it will be prodigious.

Take, for a topical instance, the radio spectrum. Normally quiet and law-abiding citizens are quite vocal about their right to receive any old piece of electromagnetic radiation that may fall on their property and wring out of it any intelligence they can without any regard for the intentions of the sender. This is not an explicit right—you won't find it in the Bill of Rights but it is usually argued that it flows from property rights although, as far as I know, this has never been tested in court.

The issue making these concerns topical is the private reception of satellite transmissions. Several interrelated issues are involved and the Canadian Radio-television and Telecommunications Commission (CRTC) has been obliged to issue a statement clarifying its position (see page 14). The Commission only gets involved where reception is followed by distribution because they issue licences for that under the Broadcast Act. The licencing of individual receivers for private reception is made by the Department of Communications under the Radio Act. "What's this?" you say. Licencing of receivers?

Sad to say, it's true. The basic right of reception that most people believe

we have has never existed. It's a mirage. The Radio Act is firmly based on the premise that every transmission and reception shall be licensed. Only in the specific exceptions do we have any freedom from licencing. One of these exceptions is 'broadcasting' (whose it doesn't say) and that, interestingly, is what most of the satellite signals are so probably individual listening there is all right; we won't know for sure until it is tested in court. As things now stand, authorities agree that there is a lack of clarity in the law.

The dilemma that we have now is more complicated than the simple issue of short-wave broadcasting and commercial traffic. With so much good equipment easily available the ever-present and insatiable curiosity of the public has become awkward. Why? Because for years it had been assumed that there was a measure of privacy in systems operating at VHF and higher. Slowly this has evaporated and gradually the most sensitive services have had to encode their communications.

An indication of this concern appeared in the late Sixties when Ottawa specified a frequency limit of 138 MHz above which special conditions were applied to receiving licences. To get such a licence the applicant was required to supply evidence that the originator of the transmission did not object to being received. This farcical and unenforceable regulation has

disappeared and the labyrinthine clauses of the Act and its Regulations now contain only one reference to receiving radio signals.

It says that your receiver is only exempt from licencing if it is for broadcasting (frequency unspecified) or "any class of radio communications, other than broadcasting, prescribed by the Minister. . ."

What is the Minister currently prescribing? There is licencing exemption for garage doors, wireless microphones, pagers, alarm systems, mine shaft cage systems, various sorts of radio control, automatic sorting equipment, training and lecture room systems, and so on. The common factor is that they all work over a very small area.

The arguments for controlling receivers have never been very convincing and suggest they were originally there to protect commercial interest. Our Radio Act follows the 50 yr. old regulations of the International Telecommunications Convention to which Canada is a signatory, which says that "administrations bind themselves to take the necessary measures to prohibit and prevent the unauthorized interception of radio communications not intended for the general use of the public."

This regulation was an imposition when it affected only a few adventurous listeners but it is beginning now to reach the public at large which, I suspect, is inclined to ignore it. It seems likely that restrictions on receiving in the particular part of the electromagnetic spectrum that we use for communications, by licencing or any other means, will eventually fail. For one thing they are not enforceable, the key test for a regulation, and for another they are seen as despotic. It could even be regarded as a provocation to deliberately put a signal in someone's back yard and then tell them not to touch it.

Rather than ineffectively protect the users of the spectrum by trying to keep people away it must now be recognized that they stand in the equivalent of a lighted window. We can no longer tell people not to look but must rather warn the users that they should pull the curtains. CEE

CRTC clarifies

Because of the confusion surrounding the status of alleged illegal earth stations and the possibility of prosecution, the Canadian Radio-television and Telecommunications Commission issued a "statement of clarification" at the beginning of June. Here is the text:

1. The question of whether an earth station is required to be licensed is a matter to be determined by the Department of Communications (DOC) under the Radio Act, and not by the CRTC. An "illegal" earth station is one which DOC requires to be licensed, and is not.
2. The CRTC licenses "broadcasting undertakings" under the Broadcasting Act, and determines the signals which licensed broadcasting receiving undertakings (cable television systems) are permitted to distribute.
3. The Commission's concern is not with earth stations per se, but with the unlicensed operation of broadcasting undertakings. The Broadcasting Act makes it an offence, punishable by a fine of up to \$1,000 per day, to operate a broadcasting undertaking without a CRTC licence.
4. A broadcasting undertaking clearly exists when satellite signals received via an earth station are in turn transmitted into the air as a traditional television signal. In such situations, the operator must apply for (a) a CRTC licence to operate a broadcasting transmitting undertaking; and (b) DOC technical certification of the equipment to be used.
5. It is an offence, punishable by a fine of up to \$25,000, for an already licensed broadcasting receiving undertaking (cable television system) to distribute signals received via an earth station without first obtaining Commission approval.
6. The CRTC cannot issue (see 4(a) above) or amend (see 5 above) a licence, unless there is DOC certification (see 4(b) above). To date, DOC has refused to license or certify any earth station used for reception of signals directly from a foreign satellite.
7. The Commission has no present interest in situations where earth stations have been installed for individual use. The Commission's primary interest is in respect of its own licensees, and those unlicensed undertakings which are retransmitting signals received via unlicensed earth stations in communities where other television signals are available.

Quartz crystals have been used as frequency controllers for over 50 years. New performance levels are still possible with the piezoelectric effect as H-P shows with a new high-performance oscillator.

by Theo Frensch*

Temperature sensitivity, warm-up time, and power consumption are key targets for improvements in performance of high precision crystal oscillators and considerable progress has been made in these areas over the years. A recent advance in compact, high performance oscillators has been achieved by use of a doubly-rotated quartz crystal and a new over design.

In the past, doubly-rotated crystals have been used only in either mass-produced, medium performance oscillators or in high performance oscillators produced in low volume and at relatively high prices. Hewlett-Packard has been able to overcome the difficulties of manufacturing doubly-rotated crystals in large volume to offer a component oscillator that combines high performance with low price. The term "component oscillator" differentiates compact oscillators designed for use as a component of instruments or systems from larger oscillators designed primarily for use as laboratory reference standards.

Crystal Cuts

The sensitivity to temperature and stress of a quartz crystal plate depends on its elastic constants and expansion coefficients which, in turn, vary with its orientation of the three natural major axes (X, Y and Z) of the piezoelectric material. In the past, a lot of development effort was concentrated on finding crystal cuts where the temperature coefficient for frequency was zero at a certain frequency. Depending on the mode of vibration the results were cuts of different orientation which were arbitrarily labeled as AT, BT, and so on (see Figure 1). Common to all these cuts is a "single" rotation around the X-axis; their difference is the amount and direction of the rotation (for AT-crystals, $\theta = 35^\circ$, for BT-crystals, $\theta = 49^\circ$).

These crystal cuts show essentially no frequency shift if they are operated at the turn-over temperature and the changes in temperature are reasonably small and slow. Turnover temperature is defined as the temperature where the slope of the static frequency-temperature curve is zero. The cuts are still sensitive to small rapid temperature changes since a high rate of temperature change causes thermal gradients in the crystal and results in change in the resonant frequency. They are often called statically compensated crystals.

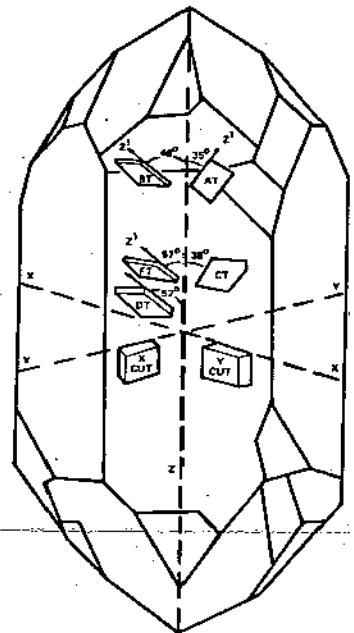


Figure 1—Crystal cuts

