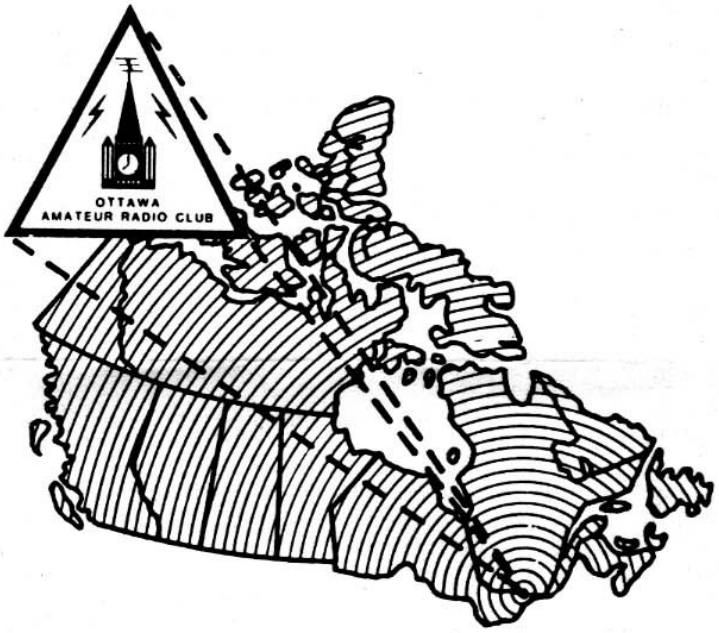
JANUARY 1987

# THE GROUNDWAVE




**Club Call VE3RC  Repeater VE2CRA**

AMSAT

THE GROUNDWAVE
Official Bulletin of the Ottawa Amateur Radio Club, Inc.



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|---|---|---|---|
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**THE OTTAWA AMATEUR RADIO CLUB, INC.** is an association of Radio Amateurs devoted to the promotion of interest in Amateur Radio communications in the National Capital Area; and to the advancement and achievement of club members.

**REGULAR MEETINGS** of the OARC, Inc., are held on the first Wednesday of each month (except July and August) at the National Research Councel Auditorium, 100 Sussex Drive, Ottawa, at 2000 hours. A bulletin board is available for posting notices of interest to other members about 1915 hours. Further details about each meeting is elsewhere in this publication.

**THE OARC EXECUTIVE** normally meets on the second Wednesday of each month in the Board Room of CFRA, 150 Isabella St., Ottawa, at 1930 hours. Contact the President to confirm the date of the next meeting.

**DEADLINE FOR COPY** is the second Wednesday of each month. Make yourself better known to fellow members and other amateurs, too, by giving us an article, technical or otherwise, relative to our hobby. They may get reprinted in far away places; and the family will be proud of you.

**MATERIAL PUBLISHED** herein does not necessarily represent the official OARC viewpoint. Items may be reprinted by Amateur Radio or other publications provided that proper credit is given to the author and to the OARC, Inc.

**RADIO AMATEUR CALL BOOKS** are available at many local libraries. Ask at the information desk.

**SAFETY BELTS, 2-METER RIG AND AN ENGRAVING PENCIL** are available for loan to club members. The 2-meter rig may be borrowed by members who are hospitalized. The engraving pencil (to mark valuables for identification in case of loss or theft) and the safety belts with pole straps are available to any member.

A $100 refundable deposit is required for the belts. Contact the President for the 2-meter rig or the engraving pencil; and Paul, VE3ICV, at 820-6643 (West End) or Brian, VE3JKZ, at 523-1535 (East End) for the belts.

**THE CAPITAL CITY NET** meets every Monday at 2000 hours on the club repeater VE2CRA (146.34/.94) to pass traffic and to make announcements of interest to Amateurs in the National Capital Region.

**THE SWAP NET,** is a service provided and conducted by Ed Morgan, VE3GX. This feature appears on the Capital City Net, noted in the foregoing paragraph. To list items and make inquiries, call Ed Morgan at 733-1721.

**POT-HOLE NET** is a SSB/HF net sponsored by the Ottawa Valley Mobile Radio Club, and conducted every Sunday at 1000 hours on 3.760 MHz. All amateurs are welcome to check in. The Swap-Net is a regular feature.

**POT-LID CW NET** is an informal slow-speed CW net sponsored and conducted by Ed, VE3GX, and meeting every Sunday, except during July and August, at 1100 hours on 3.620 MHz, to promote interest in CW and CW procedures.

## MINUTES OF THE OARC GENERAL MEETING OF DECEMBER 3, 1986

The meeting was convened at 2007 hours (local) by our president, John, VE3NVF.

Upon asking for acceptance of the minutes, Peter, VE3LBW, pointed out he only picked up the Amsat reports, he does not receive them.

John then determined there were no visitors in attendance. John Hay, VE3HPW, announced free coffee for all in attendance, as a Christmas perk (gd: pun intended).

Brett, VE3JLG, said there had been a packet meeting last month, and it was well attended.

John explained a little about the packet situation at Carleton University. Apparently, the student ham club has been under review by the student's union, as there were allegations of financial misdealings. Consequently their club's and our club's equipment was seized. The OARC executive has engaged legal council, and seeks the return of our equipment. Finally, the packet repeater, VE3PAK, operated by Brett, has been moved and the packet repeater, VE3DVQ, was off for a short time. Members may express concern and direct questions to John directly.

Paul, VE3JLP's DX tips for the month include: FH Mayotte (in the Indian Ocean)--there is a dxpedition operating 21.004 (14-16Z) AND 7.001 (23.30Z) MHz for 3 weeks, by FH/W6KG; VK0 Heard Island--there is a Lanare expedition operating VK0DA; and, finally, T5 Somalia--operating T50DX on 21.295 (17Z), 14.195 (21Z) and 3.792 (1.30Z) MHz.

When Paul was over in England recently, he spoke with a BBC transmission engineer who said that sun cycle 21 ended July, and we are now on cycle 22. They are using, for next summer, a sun spot number of 20.

As Paul returned to his seat, John noted Paul's recent editorial in TCA.

Paul returned to the microphone to introduce his presentation 'Refurbishing and Erecting a 100' Tower'. First he called Hal, VE3QA, to give a little history of the mast.

Originally the mast belonged to the CBC. They wished to get rid of the 200', 3,000 lb. mast, and phoned NRC if they wanted it. Hal, working at NRC at the time, jumped at CBC's offer when NRC didn't want the mast, and first erected it in Metcalfe in 1952. Paul then got it from Hal this summer.

It is 61' of box construction, plus 24' of 2 1/2" pipe, plus 10' of 3/4" pipe plus a 12' CB whip. The rotor is a 6 hp 115 V motor geared down 600:1 to drive the pipes through a special collar Paul had welded at the top of the box part of the mast.

For the base of the mast, Paul used 700 lb. sewer pipe sections capped with 4 gal. barrel, all filled with cement. Paul used 1X6s to transfer the positioning of the threaded rods for the base of the mast, which almost worked perfectly--one rod had to be adjusted a little with a sledge hammer before the mast settled nicely on the base.

Paul is using 150' of PVC piping over hardline from the house to the tower and then flexible coax to the antenna. He figures he has gained 1 to 2 S-points over his previous antenna system, with no difference in noise.

Dan, VE3EBI, gave an update on the Gloucester antenna bylaw. Apparently

it was aimed at regulating TV dishes, but because of vague wording, the bylaw read like a draconian provision. The bylaw was defeated.

Ray, VE3FM, stated a similar thing occurred in Nepean. A bylaw originally to regulate some TV dishes in Barrhaven wound up requiring permission of the construction engineer for all antennas, fixtures and supports.

Coffee break was then declared. The meeting resumed at 2121 hours.

Ralph, VE3GG, motioned accepting the minutes as amended and Paul, VE3JLP, seconded it. No objections-- CARRIED.

Art, VE3ZS, confirmed the DOC report Canada now has a reciprocal agreement with Japan. Canada has 53 reciprocal agreements and 14 1/2 third party agreements. Nine countries do not permit amateur operations.

John, VE3VQ, then stood to address the club on 25 years of satellites.

Oscar 1 was built in a garage in the San Francisco Bay area 25 years ago. It lasted 21 days in space before its batteries died.

Oscar 2 was built 6 months later, was 10 lbs., had a monopole antenna, and sent 'hi' in cw at a speed determined by its internal temperature (apparently 45 degrees).

In 1963, Oscar 3 was launched, it lasted 3 weeks. Oscar 4 never got as high as desired, so it only lasted 4 months before burning up.

Oscar 5 used magnets to create thermal rollover, and was created by University of Sydney, Australia. Oscar 6, 7 and 8 used the magnet design of Oscar 5.

A modern computer--a 1702--was put in Oscar 6, but it failed due to radiation. Since it made 9 to 12 passes per day, a ticker tape containing 'TURN ON' messages were made, and the satellite was controlled by ground transmission instead. It lasted 4 years and 8 months.

Oscar 9 was created by the U. of Surray, and included lots of beacons. However, it mysteriously failed shortly after launch. An Iceland radio receiver detected a 1 mW 1.1 GHz oscillator on Oscar 9, so it was alive. One of the beacons was desensing a control receiver, so a good blast of RF from the ground was needed to turn the satellite back on.

Oscar 10 had its memory wiped out by ionization in the Van Allen belt.

Canada can be proud of its contribution to satellites, as we've provided controls, parts and mechanisms, from people at CRC, BNR and TELSAT.

The next satellite to be used would have been Hugh's Syncom 4, but the DoD has bought Hugh's program, without requiring a demo. The next space station, however, will have a transponder.

Amsat wished to show its gratitude to Larry Kaiser for his work with the satellite program, but he passed away on April 16th.

On a motion by Ernie, VE3ICP, seconded by Frank, VE3FT, the meeting was adjourned at 2154 hours.

## MICROWAVE IN HOLLAND

by Kees Kaper, PA0KKZ

(continued from November Groundwave)

On the 2nd of January, 1977, we carried out a mobile experiment with two cars. I built my 10 GHz TV transmitter in my cargo van with the 26 cm parabolic antenna on the roof. We used video and audio at 10 GHz and 2 metres for talkback. The camera was aimed through the back window.

The second car, a Volkswagen, belonged to PA0ZJB, Jan Brugman. We mounted a 12 inch dish on the roof with waveguide to the receiver. Then we went out on the highway to Amsterdam. The Volkswagen went first, then the cargo van came along about one km behind. The effect was very funny.

Other drivers were afraid to pass either car which they took to be a police speed control. Throughout this test, I talked on 3 cm and listened on 2 metres.

In February, I installed a 3 cm beacon on the roof of a fourteen story apartment building. The antenna system was connected with three magic T's, one isolator, and a 100 mw Gunn diode oscillator. I was using horn antennas. One was aimed at London, one to Scotland, one to Belgium, and one to Germany. Each antenna had a gain of 26 db with an approximate effective radiated power of one watt. The beacon had a built-in automatic call sign and operated from March 1977 until July 1981 (see block diagram).

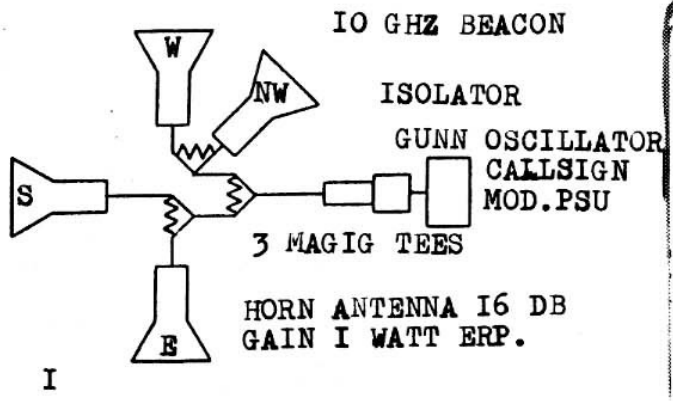
This was the first 10 GHz beacon in Holland and it was used for testing the receiver and propagation. On one occasion, I set up the receiver on the dike by the Flevopolder, a distance of 30 Km from the beacon. As the weather changed to cloudy and then to heavy rain, the signal was completely cut off.

In November, 1977, I was awarded "Radio Amateur of the Year", by the Experimental Radio Research Society and the Radio Foundation 'Veder' Scientific Association. The Veder Foundation in Holland stimulates the development of pioneering research in radio telecommunications by its awards to researchers for excellence.

In the spring of 1978 we visited the RSGB amateur radio exhibition in the main hall of London's Alexandra Palace. There is always lots of surplus available there and I bought a waveguide and an FXR Powermeter with two power heads, one from 7 to 10 GHz and the other from 10 to 26.5 GHz. From the waveguide, which had a cutoff frequency of 21 GHz, I built two 24 GHz oscillators. I did not have K and Gunn diodes so I used X band Gunn diodes in the cavity to obtain 3 mw at a frequency of 25.4 GHz out. I made a short duplex QSO over a small distance with this configuration (see fig. 3).

We also made a 10 GHz TV link one way over 45 Km and experimented with another TV relay link. With an up and down link on UHF, 434 MHz, and a mobile TV uplink from the island of Marken to the church at Monnikendam on 10 GHz, we completed the hookup with a 434 MHz relay to Haarlem and Amsterdam.

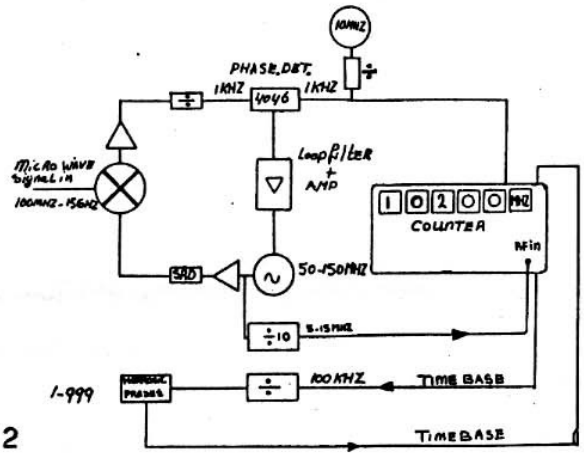
(Diagrams and footnotes on the following pages.)




I

TRANSFER OSCILLATOR DESIGN K.KAPER.

24 GHZ GUNN OSCILLATOR

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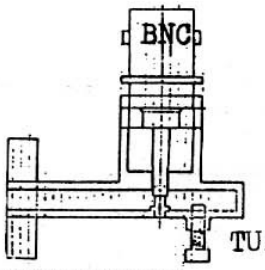
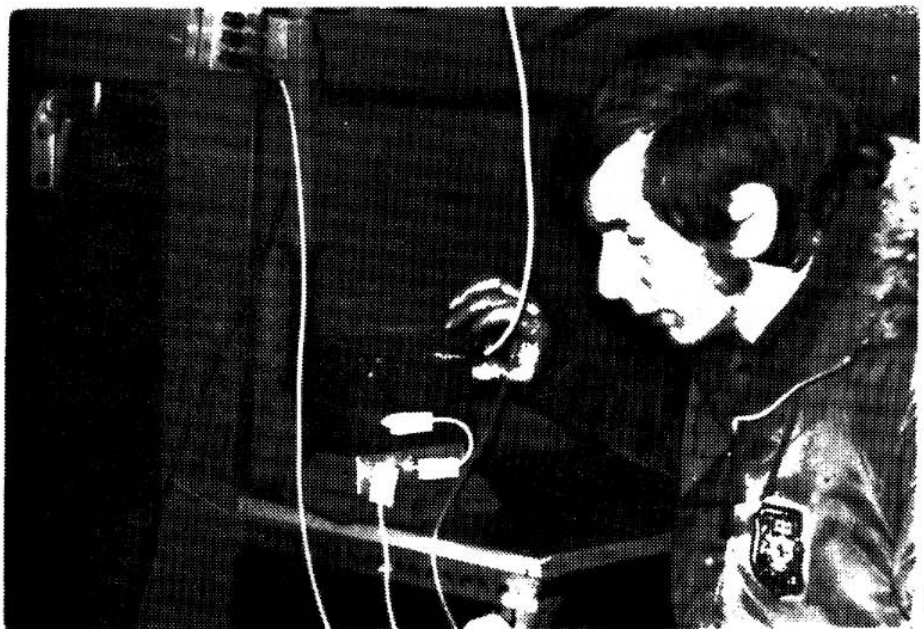



WG22 OR WG20

TUNING 3



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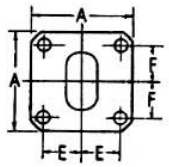
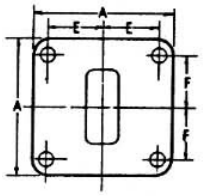



**20ZFZ400**
A = .875 (22.23)
4 holes .117 (2.97) dia.
E = .335 (8.51) F = .320 (8.13)
Flange thickness .160 (4.06)




**16ZFZ453†**
A=1.625 (41.28)
4 holes .162 (4.11) dia.
E=.640 (16.26) F=.610 (15.49)
Flange thickness .162 (4.11)

4

DIAGRAM REFERENCES (opposite page):

1. Block diagram, 10 GHz beacon and photo.

2. Simplified block diagram of a transfer oscillator. A transfer oscillator measured incoming signal against a harmonic from the VCO 50-150 MHz through a frequency multiplier. The output from the mixer has an offset from 1 MHz divided down to 1 KHz fed to a phase detector 4046. The reference frequency of 10 MHz is divided down to 1 KHz. The error or difference goes back to the VCO. A switch is preset to the harmonic number, e.g., with a frequency of approximately 10.1 GHz, the VCO is set at 100 MHz and the preset at 101, you will have determined the harmonic number.

   With a transfer oscillator, you measure the harmonic from the VCO that is locked with the incoming signal as indicated by a zero beat. The incoming signal is then read in full on the counter. Transfer oscillators were used in the period 1950-1970. Direct reading counters are now available reading into the millimetre band in the range of 140 GHz.

3. 24 GHz Gunn diode oscillator.

4. Flange dimensions given in inches with metric equivalents in brackets for waveguide20 and waveguide16.

5. PA0KKZ adjusting video 10 GHz transmitter for the mobile ride.

PACKET RADIO GROUP

Please mark your calendar and plan to attend the next OARC Packet Radio Group meeting on Jan. 28th at 7:30 p.m. in the National Museum of Science and Technology. The theme of this meeting is "back to basics", and will cover starter-station set-up, and how to get onto packet. If you have not attended one of these meetings before, this is a good one to start with.

The November 26, 1986, meeting was attended by 25 amateurs, including some who are not on packet yet. Subjects covered were: PBBS sysop changeover, PBBS topics, location of PBBS, update on VE3PAK, AX25V2/V1 discussion, review of project status, and a view of part of the Barrie Packet Symposium videotape.

The number of projects being undertaken was reviewed and it was felt that more projects can be undertaken. There will be a Working Group meeting in mid-January (date to be selected later). If you are interested in working on a project, please call Dick, VE3JBO, or leave a message on the PBBS.

Each Monday evening, a voice net is held after the Capital City Net, about 8:30 p.m., to discuss packet items of interest. You are invited to participate.

The minutes from the Packet Group Meeting and project status are on the PBBS, accessible from Packet Stations on 145.01 MHz.

## VOICE LINK

The OARC is trying to voice link Ottawa to the VE3ULR system which covers a good deal of Southern Ontario. To do this we need a mid-point which will allow us to bridge the 150 mile path. We believe we have found one in the Mountain Grove area on Highway 7.

In the middle of October, I was able to check that the 220 MHz path to the ULR system would work. In the middle of November, I was able to get a signal into 450 VE2CRA by bolting a 27 element to the tower at 90 feet. There is still lots of testing to be done to make sure that this site will be reliable.

It does not matter where we put the mid-point, the equipment requirements will not change by very much. We will need to find a 220 MHz transceiver, a 450 MHz transceiver, antennas, feedlines and power supplies. The simplest way is to tie the two rigs together so that one receiver controls the other transmitter. We should start now to gather this equipment and get it packaged. Once we get the initial crossband system up then we can expand or modify the system.

If you have any suggestions, equipment or questions, please pass them to me.

73

Harrie, VE3HYS

**********

A recent 20 meter contact with VE6BBP of Lloydminster revealed an unusual fact. The city is located right on the Alberta/Saskatchewan border and the provincial border cuts right through Main Street. Sixty percent of the city is in VE6-land and forty percent of the city is in VE5-land.

de WIARC Bulletin

## *** VOLUNTEERS WANTED ***

### Ski Marathon

The Canadian Ski Marathon takes place on the weekend of February 7 and 8, 1987. Again this year the OARC has been asked to provide communications for the event. Consider this to be a winter VHF field day. Plan to come out and have some fun.

You should have at least a 10 watt 2 meter rig and a 5 element beam would also help. The beam is pointed down the trail to listen for amateurs skiing the route as part of the safety group. There are two amateurs needed for every checkpoint plus safety skiers and mobile operators. At each checkpoint two radios are required, one in simplex (.52) and the other on the net repeater.

As in past years, we will likely use VE2RM on 146.40/147.00 for Friday, Saturday and early Sunday. Sunday will be 146.34/146.94 (VE2CRA) and 144.81/145.41 (VE2RBH).

I am looking for people and equipment. Even if you don't have equipment, please volunteer and I will look for equipment. If you can only help for part of the weekend - volunteer. You are still needed - last year there were almost 50 amateurs involved.

My phone numbers are also in the directory: work - 233-6241, home - 237-6427.

Hope to see you during the Marathon.

73,

Harrie Jones, VE3HYS

NOTES FROM THE EXECUTIVE MEETING

1. Thanks to Dan Holmes, VE3EBI, for his vigilance and effort in making a presentation to Gloucester council concerning antennas.

2. Comments from all members are sought concerning interest in having our club host a future RSO convention. If you have an opinion on this, please contact any member of the executive.

JANUARY 1987 MEETING

The program will be a DX forum. This will be a panel discussion led by Paul Cooper, VE3JLP, and will include Dave Goodwin and others. The discussion will be followed by a question period.

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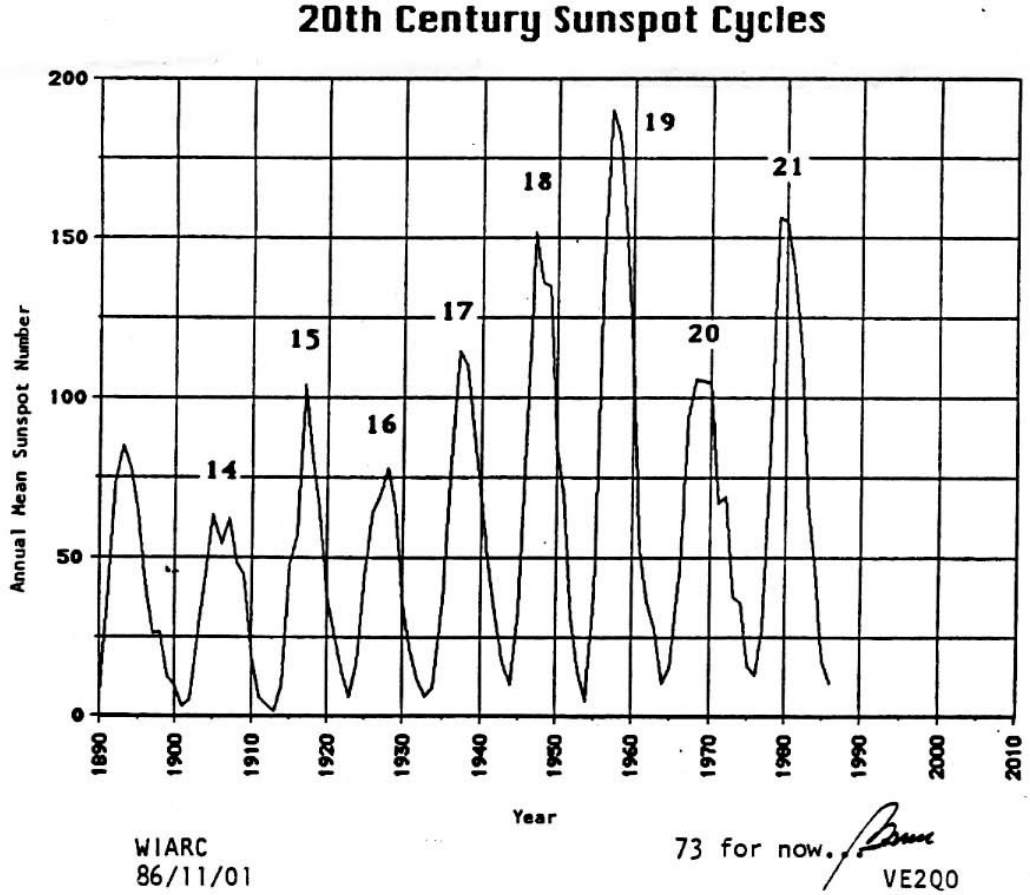
For those interested in solar cycle activity, the chart below (courtesy of the U.S. Space Environment Services Centre) shows the various cycles from the year 1890.




WIARC
86/11/01

73 for now.

VE2QO

de WIARC Bulletin

**KEBE CANNON HENRY**
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NCE CANNON, B.A., LL.B.
TE, B.Sc., LL.B.
ENRY, B.A., LL.B.

November 14, 1986

WITHOUT PREJUDICE

J. Ronald Scott
Fortey & Scott
Barristers an Solicitors
420-1335 Carling Avenue
Ottawa, Ontario
K1Z 8N8


Dear Sirs:

Re: Houghtby v. Ravenscroft

We wish to advise you of recent occurrences at the Houghtby home. Since the date that Judge Hollinger granted an injunction in this matter the Houghtbys have been experiencing minor interference on their television set. However, because the interference hardly interfered with the enjoyment of their home, they have not complained until now.

During the last week in October, the Houghtbys started to experience more severe interference. Such interference coincided with the times that Mr. Ravenscroft had normally transmitted prior to trial. However, this interference was still to a much lesser degree than that experienced prior to the trial and the Houghtbys actually had prepared to give us instructions to attempt to settle this matter since it appeared that Mr. Ravenscroft had found a way of transmitting without causing them undue disturbance. However, during the past two weeks the transmissions caused the picture on one television set to completely disappear and caused the furnace to activate again.

If Mr. Ravenscroft has been transmitting he is clearly in contempt of court and if he transmits again we have every intention of bringing a motion to have him cited for contempt. If he is using someone else's equipment or another neighbour is transmitting on his behalf, we intend to bring an action in nuisance against that person as well. Would you kindly advise your client to govern himself accordingly.

We had originally prepared this letter while the interference was on-going; even though the interverence has stopped, we wish you to be advised of the situation.

Yours very truly,

KEBE/CANNON/HENRY

M. Angela Henry

MAH:sp

cc: Borden & Elliot

## The Ravenscroft Case

The letter from KEBE/CANNON/HENRY accuses Jack of violating the court injunction which keeps him off the air. It makes interesting reading, especially since Jack's rig has been in Ralph Cameron's (VE3BBM) since last April. Possibly other amateurs in the area should take note.

Terrance N. White's audit of the J.R.S.D. Fund shows disbursements to date of $24,683.59 and cash on hand of $37,647.37. This latter will be needed (at least) for Jack's appeal, which may be within the next couple of months.

**********

Terrance N. White CHARTERED ACCOUNTANT

219 COLONNADE ROAD, NEPEAN, ONTARIO K2E 7K3 • TELEPHONE: (613) 723-0969

November 19, 1986.

RALPH CAMERON, CHAIRMAN
J.R.S.D. Fund
P.O. Box 8873
Ottawa, Ontario
K1G 3J2

Dear Ralph:

I have completed my examination of the books and records pertaining to the J.R.S.D. Fund and have prepared the attached statement of cash receipts and disbursements for the period May 23, 1985 to September 30, 1986. My examination included a detailed reconciliation of the Fund bank accounts and scrutinization of invoices pertaining to cash disbursements. I have also tested listings of donations received and traced these amounts to the Fund bank accounts.

Terrance N. White

Chartered Accountant.

TW/ms

J.R.S.D. FUND

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

FOR THE PERIOD MAY 23, 1985 TO SEPTEMBER 30, 1986

| | | |
|---|---|---|
| CASH RECEIPTS: | | |
| Donations received | | $ 59,604.68 |
| Foreign exchange gain | | 2,483.04 |
| Interest earned | | 243.24 |
| | | 62,330.96 |
| CASH DISBURSEMENTS: | | |
| Legal fees and expenses | $ 24,424.40 | |
| Office supplies and expenses | 188.47 | |
| Bank service charges | 70.72 | 24,683.59 |
| EXCESS OF CASH RECEIPTS OVER CASH DISBURSEMENTS | | $ 37,647.37 |
| REPRESENTED BY: | | |
| Bank of Montreal - Savings account #5147-893 | | $ 29,744.86 |
| Bank of Montreal - Current account #4600-093 U.S. Dollars $5,778.80 @ $1.3675 | | 7,902.51 |
| | | $ 37,647.37 |


[redacted]

| The Ottawa Amateur Radio Club, Inc. | | Box 8873, Ottawa, Ont. K1G 3J2 | |
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| Vice-President | Paul Cooper | R.R. 2, | 821-2167 |
| | VE3JLP | Metcalfe, Ont. K0A 2P0 | |
| Secretary | Gord Dey | 49 Stable Way | 592-0680 |
| | VE3PPE | Kanata, Ont., K2M 1A8 | 726-5219 |
| Treasurer | George Caskey | 19 Argue Drive | 224-6415 |
| | VE3NJN | Nepean, Ont., K2E 6S2 | |
| Past-President | Dan Holmes | 33 Crownhill Street | 746-0968 |
| | VE3EBI | Gloucester, Ont., K1J 7K5 | |
| Directors | David Anderson | 299A Craig Henry Avenue | 225-0886 |
| | VE3JTZ | Nepean, Ont., K2G 4E9 | 592-2122 |
| | Mark Farey | 26 Naismith Crescent | 592-2522 |
| | VE3OWL | Kanata, Ont., K2L 2K8 | 592-2122 |
| | Ralph Thomas | 2180 Benjamin Ave. | 729-9252 |
| | VE3GG | Ottawa, Ont. K2A 1P4 | |
| Packet Group Chairman | Dick Atkinson | 20 Mancil Drive | 825-5619 |
| | VE3JBO | Nepean, Ont., K2J 2J5 | |
| Repeater Chairman | Harrie Jones | 2-147 Arlington Avenue | 237-6427 |
| | VE3HYS | Ottawa, Ont., K1R 5S6 | 233-6241 |
| Net Manager | Bruce Lauer | 10 Winlock Crescent | 829-9471 |
| | VE3MJV | Nepean, Ont., K2G 3X4 | 957-1825 |
| Emergency Coordinator | Ken Kendall | 777B Springland Drive | 731-0892 |
| | VE3IHX | Ottawa, Ont., K1V 6L9 | |
| EMI Committee Chairman | Ralph Cameron | 30 St. Remy Drive | 825-1634 |
| | VE3BBM | Nepean, Ont., K2J 1A3 | 225-2850 |
| Membership Chairman | Peter Hafichuk | 118 Ivy Crescent | 745-0608 |
| | VE3LBW | Ottawa, Ont., K1M 1X6 | 993-1740 |
| National Cap. Award Manager | Brian Summers | 2231 Hillary Avenue | 523-1535 |
| | VE3JKZ | Ottawa, Ont., K1H 7H7 | 996-7885 |