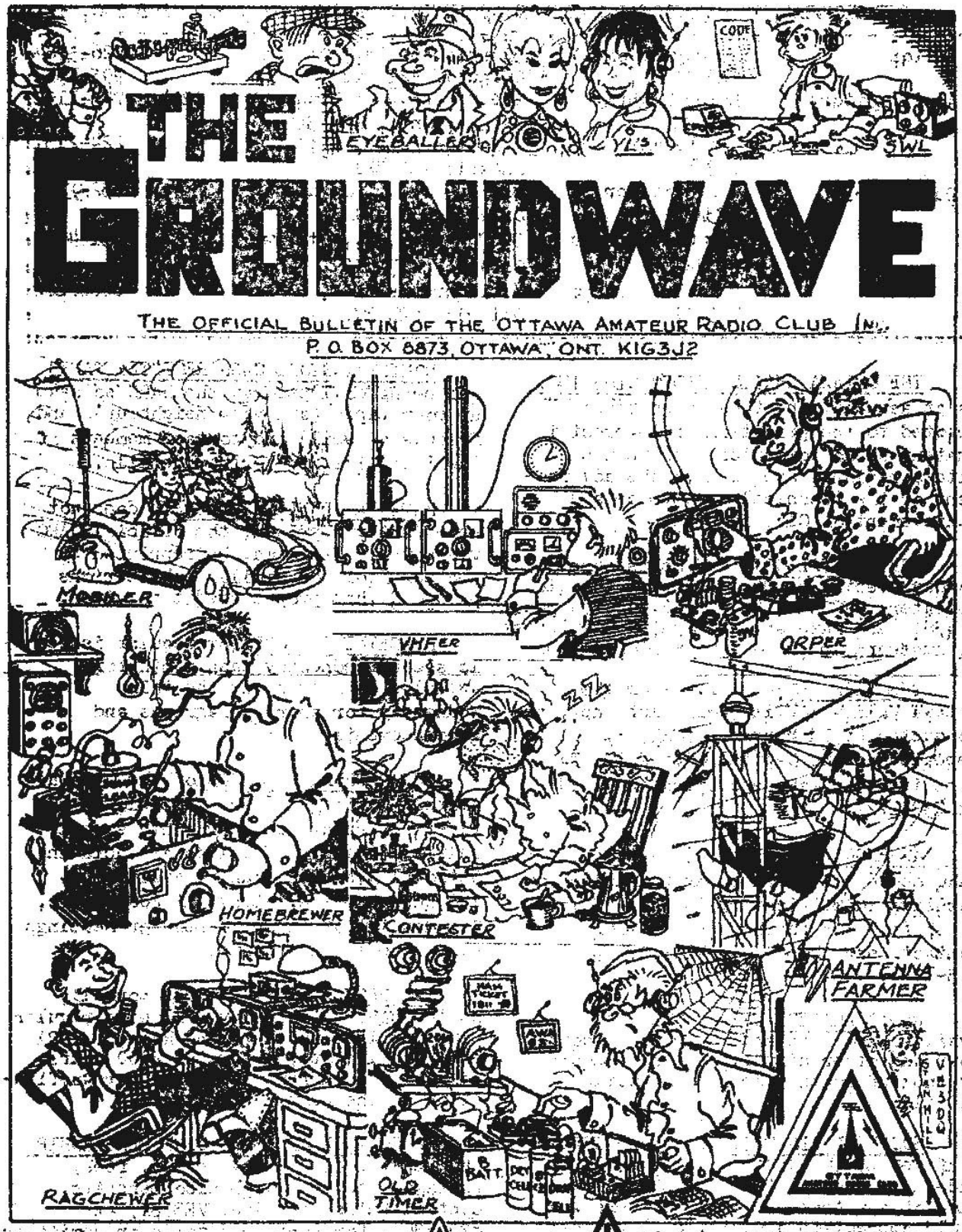
JUN 80



THE OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB Inc.
P.O. BOX 8873, OTTAWA, ONT. K1G3J2

AMSAT

Club Call VE3RC

Repeater VE2CRA

CARF

-- THE GROUNDWAVE -- OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB INC. --

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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 Ottawa regional area and to the advancement of the technical competence and achievement of Club members.

THE CAPITAL CITY NET meets every Monday evening at 2000 hours on the Club repeater, VE2CRA (146.34/146.94), to pass traffic and make announcements of interest to Amateurs in the Ottawa regional area.

THE SWAP NET, a service of the Ottawa Valley Mobile Radio Club Inc., and conducted by Ed Morgan, VE3GX, is repeated on the Capital City Net. To list items or make enquiries, call Ed at 733-1721.

AN ENGRAVING PENCIL is available to OARC members to mark their valuables for positive identification in case of loss or theft. For further information contact Penny Robinson, VE3ERO, at 225-1276.

RADIO AMATEUR CALL BOOKS are available for use at the Orleans, downtown and other city libraries. Enquire at the information desks for further details.

HOSPITAL VISITATIONS to any Amateur confined to the Civic Hospital will be made by Maureen Neill, VE3FZY. If you know of any Amateur confined there who would appreciate a visit, call Maureen at 725-4748 (233-9941 after 5:30)

DOMINION STORE CASH REGISTER TAPES are being collected by the OARC so save up your tapes (and your neighbour's and friends as well) and contact members of the Executive for further details.

MATERIAL PUBLISHED HEREIN does not necessarily represent the official OARC viewpoint. Items may be reprinted by Amateur Radio or similar publications provided that proper credit is given.

DEADLINE FOR COPY for regular issues is second Wednesday each month for articles of length and the third Wednesday for short paragraphs and announcements.

THE REGULAR MEETINGS of the Ottawa Amateur Radio Club Inc. are held on the first Wednesday of every month except July and August. Meetings are held in National Research Council Auditorium, 100 Sussex Drive, Ottawa at 2000 hours. See details of the next regular meetings elsewhere in this issue.

THE OARC EXECUTIVE meets normally on the second Wednesday following regular Club meetings in the Board Room of CFRA 150 Isabella St., Ottawa at 2000 hours. Contact the current Executive for confirmation of the next meeting date.

RENEW YOUR ARRL AND CARF MEMBERSHIP through the OARC and save M.O. fees, postage, etc. The Club also benefits. Contact Brian Barsalou, VE3IBK, at 829-7340, for further details or remittance forms.

SEE YOUR NAME IN PRINT!!! -- in National and Interantional publications. Write an article to be published in THE GROUNDWAVE and then watch it travel! Many local articles have been reprinted in Club bulletins all across North America.

MINUTES OF THE OTTAWA AMATEUR RADIO CLUB, INC. 7 May 1980

The meeting was called to order at 2000 hours by Paul VE3ICV, President. Visitors to the meeting included VE3PG, VE3MJQ and VE3JNM. Doug Taylor was congratulated for recently obtaining his new licence.

On a motion by Bill VE3NR, the minutes of the April meeting were approved as they appeared in the Groundwave. Paul reminded the membership that a volunteer is still needed to look after the preparation of coffee at the close of the meetings.

Ken Kendall, VE3IHZ has volunteered to take on the job of Net Manager and Emergency Coordinator.

The membership committee reported that our current, paid-up membership now stands at 281.

Murray VE3JSO, editor of the Groundwave, asked members to submit articles to the Groundwave. The deadline for lengthy articles is one week following the regular club meeting. Shorter articles can be submitted as late as the third Wednesday of the month for the next issue.

Fred VE3IO gave a report on the successful EMI clinic which was held at CJOH on April 19th. Fred thanked Sandy Cameron for making the facilities and some equipment available.

The membership was reminded that there are still some operating slots available for Field Day to be held the last weekend in June. This usually proves to be one of the most enjoyable event sponsored by the Club, so why not join the fun?

The executive is now considering improving or updating VE2CRA, the club repeater. Several of those present expressed interest in the various options presented for discussion.

Dave VE3JBX reported on the very successful banquet and dance which was held on April 18th. Over 40 people attended. The meal was excellent, and the dancing which followed was enjoyed by all present.

If there is enough interest, it is hoped that a Club picnic can be organized this summer, possibly jointly with the Ottawa Valley Mobile Radio Club.

Two professional linesmans belts have been acquired by the club for use by its members. Details on procedures for borrowing the belts are given on page 9 of this issue.

CARF and the DOC are holding a National Symposium on May 17th in Hamilton, Ontario at which Canadian Amateurs will have an opportunity to make recommendations to DOC on its revision of the Domestic Frequency Allocation Table and domestic Radio Regulations to take into account WARC '79. The changes can be expected to take many years to implement, but symposia such as the one to be held in Hamilton will permit the amateurs to make their views known to DOC so that their wishes can be considered in the changes.

It was stated that Doug VE3CDC is in the Ottawa General Hospital. All members of the Club extend their best wishes to Doug for a speedy recovery. It was suggested that his family be contacted before making any visit to the hospital.

Ten volunteers are required to help with communications for the Lions Club parade to be held on May 31st.

A new repeater is operating on 147.99/.39 MHz.

The club membership were saddened to learn that Ross Smythe, VE3FI, as well as VE3BHB had become silent keys.

Joe Blanchett reported that the power supply project is well under way.

-- continued on page 9.

POWER FAILURE INDICATOR

-Dave Harris, VE3KMV

The following circuit was devised to indicate the existance of an a.c. power outage. Under normal conditions, the neon lamp is not lit; if power is interrupted, the lamp will flash as soon as power is restored, and will continue to do so until manually reset. A second lamp may be connected to be normally on, and will be off during the outage.

The design goal was simplicity, parts availability, low cost and low power consumption. The circuit is connected directly across the 115 v.a.c. line. The importance of care when dealing with line voltage cannot be overstressed. All connections should be secure and insulated. If possible, an isolated 115 v. transformer winding should be used.

The D_1-C_1 combination is a simple 160 v.d.c. power supply. When a.c. power is present, the S.C.R. is on (after the "reset" has been pressed), so there is only a very low voltage across it. R_3 and C_2 in conjunction with the neon lamp form a relaxation oscillator. A small current (less than 1 ma.) flows through the S.C.R., holding it on.

When power fails, C_1 discharges to the point where the holding current cannot be maintained and the S.C.R. then switches off. When power is restored, the S.C.R. remains off, and the high voltage across it causes the lamp to flash until the "reset" button is pressed to again turn on the S.C.R.

The S.C.R. (TIC106D) costs about $0.70 from Future Electronics. Other S.C.R.'s have different holding and trigger currents, so that R_1 and R_2 might have to be changed for proper performance if a substitute is used.

VE3JSO hopes to operate C31RZ or C31IU on JULY 12, around 21.395.

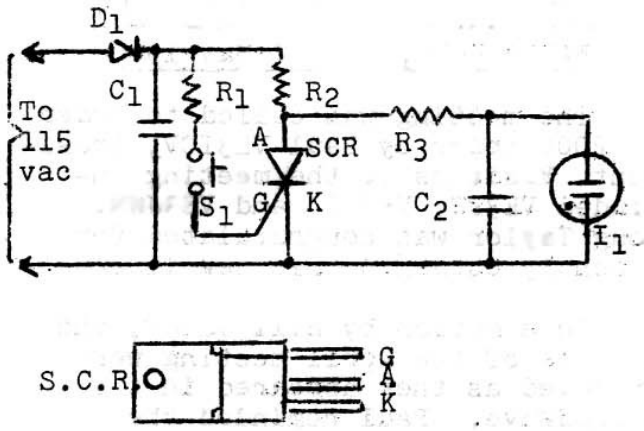

Figure 1. Circuit Diagram of Power Failure Indicator and Outline of S.C.R.

The length of power outage needed to trigger the indicator depends on the holding current and the value of C_1. Increasing the latter makes the interval longer. The flash rate can be altered by changing R_3 and C_2.

Parts List

D_1	1N4004 rectifier
C_1	0.22 microfarad, 250v.
C_2	0.1 microfarad, 250v.
R_1	220 k ohms, 1/4 or 1/2 w.
R_2	150 k ohms, 1/4 or 1/2 w.
R_3	4.7 M ohms, 1/4 w.
SCR	TI106D (or equivalent, PIV 400 v. minimum)
I_1	NE-2 neon lamp, or equivalent
S_1	N.O. push button switch

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KEYBOARD KEYER PROJECT

Early this year, I undertook the task of checking the prices of components for a keyboard keyer which had been discussed as a possible club project. The current price for a complete kit is $295 U.S., and the PC boards only are now $52.50. These prices are much higher than expected, and well beyond the target of $125-150. Thus, I do not intend to continue the project further, but I have all the details for anyone wishing to pursue it individually -- John Gilbert VE3CXL

NEXT MEETING

The next regular meeting of the Ottawa Amateur Radio Club, Inc. will be held on Wednesday June 4th 1980 in the Auditorium of the National Research Council, 100 Sussex Drive, Ottawa, at 2000 hrs.

This meeting will focus on preparations for Field Day, which is scheduled for June 28-29 this year. John VE3DYJ will start the meeting with a slide show of the antics of previous years to whet everyone's appetite for this year. This will be followed by a talk by Wally, VE3CBE on phased verticals and helical resonators, both of which will be available for the field site. Some photographs of past Field Days are included in this issue of the Groundwave on page 11.

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H.F. AWARDS FOR THE DESERVING AMATEUR

- Brian Summers VE3JKZ

CQ Magazine sponsors several awards for the H.F. operator. These are the CQDX Award, Worked All Zones (WAZ), Worked Prefixes (WPX) and the United States Counties Award (USA-CA).

The CQ CW DX and CQ SSB DX Awards are offered for 100 or more countries confirmed on CW or SSB--there is no mixed mode award. To promote multiband usage and special operating skills, the following special endorsements are available:

a) 28 MHz band endorsement for 100 or more countries on ten meters

b) 3.5/7 MHz band endorsement for 100 or more countries using any combination of 80 and 40 meters

c) 1.8 MHz endorsement for 50 or more countries on 160 m.

Other endorsements are available for QRPP, mobile operation, SSTV and OSCAR. Additional country endorsements can be obtained for 150, 200, 250, 275, 300, 310 and 320.

The CQ countries list is identical to that of the ARRL DXCC with one major difference; countries which cease to exist are automatically deleted. You may recall that when I discussed the DXCC rules, I pointed out that many DXCC holders have totals considerably in excess of the total currently eligible because they are still credited with non-existent "countries" they had once worked. This is not the case for the CQDX Award. If there are 319 countries on the current DXCC list, then no holder of a CQDX Award will have more than 319 credited to his total. This was brought home to me when I submitted my cards for review and was not allowed my claim for KZ5OJ, because the Canal Zone had ceased to exist as a separate country. This is not the case with my DXCC total, and that is why many people consider the CQ award to be more equitable.

There are other differences between the DXCC and CQDX awards as well. First, there is a five dollar charge for the CQ award. Another difference, very important in my view, is that you don't have to send your cards outside of the country for validation. VE3GMT, Jack Reed of Toronto, is an authorized check point for Canadians. He had my cards back to me about ten days after I had mailed them from Ottawa. That is a lot less nerve-wracking than waiting months for cards to return from Newington, CT.

Another nice thing about the CQDX Award is that since it is less well known than the DXCC, not so many h have been issued; mine is no. 853 which is much more impressive to visitors than my DXCC #18,561. The Honour Roll starts at 275. Full details can be obtained by sending an SASE to: Billy Williams, N4UF, 911 Rio St. Johns Dr., Jacksonville, FLA, USA 32211.

HOME-BREWED CIRCUIT BOARDS

There is no doubt that the photo-resist method is the best method for making circuit boards particularly if a number of similar boards are to be made. However, the photo route is a @#$%¢ of a lot of trouble to go to if you only want one board. I got up my courage and purchased a Radio Shack circuit board kit. After reading the directions and number of articles on the subject, I took the plunge. The results were far better than I expecte. So, here is how it is done.

What you will need:

1. Suitbsle piece of circuit board (4" x 16" glass board, $2.75)
2. 3/64" drill (75¢)
3. Resist pen ($1.99)
4. Ferric chloride solution (32 oz., $2.75)
5. Pieeeof 10 x 10 to the inch graph paper.
6. Xacto knife.
7. Small pad of fine steel wool.
8. Pyrex dish ($2.00 butter dish works fine)
9. Sharp awl.
10. Sharp Centre punch.
11. Patience and a steady hand.
12. Strong magnifying glass. A jewe eller"s glass is even better.

Preparing the circuit board:

Step 1:

Lay out the circuit on the 10 x 10 to the inch graph paper. 1/10" spacing is correct for IC's, so do not use other graph paper. Ensure that you have all the parts before you lay out the board. Why? All 10 pf condensers are not packaged the same and the finished board will be easier to wire and look more professional if the leads fit the holes.

Step 2:

Tape the graph paper to the circuit board on top of the copper side after all mounting holes in the board have been marked.

Step 3:

For each mounting hole, very carefully make an indentation in the copper using a sharp awl. Remove the graph paper when all the holes are marked.

Step 4:

Carefully centre-punch all indentations that were made with the awl.

Step 5:

Drill the holes with the 3/64 drill. Be sure the drill is in the centre-punch mark before starting the drill. If it is not, you may remove copper from the board where it is needed. Your IC socket holes may not align properly. A 1/16" drill that comes in the PCB kits is tooo large.

Step 6:

Clean the circuit-board copper by rubbing it with the fine steel wool. When it is clean, DO NOT TOUCH THE COPPER with your hands. Handle the board by the edge or you may find your finger prints etched in copper.

Step 7:

Draw the circuit on the copper using the resist pen. Be very careful inking around the IC holes for they are close together and the resist pens are quite blunt.

Step 8:

Examine the board carefully with the magnifying glass. If the resist pen has bridged two IC terminals, carefully scrape away the ink using the Xacto knife or other sharp fine tool. Be careful not to cut through the copper. Esamine all resist lines and you will probagly find numerous places that are not covered. These will not be visible to the naked eye but are very evident when magnified. Go over these places again with the resist pen.

Step 9:

Repeat Step 8, going over the complete board with the resist pen and carefully examining it and re-inking where necesaary. It is sometimes necessary to ink over a spot a number of times to fill in what appears to be gouges in the board from steel wool. If thes are not filled with resist, they will end up as cracks or open points in the foil and you will wonder why your finished product doesn't work. This is very important

Etching the circuit board:

Ferric chloride is corrosive. Do not let it get on your skin or spalsh outside the pyrex dish. Keep a pail of water handy to get it off your skin jor to terminate the etching process when it is finished.

Put sufficient solution in the Pyrex dish to cover the board. Put the board into the solution with the copper side down. I used a peece of #18 bell wire with a hook on one end through one of the board mounting holes to put the board into the dish and to remove it periodically for examination.

Gently rock the cish so that the solution is alwasy amving. As the board etches, the solution will darken. The length of time to etch a board depends on the thickness of the copper, the strength of the ferric chloride solution and the temperature of the solution.

The Radio Shack kit that I used said that it would take 20 minutes. to etch the board and that is exactly how longit took. When the board is finished etching, put it into the pail of water and swish it around for a few seconds. Then run water over it in the sink for two minutes.

The etch resist is removed with a solution in the Radio Shack kit that smelled like benzene. It removed the resist but did not do a very goood job. I tried Varsol. That seemed to work just as well. I also tried Bon Ami which seemed to work best and cleaned the copper as well, making it ready for mounting components. Next time I will use Bon Ami and forget the other solutions.

Before mounting the components, examine all of the copper for hair line cracks that may not have been properly covered with resist ink. If there are any, bridge them with solder to avoid their opening at a later date. Your board is now ready to mount the components. With patience and a steady hand, your board should be just as good as a commercial product.

Some further thoughts:

The Radio Shack kit cost about $10.95 which is relatively expensive but it has sufficient of everything to do two boards. So it is a good buy if you are not going to make many boards.

The prices for blank circuit board and ferric chloride given in the parts list are from a Queen St. junque emporium. Buying your own bits and pieces is much more economicalif you intend to do more than one or two boards.

Using a resit pen is no problem when you are using discrete components. However, inking around IC holes with a blunt pen is difficult. For my next board, I am using Ceresist from a Yonge St. junque emporium. Ceresist comes on transparent sheets like Letraset. The sheet is laid over the copper and the IC terminal is rubbed with a ballpoint pen or other smooth object. This transfers it from the sheet to the copper. The Ceresist is not etched by the ferric chloride. The lines between terminals can be drawn as described previously. Cerresist costs $1.95 per sheet and contains enough for 30 seven-pin IC sockets.

de Ron Brown VE3WZ, SparcGap

HAMFEST

Ontario Hamfest 80, 4-6 July, Milton Fairgrounds, Milton, Ont. Registration fee $2 ($3 after 15 June P.O. Box 836, Burlington, Ont L7R 3Y7. Talk-in 146.250 simplex and 147.91/21.

Some thoughts on QSL Cards (A two part series)

by John Gilbert VE3CXL

Part II - The Alternatives.

Many hobbies and sports, when viewed objectively, take on a fairly ridiculous air. Why would any rational person want, for example, to chase a little white ball around the countryside, or to soak little pieces of paper off another piece of paper so they can be accumulated in albums? Bob, VE7BS once compared our interest in DXing to a man walking through a busy shopping centre shaking hands with every tenth person and saying "Ur RST 579, name is John". But let's not dwell on that aspect for long as the object of this article is to examine one aspect of the hobby, that of collecting QSL cards and in particular their use in applying for awards.

To an active amateur, to even question the need for QSL cards is close to heresy. However, we established in part I of this article that the cost of QSLs gathered for the purpose of applying for awards is significant when one takes into account postage, registration fees etc. Some alternative approaches would seem to be desirable.

The problem has been recognized already by many award giving societies and several cost saving techniques have been used. The Radio Society of Great Britain, for example, does not require that cards actually be sent with an application for an award, but simply that an official of the national amateur radio society of the applicant has certified that the amateur has the cards in his possession. The CQ magazine awards require that certain reliable amatours in the applying amateur's country can certify that the cards are on hand and have been authenticated. Others require that the applicant does not send the cards, but has to be able to produce them if requested by the award giving society (some do this on a sample basis). There are even some awards which are given on the basis of the word of the applicant and require no cards at all.

To really address the problem one has to look at the objective of awards from the point of view of the individual. There appears to be two major objectives. The first is for the considerable personal satisfaction that one obtains from an operating achievement award (DXCC, Canad-Award, WAS, etc.). The second is a competitive objective where one is trying to outdo one's peers, either by obtaining a bigger and better award or by being higher on the DX listings etc. (The two are, of course, not mutually exclusive). I feel that the need for written confirmation of contacts is different in the two cases.

In the case of awards obtained for purely personal satisfaction, I would think that no rational person would be satisfied if they had cheated to obtain the award. I have, for example, had the good fortune to travel internationally and have accumulated a number of rare DX QSL cards from "eyeball" QSOs. If I were an unscrupulous individual I could simply fill the cards out for a fictitious contact and use them for awards. Apart from the ethical considerations which have prevented me from such a step (I will admit to the occasional temptation!) the only person I would be fooling would be myself. One could argue, therefore, that for personal satisfaction awards the use of QSLs is not really necessary. The only flaw with that reasoning is the need for proof of contact because of the existence of "pirates". In reality, "pirates" fool very few people as the DX fraternity is very quickly able, through beam headings, signal strength checks, etc. to verify the real from the phony operators, and the phonies are given fair publicity in the DX bulletins and amateur magazines.

In the case of the competitive use of awards, the need for a positive proof of contact is much more important. Even though there may be a few loopholes in the QSL system, such as I mentioned earlier or the fact that unscrupulous operators may sometimes use another amateurs station, the QSL system is recognized as a reasonably effective way of confirming that the conditions for a particular award have been met. At this point I would like to introduce another disadvantage of the QSL system. An active DX operator, (or DX expedition) has to fill out literally thousands of cards each year. Even though the cost of their effort is partly defrayed by IRCs, donations etc. (and I understand that costs are only barely covered in most cases), these DX operators still spend an enormous amount of time on behalf of the fraternity. This time could well be spent on other things, such as more operating, chasing white balls around the countryside or sticking pieces of paper in albums!

In brief, there appears to be a need for some form of positive checking of applications for awards, but the extent of such checking could be reduced thus saving the time of DX operators and the money of amateurs in general. In addition, a significant reduction in the number of QSLs which need to be submitted for awards would be of benefit to those socities who now go to considerable effort in checking 100% of the cards being submitted. I would propose that there be a basic change in amateur awards so that there are two types - not confirmed and confirmed. The "not confirmed" type, aimed primarily at personal satisfaction would require that the applicant

certify on his honour that he has made the required contacts. No QSLs would be required, although one might perhaps require that two active amateurs of long standing be required to certify that they know the applicant to be an active and serious member of the amateur fraternity.

The "confirmed" type would be aimed primarily at the competitive award hunter. The approach would be exactly the same as for the "not confirmed" type except that the applicant would be subject to auditing. The award giving society would simply sample, say, every 10th application and send a form letter to a sample of the contacts claimed by the applicant. The form letter would ask the DX station to confirm that the applicant is in his log. The cost of these letters would be defrayed by a small applicant fee which would be insignificant compared to the present day cost of QSLing.

de VE3CXL

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MINUTES - continued

The monthly prize, a digital clock, was won by Keith, VE3GFI.

Equipment demonstrations were given by VE3IAY, VE3MJC, VE3GK and VE3KEG.

The meeting, which was attended by 102 members and visitors, was adjourned at 2030 hours on a motion by VE3CVA seconded by VE3BCO.

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APOLOGIES from the Editor

This month's issue of the Groundwave will not reach most of you by June 4th, the Club meeting date. Because of a combination of problems including the fact that I was out of town much of this past month, a replacement part for my typewriter was delayed and some of the essential articles were delayed, we are about one week behind schedule. I hope that I will be able to keep on schedule for all issues in the future, and apologize for any inconvenience that late delivery of this issue might cause you.

73,

Murray, VE3JSO

LINEMAN's BELTS

The Club Executive recently purchased two lineman's body belts, two pole straps and two tool bags. These items are of professional quality as required for safe work on towers and antennas (and were expensive). Your life depends upon the belt and pole strap.

We had to choose two belts from a selection which included eleven different sizes. Additionally, with nearly 300 members, there are bound to be some who will not be able to use the belts, unfortunately. Hopefully, the two selected will fit the majority of members; one is rated for nominal 33-39 inch waist and the other for 39-45 inches.

The Belts will be available for use by members on production of a current membership card and a post-dated cheque for $100.00 made out to the club. The purpose of the cheque is to protect club assets in the event of failure to return the equipment.

If you wish to borrow a belt, strap and tool bag, call Brian VE3JKZ at 523-1535.

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AMSAT PHASE III

The launch of the AMSAT Phase III satellite was scheduled for Friday May 23rd during a three hour launch window starting at 1130 UTC. There were many delays during the countdown so that it was only about 20 seconds before the launch window closed at 1430 UTC that a terminal count was reached and the European Space Agency officials committed to the launch of the LO-2 Arienne, and ignition then occurred. Within a few seconds of launch, one of the four rocket motors in the Arienne launch vehicle's first stage began losing power. By one minute into the launch, that engine had gone below the threshold that the guidance computer could control the

-- continued on Page 10

OTTAWA AMATEUR RADIO CLUB, [illegible] OF EQUIPMENT

Class	Item	Year Acquired	Original Value
Repeater	VE2CRA Sundry Equipment	--	$625.00
	Motran Receiver	1977/78	428.00
	420 MHz Receiver	1970	25.00
	Diplexer (RF Technology)	1976	349.00
	Solid State Rx/Tx Strip	1974	107.33
	Preamplifier (2 meters)	1977	33.00
	Link Receiver	1977	172.35
	420 MHz Diplexer	1972	100.00
Field Day	Portable Toilet	1975	7.34
	Tent	1976	20.00*
	12 v. generator	1976	10.00*
	Tent Pegs	1975	3.10
	Aluminum Wire	--	--
	Tamper 115 vac 60Hz Alternator	1973	230.00
	12(?) five foot TV Masts	1974	24.00
	Mosley RV5C Vertical Antenna	1975	60.00
	DJ84 Marconi two meter Transceiver	1960	50.00
	Two each Lineman's Body Belts, pole straps and tool buckets	1980	370.26
Meetings/ Auction	33-999 Microphone	1974	15.95
	Three Cash Boxes	1975	18.84
	Masonite Bulletin Boards	1975	3.70
	30 Cup Coffee Urn	--	25.00*
	100 Cup Coffee Urn	1973	50.00*
Educational	16 Recording Tapes (CW)	1974	23.56
	2 each HD16 Code Prac. Osc.	1972	30.00
	Homebrew Code Prac. Osc.	1972	10.00*
	Lafayette Tape Recorder	1958	170.00*
Publishing	Olympic Typewriter	1969	113.50
	Model 360 Gestetner Dup & Desk	1977	750.00
	Electric Stapler	1972	42.75
	Electric Stapler	1977	53.50
	Addressing Machine	1974	175.00
Misc.	Low Pass Filter	--	--
	Engraving Pen	1978	26.95
	IC215 Portable c/w rubber duck	1978	267.13
	ICOM BC-20 Battery Charger	1980	70.00
	Magazines, 35mm slides, photos and VE3RC nameplate	--	--
		GRAND TOTAL	$4460.26

*Estimated cost

Details on the above may be obtained from the Executive.
John Gilbert, VE3CXL, Treasurer. May 15th, 1980.

AMSAT - continued

the spacecraft. At that point, the vehicle began tumbling. About half a minute later, a loud explosion occurred. It was not known whether the vehicle exploded spontaneously or was destroyed by the range safety officer. The result was the loss of AMSAT Phase III, a devastating blow to all the amateurs who had worked so hard to build this satellite.

Many components exist to build another identical satellite, and of course all the designs are available. However, the coffers are empty. If the world's amateurs wish to try aga again, donations will be needed, and it will likely be at least three years before another launch can be tried. Your moral and financial support is needed to help those who worked so hard to build another AMSAT.

FIELD DAY

THE OTTAWA AMATEUR RADIO CLUB, INC.
P.O. Box 8873, OTTAWA, Ontario, Canada
K1G 3J2

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THE OTTAWA AMATEUR RADIO CLUB INC. BOX 8873, OTTAWA, Ont. Canada K1G3J2			
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V/President	Brian Summers	2231 Hillary Ave., OTTAWA	523-1535
	VE3JKZ	Ontario, K1H 7H7	993-2931
Secretary	Dave Parks	Apt. 809, 1725 Riverside Dr.	733-6494
	VE3GSA	OTTAWA, Ontario, K1G 0E6	997-7827
Treasurer	John Gilbert	714 Highland Ave., OTTAWA,	729-2282
	VE3CXL	Ontario, K2A 2K7	995-2128
Directors	Fred Green	118 Riverdale Ave., OTTAWA,	232-5920
	VE3IO	Ontario, K1S 1R2	596-9359
	Dave Hilborn	1231 Shillington Ave., OTTAWA,	722-9811
	VE3JBX	Ontario, K1Z 7Z9	225-1980
	Jim Swail	18 Kilbarry Cr., OTTAWA,	746-1437
	VE3KF	Ontario, K1K 0G8	
P/President	Larry Bradley	1377 Chartrand Ave., ORLEANS,	824-3753
	VE3CRX	Ontario, K1E 1H9	992-3238
Repeater	George Roach	104 Strathcona Ave., OTTAWA	234-0885
Chairman	VE3BNO	Ontario, K1S 1X6	233-6241
Membership	Ken Pulfer	1756 Laxton Cr., OTTAWA	225-3108
Chairman	VE3PU	Ontario, K2C 2N3	993-1992
Custodian &	Gerry Martin	1771 Hutton Ave., OTTAWA	731-3220
Archivist	VE3CNJ	Ontario, K1G 1M1	
Net MGR. &	Ken Kendall	777B Springland Dr., OTTAWA	731-0892
Emerg. Coord.	VE3IHX	Ontario, K1V 6L9	