

**NORTH SHORE AMATEUR RADIO CLUB INC.**

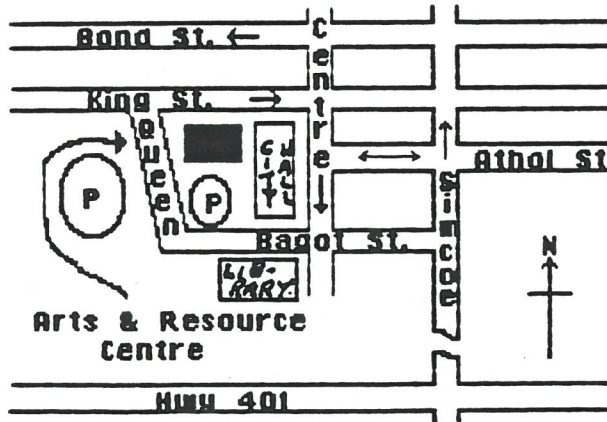
**P.O. BOX #171, OSHAWA, ONT., L1H 7L1**



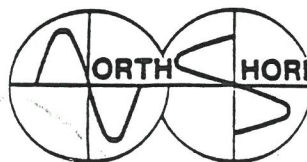
*June/88*

**First Class Première classe**

VE3CRK 88  
Ralph Day  
454 Holcan Ave  
Oshawa Ont. L1G 5X6



**N.S.A.R.C. meeting at the  
Arts & Resource Centre  
2nd Monday of each Month  
8:00 PM**



**NORTH SHORE AMATEUR RADIO CLUB INC.**

**P.O. BOX #171, OSHAWA, ONT., L1H 7L1**

## ===== ELECTED DIRECTORS =====

PRESIDENT	RALPH DAY	VE3 CRK	416-576-8738
SECRETARY	RAY ZAMBONELLI	VE3 OUB	416-723-2467
TREASURER	MIKE SHERBA	VE3 DKW	416-723-7674
PROGRAM DIRECTOR	JOE WHITE	VE3 IHS	416-623-4069
PAST/VICE PRESIDENT	RICK GIBSON	VE3 ASH	416-434-2886

## ===== NON-ELECTED OFFICERS (SUBJECT TO CHANGES) =====

REGISTRAR	KEITH WYARD-SCOTT	VE3 GDF	416-723-5758
SPECIAL EVENTS COORD.	RALPH DAY	VE3 CRK	416-576-8738
GET-WELL CARDS	COLIN BELL	VE3 GDF	416-723-7482
2-METER NET CONTROL	ROY MILLER	VE3 AAF	416-852-5447
MEMBERSHIP LIST & LABELS	PAUL DALE	VE3 LHZ	416-579-2877
INSTRUCTION COORD.	RICK GIBSON	VE3 ASH	416-434-2886
AUDITOR	HARRY WESTWOOD	VE3 QG	416-683-5104

=====
CLUB STATION.....VE3 NSR

CLUB REPEATER.....VE3 OSH 147.720 MHZ IN 147.120 MHZ OUT.

2-METER NET HOSTED BY ROY (AAF)(OR A STAND-IN)CONVENES EVERY THURSDAY AT 19:30 LOCAL TIME ON THE CLUBS REPEATER (OSH). AS PART OF THE NET, CODE PRACTICE IS PROVIDED BY BERNIE (ATI) BEGINNING AT 20:30 LOCAL.

10-METER NET (UNOFFICIAL)- A GROUP OF LOCAL HAMS MEET SUNDAYS ON 28.200 MHZ USING CW FROM 09:00 TO 10:00 LOCAL THEN SWITCH TO SSB PHONE UNTIL EXHAUSTED OR XYL'S CALL DINNER

## ===== CONTRIBUTIONS TO NEWSLETTER =====

EDITORS-	KEITH WYARD-SCOTT	VE3 GDF	416-723-5758
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CONTRIBUTIONS MAY BE MAILED (ATTENTION THE EDITOR) TO THE N.S.A.R.C., BOX #171, OSHAWA, ONT., L1H 7L1 OR, IF URGENT, CALL ONE OF THE EDITORS DIRECTLY.

NOTE!- OPINIONS EXPRESSED ARE THOSE OF THE WRITERS AND DO NOT, OF NECESSITY, REFLECT THOSE OF N.S.A.R.C. MEMBERS IN GENERAL. ARTICLES DEEMED TO BE DEFAMATORY WILL NOT BE ACCEPTED.

=====
NEXT MEETING - MONDAY, JUNE 11, 1988 AT 20:00 LOCAL (8:00 P.M.) IN THE GREEN ROOM OF THE ARTS RESOURCE CENTRE (BEHIND CITY HALL - CENTRE STREET SOUTH- SEE MAP ON PAGE 1)

PROGRAM-THIS MONTH THE MEETING WILL FEATURE TWO FILMS WHICH DEAL WITH WEATHER AND LIGHTNING AND A SHORT DISSERTATION ON THE EFFECTS LIGHTNING ON HAM GEAR BY MEMBERS WHO HAS BEEN THERE (MIKE SHERBA VE3 DKW).

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FIELD DAY--JUNE 26, 1988--HEBER DOWN CONSERVATION AREA--WEST SIDE OF COUNTRY LANE GOLF COURSE.NORTH TO HEBER DOWN CONSERV. AREA--CROSS ROAD AND GO DOWN TO MAIN PARKING LOT--NO ALCOHOLIC BEVERAGES (CLOCA REGS.)--DO NOT DRINK OUT OF LYNDE CREEK --COME OUT AND BE PART OF THE DAY EVEN IF YOU CAN ONLY VISIT--20 &amp; 40 METERS-- CONTACT JOE (IHS) 623-4069. --- HE WILL NEED A LITTLE HELP IN SETTING-UP AND CLEANING UP AND SOME FINE OPERATORS (OF WHICH OUR CLUB HAS ONE OR TWO--AND LOTS OF MORAL SUPPORT

-----  
 APOLOGIES ARE IN ORDER AGAIN!  
 -----

YOUR EDITOR HAS AGAIN BEEN CAUGHT PUBLISHING FALSE INFORMATION AND IT IS WITH GREAT GLEE THAT I ADMIT THAT IT WAS BECAUSE I HAD BEEN GIVEN ERRONEOUS DATA (THAT'S INFORMATION IN COMPUTER TALK). THAT BEING AS IT MAY, WE FEEL THAT THE ERROR SHOULD NOW BE CORRECTED AND TO THAT END, WE HEREBY DECLARE THAT MAX SCHAAL, AND NOT STEVE KENYON, HAS SUCCEEDED IN CLEARING THE FIRST HURDLE AND NOW HAS HIS FIRST TICKET. HE IS SPORTING CALL LETTERS WHICH SHOULD MAKE HIM VERY EASY TO IDENTIFY SINCE THEY ARE HIS INITIALS (MJS).

TOO BAD THEY DIDN'T ALLOW US TO PICK OUR CALLS WHEN I GOT MY TICKET; I COULD HAVE BEEN 'KING WILLIAM'S SPIRIT' INSTEAD OF 'GREAT DAIRY FARMER' (OR 'G-- D--- FOOL' AS THOSE WHO KNOW ME ARE WONT TO SAY).

-----  
 SIGNS OF THE TIMES (REALLY THE N.S.A.R.C)  
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IT SEEMS THAT WE HAVE NOT BEEN TOOTING OUR OWN HORNS OFTEN ENOUGH AND FEW PEOPLE REALLY KNOW WHAT WE HAVE BEEN DOING WHEN WE HAVE BEEN DOING IT, SO, OUR EXECUTIVE HAVE ORDERED SOME MAGNETIC SIGNS TO BE DISPLAYED WHEN WE ARE SUPPLYING COMMUNICATIONS FOR VARIOUS FUNCTIONS SUCH AS THE SANTA CLAUS PARADE, ETC. THEY WILL BE WHITE WITH DARK BLUE LETTERING WHICH WILL BE QUITE EASILY READABLE AND WILL STATE THAT OUR CLUB IS PROVIDING COMMUNICATIONS USING OUR CLUB LOGO OF THE STYLIZED SINE-WAVE FOR THE 'N' AND 'S' OF 'NORTH SHORE'.

-----  
 WORTH REPEAT(ER)ING  
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THE EXECUTIVE IS CONTINUING TO WORK WITH THE TECHNICAL COMMITTEE IN LOOKING FOR ECONOMICAL (LOW COST) WAYS TO IMPROVE THE REPEATER. ONE STEP WHICH IS FIRST PRIORITY AND WILL BE CARRIED OUT THIS YEAR IS THE PAINTING OF THE TOWER WITHOUT WHICH THERE WOULD BE A GREATLY REDUCED COVERAGE.

IN CASE YOU DID NOT KNOW, THERE IS A SECOND REPEATER AT OUR SITE WHICH IS USED FOR PACKET RADIO AND, I BELIEVE, IT IS AVAILABLE TO ANYONE LICENSED FOR PACKET. BERNIE (ATI) OR HARRY (QG) CAN GIVE YOU PARTICULARS.

WHILE ON THE SUBJECT OF THE REPEATER, THERE HAVE BEEN REPORTS OF PEOPLE WHO WERE USING THE REPEATER FOR CHIT-CHAT REFUSING TO BACK OFF FOR OTHERS ASKING FOR ACCESS FOR EMERGENCY TRAFFIC. PLEASE !!!!!, ALLOW ANYONE HAVING EMERGENCY TRAFFIC FREE ACCESS TO THE REPEATER AND, FOR THAT MATTER, IF THE REPEATER IS NOT ESSENTIAL TO MAINTAINING CONTACT, PLEASE USE SIMPLEX FOR YOUR CHAT AND LEAVE THE REPEATER FOR THOSE WHO NEED IT.

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 BIKE-A-THON  
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WE HAVE BEEN INFORMED THAT THERE WILL BE IN TORONTO ON JUNE 12, 1988, A BIKE-A-THON IN AID OF THE HEART AND STROKE FOUNDATION AND THAT THEY WILL BE USING AMATEUR RADIO FOR COMMUNICATIONS. FOR MORE INFORMATION OR OFFERING YOUR HELP CONTACT EVAN (VE3IND).

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 HORSE TRIALS  
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THREE LOCAL HAMS, BOB (ADJ), GLEN (LIZ), AND ERIC (HMG), RECENTLY MANNED THE CHECK POINTS ON THE THIRTY-MILE COURSE THROUGH THE GANARASKA FOREST AND FOUND IT VERY INTERESTING.



LIGHTNING: WHERE WILL IT HIT NEXT ?

WE ALL KNOW WHAT LIGHTNING IS (OR DO WE?). IT IS A COMMON PHENOMENON, APPROXIMATELY 600 FLASHES OCCUR EVERY SECOND SOMEWHERE ON THE GLOBE (ACCORDING TO A SPECIAL REPORT PUBLISHED IN THE MAY/JUNE 1972 ELECTRONICS DIGEST). FOLLOWING ARE SOME EXCERPTS FROM THAT SAME ARTICLE. (THE MAGAZINE IS U.S. SO FIGURES ARE FOR U.S.--N.S. EDITOR)

THUNDERBOLTS HAVE ALWAYS INTRIGUED AND FRIGHTENED MANKIND. IN RECENT HISTORY LIGHTNING AND THUNDER HAVE ALSO AMAZED SCIENTISTS, WHO HAVE SENSED, WITH THEIR INSTRUMENTS, THINGS THAT TOTALLY ESCAPE THE EYE AND EAR.

IT IS ECONOMICALLY SIGNIFICANT, AS WELL, CAUSING \$100,000,000 IN PROPERTY DAMAGE AND 10,000 FOREST FIRES YEARLY IN THE U.S. ALONE. IT ALSO KILLS HUNDREDS OF AMERICANS EACH YEAR. IT IS DANGEROUS.

LIGHTNING CAN OCCUR IN SEVERAL WAYS. MOST OFTEN IT HAPPENS ENTIRELY WITHIN A CLOUD. IT CAN ALSO GO FROM CLOUD TO CLOUD, AND SOMETIMES EVEN APPEARS AS THE PROVERBIAL 'BOLT OUT OF THE BLUE' WHEN THERE IS NO CLOUD AROUND.

THE FLASH OCCURRING BETWEEN A THUNDERCLOUD AND THE GROUND IS THE MOST COMMONLY SEEN AND, THEREFORE, IS OF MORE INTEREST AND IMPORTANCE TO US.

JUST BEFORE A LIGHTNING STRIKE, VARIOUS PHENOMENA MAY BE OBSERVED IN THE TARGET AREA SUCH AS HAIR STANDING ON END (NO MENTION OF WHICH END--N.S. EDITOR), A SOFT BLUE GAS DISCHARGE GLOW AROUND THE TIPS OF POINTED OBJECTS, EVEN BLADES OF GRASS, OR A HISSING SOUND, EVIDENCES OF 'ST. ELMO'S FIRE'.

THE STRIKE, WHICH CAN RELEASE ENOUGH ENERGY TO LIFT THE QUEEN MARY SIX FEET INTO THE AIR (I HOPE THEY ARE TALKING ABOUT THE SHIP--N.S. EDITOR), IS OBSERVED AS A CROOKED FORKED STREAK OFTEN SEVERAL MILES, LONG WHICH IS OVER IN ABOUT A FIFTH OF A SECOND OR SO, FOLLOWED BY A CLAP OF THUNDER, WHICH MAY LAST MANY SECONDS.

THE LIGHTNING SPECIALIST USES A HIGH SPEED CAMERA AND SEES A MUCH MORE DETAILED STORY SOME COMPONENTS OF WHICH LAST ONLY AS LONG AS A MILLIONTH OF A SECOND.

THE CAMERA REVEALS THAT A LIGHTNING FLASH CAN HAVE SEVERAL COMPONENTS: STEPPED LEADER, ASCENDING STREAMER, AND RETURN STROKE, USUALLY FOLLOWED ALTERNATELY BY DART LEADERS AND MORE RETURN STROKES.

THE STEPPED LEADER IS THE FIRST STAGE OF THE TYPICAL FLASH. A BRIGHT STREAK ABOUT 150 FEET LONG AND 3 TO 30 FEET WIDE EXTENDS FROM THE BOTTOM OF THE CLOUD AND DESCENDS TOWARD THE GROUND BY A SERIES OF PULSATING, JERKY STEPS, EACH LASTING ABOUT 50 MILLIONTHS OF A SECOND.

IN ITS WAKE, THE STREAK LEAVES A FAINTLY GLOWING TRACE, WITH FORKS WHERE OTHER STREAKS HAVE BRANCHED OFF.

WHEN THE STEPPED LEADER NEARS THE GROUND, STREAMERS OF LIGHT POP UP HERE AND THERE FROM THE EARTH STRIVING TO MEET IT. WHEN ONE OF THESE STREAMERS CONTACTS THE STEPPED LEADER, THE PRELIMINARIES ARE OVER AND THE MAIN EVENT BEGINS--A STREAM OF INTENSE LIGHT RACES FROM THE GROUND TO THE CLOUD ALONG THE STEPPED LEADER. (CONT'D. PAGE 5)

## LIGHTNING (CONT'D)

THE STREAM OF INTENSE LIGHT, CALLED THE RETURN STROKE, STARTS OUT WITH A SPEED OF AS MUCH AS A 100,000,000 MILES PER HOUR (THIS IS THE SPEED OF THE STREAM NOT OF THE LIGHT OUT OF THE STREAM--N.S. EDITOR) BUT SLOWS AS IT RISES. A TYPICAL STROKE TAKES SOMETHING LIKE 70 MILLIONTHS OF A SECOND TO REACH THE CLOUD.

THIS MAY BE THE END OF THE FLASH, BUT, USUALLY, ABOUT 40 MILLIONTHS OF A SECOND LATER A 150-FOOT-LONG DART OF LIGHT, CALLED THE DART LEADER, RUNS DOWN THE SAME PATH AS THE RETURN STROKE, BUT AVOIDING THE DEAD ENDS, AT A SPEED OF 4,000,000 MILES PER HOUR.

WHEN THE DART LEADER HITS THE GROUND, ANOTHER RETURN STROKE SHOOTS UPWARD ALONG THE DART LEADER'S PATH. TWO MORE DART LEADER AND RETURN STROKE COMBINATIONS OCCUR IN THE AVERAGE FLASH, BUT, AS MANY AS TWENTY-SIX HAVE BEEN KNOWN TO OCCUR. SOMETIMES THE STROKE PATH LIGHTS UP ALL AT ONCE WITHOUT ANOTHER LEADER OR RETURN STROKE OCCURRING.

THUS, WE SEE, THE APPARENTLY SIMPLE LIGHTNING FLASH IS QUITE COMPLEX WHEN EXAMINED IN DETAIL AND SOME SCIENTISTS THINK THAT FASTER CAMERAS MIGHT REVEAL AN EVEN GREATER COMPLEXITY IF THEY COULD RECORD EVENTS HAPPENING IN LESS THAN A MILLIONTH OF A SECOND.

OTHER INSTRUMENTS ARE USED TO RECORD THUNDER AND THE ELECTRO-MAGNETIC FIELD, CURRENT, TEMPERATURE AND CHEMISTRY OF LIGHTNING.

DATA REVEAL THAT A THUNDERCLOUD IS POSITIVELY CHARGED ON TOP AND NEGATIVELY CHARGED ON THE BOTTOM PROBABLY DUE TO STRONG UPDRAFTS, FALLING WATER AND ICE PARTICLES, AND TEMPERATURE DIFFERENCES WITHIN THE CLOUD. IT IS AN UNSTABLE SITUATION AND RESULTS IN MANY LIGHTNING FLASHES WITHIN THE CLOUD.

ELECTROSTATIC FORCES FROM THE BOTTOM OF THE THUNDERCLOUD INDUCE A POSITIVE CHARGE IN THE GROUND BENEATH IT (THE CAUSE OF ST. ELMO'S FIRE). ONE AMPERE OF CURRENT AT ALMOST A BILLION VOLTS FLOWS STEADILY BETWEEN THE AVERAGE THUNDERCLOUD AND THE GROUND (WHICH MAY ACCOUNT FOR THE FACT THAT SOME HAMS ARE HALF-BAKED--N.S. EDITOR).

LIGHTNING IS BASICALLY A LONG SPARK, SIMILAR TO THE ONE WE OFTEN EXPERIENCE WHEN SLIDING OFF THE SEAT OF THE CAR AND TOUCHING THE METAL DOOR. THE STEPPED LEADER IS A BREAKDOWN (IONIZATION) OF THE INSULATOR (AIR) SEPARATING THE TWO HIGHLY CHARGED REGIONS AND PROVIDES A PATH THROUGH THE INSULATOR BECAUSE OF THE VOLTAGE STRESS.

THE TYPICAL 'CRACK' IS FILLED WITH ELECTRONS AND THE ATOMS FROM WHICH THEY HAVE BEEN STRIPPED AND WITH ELECTRONS POURED INTO IT FROM THE NEGATIVELY CHARGED BOTTOM OF THE CLOUD.

SCIENTISTS SAY THAT THIS PARTICLE FILLED CHANNEL, ABOUT AN INCH IN DIAMETER, FORM THE CORE OF THE STEPPED LEADER, AND THAT THE OUTER PORTION OF THE STEPPED LEADER IS CORONA DISCHARGE FROM THE CORE. THE HIGH VOLTAGE OF THE STEPPED LEADER CAUSES THE STREAMERS THAT LEAP UP FROM THE GROUND TO MEET IT.

WHEN THE STEPPED LEADER CONTACTS ONE OF THESE STREAMERS, ELECTRONS START POURING OUT OF THE BOTTOM AND ELECTRONS ALL ALONG THE CHANNEL MOVE DOWN A FEW FEET, AND THOSE AT THE BOTTOM HAVE POURED INTO THE GROUND, THE RETURN STROKE ENDS. (CONT'D ON PAGE 6)



## LIGHTNING (CONT'D)

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POWER DURING THE RETURN STROKE IS NOT STEADY, BUT FOR A BRIEF INSTANT, AT ITS PEAK, CAN REACH A BILLION KILOWATTS. THIS HEATS THE CHANNEL TO NEARLY 60,000 DEGREES FAHRENHEIT WHICH IS FIVE TIMES HOTTER THAN THE SURFACE OF THE SUN.

THIS CAN SET FIRE TO TREES, HOUSES, AND OTHER FLAMMABLE STRUCTURES, BUT NOT ALWAYS--IF THE RETURN STROKE LASTS LESS THAN 40 MILLIONTHS OF A SECOND, THERE IS NOT ENOUGH TIME FOR A FIRE TO BEGIN JUST AS A PERSON CAN PASS HIS HAND SO QUICKLY THROUGH A FLAME THAT HE DOES NOT GET BURNED.

AFTER THE RETURN STROKE ENDS, THE 'CRACK' IN THE AIR REMAINS AND POSSIBLY EVEN SPREADS UPWARD INTO A HIGHER REGION OF THE NEGATIVE CHARGE. WHEN THIS HAPPENS A DART LEADER DESCENDS, GREATLY INCREASING THE IONIZATION OF THE CHANNEL AND FILLING IT WITH ELECTRONS. WHEN IT HITS THE GROUND ANOTHER RETURN STROKE OCCURS.

THE TOTAL AMOUNT OF ELECTRICITY DISCHARGED BY A TYPICAL FLASH IS ABOUT 350 KILOWATT-HOURS, WHICH WOULD COST A PERSON ABOUT \$7.00 ON HIS ELECTRIC BILL (DON'T FORGET THIS WAS SOUTH OF THE BORDER AND IN 1972-- N.S. EDITOR)

IN ADDITION TO THE GENERAL FEATURES OF LIGHTNING, THERE ARE DETAILS OF INTEREST MOSTLY TO SCIENTISTS; THE K CHANGE, FOR EXAMPLE, IS A SMALL, RAPID CHANGE IN ELECTRIC FIELD THAT OCCURS BETWEEN AND AFTER THE STROKES OF A MULTIPLE-STROKE FLASH.

AND THERE ARE EXCEPTIONS TO MANY OF THE PROCESSES DESCRIBED FOR THE TYPICAL FLASH; A STEPPED LEADER, FOR EXAMPLE, CAN MOVE UPWARD FROM A TALL STRUCTURE INSTEAD OF DOWN FROM A CLOUD, AND CAN CARRY A POSITIVE INSTEAD OF A NEGATIVE CHARGE.

NOT ONLY DO SCIENTISTS NOT FULLY UNDERSTAND THE INTRICACIES AND EXCEPTIONS OF LIGHTNING, BUT THEIR UNDERSTANDING OF THE MAIN FEATURES IS INCOMPLETE-- THEY DO NOT KNOW WHY THE STEPPED LEADER IS STEPPED, THE DART LEADER IS LIKE A DART, OR WHAT THE SPECIFIC MACHANISMS ARE BY WHICH AIR BREAKS DOWN TO PERMIT LIGHTNING IN THE FIRST PLACE.

AS IF THE DANGER FROM ELECTROCUTION WERE NOT ENOUGH, A PERSON, WHO WAS NARROWLY MISSED BY THE LIGHTNING STROKE, MIGHT STILL BE KILLED BY THE EXPLOSION OF THE LIGHTNING CHANNEL AFTER THE FLASH. THE ALMOST INSTANTANEOUS HEATING OF THE AIR IN THE CHANNEL MAY RAISE ITS PRESSURE TO MORE THAN 1500 POUNDS PER SQUARE INCH, CAUSING IT TO EXPAND WITH EXPLOSIVE FORCE AS A SHOCK WAVE MOVING AT SUPERSONIC SPEED WHICH SLOWS DOWN AS IT MOVES OUTWARD AND, AFTER IT HAS GONE THIRTY FEET OR SO, BECOMES THE SOUND WAVES WHICH WE CALL THUNDER.

THE FIRST PART OF THE SOUND THAT A PERSON HEARS COMES FROM THE PART OF THE LIGHTNING CHANNEL CLOSEST TO HIM. THE RUMBLE THAT FOLLOWS OCCURS AS SOUND FROM SUCCESSIVELY FARTHER PORTIONS OF THE CHANNEL REACHES HIM. CLAPS DURING THE RUMBLE COME FROM SECTIONS OF THE CHANNEL THAT ARE PERPENDICULAR TO THE PERSON'S LINE OF SIGHT SO, THAT ALL SOUND FROM THE SECTION REACHES HIM AT ABOUT THE SAME TIME.

(CONT'D ON PAGE 7)

## LIGHTNING (CONT'D)

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A PERSON CAN TELL HOW MANY MILES AWAY A FLASH WAS BY DIVIDING THE NUMBER OF SECONDS BETWEEN FLASH AND THUNDER BY 5 SINCE SOUND TRAVELS ABOUT ONE-FIFTH OF A MILE PER SECOND.

THUNDER CAN USUALLY BE HEARD AS FAR AWAY AS 15 MILES BUT NOT USUALLY ANY FARTHER BECAUSE THE ATMOSPHERE REFRACTS THE PATH OF THE SOUND (BENDS IT UPWARD). THE ATMOSPHERE ALSO ABSORBS HIGH-PITCHED SOUND WAVES SO THAT THE REMAINING LOW-PITCHED SOUNDS ACCOUNT FOR THE DEEP RUMBLE OF DISTANT THUNDER.

THUNDER INCLUDES SOUND WAVES TOO LOW-PITCHED TO HEAR, AND THERE ARE REPORTS OF LIGHTNING OCCURRING WITHOUT ANY AUDIBLE SOUND AT ALL. SCIENTISTS THINK THAT THIS CAN HAPPEN WHEN THE STEPPED LEADER ASCENDS FROM A TALL STRUCTURE, INSTEAD OF DESCENDING FROM A CLOUD, AS THE CURRENT MAY INCREASE TO ITS PEAK VALUE TOO SLOWLY, IN THIS CASE, TO CAUSE AN EXPLOSIVE SHOCK WAVE.

IN ADDITION TO ACOUSTIC NOISE, LIGHTNING ALSO PRODUCES RADIO NOISE (I'LL BET YOU DIDN'T KNOW THAT--N.S. EDITOR), PRINCIPALLY IN THE LOW FREQUENCIES, THAT CAN CAUSE STATIC IN RADIO SETS. WESTINGHOUSE SCIENTISTS STUDY THE WORLD-WIDE PATTERN OF LIGHTNING-PRODUCED RADIO NOISE, AND ITS CHANGE WITH TIME AND SEASON, TO PROVIDE FORECASTS FOR GLOBAL RADIO SYSTEMS SUCH AS THOSE OF THE MILITARY.

'WHISTLERS', STRANGE SOUNDS HEARD ON LOW-FREQUENCY RADIO RECEIVERS, ARE CAUSED BY RADIO WAVES FROM LIGHTNING THAT TRAVEL ALONG THE EARTH'S MAGNETIC LINES OF FORCE, GOING OUT INTO SPACE AND THEN CURVING BACK TO EARTH IN THE OPPOSITE HEMISPHERE; WHISTLERS HEARD IN THE U.S. ARE PRODUCED BY LIGHTNING FLASHES IN SOUTH AMERICA.

SCIENTISTS HAVE SUGGESTED THAT SOME UNEXPLAINED RADIO NOISE FROM SPACE MAY BE CAUSED BY LIGHTNING FLASHES ON OTHER PLANETS.

THE ELECTRO-MAGNETIC FIELD GENERATED BY A CLOSE LIGHTNING FLASH CAN CAUSE MALFUNCTION OF SENSITIVE ELECTRONIC AND COMPUTER SYSTEMS, AND CAN DETONATE EXPLOSIVE DEVICES. OTHER EFFECTS OF LIGHTNING INCLUDE CHEMICAL CHANGES IN THE ATMOSPHERE; MANY COMPOUNDS OF NITROGEN AND OXYGEN FORM IN THE LIGHTNING CHANNEL.

BUILDINGS AND OTHER STRUCTURES ARE PROTECTED FROM LIGHTNING BY (WHAT ELSE--N.S. EDITOR) LIGHTNING RODS WHICH PREVENT CURRENT FROM EVER REACHING THE STRUCTURES BY CONDUCTING THE POSITIVE CHARGE ABOVE THE STRUCTURE TO 'GRAB' THE STEPPED LEADER BEFORE IT CONTACTS THE STRUCTURE BENEATH.

A PERSON, HOWEVER, IS IN DANGER IN THE OPEN IF HE IS THE TALLEST OBJECT OR IF HE IS NEAR AN ISOLATED TREE OR MAST (LIGHTNING MAY PREFER A PERSON TO A WOODEN MAST). LIGHTNING MAY TRAVEL ALONG THE SURFACE A SHORT DISTANCE AND ELECTROCUTE A PERSON ON GROUND OR IN WATER NEARBY.

AS LETHAL AS IT CAN BE, TWO THIRDS OF THE PEOPLE STRUCK BY LIGHTNING RECOVER AND SOME HAVE EVEN BEEN REVIVED AFTER HEARTBEAT AND BREATHING HAVE STOPPED, IF--THEY HAVE BEEN TREATED QUICKLY ENOUGH.

N.S. EDITOR'S NOTE- IF THIS HAS INTRIGUED YOU AS MUCH AS IT HAS ME (NAND THE ARTICLE WAS NOT NEARLY COMPLETELY REPRODUCED) BE AT OUR NEXT MEETING (JUNE 13, 1988) FOR MORE ON THE SUBJECT.



S(ome) W(ant) A(11) P(eruse)

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THIS IS YOUR SWAP, SELL OR BUY COLUMN --TO HAVE AN ARTICLE LISTED,  
JUST MAIL INFORMATION TO THE EDITOR OR PHONE IT IN (723-5758)

FOR SALE--NO NEW ITEMS

WANTED----NO NEW ITEMS

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SUMMER MEETINGS

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FIELD DAY--JUNE 25--HEBER DOWN--SEE PAGE 2.  
SERMON-ON-THE-MOUNT--KEEP IN TOUCH VIA OSH OR LANDLINE.  
CORN ROAST--SAME INSTRUCTIONS AS ABOVE

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ANNUAL NONQUON CANOE RACE

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NINE LOCAL (I INCLUDE PORT PERRY YACHT CLUB AS LOCAL) HAMS MANNED  
THE CHECK POINTS FOR THIS ANNUAL EVENT AND ENJOYED A FINE DAY.  
PROVIDING THE COMMUNICATIONS WERE GLEN (LIZ)-BERNIE (ATI)-ROY (AAF)-  
RALPH (CRK)-DON (GXH)-BOB (KWR)-AND P.P.Y.C. MEMBERS BILL (AAA)-HARVEY  
(IL) AND BRUCE (ACM).

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PERMANENT REMINDER

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IF YOU ARE READING THIS NEWSLETTER OVER THE SHOULDER OF THE HAM  
WHOSE NAME APPEARS ON THE MAILING LABEL BECAUSE YOU FORGOT TO MAIL IN  
YOUR RENEWAL OR BECAUSE YOU HAVE NEVER BEEN A MEMBER OF OUR CLUB, NOW'S  
YOUR CHANCE! PLEASE, USE THE FORM AND INFORMATION BELOW TO JOIN US. (IF  
THE OWNER WON'T PART WITH IT, USE A FACSIMILE (OR SOMETHING SIMILAR)).

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HELD OVER BY POPULAR REQUEST AND OUR LOVE FOR YOU!!

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FULL MEMBERSHIP-- \$15.00 CDN, (10.50 U.S.)-- INCLUDES FULL VOTING  
PRIVILEGES AND MONTHLY NEWS BULLETIN FOR ONE CALENDAR  
YEAR (JANUARY TO DECEMBER, JULY & AUGUST EXCEPTED)  
ASSOCIATE MEMBERSHIP-- \$10.00 CDN (7.00 U.S.)--INCLUDES BULLETIN ONLY  
AND A HEARTY WELCOME TO ANY MEETINGS YOU CAN GET TO  
EITHER IN PERSON, OVER THE LAND LINE, OR ON THE AIR.  
2ND FAMILY MEMBER--\$5.00 CDN (3.50 U.S.)--FULL VOTING PRIVILEGES BUT NO  
MONTHLY BULLETIN (ASSUMED LIVING IN THE SAME HOUSE)

TO JOIN US, OR TO MAKE CHANGES TO MAILING ADDRESS, SIMPLY (YOU'RE  
A HAM AREN'T YOU?) FILL IN THE FOLLOWING FORM AND MAIL IT ALONG WITH  
THE APPROPRIATE FEE TO THE REGISTRAR OF THE N.S.A.R.C. AT HIS HOME  
ADDRESS (PREFERRABLY) 298 DOVER STREET, OSHAWA, ONTARIO, L1G 6G6 OR TO  
THE CLUB BOX #171, OSHAWA, ONTARIO, L1H 7L1.

NAME- \_\_\_\_\_ CALL- \_\_\_\_\_  
STREET & NO.- \_\_\_\_\_ APMT- \_\_\_\_\_  
CITY \_\_\_\_\_ PROV. OR STATE- \_\_\_\_\_  
POSTAL OR ZIP CODE- \_\_\_\_\_ TELEPHONE- \_\_\_\_\_  
MEMBERSHIP-FULL \_\_\_\_\_ ASSOC \_\_\_\_\_ FAM \_\_\_\_\_ FEE \_\_\_\_\_  
DONATIONS FOR REPEATER FUND (IF YOU DESIRE) \_\_\_\_\_ AMOUNT \_\_\_\_\_

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