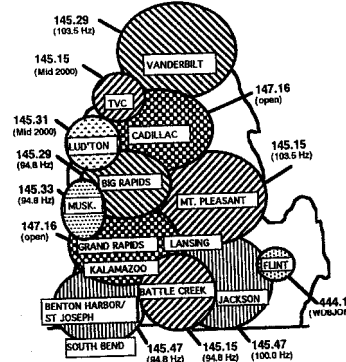


THE PURPLE CRYSTAL

No. 47

February 2000

A BULLETIN OF THE INDEPENDENT REPEATER ASSOCIATION, INC.
562 92nd Street, S.E. -- Byron Center, MI 49315



GRANDS RAPIDS IRA SPONSORED HAMFESTIVAL IS JUNE 3, 2000 AT THE HUDSONVILLE FAIRGROUNDS DON'T MISS IT!

The IRA Hamfestival, the largest hamfest in Western Michigan, is again being held at the Hudsonville Fairgrounds this year. The fairgrounds are 2 miles north off I-196 Exit 62, midway between Grand Rapids and Holland. Overnite camping is available with showers and electricity or if preferred, motels are available at Exit 62 (Rest-All Inn, 800 866-4322 and Amerihost Inn, 616 662-4000).

Friday night camping and setup is available by reservation (camp in your trunk sate space). Bring a dish to pass and join in the traditional potluck dinner at 7:30 P.M. Bring your musical instrument and join in the fun!

The huge facilities at the Hudsonville Fairgrounds provides convenient parking (including handicapped parking next to the gate), three large exhibit buildings of exhibit space wth handicapped access. Hundreds of 8' tables are available along with trunk sale spaces. All tables and trunk sale spaces are available by reservation. Plenty of electrical outlets are available both inside and outside (free). For information, call Kathy, KB8KZH at (616) 698-6627 between 4 P.M. and 7 P.M. E.D.S.T. Camping and table and/or trunk sale space rental does not constitute admission to the Hamfestival. All attendees must have an admission ticket. Children under 12 years of age do not require a ticket if accompanied by an adult.

VE exams will be given starting at 10:30 A.M. Bring the original and a copy of your license, any C.S.C.E.'s and some form of photo ID and a check made out to

WE NEED YOUR HELP!

The IRA Hamfestival is a BIG EVENT. It's the primary activity that generates funds for the IRA to support the link repeater system. If you can donate some time to help set up tables Friday evening, or sell tickets, or help tear down and clean up on Saturday, it would be very much appreciated and it's a lot of fun if everyone pitches in! If you can help, let it be known on the link repeater or get in touch with Randy, N8KQX, at (616) 5325450. He is keeping the master schedule. You can also catch him on the link system on Monday nights after the Newsline broadcast at 8 P.M.

FCC RESTRUCTURES AMATEUR RADIO: THREE LICENSE CLASSES, ONE CODE SPEED!

Amateur Radio will have a new look in the Year 2000! In December 1999, the FCC issued its 70 page Report and Order (FCC 99-412) covering the restructuring of the Amateur Radio Service. Starting April 15, 2000, there will be only three license classes for new hams. They are the Technician, General, and Extra class - and a single code requirement of 5 WPM.

The FCC stated a belief that, "An individual's ability to demonstrate increased Morse code proficiency is not necessarily indicative of that individual's ability to contribute to the advancement of the radio art." After the announcement became public on December 30th, the amateur bands were buzzing with comments of mixed emotion, especially over the holidays with some people even threatening to give up ham radio!

But after reading the full R&O, most hams would say that the FCC did an excellent compromise in achieving their goals of streamlining the Amateur Radio licensing process, saving taxpayer dollars, and eliminating unnecessary requirements that discourage or limit individuals from becoming trained operators, technicians, and electronic experts. Sure, there will be more people on the low-bands and sure, there will be more equipment sold, but in the long run, everyone wins!

Starting April 15, 2000, individuals who qualified for the Technician class license prior to March 21, 1987, will be able to upgrade to General class by providing documentary proof to a Volunteer Examiner Coordinator, paying an application fee, and completing FCC Form 605.

Under the new licensing scheme, there will be four examination elements. Element 1 will be the 5 WPM Morse code exam. Element 2 will be a 35-question written test to obtain a Technician license; Element 3 will be a 35-question written test to obtain a General license, and Element 4 will be a 50-question written test for the Extra class license. Before April 15th, Advance class hams can take the existing Element 48, a 40-question test, and upgrade to Extra class after April 15th.

For more info, checkout the ARRL web at www.arrl.org.

THE VIEW FROM THE HILL

..... ANOTHER GREAT YEAR!

Greetings from the Board of Directors of the Independent Repeater Association! On behalf of the IRA it is my pleasure to wish you a prosperous New Year (the Millennium is next year)! In this view from the hill, I will try to update you on a number of things happening to and around the "link system." It has been another great year to say the least.

Thanks to the users of the system, the 1999 IRA Hamfest was a great success. Not only did the attendees of the SWAP make it a success by being there, they also helped to run it. Without the volunteer help during setup, admission, and tear down, this event would not be possible. Make sure to contact Randy (N8KQX) to volunteer this year. A good time to do this is Monday evening between 8:00 and 9:00 P.M. right after the "Newsline" broadcast or "Traders Net" (aka 'The John and Randy Show').

And speaking of Monday evening, the IRA continues a long standing tradition of bringing you the "Amateur Radio Newsline." In recent years the "Traders Net" has been added to the schedule and continues to grow in popularity. Users often make the comment, "Things really move on this net." The fun begins at 8 P.M. with Newsline, followed by announcements from all over the State by numerous amateur radio organizations. Does your club partake? Just do it! On the first and third Mondays of the Month, October thru May, 'Traders Net' follows the announcements segment. Your hosts, John (KC8KK) and Randy (N8KQX), deserve a lot of credit for their tireless dedication.

Ever have trouble bringing up any of the repeaters in the link system? Well, every once in a while so do I. This is because CTCSS, or PL as it is often called, has been activated at a number of sites. This is part of an ongoing effort to improve the system. Please check out the information in this issue and make sure your radio is programmed with the proper frequency and PL for the site you wish to operate. Also, there has been a lot of equipment updating this past year. Thanks to Abe (W8HVG) our IRA technical director, and Ken (KSYYC), several of the links were upgraded last Summer and Winter (and it will continue in 2000).

Taking care of the link system is a big task and involves many people. Each site has a number of dedicated hams lending their skills and support. If you have the technical skills and are interested, and live near one of the link sites, contact Abe (W8HVG) to learn how you can be of service.

Check out this issue for new and exciting things happening at the IRA Hamfest in June. Table reservations are already coming in, get yours soon!

73, de Tom, KA8YSM
President, IRA

THE IRA LINK REPEATER SYSTEM STATE OF THE UNION SPEECH!

It was another great year for activities on the IRA link repeater system in 1999. We improved the system with better equipment (Motorola Micor) and we got lots of help from dedicated and supportive people.

The Mt. Pleasant 145.15 link repeater took much effort (several trips) during the year to iron out all the "bugs" and get working reliably. Finally, during the Christmas holidays, persistence paid off and it's now working very well (as intended). Remember that Mt. Pleasant requires a 103.5 tone.

NOTE: Operating on 147.16 in the Kalamazoo area now requires a 107.2 PL for the Oshtemo link receiver.

A complete set of Micor equipment and a new duplexer was installed at the 145.29 Vanderbilt link (in place of the old GE MastrPro equipment) to improve the operation and reliability. Unfortunately, it was then discovered that Vanderbilt has a problem with the main antenna which requires looking into further when the weather improves.

There was a persistent 'advanced class' mouse living at the Muskegon 145.33 link repeater site. He got into the power amplifier through an impossibly small hole and managed to chew the same blue control wire in half two different times! Of course, this made the repeater inoperative for awhile both times.

The Traverse City 145.15 link repeater has been temporarily off the air since the cable TV company removed the receive-link equipment. Efforts were made to obtain a new site a short distance away on the west side of TVC. All the antenna equipment has been installed and it should be back on the air by mid-year. Future plans involve replacing the link repeaters at Cadillac and Traverse City with Micor equipment and installing a link in the Scottville/Ludington area.

It was another great year for the IRA link system! Thanks to all who helped (in random order): Ken K8YYC, Tom KA8YSM, Tom K8LZH, Terry N8MJE, Jeff KASHDY, Dan KA8WOW, Abe W8HVG, Jim AA8JR, Dan W8BCI, Jeff KB8SXX, Hank W8GVK, Rick K8WZS, Jack KBXX, Harry KB8RIV, Chuck W8SGR, Barry K8BK, John WB8VOJ, Dave KB8YNC, Jeff N8NII, Rick KD8CP, Chuck KA8IBY, Tim KB8ZGU, Rich KE4BXZ, John KC8BAR, Mike KC8BAQ, Randy N8KQX, Nowell N8SFG, Randy N8DAN, John KC8KK, Bob N8DOG, Pete KB4CCE, Fritz KI8IJ, Roger N8HLM, Dave WD8JOF, Rick WA8YLZ, Bob AB8CY, Lee K8BAU, the CMARA members, the LCDRA members, the BRAAC members, the CASCADES members, Walker Sisson WA8CZE, Glen Walker who does our tower climbing, George Keen at SKE Communications in Big Rapids, Brian Monaghan in Grand Ledge, and the management at Lansing WILX-TV. Aolooaies to anyone missed.

GRAND RAPIDS, MICHIGAN

I.R.A. ANNUAL HAMFESTIVAL

West Michigan's Largest
Hamfest & Computer Fair

Saturday, June 3, 2000 8 A.M. until it's over.

Convenient location with great facilities at the spacious Hudsonville Fairgrounds. It's bigger and better every year!
6 miles west of Grand Rapids, two miles north of I-196 exit 62.

HUGE INDOOR FACILITIES with CONVENIENT ACCESS and FREE PARKING. OVER 22,000 SQUARE-FEET INDOORS, 8' tables for sellers and dealers, \$8 ea. Friday night set-up available after 7 P.M. or 6:00 A.M. start on Saturday. Trunk sales spaces, 10' @ \$6 ea. CAMPING available, \$10 fee. Showers and electricity available for camping. Plenty of electrical outlets available inside and outdoors. Table & space rental not an admission to Hamfest; tickets are required. All reservations with SASE please. Reservations held until 8 A.M. Saturday. Food and drinks available in comfortable indoor sit-down eating facilities. Children under 12 years admitted free accompanying an adult. Handicapped parking and access.

FAMOUS 'ROADKILL-CHILI" POTLUCK FRIDAY EVENING
Bring a dish to pass and join-in the fun @ 7:30 P.M. after setup.
Bring your musical instrument and join in the entertainment.

4 MAJOR PRIZES PLUS MANY MORE!

MICHIGAN / FLORIDA HAMS MEET
AT 9:00 A.M. IN THE CAFE.

VE AMATEUR EXAMS - 10:30 A.M. START
All walkins. Technician, General and Extra Class.
Please bring original and a copy of your license,
any C.S.C.E.'s with some form of photo ID and a
check made out to "ARRL / VEC" for \$6.65.

**DEALERS: BRING YOUR
HAM EQUIPMENT, COAX,
COMPUTER EQUIPMENT,
SOFTWARE, BOOKS, WIRE,
JEWELRY, SWEAT-SHIRTS,
ETC., TO SELL..BE THERE!**

**HAMS: BRING YOUR USED
EQUIPMENT TO TRADE OR
SELL.....BE THERE!**

**COMPUTER HOBBYISTS:
BRING YOUR EXCESS
HARDWARE, SOFTWARE,
BOOKS, ETC., TO TRADE
OR SELL.....BE THERE!**

Write for table reservations to:
Independent Rptr. Assoc., Inc.
562 92nd Street S.E.
Byron Center, MI 49315

TICKETS: \$5.00 ea.
Tables: \$6.00 ea.
Trunk spaces: \$6.00 ea.
Camping fee: \$10.00

**INFO: Call Kathy at (616) 696-6627 after
4 P.M. (E.D.S.T.) for info / reservations.**
Check out the IRA Web-site at
www.iserv.net/~w8hvg for more info.

TALK-IN ON 147.16 LINK-SYSTEM

2000 IRA HAMFESTIVAL RESERVATIONS

Mail to:
before May 28th
include SASE

IRA
562 92nd St., S.E.
Byron Center, MI. 49315

NAME _____

ADDRESS _____ PHONE () _____

CITY _____ STATE _____ ZIP CODE _____

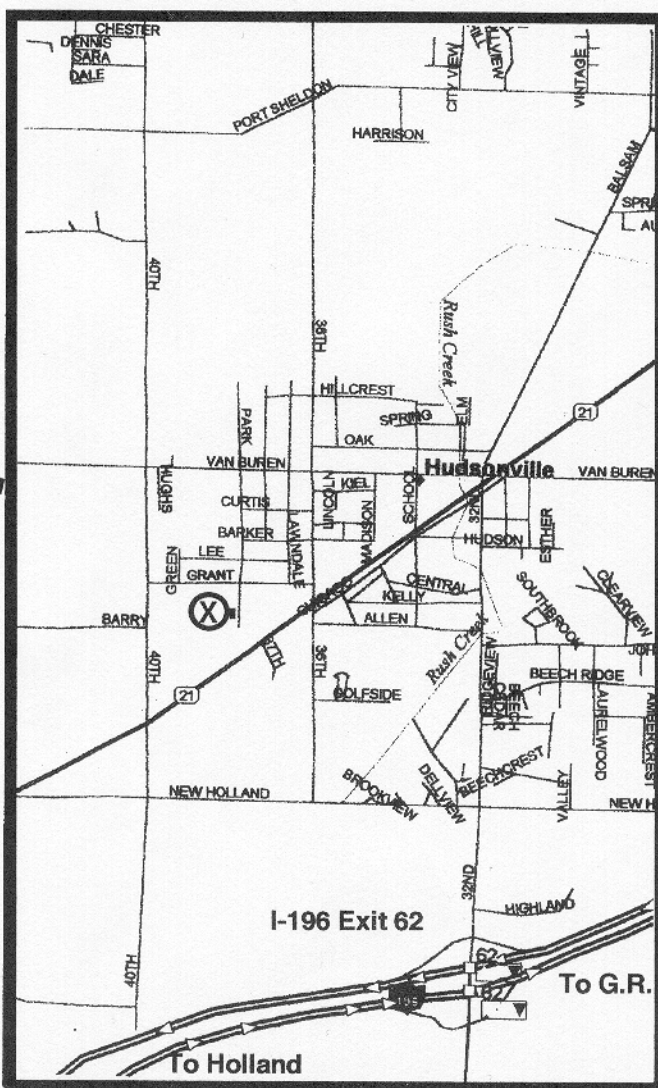
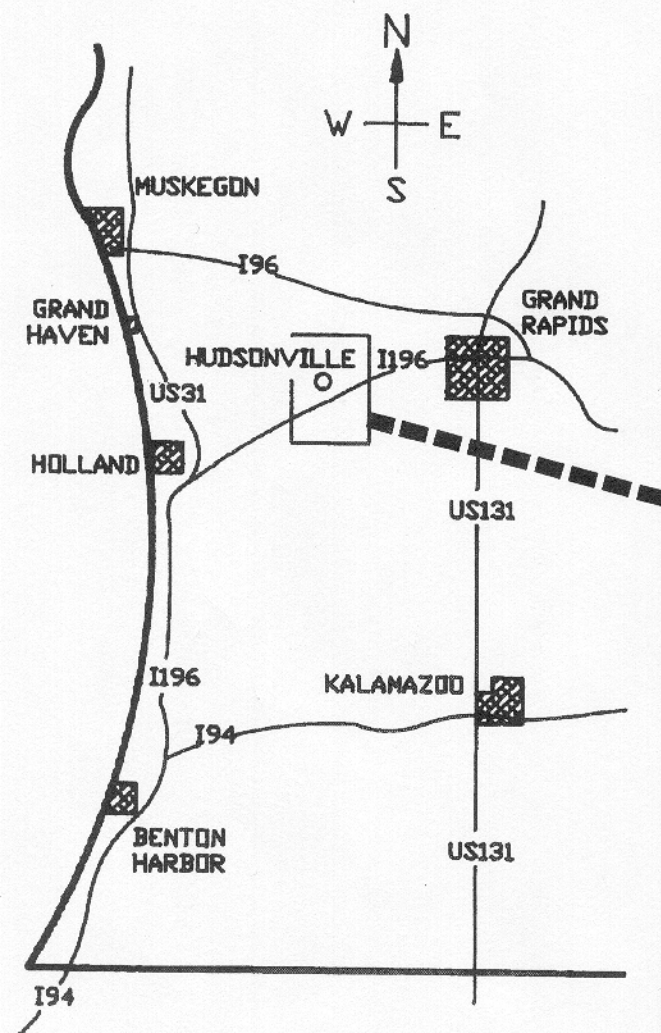
NUMBER OF: TRUNK SALE SPACES _____ 8' TABLES _____ TICKETS _____ PEOPLE ATTENDING _____

CAMPING (Y) (N) TYPE OF MERCHANDISE (Ham, computer, electronics, surplus, etc.) _____

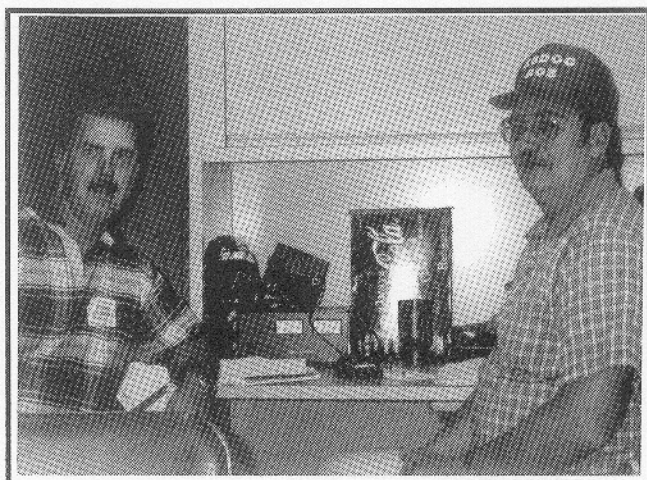
SPECIAL REQUESTS (electricity, wall, etc. If available) _____

AMOUNT ENCLOSED _____ DATE _____ SIGNATURE _____

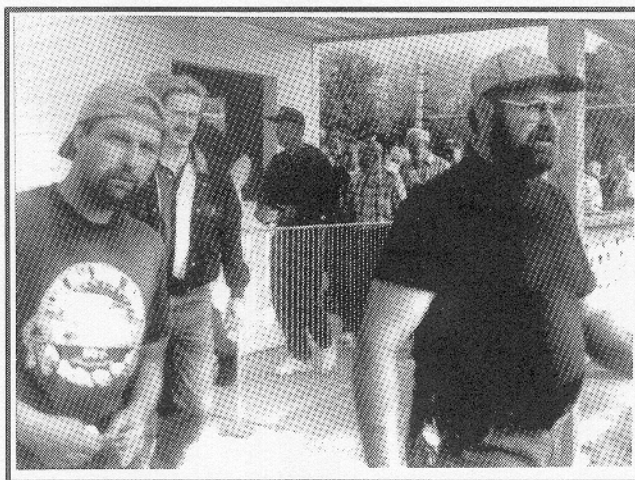
----- CUT HERE -----



Exit I-196 at exit 62. Go north 1 mile and turn left on New Holland. Turn right on 40th Avenue, cross M-21 and the railroad tracks. Turn right on Grant Street. Turn right on Park. Turn right into the Fairgrounds. Motels are available at Exit 62 (Rest-All Inn telephone 1-800-866-4322; Amerihost Inn 1-616-662-4000).



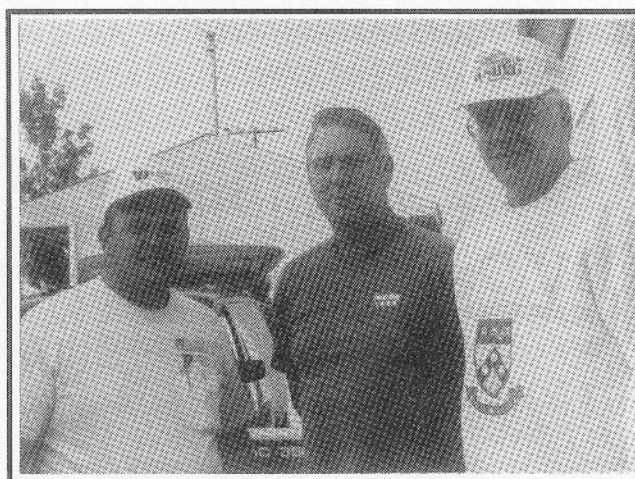
L to R, Chris, KC8MIL, and Bob McClymont, K8DOG, giving good directions to the IRA Hamfest.



It's 8 A.M. and the gates are open! Anxious hams pour in the gate looking for that elusive bargain.



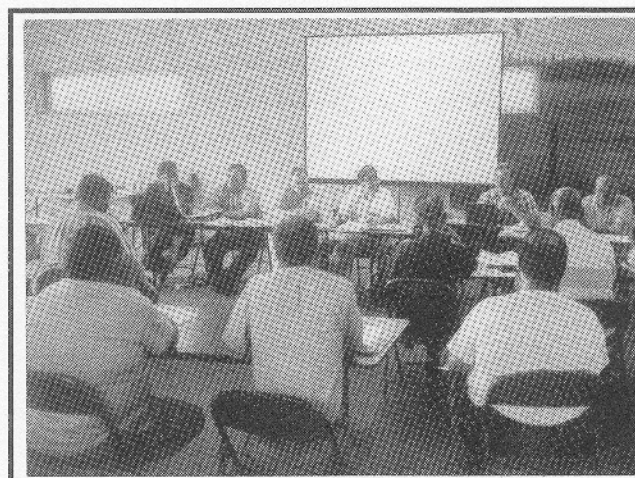
Here's Rex, N8UYB, and his son Daniel. They usually camp the night before and enjoy the pot luck.



L to R, Rob, WB8YRB, Tom, K8LZH and Abe, W8HVG. Rob gave a super presentation at the Y2K seminar.



Duane and Barb from COMDAC in St. Joseph always have a huge display of new ham equipment goodies.



The Michigan Area Repeater Council held their June Quarterly Meeting and it was very well attended.

HERE'S INFO ABOUT THE IRA

The Independent Repeater Association, inc., is a tax exempt non-profit corporation registered in the state of Michigan and is responsible for managing the technical and financial aspects of its repeater systems. It has 501C3 status with the IRS. It is not a club and there are no dues. Operating expenses are covered by donations which are tax deductible and fund raising activities such as the yearly sponsored Grand Rapids Hamfestival coming up June 3rd at the Hudsonville Fairgrounds.

The Association operates and maintains a network of 2-meter repeaters covering western Michigan from the Indiana border to the upper peninsula. Everyone is welcome to use and enjoy the link repeater system.

The Vision of the IRA with the link repeater system is to provide:

- . Dependable communications
- . Opportunity for service
- . Technical assistance forum
- . Occasion to support
- . Spread ham radio goodwill

As a result of elections held in December 1999, the IRA Board of Directors for 2000 are as follows. On the executive board are: Tom Werkema KA8YSM, President; John Knoper KC8KK, Vice-President; Randy Chelette N8KQX, Secretary; and Jeff Ansley N8NII, Treasurer. Ray Abraczinskas, W8HVG, is the Trustee and Purple Crystal Editor. IRA Directors are John Rittenhouse WB8VOJ, Steve Stutzman WB8NCD, Rick Dykstra KD8CP, Randy Hofmeyer N8DAN, and Bob McClymont K8DOG.

IRA Board business meetings are held at 7:30 P.M. on the second Thursday of the month at Russ' Restaurant on Division Avenue in Cutlerville, Michigan. You are all welcome to attend.

Listen on the link repeater system for the Amateur Newsline Report every Monday evening at 8 P.M.

THE LINK SYSTEM IS FOR EVERYONE TO USE AND ENJOY!

We occasionally receive comments (complaints) about the same people talking on the link for hours throughout the day (most everyday). If you fit into this scene, please think about how you operate. Everyone is welcome to talk on the link system whether it's across town or across the state, but please use common sense and be considerate of those listening. If you participate everyday (all day) in the truckers travelogs, or the daily coffee klatches, or the lengthy gabfests or, saying your call sign more than three times per QSO (over 20 minutes use), you may be one of the complainees. We'd like to see the link system being used 24 hours a day with new hams meeting new hams all over the State. That is what it's for!

THE LAST HT BATTERY CHARGER YOU WILL EVER NEED!

Normally we don't usually flaunt a particular piece of ham equipment in the Purple Crystal but MAHA has got something that HT users will find very useful - a universal HT battery charger and conditioner!

I am on my 6th or 7th handie-talkie now and in all cases, they came with different voltage wall chargers and power connector configurations. Having bought a new Icom IC-W32A last year, another wall charger came to join the pile!

At the South Bend hamfest last year, several dealers were selling HT batteries so I picked up a spare battery for my new IC-W32A HT. With only wall chargers coming with them now you can generally only charge the battery while it's on the radio, so I looked for an AC universal HT battery charger.

The MAHA MH-C777 filled the bill very nicely as it will charge nearly any type of rechargeable NiMH or NiCD battery pack. It can also discharge and condition the battery, and it has a -dV and temperature detection capability with a unique sensor probe. It comes with an 18 VDC wall power supply which connects to the base unit (my final wall charger!). It supports charging 4.8 volt to 12 volt batteries.

The base unit has a strong magnet in it which holds the battery pack firmly in place. There are two adjustable spring loaded steel pins in an adjustable base which can be adjusted vertical or horizontal to accommodate the battery connections. The temperature sensor probe holds to the battery case via a magnet. There is a polarity reversing switch and indicators to show the charging status. With the free car adapter, it can plug into the cigarette lighter and charge a battery while mobile. I also received a free plug and clip-lead set which allows connecting it to charge most any battery, or to a volt meter. The complete package sells for \$49 and fills the bill. I won't need to buy another AC charger and I can use my HT while the spare battery is being charged (or any battery).

However, life is not always perfect especially with battery chargers. This model does radiate some RF noise within two to three feet of it as it's charging.

W8HVG

RADIOS, RADIOS, RADIOS - FREE!

The IRA has a lot of excess radio equipment available to hams and repeater clubs for the taking. There are Motorola Motrac's (VHF), Mocom-70's (UHF & VHF), GE Master Pro (VHF & UHF), GE Mastr (VHF), mobiles, bases (3' & 6' high), even some hardline coax is available. When the snow melts, contact Abe, WSHVG, at (616) 455-3915 evenings or on weekends to make pickup arrangements. A token donation to the IRA would be welcome and appreciated.

2-M REPEATERS AROUND

WEST MICHIGAN

OUTPUT INPUT LOCATION

145.11144.5 1.....GRAN D RAPIDS
145.13.....144.53.. PORTLAND, GRAYLING
145.15.....144.55.. BAITLE CREEK & PLEASANT
 VALLEY LINK TO G.R.
145.17.....144.57.. KALAMAZOO, GLADWIN
145.21144.6 1..... DOWAGIAC, LAKE CITY
145.27.....144.67.. LOWELL, TRAVERSE CITY
145.29..... 144.69 VANDERBIL T & WHITE CLOUD/
 BIG RAPIDS LINK TO (G.R.)
145.31144.7 1..... CENTERVILLE
145.33.....144.73.. MUSKEGON LINK TO G.R.
145.37.....144.77..... ALMA, BERRIEN SPRINGS,
 ADRIAN
145.39.....144.79.. LANSING, LELAND TWP.
145.41144.8 1..... GRAN D RAPIDS, W. BRANCH
145.45.....144.85..... WHITE CLOUD, ROSCOMMON
145.47.....144.87..... LUDINGTON. ALSO ST. JO-
 SEPH & JACKSON / LANSING
 LINK TO G.R.
145.49.....144.89.. GRAND HAVEN
146.62.....146.02.. LUDINGTON
146.64.....146.04.. HART
146.66.....146.06.. BATTLE CREEK
146.68.....146.08.. PETOSKEY
146.70.....146.10.. LANSING
146.72.....146.12..... PLEASANT VALLEY, ST. JOS.
146.74..... 146.14..... BIG RAPIDS, CHEBOYGAN
146.76..... 146.16.. GRAND RAPIDS
146.78..... 146.18..... MANISTEE
146.80..... 146.20.. EDMORE
146.82..... 146.22.. MUSKEGON, GAYLORD,
 BERRIEN CENTER
146.84.....146.24.. PINE LAKE / PLAINWELL
146.86..... 146.26..... TRAVERSE CITY, WACOUSTA
146.88..... 146.28.. CEDAR SPRINGS, JACKSON
146.92.....146.32.. FREMONT, LAKE LEELANAU
146.94.....146.34..... LANSING, MUSKEGON
146.98.....146.38.. CADILLAC
147.00.....147.60.. KALAMAZOO
147.04.....147.64.. KALAMAZOO, BENZONIA
147.06..... 147.66..... HOLLAND, HILLSDALE
147.08.....147.68.. HOUGHTON LK., CHARLOTTE
147.10..... 147.70..... MANCELON A
147.12..... 147.72..... MARSHALL, GAYLORD
147.16.....147.76.. G. R. AND CADILLAC WITH
 RECEIVE LINKS IN BELDING
 AND KALAMAZOO (107.2 PL)
147.18.....147.78.. NILES, GLADWIN
147.20.....147.80.. PAW PAW, FARWELL
147.24.....147.84.. ALLEGAN, PETOSKEY
147.26.....147.86.. GRAND RAPIDS
147.28.....147.88.. CHARLEVOIX, JACKSON
147.30.....147.90.. COLDWATER, TVC
147.32.....147.92.. HOLTON

SAVE THIS LIST KEEP A COPY IN YOUR CAR

W8HVG/R

INDEPENDENT REPEATER ASSOCIATION, INC.

LINK SYSTEM REPEATERS (PL TONE) ARE:

145.15--BATTLE CREEK (94.8) PLEASANT
 VALLEY (103.5), TRAVERSE CITY (MID '00)
145.29--BIG RAPIDS (94.8) AND
 VANDERBILT (103.5)
145.33--MUSKEGON (94.8)
145.47--ST. JOSEPH / BENTON HARBOR (94.8)
 AND JACKSON / LANSING (100.0)
147.18-GRAND RAPIDS (OPEN), CADILLAC
 (OPEN), KALAMAZOO (107.2)

SUPPORT DONATIONS MAY BE SENT TO:

I.R.A., 562 92ND STREET S.E.
BYRON CENTER, MI. 49315

EMERGENCY AUTOPATCH (G.R. AREA ONLY)
(USE 3 STARS + I-DIGIT NUMBER)

t** 0..... OTTAWA COUNTY SHERIFF
*** 1..... KENT COUNTY SHERIFF
- 2..... STATE POLICE ROCKFORD POST
***3..... AREA FIRE
***4..... KENTWOOD POLICE
- 5..... WYOMING POLICE
***6..... EAST GRAND RAPIDS POLICE
***7..... POISON CENTER
- 8..... GRAND RAPIDS POLICE
***9..... 911 EMERGENCY (KENT COUNTY)

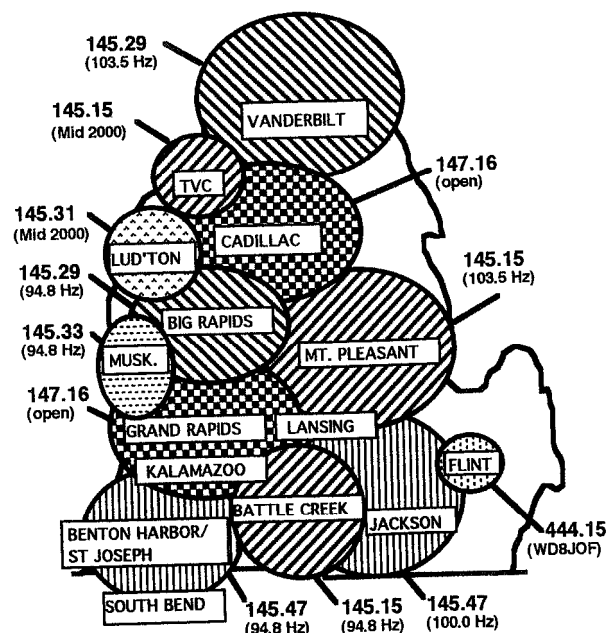
NORMAL AUTOPATCH

(USE 1 OR 2 STARS AS INDICATED + NO.)

* + 7-DIGIT PHONE NUMBER WITH TX KEYED

* + AUTODIAL CODE WITH TX KEYED

(POUND)..HANG-UP COMMAND



COMPLIMENTS OF THE IRA, INC.

I/OO

NEW GRAND RAPIDS AMATEUR

RADIO TOWER ORDINANCE

On April 5, 1999, at a Grand Rapids Amateur Radio Club meeting, visibility of impending actions regarding a new antenna tower Ordinance for Grand Rapids surfaced driven both by the cellular phone industry and a ham named Roman Downer, N4SC, who had run into problems erecting towers at his home in GR.

The word spread and the interest grew with dozens of hams attending the GR City Commission Meeting on April 13th where public hearings were held. Several hams (W8HVG, N4SC, KC8GOK, etc.) addressed the commission and submitted written comments. The meeting resulted in decisions being deferred until May 11th with the invitation for further inputs from the amateur radio operators to be provided by the end of April.

A coalition of GR Radio Amateurs was formed and plans were made to form an action committee, draft the Ordinance language and schedule meetings. Those involved were Roman Downer, N4SC; Ray Abraczinskas, W 8HVG; Craig Kidder, W8CK; John Wittman, WK8X; Dave DeVos, KF8QL; Ron Fredricks, K8DMR; Jerry Wittkowski, W 8MSK; Tom Hansen, N8DGD; Ed Novakowski, N8UXN; Lou Goudzwaard, W8UGM; Philip Norstrand, W8IPN and Ray Larabee, N8LRF.

After several iterations and many suggested changes, things started to take shape in formulating a Tower Ordinance that was reasonable and acceptable to the Grand Rapids Radio Amateurs who showed interest. It even included creating a Safety Advisory Bulletin (SAB) which addressed all of the initial draft Ordinance rigid concerns and more, but in a more tolerable implementation.

Roman Downer, N4SC, liaised with Ken Schilling from the City Zoning Administration. The hams in the coalition kept everyone that was interested informed through meetings at the Red Cross and e-mail. Finally, on August 24, 1999, the GR City Commission passed the new Antenna Tower Ordinance for Grand Rapids.

The specifics pertinent to Amateur Radio towers are in Section 5.40.3. of the Ordinance. Overall antenna height is permitted up to 100' height (with a Permit). Towers under 35' do not require a Permit. Towers require a one foot setback limit in the back yard with the neighbors permission for any antenna hangover. Guy wires require a one foot setback limit in the side yards. Also, hams can have a second tower under 35' in height on the lot with an antenna on top limited to 25' above the tower. Wire antennas are intentionally not mentioned. A Safety Advisory Bulletin (SAB) is referenced containing information on Safety, Grounding, Anti-Climb Devices, Guying, Wire Sizes and Maintenance and Inspections.

440 REPEATERS AROUND

WEST MICHIGAN

(SAVE THIS INFO)

<u>OUTPUT/</u>	<u>PL</u>	<u>CALL</u>	<u>LOCATION</u>
442.000 / 141.0....		K8EFK.....	GRAND RAPIDS
442.000 / 103.5....		WA8EFE....	PELLSTON
442.025 / 114.0....		W8TVC.....	TRAVERSE CITY
442.050 / 100.0....		N9CVU.....	DIAMONDALE
442.125 / 0	KB8LCY....	CRYSTAL LAKE
442.150 / 0	N8IYX.....	CENTERVILLE
442.175 / 103.0....		K8SN.....	GRAND RAPIDS
442.275 / 0	W8MAI.....	SISTER LAKES
442.300 / 94.8....		KE8LZ.....	FRUITPORT
442.375 / 0	N8DNX.....	HARBOR SPRINGS
442.425 / 0	KD8PA.....	LANSING
442.500 / 0	W8SGR.....	TRAVERSE CITY
442.850 / 103.5....		N8JBO.....	PETOSKEY
442.725 / 100.0....		KB8SXX....	EAGLE
442.775 / 88.5....		W8MAI.....	BRIDGEMAN
442.800 / 0	K8WQK.....	MANCELONA
442.825 / 0	W8YKS.....	BERRIEN SPRINGS
442.825 / 0	N8UXR.....	MT. PLEASANT
442.950 / 94.8....		N8KQQ.....	MUSKEGON
443.075 / 94.8....		NW8J.....	CEDAR SPRINGS
443.200 / 94.8....		N8UKF.....	MUSKEGON
443.250 / 94.8....		K8COP.....	WHITEHALL
443.300 / 1123.0....		WD8KAF....	COLDWATER
443.350 / 0	W8VHF.....	FREESOIL
443.550 / 0	N8VPZ.....	CASSOPOLIS
443.625 / 100.0....		N8HEE.....	CHARLOTTE
443.650 / 0	N8NIT.....	BUCHANAN
443.675 / 0	W8VTM.....	HART
443.700 / 0	WB8RJY....	MASON
443.775 / 94.8....		W8GVK.....	GRAND HAVEN
443.800 / 0	KA8YSM....	GRAND RAPIDS
443.825 / 94.8....		K8DAA.....	HOLLAND
443.850 / 0	N8TSJ.....	SARANAC
443.900 / 0	KB8QOI....	BIG RAPIDS
443.950 / 94.8....		W8DF.....	BATTLE CREEK
444.000 / 0	N8XYR.....	HARBOR SPRINGS
444.025 / 0	KE4PM.....	BERRIEN SPRINGS
444.075 / 94.8....		N8DAN.....	PAW PAW
444.100 / 0	N8NET.....	GRAND RAPIDS
444.225 / 167.9....		KB8SEM....	HASTINGS
444.400 / 0	W8DC.....	GRAND RAPIDS
444.550 / 94.8....		W8ZHO.....	MUSKEGON
444.575 / 0	N8OBU.....	DANSVILLE
444.625 / 94.8....		KD8CP.....	GRAND RAPIDS
444.650 / 131.0....		W8VY.....	KALAMAZOO
444.675 / 0	N8DWZ.....	HOLTON
444.725 / 114.8....		N7LMJ.....	LAKE ANN
444.750 / 0	N8KRF.....	LANSING
444.775 / 94.8....		AB8MS.....	GRAND RAPIDS
444.825 / 0	N8IYX.....	OSHTOMO
444.825 / 0	WB8WIV....	CADILLAC
444.850 / 141.3....		WA8ZRJ....	ST. JOHNS
444.875 / 0	K8DVR.....	OSHTOMO TWP.
444.900 / 94.8....		K8IHY.....	GRAND RAPIDS

AMATEUR RADIO ANTENNA TOWER SAFETY CONSIDERATIONS

When constructing a ham antenna, it is important to consider ALL aspects pertaining to safety and performance. Because in the end, the ham is potentially liable for any damage or injury caused from the antenna or tower, i.e., if the antenna or tower falls down, the tower may be an attractive nuisance to climb, the attraction to lightning, the effects from high winds and ice, etc. (Check things out with your home owners insurance carrier for pertinent coverages, etc.).

There is also the blending into the aesthetics of the neighborhood (the scenery). Some ham antenna towers are left standing unsightly after the ham quits operating or moves away. There is a fear that a child could climb the tower, fall and get injured.

These were just some of the concerns evidenced with ham antenna towers in the Grand Rapids metropolitan area zoning regulations. And so to facilitate acquainting those concerned, the following Safety Advisory Bulletin was composed relating to obtaining a construction Permit for an Amateur Radio antenna tower in Grand Rapids. It is presented here for your information.

AMATEUR RADIO ANTENNA SAFETY ADVISORY BULLETIN (SAB) (ASSOCIATED WITH THE GRAND RAPIDS TOWER ORDINANCE)

I. SAFETY

Safety is the MOST IMPORTANT consideration for erecting antenna structures. Electrical shock, physical injury, and damage to property are dangers. NEVER erect an antenna or antenna structure near a power line such that it can touch it while erecting, or if it should fall down in a wind or ice storm. Use high quality materials and follow the manufacture's specifications when installing a tower or antenna. Consider the structural integrity, grounding for lightning (and radio interference purposes), and installing anti-climb devices when erecting an antenna structure. Seek-out, plan, and discuss it with other amateurs with experience in this area or seek professional advice.

II. GROUNDING

An effective ground is a must for every amateur radio station. There are requirements for the electrical power ground for the operator's station (usually covered by building electrical codes and/or the National Electrical Code). There are fundamental requirements for RF grounds for the radio equipment (usually covered in instructions with the radio equipment or in available Amateur Radio handbooks). And there are fundamental requirements for the antenna structure ground which is very important in aiding against lightning damage. Any metal antenna and/or antenna structure should be connected to an earth ground consisting of one to three eight (8) foot ground rods driven in around the structure. Information from the National Fire Protection Association (NFPA) in their booklet NFPA No. 78-I 983 entitled "Lightning Protection Code" should be of interest. Also, the POLYPHASER Corporation in Minden, Nevada supplies impulse suppressors for RF coax and electrical lines, and also supplies grounding hardware for antenna installations. Seek-out, plan, and discuss grounding methods with other amateurs with experience in this area or seek professional advice. Provisions should be made to disconnect and ground all antenna lines including the rotor and control cables during severe electrical storms.

INSTALLING A TOWER

One of the most important parts of a ham station is the antenna system, because height and antenna gain will ultimately determine your operating enjoyment. For this, a tower is generally required. The installation of a tower is not difficult when the proper techniques are known. Consult with other hams and ask a lot of questions. Consult the manufacturer's specifications and recommendations in making your choice of a guyed or self-supporting tower. A tower is usually not hard to erect since each of the individual sections are relatively light in weight (especially if they're made with aluminum) and they can usually be handled with only a few helpers and some good-quality rope. A gin pole is a handy device for working with tower sections. Also, always use a safety belt and a hard hat.

One of the most important aspects of installing a tower is the safety of ALL persons involved. Helpers should always stand clear of the tower base area to prevent being hit by a dropped tool or object. If two people must work on the tower, one should climb into position before the other begins climbing or changes position on the tower. The same procedure is required for climbing down the tower after the job is completed.

III. ANTI-CLIMB DEVICES

An openly accessible antenna structure can be an “attraction” to climb (especially for young children), where their inability to appreciate danger necessitates a duty upon the owner/operator to exercise due-diligence and reasonable care to protect against dangers of the attraction. The use of anti-climb devices is highly recommended. Anti-climb devices are simply a “guard” placed around the bottom of the antenna structure thereby preventing young children and juveniles from climbing the structure. An effective anti-climb device can be made by smoothly enclosing the bottom eight foot area of the structure with at least five feet of treated plywood, a small mesh screen, or sheet metal, such that small children cannot gain access to climb up the structure. Planting shrubs and bushes around the base can further aid in lessening the attraction and also improve the aesthetics.

IV. GUYING

Guy wires should be used where necessary and in accordance with the manufacture’s specifications, especially on structures not intended to be self-supporting. Guy anchors should typically be located between 60 and 80 percent of the structure height in distance from the base of the structure. However, always consult the tower (structure) manufacture’s recommended specifications for guying. All guy wires and guy wire anchors should be placed such that they cannot cause injury to people or animals, i.e., an obstruction to walking, running, or a passerby. Where guy wires or guy anchors are necessary to be lower than eight (8) feet above ground, they should be contained in a brightly colored plastic sleeving to alert passing people of their existence. Also, it would be helpful to plant shrubs and bushes around the guys and/or guy anchors to help isolate them from being a dangerous obstruction.

V. WIRE SIZES

Wires can be used for antennas, supporting antennas, and guying the structure. Use a wire quality and a size that can withstand the stress of erection and the effects of weather (consider Michigan’s winds and ice storms). The National Electrical Code document has Article 810, Sections C and D covering amateur radio stations, which suggest no. 14 hard-drawn copper wire for open (unsupported) spans less than 150 feet, and no. 10 for longer spans. Copper-clad steel, bronze or other high-strength conductors may be no. 14 for spans less than 150 feet and no. 12 for longer runs. The use of insulated wires for antennas can offer some safety protection factor, but generally they are later affected with UV damage from the sun. Antenna grounding conductors are described in the Code but a general rule of thumb is to use a no. 10 conductor or larger (at least as large as the lead-in conductor). RF ground conductors should generally be run in a straight line with no sharp bends or kinks and terminate at the ground rods connecting the base of the antenna structure to earth ground. Guy wire sizes depend upon the structure being supported and may experience “pulls” in excess of 1,000s of pounds tension. Typically, a 3/16” EHS (extra high strength) guy wire with a breaking strength of 3990 pounds will be adequate for most moderate amateur installations. The use of strain reliefs, wire thimbles, turnbuckles and guying anchors are normally required for guyed towers. Consult the structure manufacture’s specifications and requirements for proper guying. Also, seek-out, plan, and discuss it with other amateurs with experience in this area or seek professional advice.

VI. MAINTENANCE AND INSPECTIONS

Get into the habit of inspecting your antenna structure(s) several times a year and especially after any high winds, lightning, or ice storms. Look for loose or missing hardware, rust, structural defects, cracks, and worn or frayed wires and cables. Check any guy wires and turnbuckles for looseness and tighten them accordingly. Inspect the structure grounding system for damage after lightning storms. Make notes in your station logs for future reference.

CAN YOU HELP?
Sure, I'll help the I.R.A. with my tax-deductible contribution* of:
\$ _____
\$25
\$20
\$10
*Contributions to the IRA are tax deductible. The IRA is an IRS 501C(3) organization.

Name _____ Call _____ Class _____

Address _____

City _____ State _____ Zip _____
(all 9 numbers)

PHONE NUMBER (OPTIONAL) _____

Want to receive The Purple Crystal? YES ___ NO ___ I DO ALREADY ___

Can you read the Purple Crystal on the web at: www.iserv.net/~w8hvg? YES- NO ___

Thank you for your support of the Independent Repeater Association, Inc.

REPEATER HINTS AND KINKS

In the winter, mice seem to travel and look for warm buildings to live in (repeater sites). They can do a lot of damage to radio equipment when they chow down on the wires for food. We've had the same blue wire chewed in half, in the same radio, twice last year disabling the Muskegon link system. I t must h ave been an Advanced class mouse.

A suggestion for keeping mice from living inside a repeater cabinet is to place an open box of moth balls inside the cabinet. The smell of the moth balls tends to keep them away. Also, place aluminum foil tape over the entry holes in the cabinet to close off any access. The tape is usually obtainable from most hardware stores or sometimes at your favorite ham swap.

KERCHUNK!

A 'kerchunk' is the name given to the action of someone momentarily keying up a repeater. Keying up a repeater without giving your call sign is a poor operating habit to get into. If you really have to know you are going to be heard by the repeater and you must kerchunk it, please also say your call. You just might start a conversation.

The way the link repeater system is integrated and functions, there may be interference caused to an on-going conversation if someone continually kerchunks and doesn't hear the repeater come back due to linking failures. If that happens, the technical maintainers need to know about the failure and your ID can help them. Besides, FCC Part 97 regulations says that you **must** ID your transmissions and kerchunks are transmissions.

ALL HAM CLUBS ARE INVITED TO SHARE THEIR INFO ON THE LINK SYSTEM AFTER NEWSLINE

The IRA broadcasts the Amateur Newsiine every Monday night at 8 P.M. as a service to Michigan hams. Immediately after newslines, the net control invites any and all ham organizations and clubs to announce pertinent information about their club activities, i.e., meetings, nets, hamfests, transmitter hunts, member passings, estate sales, VE exams, etc. Any club or organization is cordially invited to have a member announce their info after Newsline on the link system on Monday eves. It's fun, everyone learns something and new friends can be made.

There is a "traders net" on the first and third Monday of the month right after Newsline. Also, during severe winter weather, you can usually find out about road conditions or weather conditions around the state by listening on the link system. All hams are welcome to use the link repeater system.

HAVE YOU LOOKED AT THE IRA WEB-SITE LATELY?

Check out the IRA web-site where you can observe some of the happenings of the IRA, c **atch** status updates of the link system, see informative presentations, view or download a copy the latest link system coverage map, or link to other ham web sites. You can even send comments to the IRA via e-mail. The address of the IRA web site is www.iserv.net/~w8hvg. Check it out!

In this issue:

IRA Hamfestival June 3, 2000
FCC Restructures Amateur Radio!
We Need Your Help!
The View from the Hi/....Great!
IRA State of the Union
Scenes from /RA Hamfestival- 1 999
Info About the IRA?
Your Last HT Battery Charger
Free Radios!
Repeaters Around West-Michigan
Grand Rapids Tower Ordinance
Safety Advisory Bulletin (SA B)
Repeater Hints and Kinks
Kerchunk!
All Ham Clubs Are Invited
The IRA Web Site Address
Where Does It Come From?
IRA 7999 Annual Report

WHERE DOES IT COME FROM?

Not too many years ago when people were seemingly more polite and courteous they'd say, "Thank you." People would respond by simply saying, "Your we/-*come.*" Today that's not so true anymore. Have you noticed that the more common response to a Thank you today is, "Vo problem!" Where does it come from?

Have you noticed an increase in the number of people speeding up to drive through a caution light as it just turns red? And then there are the people who cut you off while speeding to get wherever they're going. Sometimes it results in what's called "road rage" causing an accident. Where does it come from?

When we talk on the phone, or in person with someone, we generally say something and then pause and let the other person say something. This goes on and it's generally called a "conversation." But in ham radio and especially on repeaters, conversations today take on the resemblance of a monologue, a travelogue, or ones complete life history before turning it over! Where does it come from?

And then there are the repetitive "repeater-talk pet phrases" or the trite over used expressions like "I'm destined" or "We'll ketch ya later." Where does it come from? Does anyone know?

IRA 1999 ANNUAL REPORT

January 1,1999 through December 31,1999

Balance carryover into 1999	2,682.96
<u>INCOME</u>	
Donations	2,110.00
Swap	3,990.00
Swap Reservations	<u>1,282.00</u>
 Total income	 7,382.00

<u>EXPENSES</u>	
Bank Charges	8.00
Electricity	699.31
Insurance	214.00
Misc.	1,046.26
Postage Stamps	33.00
Purple Crystal Mailing	2,045.55
Site Rent	1,640.00
Telephone	452.30
Swap Facilities	984.00
Swap Prizes	<u>384.95</u>
 Total expenses	 7,507.37
 Balance carryover to 2000	 2,557.59