

# PACK RATS'



**PACK RATS**

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

# CHEESE BITS



MT. AIRY VHF RADIO CLUB, INC., PHILADELPHIA, PA.  
50.2, 145.2, 221.4, 432.03, 1296.03, Repeater - WR3ACD-222.98/224.58

ARNS

AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

MEETINGS: Third Thursday of each month at 8:00 P.M.  
Southampton Free Library, 947 E. Street Road  
Southampton, Pennsylvania, 18966

VOLUME XIX

MARCH 1977

NUMBER 3

## THE PRESIDENT'S PLATFORM

As we write this message we look out the window and cheerfully note there is grass and ground under that white stuff we have been having around these parts these past two months. It can't last too much longer for we are already getting notices of various area Hamfests and this is a better sign of Spring than the first Robin.

From the last directors meeting, several interesting items: A new club project is being formulated on the latest state of the art on six and two meter converters and will be expanded into a full-bloom operation for everyone.

Randy, WB2SZK is undertaking an RFI program. He wants any information from the members as to problems, causes and cures which will be compiled into a report and perhaps a booklet. There is plenty of RFI and the Hams are not the sole generators. The finger must be bent and pointed in other directions too.

Another interesting item to note is the New England VHF Conference to be held in May in New Hampshire. The feedback from these meeting results in a big push in the VHF spectrum and we are anxiously awaiting the reports.

Don't forget... the program at our next meeting will be on low voltage regulated power supplies. This can be a well worth while meeting to bring all those 12 volt units into the shack.

See you all at the meeting, 73

Lee, K3MXM

\* \* \* \*

## VISITORS AT THE FEBRUARY 17TH MEETING

W2VSV/3, Frank, West Chester, Pa.	W3ILN, Fred, Hatboro, Pa.
WB2ENV/3, Tom, West Chester, Pa.	WA3BRW, Joe, Bethlehem, Pa.
W3NWX, Ed, Norristown, Pa.	WA3UGP, Phil, Northampton, Pa.
WA3ZXY, Bob, Norristown, Pa.	K3RYL, Kevin, Bethlehem, Pa.
WB3EFO (ex 3VA), Ed, Huntingdon Valley, Pa.	WA3VVG, Bob, Center Valley, Pa.
	K3EIF, lrv, Somerton, Pa.

\* \* \* \*

Doc Cutler, K3GAS will be manning the registration desk during the annual meeting of the Philadelphia County Dental Society from March 6 to 9, 1977. The location is the lobby of the Sheraton Hotel, Kennedy Boulevard, Phila., Pa. Doc says to please drop in to see him.

Pack Rats CHEESE BITS is a publication of THE MT. AIRY VHF RADIO CLUB, INC. Philadelphia, Pa. and is published monthly.

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SWAP SHOP ITEMS - no charge.

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

EDITOR:

W3CL, Harry B. Stein  
2087 Parkdale Avenue  
Glenside, Pa. 19038  
215- TU7- 5052

PUBLISHER/SUBSCRIPTION MANAGER:

K3GAS, Doc Cutler  
7815 New Second Street  
Elkins Park, Pa. 19117  
215- ME5- 1078

PRINTER:

K3IGX, Richard Boyle  
7915 Bayard Street  
Philadelphia, Pa. 19150  
215- 927- 6471

TYPIST:

WA3TEM, Marsha Lissauer

\*\*\*\*\*

TRUSTEE OF CLUB CALLS: W3CCX - WR3ACD

W3SAO, Francis Brick  
821 W. Lindley Avenue  
Philadelphia, Pa. 19141  
215- DA4- 7524

AWARDS CHAIRMAN:

W2EIF, Joseph Kilgore  
#5 Sunnybrook Court  
Stratford, N.J. 08084  
609- 783- 9478

CLUB HISTORIAN:

W3SAO, Francis Brick

OFFICERS: 1976 - 1977

PRESIDENT: K3MXM, Lee A. Cohen  
VICE-PRES: W3HMU, Tony Souza  
COR. SECY: WA3NGK, Harry Brown  
REC. SECY: WA3NFV, Danny Mitten  
TREASURER: K3GAS, Doc Cutler

DIRECTORS:

WA3AXV, Ron Whitsel (Ex-Officio)  
K3IGX, Richard Boyle (2 years)  
K3JJZ, Elliott Weisman (2 years)  
W3HQT, William Olsen (1 year)  
W3YXF, Joseph Rushton (1 year)

\*\*\*\*\*

MONDAY NIGHT NETS:

<u>MONDAY NIGHT NETS:</u>		<u>NET CONTROL</u>
145.2 MHZ	7:30 PM	W2EIF
50.2 MHZ	8:30 PM	W3CL
221.4/224.58 MHZ	9:00 PM	K3GAS
432.03 MHZ	9:30 PM	K3IUV
1296.3 MHZ	10:00 PM	W2EIF


FRIDAY NIGHT ATV NET:

<u>FRIDAY NIGHT ATV NET:</u>	<u>NET CONTROL</u>
439.25 MHZ	7:00 PM
	WA3AXV


PACK RAT REPEATER - WR3ACD - 222.98/224.58  
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\*\*\*\*\*


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CALENDAR OF COMING EVENTS  
Syllabus by Lee, K3MXM

- MARCH      Named for the Roman God of War - Mars
- 3      First postage stamp adopted- 1847, and after all these years the glue still unperfected.
- 4      Purim
- 6      For our Texas friends - The Battle of the Alamo 1836
- 10     Board of Directors Meeting - QTH K3JJZ, Elliott Weisman, 8533 Algon St., Phila., Pa.  
If lost call 742-3525. Directors and interested parties invited.
- 11     First telephone used commercially 1876.. and they talk about noise pollution.
- 12     Girl Scouts founded 1912.. did you buy your cookies yet?
- 12     QCWA, Delaware Valley Chapter dinner meeting, Buck Hotel, Feasterville, Pa.  
Guest speaker, Harry Dannals, W2HD, President ARRL.
- 15     Pack-Rat Moonbounce Team will visit and make a presentation at the GE Space Center,  
Valley Forge, Pa. For details contact K3JJZ.
- 17     St. Patricks Day
- 17     Regular Club Meeting - 8 PM, Southampton Free Library. Topic of the evening:  
"Low Voltage Power Supplies" - How to design, how to build, how to trouble shoot,  
by Ron, WA3AXV. Frankies Silent Auction, Marios' Raffle- Refreshments. Open to all.
- 20     First day of Spring- and as my wife Peggy says "its about time,I'm tired of the snow".

\* \* \* \*

OTHER DATES WORTH REMEMBERING AND LOGGING

- APRIL
- 29      To May 1st - Dayton Hamfest.
- 30      PACK-RAT BANQUET AND LADIES NITE - SATURDAY EVENING - BUCK HOTEL, FEASTERVILLE, PA.  
John Tate, K3KTY, Chairman. \$12.50 .. Music, Awards, Prizes. All welcome.
- MAY
- 7      Potomac Area Hamfest, Herndon, Va.
- 7,8     New England VHF Conference, University of New Hampshire, Durham, New Hampshire.
- 15      Warminster ARC HAM-MART, Warminster, Pa.
- 20      Rochester, New York Hamfest.
- JUNE
- 3-5     ARRL National Convention, Toronto, Canada.
- 11,12  VHF QSO Party. Hilltown again this year. Bill Olsen, W3HQT - Chairman

\* \* \* \*

Lets swap QSL cards for the ARRL 6 Meter 600 Award. Many of us worked each other on 6 meters during the recent VHF SS in January. Bring your filled out cards to the meetings and save postage. Send away to the ARRL for the special application. Enclose a SASE with notation- 6 meter award.

NEW PRODUCTS OF INTEREST TO HAMS  
BY LYN, W3NSI

1. PRECISION CLOCK: Yaesu Electronics Corp. is now selling a 6 inch diameter clock for use by Hams and others who need to know the time in various places around the world. Unit will operate from a single flashlight cell for a year; so can be mounted on a wall or anywhere else without regard to AC line. In operation, a time zone disc advances automatically, showing the correct time in other time zones. Price.. \$30 - P.O. Box 498, 15954 Downey Ave., Paramount, CA. 90723
2. COUNTER-CLOCK UNIT: Pride Electronics has a very interesting unit TF 1000, which is a counter from 1 - 40 Mhz when needed, but which normally runs as a clock. Unit can be switched to just clock operation or to automatic. In the automatic mode, time is shown until the local transmitter comes on the air, at which time the output frequency of the transmitter is displayed. Readout is by 6 digit 5/8 inch high LED display. Time can be switched between 12 and 24 hour modes. Price.. \$179.95, 7322 Convoy Court, San Diego, CA. 92111
3. TWO METER FM RIG -TR 7400A: Kenwood has made available a new 2 meter FM T/R unit with 4 Mhz coverage in 5 KHz jumps. Frequency readout is by 6 digit LED display, and being fully synthesized, no crystals are required. Two power levels are available; 25 watts on high, and 5-15 watts on low (adjustable). A built-in protection circuit reduces power input on the final rather than turning off the rig as with most other protection circuits. This would allow you to make a contact when having an antenna problem, even if with reduced power. Now all we need is a unit like this for 220 Mhz. Price.. \$400, Kenwood Communications Inc. 116 E. Alondra, Gardena, CA. 90248

\* \* \* \*

VHF/UHF REPORT  
by Jo, W2EIF

The VHF bands have not been very active since the January contest. Some contacts have been made on 6 and it seems that the new ARRL 600 point award has stimulated some of the activity. Just remember that each contact counts two points, each section six points, and each foreign contact twenty-five points. QSL cards are required.

The cold weather may be partly to blame for some of the reduced activity--after all who wants to stay in a cold cellar or attic and work the VHF bands?

The 1296 night has been moved to Tuesday evening. The gang meets at 8 PM at 144.20 Mhz on SSB then goes to 1296 for contacts, reporting back on 2 meters after each contact. Anyone is welcome to join the group which at present includes W2EIF, WA3JUF, W3HMU, and K1PXE. If all 1296 activity is concluded by 8:30 PM, then those that can will shift to 220 Mhz (low end) for contacts on the band.

W3HQT is corresponding with Paul, W3AED exchanging information on possible 10.5 Ghz activity. Lets hope that the Spring will see an increase of activity on all VHF bands.

\* \* \* \*

Dick, K3MWV reports chatting with Bob, VP2MXW on 75 meters who says that he is active on 6 meters SSB every day using a Drake TR-6. Look for him in May and June this year when the skip rolls in. Bob's location is Montserrat, Leeward Islands.

\* \* \* \*

A WAC via 432 Mhz Moonbounce was just accomplished by G3LTF. On January 23 Peter raised FY7AS - his first South American - on a CQ (!) and then a January 29 schedule with JA1VDV paid off with continent number six. Congratulations for what is only the second EME six-continent sweep..de HR Report

\* \* \* \*

Look for a magazine article by Walt, K3BPP in the March issue of 73 magazine. Also one by Tony, W3HMU in Ham Radio in May or June.

We are saddened to report the sudden death of a good friend and dedicated club member, Sid Weiner, W3GEW. Sid reported in on the 6-meter Monday night net, February 21, 1977 and on February 23rd, he was a "silent key". Our sympathies to his family.



HOMEBREW '77

WHO SAYS AMATEUR RADIO CONSTRUCTION IS DEAD

" HOMEBREW '77 " was the best ever with eighteen participants and thirty-four projects entered. All are members of the club with the exception of K3RYL who is a friend of the Pack-Rats. The following is a list of the constructors; their calls and projects matching up with the photo on the opposite page.

- |  |   |
|--|---|
| WA3AXV - Integrated circuit keyer.<br>Regulated power supply.  | W3NSI - Time-out warning device (solid state)<br>for repeater operators.<br>432 Mhz varactor tripler. Transformer<br>tester. 2 transistor 80 mtr. receiver. |
| K3BPP - 2 and 6 meter SSB converter &<br>exciter console.<br>1 KW 1296 Mhz transmitter.  | WA3NUF - Digital clock.<br>2 mtr. FM transceiver.   |
| K3GAS - Adjustable timer, metronome and<br>tone generator.   | WA3NFV - HF antenna tuner.  |
| W3HQT - 1296 Mhz stripline amplifier.<br>Modular 432 Mhz converter.  | K3RYL - 8939 stripline 432 Mhz amplifier.   |
| W3HMU - 2 KW 432 Mhz amplifier.<br>1296 Mhz amplifier.   | WB2SZK - Solid state 144 and 220 Mhz amplifiers.<br>Solid state 2 mtr. converter.   |
| K3IGX - Etched boards. Display of photos<br>par excellence (Dick is the one<br>who made the now famous Moonbounce<br>antenna photo). | WA3UDS - "Bed Pan" special 220 Mhz antenna.<br>Trap dipole( picture of ).   |
| K3JJZ - Automatic tape CQ'er & audio mixer/<br>foot switch control.  | WA3YUE - 2 mtr. 4X250 amplifier.  |
| WA3JUF - Solid state 220 Mhz converter.<br>Local oscillator for transverter.   | WA3ZRE - Tape interface for CQ sender.<br>2 & 6 mtr. antenna. Mag. mount for<br>2 mtr FM antenna.   |
| K3MWV - Solid state ATV transmitter.   | K3ZSG - Low noise 2 mtr. preamp.  |

Prizes were presented by Tony, W3HMU, the program chairman to the following winners:

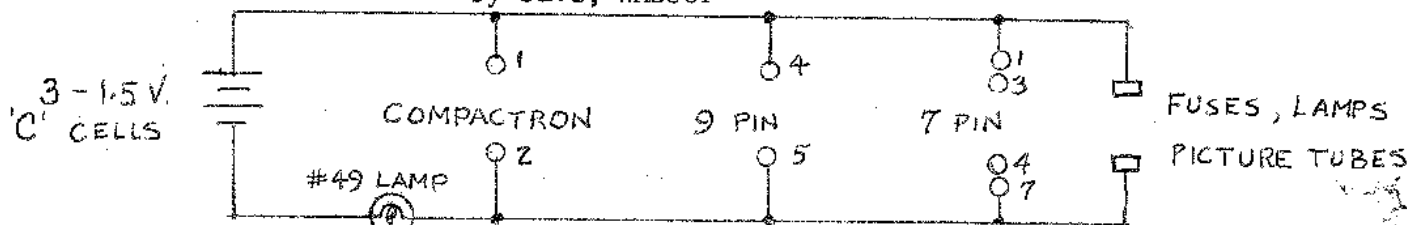
- 1st place - K3MWV, Dick Pierce
- 2nd place - K3BPP, Walt Bohlman
- 3rd place - WA3ZRE, Earl Garber

Each winner received a handsomely engraved certificate prepared by Jo, W2EIF who inserted the pertinent information before the close of the meeting. In addition they received a token of "good cheer".

\* \* \* \*

COMPACTRON, FUSE, AND TUBE FILAMENT CHECKER

by Dave, WA3JUF



Plug tube into appropriate socket. If heater is good, the lamp lights. Also checks fuses, lamps, etc. for continuity.

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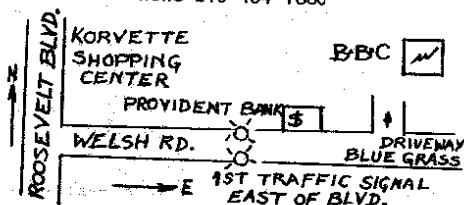
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CONTACT: John Wolf, W3IMU, 965 Buck Rd.,  
Holland, Pa. 18966  
Phone: 215-968-4122

FOR SALE: Swan 250-C 6 mtr. SSB Xceiver with  
Pwr Sply. Perfect condx. \$225  
(call collect-will ship via UPS)

CONTACT: Tom Mathews, K4IJC, 108 Pindo Palm W.  
Largo, Fla. 33540  
Phone: 1- 813-581-6437

FOR SALE: Heathkit SB-620 Scanalyzer spectrum  
monitor. Aligned by Heathkit for  
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MU-2 Matching Units; 3000 Volt at  
1 Amp. pwr supply (prefer 220 V. pri)  
nice 5 Ft. enclosed relay rack; turn  
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CONTACT: Ed Vickner, K2SNK  
Phone: 609-883-5318

FOR SALE: Complete ATV Xmitter; Motorola T-44  
with Pwr Sply, 439.25 Mhz Hxtal,  
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CONTACT: Richard Pierce, K3MWV 19056  
2700 New Falls Rd., Newportville, Pa.  
Phone: 215-785-0058 after 6PM  
215-968-4271 week days

FOR SALE: R-48 AM/FM 220 Mhz Receiver- \$15

CONTACT: Harry Brown, W3IIT  
Phone: 215-584-4846

FOR SALE: 1 KW 2 mtr. Amplifier; pair 4CX300 and  
spare tubes included. \$225

CONTACT: Pete Shavney, WA3OVH  
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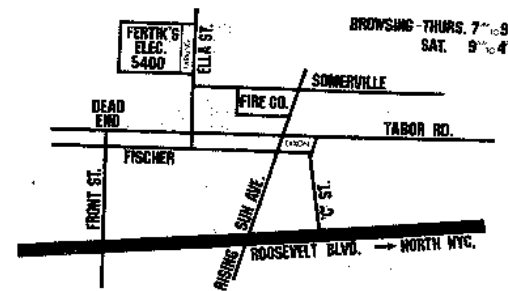
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-Guru Maharaj Ji

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# 73

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RTTY ANTHOLOGY (PART 9)  
by Ralph Alexander, WA3FOF  
THE MODEL 15 TYPING UNIT

In Part 8 we looked at the heart of the Model 15 Typing Unit up to the locking wedge, and now we will continue with the rest of it. The locking section depends on five locking cams in the second set of cams on the cam sleeve (first section on the pulling magnet type). During the actual selection process, each locking cam pushes the locking wedge out of place. The locking wedge itself is one of three arms of a flat "Y" shaped piece that has another of its arms following the cam sleeve and the third arm spring loading it to the cam sleeve. When the selection interval has passed, the locking wedge (shaped like the blade of a knife) comes down and locks the armature extension in place for either mark or space. This permits the cam sleeve motion to set and drive each selector lever, sword, "T" lever, and vane for mark or space.

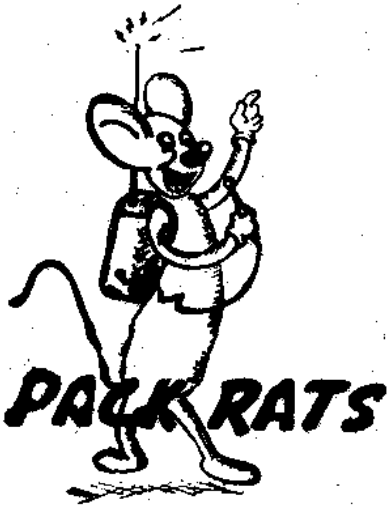
The type basket is the entire assembly on the typing unit that moves across the page while typing on a platen that does not move horizontally. The ribbon on the Model 15 is carried in the type basket assembly and each time an operation occurs the ribbon advances. The Model 15, like all Teletype equipment, uses the easily obtainable Underwood manual typewriter replacement ribbon. The Underwood ribbon has a small grommet at each end. When the ribbon reaches one end, the grommet will not pass thru the thin fork that the ribbon passes thru. This fork is attached to the reversing ratchet which, when pulled, causes the ribbon reverse to be activated allowing the ribbon feed to continue in the new direction.

Looking at the front and about two thirds of the way from left to right are the vanes. The top five are the information vanes, while the sixth is for figures and letters shifts as well as for other non-printing functions. The vanes are pivoted at their ends so they move up or down. The vanes are designed long enough to transmit the mark and space information to the bell cranks on the moving type basket. There are five bell cranks which look like an "L" lying on its side. They are pivoted at the point where they bend. The horizontal ends of the "L" have slots that fit and slide along its vane. The tops or vertical ends of the "L" have socket joints on them that connect to its code bar. The code bar is a flat crescent shaped plate that slides from left to right depending on the information that is transmitted to it from the bell crank. The five code bars have various size notches cut into the top side of the crescent. The arrangement of these notches allows only one of the type pull bars to fall thru lined up notches in all five code bars at any one time. The bottom of all type pull-bars have a notch in them that does not normally catch the print bail. When a type pull-bar falls into the lined up notches in the code bars, this type pull-bar is caught in the bottom notch and is pulled forward by the print bail in the same motion for the ribbon advance. The type pull-bar is geared to the type bar so the type bar with the type pallet is pulled three quarter the distance toward the vertical with the rest of the distance being covered by the momentum of the system to print a character.

Some of the operations of the Model 15 are non-printing functions. For a space, the type basket just advances which is really a printing function without a character being printed. Other non-printing functions like line feed, figures, and letters shifts are done in a somewhat different manner; taking place in an area of the machine just behind the vanes. When the proper combination is set up in the vanes, a function starts into operation. A type pull-bar may or may not fall into lined up notches to print but also in back of the vanes. One of several vertical arms with several notches in it may move forward if it fits into the set vanes and this arm would start a non-printing function. In the carriage return function, the carriage advance sprocket is disengaged by a movement of a clutch assembly. When this happens, the carriage is left standing there and the mechanical energy stored in the carriage return spring pulls the carriage back to the left with quite a bit of force. At the left side, the carriage strikes an arm which does two things. The first when the arm is connected to the dash-pot which is a shock absorber to reduce the speed of the carriage at the end of the return. The second thing takes place when the arm is in its extended position and it starts a mechanical sequence that re-engages the clutch and the advancement system is back in operation.

The mechanical drive for all of the operations comes from the main shaft once all of the information segments have been selected. The bottom cam on the cam sleeve called the trip-off cam then comes into operation to release the clutch throw-out lever. Next, the machine function bail starts into operation and comes forward. This forward motion of the function bail provides all subsequent power to the machine for non-printing operations and for the print bail. A pair of extended arms are attached to the top of the function bail which pulls the print bail forward so that the operation that has been determined and locked into place, whether printing or non-printing, does happen during the thirty one milli-second segment. The machine is now ready for the next operation. All in all, one very fascinating machine.

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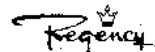
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