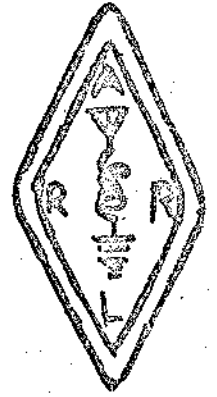




PACK RATS'

CHEESE BITS



CLUB CALL: W3CCX

MT. AIRY V.H.F. RADIO CLUB, INC., PHILA., PA.
(50.2, 145.2, 221.4, 432.03 & 1296.3 MC)

AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

MEETINGS: THIRD WEDNESDAY OF EACH MONTH AT 8:00 P.M.

VOLUME V

MAY 1971

NUMBER 5

THE PREZ SEZ

Many things are happening, but this month I would like to call your attention to the topic of elections. Elections are held in June. A nominating committee, consisting of WA2K0I, Lloyd Schoenig, and W3CL, Herry Stein, has been appointed.

By the time you read this, some of you may have already been contacted. For those of you interested in a particular position, don't wait to be asked. Contact the committee and make your preference known.

If you know of someone who would make a good officer or director, contact him and ask if you may nominate him for office. Nominations will be accepted from the floor at both the May and June meetings.

Become involved. It's much more fun if you're a part of all this commotion!

73,
K3JJZ, El

NOTICE: DUE TO THE UNFORTUNATE HOSPITALIZATION OF OUR PRINTER K3ZFN, ALIAS WA2K0I, ALIAS FAT RAT, THERE ARE NO BUSINESS CARDS PRINTED IN THIS ISSUE.

ADVERTISERS WILL NOT BE BILLED UNTIL THE PERIOD JUNE, JULY, AUGUST, AT WHICH TIME WE EXPECT TO BE BACK TO NORMAL.

SPEEDY RECOVERY LLOYD - Room 223
Woman's Medical College Hospital
3300 Henry Avenue
Philadelphia, Pa.

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

PACK RATS' CHEESE BITS is a publication of the Mt. Airy V.H.F. Radio Club, Inc., Philadelphia, Pa., and is published monthly.

EDITOR:

K3JJZ, ELLIOTT WEISMAN, ARNS
8533 ALGON AVENUE
PHILADELPHIA, PA. 19152
215 - PI 2-3525

10¢ per copy \$1.00 per year

We operate on an exchange basis with other publications and anything that is printed in CHEESE BITS may be reprinted, unless so stated, as long as the proper credit is given.

TRUSTEE OF CLUB CALL: W3CCX

W3SAC, FRANCIS BRICK
821 W. LINDLEY AVENUE
PHILADELPHIA, PA. 19141
215 - DA 4-7524

PUBLISHER AND SUBSCRIPTION MANAGER:

K3GAS, DOC CUTLER
7815 NEW SECOND STREET
ELKINS PARK, PA. 19117
215 - ME 5-1078

2 METER REPORT

The 2 meter band has been fair up to April 13 with one small aurora opening. On April 14 there was a good aurora opening with excellent SSB contacts into Chicago (W9YF) and Maine (W1ETZ) and Nova Scotia (VE1AFB). There was also very good cw activity with contacts into Chicago, Indiana, Michigan, Ohio, Wisconsin, Minnesota, and Missouri by the gang on the low frequency end of 2 meters. The schedule with W8DGF (Bob) in Cleveland is still going on nitely with W8Y10 in Michigan breaking in.

PRINTER:

WA2KOI, LLOYD SCHCENIG
207 WOODLAWN AVENUE
COLLINGS LAKE, N. J. 08094

W2EIF, Jo

AWARDS CHAIRMAN:

W2EIF, JOSEPH KILGORE
#5 SUNNYBROOK COURT
STRATFORD, N. J. 08084

DIRECTORS' MEETINGS ARE HELD ON THE SECOND WEDNESDAY OF EACH MONTH AT DESIGNATED LOCATIONS.

MEMBERSHIP

MONDAY NIGHT NETS:

145.2 - 7:30 P.M.
50.2 - 8:30 P.M.
221.4 - 9:00 P.M.
432.03 - 9:30 P.M.
1296.1 - 10:00 P.M.

Dropped

W3BQU, Howard Buerger
Box 153, R.R. #1
Perkasie, Pa. 18944

OFFICERS - 1970-1971

PRESIDENT: K3JJZ, ELLIOTT WEISMAN
VICE-PRES.: W3CJU, DONALD HAMPTON
TREASURER: K3GAS, DOC CUTLER
CORRES. SEC.: W3SAC, FRANCIS BRICK
REC. SEC.: WA3BIV, CARL BARISH

Retired Membership

W3HKZ, Edward Kushner
2212 Oakwyn Road
Lafayette Hills, Pa. 19144

DIRECTORS:

W3KKN, ERNIE KENAS
K3MXM, LEE COHEN
WA3LNH, CHARLES BENAVIDES
K3UJD, MARIO FONTANA
K3BFP, WALTER BOHLMAN
K3CIV, RALPH HERSH
(Ex-Officio)

Applied for Membership

WA3DJF, Carl F. Mattiace
7317 Ryers Avenue
Philadelphia, Pa.
RA 5-1928

SAVE THAT CONVERTER (Continued from Last Issue)

Everything seemed to be going smoothly until during the 76ers-Celtics playoff series (1967) when the picture disappeared from the UHF. Nothing - no 17, no 29, no 39, no 48. So you took the converter over to the TV service shop and new tubes were put in. The next night you couldn't turn the set on. You again rushed the converter over to the shop. The fellow told you to leave it, which you did. You then watched the game on the color set, which was now the official family set. However, because the picture is small you and your wife began talking color-console. From 1967 to 1970 nothing unusual happened except that you expanded to 220 in 1968 and WIBF-TV became WTAF-TV in 1969. Finally on Christmas day of 1970 your dream came true (with the 21 inch color picture, FM stereo, record player, and cassette recorder). As your wife asks you what you are going to do you just stand there. Then you say, "you can have the color portable and I will continue to use the old set". But she says "what do I need a set for? Our children have grown and moved out and I don't look at TV that much". Now you're stuck. What to do? Another tear comes to your eye. After much contemplation you decide to sell the set.

Monday, December 28, 1970, 7:15 p.m. You tune up your 2 meter rig. Then you turn on the 220 rig. You have decided to tell the rest of the Pack Rats that you have a TV set and UHF converter for sale. Then 7:30 rolled around "CQ CQ CQ to the Pack Rats and their friends". That was W2EIF. "The Pack Rats operate 4 nets each on Monday night." 2 meters, 6 meters, 220 and 432.3 MHz. Suddenly, an idea hits you. When you give your transmission during the net, you don't say anything about the TV set. You ask a lot of questions about the 432 net however. Then, at 10 p.m. you turn on your TV set. You tune in Channel 3. (You noticed when you listened to the police calls on Channel 4, you could also tune in Channels 17, 29, 39 and 48, but these stations would come in slightly higher on the dial.) Then after tuning knob so that the signal on Channel 3 is all but gone, then you flick on the UHF. You tune in Channel 17. You notice that is is considerable higher on the dial than on Channel 4 but the signal is weaker. Then you tune in the police. Things look better, the police are as strong as ever. You keep turning down to Channel 14. Before you get there, however, you hear strange sounds coming out of your TV. Could it be? No it couldn't. There haven't been men on the moon since November, 1969. Scientists say there is no intelligent life on Mars. Then what was it? It was the 432 net in full force, and you found it all by yourself. And, above all, you didn't have to make any internal adjustments to your converter. So after listening to the net, you go to bed and get the best night's sleep in 16 years. The next day you move the color portable into your den and the black and white set with UHF converter over to your ham table. You tell your wife and other hams that you soon will add 432 to your station. You tell your wife that you decided to keep the converter because it will be an integral part of your 432 receiver. You need the TV since you may also add a TV station to your ham collection. You tell the fellows on the air that you have a 432 receiver, and you mention your latest experiment. Actually you are not planning to go on 432 (not yet anyway). However, you, your wife and the hams are all happy and above all, you can keep your TV and UHF converter. As a result, you live happily ever after.

This story has an epilogue which should not be overlooked. I am planning to copy 432 on my UHF converter by the method described above. Since I have an indoor antenna for UHF I will be able to copy those stations within a few blocks of my QTH. At the present time, no such station exists. But K3OBY is working on 432. He told me that it will be some time before he gets on. K3HSS is also working on 432. I am looking forward to the day when I will work K3OBY crossband. I will be on 6 or 2 meters and he will be on 432. His set up is all but complete.

SELECTING JFETs FOR CONVERTER USE

JACK POWER, W2AXU

Junction field effect transistors (JFET) have come into common use in VHF converters for RF and mixer stages. When the constructor has a few of the devices on hand, he would like to know which are best for the RF stages and which he should use for the mixer. The device which will produce the lowest noise figure should be used in the 1st RF stage, the next lowest in the 2nd RF stage and the highest in the mixer. JFETs have a wide range of conductance. This is specified under the "On Characteristics" in transistor manuals as Zero - Gate Voltage Drain Current (IDSS) in MADC.

As an example, the 2N4416, as specified in the Motorola manual, has an IDSS of 5MADC minimum value and a 15MADC maximum value with a VDS (drain-source voltage) equal to 15 volts and the VGS (gate-source voltage) equal to zero volts.

To determine this value of IDSS, a very simple bench test set-up can be made (See Fig. 1). Connect the gate and source together and convert the drain through a low range millimeter to the positive terminal of a 15 V source. The gate-source is connected to the negative terminal and the current is read. The device having the lowest IDSS and thus the lowest conductance will have the lowest noise figure. Therefore, select the JFET having the lowest IDSS and use it in the 1st RF stage, the next lowest for the 2nd RF stage and the device with the highest IDSS for the mixer. (The voltage value to be used on the converter can be used for this test).

The mixer normally has a source resistance to ground. The value of this resistor should be selected to set the drain current to one-quarter of the no-bias IDSS current. The oscillator injection voltage should be adjusted so that the source current will increase to one-half the IDSS current for best mixer action. This can be determined by inserting a meter between the source bias resistor and ground or by measuring the voltage drop across the resistor with a VTVM. This is a simple method for selecting the JFETs for optimum performance of the converter. The few minutes spent is well worth it in providing

the best possible noise figure with maximum over-load capability.

1/19/71 J.B. Power
W2AXU

JFET N CHANNEL

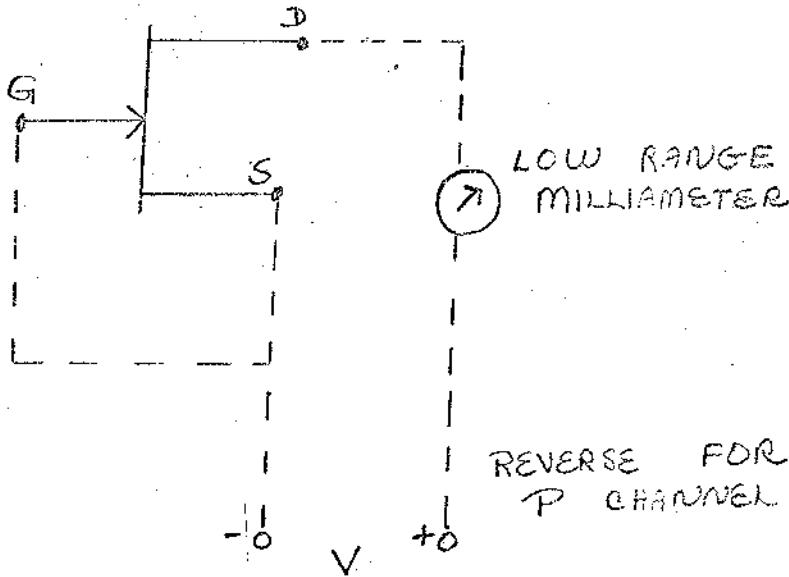


FIG. 1

SAVE THAT CONVERTER (Continued)

One final word, it was mentioned earlier that Channel 23 never got on the air. However, for those of you who wondered what happened to Channel 23, it will be on in October. The New Jersey educational broadcasting council will set up a series of stations all over the state. The flagship station will be Channel 52 in Trenton (to go on in March). Channel 23 will operate from Camden. Thus Philadelphians will be able to receive 11 stations - Channels 3, 6, 10, 12, 17, 23, 29, 35, 39, 48, and 52. So above all, if you are like the fellow in the story, and even if you're not, and you have a UHF converter around and you are thinking of chucking it, all I can say to you is "save that converter".

WA3HIT/WA3OSS, Paul J. Rilling

WWV-WWVH CHANGES BROADCAST FORMAT

Reported by W2AXU, Jack Power

When you tune in WWV for time signals or propagation information after 0000 hours Universal Time (UT) or Greenwich Mean Time (GMT) July 1, 1971, you will hear a different program format than you have been accustomed to over the years. The Morse code transmissions will be gone and the announcements of time and other information will be made in voice. The time will be announced every minute instead of every five minutes. A male voice will be used by WWV and a female voice by WWVH to distinguish between them. The carrier frequencies will remain the same - 2.5 MHz, 5.0 MHz, 10.0 MHz, 15.0 MHz, 20.0 MHz and 25.0 MHz. The frequency accuracy of the two stations is controlled by the NBS Atomic Frequency Standard at Boulder, Colorado. WWV is in Colorado and WWVH is located in Hawaii.

The format of the broadcasts from the two stations will be similar but to avoid confusion between the two stations, they will use alternate time slots for the transmission of tones, announcements, etc. The standard time tick each second will remain.

Each hour will be divided into one minute slots. Each minute (except the first) will begin with an 0.8 second 1000 Hz tone at WWV and 1200 Hz at WWVH. The first minute of each hour will begin with a 1500 Hz tone at both stations. The one minute slots will be divided into a 45 second segment and two 7.5 second segments. On alternate minutes the 45 second segment will contain either a standard tone (possibly 600 Hz) or an announcement.

It is interesting to note that the announcement slots will be available to Government agencies to use for their own purposes. The slots not used will be filled by another standard tone, probably 500 Hz. To prevent interference between the two stations where they can be received simultaneously, one station's announcements will coincide with the other's tone.

The first 7.5 second segment following the 45 second segment will be used by WWVH to announce time while WWV will be silent. The second 7.5 second segment will be used by WWV to announce time, WWVH being silent.

Each station will omit for 5 minutes of each hour all tones and announcements during the 45 second segments. This period will begin for WWV at 45 minutes past the hour and for WWVH at 15 minutes past the hour.

A special 440 Hz tone will be broadcast by WWV for 45 seconds beginning one minute past the hour and by WWVH two minutes past the hour. This tone can be used to mark the hours on strip-chart recorders or other instruments. The tone will be omitted during the zero hour of each UT day.

In summary, the standard time and frequency stations WWV and WWVH will revise their transmission program format on July 1, 1971 at 0000 hours GMT. Time announcements will be made in voice every minute - a male voice from WWV and a female voice from WWVH. Time slots have been made available to other Government agencies for announcements.

1296 NET

On Monday, May 3, at 22:00 local time, the Pack Rats will initiate the fifth net of the evening on 1296 MHz. Net control will be K1SFF/3, Tony Souza, who is located in Ottsville, Pa. In order to accommodate this net, the 220 net will start at 21:00 local time, and the 432 net at 21:30. The later half of the 6 meter net and the beginning of the 220 net will operate concurrently.

NEW PRODUCTS OF INTEREST TO HAMS

- 1. Two Meter SSB Transmitter - Spectrum International, Box 87C, Topsfield, Massachusetts 01983

This unit is the basic circuit board, complete with construction, alignment, and assembly instructions. The board is 3 1/2" x 9" and is glass-epoxy, silver plated. Unit is self contained and all solid state with an output of 12 watts, with 24 VDC power. Circuit is composed of an audio amp, 9 mc USB osc, bal. modulator, 9 mc amp with crystal filter, mixer, driver and linear amp. Price \$4.95 plus \$.25 postage.

- 2. Mini-Com SSB-3 (Single Band SSB T/R) - Justin Inc., 2663 North Lee Avenue, S El Monte, California

The Justin SSB 3 is available for 80, 40, 20 or 15 meters. Any 100 Kc segment in these phone bands may be used. Transmitter is good for about 4 watts output, the receiver is rated at 1 mv sensitivity. The advantage of such a unit is its small size - 3 1/2" x 6" x 10 3/4", which makes it possible to mount the T/R as easily as a 2M FM unit and then use a high power linear located in the trunk. Drain is 75 ma on receive, 300 ma on transmit (SSB voice). Each package includes an extra RF transistor, extra switch transistors, dummy load, and extra battery cable connector, making it possible to use this rig in two cars. At three pounds, no trouble should be experienced lifting it in and out. Price - \$195.

- 3. Two Meter RF Amplifiers and RF Section Modules - TRV Semiconductors, 14520 Aviation Boulevard, Lawndale, California

These units are designed mainly for use by commercial communication equipment manufacturing companies. The RF amp. modules are very small and range in power from 3/4 watts to 12 watts output. The 12 watt unit is 2 1/2" long, 3/4" wide and .3" thick. Power input is 12-13 VDC. Units are also available for 432 Mc with the same range of output powers and sizes. Prices are high unless you wish to set up a number of stations. The 12 W unit goes for \$36 in 1000 lots!!!

W3NSI, Lyn Rowland

CALENDAR OF COMING EVENTS
 Syllabus by Lee, K3MXM

May 8 - L A D I E S N I T E (Buck Hotel, Feasterville, Pa.)

The big gala event of the past 15 years. Come and celebrate our birthday together. Meet your old buddies and former members of the club and, of course, present members. A good roast beef dinner with all the trimmings. A lively band, a congenial bar and many prizes and surprises.

It is still not too late to contact K3KTY, John Tate, 520 Larkspur Street, Philadelphia, Pa. 19116 or phone 673-8840 for your tickets. None will be sold at the door. We have to know ahead of time so we can order the right number of heads of beef to bring up from Texas for this affair...

6 P.M. till -7-

CALENDAR OF COMING EVENTS (Continued)

- May 8 -- 9 6 p.m. to 6 p.m. - SPACE NET CONTEST - all VHF bands - 2-6-220-432-1296 MHz - exchange reports and ZIP area code.
- Tune in Tuesday nites 145.5 with WB2MTU on the SPACE NET for further announcements.
- May 12 Board of Directors Meeting - QTH of K3GAS, Doc Cutler, 7815 New Second Street, Elkins Park, Pennsylvania at 8 p.m.
- Directors and interested parties invited.
- May 16 Amateur TV from an aircraft
- Video Frequency 439.250 (your UHF TV converter will cover this).
- Audio Frequency 50.20 MHz.
- The Shriners Hospital (on the Boulevard) will be acting as the ground station and will be receiving pictures telecast from New York City area to Philadelphia.
- Being conducted by our own club member K3ZKO, Ron Cohen.
- May 19 Celebrate ARRL Nite with the Pack Rats
- Meet Mr. William T. Dunkerley, WA2INB/KL7ELA, Associated VHF Director from Newington, who will talk on the Amateur Space program and will give late information on the AMSAT-OSCAR-B - the newest Ham Satellite, which will piggyback on a near future NASA space shot. Get all the information and frequencies (144 and 432 MHz bands) to track and work this satellite. Anyone can work a 9N1l (Nepal) or a ZK2 (niue) but how many hams can say they have worked a satellite. I understand recognition will be given.
- ALSO.....
- From the same people who brought you The Wide Ham's World, we will show the film Amateur Satellites.
- ALSO.....
- A surprise presentation (something about a contest).
- ALSO.....
- Coffee and refreshments.
- ALSO.....
- A real good evening. Bring your friends and members from other clubs are cordially invited.
- June 12-13 June QSO Party, Hilltown, Pa. - More details in next issue.

CALENDAR OF COMING EVENTS (Continued)

- June 16 General Meeting - Election Nite - Make your voice and vote count. Be sure to attend this meeting.
- August 8 **PACK RAT PICNIC - Flourtown, Pa. - All Day**
Each year the picnic gets bigger and better. This will be the best so far. Watch future issues for more information.

Hamfest Dates

- May 2 The Key Klickers of Stirling ARC
Passaic Township Youth Center
Stirling, New Jersey 9 (near Somerville, N. J.)
8:00 a.m. on \$1.00 at door
- May 15 Western New York - A Big One
c/o WNY Hamfest
Box 1188
Rochester, New York 14603 (for map and details)
- October 24 Gaithersburg

SWAP SHOP

CONDUCTED BY: W3ZRR, Ray Whitehead
7329 Shelbourne Street
Phila., Pa. 19111
215 - 722-4786

FOR SALE

- Pack Rat Power Supply Kit 12-14 VDC input, 150 VDC at 150 MA or 280 VDC at 110 MA output - completely solid state.

PACK RAT Members \$7.00
Non-Members \$8.00
Kit is complete, all parts and mini-box included.

CONTACT: W3NSI, Lyn Rowland
11934 Farwell Road
Philadelphia, Pa. 19154
NE 2-4791

FOR SALE

- Clegg Interceptor "B" 6 & 2 Meter Receiver - Mint Condition \$275

- Clegg Zeus Transmitter 6 & 2 Meters - mint - 185 watt mahogany control box with 4 meters reading screen volts and mod. current. Variac control of input power from 30 to 185 watts (\$300). Both Units Above \$550

- Model 19 RTTY with all synchro motors, power supply, T U, separate polar relay output form TD, all connecting cables, extra paper and tape supply. \$150

CONTACT: W3NSI, Lynford Rowland, Jr.
11934 Farwell Road
Philadelphia, Pa. 19154
NE 2-4791

FOR SALE OR TRADE

- Motorola FM Transceivers (2) 250 MW for 2M, now 152 MHz @ \$12.00

- Thompson Coaxial Relays UHF Manual \$6.00
Solenoid Drive \$7.00

- Gain J-Beam 432 8/8 \$15.00

- Heath Seneca

- Nems - Clevece Receivers

CONTACT: WA3LNH/KOZZM, Chuck Benavide
1218 Meadow Lane
Perkasie, Pa. 18944
256-5781

THE BOOK RACK

de Paul R. Behrmann, K3WEU/AREA*

73 VERTICAL, BEAM AND TRIANGLE ANTENNAS by Edward M. Noll, Published by Howard W. Sams & Co., Inc. #24021. \$4.95 Softbound, 160 pages, 5 1/2" x 8 1/2".

The value of this book is based on the fact that antenna experimentation offers a unique opportunity to make amateur radio more than an "appliance operator" hobby.

This book describes 73 individual vertical and beam antennas in an order that begins with simple construction and progresses in sequential manner to more complex arrangements. All you need are telescoping masts, wires, insulators, tubing ingenuity and a desire to experiment. Each antenna described in this book was constructed by the author without assistance.

Antenna types from simple dipoles, through verticals and yagis, to quad and triangle beams are covered, and the topics are arranged in a sequential manner. However, if the reader is interested in one particular type of antenna, he can go directly to that type.

The necessary mathematics are included, but no extensive knowledge is required to build the antennas described. Simple test instruments are shown which will enable the reader to optimize the designs and obtain maximum performance from his antenna.

Many of the antennas compete with, and some surpass the performance of commercial beams. The serious experimenter will find in 73 VERTICAL, BEAM AND TRIANGLE ANTENNAS exactly what he needs.

*Amateur Radio Editors Association

REWARD

de Mars Newsletter England

A reward is offered for information leading to the capture of Eddy Current, charged with the induction of an 18 year old coil called Milli Amp, found half choked and robbed of valuable jewels. The unrectified criminal, armed with a carbon rod escaped from a primary cell where he had been kept in ions. The escape was planned in 3 phases. First he refused the electrolytes, then he climbed through a grid, despite the impedance of wardens and finally went to earth in a magnetic field. He has been missing since Faraday. It is thought that he escaped on a megacycle. Amen.

VISITORS AT THE APRIL MEETING

DID YOU KNOW

- WA30TI, Joe, Rockledge, Pa.
- WA3DJF, Carl, Philadelphia, Pa.
- WA2LTM, Doug, Cranbury, N. J.
- W3HNP, Roy, Philadelphia, Pa.
- K3AFK, Jack, Philadelphia, Pa.
- K3EIG, John, Philadelphia, Pa.
- W3ZFW, George, Perkasie, Pa.
- WA3ICO, Harold, Chalfont, Pa.

K3ZPQ, Bob Elmer, received a fifty years in ham radio certificate at the meeting of the Delaware Valley Chapter of the Q.C.W.A. on March 27, 1971.

WA2UUV, Bill Fulling, is leaving for an island off of India this spring in connection with a satellite tracking installation. CU when you return Bill.

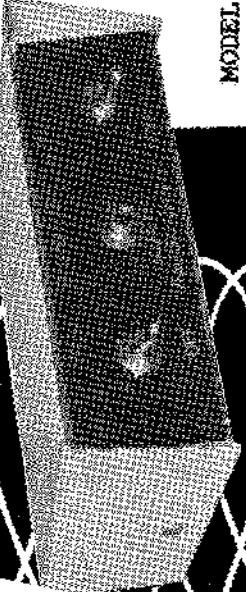
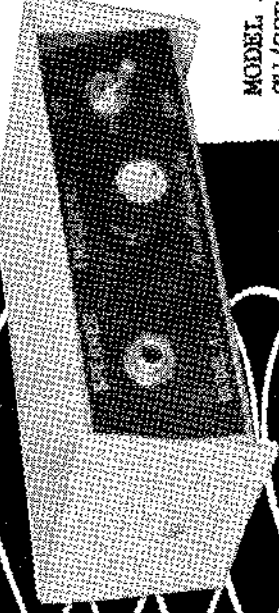
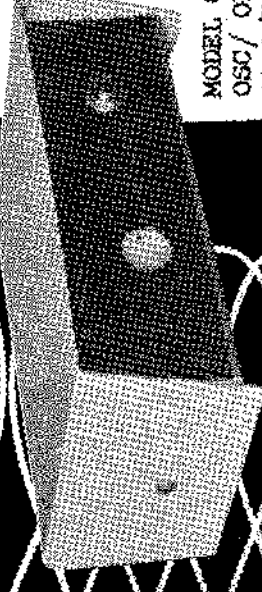
Cheese Bits
on St.
a., 19152



MT. AIRY VHF RADIO CLUB, INC.

FIRST CLASS MAIL

AMATEUR RADIO IS OUR BUSINESS
Sam Buenger, Inc.
11 N. YORK ROAD WILLOW GROVE, PENN 19090

1495	 <p>MODEL PP PHONE PATCH ALUMINUM CABINET PRESS TO TALK WIRED AND TESTED</p>
995	 <p>MODEL AJ 1 VARIABLE CW/SSB AUDIO FILTER 4 OHMS INPT/OPT. WIRED AND TESTED</p>
995	 <p>MODEL CM CW CODE OSC/ ON THE AIR MONITOR SPKR/EARPHONES WIRED AND TESTED</p>