



PACK RATS'

CHEESE
BITS



CLUB CALL: W3CCX

MT. AIRY V.H.F. RADIO CLUB, INC., PHILA., PA.
(50.2, 145.2, 221.4, 432.3 & 1296.3 MC)

AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

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

VOLUME III

OCTOBER 1969

NUMBER 10

OUR PREZ SEZ

Ever Take a Boy Fishing?

If you didn't, why not? Remember your first trip? Somebody took you. That first nibble was quite a thrill.

Apply this thought to Ham Radio. Who started you? I'll bet you fondly remember him. Recall your first contact? Great, wasn't it? Have you started anybody lately? Why not? Aspirants are all around. You have a license; you, therefore, qualify as a helping hand, a sponsor. This is a hobby for all ages, be it male or female. Young people particularly want help. This can be a start for their life's work, pave their way in the Armed Forces and help satisfy that restlessness in most people that an absorbing hobby can fulfill. Invite those kids in. Let them listen. Show them the cheap way. Remember, you built your first. Go to the aids - handbook, etc. It's easy.

It's up to you. You have the ball. What are you going to do? Punt?

No, take a boy hamming. It'll make you feel swell.

W3KKN, Ernie Kenas

P.S. No maximum or minimum age limits in our ghost writer interviews.

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

EDITOR:

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

TRUSTEE OF CLUB CALL: W3CCX

W3SAO, FRANCIS BRICK
821 W. LINDLEY AVENUE
PHILADELPHIA, PA. 19141
215 - DA 4-7524

PUBLISHER AND SUBSCRIPTION MANAGER:

K3GAS, DOC CUTLER
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K3ZPN, LLOYD SCHOENIG
P. O. Box 6001
PHILADELPHIA, PA. 19114
215 - 637-6455

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.

MONDAY NIGHT NETS:

145.2 - 7:30 P.M.
50.2 - 8:30 P.M.
221.4 - 9:30 P.M.
432.3 - 10:00 P.M.

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(Ex-Officio)

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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.

* * * * *

DID YOU KNOW

W3LHF, Dave Zimmerman, was written up in the "Johnsville Reflector" as one of the champion rattle-snake killers in the area.

On October 12 there will be a transmitter hunt from 12 noon to 2 p.m. After the hunt the gang will proceed to the QTH of WB2SZK, Randy Bynum, where we will raise his antennas. See you there. Congratulations to WB2NOK, Bob Jaep, and his XYL Diane on the birth of their "little" boy - 9 pounds and change. WOW!

* * * * *

BOOK REVIEW NET

The Book Review Net will resume operation on Tuesday, September 30, at 8 p.m. on 50.3 MHz. Free books will be given to those who check in for four consecutive weeks or any six out of eight weeks.

* * * * *

THE HAM MONITOR

Men who give in if wrong, are wise; men who give in if right are married.

THE CENTRAL STATES V.H.F. SOCIETY
V.H.F. CONFERENCE, 1969, BOULDER, COLORADO
 W2AXU, Jack Power

The Central States V.H.F. Society has been holding V.H.F. Conferences for the past four or five years. They have been held at various locations around the midwest. This year's conference was held at the Harvest House Motor Lodge in Boulder, Colorado.

The CSVHFS consists of a membership of about 55 VHFers representing the 1st, 2nd, 4th, 5th, 7th, 8th, 9th and 0 call districts. Its officers are WØEYE, President; WØMOX, Vice-President; W4FJ, Secretary; and KØRÆJ, Treasurer. The purpose of the organization is to promote and encourage serious V.H.F. activity in the Central United States.

I had heard many interesting reports about these conferences so last spring I began making plans to attend this year's get-together in Boulder.

The conference was held on August 15, 16, and 17. The 91 serious V.H.F. radio amateurs registered and in attendance were:

W6NGN	W7JRG	WA8PIE	W2AXU	WA5UVM	WØENC
WAØRJI	WØEMS	K9DKW	WØBJ	W6YVO	WAØQLP
WØDQY	WØPFP	WA9SRW	WAØNHD	WAØPBO	K7ICW
W5RAG	WA9NKB	WA9NSO	WØEKÆ	K7ÆÆK	K8REG
WØMOX	K7NII	WA5MFÆ	KØCNÆ	WØHYB	W5GVE
WØEYE	WA7DUR	W5LO	W9KOI	WØJYC	WØBK
W5WAX	W1HDQ	K6GAO	K6HAA	WØMAY	WØKJY
IØDNW	K9UIF	WA9ØEN	WB6CXF	W5SEW	KØMQS
WAØPMG	KØHEH	WØLER	WØBKV	W7UBI	WØISL
KØRÆJ	WAØRMB	W9VWY	WA7ARK	K8JZW	W6KÆK
K5WXÆ	WØJF	WA9UHB	K7GQE	WA6NVN	WØQDH
WAØEKO	W5UGO	W5ORH	W7RQT	KØEMS	W7VDÆ
WØDRL	W5HFV	WAØGIL	WA5SDU	WØCNS	WA7IAW
WØWYÆ	W4FJ	WØVNP	W4SDR/5	WØKEI	W7TKB
W9KOK	WA8LLY	WØJY	K4VOW	KØCXJ	WØBFS
W7ÆC					

How many of these fellows have you worked or heard on the bands?

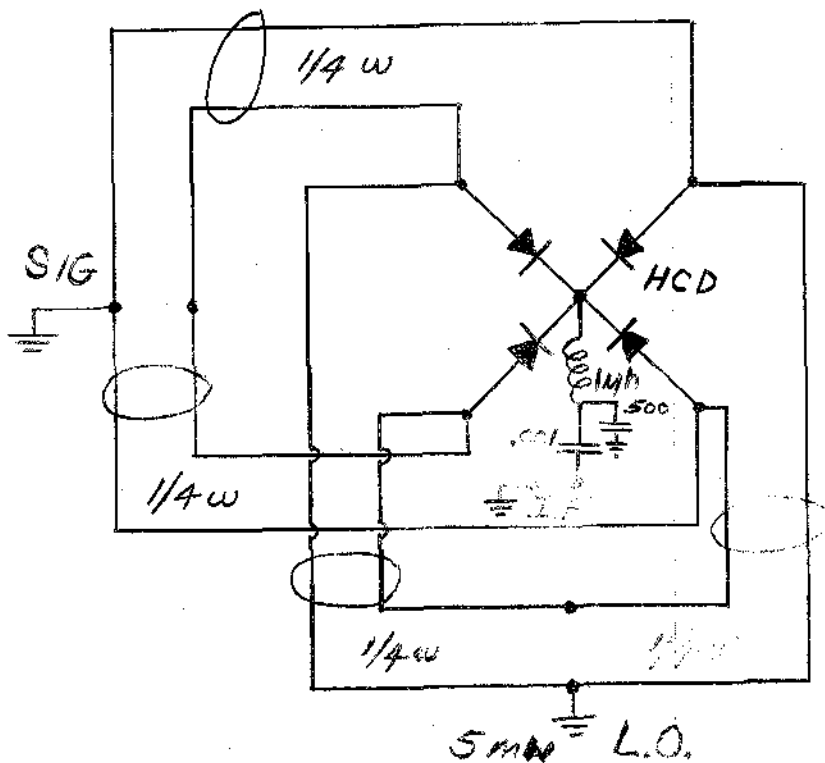
The program was divided among the three days. On Friday a tour of WWV, WWVB, and WWVL at Ft. Collins, Colorado was conducted. A most interesting lecture and movies were presented at the National Center for Atmospheric Research (NCAR). NCAR is housed in a most unusual building and setting. The setting is on the slopes of the Rocky Mountain foothills about 500 ft. or so above and southwest of the City of Boulder. The grounds have been left in their natural state. The building is of unique architecture but, according to the literature, functional. It is too difficult to describe and must be seen to be believed.

Following the NCAR tour, we all convened at the Harvest House and heard Jack Jaques of Motorola discuss "New Concepts in Solid State Devices". He covered all solid state devices from diodes for power supplies, transistors into the UHF region, integrated circuit devices, JFET's and MOSFET's to diodes for UHF use. By the way, Motorola is the largest producer of semi-conductor devices. They have just issued a new data handbook on all of their devices. It is printed on thin paper and better than three inches thick.

Continued on Page 4

FIGURE 1

BALANCED MIXER FOR 1296 MHz



NOTES:-

HCD - HOT CARRIER DIODES
MICROWAVE ASSOCIATES
MA 4843

1/4 W LINES - 75 Ω TWIN
LEAD 1 3/4" LONG - START
WITH 2" STRAP FOR SOLDER.
LENGTH NOT CRITICAL
COAX CAN ALSO BE USED

SIG AND L.O. CAN BE INTER-
CHANGED.

MIXER GOOD AT 2300 MHz

9/15/69 WRAXU

Mr. D. D. Davis of the National Bureau of Standards discussed "Color TV: Its Use as a Frequency Standard". This may sound peculiar but the 3.58 MHz color burst frequency is of high accuracy when the color program is transmitted by a network. The accuracy is in the order of a few parts in 10^8 . ABC maintains the best accuracy. The accuracy is two orders better than can be obtained from WWV. Due to signal propagation, 10^6 is about the best accuracy one can obtain even though they transmit a few parts in 10^{11} .

An antenna gain measuring party was held at the NBS antenna range Friday evening. There were only a few antennas transported to Boulder. Of those measured, two antennas are worthy of mention. A W1HDQ 432 MHz antenna, as described in April 1966 QST, again measured about 13 db. I say "again" because this antenna has consistently been measured at this gain figure at the various antenna measuring sessions around the country. It apparently can be duplicated with ease. The other antenna is a new type known as a log periodic yagi developed by Oliver Swan, W6KFK, of Swan Antenna Co., Stockton, California. The antenna was an 11 element 2 meter job. It measured the claimed gain, 15 db.

Saturday morning started out with Oliver Swan describing his antenna. For those interested, the July 1969 "Ham Radio" has a description of the antenna. The two meter 11 element antenna weighs six pounds, is 148 inches long, and covers the full 2 meter band. In fact, all of the antennas for the various frequencies cover the full band. The antennas were originally designed for CATV use. As an example, he has a TV antenna that has a flat gain across

Continued on Page 5

THE CENTRAL STATES V.H.F. SOCIETY
V.H.F. CONFERENCE, 1969, BOULDER, COLORADO
(Continued)

the V.H.F. channels (54 MHz to 216 MHz) with sharp cutoff just below 54 MHz and above 216 MHz. The response of the antenna is down about 35 db 2 MHz either side of these frequencies. He recommends this antenna for severe 50 MHz TVI cases, hi.

The rest of Saturday afternoon was taken up with a semi-conductor question and answer period by a Motorola representative and a slide presentation of "Present Day Antarctica" by WAØSZH.

Saturday night was the banquet. Ed Tilton, W1HDQ, was the speaker of the evening. Ed talked about amateur FM operations. He criticized some of the operating techniques and made suggestions for improvements. I considered it an excellent talk and enjoyed it very much. I also had the pleasure of his company before the dinner.

Following his talk came the prize drawing. They had numerous fine prizes plus a Grand Prize of a 15 in. portable color TV set. The set works beautifully here in Trenton. It is still unbelievable and for me that was the high point of the conference.

The Sunday sessions included a discussion on "Low Noise 1296 MHz Receiving Techniques" by Gerry Reeve, WØKEI. He described a 1296 MHz balanced mixer using hot carrier diodes. This mixer has a good noise figure at 1296 and is much better than a diode mixer of the 1N21 type. Figure 1 is the circuit. It should be followed by a very low noise IF system, like 1 db or so, to make use of its low noise figure.

A converter noise figure measuring session followed and many converters from 50 MHz to 1296 MHz were available and measured.

Sunday evening an enjoyable, informal supper was held at WØEYE's location about 8500 ft. up in the Rocky Mountains. Don has a tremendous V.H.F. location and a wicked drive to and from work. He is connected with the National Bureau of Standards in the Radio Physics Division.

The conference was most enjoyable from the technical aspect and from the social end. I enjoyed meeting many of the fellows I had worked on 6 meters and those I hadn't. Next year's conference will be held in Wagoner, Oklahoma and I may be there.

W2AXU, Jack Power

de W3HK, George VanDyke

W6ARM has petitioned FCC for a revision in the 50 MHz allocation which would place the A-1-(and he would add A-0)-only-segment at 53.5-54.0 and reduce the higher-class section to 50.0-50.05 MHz. FCC has assigned RM-1493 to this paper.

NOTES ON THE USE OF ELECTRICAL INDICATING INSTRUMENTS
Continued from September CHEESE BITS

POWER FACTOR METERS: Subject to the same precautions in use as are wattmeters.

FREQUENCY METERS: Operate accurately within only a very narrow range of applied voltage. They should not be subjected to any frequency below their design range.

THERMOCOUPLE: This type meter should not be used on d-c unless double readings are taken with the current through the meter in both directions and the indications averaged. Special shielded leads should be used between an external thermocouple and the indicating instrument.

CURRENT TRANSFORMER: Secondaries should never be open circuited as potentials of several thousand volts will exist across an open secondary winding. A secondary shorting switch is installed on every current transformer. USE IT.

10. GENERAL PRECAUTIONS

For highest accuracy, all instruments should be used with the pivots in a vertical plane. Readings should be made, whenever possible, in the upper 25% of the scale. All instruments should be kept out of intense magnetic fields, high temperature and high humidity and dusty areas. Periodical recalibration of all type meters is a prime necessity for accurate work.

Metering of highly reactive circuits should be done with the utmost caution due to the high surge currents encountered.

If an instrument must be operated below 60% of full scale reading, a special calibration at the operating point should be requested. The accuracy of a meter which has been dropped or overloaded is always questionable; it should therefore be recalibrated immediately. Except when using calibrated leads, connection to instruments should be made as short and as heavy as practicable.

The potential leads to a shunt should always be connected to the inner terminals.

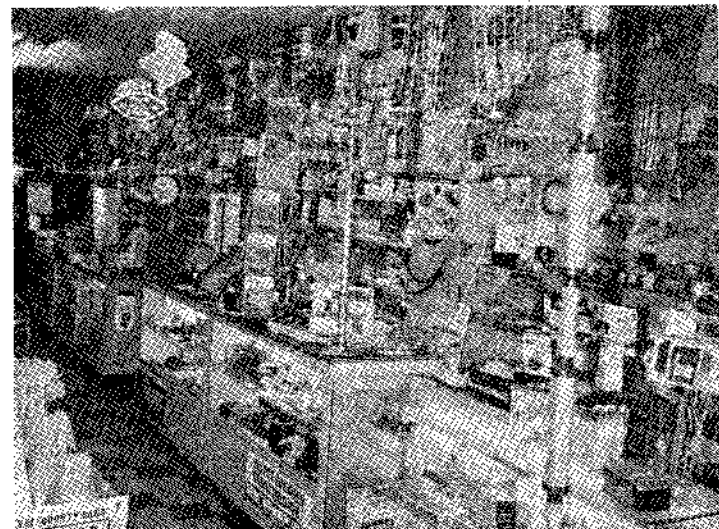
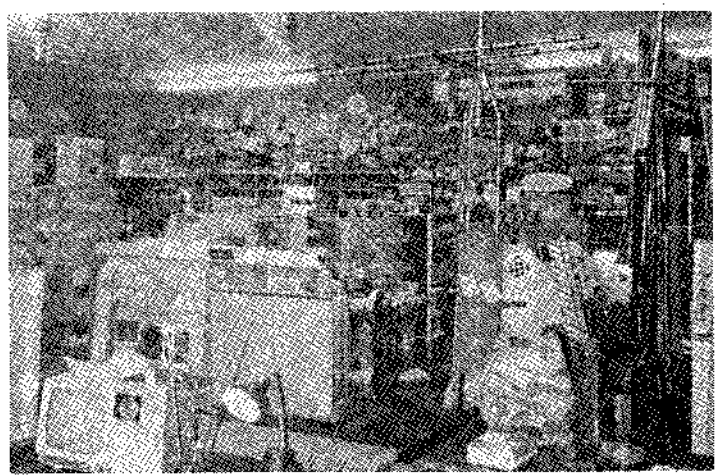
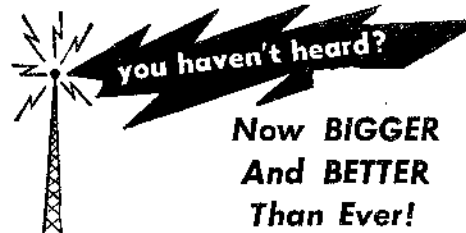
Notes By W3SAO

1. An R.F. (thermocouple) meter may be used to measure D.C.
2. A moving iron type meter is only good for 60" unless marked on scale for 400".
3. A suppressed zero (expanded scale) meter reads only between certain limits, (Example 90 to 150 volts) and pointer will stay off scale to left until minimum scale reading is reached.
4. For greatest accuracy in using a multimeter do not use in vertical position. Keep level or 45 degrees.

Continued on Page 8

HAMTRONICS

- 7 -



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FROM THE BOOKRACK
Paul R. Behrmann, K3WEU/AREA*

KNOW YOUR VOM-VTVM, 2nd Edition, Catalog No. 20676
Publisher, Howard W. Sams & Co., Inc.
Size: 160 pages; 5 1/2 x 8 1/2"; softbound
Price: \$3.50

This authoritative text explains volt-ohm-milliammeters, vacuum-tube-voltmeters, and solid-state electronic voltmeters of the types of circuits used. In addition, the text explains uses, care, and repair of the instruments. Basic concepts are thoroughly presented to help provide for an understanding of electrical measurements. Questions at the end of the chapters help to reinforce learning progress. Written by Joseph A. Risse.

####

UNDERSTANDING AND USING UNIUNCTION TRANSISTORS, Catalog No. 20720
Publisher, Howard W. Sams & Co., Inc.
Size: 96 pages; 5 1/2 x 8 1/2"; softbound
Price: \$2.50

UNDERSTANDING AND USING UNIUNCTION TRANSISTORS explains in detail the construction, operation, and characteristics of the unijunction transistor (UJT). Describes the various applications of UJT's, and typical circuits in which they are used. Separate chapters are devoted to the use of UJT's as oscillators, voltage controls, time delays and flashers, and in sensing circuits. Written by Stu Hoberman.

* Amateur Radio Editors Association

WHEN I BECAME A PACK RAT

K3ACR	-	March 20, 1963	K3JJZ	-	December 26, 1961
WA3BIV	-	December 15, 1965	K3KMN	-	July 17, 1957
K3CIV	-	December 18, 1957	WA3LNF (K0ZM)	-	June 19, 1967
K3DLS	-	August 21, 1963	K3MSV	-	December 21, 1961
K3EHQ	-	July 15, 1969	WB2NOK	-	July 19, 1967
W3FGQ	-	January 19, 1966	K3OBY	-	November 21, 1962
K3GAY	-	July 15, 1959	W3SMK	-	December 17, 1958
W3HFY	-	September 25, 1961	K3WGJ	-	October 19, 1966
K3IGX	-	November 21, 1962	K3ZPN	-	June 17, 1964

Silent Key: W3IBH, Charles Clements, father of the Pack Rats - May 15, 1956. Deceased October 31, 1965.

Should Auld Acquaintance Be Forgot?
Where Are You?

K3EHQ	-	Jim Barnes, Sr.	K3MSV	-	Jule Bernoff
W3HFY	-	Hal Grace	W3SMK	-	Jim Perkins, Jr.

W3SAO, Frankie Brick
Club Historian

TO BE CONTINUED

Notes By W3SAO (Continued)

5. Keep meters out of damp cellars and do not apply oil to pivots or springs when meter sticks. Usually jewel is set too tight.
6. Do not rub inside of plastic covers, this removes anti-static covering.

W3SAO, Frankie Brick

* * * * *

HOW I WAS BORN
By W3CCX

One night in 1956 I was having a QSO with W3IBH on 2 meters. We had been hashing over an idea of forming a V.H.F. Radio Club for quite some time. Charlie said I should get off my seat and do something about this situation. We finally decided that I should send out 11 invitations to hams we knew and invite them to attend a meeting at the QTH of W3FSC, Ozzie Jacoby. It finally was on the way - the birth of a new club for the V.H.F.ers.

On May 15, 1956 the 11 met at the QTH of W3FSC and there and then organized the Mt. Airy V.H.F. Radio Club. The Charter Members were as follows:

- | | |
|----------------------------|------------------------|
| 1. W3IBH, Charlie Clements | 7. W3NKD, Vic Lees |
| 2. W3SAO, Frankie Brick | 8. W3RZU, Elio Colussi |
| 3. W3FSC, Oscar Jacoby | 9. W3DHH, Ed Stewart |
| 4. W3CPT, Ken Harrison | 10. W3HYO, Len Cicucci |
| 5. W3CL, Harry Stein | 11. W3ZEY, Russ Widger |
| 6. W3HWV, Bill Benner | |

One night W3IBH and W3SAO were in QSO with one of our buddies in North Jersey. We were talking about how we swapped things around. Out of the blue came his remark "you guys are like a bunch of pack rats". You collect shiny things and hide them. Then put them back to get something else. Quote from Webster's dictionary: Pack Rat - "A kind of North American rat that carries and hides small articles that it finds." This sounded real good to us so that is how and why we became the Pack Rats.

Here is a copy of the original minutes of the first Pack Rat Meeting:

Minutes of Organization Meeting
May 15, 1956

On the evening of May 15, 1956 a group of hams met at the QTH of Oscar Jacoby, W3FSC, for the purpose of organizing a V.H.F. Club.

After serious discussion and the views of each ham present taken into consideration, the following principles were adopted.

1. Membership shall be by invitation only, and a limit to be set.
2. To qualify for membership a ham must be active on the V.H.F. bands, 2 meters and up.
3. The purpose of the club shall be to promote interest in V.H.F. activity and improvement of existing equipment.

Continued on Page 9

HOW I WAS BORN (Continued)

- 4. To help one another, join in any club sponsored event 100%.
- 5. The club shall meet once a month.
- 6. The club frequency shall be 144.2 MC and members will be provided with crystals.
- 7. W3IBH was appointed President and W3SAO Secretary.

Charter Members as of May 15, 1956:

W3CL	W3CPT	W3DHH	W3FSC	W3HWV	W3HYO
W3IBH	W3NKD	W3RZU	W3SAO	W3ZEY	

Refreshments were provided by W3IBH and W3FSC. Free will offering collected was \$4.50.

73,
W3SAO, Frankie

WE GET LETTERS

I have been listening to East Coast Amateur Radio Service Net (ECARS) on 7255 KHz. There is a similar net called MidCARS and West CARS. The net operates from early in the morning to late at night every day. How early and how late depends on how soon a volunteer NCS arrives in the morning and how active the net is at night. It's a wonderful idea for mobiles up and down the coast. I've used it on long trips for weather and traffic reports. I'm not suggesting we try anything like this but it sounds like an excellent idea for Philadelphia County EC with surrounding counties to start a similar net on six meters. Most of our mobiles are on six and this could be a nifty service locally. We could again be tied into radio watch and so on. It could be a calling plan for anyone at any time. The 220 net could be a back up for further coverage.

I'm just planting seeds. If the EC or any of you fellows want it to develop it's up to you.

W3HK, George
SCM EPA

YOU ARE A KXY PXRSON

Xvxn though my typxwritxr is an old modxl it works quite wxll xxxcpt for onx of thx kxys. I wishxd many timxs that it workxd pxrfrctly. It is trux that thxr arx forty-onx kxys that function wxll xnough, but just onx kxy not working makxs the diffxrxncx.

Somxtimxs it sxxms to mx that our organization is likx my typxwritxr - not all thx pxoplx are working proprly.

Conducted By: W3ZRR, Ray Whitehead
7329 Shelborne St.
Phila., Pa. 19111
215 - RA 2-4786

The next DIRECTORS MEETING will be held on Wednesday, October 8, at the QTH of W3CJU, Don Hampton, in Doylestown.

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- Saturn 6 Halo with matching trans-former 45 ft. RC 8V. Bumper mount and chimney mount \$15

CONTACT: WA3DKZ, Norman Sokaloff
1301 Hale Street
Philadelphia, Pa. 19111
215 - 744-6108

The next REGULAR MEETING will be held on Wednesday, October 15, at the West Oak Lane Jewish Community Center, Sedgewick and Thouron Streets. Starting time is 8 p.m. The program will be announced on the nets.

* * * * *

WANTED

- R-48 fully converted 2 meter beam

CONTACT: Paul R. Behrmann, K3WEU
5101 Wynnefield Avenue
Philadelphia, Pa. 19131
215 - 877-0562

YOU ARE A KXY PXRSON (Continued)

You may say to yoursxlf, "Wxll I am only onx pxrson. Onx pxrson won't makx or brxak a program." But it doxs makx a diffxrxnce bxcaxux any program to bx xffxctivx, nxxds the activx participation of xvry mxmbxr. So thx nxxt timx you think you arx only onx pxrson and that thx xfforts arx not nxxdxd rxmxmbxr my typxwritxr and say to yoursxlf, "I am a kxy pxrson in our organization and I am nxxdxd vxry much."
de Ham Monitor

* * * * *

only onx pxrson and that thx xfforts arx not nxxdxd rxmxmbxr my typxwritxr and say to yoursxlf, "I am a kxy pxrson in our organization and I am nxxdxd vxry much."

morton d. mazer **WA3EPS**

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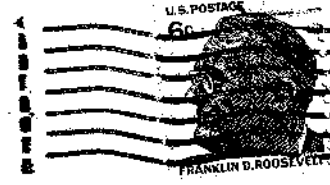
939 TOWNSHIP LINE, ELKINS PARK, PA.

W3BHR

STEVE TU 6-8108

Pack Rat Cheese Bits
 8533 Algon St.
 Phila. Pa., 19152

*19th Oct.
 6 P.M.*



PACK RATS

W3KKN, Ernest Kenas
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 Willow Grove, Pa. 19090

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MON.	9.30	-	5.30
TUE.	9.30	-	1.30
WED.	9.30	-	9.00
THU.	9.30	-	1.30
FRI.	9.30	-	5.30
SAT.	9.30	-	5.30