# PACK RATS





MT. AIRY VHF RADIO CLUB, INC.

MT. AIRY VHF RADIO CLUB, INC., PHILA., PA.

ARNS
50.2, 144.2, 432.1, 1296 MHZ, WR3ACD - Repeater, 222.98/224.58 Mhz.

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 XX

JULY 1978

NUMBER 7

THE PREZ SEZ

Well, the June Contest is over. Although the final tally is not yet in, it looks like the Pack Rats have bettered their previous year's score by a healthy margin once again. In the rost-contest cooling off period, I find myself looking forward to my term of President with great deal of excitement and not a small amount of apprehension. Things are changing so quickly in ham radio, expendity on the WHF bands, that it's hard to keep track of everything. Just in the last year we've seen the rules and regulations governing the WHF bands change many times. With the new sunspot cycle on the upswing, distance records on the VHF bands are being shattered daily. And technology is moving ahead so quickly, what with new low noise receivers, high gain antennas, and high power transmitters, that VHF and UHF operators are regularly working over distances that seemed all but impossible only a few years ago. Of course we take pride in the fact that the Pack Rats are among the first to be on hand when new things happen on the VHF and UHF bands.

The club is constantly changing too. In the short five years that I've been a Pack Rat, I've seen the club become an internationally known organization that (yes folks it's true) even some low-band operators have heard of! The Pack Rats built one of the first 132 EME stations and sent a successful and much publicized EME DX-pedition to Colombia, resulting in many awards and articles and the famed Pack Rat "HKITL-Story" slide show which has been presented at nearly every radio club in the area and many outside the area. The Hamarama has grown from a little get-together at the Warwick Fire House to one of the premier flea-markets on the East Coast and now the Mid Atlantic VHF-UHF Conference promises to make the weekend even bigger and better. The Pack Rats have members on both of the ARRL Advisory Boards most affecting our activities: The CAC and the VUAC. And of course the Rats continue to be a VHF Contest power, and like any group, that's been on top for a long time the other clubs and contest groups are "gunning" for us. It's the price of fame, I guess.

So, with fame comes added responsibility. The club must be careful with position it takes on various issues because people are going to listen. They may not agree, but they will listen! Instead of arguing over unsolvable issues like 2 Meter FM, in contests we should take a broader outlook and strive to attain the club's original goals. That is, as I understand it, to keep up with the latest technology, and to promote activity on the VHF and UHF bands. We should not be critical of those who do not share our views, but set an example for others who want to get in on the fun on the VHF-UHF bands. After all, the the next few years are going to be some of the most exciting in all of Ham Radio - and all the action is going to be on VHF!

In closing, I would like to thank Tony, W3HMU for leaving the club in such a well-organized state and I want to say that I think the new "administration" WA3NFV, WB3HHO, K3IGX,

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### SWAP SHOP ITEMS - no charge.

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

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215-355-5730

### AWARDS CHAIRMAN:

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

#### CLUB HISTORIAN:

W3CL, Harry B. Stein

OFFICERS: 1978-1979

PRESIDENT: W3HQT, Bill Olson VICE-PRES: WA3NFV, Dan Mitten COR. SECY: WB3HHO, Paul Randolph REC. SECY: K3IGX, Dick Boyle TREASURER: K3GAS, Doc Cutler

#### DIRECTORS:

W3HMU, Tony Souza (Ex-Officio)
W3IIT, Harry Brown (2 years)
WA3JUF, Dave Mascaro (2 years)
K3MWV, Dick Pierce (1 year)
WB2SZK, Randy Bynum (1 year)

\*\*\*\*\*\*\*\*\*\*\*\*\*

MONDAY NIGHT NETS	S:		NET CONTROL
144.2 MHZ	7:30		W2EIF
50.2 MHZ	8:30	PM	W3CL
221.4/224.58 MHZ	9:00	PM	K3GAS
1296.3 MHZ	9:15	PM	W2E1F
432.1 MHZ	9:30	PM	K3IUV

FRIDAY NIGHT ATV NET:

439.25 MHZ 7:00 PM

PACK RAT REPEATER - WR3ACD - 222.98/224.58
Churchville, Pa.

1-302-478-2757

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Bruce Clark

# CALENDAR OF COMING EVENTS Syllabus by Lee, K3MXM

- JULY "We may complain about the heat, but at least we don't have to shovel it" de Unknown
- Dominion Day, Canada
- Independence Day, Parade Time...Picnic Time...Good Time. Since we might be at a picnic or barbeque, here is something to add to the conversation. The word STEAK comes from an old Sakon word STEIK. The Sakons broiled tender meat over an open campfire. SIRLOIN is a French word meaning over the loin and FILET MIGNON filet means without a bone and mignon means small...ahem!!
- 4 Straight Key Nite-See QST- June
- 8-9 IARU Radio Sport competetition
- Board of Directors Meeting, QTH, K3MWV, Dick Pierce, 2700 New Falls Road, Newportville, Pa. If lost, 785-0058 or 220 FM. Directors and interested parties always invited.
- 15-16 VHF Space Net Contest. Put Tony, K4AWS to work again.
- Picnic Friends of WR3ABE, Ft. Washington State Park, Flourtown, Pa. Noon-until Bring family and food.
- Tri-Club Hamfest, Allentown Police Academy Grounds, Lehigh Parkway South, Allentown, Pa. Talk-in 34/94 and .52. Info. K3AI F.J. Herman, R.I. Box 104, Emmaus, Pa. 18049. Ed. Note: We were here last year and it was h-o-t Suggest you bring some sorta sun shale, tarp or what have you, also have some cold water on hand.
- First OUTDOOR Club Meeting WHITE ELEPHANT SALE Starts 8 PM
  Zimmerman's Gulch (back yard of W3ZD's 520 Centennial Road, Warminster, Pa.)
  Always a good fun evening for all club members, their friends, other club members and all. An open meeting. A good chance to move some of your gear and to add to the fun be sure and bring a sealed package as a blind item which always adds to the curiosity... Naturally, Refreshments a full tub of bottled goodies will be available. Tell a friend, and bring a friend. Plenty of room for all!!!
- 22-23 Amateur Computing 78 Washington, D.C. Sheraton National Hotel. Info. AMRAD-P.O. Box 682, McLean, Virginia 22101
- 30 Baltimore Amateur TV Society (BRATS) Hamfest Howard County Fairgrounds; Info: BRAT, P.O. Box 5915, Baltimore, Md. 21208

MARK YOUR CALENDAR - HAMARAMA WEEKEND - Conference September 30
Flea Market October 1.

## NEW PRODUCTS OF INTEREST TO HAMS By Lyn, W3NSI

- 1. KENWOOD 2 Meter #7400: Kenwood is considered by many to be the Collins of Japan. A close inspection of the 7400 2 meter FM T/R unit indicates that the reputation is well deserved. A demonstration unit was borrowed from Trevose Electronics for evaluation. Receiver sensitivity was very good. Any signal that could be copied on either of two other 2 M radios, could be hear at least as well on the Kenwood. Tests were conducted using a Bird wattmeter into a Bird dummy load. RF output was measured at 7 w on lo and 30 watts on hi power. The low power position output can be varied by the owner to conform to his needs when using the 7400 with an external PA. This has to be the perfect rig for the ham to travel with. It is possible to dial any frequency between 144 and 148 Mc, simplex or repeater. Both 600+ and 600-repeater shift can be selected from the front panel. There is even an LED which lights either red or green showing which shift is in use. Provision is made for tone operated squelch and tone access to repeaters. It is hard to see how any other rigs, for 2 meters, in this price range, can be sold. Price \$400. Trio-Kenwood Comm. 1111 W. Walnut, Compton, Calif.90220
- 2. MIDLAND 13-513 220 Mhz: The new Midland synthesized 220 rig solves a lot of problems as that band becomes highly populated. It allows the mobile operator to see what frequency he is selecting at night. When there were only 2 or 3 repeaters in the area, it was possible to remember what was being dialed up on position 2 or 3 or 4, but now things are different. A demonstrator 513 was borrowed from Trevose Electronics to study. The first check made was to measure power output. Position 1 gave 1 1/4 watts, #2 was 6 1/2 watts, and #3 was 19 watts output. Unlike the Kenwood which has dial markings, the knobs for selecting 10 Khzand 100 Khz are not numbered. If the LED readout was not working, it would be a problem using the rig, Of course if this was the case, the rig would likely be on its way back for service. Receiver sens. seems to be a bit better than on the 10 watt Midland rig for 220. Like the Kenwood, it is possible to shift up 5 Khz giving a total 1000 channels. For repeater use, 1.6Mhz offset + and - is standard, however, 3 spare switch positions are available to program different offset frequencies. While the price tag \$500 is a bit high, not having to buy crystals, and the digital readout are certainly nice, plus having the extra power can make a bit of difference under certain conditions. Midland Inter., P.O. Box 1903, Kansas City, Missouri 64141. \* \* \*

# VHF/UHF REPORT By Jo, W2EIF

The VHF/UHF bands did not show much activity up until the June QSO Party. It may have been that everyone was sitting back waiting for the starting gun.

This years ARRL June QSO Party was very well attended, with considerable activity locally from 50 thru 1296 Mhz. Six meters had some very good openings with some operators claiming up to 50 sections.

2 meters was very good. There was an opening to the West on Sunday morning with Iowa Minn., Ill., Ind., Ohio and Michigan available. There was also some contacts to Tenn. and Alabama, etc. The Northeast was not without DX either with several VEI stations active. Some worked 30 sections.

220 was a disappointment, at the low end on CW, but quite good on the Simplex frequency 223.5 Mhz.

432 was very good with over 20 sections available. Illinois was worked Sunday morning by one station.

1296 Mhz was also quite active with some stations working 8 to 9 sections from this area.

I cannot report on higher frequencies, but it looks like if you are going to be competitive in June or September QSO Parties, you had better have 50 thru 1296 with good antennas and reasonably good power on all bands.

### THE PREZ SEZ CONTINUED

K3GAS, K3MWV, WB2SZK, WA3JUF and W3IIT along with President "ex-officio" W3HMU is one of the best groups in Pack Rat History. I sure will be looking to them for help and advice. The Pack Rats is one of the best groups of people I've ever been associated with. I was nonored to become a member and I'm even more honored to be President. Hope I do a good job!

Bill, W3HQT.

VISITORS AT THE JUNE 15, 1978 MEETING:

WA3AAJ, Jim, Oreland, Pa.

KA3ANH, Bill, Lansdale, Pa.

WA3IWT, Rich, Feasterville, Pa.

VOTED TO MEMBERSHIP:

WA3AAJ, James M. Ward, XYL-Pat

110 Lyster Road

Oreland, Pa. 19075

215-887-1062

\* \* \*

# PACK RAT UNOFFICIAL JUNE VHF QSO CONTEST SCORES

BAND			CONTACTS		SECTIONS
50 Mhz		* * * * * * * * * * * * * * * * * * *	514	. •	49
144 Mhz			387		29
220 Mhz	1		111		16
432 Mhz	•		76	·	22
1296 Mhz			17		.9
2300 Mhz			2		1
3300 Mhz			1.		1

Approximate total Score = 197,243

*n*, *n n* .

TID BITS

Congratulations to our new slate of officers:

President - W3HQT, Bill Olson

Cor. Secy - WB3HHO, Paul Randolph

V-President - WA3NFV, Dan Mitten

Rec. Secy - K3IGX, Dick Boyle

Treasurer, K3GAS, Doc Cutler

DIRECTORS

W3HMU, Tony Souza (Ex-officio)

W3IIT, Harry Brown (2 years)

K3MWV, Dick Pierce (1 year)
WB2SZK, Randy Bynum (1 year)

iii, harry brown (2 years) wb252k, kandy bynum (1 year

WA3JUF, Dave Mascaro (2 years)

WB3JFL, KICO (Harmonic of N3SM, Sam) has worked 49 states as a novice; scored 30k in the Novice Round-up, and has his code speed up to 15 WPM. Look out Sam, KICO will be into Moonbounce next!

E1, K3JJZ is taking orders for Pack-Rat T-shirts once again, if interested contact him on 342-8832.

Steve, WA3WAS, is taking orders for Midland 220 Mhz rigs - reasonably priced at approximately \$135. Contact Steve on 215-RA 5-1135.

It is sad to report that Carmella DeLuca the wife of Mario DeLuca, W3ELX, died in Florida where they were vacationing. Our condolences to the DeLuca family.

Do you want to go up in a balloon and feel safe? Earl, WA3QWO has manufactured two beautiful wicker strung baskets for a local balloon maker. Earl does work on wicker chairs, an almost lost art.

The K3GAS slide show of past Pack Rat events was greeted with great enthusiasm at the June Meeting.

WA3UXM, Greg Adams says hello from Marine Corps Duty on Okinowa. Expects to be on the air from there on 10 or 15 in about one month.

Many thanks to Bob WA3ZID for preparing and printing the new cover page of Cheese-Bits. WA3AXV, W3HMU and K3MWV worked W4UWH/KP2 (Dave on St. Thomas) and VP2MX (Bob on Montserrat) on 6 meter SSB Sunday morning June 18, 1978.

That patch on W3SMK's head (Mr. Clean) not from tangling with a pussy cat!

#### KEYSTONE OPEN BICYCLE RACES

. Report on a unique Pack Rat participation . . .

Promoted by the Pennsylvania Bicycle Club and Peugeot and the Chestnut Hill, Philadelph, Pa. Community Association, sponsored by Wawa Food Markets on Sunday, June 18, 1978.

Sanctioned by the United States Cycling Federation. Communication was set up via 220 Mhz FM between the Peugeot Official Pace Car (W3SMK) and W3AJF mobile adjacent to the reviewing stand. We wish to thank the Tri-State Group for the use of their repeater.

The 1.2 mile rectangular course was over Philadelphia Streets, closed to all other vehicular traffic. Road surfaces were in good shape and swept free of sand and gravel, weather was hot and sultry.

Five separate races, longest 34 laps - 40.8 miles and the shortest (for veterans(!) 9 laps - 10.8 miles.

Many additional merchants donated prizes in cash or kind. Also, the P.A. Announcer solicited "PRIMES" (pronounced preems) from anyone. Definition is a "prize, as in a show, a free gift, bonus, etc." We offered a ten dollar prime in the name of the Pack Rats.

Total number of contestants, approximately 240-250 and over 100 riders entered the longest race. A significant number dropped out for reasons of fatigue, mechanical failure, lapped by the field, etc.

Kudos to Mary Jean Reoch, a real champion, for winning her event by a 50 second margin. Congratulations, too, to David Ware from Miami the Grand Prize Winner of a brand new cycle.

A cycle "high on the list" will sell for \$1,000 and often titanium is used in the manufacture.

One unfortunate accident --with all the police and marshall protection, one auto appeared on the course against the traffic flow. Fortunately, no one was seriously injured so far as we know, however, one cycle was severely damaged. The balance re-mounted and continued racing.

....Respectfully reported by W3AJF, Deac, and W3SMK, Jim. P.S. Your Club's efforts were appreciated.... they told us so!

\* \* \*

OFFICIAL BULLETIN NR 710 FROM ARRL HEADQUARTERS NEWINGTON CT JUNE 1, 1978 TO ALL RADIO AMATEURS BT: On June 16, 1978 the FCC will implement a new method of conducting FCC administered amateur radio license examinations. Applicants who pass the code test for the class of license for which they are applying will receive credit for the code test even if the applicant fails the written portion of the examination. This code test credit will be good for up to one year, and valid only at the FCC office that administered the code test. For example, an applicant for a General Class license who passes the 13 wpm test, but fails the written portion, will receive a certificate giving him credit for the 13 wpm code test. During the next year he may return to the same FCC office and would only be required to take and pass the written portion of the examination to obtain his General Class license. This code test credit program does not apply to Novice Class examinations which are administered by volunteer examiners. AR

OFFICIAL BULLETIN NR 712 FROM ARRL HEADQUARTERS NEWINGTON CT JUNE 15, 1978 TO ALL RADIO AMATEURS BT: The Senate Subcommittee on Communications held hearings yesterday on S-864, Senator Barry Goldwater's RFI Bill. It would allow FCC to set minimum standards for the susceptibility of audio and visual equipment to interception of radio signals. The ARRL crew present for the hearing were President Harry J. Dannals, W2HD, Atlantic Division Director Harry A. McConaghy, W3SW, General Counsel Robert M. Booth, W3PS, Assistant General Manager Dave Sumner, K1ZZ and Washington Coordinator Hal Steinman. K1FHN. Watch QST for more complete information on the progress of this legislation. Late news on the subject, of course, may also be transmitted from this station. AR

SWAP SHOP

FOR SALE: Collins 7581 with 500 Hz filter, 136A-1 noise blanker and 10M crystals for Oscar - \$300 3281-\$325, 516F2-\$140, and 312B-4, \$225. Package al \$825. Also, synthesizer for collins 8 line per Dec. 75 HR complete but needs debugging - \$100. Board for synthesizer \$15. Clegg Zeus 6 and 2 transmitter with D104 microphone \$175, or best offer.

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

FOR SALE: Hallicrafter SR-160, 20-80 Meters.

150 W. Pep, excellent condition \$150.

CONTACT: Richard McClelland, W300J

Phone: 215-887-0878

FOR SALE: YAESU FT-221, All mode 2M Transceiver, mint condition \$525. Dentron 160-10AT, KW Match box 160 to 10 M. Mint Condition \$95. MFJ CWF-2 active audio CW filter mounted in box with connectors and switches \$15.

GE Pre progress line 6M FM Transceiver with 2 sets of crystals. \$15.

CONTACT: Howard Sherer, WB2RBG/3

Phone: 215-584-0280 after 6 PM

WANTED: 6 Meter Linear.

CONTACT: K3LOM, Harry Brandt, 315 Walker

NEW HAMTRONICS CATALOG: Hamtronics, Inc. announces publication of a new June 1978 catalog crammed with goodies for vhf/uhf and OSCAR enthusiests and two way radio shops. The 40 page catalog features a new line of VHF transmitting Converters and Linear Power Amplifiers, new 2 Watt FM Transmitters; vhf and uhf receiver converters, vhf and uhf fm receiver kits, receiver preamps, test probe kits, power supplies, tone pads and tone encoder microphones, antennas, and many more items of interest to the active ham!! For your copy of the new 4x5 1/2 inch catalog, send a self-addressed stamped envelope to Hamtronics, Inc., 182-F Belmont Rd. Rochester, N.Y. 14612.

### FROM WORLD RADIO

Those of you who operate 6 meter SSB, there is a new beacon on 50.125 Mhz. It is located in South Elgin, IL with an output of IW into a halo at 30 feet.

It was put on the air by the Society for the Preservation and Encouragement of Six Meters. Any SWL or amateur who hears the beacon and writes with a signal report to SPESM, P.O. Box 768, South Elgin, IL 60177 will get a club QSL card back.

The beacon IDs in CW every 62 seconds, 24 hours a day. It sends SPESM, Illinois, WA9FEF.

Ted Jordan WA9FEF, is the president of the club, which has almost 300 members across the country. (Via to Bill Ross, WD9CVP) \* \* \*

### FROM NORTHEAST VHF NEWS

More on Beacons: According to IARU Region I News there are now over 120 beacon stations in Region I, of which over 20 operate above 1 GHz. The use of these beacons for propagation studies is underlined by S. Canivenc, F8SH, the VHF sporadic E coordinator for Region I. He reports that on June 7 and 11, 1977, the French 50 Mhz beacone FX3VHF was heard by VEIASJ ( ). Transequatorial reception of the beacon was reported on October 27 by Ray Cracknell, ZE2JV, at Salisbury, Rhodesia. Transmissions from FX3VHF are continuing in a southerly direction until May 15, 1978 when transatlantic tests are to be restarted. The beacon, on 50.104 Mhz (according to the RSGB) has a transistorized power amplifier providing about 70 watts RF power and about 1 KW ERP.

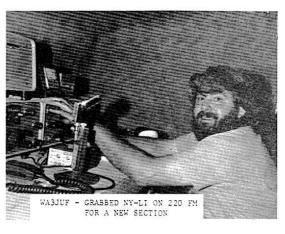
USAF to conduct Ionospheric Heating Tests: (via WIXZ and WA9NEW) The United States Air Force

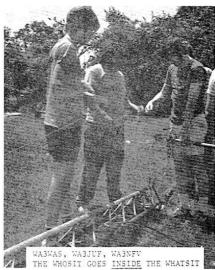
bas announced that it will initiate a series of ionospheric modification tests this Summer. These tests, similar to those documented in "Communicating at VHF via Artificial Radio Aurora," QST, Nov., 1974, will be conducted by the Institute for Telecommunications Sciences using the ionospheric heater at Platteville, Colorado on behalf of the Air Force's Rome Air Development Center. The tests are tentatively scheduled to occur during three successive two week periods starting approximately June 15, 1978; July 15, 1978; and August 15, 1978. Amateurs throughout the southwestern part of the United States, from Mississippi to California, and Mexico, may experience unusual propagation conditions on all bands up to the 70 cm band. If more detailed scheduling information can be determined in advance, WIAW will carry announcements on regular Official Bulleting schedules.

\* \* \*

On Monday evening June 19, 1978 (Net Nite) many of the Pack Rats worked the stations in the Carribean reported in this months Tid Bits.

The 2 and 6 meter bands went wild Tuesday evening the 20th.. by far the best opening of the season. It poses to be a very interesting Summer.

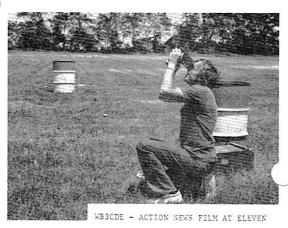
















POLAROID PHOTOS BY EARL, N3EG



HILLTOWN 78

PHOTOS AND CAPTIONS BY TONY, W3HMU

### 6 METER DELTA XRAY

6 meters is really hopping! (Boo-hiss!!!) The long winters wait for the Summer E-skip finally over. Many East Coast operators feasted on the recent DX delicacies served up by veral ambitious expeditions to rare locations in the 6 meter world. For appetizers, FPØ00 (K1TOL) and FPØSM (WlAIM) came booming thru on the afternoon of 31 May, 2230Z with S-9 plus signals to the Northeast states. Lefty and Chip worked many stations running only a few watts and indoor antennas, so if you missed this one, shame on you! The entree was provided by WB2RLK/VP9 with his highly successful Bermuda operation. Bob worked many stations along the entire east coast and provided a juicy multiplier during the June VHF QSO Party. Dessert was also provided by WB2RLK, this time from the Island of Montserrat. Bob put VP2MX on the air 15 June and on 18 June and again on 20 June was worked by large numbers of stations on the east coast. Bob will be on Montserrat until July 3. As an after dimner drink, many of us were around to listen to the ZB2VHF Beacon (Gibraltar) send its signal 4100 miles across the Atlantic to the east coast. The beacon was heard on about 50.003 Mhz from 1800Z to 1900Z on 4 June 78. Apparently, ZB2BL is the principle party involved. Too bad Region I (Europe-Africa) does not have a 6 meter amateur band. The various beacons you might hear are by special permission only.

Dave, W2BN, reports his KL7 expedition to have been a big disappointment. Operation during the June Contest produced 14 contacts in 4 sections. These contacts were by ground wave or scatter only. No E-Skip.

Listed below are planned 6 meter DX peditions for next month and some QSL information for some of the recent activity:

Now-July 3 July 1-August 31 July 3-July 24	CALL VP2MX KV41F VP2M(CC)?	OPERATOR WB2RLK W2AAF VE3ECP	COUNTRY  Montserrat 160°  Virgin Islands 150°  Montserrat 160°
Current Operation	KP4AHQ	KP4AHQ	Puerto Rico 152° Canal Zone 185° Virgin Islands 150° Dominican Rep. 161° Bermuda 120° Beam Heading
rrent Operation	KZ5NW	KZ5NW	
Current Operation	W4UWH/KP2	W4UWH	
Current Operation	HI8WPC	HI8WPC	
Current Operation	VP9WB	VP9WB	

Note: KP4AHQ and W4UWH/KP2 were worked from the Phila. area on 20 June at 0030Z. All the rest have been heard or worked this year. (KP2EKV4)

### QSL INFO:

FPØ00 FPØSM, WB2RLK/VP9 and VP2MX:

Via: VE1ASJ, Andy McLellen,
2318 Rothesay Road
East Riverside, St. John, NB
Canada E2H2K5

P.O. Box 678 Corozal, Puerto Rico 00643

KP4AHQ Direct - Luis Rivera

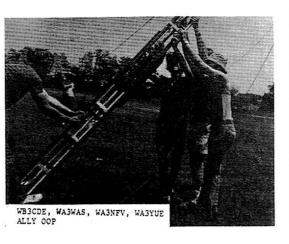
With a USA 15¢ SASE

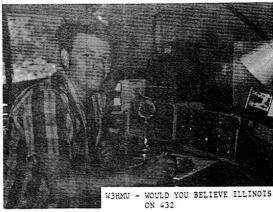
W4UWK/KP2, Dave Ackley
P.O. Box 10245
St. Thomas, Virgin Is. 00801

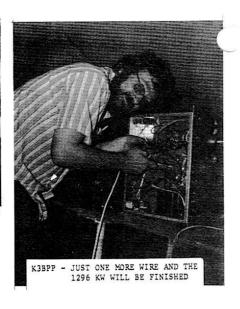
(DX stations appreciate an IRC or Green Stamp)

6 METER INFORMATION NET: 3820KHZ, 2400UTC, Tuesdays!!

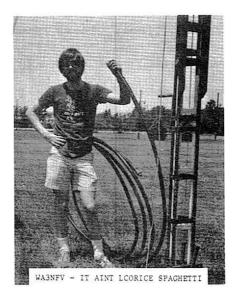
Editors note: Many thanks to Ron Whitsel, WA3AXV for compiling and preparing this fine report.



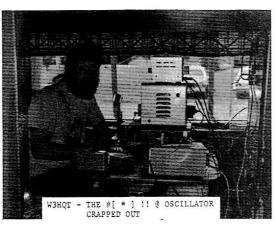
















# HILLTOWN 78

PHOTOS AND CAPTIONS BY TONY, W3HMU

W3CL

HARRY B. STEIN ASSOCIATES

COMMUNICATIONS CONSULTANTS

HARRY B. STEIN

2087 PARKDALE AVE. GLENSIDE, PA. 1903B

AMIL 5. GUMULA

PRESIDENT



AMERICAN RADIO RELAY LEAGUE

HARRY A. McCONAGHY, W3SW/W3EPC DIRECTOR, ATLANTIC DIVISION

8708 FENWAY DRIVE - POTOMAC BETHESDA, MARYLAND, 20034

GEORGE S. VAN DYKE, JR., P.E. CONSULTING ENGINEER

MAHK

NE 7-8329

4607 CONVENT LANE PHILA., PA. 19114

HOURS CLOSED MONDAY TUE, & THUR, 9:30-8:00 WKD, & FRI, 11:30-9:00 SAT, 9:30-9:00

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