

# PACK RATS'



**PACK RATS**

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

# CHEESE BITS



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

ARNS

50.125, 144,150, 220.125, 432.110, 1296.110 MHz, W3CCX - 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 19866

VOLUME XXV

AUGUST, 1983

NUMBER 8

## THE PREZ SEZ

Guess that everybody or most everybody is enjoying early vacations. As we approach mid-Summer, the VHF bands are in good shape. Tropo conditions and E Skip conditions have been relatively interesting. Those few signals that can be heard on the bands are extremely strong. We need to let our transmitter dictate the activity, not our receiver (we must put the transmitters in the "send position") rather than complain about the lack of activities. Sure we talk to the same old guys. Well, isn't that the idea with VHF?

Looks like the "pack" is getting ready to launch an all-out attack from Valley Forge. Instead of digging in for the Winter we will be on the offensive in August. This year UHF promises to be full of fun and excitement. Let us show our support by showing up and being ready to do our part in making this another Pack-Rat winning effort. See you from Valley Forge.

73, Bill, WA2DPU

\* \* \*

## APPLICATION FOR MEMBERSHIP

AK30, Frank B. Kerms  
103 Frost Lane  
Newtown, Pa. 18940  
215-968-3133

## ON RETIRED LIST

K3KMN, George Gakoumis

## DROPPED FROM MEMBERSHIP

K4AWS, K3LOM, K3MWV

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: THE THIRD THURSDAY OF THE MONTH.

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W3CL, HARRY B. STEIN

MONDAY NIGHT NETS

7:30 PM - 50.125 MHZ  
8:00 PM - 144.150 MHZ  
8:30 PM - 222.98/224.58  
8:45 PM - 220.125 MHZ  
9:00 PM - 432.110 MHZ  
9:30 PM - 1296.1 MHZ

NET CONTROL

W3CL  
W2EIF  
K3GAS  
WA2DPU-K3GYS  
K3IUV-WA2DPU  
W3CXU

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CALENDAR OF COMING EVENTS  
Syllabus By Lee, K3MXM

AUGUST

- 1 First US Census Taken - 1790
- 2 Good Trivia Info - First Iron Mailboxes used in Boston 1858  
(Editors Birthday)
- 6-7 ARRL UHF Contest - This our club effort into a new area this year. W3CCX will be operating from Valley Forge Mt. Contact Bill, W3HQT, Chairman to offer your aid and assistance into the new upper bands. 220 MHz and up. Be sure to be on the air and give the club your contacts.. use grid squares..
- 6 Atom Bomb Hiroshima 1945 - nuff said.....
- 6-7 SWOT Open QSO Party (SideWinders on Two) - Exchange SWOT number and grid squares.
- 11 Board of Directors Meeting, QTH: WA3YUE, Bruce Loss, 3747 Warfield Drive, Huntingdon Valley, Pa. Phone: 947-4166. Directors and interested parties always welcome to attend.
- 11 Dog Days End by Hayfever Season Begins.
- 13-15 N.J. QSO Party - All Bands "CQ NJ" Info QST
- 14 M.A.R.C. Hamfest - Budco 309 Drive-In-Montgomeryville, Pa. A very good hamfest. Almost in our backyards. Comes on out, either as a buyer or seller and give support to a good local club.
- 18 General Club Meeting - 2nd outdoor meeting of the season. QTH, K3GAS, 7815 New Second Street, Elkins Park, Pa. Films, slides and pictures of the Good Ole Days. Ladies welcome and a good social nite for all. Come out and enjoy the balmy breezes of Lower Elkins Park....
- 19 National Aviation Day
- 20 Ramapo Mt. ARC - 7th Annual Flea Market, American Legion Hall, Oakland, N.J.
- 20-21 North American ATV DX Contest - Gets those Lens Caps off and start sending those pi
- 20 The Philadelphia Area Computer Society's Ham and Chips Flea Market, LaSalle College Parking Lot - 10 A.M. to 4 P.M.
- 28 Central Pa. Rpt. Assoc. HAMFEST - next to HERSHEY PARK, Hershey, Pa. Indoor and outdoor selling, special tickets to Hershey Park. A good family outing.
- 28 First Radio Commercial Broadcast = 1922 "You've come a long way baby"
- 28 GCARC HAMFEST - Gloucester County College, Tanyard Road, Sewell, N.J. A good local Hamfest - only about an hour from Philly; indoor and outdoor selling.
- 31 First Transcontinental auto trip - Frisco to NYC in a Packard in 52 days - 1903

NEW PRODUCTS OF INTEREST TO HAMS

By Lyn, W3NSI

1. 10 METER ALL-MODE TRANSCEIVER (MONGOOSE): Coin International Inc. is importing a new 28-29.7 Mhz rig featuring all mode operation and output of 12 watts on SSB/CW, 10 watts on FM and 7 watts on AM. Designed mainly for mobile use, the 2000 FM is about the size of a CB rig. Frequency range has been set up in 5 groups of 40 channels each. Both receive and transmit frequencies may be adjusted to cover the 10 Khz between channels. An LED readout indicates channel in operation. Price \$279. 2305 N.W. 107th Ave., Miami, Florida 33172
2. 2 METER JAYBEAMS: Jasco International, Inc. has a line of jaybeam quad 2 meter antennas which feature good bandwidth and front to back ratios. The Q4 has a gain of 9.4 db over a dipole and is just under 5 feet long. The Q6 and Q8 list gains of 10.9 and 11.9 with boom lengths of 8 and 11 1/2 feet. Weight is 6, 8, and 10 pounds. Q4 - \$57; Q6 - \$75; Q8 - \$87. P.O. Box 29184, Lincoln, Neb. 68529
3. SIX METER PA FOR MX 6Z: Ace Communications has added some more units to the Ham Line. The PL 6 is designed to be used with the MX 6Z transceiver (Cheesebits March 83) The unit will take the 1/4 watt output from the MX 6Z and boost it to 5 watts. The PA operates on 13.8 VDC and provides a regulated 9 VDC to use with the transceiver. The PL 6 is RF switched and draws 1.2 amps. Price \$90. AceComm. Inc., 2832 D Walnut Ave., Tustin, Calif. 92680

\* \* \*

VHF/UHF REPORT

By Jo W2EIF

Six meters has had some nice Es openings this season. The latest was to Central America when TG9NX, Cocos Island, was in on July 11.

I have not heard of any Es on 2 meters, but that does not mean that there has not been any! Jack, W2AXU reports that VELAHM listens every evening after 9 P.M. on 144.130. He could be a nice contact to the N.E.

There have been some good tropo openings on 2, 220, and 432 as witnessed by the extra activity on the repeaters by out of the area operators in the AM. 432 has been open to the Bermudas several times lately.

Six meters has shown some increased activity due to the search for grid squares. The summer time Es season is the time to get those squares! VELYX is operating under the call CYLYX and an SP0 has been worked from St. Pierre.

\* \* \*

ARRL BULLETIN NR 59 FROM ARRL HEADQUARTERS NEWINGTON CT JULY 12, 1982 TO ALLRADIO AMATEURS BT: FCC has new Novice exam procedures effective Aug. 31. After the applicant passes both sending & receiving tests at 5 wpm, the volunteer examiner administers a 20 question test taken from 200 questions furnished by FCC in PR Bulletin 1035A. The names of successful candidates are certified by the examiner and sent with Forms 610 to FCC, Gettysburg, Pa. 17325. Volunteer examiners must be over 18, hold FCC General or higher licenses, not related to applicant, not be in employer/employee or employee/employee relationship with applicant, or own a significant interest in or be employed by any company or entity engaged in manufacture, distribution of Amateur Radio equipment or publications used in preparing for amateur exams. Forms 610 and PR Bulletin 1035 A can be obtained from FCC or ARRL Hq. Please include s.a.s.e. AR.

SWAP SHOP

FOR SALE: 45' tower suitable for mounting against house self supporting or in yard with guys. Also has rotator mounting shelf. 2 20' sections + 5' top section. Tower is already down on ground. \$50

CONTACT: Gary Hitchner, WA2OMY  
Phone: 215-539-6409

FOR SALE: Audio cassette tapes are available on Joe Reisert's, WIJR, talk and discussion on "Antennas and Antenna Systems; Where is the State of the Art Going?" Made on 6/2/ last, over the second teleconference radio net via the nationwide repeater chain. Send \$3.50 which covers materials and mailing costs to Al Schnipper, W3AYJ, 1409 Glenview St., Phila, Pa. 19111

FOR SALE: Rockwell/Delta table band jig saw belt driven with 1/3 hp motor + steel leg set. Good condx. \$85. Commercial quality.

CONTACT: Harry Stein, W3CL  
Phone: 215-887-5052

FOR SALE: 4 Homebrew WØEYE - 432 yagis - excellent construction - sell for cost of materials \$35 or talk about it. SOTA 1296 RX converter, 28 MHz IF - brand new - never used \$75. 3-1000-Z tube socket for air system new \$20. Spectrum International 1296 Loop Yagi - brand new - \$45. G.E. 50 MHz Amp. Pair 4-125A - plus spare tubes - Mod. 4EF2A3. No pwr sply - best offer over \$50 - tubes are worth it.

CONTACT: Dave, N3CX  
Phone: 215-679-7293

Work: 215-482-0428 till 1330

FOR SALE: Last chance to purchase before selling at flea market at higher prices. Heath Mohawk receiver with speaker, 6&2 Heath converters and switching box, manual, in good operating condition \$75. Collins 75A3 receiver with 6,2,220 Ameco converters, P.S. and switching box and manuals, good operating condition \$175. Drake TR6 transceiver 6M with MS4 power supply and D104 mike and manual \$300. Kenwood TS520 all band transceiver with D104 mike and manual \$300. Heath SB 300 receiver with all filters and manual \$75. Heath single bander 75M xceiver good condition, HP13 mobile power supply and cables, mobile antenna and manual \$75. Some used stereos in good working condition, many speakers, audio cables, Radio Shack ICIS, xstrs, parts including replacement circuit boards for many RS sets, other items too numerous to mention. Call for your needs.

CONTACT: Doc Cuter, K3GAS  
Phone: 215-635-1078, looking by appointment

\* \* \*

TID BITS

Sunwatcher, Jack Power, W2AXU reports the monthly Sunspot No. for June 1983 = 90.6 - Smoothed No. for December 1982 = 94.1 Jack ordered the "UHF Compendium" (the ad appeared in the July issue of Cheese-Bits) and received the book on July 16th - reports it is an excellent addition to ones tech library.

Jonnie Allen, W3CXU vacationing on the West Coast reports the 1296 beacon has been heard in Hawaii!

John and Barbara (K3KTY) enjoying their second honeymoon in New Hampshire. They bought a home in Sinking Spring, Pa. (John, you will be able to carry Barbara over the threshold upon your return)

Reference the local oscillator tech article in the June Cheese Bits - The crystals need not be of super accuracy --- just so they are of good quality - WA3JUF advises.

## UHF CONTEST REPORT

The Packrats will be operating from a new site on August 6, 7 for a new club contest effort. We will hopefully be operating all bands from 220 MHz to 24 GHz from the Valley Forge Research Center on Mt. Misery near Valley Forge, Pa. The new site offers distinct advantages over Hilltown, especially for microwave work. First, it is a much more prominent hill with line of sight paths of many miles in most directions; second, it is located within earshot of four grid locator squares - the "sections" being used in the UHF contest. The site is located in FN20 but FN10, FM19, and FM29 are all less than 20 miles away.

The operating period is 24 hours only - 2 P.M. Saturday local time to 2 P.M. Sunday local time. Set up will begin Friday morning and everyone is urged to show up. There will undoubtedly be many new problems to overcome breaking in a new site, so the more help the better. Takedown will be during daylight hours, so hopefully we will have enough help to have everything packed up before dark so we can go home and work the big tropo opening that starts one hour after the end of the contest.

We plan this August to be a trial run, both for the location and for the new "Field Day" operation. If all goes well, we will make it a permanent event and mount an all-out campaign next year with new antennas, maximum power, EME, dxpeditions, etc. Please help make this contest a successful one. If you want to offer services, contact me at 215-538-0311. 73 and C.U. in August, Bill, W3HQT

\* \* \*

### SPACE (FROM JULY 7, 1983 ARRL LETTER)

OSCAR 8 status update: Telemetry indicates that no changes have occurred regarding the battery problem. Please refrain from using the satellite. Any telemetry information should be forwarded to Bernie Glassmeyer, W9KDR, at ARRL HQ.

This week's AMSAT net indicates that OSCAR 10 is running well. At press time, spacecraft spin is  $25.74 \pm 1$  RPM. When the spin is stabilized, the first firing of the kick motor will take place. This will increase the satellite's perigee. Inclination will be increased from the present  $8.6^\circ$  to the permanent  $11$  to  $17^\circ$  inclination angle.

Vern Riportella, WA2LQQ, says that the satellite is in fine shape, and a transponder test is scheduled shortly.

Some misinformation has been circulating regarding the OSCAR 10 Mode L frequencies. The correct Mode L frequencies are: Uplink: 1269.050-1269.850 MHz; downlink: 436.950-436.150 MHz. Please refer to page 50 of QST for April, 1983.

Now that W5LFL has the official okay from NASA and the FCC (see elsewhere in this issue), the STS-9 operating frequency ranges can be announced. Remember that these frequencies are subject to change, and that these will be frequency ranges in which W5LFL might be found. All operations will be F3 (fm) emission: Space to Earth: 145.510 to 145.770 MHz; Earth to space: 144.910 to 145.470 MHz. These frequencies will allow operation from most parts of the world. Repeater inputs and outputs will be avoided. Complete details will be in the August issue of QST.

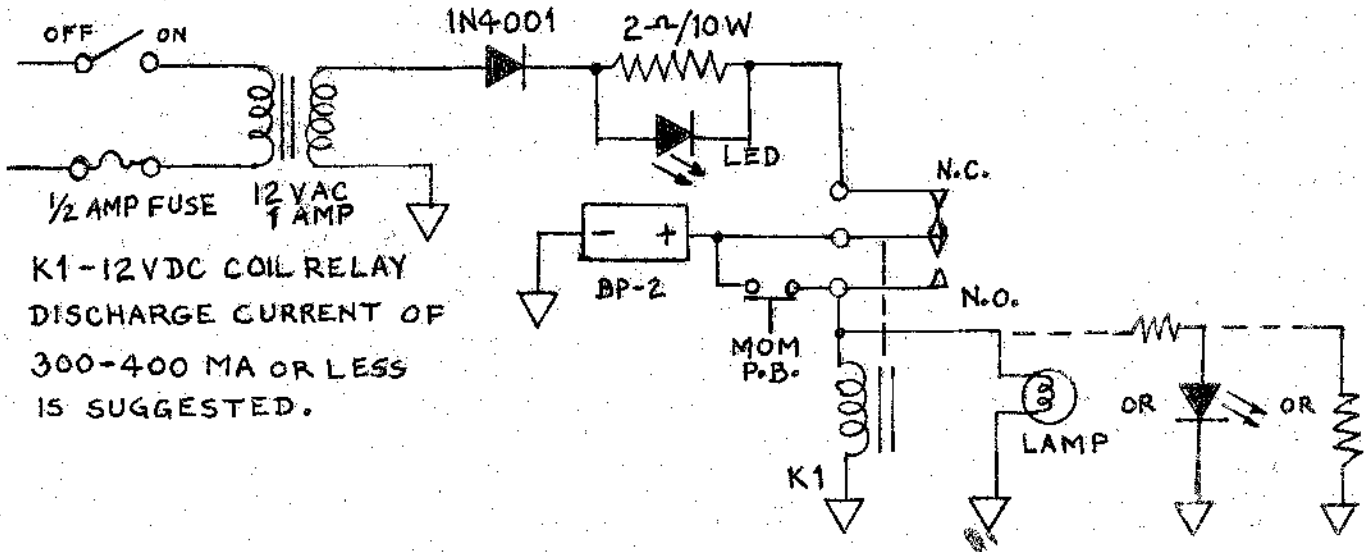
OSCAR 10's beacon can be heard between 0000-0005 and 0030-0035 UTC each hour.

AMSAT is looking for at least two new hf net control stations to host the Sunday AMSAT international nets. If you are an AMSAT member and would like to be a part of the AMSAT net team, contact net manager Wray Dudley, W8GQW, at his Callbook address, or call him at 513-339-2254.

## AUTO NICAD DISCHARGER/CHARGER UNIT

by Dave Mascaro, WA3JUF

The following is being used for the Icom BF-2 pack, but could be used for any Nicad pack providing the current and voltage parameters are correct.



The proper discharge and charge of nicads is important for years of battery life as well as maximum current output for your HT or other electronic device.

Short periods of use during the day and overnight charging creates a memory of this short duty cycle. Then when the radio is used heavily all day the battery pack seems to discharge after a few long transmissions.

The problem starts with the battery indicator on the radio. This indicator tells you when the battery should be replaced for proper operation of the radio, not when it is fully discharged. More life can be realized if the battery is further discharged before charging. Leaving the unit on unswitched is one way. Dropping the pack into a discharge device is the best way. This insures that the battery is fully discharged before recharging. And it is this deep discharge before charging that gives the battery a memory for longer life.

This discharger/charger unit is by no means the only way to drain a battery pack and recharge it. More automatic features could be used. For instance a NE555 timer might be used to set the charge time to 1.5 hrs, or so for the BP-2. Or metering can be used, etc.

A holder of some kind is built with spring contacts in the bottom to contact the charging screws of the Icom pack. I used P.C. board soldered together to make a box, with brass strips to contact the screws. The pack is inserted and the momentary push button is depressed which activates the relay. Depending on the discharge current you want, use the relay coil, the indicator lamp and any other load you wish to use to set the desired current. I use the relay and an LED to drain the battery. When the battery can no longer supply enough current to keep the relay closed, the contacts open and charging is initiated.

I selected a resistor that would give a charging current of 500-600 ma. The voltage drop across the current limiting resistor lights the LED and serves as the charging indicator. At full charge the battery pack heats up and opens a thermal contact in the pack itself, ending the charge cycle. It must then be removed from the holder. After cool down the pack will then reset and charging will again start. This does not harm the pack as it will then heat up and shut off.

I have been using this discharge and charge method for 2 yrs. and have noticed a great improvement in battery life in the radio. None of my three packs has ever suffered damage or cell reversal. If anything, I have lengthened the overall life of the batteries by doing this deep charge before charging.

OUTPUT	INPUT	LOCATION (APPROX)	REMARKS
--PHILADELPHIA--			
147.360	147.960	DARBY	220 CROSS-LINK
147.060	147.660	RADNOR	
147.030	147.630	ROXBOROUGH	PHIL-MONT
146.685	146.085	CENTER CITY	NE INPUT-CLOS. PATCH
145.410	144.810	WEST PHILADELPHIA	
145.390	144.790	SOUTH PHILADELPHIA	
145.270	144.670	ROXBOROUGH	
145.230	144.630	UPPER DARBY	
--NORTHERN SUBURBS--			
147.390	147.990	DOYLESTOWN	
147.300	147.900	RYDAL	FRANKFORD RADIO CLUB
147.090	147.690	WARMINSTER	
147.000	147.600	WARRINGTON	
145.350	144.750	WYNDMOOR	
145.250	144.650	JENKINTOWN	MOST OF PHILA.
--NORTHEASTERN SUBURBS--			
146.790	146.190	TREVOSE	OPEN AUTOPATCH
146.715	146.115	CHURCHVILLE	OPEN AUTOPATCH
145.430	144.830	YARDLEY	TRENTON AREA
--WESTERN SUBURBS--			
146.985	146.385	PARKESBURG	
146.940	146.340	PAOLI	
146.910	146.310	READING	
146.835	146.235	EAGLEVILLE	RTTY
146.640	146.040	PINEGROVE	WEST OF READING
145.130	144.530	BRYN MAWR	
--NORTHWESTERN SUBURBS--			
147.330	147.930	HATFIELD	
147.255	147.855	LEHIGHTON	NE PA. TURNPIKE
147.210	147.810	POTTSTOWN	
146.940	146.340	ALLENTOWN	
146.880	146.280	HILLTOWN	PARA OPEN AUTOPATCH
146.760	146.160	VALLEY FORGE	PARA
146.700	146.100	NAZARETH-BETHLEHEM	
145.310	144.710	SELLERSVILLE	R.F. HILL ARC
145.190	144.590	HILLTOWN	TELFORD AREA
--TRENTON AND EASTERN NEW JERSEY--			
147.240	147.840	CREAM RIDGE	GREAT ADVENTURE
147.150	147.750	BURLINGTON	
147.105	147.705	ALLENTOWN	
147.075	147.675	ROBBINSVILLE	MULTIPLE LINKS
147.045	147.645	ASBURY PARK	
146.850	146.250	FRENCHTOWN	
146.835	146.235	MANAHAWKIN	
146.670	146.070	W. TRENTON	
146.460	147.460	PRINCETON	1 MHZ SPLIT
145.110	144.510	JACKSON	
--SOUTH JERSEY AND DELAWARE--			
147.315	147.915	WILLOW GROVE	VINELAND
147.180	147.780	BARNSBORO	
146.985	146.385	ATLANTIC CITY	
146.955	146.355	WILMINGTON, DEL.	
146.925	146.325	WILLINGBORO	
146.910	146.310	TOMS RIVER	
146.895	146.295	BELLMAWR	
146.865	146.265	PINEHILL	
146.820	146.220	CAMDEN	
146.745	146.145	ATLANTIC CITY	CLOSED AUTOPATCH
146.730	146.130	WILMINGTON, DEL.	
146.655	146.055	VINELAND	
146.610	146.010	CAPE MAY CT. HOUSE	
145.370	144.770	CHERRY HILL	
145.290	144.690	CAMDEN	



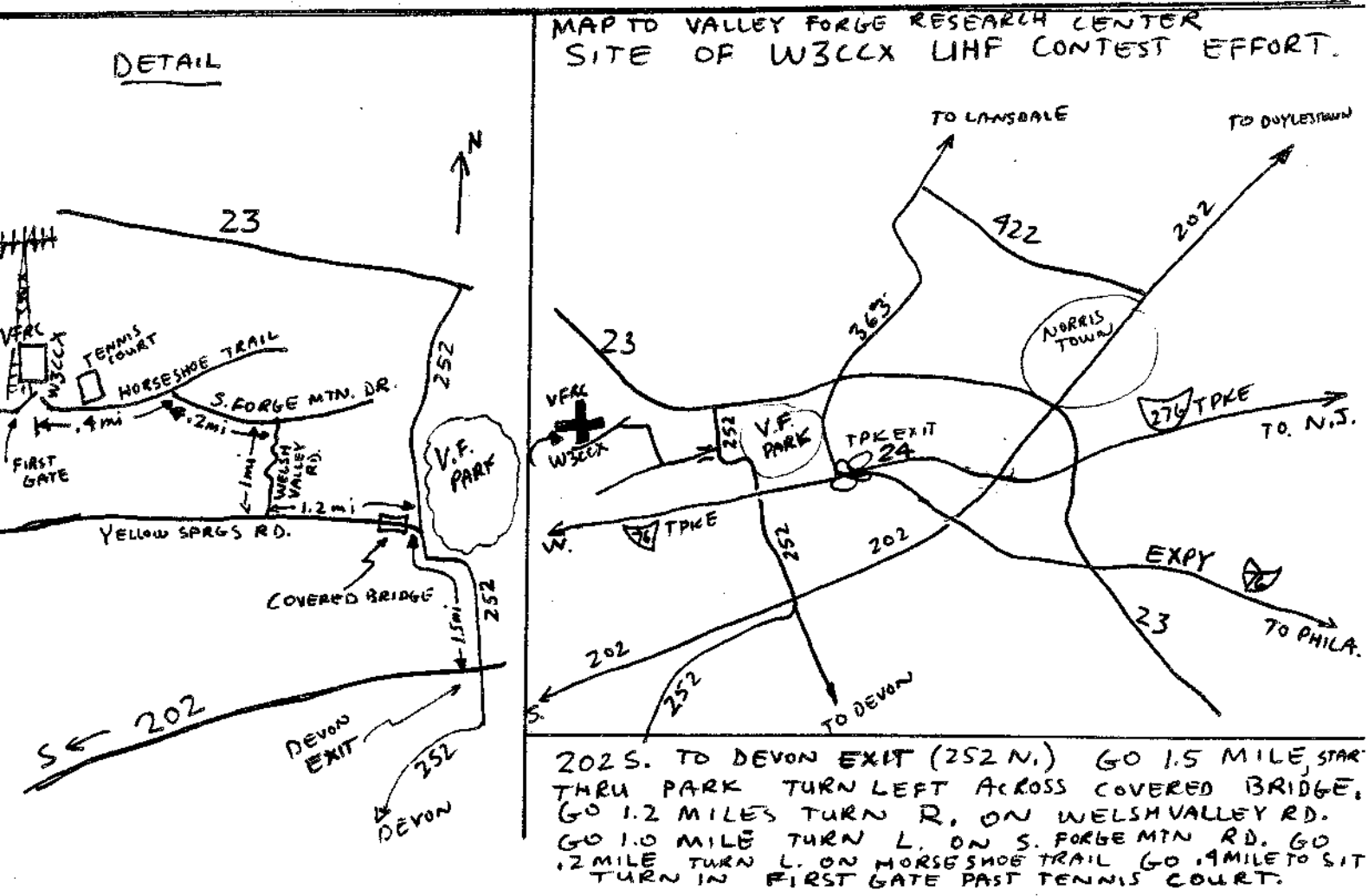
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73 and CU in August .. Bill, W3HQZ



202S. TO DEVON EXIT (252 N.) GO 1.5 MILE, STAR THRU PARK TURN LEFT ACROSS COVERED BRIDGE, GO 1.2 MILES TURN R, ON WELSH VALLEY RD. GO 1.0 MILE TURN L. ON S. FORGE MTN RD. GO .2 MILE TURN L. ON HORSESHOE TRAIL GO .9 MILE TO SIT TURN IN FIRST GATE PAST TENNIS COURT.

FROM THE NEW YORK HERALD TRIBUNE, FRIDAY, OCTOBER 11, 1946  
METEOR SHOWER INVISIBLE TO BOTH EYE AND RADAR

But ordinary Short-Wave Radio Detects It; Clouds Bar Visual Observation

Science's most delicate detecting instrument - micro-wave radar - failed Wednesday night to detect the most spectacular meteor shower in recent history. Science's simplest instrument the human eye- was thwarted by cloud cover. But common ordinary short-wave radio, somewhere between the two extremes, appears to have done the trick.

An investigation carried on at Princeton University by John Power, a radio engineer working in the Palmer Physics Laboratory, revealed that ordinary short-wave transmission was peculiarly affected during the hours of the meteor shower. Early in the evening there was a series of "bumps", each one sounding as if the broadcaster suddenly had shouted one syllable of his speech into the microphone. As the evening wore on the bumps increased in frequency, and during the height of the shower came so often that the individual bump was lost in a series of flutters. Then, as the meteor shower died, the bumps came slower and slower.

Mr. Power's work was only a portion of the work done in this country seeking to detect the meteors. The United States Signal Corps laboratories at Bradley Beach, N.J. tried to do it with their moon-radar. Other Army installations tried with other radar installations, and discovered that the better the radar, the worse the results.

**Radar Behavior Explicable:** This radar behavior was not surprising to the scientists working on the problem. It is explicable in terms of the actions of meteors and radar.

When the meteor enters the earth's atmosphere its great speed ionizes the air - that is, imparts to the air an electrical charge. The course of the meteor is therefore marked by a long tunnel of charged air.

Radio waves are known to bounce off ionized air - that is what makes long-range broadcasting possible. But as the waves grow shorter they bounce less and penetrate more. The longest radar wave is about three yards long - this bounces pretty well. But when the wave gets must shorter than three yards - and modern radar is measured in inches - there is no bounce.

The meteor itself is so small that radar is ineffective against it and must depend on the charged air to reflect it.

The bump in short-wave radio is caused by this extra bounce. The wave usually bounces off the ionosphere, but when the meteor creates a temporary charged layer of its own it bounces a few extra waves down to the receiver, and thus momentarily increases the volume. Mr. Power's discovery was checked by other short-wave "hams", who detected the bumps without knowing the reason.

**May Aid Meteor Research:** It may prove of considerable value in meteor research, Professor John Q. Stewart, professor of astronomical physics at Princeton, said yesterday. At present meteors entering the atmosphere are counted visually by volunteer amateurs all over the world. The radio bounce may make it possible to set up automatic counters.

Professor Stewart worked with the Signal Corps during the shower. The moon radar equipment, he said, was turned on the meteors during the shower, but did not work, to nobody's surprise. It is relatively long-wave radar, but is not built for short-wave detection. It reflects only objects 20,000 miles or more away.

Other radar was used at White Sands, N.M., where three-meter wave equipment picked up the charged air that marked the courses of the meteors at distances ranging from 45 to 180 miles. These results showed up on scopes and made it possible to track the meteors. Continued studies along these lines may make possible great advances in the study of the upper atmosphere and may have meaning in meteorological studies.

Note: Jack Power was W2QKE, W3AXU and now is W2AXU.

215 947-6670

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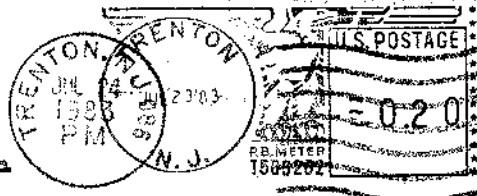
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