



**PACK RATS'**

**CHEESE**

**BITS**



CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

MT. AIRY VHF RADIO CLUB., "THE PACK RATS", PHILADELPHIA, PA.  
NET FREQUENCIES: 50.150, 144.150, 222.125, 224.58/222.98, 432.110, 903.100, 1296.100 MHz  
AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

W3CCX

ARNS

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

SCANNED TO PDF BY BERT, K3IUUV, 2013

VOLUME XXXVI

August 1994

Number 8

**THE PREZ SEZ**

We thank host Gary, WA2OMY, and auctioneer Bert, K3IUUV, for organizing the White Elephant Sale of our July meeting. It's always interesting to see such a wide variety of electronic goodies show up at the auction - there's usually a few real bargains and this past auction was no exception! I was happy to see several visitors at our July meeting; interested visitors are always welcomed to attend our meetings and we in fact encourage Packrats to be on the lookout for fellow hams who share our same interest in the "weak-signal" VHF modes. I've often found that many hams just aren't even aware of what can be worked on the bands above 50 MHz. The "World Above 50 MHz" really does have a lot to offer - it's up to us get as many hams as possible exposed to this aspect of our hobby. Why not take the time to introduce a ham that you know to the VHF bands?

With the hot weather we've had recently cooler weather may seem far away but now's actually the time to be thinking about those Fall antenna projects. Replacing or upgrading an antenna will help you on both receive and transmit. There are a lot of good antenna designs and software available nowadays that enable VHF'ers to build state of the art high gain yagis using simple construction techniques. A number of Packrats have indicated they'd like a club antenna project of some sort in addition to our transverter build sessions scheduled for this Fall. Our September program will be on antennas but we'd like to get off to a head start by finding out what bands Packrats would like to build antennas for. This will allow us to look at perhaps doing 1 or 2 antenna designs and give us time to scrounge materials for a club project. Please give me a call and tell me what you're interested in.

I hope to work everyone in the August UHF contest, scheduled for the weekend of August 6th and 7th. The UHF contest is a laid-back contest that gives a good chance to check out your station improvements and hone your operating skills on 222 MHz and up. If you're not available for the entire contest, please at least get on during the activity hours and work as many people as possible. Activity times are published elsewhere in this issue.

Our next meeting will be the club picnic on Sunday August 21st - location to be announced. Bring a covered dish and be prepared to have a good time - check into the nets for more info.

73, Paul Drexler, WB3JYO

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DEADLINE FOR ARTICLES AND SWAP SHOP IS THE MONTHLY MEETING DATE. NON-COMMERCIAL SWAP SHOP ITEMS-FREE OF CHARGE.

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Ron Whitsel, WA3AXV  
(215) 355-5730

**PACKRAT 222 MHz REPEATER - W3CCX/RPTR**

222.98/224.58 MHz, Churchville, PA


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COR. SECR: N3AOG, Dick Comly  
DIRECTORS: WA3AXV, Ron Whitsel (1 YRS)  
WB2YEH, Bob Fisher (1 YRS)  
N3ITT, Alan Sheppard (2 YRS)  
WA3NUF, Phil Migulez (2 YRS)

<b><u>MONDAY NIGHT NETS</u></b>			
<b><u>TIME</u></b>	<b><u>FREQ.</u></b>	<b><u>NET CONTROL</u></b>	
7:30 PM	50.150 MHz	K3EOD	
8:00 PM	144.150 MHz	W2EIF	
8:30 PM	222.125 MHz	WB2YEH	
8:30 PM	224.58R MHz	K3ACR	
9:00 PM	432.110 MHz	WA3AXV	
9:30 PM	1296.100 MHz	WA3NUF	
10:00 PM	903.100 MHz	N3AOG	

**COMMITTEE CHAIRMEN**

LADIES' NIGHT: WA3YUE 610-630-1875  
JUNE CONTEST: WB3DNI 215-672-5289  
HAMARAMA: WB3JYO 609-538-1687  
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## Calendar of Coming Events - August 1994

- Aug.
- 6-7 **ARRL UHF Contest.** See July QST, page 126 for the rules.
- 7 **Mid-Atlantic ARC Hamfest** at the Bucks County Drive-In Theater on Rte 611 in Warrington, Pa., five miles north of Exit 27 of the Pa. Turnpike. Talk-In on 146.66/.06 and .52.
- 11 **Packrat Board of Directors meeting** at the QTH of Pat, WB3DNI. Call 215-672-5289 for directions.
- 12 **Perseids Meteor Shower** predicted peak at 1835 UTC +/- 3 hours.
- 14 The **Delaware-Lehigh Amateur Radio Club Hamfest** will be held at the Plainfield Township Fairground in Easton, PA. on PA 191. TI on 146.7R and .52. VE exams at 1 PM.
- 19 Alaska became a state.
- 20-21 First weekend of the 8th **ARRL Cumulative 10 GHz Contest.** See page 94 of the June QST for rules. Second weekend is 17-18 Sept.
- 20-22 **NJ QSO Party.** See July QST, page 126 for the rules.
- 21 The **Delmarva Hamfest** will be held at the Delaware Technical & Community College In Georgetown, Delaware. Talk-in on 147.675/.075, and 224.24/.84.
- 21 The August meeting of the Packrats will be the **Packrats Family Picnic** with all Packrats, friends, wives, kids, etc. invited. The picnic will be held at the QTH of Dave, N3CX. Call Sylvia, Dave's XYL at 610-679-7293 if you wish to bring a covered dish to share. Start time is noonish. Bring your swim suits.
- 26-28 The **20th Annual Eastern VHF/UHF/SHF Conference** will be held at the Quality Inn, Vernon, CT. For information, contact Ron Klimas, WZ1V at 203-768-4758.
- 28 **Gloucester County ARC Hamfest** at the 4-H Fairgrounds in Mullica Hill, N.J. Talk-in on 147.78/.18, 223.06/224.66 and 146.52.
- 28 **Yonkers ARC Hamfest/Computerfest** will be held at the Yonkers Municipal Parking Garage, Yonkers, NY. TI on 146.865 and 440.15.
- Sept.
- 20 **First Indoor Club Meeting** in the fall. The program will be on homebrewing antennas. Think about what bands need updating or what new band you're planning to get on. A club project is planned for the bands that most people need improvement.

### Suggested Activity Hours for the UHF Contest

<u>Band</u>	<u>Times</u>
222 MHz	7-8 AM/ 7-8 PM
432 MHz	8-9 AM/ 8-9 PM
903 MHz	11-12 AM/ 11-12 PM
1296 MHz	10-11 AM/ 10-11 PM
2304 MHz & higher	12 AM/ 12 PM

### SWAP SHOP

(send all ads to the editor)

**For Sale:** 10.224 GHz LO Brick, \$75.00, 10 GHz LO Brick, \$20.00, DEM 10 GHz Mixer/Filter, \$40.00, 2 stage 10 GHz preamp with bias, \$60.00, 2 stage 10 GHz circuit board, \$10.00, 10 watt 10 GHz TWTA, \$125.00, 500C Bird Element (new), \$40.00, No-Tune 222 MHz Transverter, \$90.00, PK88 TNC, \$100.00 and various 10 GHz parts. Contact: Chuck, WA2ONK, at 609-586-7180.

**Wanted:** 100 to 125 ft. length of 1/2 or 7/8 inch hardline with N connectors. Call Bill, K3MFI at 215-968-2504.

## TID BITS

Joe Kilgore, W2EIF, for many years the Awards Chairman for the Packrats, has requested to be relieved of this joy. Paul, WB3JYO, has appointed Bob Fox, W3GXB, as the new chairman.

Al, K3BRS, a long time friend of the Packrats will be in Israel for the next two years. He plans on being active on 20 meters and hopefully through 1296. His temporary address is: R. Alfred Whiting, DCMAO Israel, PSC 98, Box 100, APO AE 09830.

The ARRL Bio-Effects Committee members have resigned in a disagreement with the Board of Directors. There has been large amount of comment about this in the Internet ham radio forums.

In the July 1994 issue of QEX, Zach, Lau, KH6CP/1, has a construction article on a 2401 MHz receive converter for Oscar Mode S reception. It includes the local oscillator and has a 144 MHz if output. Construction is "no-tune" using a 15 mil duroid board for the RF portion and a G10 board for the LO. Artwork and a complete parts list is included. The NF was measured at 0.33 dB with a gain of 31 dB.

Six Meter fans may want to look into getting a copy of "SIX METERS, A Guide to the Magic Band" by Ken Neubeck, WB2AMU. It's published by Worldradio Books, P. O. Box 189490, Sacramento, CA. 95818. The cost is \$12.00 plus \$2.00 for shipping.

The Aug/Sept issue of Feedpoint, the NMTS newsletter has articles by Toshihiko, JE1AAH, on a 10 GHz No Tune single board transverter. Has a 1.28 GHz if, 1.4 dB NF, and 10 dBm output. Either the board or a complete kit is available.

In the same issue on Feedpoint, Ed, KA9LNV, reports the use of 1296 MHz hybrid modules on both 1296 and 902 MHz. The M67715 is usable on both bands but the higher power M57762's output on 902 is much lower than it's rated 1296 output.

## AERONAUTICAL ROVING UPDATE

By John, KB3XG

On July 8, N3CX and I planned a flight to White Birch Airport (elev = 1860') which is 30 miles east of Binghamton just over the FN22 grid line. FN22 is always missing from the RAT grid maps during the June contest. Due to marginal weather (IFR), no instrument approach, high density altitude, high payload, and a short grass runway, we decided against landing at White Birch. We flew into Sidney, NY, rented a car, and drove 20 miles south to White Birch.

We set up our equipment on the taxiway. There was a clear shot to the south overlooking the Delaware River valley. We had 903, 1296, & 220 FM on board. CX's 903 beacon was a solid S7. I used my 880 MHz rig to contact a few Pack Rats. We worked WB3JYO, N3NGE, K3HZO, and WA2OMY on 903 with SSB quality signals. We also heard WA3JUF but could not complete the QSO. Signals started to fade around 8:30 P.M.. This was a good time to quit since the bugs were getting thick and we could hear gun shots in close proximity.

The flight home took an hour and 15 minutes. I have decided that an airplane is the ultimate roving machine and I'm already looking forward to next year's adventure.

## A NOTE ON PUTTING THE AM-6155 ON 222 MHz

By Ron, WA3AXV

Some people have experienced a problem with the AM-6155 conversion for 220 MHz. The problem is related to the amount of drive required to obtain the 400 to 500 watts of output these units are capable of generating. If you fail to achieve this power level with a maximum of 4 to 5 watts of drive, then you may have a problem with the input tuning capacitor. Also, if the unit used to work just fine, but now puts out hardly anything, the problem is the same. Or if your power output gradually drifts down as you operate the amplifier, same problem.

All these problems can most likely be traced to a non-resonant input circuit. This is caused by the wrong or changed, value of the 33 pf tuning capacitor that was originally specified in most of the conversion information that I saw. Due to the tolerance of this capacitor some of the conversions work just fine. But if your capacitor was a little on the high side, then the grid might not have ever tuned properly. What can happen when there is an off resonant condition? You increase the drive power to say 8 or 9 watts to achieve the desired output power. The extra heat and high voltage developed across the mismatch cooks the capacitor and it changes value over time. Suddenly an amplifier that "worked" for years, stops working.

The solution is very simple: Replace the 33 pf with a 20 pf to 22 pf capacitor. You should observe that the grid now tunes with the variable tuning capacitor partially engaged (you will probably find that the best tuning used to be achieved with the variable at minimum!). The tuning will be a lot sharper, but the drive power and long turn drive power stability should be much improved.

Give it a try it might just work for you too.

## Health and Welfare

Johnny Allen, W3CXU, has been in Abington Hospital for a while and is now recovering. His daughter, Carole, reports that he has been moved into the rehabilitation section.

We're sad to report the loss of two long time members of the SJRA. Walt Schmidt, W2EA, and Ed Farmer, K2OSV, both died in June. Walt last attended our home brew night in the spring and was their leader in VHF expeditions to High Knob, Pa.

## JUNE, 1994 ROVING EFFORT

de: John, KB3XG

As always, this year's roving effort had some successes and some failures. Bands on board were 220 FM, 432, 903, 1296, 2304, 3456, 5760, and 10,368 MHz. I mounted a 20 foot 220 Yagi and an old RIW-13 on the roof for mobile operation. Single loopers were used on 903 through 3456 MHz. A 3 foot dish was used on 5.7 and a 2 foot dish was used on 10.4 GHz.

The spot in FN10 worked out well this year. We set up under power lines overlooking I-81. We can see Mount Pocono from this location. The microwave shack did not have an intercom frequency, but my 880 MHz rig proved again to be a valuable roving tool. Our signals on all bands were booming into the Rat site with the exception of 10,368. The field modification and subsequent destruction of N3AOG's 10 GHz rig was unsuccessful.

The 20 foot Yagi on the roof and the mast mounted on the front bumper provided interesting night time optical illusions, while driving through the single lane barriers on I-80. We arrived at the old Rat site in FN01 Sunday morning about 11 am. We set up next to N2SB's old rotting tent. We worked the Rats on SSB up through 2304. Nothing was heard on 3456.

WA3FFC left the gate open at a repeater site in FN00 near Punxutawney. I have never seen a better 360 degree clear shot spot. As in FN01, we were only able to work up through 2304 MHz. We made a 3456 contact from this site last year. The ridge we were trying to launch our signal over was barely visible through the haze. WA3NUF said that water vapor should not be a significant factor on 3456. I had made improvements to my receiver, increased my power by 10 dB, and was only using 4' of 1/2" hardline on 3.4. I blame all failures on my infrequent operating habits.

The 6 hour drive home from FN00 is too much for an old man like myself. Next year I plan to drive to Mount Pocono on Saturday, work the Rats, and get an exact frequency correlation on all bands. I will then drive to FN10 and work solo from that grid. My roving/pilot associate will fly to Hazelton late Saturday afternoon and we will fly to Clearfield-Lawrence field. This airport is 20 minutes south of the spot in FN01 and 40 minutes north of the spot in FN00. The 6 hour drive will take 2 hours by airplane. Being airborne will allow me to visit more rare grids next year.

## NEW 2304 MHz RECORD

N6CA and KH6HME finally made it across the path from Mauna Loa, Hawaii and Palos Verde just south of Los Angeles on 2304 MHz after 13 years of trying. They have made it on every band up to 10 GHz so far. On July 11 on 2321 Z they made it on CW. An attempt was made on SSB but it was given up for a try on 10 GHz. The band was open for several days with mobiles working on 2M FM. Equipment consisted of HB 12 watt rigs with 4 ft dishes and 1.5 dB NF receivers. Both rigs were built by N6CA. Over the 4 day opening, KH6HME made 148 contacts on 144 MHz, 6 on 222 MHz, 39 on 432 MHz, 1 on 902 MHz, 3 on 1296 MHz, and 1 on 2304 MHz.

## ARRL BOARD OF DIRECTORS MEET

From the AMATEUR RADIO NEWLINE on Internet

The ARRL Spectrum Committee has been asked to study the bands between 420 MHz and 300 GHz to enable a better understanding of present and future activities in this region of the spectrum, giving priority to those bands subject to spectrum reallocations by the government. This was just one of many important actions affecting all radio amateurs by the ARRL Board of Directors meeting on July 15 in Rocky Hill, Connecticut. In another important action, the Board commissioned a new RF Safety Committee to advise the Board and staff on safe operating practices for the development of policy and educational methods and materials. Members will be personally selected by ARRL President George Wilson, W4OYI. The ARRL staff was commended for developing and implementing strategies for responding to the 13-cm band challenges posed by the government reallocation plans. The Directors also noted the selection of ARRL Technical Relations Manager Paul Rinaldo, W4RI as a member of the United States delegation to International Telecommunications Union's Plenipotentiary Conference. The board also congratulated Paul for his excellent service as an international representative of Amateur Radio.

The Contest Advisory Committee has been told to study the possibility of expanding the scope of the 10 GHz contest to include all bands above 10 GHz, and report back to the Board at its 1995 Annual Meeting. The committee will also study the possibility of adding a club competition to all VHF/UHF contests and sprints. The committee will also consider establishing a Summer Sprint series.

**ARRL ADOPTS MODIFIED ROVER RULES** The ARRL Awards Committee voted unanimously to accept a recommendation to modify rover category rules for the January VHF Sweepstakes, June VHF QSO Party and September VHF QSO Party. The new rules are far too complex to present here, but will be published in an upcoming issue of QST Magazine.

I the May installment we covered some RF couplers which could be used with RF power sensors to make a power measuring system. The next piece of equipment an active experimenter will need is a signal generator.

When I was coming up through the ranks of radio in the 70's I think I had a couple of signal generators made by EICO or maybe Heathkit. My dream was to find a General Radio 1001A or maybe even a Measurements model 80!. Out of the question, at least with my budget, was a model 80-R which had the added band from 400 to 460 MHz. I guess it's sufficient to say that TIMES HAVE CHANGED! The surplus market has more types of signal generators available today than probably any other type of test equipment.

A few applications for a generator around the ham shack would include:

- Measuring your receiver sensitivity
- Providing a source to tune and test your HB amplifier
- Providing a temporary LO signal to test a VHF converter
- Providing a signal to calibrate your power meter or RF voltmeter

Since this column is aimed at a first time bargain hunter let's take a look at why a HP 608 signal generator (in decent condition) would be more desirable to have in the shack than an older Eico or Heath.

Some shopping points:

Frequency setability. Can the output frequency be set at 144 MHz on the dial? If it is moved, can it be set back?

Frequency stability. You will notice a lot of older signal generators seem to weigh a great deal (one reason not consider them at all). This metal work adds mechanical rigidity to the chassis. Most of these generators are designed around some sort of L-C tank circuit. If the chassis was able to flex with movement of dials or temperature the frequency would change a great deal.

Output Level. Does the unit have a calibrated attenuator labeled in dB referenced to 0 dBm or a knob to turn, labeled output? Some generators even have a 10 dB step attenuator.

RFI or "Leakage" level. Lets assume you install a 50 ohm load on the front panel of the signal generator. Can you hear the output in your receiver?

Modulation type. Not a major concern for VHF type work however if you plan a lot of receiver work or FM testing modulation will be of concern.

Since the primary use for a generator in VHF will be to provide a signal for transverter or amplifier testing some of the above will not be of great concern. You also have to keep in mind the aging factor of test equipment. I have used my 608 to find a variety of problems in receive even though the unit may not meet all original spec's. For instance I suspected a problem on 222 receive. A check of the IF with the attenuator on the 608 set at maximum proved good sensitivity. Then a check was made at 222 MHz going into the transverter and it also proved to be as good with the attenuator set at maximum. However after the cable was moved to the input to the wattmeter, (antenna connection) the receiver was not even able to hear below -80 dBm or so. The problem turned out to be a bad cable from my receiver preamp to the antenna relay. Next month we will look at some model numbers to look for along with associated frequency bands.

### **CHEESEBITS SUBSCRIPTIONS**

Cheesebits subscriptions are available to everyone interested in activities and information from the VHF through the microwave frequencies. Subscriptions are for 1 year of 12 issues. For a subscription, send the following information:

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August 94 Send to: SUBSCRIPTION/ADVERTISING MANAGER:

Bob Fischer, WB2YEH  
7258 Walnut Avenue  
Pennsauken, NJ 08110

Tuesday, July 5, 1994

To: Newsletter Editors & Net Control Stations

The Northern Lights Radio Society will be sending out a group for a portable operation for the Perseid Meteor Shower in August! The operation will be from EN15 in Sisseton, South Dakota! A chance to get a rare state and grid at the same time! The call will be WA2VOI and we will have 50 MHz - 432 MHz for meteor scatter and 50 MHz through 2304 MHz (maybe 902 & 3456 too) for tropo work. We will have power on all bands and long yagis.

We will be in EN15 from August 10 - 13 and will begin running skeds the evening of the 10th. We will run skeds continuously, with the exception of two daily "tropo only" windows where we will concentrate on working stations within the Upper Midwest. These windows will be from 7-9 am and 7-9 pm. In between skeds we will be looking for random meteor QSO's on 144.225 MHz and the calling frequencies on the other bands.

To sign up for a sked, please call Rich, N0HJZ, at (612) 934-7580 on Saturday, July 23rd (after 8 am please) or any day afterwards. We will also have HF gear and will monitor 3.818, 3.843 and 14.345 MHz for other skeds, updates, etc.

The crew will consist of Donn, WA2VOI, Rich, N0HJZ, Bruce, KE9QT, Ron, KA0RYT, and John, WA0NIT.

Besides the Meteor scatter and tropo work, we will be working stations off the satellites and we will send out a rover (with the call N0HJZ) on one evening to operate from EN05 and EN06.

Please pass the word around so all the interested operators in your area can find out about our trip. If you have any questions please feel free to contact me. We look forward to lots of long burns and fun QSO's!

73's



Rich Westerberg  
President, Northern Lights Radio Society  
17500 Cherry Drive  
Eden Prairie, MN 55346  
(612) 934-7580



20 TH EASTERN VHF / UHF CONFERENCE :  
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8/26/94 Friday - LODGING

1600 'til ..... HOSPITALITY ROOM

8/27/94 Saturday - REGISTRATION, FORMAL TALKS & BANDSESSIONS

0800 Registration begins adjacent to the Hospitality Room

0840 TALKS BEGIN, including PAUL WADE, N1BWT: PARABOLIC DISH DESIGN; JEFF KLEIN, WA2TEO: VHF CONTESTING STRATEGIES AND RESULTS; LARRY FILBY, K1LPS: LOW COST 10 GHZ WIDEBAND FM GEAR; PETER TRANEUS ANDERSON, KC1HR: DIGITAL RECEIVER DESIGN; DAVID UPTON, WB1CMG: PRACTICAL SOLID STATE AMPLIFIER DESIGN; EMIL POCOCK, W3EP: OF THE WORLD ABOVE 50 MHZ; MORE !

1600 PREAMP NOISE FIGURE MEASUREMENT COMPETITION

1830 BANQUET

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2100 DOOR PRIZE DRAWINGS: OPEN TO ALL

8/28/94 Sunday - SWAP MEET AND ANTENNA MEASURING STARTING AT 8 AM.

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FROM THE SOUTH/WEST OF HARTFORD, TRAVEL I-84 E TO EXIT 63, LEFT OFF RAMP.  
FROM BOSTON, TRAVEL I-84 W TO EXIT 64, RIGHT OFF RAMP, RIGHT @ 1ST LIGHT.

---

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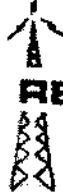
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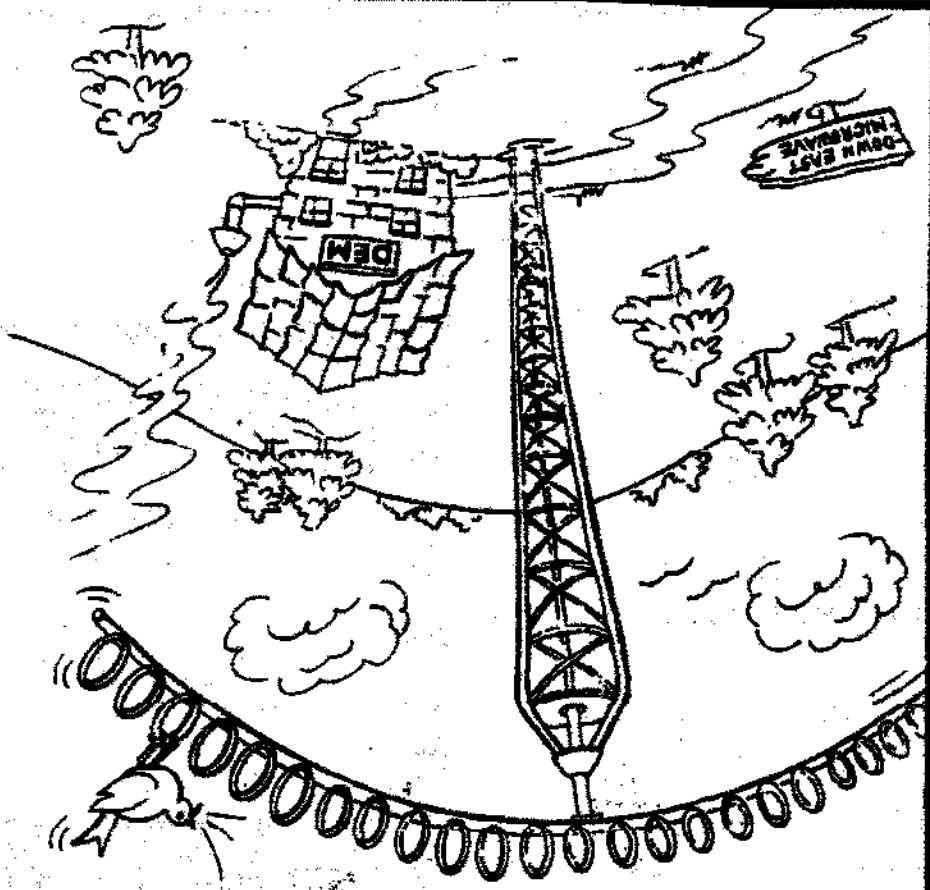
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