



# the RARARAG

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**ROCHESTER AMATEUR RADIO ASSOCIATION, INC.**

VOL. 38

OCTOBER 1985

NO. 2

## ARES/RACES TOPIC OF RaRa MEETING OCTOBER 4th at 40/8

The October meeting of RaRa will be Friday the 4th, 8 p.m. back at the 40/8 Club, 933 University Avenue.

The program this evening will be a discussion of the Amateur Radio Emergency Service (ARES) and the Radio Amateur Civil Emergency Service (RACES), what they are, how they differ, and how they are organized in the Rochester area. The presentation will be given by Ed Holdsworth, N2EH, and Ed Gable, K2MP. Also covered will be how we practice for real emergencies through our participation in various public service events and the Ginna drills.

Don't forget about our fantastic awards program run by Howie Davies, N2CUN, and if you haven't renewed your membership yet, Lloyd Caves, WB2EFU, will graciously accept all donations.

After the program, George Muller, WA2IEO, our resident chef *extraordinaire* will treat us to the finest refreshments in Rochester Amateur Radio circles. So plan to be there and bring a friend!

## LAST CHANCE CAMP-OUT

by Ed Kohl, WA2UBD

The last outing of the 1985 season for the RaRa Campers is October 11, 12, 13 at the Canandaigua KOA, 5374 Town Line Road, Canandaigua, NY, 14424. Phone 1-716-398-3582. To reach KOA take Hwy 332, 3 miles south from I-90 exit no. 44 and go East on Town Line Road.

Make your reservations by October 5 under the RaRa name to insure that we will be in a group. Check in time is after 12 noon, Friday, October 11. Electric and water for people \$13 per night. Tent site for 2 people is \$11 per night. Each additional person is \$1 per night.

Pot luck dinner on Saturday at 5 o'clock. Bring a dish to pass and own meat. If you have any further questions, call me at 223-2872 after 5 p.m. or you may catch me on the air.

## PIONEER RADIO ASTRONOMER TO GIVE TALK OCTOBER 14

RaRa members are invited to a talk by Grote Reber, pioneer radio astronomer, Monday, October 14 at 8 p.m. Reber is best known for his early research which picked up the lead of Karl Jansky. The original radio telescopes of both are on display at the Naval Observatory, Green Bank, West Virginia.

At a radio observatory near Hobart, Tasmania, Mr. Reber is currently doing research in the hectometer range. He will tell about observations at 100 meters and discuss his equipment and antennas. Reber may touch on the of the "big bang" and "steady-state" theories. He is inclined to support the latter.

Location: Meeting room, Sheraton Inn, Canandaigua. Informal session at 7:30 p.m. and talk at 8:00 p.m. Some may wish to join the group for dinner in the Sheraton dining room at 6 p.m. Sponsored by the Antique Wireless Association; all interested are welcome.

## RaRa DIRECTORY TO BE MAILED IN NOVEMBER

The final updates are being made and the 1985-86 edition of the RaRa Directory should be going to press later this month, so hurry and get your renewal in now!

The Directory will be mailed to all 1986 members of record at the time of the mailing. Anyone renewing after that date will have to arrange for pickup of the directory from the membership chairman. So hurry -- Renew now!

### IN MEMORIAM

Nancy Davies

Beloved wife of Howie Davies, N2CUN, RaRa Board of Directors member and RARRA Past President, passed away after an extended illness September 8th.

# the **RaRa RAG**

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**ROCHESTER AMATEUR RADIO ASSOCIATION, INC.**

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## AS I SEE IT

By Ron Jakubowski, K2RJ,  
President RaRa and Editor, RaRa RAG

Last month, I, along with another long-time club member, visited the widow of a local Silent Key to help her determine the worth of the remaining items in the shack. Like many of us, this Ham was a collector and prided himself on having a part for *anything* (built before 1960!). The widow thought she had a vertibile gold mine, unfortunately she was disappointed.

This scene repeats itself year-in and year-out and lays heavily upon us who are called upon to help liquidate estates. It seems cruel for a widow to have to rent a dumpster to dispose of many of her husband's *treasures*.

I would suggest that all hams, but especially those over 50, take a good look at all that junk they are storing in the basement, attic or garage and get rid of anything that hasn't been used in the last 5 years. If you think something is too valuable to throw out, get the opinion of another, preferably younger, Amateur. He may help you get a new perspective on things. This would also be a good time to make a log of all your station equipment and what it is worth. I would suggest that the figures be reviewed by another Ham for realism.

If you just don't have the time or the stomach for doing the above, at least think about taking out an extra \$1000 life insurance policy for the specific purpose of disposing of your junk. It's only fair!

## FLASH! HAMS IN SPACE AGAIN — NEXT MONTH!

In October, the Federal Republic of Germany will have the first scientific manned space mission. German science astronauts Dr. Ernst Messerschmid, DG2KM, and Dr. Reinhard Furrer, DD6CF, will carry out experiments on board the Spacelab, carried into orbit by NASA's Space Shuttle *Columbia*. They'll also operate an Amateur Radio station aboard *Columbia* - **DP0SL**.

During this Spacelab mission, scheduled to last seven days, startup of Amateur Radio activity is planned for mission day 3, continuing until about 12 hours before touchdown - this means a stretch of as many as five days during which DG2KM and DD6GF may activate DP0SL during their free time. As a rough estimation, six shuttle passes, each offering a maximum of 12 minutes of possible contact time, may be expected per day.

(Continued on page 6)

## RDXA AND RaRa HOST K2JD OPEN HOUSE AND CQ DX CONTEST

by Fred Gern, KB2SE

During the past year DX activity on the low bands has been at a very low level and has been unpredictable to boot. If you like to work DX this can lead serious levels of frustration and trend toward using your equipment as a high priced dust collector; why sometimes one even forgets to turn on the rig and amplifier to burn all the moisture and bugs out of them and the antenna traps. Well, don't despair. There is a solution, one many of you publicly profess to hate, one many say doesn't interest them, one most of you have never really tried. Well here's your chance to see what it is really like.

RDXA and RaRa are planning a special event that will occur the weekend of October 25th. That Friday evening at 8:00 p.m. local time the granddaddy of DX Contests begins and RDXA is planning to operate the K2JD station as a multi-operator single transmitter station in it—the CQ World Wide DX Phone Contest.

The Multi-operator will be YOU, and licensed ham, including the novice, who would like to work some DX. RDXA will provide the experienced contest operators to show you the ropes and hopefully sharpen your interest in working DX.

A DX contest is a whole lot of DX in a short time; it's having your cake and eating it too; it's nice weather and having the day off. Most of you have never been in a DX contest but a great many of you have been in a VHF contest. There is a difference in DX contest: some stations will have a pile-up on them for the full forty-eight hours and other rare stations will call unanswered CQs. Everyone can find a new country or new zone in a big DX contest, and the biggest DX contest of them all is coming October 26-27th.

RDXA and RaRa have joined in a different venture which we think will interest all hams who like or hope to work DX. The RaRa Club station, K2JD, will be operated by the RDXA in the CQ World Wide DX contest as a multi operator single transmitter station. The BIG DEAL part of this is that the Club Station will be open to visitors from 9 a.m. to 6 p.m. Saturday and Sunday and the multi operator can be YOU, anyone will a ham license (including novices). We will be trying to obtain a good score in the contest both for RDXA and RaRa, but we will also explain the operation as we go and let those interested operate the station for awhile and help with the logging.

Questions will be fielded by RDXA members

## RAG OCTOBER CALENDAR

- 4 - RaRa meeting, 8 p.m.,  
40/8 Club, 933 University Avenue
- 5 - Syracuse Hamfest,  
NY State Fairgrounds, Syracuse, NY
- 9 - RaRa Board of Directors meeting,  
7:30 p.m., K2JD Club Station
- 11 - October RAG deadline to KB2BU
- 11 - Rochester VHF Group meeting, 8 p.m.,  
Monroe County Social Services Bldg.,  
111 Westfall Road
- 15 - Rochester DX Association meeting,  
8:15 p.m., Colonial Restaurant,  
1129 Empire Boulevard
- 18 - RRRRA meeting, 8 p.m.,  
Pittsford Town Hall
- 19 - VEC License Exams, 9 a.m.,  
111 Westfall Road
- 25-27 - CQ Worldwide DX Contest operation  
from K2JD with RDXA (see article)
- 26,27 - K2JD Open House, 9 a.m. to 6 p.m.

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**FOR SALE:** 2 meter equipment – Tempo S1-T with many accessories \$150 – Two Heath 10 watt amps \$25 each – Henry Radio 30 watt amp \$45 – All are in excellent condition. Call Jim, KA2FFE 266-6494.

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**FOR SALE –** THS Electronics PA1-10 2-Mtr Amp 1-3 watts input, 10-25 watts output - \$40. W2DBU, 637-6926.

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**FOR SALE:** \$1200 TAKES ALL – Wilson SY-40 Tribander, Ham IV Rotator, 90 ft. Rohn 25G tower, 11 element 2-meter beam, Ringo Ranger. All mounted in array. Include is all hardware, insulators, and extra roll of guy cable (500'). Call Kirby, N2BUB, at 621-2842.

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and techniques will be discussed. We will explain how to hold a frequency (big amplifier), how to hunt and pounce, logging will be explained (have a quick ear), accurate duping of contacts will be a prime subject, QSLing hints, and finally we will cover procedures and plain old courtesy.

You are all welcome to come to the October RDXA meeting on the 15th at 8:15 at the Colonial Restaurant, 1129 Empire Boulevard, when final battle plans will be made, and we hope to see many of you, your friends and any prospective hams you may know on the 26th and 27th, at K2JD.

# THE RaRa RAG 20 YEARS AGO, OCTOBER 1965

by Ed Gable, K2MP

Vice-President and Program Chairman Jack Morse, K2KFN, announced the October meeting would feature Dr. Raymond Santirocco, WB2HBV, speaking on *Very Low Frequency Propagation*. Dr. Santirocco, of GD&E, has traveled the world studying geomagnetic effects and promises a very entertaining evening.

Code and Theory classes at East Ridge High School under the guidance of Pat Hennessy, WB2FGV, and Ray Springett, WA2AIL. RaRa encouraged members to join the November ARRL SS Contest with a challenge of 50 QSO's for QRP stations and 100 QSO's for those running more than 50 watts. RaRa took sixth place in 1964 and hopes to do better. Pictured is Clarence Dengler, W2LK, in front of the Rochester Police Department's 1930 Western Electric transmitter. Operating on 1612 Kcs, WPDR operated until 1948. The transmitter was donated to AWA. Eddie Dunn, WA2KMI, said the award of the evening would be the popular Heath Twoer. Vic Lotempio, welcomed all to the new Amateur Department at Rochester Radio.

The Rochester VHF group heard a talk by Gil Boelke, W2EUP, and Fran Stengel, K2GUG, both of Buffalo, who spoke on the VHF FM repeater system used in the Buffalo area. Dick Bourne, WA2HUV, writing for the RDXA, reported W9WNV caused quite a stir as the first BY (China) operation in many years.

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**FOR SALE:** Azden PCS-300 handheld – 2 meter – speaker/mike and extra battery pack – \$150. Call 346-5165.

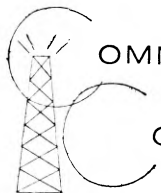
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**FOR SALE:** O4AT by ICOM modified 450 portable, 8 weeks new – \$325. Heath receiver SB301 with speaker, manuals, and all filters. Call Len Gessin, WA2ZNC, 248-2511.

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## HOME BREW CONTEST

The program committee has decided that a "Home Brew Contest" should be held at the February meeting of RaRa. The contest will be open to all RaRa members, and awards will be given to the winners in each class.

There will be 3 different classes for the projects. They will be:

1. Receivers and Transmitters – This will include preamps and other accessories for these units.

2. Test Equipment for the Shack. This will include test equipment for receivers and transmitters and also for any other equipment used in testing of antennas etc.

3. Computer or communications adapters for the station. This will include AMTOR, PACKET, and RTTY/CW.

The awards will be based on how well the project works and the quality of the construction on the project. The participants in the contest will be given the time to talk about their project and show the results of how well the project works.

If you are interested in being a participant in this contest please contact one of the program committee so that we can make the plans for this interesting meeting. Remember this is the time to show off that favorite project and perhaps receive an award for your efforts.

For further information contact Dick, K2VCZ, or Keith, N2BEL, who are on the program committee or else one of the directors.

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**FOR SALE:** Collins, Hammarlund, Hallcrafters and more at K2BBK Moving Sale. Sunday, October 6 from 2-4 only. 15 Colonial Road – off North Winton.

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**ESTATE YARD SALE – Oct. 12th and 13th**

A collection of electronic parts, old and new test instruments and Hi-Fi and video equipment, records and photographic equipment will be on sale in the yard of Mrs. Jerald Fink, widow of W2TTQ, on October 12th and 13th from 10 a.m. to 6 p.m. at 60 Seminole Way in Brighton. All area Amateurs are encouraged to help her dispose of these treasures. Help from club members would be appreciated.

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**FOR SALE:** Hy-Gain 37 ft. crankup tower with base. New in shipping crate. Call KB2C 342-3151.

## N2JC/R FUZZ-BUZZ ACCESS CODES

Access Code	Voice Response	Activity Dialed
911	911 Operator	Emergency Dispatch
912	IPD	Irondequoit Police
913	GRPD	Greece Police
914	GAPD	Gates Police
915	BRPD	Brighton Police
916	STPL	State Police
917	ONTS	Ontario County Sheriff
918	WAYS	Wayne County Sheriff
919	WBPD	Webster Police
910	Weather	Local Weather Forecast

1) When the OEC complaint operator answers your call slowly state, "This is an amateur radio call for assistance, my call sign is --- ---, do you read me ok, go ahead."

2) Proceed with the nature of your emergency. Try to provide as much of the following information as possible.

- Location of the emergency
- Town or municipality
- What is needed, Police, Fire, or Emergency Medical
- Any other pertinent information which may assist the responding Public Safety Agencies, ie: Multiple injuries, suspect description, weapons involved, direction of travel, etc.....

3) Remember you are talking to a complaint operator, not the dispatcher. It is this employees job to gather all information quickly and accurately so your request for service may be sent to the dispatcher for assignment. These people are the most important link in the service we provide. Should they ask you questions when you call it is only for the purpose of getting all the assistance you need to you as soon as possible, allowing for no error in location or nature of emergency.

## WHAT IS MARS?

The Military Affiliate Radio System (MARS) is an organization of Federal Communications Commission (FCC) licensed amateur radio operators working with military stations, who are interested in military communications and electronics. MARS creates interest and furnishes a means of training members in military communications procedures. It provides a potential reserve of trained radio operators to provide auxiliary communications for military civil and/or disaster officials during periods of emergency and provides DOD sponsored emergency communications on a local, national and international basis as an

## JOIN THE GROUP —

## THE ROCHESTER VHF GROUP

by Todd Ellis, KS2Z, Chairman

Do you have a two-meter rig that you sometimes unbury to announce your self on the local repeater? Better yet, is it an all-mode radio used only for FM? Well, if you thought that was great fun, read on. For the benefit of newcomers there is a club in town which promotes VHF/UHF activity here in the area — the Rochester VHF group. Boasting 130 members from Ontario, Canada to the state of Florida, the RVHFG is the oldest club of its type in the country.

Why use VHF? Since the solar calendar forecasts lousy HF propagation for the next five or so years, there must be something else available in our spectrum to use. Another good reason to go higher in frequency is that the antennas used are usually smaller than a television antenna, making them easier to homebrew and experiment with.

Have you ever seen an aurora? Imagine LISTENING to one! Want to listen to the space shuttle on simplex? How about chatting with a Yugoslavian ham on the satellite! Would you possibly be interested to hear conversation bounced off the moon — or bounced off a meteor shower? How is all this accomplished? Don't know? Find out. After all, these questions are all on the FCC tests.

All of the topics mentioned above are going to be covered at our monthly meetings. The meetings are held at the Department of Social Services building at 111 Westfall Road. Come on down for curiosity's sake — I will.

Our club does call for dues — a paltry \$3.00 which goes entirely to the publication and postage of our monthly ten page newsletter. Ask anyone who subscribes — don't miss out! If you're a VHF'er, you owe it to yourself to become a member of the RVHFG! Our meetings are always on the second Friday of the month. Hope to see YOU there!

adjunct to normal communications. MARS provides a volunteer manned system for handling MARS administrative traffic, morale and quasi-official record and voice communications traffic for U.S. Armed Forces and authorized U.S. Government civilian personnel stationed throughout the world. Finally, it offers training designed to stimulate interest in military communications and electronics career fields.

See K2RJ for more information.

## HAM-IN-SPACE (Continued from page 2)

DPØSL's ham-in-space activity will be focused on Europe – but astronaut-amateurs Messerschmid and Furrer intend to attempt contacts with other parts of the world, as far as mission parameters and spacecraft flights attitude (among other factors) may permit.

During DPØSL's operating stint in the sky, calls of responding ground stations will be recorded on tape for post-mission evaluation – to be confirmed by the Deutscher Amateur Radio Club (DARC) with special QSL cards.

When DD6CF and DG2KM are unable to undertake voice communication via DPØSL, their rig may be operated as a recording beacon: an automatic CQ would be transmitted, followed by a one-minute listening period during which responses would be recorded on tape, with this cycle automatically repeated. Callsigns identified on this tape will also be confirmed by DARC. The DPØSL transceiver may also be operated as a normal beacon: continuous transmission with callsign inserted, but without receiving periods. This mode may be used for VHF propagation measurements.

The DPØSL transceiver is a special development, designed and constructed by BOSCH/Germany according to the D1 Mission specifications, using components from BOSCH's mobile transceiver program. It contains a built-in micro-cassette recorder. RF power output of the rig is 10 watts; this is reduced to one watt for automatic (beacon) operation. Frequency coverage is 144 to 146 MHz, using F3E (FM voice) and F2A (FM Morse) emissions.

DPØSL is equipped to receive in the band 430 to 440 MHz. Receiver sensitivity for a 12dB S+N/N ratio is 0.45 microvolts.

Selection of operating frequencies is made from ROM, programmed for 4 VHF transmitting frequencies and 6 UHF receiving frequencies on 25 kHz channel spacing.

### And the Frequencies Are . . .

Channel	Downlink	Uplink
0	145.450 MHz	437.125 MHz
1	145.475 MHz	437.175 MHz
2	145.550 MHz	437.225 MHz
3	145.575 MHz	437.275 MHz
4	—	437.325 MHz
5	—	437.375 MHz

Ground stations transmit on the uplink since DPØSL listens there; ground stations listen on

the downlink, since DPØSL transmits there. Uplink and downlink channels may be "mixed and matched" – for example, downlink Ch 2 (145.550 MHz) might be paired with uplink Ch 1 (437.175 MHz), the resultant pair being termed "2/1".

It's recommended that circularly polarized antennas, adjustable in azimuth and elevation, be used. Maximum tracking velocity to follow *Columbia's* orbit: approximately 1.5 degrees per second. At least for receiving, manual steering of the antennas is sufficient, since only low-gain antennas (3dB gain) are required to receive signals from DPØSL.

An effective radiated power (EIRP) of 20dBW is recommended for contacts with Spacelab. This means, for instance, that a 70-cm transmitter with a power output of 10 watts, combined with an antenna providing 10dB gain, would be good choice.

### How DPØSL May Operate

Astronauts Messerschmid and Furrer may use any of the following operating modes:

- 1) Ham rig "OFF"
- 2) Beacon operation with inserted callsign, no receive
- 3) Beacon operation with automatic recording of incoming calls. In this mode, the transceiver transmits a CQ in Morse (F2A): "CQ" DE DPØSL RECORD ON TAPE K", followed by one minute of receiving time with automatic recording of calls. Responses to DPØSL during such operation must be made using F3E (FM voice)
- 4) Two-way voice QSO operation using F3E

The normal channel pair will be 3/3 (145.575 MHz downlink, 437.275 MHz uplink). In the event of heavy pileups, the astronauts will change their receiving frequency without notice. In such cases, terrestrial stations will have to choose one of six uplink frequencies with equal likelihood of being heard – reducing the pileup density for the astronauts by a factor of six.

### More Information on DPØSL

At this writing, German stations DFØVR, DFØLRK, DKØUB and DKØEK will issue daily information on the mission using 2 and 80 meters, but no real-time information service is in place outside Europe. A 20-meter service is a possibility. Closer to home for most ARRL members, W1AW and *The ARRL Letter* will provide further details as they become available.

(tnx DARC) Tnx ARRL LETTER

## ROCHESTER VHF GROUP NEWS

Frank, K2OS writes telling us of his 144 MHZ Worked All States #74! He has also worked 115 grids on 6 meters since May of this year! Yes, it can be done. I myself have worked 108 grids on 6 meters since the day of the June contest! Frank says he worked 220 MHZ during the UHF contest and worked 40 stations in 26 grids, 2 new states represented. He has some equipment for sale: Two Jr. Boomers (214b), One KLM 2M-13LB, Yeasu FT301D, Heath SB303, and SB-104A. Catch him on-the-air or write via callbook.

Kudos to VHF Group Members WB2KIW and K2LZF who placed second and third respectively in the June VHF QSO Party with scores of 31.8K and 22.5K. In the multi-op category, the 9 member, problem-plagued group at N2WK captured the NUMBER ONE position in WNY with a score of almost 60.9K. The two member WB2ELB contest group snatched the NUMBER TWO spot with 50.9K points! Of particular mention is the multi-op group of WA2YTM. Their score of 1218 doesn't sound impressive???? It does when you consider that they worked 28 stations in 21 grids using only 220, 432, 1296, and 2304 MHz!!!

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## COP'S CORNER

by Howard Davies, N2CUN, RPD

### Give Credit Where Credit Is Due!

My hat goes off to those members who get involved. I can speak from first hand experience. I was the President of the Rochester Radio Repeater Association, 1984-1985. I've served on the Board of Directors in 1984-1985, Rochester Amateur Radio Association and re-elected for 1985-1986. Maybe I'm patting myself on the back, but I write this article to commend the work of other members who do a lot of hard work.

Many social members don't realize the extra work and effort that club officers do.

When you receive your club newspaper each month, do you realize the work involved in arrangement, printing, stuffing the envelopes and finally the mailing.

Each month a program has to be presented and the officer designate must be sure that the job is done.

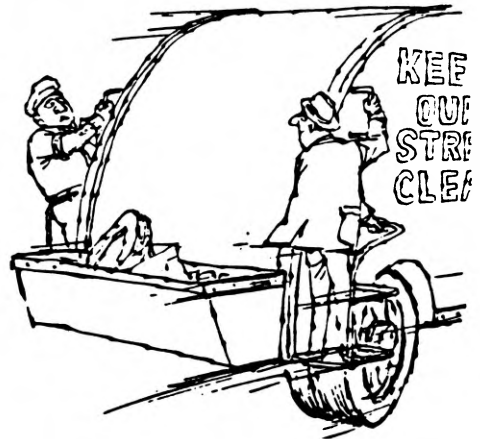
Every meeting one of the members provides coffee and donuts for the club, a real sweet job!!

Another member handles over 800 applications and each membership must be recorded.

Other officers handle such functions as social

## RaRa HISTORIAN GABLE HIRED BY DEPARTMENT OF SOLID WASTE DISPOSAL

Sep 28:- Greece, N.Y. Edward M. Gable, RaRa Historian and an antique collector of national reknown has accepted employment with the local municipal government. In an interview with the press, Gable said that in addition to the monetary compensation he feels certain that he will collect many other benefits.



Of course there are some days when none of those old radios turn up, Mr. Gable!

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events, awards at each meeting, record club meeting and handle all of the money that changes hands (a very big job).

Finally, we have the hardest job "The Kahoona", Mr. President who's job it is to over see all of the jobs assigned to each club officer. He must be a Administrator, Boss, Public Relations Expert and a Magician.

So when the elections come around and you want to get involved, make your self known.

Again, I would like to extend my heart felt, "Thank You" to those who care about your club and do something about it.

P.S. To all of the members of the Rochester Radio Repeater Association (RRRA 146.28/88). I want to say thanks for the biggest and best year of RRRA. As the President of your club, I really learned a lot, had a lot of fun. Finally I say a Big Thanks to, Joe Phillips, W2DHF, Treasurer; Ron Nelson, KA2GLG, Secretary and my V. President, Art DeBrucker, W2YGW, who is now the new President of RRRA 1985/1986. Good Luck - Art.

73's - 49 paydays to go.

# NASA INVITES EXPERIMENTATION WITH GEOSTATIONARY SATELLITE

by Steve Dutka, Senior Systems Engineer  
Public Service Satellite Consortium

*Experimenters will be given two year's free satellite transponder access beginning in 1989. Combined commercial-amateur radio operation may extend coverage beyond spot-beam areas, expanding experimental participation.*

Experimenters are sought to test the capability of on-board technology carried into geostationary orbit, 22,500 miles above the earth, by a super-high frequency (SHF) satellite.

The National Aeronautics and Space Administration (NASA) will provide space segment (transponder time) on the satellite for experiments during the first two years of its life, beginning in 1989. The Advanced Communications Technology Satellite (ACTS) program, sponsored by NASA, invites interested parties to propose experiments on the ACTS "bird". The Public Service Satellite Consortium (PSSC) has been retained by NASA to seek experimenters in the public sector and assist them in the preparation of experiment proposals.

ACTS will be placed in geosynchronous orbit, eliminating the need for automatic tracking, except on larger antennas. Earth station antennas are expected to range in size from 2.5 to 4.5 meters in diameter, but the required size depends on transmission parameters and/or the particular application. Uplink frequencies (earth-to-satellite) will lie between 27.5 and 30.0 GHz; the payload will translate them to the 17.7 to 20.2 range and re-transmit them to earth (downlink). Spot beams will be used to illuminate population centers, generally, since only limited transmitter powers are available in the satellite. Broad coverage of the United States is not planned.

All of the communications parameters have yet to be fully defined, however, since they depend to some extent on the locations of the experimenters and their needs. Much of the ACTS technology is designed around the switched-satellite time-division multiple-access (SS-TDMA) concept, that is, a kind of packet-switching with the switch located in the satellite. Specific digitally modulated signals would be required, but a portion of the payload is a simple repeater (transponder), which can provide point-to-point links using FM or other analog modulation.

Two concept applications are presented to whet one's appetite for the potential of ACTS. First, amateurs can propose to build their own earth stations and test them directly on ACTS. Of course, these amateurs must be located in a spot

beam. More than ample bandwidth is available for voice, data, slow-scan TV, etc. Second, amateurs who are located outside of a spot beam may access the ACTS via amateur-band repeaters to reach an ACTS earth station. This is called the shared-access concept, since the earth station may be owned by a commercial experimenter who is willing to share some of the capacity.

NASA has invited interested parties to submit an "expression of intent" to conduct an experiment and a preliminary description of the proposed experiment. Some of the experiment categories include earth station evaluation; transmission impairments; rain attenuation compensation; acquisition, tracking and synchronization; propagation; and applications, like the two described above.

Interested amateurs may contact NASA and request the formal "notice of intent", November 1984 edition, along with an introductory brochure from Ron Schertler, ACTS project experiments manager.

Amateurs who wish to submit an "expression of intent" should be sure to include a cover letter and a brief description of their proposed experiment. They must provide NASA with the name of the principal contact, mailing address and phone number, method of funding the experiment (satellite time is free during the two-year period), earth station location(s), and the measurements expected to be documented. Formal proposals must be sent to Daniel Brandel, ACTS program manager.

NASA will respond to each experimenter. After reviewing the experiments, NASA will notify all of the accepted experimenters. Inquiries may be directed to the author at the Public Service Satellite Consortium.

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