



# the RARARA RAG

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**ROCHESTER AMATEUR RADIO ASSOCIATION, INC.**

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NO. 4

## Roll Your Own

### PC Computer Builders' Closely-Guarded Tips and Tricks

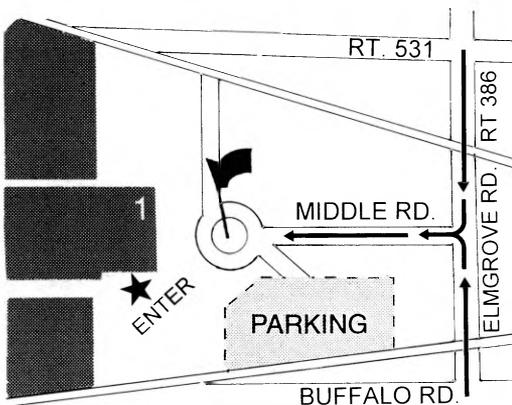
Keith Freeberg, N2BEL

Speaker for the joint RaRa/Kodak meeting will be Mr. Mike Pryor, a noted computer and software developer for Eastman Kodak Company. Mike has been arranging his work experience to help him know which options; mother boards, video cards and processors really work well together, and which ones offer those 'Special Features' you wouldn't want to pay for if you knew they were there.

As I am writing this, Mike is off visiting the testing labs of a CPU manufacturer that shall remain nameless. Who knows what new and exciting technological leaps forward and lovely lemons he is seeing first hand? Do you suppose he might be able to hint at what we might expect to see in computers this spring?

I remember Mike giving me some "helpful hints" on more than one occasion and I'm certain that just one of the 'hints' he will share with you this December will be worth the trip.

See the map below for entrance location within the Elmgrove facility. Enter the parking area at the Flagpole entrance and proceed to parking area just South of the Main entrance. We will be entering through the South side of the main building. Escorts will guide folks to the meeting room. Talk-in will be handled via WA2EGL Club Station on frequencies of 444.75 and 146.88.



## Radio Coaches Program Wins Grant

Keith Freeberg, N2BEL

The Radio Coaches Program of Rochester Amateur Radio Association has received a grant totaling nearly \$1300.00 from QUAD A, a local philanthropic organization, to keep the program going for the balance of the 1999/2000 school year. QUAD A is very excited about the programs' mission and content.

A QUAD A request of the Radio Coaches came in the form of a question; "Is Radio Coaches willing to go into more than one school with this same type of program?" The short answer was a resounding "Of course we are".

However, a great need exists for additional volunteers to help enrich the program and make preparations to serve other segments of Rochester area youth. All hams, and those interested in sharing knowledge with young people, are needed to administer it, both behind the scenes and in the classroom. Many area employers are seeing this as positive community involvement, and are willing to arrange time for those active participants.

Additional volunteers, who would like to contribute to this program, should call Radio Coach Coordinator Peter Fournia at 716-377-0535. Or, better yet, go to the Volunteer sign up web page and send in your interests. You will be contacted. The address is:

[http://www.ggw.org/rara/R\\_Coach/help3.htm](http://www.ggw.org/rara/R_Coach/help3.htm).

## RaRa/Kodak Joint Meeting

December 3, 1999  
8:00 P.M.

Kodak Elmgrove Plant  
Elmgrove Road, Route 386

**"Learning to Roll Your Own"**  
by Mr. Mike Pryor

# the **RARA RAG**

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## The Prez Says

Bob Moore, N2USB

I hope you have been able to operate your HF rigs recently. The solar flux has been climbing and the bands have been open to Eastern and Western Europe in the mornings and to the Pacific on some evenings. It has been a week of great DX. I hope that some of you that acquired those HF Rigs at the November auction have had a chance to tune them up and take advantage of the band openings.

Speaking of the auction, if you were not able to attend you missed a good one, we had a great crowd there and some of our fellow Amateurs departed with some real nice equipment for some unbelievably low prices. I would like to thank the Amateurs that donated equipment to the Radio Coaches Program for both use in the classroom and for sale to fund the program. Your donations are greatly appreciated and will be enjoyed by the students in the program and future students in the Rochester School System.

This term's Radio Coaches Program is an unqualified success; the students love it. You should see the enthusiasm the students display when the coaches arrive in the classroom and see their eagerness to participate in the learning activities. That's right I said learning. Our coaches make learning fun and these kids love it. The Coaches have the following sessions on schedule: a trip to R.G.&E., a trip to Harris, a class session for the students to assemble the code practice oscillators, and a hands on class dealing with the history of Amateur Radio and student participation in an ATV and radio transmission. If any of these activities sound interesting to you come on out and join us. Become a Coach or if you have a useable receiver that needs a home, think about donating it to the kids.

See you at the next meeting. Your club will be better if you join us.

## RaRa Hotline

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This is the inauguration of a RaRa Rag column in which we'll be focusing on the amateur radio activities and interests of the YLs in our club. We're asking for input from all YLs on topics such as: How did you get interested in amateur radio? What parts of amateur radio do you participate in? What have been some of your memorable experiences as a

*"Feel free to bombard me with ideas for this column. Let's have a lot of communication among YLs here. It's your forum, ladies."*

ham? What areas would you like to see developed more for YLs? What topics would you like to see presented at RaRa meetings? What can we do to help you get more involved in the hobby?

Give me a call at (716) 582-2074 or send me an e-mail at [jstonehi@frontiernet.net](mailto:jstonehi@frontiernet.net). Feel free to bombard me with your ideas for this column. Let's have a lot of communication among the YLs here. It's your forum, ladies.

---

## RMSC Needs Hams –

### Rochester Museum & Science Ctr.

Keith Freeberg, N2BEL

Would you spend two hours to promote amateur radio in Rochester? Just two hours showing what you like about the hobby and perhaps helping a child understand what sparked your interest in our great hobby.

Every one of us is unique and may have just the story to bring that sense of accomplishment and joy of making your first contact to a new prospective ham. Several of us will be there together in a nice relaxing room filled with lots of radio stuff and other amateurs, just like you, talking to kids about the neat things you can do with radios. The two hours will fly by and it will be, all too quickly, time to pack up your things and head home.

How and where will all this happen? The Rochester Museum and Science Center has invited us back to be part of their Holiday Technology Show for grade and high school students. We'll have two big tables, chairs and anything else we need all set up for us. All we have to do is talk and do radio. What could be easier than having someone help you move your equipment in and out OR knowing what you will need is already there on site. When you get bored talking about ham radio, you could visit one of the twenty or more displays next to us.

You have a choice of one or more of the four days

December 1979: The venue for this meeting changed to the Genesee Hospital. There, Ted Wright, KA2EUU, presented an overview on the use of electronics in Biomedicine. Topics included Ultra Sound equipment, HF Sonar, Digital thermometers, pacemakers and defibrulators, to name a few. Getting armed for a VHF Contest huddle were the combined efforts of the *Rochester VHF Group* and The *Rochester Radio Repeater Association*. Meeting at RF Communications and headed by Tom Richmond, WB2IEY, the two groups planned on how the FM crowd could greatly add to the *RVHFG* contest score. Membership Chairman Bob Erskine, W2NVZ, warned readers that this was their last issue until dues were paid. Membership stood at 802. Writing his monthly President's column, Alan Komenski, AC2K, reported that the RaRa Board decided to use the W2XT memorial fund to purchase a new yagi for the K2JD station. Also announced was the naming of Dave Coleman, N2AOB, as RaRa's Corresponding Secretary. Rick Berg, WA2RLQ, entered into the RaRa RAG an interesting story of a new DX'er and how he learned Dxing skills. These stories would later become well known as sagas of the QRP'er. Atlantic Division hams again voted for Jesse Bieberman, W3KT, and Hugh Turnbull, W3ABC, as Director and Vice-Director in landslide wins. Bob Roberts, WA2QAU, continued his DX articles, this month on recent Dxpeditions. A new advertiser was Superior Design, with Dick Jenk, WB2EEU, offering placement services.

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## RMS Needs Hams-

(Monday – Thursday), between Christmas and New Years, to bring ham radio into the new millennium. You, as a member of one of the Rochester Area radio clubs can promote your hobby and set a young mind to dreaming great dreams. You hold the key.

Call now to reserve your own two-hour window of opportunity. Call soon, only a limited number of slots are available. Call or email Keith Freeberg, in Rochester, at 716-458-8246 or [kff@frontiernet.net](mailto:kff@frontiernet.net) other technology displays next to us..net.

**RaRa Amateur Radio  
License Testing**  
**Saturday December 18, 1999**  
**Registration - 8:30AM**  
**Social Services Building**  
**111 Westfall Rd., Rochester**  
**Inquires (716) 334-4488**

# Amateur Television-Part 1

## Profiling a Point to Point Radio Link

Bill McDonnell KG2F

This is the beginning of a series of articles pertaining to Amateur Radio Fast Scan Television. The articles will cover operational and technical issues relating to Television operation. The intent of these articles is to introduce local Amateurs to Fast Scan Television, and hopefully generate a large amount of local interest in this exciting facet of our hobby.

Before getting started I would like to take this time to introduce myself. I have been a licensed ham operator since 1969, and hold an Amateur Extra class license. I am employed as a Senior Engineering Specialist for Harris Corporation, having been with the company for 21 years. As part of my job, I am involved with video engineering in security applications. I live in North Chili with my fiancé, Shauni, who by the way is studying for her ticket.

One of my main interests in our hobby is Amateur Fast Scan Television. To those not familiar with Fast Scan here is a brief introduction. I'm sure most Amateurs are familiar with Slow Scan Television found in use on our HF Frequency bands. A popular frequency where this operation can be observed is 14.230 MHz. Slow Scan TV, abbreviated SSTV, is a method of sending still frame imagery in a voice bandwidth. To conserve bandwidth, a requirement at HF, video transmission is limited to still imagery only. Think of it as viewing slides. Depending on the resolution desired transmission times can take anywhere from approximately 8 seconds to in excess of 72 seconds for one picture. In operation, the video transmissions are normally broken up with periods of audio transmission. Not like watching full motion TV with simultaneous audio transmission but that's the price we pay to use our HF bands for video transmission. How long do you think it will take to transmit juniors' piano recital to your friends?

Fast Scan Television enables the radio amateur to transmit full color, motion video with simultaneous audio transmission capability. The transmission format we use is similar to that used by the commercial broadcasters, albeit at reduced power levels. The video format we use, NTSC, is the same as commercial broadcasters. Picture information is transmitted at 30 frames per second, following the interlace format used by commercial broadcasters. Without going into the nuts and bolts; we'll save that perhaps for a later article; lets say we can transmit and receive full motion color video and audio and display it on a standard television receiver. You can use your color video camcorder as a video source or an inexpensive circuit board camera. Now it's time to dazzle your ham friends with junior's

piano show.

You will notice I made the statement in the last paragraph, "the transmission format we use is similar to that used by the commercial guys". I know what your thinking...here comes the catch. Our base band video signal is NTSC, the same as the broadcasters use. For the most part we follow the same basic specifications relating to signal timing and amplitudes. By following these same specs, we can make use of consumer grade VCR's, camcorders and yes the old reliable TV. English translation...big dollar savings!! Our commercial grade camcorder, VCR's etc., take some liberties with long term stability specs with regards to color sub carrier accuracy, rise and fall times of the synchronizing waveform, to name a few, but then again we aren't paying \$18,000 dollars for our camera either. Another area where we diverge from the pros' is how we generate our audio signal. In commercial TV broadcast a separate transmitter for the audio and a separate transmitter for the video is used. The two transmitters are combined in a contraption called a diplexer and from there feed a separate antenna. The commercial guys run QRO big time (translation-HIGH POWER). The estimated radiated power of a megawatt is not uncommon. Their transmit antennas are mounted on tall tower's usually on a high hill with a commanding view of the area. The normal viewing distance is normally centered on a 30-40 mile radius.

We, as Amateurs, have to fare without the benefit of a large broadcast organization behind us, plus we are not allowed to advertise and in-return garner a profit like the big guy does. The average Amateur Fast Scan station may be dealing with kilowatt level estimated radiated power (ERP) verses the megawatt levels employed by commercial broadcast. In this area it's not uncommon for local amateurs to cover a 15 to 20 mile radius with snow free images. How do we accomplish this amazing feat of one half (1/2) the distance of the commercial guys on an Amateur budget? The answer lies in the use of directional gain antenna's mounted high in the air with a system design goal of maintaining loss to a minimum. By re-enforcing our transmissions in a desired direction on a station-to-station level we can make up for some of our shortcomings in the power department! We also have a smaller electrical bill from RG&E!!

All fine and dandy, but I thought the article was going to deal with profiling a point-to-point radio link. What gives? Well, in order for more than two Amateur stations to converse at once we would have to make use of omni-directional antennas. I like the saying, "an omni-directional antenna radiates equally poor in all directions". Locally as more amateurs became interested in ATV, that's read three, we decided to build an ATV repeater so we all could communicate at the same time. It was this

*Continued on page 5*

# DX Happenings

Ed Gable K2MP

**RDXA #4 in USA !** The 1999 Field Day results are now official and the Rochester DX Association did themselves proud by capturing fourth (4<sup>th</sup>) place in the nation in the hotly contested 3A category.

This year, headed by FD Chairman Rajiv Dewan, N2RD, the group entered the fray with a plan to be in the top ten. Better antennas, better band plans and scheduling best operators at peak times were key points in the attack. RaRa offers congratulations to members of the RDXA Field Day Team.

DX'ing this month includes contesting as well, with CQ World Wide DX Phone, Sweepstakes Phone and CW, CQWW CW, ARRL 160 CW, and ARRL 10 meter contests, all landing before the Holidays.

The days preceding and following DX contests are good time to catch new counties for your log as contesters *warm up*. Some interesting catches were 9M6 in the Spratly Island group, all the *Tango three* islands and a gaggle of FO0 from Australs. Special mention goes to the 9U5D group who renewed many a valid Burundi QSO in the log on all bands including huge six meter signals.

It is now confirmed, Macquarie Island (top five needed world-wide) will be up 'til January of 2001 using VK0LD. Good luck to all with that one.

Locally it was learned Jeff Ach, W2FU, just got a variance in Webster for the towers of 90, 125 and 150 feet. Get ready to crank in the attenuator when pointing towards Webster.

The December RDXA meeting is 12/21/99, 7:30 p.m. at the usual 111 Westfall Road site. The program will be on home brewing an effective and

*Continued from page 4*

## Amateur Television

or wear out our antenna rotators in short order. This finally leads up to our first article.

After the repeater went on line the most common questions I began to field was "will I be able to see the repeater or what quality signal can I expect to receive?" The last person to ask this was Walt, NQ2O. Walt lives in Hilton, NY and is an ardent satellite operator. Over the next couple of issues of the rag, I will use Walt's station as an example. We will start off with becoming acquainted with the decibel, which we will make great use of in analyzing Walters' system. From there we will look at Walts' station, under the microscope so to say. We will critique Walts' receiver, transmitter and antenna performance. We will also critique our repeater system as well. We will become familiar in

*continued on page 7*

# Computer and Internet Resources for the VHF'er

Tim Stoffel, NS9E

The December meeting of the Rochester Vhf Group will feature a discussion of computer and Internet resources for the VHF operator. The meeting will be at the Monroe County Social Services Center, 111 Westfall Road, on Friday December 10th. Meeting time is 7:30 PM. Although the Internet is often blamed for the current decline of Amateur Radio, to the amateur in the know it's a great resource. Our computer and Internet experts will tell you about neat and useful resources out there to help you better enjoy VHF operating. Although the emphasis will be VHF, weak signal, microwave, etc., many of these resources are useful to any ham with Internet access.

We will also present a demonstration of VHF TEST, our own VHF contest logging software. New and improved, it is the best VHF contest logging software available. New features include simplified networking, faster band changes, CW and voice keyer interfaces, and the ability to use a call sign database. This software will also be available at the meeting.

**REMEMBER:** The January contest is just a bit over a month away. Be ready!! Next month: THE CONTEST!!

For membership information, contact Jeff Luce, KB2VGH at [vhf@vhfgroup.rochesterny.org](mailto:vhf@vhfgroup.rochesterny.org) (Note new address!), or visit the club's website at: <http://vhfgroup.rochesterny.org>, or by mail at: RochesterVHF Group, P.O. Box 92122, Rochester NY 14692.

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# RRRA

Tom English, N2YJY

The RRRA will have met for the third time this year by the time you read this. The next meeting will be the annual family night out at a local eatery. We have yet to determine the establishment so stay tuned to the local announcements for details.

For it's January meeting, the RRRA is proud to have Mr. Joe Doyle (no relation to the County Exec.), Director of Public Safety for Monroe County, give a presentation on the new Monroe County Fire Service radio system. This will take place at the Pittsford Town Hall on South Main St. in the Village of Pittsford, January 14, 2000. This should be a very interesting presentation and the club is looking forward to hearing from Mr. Doyle.

Also looking down the calendar, the March 2000 meeting of the RRRA will be it's annual auction at a site to be determined. Be certain to mark your calendars for March 17, 2000 for the RRRA auction.

The club is still working on a couple of projects that will continue into the next year. The western site has to have the bugs worked out but it has not been ignored. We are waiting for the dust to settle with the mergers of our local phone co.

The 442.7 repeater has been repaired and placed back at its site. According to those folks that used it last month, it was working great. So if you find that the other repeaters are busy and would like to move off to a different machine, use the 442.7(+) when you're on the east side. Remember to put the 110.9 pl tone on your transmit signal or the repeater won't recognize you.

That will do it for this month. Don't forget to come to the meeting in January to hear about the changes in the Monroe County Fire Service Radio system. Again we meet the third Friday of the month at the Pittsford Town Hall Basement meeting area. Hope to see you there.

## SILENT KEYS

ALFRED J. BOWERS  
N2JSZ  
October 30, 1999

JOHN F. HEVRON, SR.  
KJ2P  
October 15, 1999

ROBERT M. O'CONNELL  
NF2Z  
October 17, 1999

**NEXT RAG DEADLINE  
DECEMBER 10, 1999**

# Public Service—'99/2000

Ed Holdsworth, N2EH

## NEW YEARS EVE/Y2K

If you don't have specific plans for New Years Eve and would be available to work emergency communications "just in case" contact Ed Holdsworth at 624-1929.

## Ginna Drill



**ATV at EOC:** Steve Gulack discusses "scene" on big screen ATV monitor at EMERGENCY OPERATIONS CENTER during Ginna Drill, Nov. 17, '99. Image on monitor was transmitted to EOC Command by ATV, utilizing ATV repeater at K2JD.

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My first thought on a good way to start this article was to say, "whet your appetite----". But then I didn't want the wrath of all you diet lovers out there coming down on the few of us who like fooling around with digital radios.

A fairly new twist on digital transmissions is an item called PSK31, which sends data on the low bands (the ones with long antennas) and is hooked to the sound card of your computer, along with a radio, no TNC, and is said to work. THEY say the signals can sometimes just be heard, don't move the S meter much, and are only about 31 cycles wide.

The noise, or lack of it, is somehow converted to letters and numbers that pop up on the screen just like packet.

WOW!! If this description whets your appetite for more info, come to the RAPS meeting and hear Jon Dickason run through the basics of PSK31.

Give up your diet, meet us at 111 Westfall Rd., 7:30 PM on December 9th, and join our friendly little group at the meeting, demo and discussion on this subject and more.

## Fall License Class Report

Tim Magee, WB2KAO, License Class Director

Fall license classes are proceeding on schedule toward a December 13<sup>th</sup> testing date. QSO formats have begun in the Novice CW and Rick has provided demonstrations of equipment components, which helped to make the theory more interesting. General and Advanced classes are also going along well. At this time I would offer a reminder that the spring semester will commence in mid February, and I hope to offer an Extra class in the spring semester as well as the Novice/Tech and General.

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### Amateur Television

the use of topographical maps. We will use the maps to determine distance and elevation profiles between point A and point B, (you and the repeater). I'll try and keep the math to a minimum, but please remember I am an Engineer by trade! I hope you will find our first article interesting, and better yet maybe I'll spark your interest in trying a new mode of operation! See ya next month!!

*See example of ATV picture on page 6-Ed.*

**FOR SALE:** HF Transceiver, Icom 751A Full featured, 100 watt, SSB/CW/AM/FM, with Microphone and Power Supply  
Ed Gable, K2MP, 392-3088 or e-mail at: K2mp@eznet.net

SEASONS GREETINGS EVERYONE!!! It seems funny to be writing that already but here we are coming up on the Holidays. The Thanksgiving feast is over. The first few flakes of snow have already been in the air. Are you ready for this? Most of us aren't. Do you have a list of things you want for Christmas ready to hand to other members of the family? If not it is OK as long as you have that list from others and are working on filling their requests as best you can. Remember it is better to give than receive. If you are not ready in either regard then you are getting yourself behind the eight ball.

If you are an outdoors person then this season can be a lot of fun. Skiing (cross country or down hill), riding snowmobiles, skating, and just taking nice walks in the cold fresh air can be a lot of fun. Many people use this season to work on all their antennas. It is said that unless an antenna is put up in harsh weather it will not operate correctly. If you are one of these folks just make sure that you do it safely. Of course setting in front of your rig and operating DX on a cold evening is a great thing to do this time of year also. Whatever it is you choose to do this winter just enjoy it and most of all be sure you make it to all the radio club meetings and stay in touch with your friends.

What will the new millennium have in store for us? Everyone is worried about what is going to happen with the computers and the roll over to 2000. Don't sit and worry about all the bad things that could happen, as most of them probably will not. In fact don't worry about anything you don't have control over, as you can't change it anyway. You will only make yourself sick and that is not worth it. Instead think about all the good things that lay ahead of you. Make this New Years a happy, safe, and enjoyable one for yourself and your whole family.

Your Officers and Board of Directors would like to send their best wishes for the up coming Holiday season to each of you and your families. Their gift to you is the commitment to work hard to continue making RaRa the club you want it to be.

**HAPPY HOLIDAYS TO ALL!!**

**FOR SALE:** Bird Wattmeter, model 43 with 250H and 50C elements, Bird Leather carrying case and manual. This meter looks like it has never been used! Perfect in every way. \$195.00.

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