



the **RARARAG**

Published by

ROCHESTER AMATEUR RADIO ASSOCIATION, INC.

VOL. 42

JUNE 1990

NO. 10

RaRa PICNIC — JUNE 9th POWDER MILLS PARK

The annual RaRa Picnic will take place Saturday, June 9th at Wadhams Lodge in Powder Mills Park in Pittsford. The picnic will be from 1 - 5 p.m. There will be plenty of fun and food. The picnic is open to all members and their family or a guest. There is no charge. This is your chance to spend the day with your family and still work some great contacts face to face. This is one of the benefits of belonging to RaRa— take advantage of it and we'll see you there. If unsure of how to get there, and all else fails ask for directions on the 28/88 RRRR repeater. (See map on back page.)

SUMMER BULLETINS WILL CONTINUE ON SCHEDULE

The Amateur Radio bulletins provided by WA2MYG and K2KWK will continue its normal schedule during the summer months. These bulletins can be heard on Sunday nights at 8:30 p.m. on the normal net frequency of the Monroe County FM Net (either 146.79 or 146.88 and 442.8 and 224.58). The bulletins are repeated on Tuesday evenings at 8:00 p.m. on the 146.88 and other area repeaters throughout the Western and Central New York areas.

VE SUMMER TESTING SCHEDULE

The WB2IMT and NO2Z VE team summer schedule for license testing will continue throughout the summer season. The tests will take place on the last Thursday of each month at 565 Blossom Road between the hours of 5:30 - 7:00 p.m. Contact Paul, WB2IMT, at 385-1581 for further information.

**ROCHESTER HAMFEST
MAY 17, 18, 19, 1991**

SPRING CODE AND THEORY CLASSES END

by Ed Gable, K2MP

Another very successful code and theory session ended with 24 new Novices, 22 completing the Tech/General theory while 8 people concluded the Advanced group. We were delighted to have back again our previous Novice Instructor, Bob O'Neil, KA2NBK, only to have him drop out due to a serious illness. To save the day, our venerable Bob O'Connell, NF2Z, rearranged his busy schedule and came back to serve the group. Bud Young, WA2UGE, served double duty at both the Tech/General code and acting as the 2nd VE for the Novice tests. Joe Phillips, W2DHF, again turned raw civilians into CW addicts!!! Somehow it all worked! I'm glad to report that Bob O'Neil dropped in on the last night of class and he is recovering fully from his illness. Dave Schwittek, NW2T, offered Advanced Class instruction and did so on a Thursday evening at the request of many Tech/General students. This took an extra effort on Dave's part to run solo. The Tech/General group this session was especially "outspoken" and made K2MP's theory sessions "memorable". A graduation party, complete with traditional graduation pizza, was held for the classes on the last night. See ya in the Fall when we'll do it all over again.

Thanks to all of those
who helped make the
1990 Hamfest
a large success.

-N2EH

**HAVE A GOOD SUMMER
SEE YOU IN THE FALL**

the **RARA RAG**

Published by
ROCHESTER AMATEUR RADIO ASSOCIATION, INC.
P.O. Box 1388, Rochester, NY 14603-1388

Co-Editors **Neal Eckhardt, WB2EKP**
80 Authors Avenue, Henrietta, NY 14467 (716-359-2672)

..... **John J. ("Jack") Dempsey, KA2PJJ**
357 West Squire Drive, Apt #1, Rochester, NY 14623
(716-424-1637)

Contributing Editor **Dwight Hill, K2KWK**
265 Norcrest Drive, Rochester, NY 14617 (716-544-2332)

Advertising Manager **Dick Goslee, K2VCZ**
24 Elaine Drive, Rochester, NY 14623 (716-334-1762)

WHAT'S AN ELMER?

One day, I was talking to a gentleman on 2 meters and I happened to mention my elmer. Much to my surprise, he asked "What is an elmer?" Even though no one is quite sure how the term originated, it does go back quite a few years. I am lucky enough to have a super elmer. I am sad for those who do not because they have missed a very rich experience. Only an elmer can teach the finer points.

An elmer may be the one who first interests you in amateur radio or he may be somebody you ask for help after deciding to become a ham. The commitment is usually for a long time, because a special bond is formed.

What is an elmer? He is an amateur with a strong love and dedication for the hobby and is more than willing to share his wealth of experience and knowledge with someone else. In addition to his love of radio, he possesses many other qualities, including patience and understanding. I am sure there were many times I must have put my elmer's patience to a real test but he remained calm and composed. An elmer is understanding. He knows from personal experience there will be many difficult times and many difficult concepts to digest and learn. He also knows his efforts will be rewarded when he hears "I PASSED!"

An elmer is supportive and has insight into the individual problems his charge will encounter.

An elmer is a person who enjoys teaching. There is a vast amount of knowledge and skills to be taught and only when a person enjoys teaching, can he effectively mold a good amateur radio operator. If he enjoys teaching, then there is a good chance these feelings will be contagious. Teaching is the main tool that will keep the knowledge of amateur radio flowing to new generations of hams.

An elmer must have the time to devote to teaching and the person learning must make time to study. But more important, the time must be used to good advantage. An elmer is there when the student has problems or just wants to share the proud times. Once an elmer decides to take on the responsibility of teaching somebody, he realizes it will be a commitment for a long time.

What is an elmer? He is all the above and much more. With the studying over, the tests passed and the license in hand, an elmer can sit back with pride. At the same time he knows that his work is not finished because learning is a continuing process. A special bond has been formed and this new amateur is a tribute to quality teaching, support and patience of the elmer.

Tnx SJRA Harmonics

VOL. 42 JUNE 1990 NO. 10

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The RaRa RAG (USPA 605-440) is published monthly except July and August by the Rochester Amateur Radio Association, Inc., 24 Elaine Drive, Rochester, New York 14623. Subscription is \$4.00 per year (included in the \$9.00 annual membership dues). Second class postage paid in Rochester, NY.
POSTMASTER - Send address changes to The RaRa Rag, P.O. Box 1388, Rochester, New York 14603-1388.
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Amateur Radio News Service

A DIRTY STORY

Recently my old faithful SB-220 linear amplifier began to show signs of senility. No fireworks, just drooping power output capability. A quick peek through the ventilated case disclosed that one of the 3-500Z tubes was not lit. At about 140 bucks per tube, this was a cause of concern. What I learned in my investigation may be of interest to anyone who uses a high-powered tube-type amplifier.

Opening up the amplifier revealed no obvious faults. There was the expected collection of dust and dirt inside the cabinet. Pulling the tubes, I found that one of the 3-500Z's had a drooping blob of solder at the tip of one filament pin. An ohm-meter check showed that the filament was still continuous, but the pin "sleeve" connection was scratchy. Resoldering the sleeve to the pin brought the tube back to life.

Why did this happen? Forced air cooling is required for tubes of this sort. For the 3-500Z, the plate seal must be kept below 225 degrees C., and the filament seals below 200 degrees C. W6SAI, in his *RADIO HANDBOOK*, 21st Edition, suggests an axial flow 4½" diameter fan, blowing horizontally at the tubes, with the tube sockets spaced about 1/16" below the chassis to allow air circulation around the tube bases. (The Heathkit SB-220 design follows these suggestions.) If the air path around the sockets is blocked, the tube base temperatures can rise above the safe limit. Solder (50-50) melts at about 220 degrees C. Mine melted.

It was apparent that the accumulation of dust and dirt inside the amplifier case after 6 years elapsed time (estimated "on" time greater than 3000 hours) was enough to impair the free flow of cooling air. There was a lot of fuzz on the inside of the perforated shields and case walls. The air spaces around the tube sockets were *packed* with dirt. It looked like the inside of a vacuum cleaner bag!

The moral of this story: Don't overlook regular inspection, cleaning and fan lubrication. Keep it cool!

E. Miles Brown, W2PAU, via SJRA Harmonics

FOR SALE – Ten Tec Argosy 525 100/10 watt QRP adjustable HF 80-10 M transceiver including 500 Hz CW filter, mike, and matching power supply – asking \$550. ICOM IC2AT2M Handie Talkie with accessories – asking \$175. Kenwood TH41AT 440 Handie Talkie with accessories – asking \$150. Call Bernie Agins, KD2CU at 359-2947 between 6 - 8 p.m.

RaRa CALENDAR FOR JUNE

- 1 - RRRA Annual Meeting - 8:00 p.m.
Pittsford Town Hall
- 9 - RaRa Picnic
Powder Mills Park - 1:00 p.m. (See map)

SUMMER HAMFEST SCHEDULE

JUNE 3 –

Depew, NY – 2nd Annual Lancaster Amateur Radio Club

Rome, NY – Ham Family Day

Butler, PA – Breeze Shooters Hamfest

JULY 8 –

Alexander, NY – 10th Annual Batavia Hamfest

AUGUST 25 –

Ithaca, NY – Fingerlakes Hamfest – Tompkins County Amateur Radio Club (talkin 156.97)

SEPTEMBER 29 –

Elmira, NY – Elmira Hamfest

OCTOBER 13 –

Syracuse, NY – RAGS Hamfest – NYS Fairgrounds

DIGITAL RADIO NEWS

by Ed Rodrigues, KA6DRN

The product of 6 years of work at DEC's facilities in Cupertino resulted in a "radical new way to package semiconductor chips that allows twice the performance of conventional circuit boards, yet takes up just a fraction of the space" according to an article in the S. F. Chronicle.

While semiconductor chips have become smaller, more powerful, and faster, "the printed circuit boards that hold the chips pose problems in harnessing that power." Placing the chips closer together on the boards in an attempt to get more power per board results in problems with heat dissipation.

Utilizing an "ultra-small board" which is made of copper and a compound referred to as "polyimide", DEC claims "to have solved the problem by shortening the distance that electrical signals must travel". DEC's board measures only 5 inches on a side and contains "up to 72 chips".

DEC's group manager Joe Zeh indicated that the technology could be utilized "to make very powerful desktop computers". Several patents have been applied for.

Tnx The Readout

POWER AMPLIFIER NEUTRALIZATION

by Fred Holler, W2EKB

There is probably nothing as frustrating as trying to work a rare DX in a pile-up with a power amplifier that seems to have a mind of its own. Most of the time it seems to operate fairly well, but at certain frequencies, with certain loadings, or maybe with certain tuning conditions, the amplifier seems to go into oscillation. Needless to say, this does nothing favorable for the desired signal output and may destroy an expensive power tube in a short time. What is the problem? It just could be instability caused by improper neutralization.

Let's assume that you have a nice 1.5 kW tube type driven grid HF power amplifier, that may be of commercial manufacture, or could be home brew. In order to operate as a stable amplifier, the input must be isolated from the output (and vice-versa), except in regard to the electron stream from cathode to anode. We know that it is virtually impossible to build a vacuum tube that does not have some finite capacitance between the output element (plate) and the input element (grid). Any coupling from the output back into the input could easily result in instability and oscillation.

Therefore, knowing this, the circuit designer incorporates a small variable neutralizing capacitor which introduces a 180 degree out-of-phase voltage between the input and output of the stage, which removes the effect of the internal tube capacitance plus any strays. When properly adjusted, the neutralizing capacitor does its job; when improperly adjusted, it does not. The question is, what is the easiest and most reliable way to check for proper neutralization?

To begin with, power amplifier neutralization is no black art and does not require an engineering degree. A basic understanding of the procedure, however is helpful. Several methods of neutralizing a power amplifier are mentioned in the *ARRL HANDBOOK* and in various commercial amplifier instruction manuals, which include:

- (1) Adjust the neutralization capacitor so that the grid current does not vary as the plate circuit is tuned through resonance.
- (2) An indication of proper neutralization is when the maximum power output and the plate current resonance dip occur at the same tuning point.
- (3) Remove the grid drive, but terminate the input properly, and apply full plate and screen voltages. Adjust the neutralization so that no RF output is observed at any combination of tuning or loading.

Every one of these methods seems to me to be a "cut and try" procedure, although a properly neutralized power amplifier would exhibit the above noted characteristics. However, I have a very simple procedure that works well for me.

If the amplifier is operable at all, terminate the output with a dummy load. Then tune it up as well as you can at the highest frequency used. Next, remove both plate and screen voltages from the PA tube. Insert a means of measuring the RF power going into the dummy load, such as with a low-range wattmeter or with an RF voltmeter. Now, with full drive applied, adjust the neutralizing capacitor so that the power output dips into a rather deep null; this point represents best isolation between the input and the output. Disconnect the test equipment, restore the plate and screen voltages, and the amplifier is back in operation.

And that's it; nothing hard or complicated! Some of the Yaesu driven grid PA stages are very critical in regard to proper neutralization and the above procedure works every time.

Tnx SJRA Hamonics

HAM RADIO MAGAZINE SOLD

Ham Radio magazine and its associated Ham Radio Bookstore have been sold to CQ Communications Inc., publishers of *CQ* magazine. The announcement was made at the Dayton HamVention® by T. H. "Skip" Tenney, W1NLB, publisher of *Ham Radio*, and Dick Ross, K2MGA, publisher of *CQ* magazine.

The June issue of *Ham Radio* will be its last; existing subscriptions to *Ham Radio* will be fulfilled by *CQ*.

Moving to CQ Communications are J. Craig Clark, NX1G, now assistant publisher at *Ham Radio*, and Terry Northrup, KA1STC, its editor. Clark, according to a joint press release, will be involved in projects including "the development of the Bookstore operation". Northrup will be a book editor.

The effects of this buy-out could be far reaching. For instance, the editorial makeup of the three remaining major Amateur Radio magazines could change, as writers scramble for new outlets and the magazines themselves ponder what – if any – editorial gap has been left by the demise of *Ham Radio*.

And advertisers, with one less magazine to buy space in each month, will have new options in the apportioning of their advertising budgets.

Tnx ARRL Letter

ON EMERGENCY OPERATIONS

In past articles we have discussed the Jerks in amateur Radio who derive their kicks by annoying others. The guys who cheerfully tune up on your QSO, or your schedule, or your net operations. These guys are flawed and while we can hope for divine intervention, it is not likely to happen. Editorial ranting and raving certainly contribute little except to reduce the editor's blood-pressure.

There is yet another Jerk—the one who appears in nearly every human endeavor.... the wonderful guy who, suddenly becoming aware of existence of an emergency, simply has to come in with 10 kW (can anyone explain why this type of guy always has a signal 20 dB over s-9?) and offer his assistance. You hear them in every emergency communication situation. Breaking in to offer help.... this in spite of the fact that they have probably never originated a message.... have absolutely no sense of emergency conditions operations. Their heart is in the right place but their head is screwed on wrong. Emergency operations, if they are to be meaningful to authorities as well as the general public, must be handled by men and women who have trained for the work, have worked and drilled so that when emergency conditions arise, they can function rapidly and accurately. Without such training and drilling, no matter how much you would like to help, you cannot do anything except to disrupt emergency communications. If there is one valid rule for amateur operations in emergency conditions it is:

IF YOU ARE NOT PREPARED BY TRAINING AND EXPERIENCE

**KEEP YOUR RIG OFF THE AIR AND
KEEP YOUR MOUTH TIGHTLY SHUT!**

Net control stations operating in emergency circumstances can function only in the situation where they control all transmissions. They know how to do this, and spend many hours preparing themselves for the emergency. Give them a chance. And, remember, they probably have a good sense, and should they need help, they will ask for it! If you really want to help, contact your emergency coordinator, get involved with training procedures, and when trouble pops up again, as it surely will, you'll be in on the ground floor, doing a job for the public as only Amateur Radio can do it!

- Editor -

Tnx QCWA Journal

FOR SALE - 8087 Math Coprocessor for IBM/PC xt and clones. \$80 call Neal, WB2EKP, 359-2672.

THE RaRa RAG 20 YEARS AGO — JUNE 1970

by Ed Gable, K2MP

Not surprisingly, this issue had quite a bit of Hamfest news with headlines exclaiming great success and an attendance of 1700 at Vince's Fifty Acres. 700 people at the banquet heard newly elected ARRL Atlantic Division Director, Harry McConaghy, W3EPC, announce that the ever popular Gil Crossley, W3YA, had just been elected an Honorary ARRL Vice-President. The WNY Amateur of the Year was Cdr. Ed Redington, W4ZM, president, Foundation for Amateur Radio, Washington, DC. The CW receiving champion was Bud Hippisley, K2KIR, at 43 WPM with a pencil. Announced in a separate article was that Allied Radio and Radio Shack were to merge under Tandy Corporation. The RaRa picnic was planned for June 20th at Powder Mills Park. Joe Marsey, W2EMX, who obtained all of the amateur equipment manuals from Stellar Industries when they closed, opened a loan closet for area Hams needing to borrow Hallicrafters, Hammarlund, Collins and other such manuals. Adirondack Radio Supply, in Amsterdam, NY, remained a long time advertiser.

HAM FINED, JAILED FOR MAIL FRAUD

An Amateur Radio licensee has been sentenced to prison and fined \$125,000 after pleading guilty to mail fraud. Michael Harrison, WB2PTI, of Oceanside, New York, has been sentenced to 21 months in prison and ordered to pay, in addition to the fine, restitution to each victim, according to US Postal Inspector Martin T. Biegelman.

Harrison took out advertisements in several Amateur Radio magazines (*not* including *QST*) under the name Atlas Radio, Inc., and offered Uniden products for sale. The money for the orders was received but the merchandise was never shipped, according to the original fifty-count indictment.

Harrison agreed to return any equipment he received from victims, and to make full restitution within five years. The United States Probation Department, Long Island Courthouse, Uniondale, NY 11553 will supervise the restitution. The case number is CR89-00575.

Tnx ARRL Letter

FOR SALE—Mosley TA33 - Reconditioned - like new. KD2UR, 716-334-4488 or 716-334-1533.

PIRATE RADIO STATION SHUT DOWN!

U.S. Marshalls and FCC investigators again closed down a Seldon, NY unlicensed broadcast station which operated on 87.9 FM from a single family residence at 33 Roslyn Avenue. The equipment of "EQNR" was confiscated under Federal forfeiture provisions initiated by the U.S. Attorney for the Eastern District of New York, Andrew Maloney.

The clandestine broadcaster billed itself as "Long Island's Rock and Roll Capital" and played rock and roll music. In April, 1986, WQNR was shut down by the FCC and its operator paid a \$500 fine for unlicensed operating. The WQNR seizure was the third time in recent months that a pirate broadcaster has been shut down in the New York area. Its operator faces a \$100,000 fine and one year in prison.

Tnx W5YI Report

NEW CALL SIGN SYSTEM UNITED KINGDOM

Interesting ham call sign system being considered in the United Kingdom! The "G" by three-letter prefixes are running out in Great Britain and the DTI (Department of Trade and Industry, the UK's FCC) will begin using an "M" prefix followed by a letter indicating the operator's class. The number in the call will indicate the country. Thus if MA2AAA, a Class "A" licensed amateur moves to Scotland, he becomes MA3AAA. The proposed country numbers are: 2 England, 3 Scotland, 4 Wales, 5 Northern Ireland, 6 Isles of Man, 7 Jersey and 8 Guernsey. (1, 9 and 0 are not used.) While many ITU prefix lists don't show it, MAA through MZZ is assigned to Great Britain.

Tnx W5YI Report

PETITION SUPPORTS AM USERS

In the mid-1980's, the FCC changed its rules regarding transmitter power to 1500 watts PEP output. Noting that DSB AM would thereby be limited to half that power (in effect a reduction), FCC grandfathered then-existing power limitations for AM until June 2, 1990.

ARRL now has asked, in a petition for rule making dated April 2, that that grandfathering be made permanent. This is in keeping with the Leagues overall position that no FCC rules change should result in any loss of operating privileges already earned.

"Interest in AM operation" the petition states, "has not changed dramatically in recent years, and certainly has not declined. AM operators, who constitute a relatively small minority of amateurs, voluntarily limit their operations to spot frequencies or to narrow segments of the radio-telephone subbands; this reduces the potential for interference to users of other modes in the crowded high frequency bands".

The League points out that the FCC's original assumption in a short-term grandfathering - that AM activity would decline - has not come about. "There is still in the Amateur Radio Service a small but significant number of amateurs who enjoy the use and development of AM DSB operation", the petition points out. "The League firmly believes that the privileges earned by these amateurs should not be reduced, absent a compelling justification for the reduction of the privileges".

The League has requested an extension of the cutoff date while the matter is considered.

Tnx ARRL Letter



Patrick C. Moyer, N2AIW Attorney & Counselor-at-Law

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1990'S ... WHAT'S IN STORE

FIBER OPTICS, ELECTRONIC MAIL

What will the 1990's bring ... and the twenty-first century? If I were to pick one emerging technology it would be fiber optics. It seems certain to revolutionize our everyday lives. Fiber optic transmissions can allow hundreds, even thousands, of multiplexed digital signals (and services) to be carried into the home or business offices.

Fiber networks made up of tiny strands of glass have the potential to deliver communications to anyone, anywhere, at any time and in any medium or combination of media (visual, voice, image or data) at a potentially acceptable cost. The ISDN (Integrated Services Digital Network) allows users to simultaneously send voice, data and images over a single glass fiber. ISDN offer 5-second FAX, high quality photograph transmission and "Super Vidotex" information service in multiple media ... even high fidelity audio and "picture phone" service.

Right now, more than half of the nation is linked by cable wireline. What will it be like once we are linked by glass fiber? For one thing, you won't have separate phone lines, cable lines, utility meters to read ... or rooftop antennas. The quality of television and radio broadcasts will improve as RF transmission gives way to high definition digital video delivered optically. For example, once a choice of channels has been selected at a given moment, a viewer could watch several channels at the same time, zoom up for close-ups of the quarterback during a football game ... even call for a personal instant replay. Viewers could even "window" a picture so they could focus on the quarterback and the wide receiver at the same time.

Cable, telephone and broadcast entities will probably merge with fiber companies in the years to come. They'll have to jump on the fiber optic bandwagon ... or face extinction. Not only will you have a myriad of incoming signals going into your home, but many will be fed back via a return loop. Electric, gas, water utilities, alarm companies and many interactive services will monitor customers needs and usage automatically over the tiny return strand. Interference and signal jamming that plagues RF delivery today will be a thing of the past. Video-on-demand ... pay-per-view, two-way high-tech educational services, transmitting personal video to others, interactive full motion "everything" will proliferate. All of the world's knowledge could be instantly available.

Movies selected from thousands might be the

biggest money maker for major studios. Integrated FAX, telephone and computer work stations will serve as your personal telecommunications hub. You'll hardly have to leave your home for anything! People with common interests could be linked together worldwide.

Many workers will not leave for the office in the morning in the years to come ... instead telecommuting to work on their work-stations. It is even envisioned that imported electronic immigrants will increase productivity, profits in the nineties ... and infuriate U.S. labor.

We'll use less paper in the future years since many transactions will be done electronically. Hard copy reading of every type ... books, newspapers, letters, magazines, advertising, white and yellow pages, you name it, it will begin to decline. Customized editions will all be instantly available, however, should you need. You'll simply call them up on your PC.

You'll have more time for fun ... which too will be piped in. Meetings, concerts, entertainment will be two-way video conferenced extravaganzas ... physically further away but electronically closer. And you'll participate in the action as if you were there! Professional services ... travel agents, lawyers, accountants, doctors, consultants will be on line, too. You'll file your income taxes by pushing a button. Fewer banks will have lobbies. The paper trail will be electronic receipts. Voting for everything ... opinions, politicians, likes, dislikes ... could be done from your easy chair with immediate results.

The postman might not ring one ... much less twice! A scant hundred years ago, the pony express carried letters a hundred miles a day. Now they are carried with the speed of light around the world. Six million Americans already have electronic mail. Concerned about the hard copy future, the U.S. Postal Service is looking into facsimile and electronic messaging services ... especially for business-to-business correspondence. Voice and video mail is next.

You'll never be out of touch in the coming decades. Satellites will allow international paging and immediate communication with anyone, anywhere. Everyone will have a distinctive number. Does all of this sound far fetched? Not at all! All of this is in the planning stages right now.

Most of these fantastic interactive services planned for the future depend on a tiny, hair-thin glass fiber finding its way into your home. Installation cost is now estimated to be about \$3,000 per home in today's dollars, but should drop to about half that by mid-1990's.

W5YI Report via The Readout

VOLUNTEER

Volunteers are like Fords— They have better ideas
 Volunteers are like Coke— They are the real thing
 Volunteers are like Pan Am — They make the going great

Volunteers are like Pepsi— They have a lot to give
 Volunteers are like Dial Soap— They care, Don't you wish everybody did

Volunteers are like VO5 Hair Spray— Their goodness holds - in all kinds of weather

Volunteers are like Hallmark Cards— They care enough to give the very best

Volunteers are like Standard Oil — You expect more and you get it

But best of all Volunteers are like Frosted Flakes — They're Grrrrrrreat.

source unknown - Len "WA2ZNC"

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AMATEUR MICROSATS TO BE LAUNCHED

A consortium of Amateur Radio groups have teamed up with the Center for Aerospace Technology (CAST) at Weber State College (Utah) to construct and launch a new class of sophisticated "mission Specific" ultracompact "microsatellites".

Three AMSAT organizations (AMSAT-NA/ North America, AMSAT-LU/Argentina, and Brazil's BRAMSAT) will be aided by TAPR, Tucson Amateur Packet Radio and the ARRL in the endeavor.

The four satellites, now under construction in Boulder, Colorado, are only 9 inches square and weigh only 22 pounds each. The two AMSAT-NA and AMSAT-LU payloads are PACSATS—store and forward packet radio communications satellites that can blanket the earth up to eight times a day.

AWA MUSEUM OPEN FOR SEASON

Village Park, East Bloomfield
 Rte. 5 & 20

Saturday and Sunday — 2 p.m.
 Wednesday — 7 p.m.
 (No admission charge)

POWDER MILLS PARK

- NORTH PORTION -

