

# Worldradio

Year 13, Issue 11

May 1984 • 85¢

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## 1984 World's Fair

### Help needed for radio exhibit

LARE (Louisiana Amateur Radio Exhibition) announces a once-in-a-lifetime opportunity for radio amateurs to join in making the 1984 World's Fair Amateur Radio exhibit the best possible ever.

John Uhl, KV5E; Philip Spencer, W5LDH; and Tony Paladino, WA5ORS, formed LARE — a non-profit organization — in 1981. Through hard work and tough lobbying, they have managed to secure 616 square feet for an amateur station and Amateur Radio exhibit. Tentative plans call for the use of a 200 ft. model oil derrick as an antenna support. The station would be inaccessible when unmanned, but would include provision for visiting amateurs to make appointments to operate by calling a special number.

The Fair expects more than 11 million visitors. The equipment needed to have all band stations on the air will be loaned

to LARE by manufacturers. Funds are still needed, however, in the form of contributions.

The cost of this exhibit for the six-month period (12 May-11 November) will be \$4,800, which covers utilities, janitorial and security costs. The initial capital budget is in excess of \$10,000.

The Louisiana Department of Tourism has started the ball rolling by contributing \$1,000 toward the capital needs. Those who contribute \$100 or more (including clubs) will be made charter members of LARE, and will have their QSL cards posted in the visual exhibition part of the exhibit. Contributions are tax deductible.

Contributions and/or ideas for the exhibit can be sent to LARE, Inc., 100 Robert E. Lee Blvd., New Orleans, LA 70124. □

### Spratly now official

#### Pete Onnigian, W6QEU

The DXCC Committee has now approved Spratly Island as a new country. Those who were fortunate enough to work 1S1CK last year can now send in their cards.

A group of Philippine operators and one American operator are planning a DXpedition to Spratly for one week, starting 02 May 1984. CW frequencies will be 30 kHz inside the lower edge of the bands, except for 7005 and 3505,

with 40-meter SSB on 7070. The usual SSB frequencies will be used on 20, 15 and 10 meters.

Spratly is located in the South China Sea, between Viet-Nam, The Philippines, China and the island of Borneo.

The tragic events of the 1983 German DXpedition are recalled, but conditions have changed on the Spratlys and no difficulties are expected. — *from an on-the-air QSO with Bill Bennett, W7PHO, 05 March 1984, 1630 UTC* □

### FCC releases NPRM on reimbursement

The FCC has released a Notice of Proposed Rulemaking on the subject of reimbursement of out-of-pocket costs incurred by volunteer examiners (VE's) and volunteer examiner coordinators (VEC's) in connection with the preparation, processing or administration of Amateur Radio examinations.

The FCC proposes in PR Docket 84-265 that VE's and VEC's may be

reimbursed for actual expenses incurred, but total reimbursement for an examination may not exceed \$4. The \$4 figure may be adjusted annually for inflation. The FCC does not specify how the reimbursement fee is to be divided between VEC and VE.

Comments are due by 16 April, reply comments by 01 May. □

### Ohio amateur takes action

Ohio State Representative Robert Netzley of Laura, Ohio introduced House Bill 713 into the Ohio State Legislature on 22 February. If passed, the bill will modify the Ohio revised code to give some protection to amateurs from restrictive antenna ordinances.

The bill is the result of the efforts of Dayton Amateur Radio Association member, Terry Falknor, N8EEO, who has been working with Representative Netzley for some time. Terry, like most amateurs, has been concerned with the

proliferation of nuisance ordinances aimed at amateur antennas and decided this is the time to try and stop it in Ohio.

To succeed in getting the bill out of committee and up for vote and then getting it passed will require the cooperation of all the clubs and amateurs in the state.

The Dayton Amateur Radio Association is planning a mailing to amateurs in the state, alerting them of the bill and asking for their support. — *Robert McKay, Editor, RF Carrier* □



Dr. Owen Garriott, W5LFL, hands out autographs at Foothill College in Los Altos, California, 24 February, as *Worldradio's* managing editor, Chris Wilson, KA6TAL, awaits her turn. (Photo by Norm Brooks, K6FO)

### W5LFL talks to Bay Area amateurs

#### Christine Wilson, KA6TAL

During the 10-day orbit of STS-9 last fall, Dr. Owen Garriott, W5LFL, was — to most amateurs — just a voice in space. But on Friday, 24 February, several amateurs got a chance to meet the man behind the voice, at a conference at Foothill College in Los Altos, California.

After being introduced by Ted Harris, N6IIU, of the Stanford Research Institute, Garriott proceeded to talk about his ham and science activities in space.

"I'm certainly pleased to see that so many of you were interested and made attempts at contacting us on our 2-meter frequencies, said Garriott. "Unfortunately, of course, there was just no opportunity to talk with all of you."

After giving a brief rundown on his background experience with satellites, Garriott spent most of the hour discussing the environment in which he operated during STS-9's orbit.

"The environment of operation was a very busy experimental period, and my ham activities were very carefully constrained," he said, "to make sure they did not interfere with any of our basic objectives of going on the flight. So I was given 12 items which could not be violated in terms of the ham operation, including such constraints as no more than an hour a day and never when I was on duty."

The basic flight objectives consisted of

70 multi-disciplinary scientific and technical experiments, all of which had to be performed within 10 days.

The radio used by Garriott during the flight was a hand-held transceiver, built by individual Motorola employees during their off-duty time. The scanner was manual, and was usually held in one hand, while Garriott switched channels (1-10) with his fingers. This was done while keeping an eye on his watch and the computer (to check geographic location), as well as writing on a knee pad with his other hand.

The antenna used was designed and built by amateurs at the Johnson Space Center ARC of Houston, Texas.

"It was mounted in a metal dish about 5" or 6" deep, with a single-split ring, explained Garriott. "The feedpoint was adjusted around the split ring until the impedance was matched to the 50 ohm coax."

The antenna was mounted to the overhead window in the aft flight deck area, right behind the cockpit area, with Velcro tabs.

"It worked extremely well," com- (please turn to page 25)

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# Worldradio

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Worldradio (USPS 947000) is an international conversation. You are invited to take part. Our newspaper is written by its readers.

Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio community. We publicize and support the efforts of those who bring the flame of vitality into this avocation.

Our readers are participants — an alliance of active radio amateurs who are concerned with reality, who use radio as a communications tool. We ask your cooperation in helping us develop the skill, quality and full potential of Amateur Radio.

We are positively-oriented. We print all the news of this great activity, and particularly desire an input of stories dealing with the dramatic, the personal and humanitarian uses of Amateur Radio.

Worldradio needs your help to reflect the invaluable service of Amateur Radio.

Through Worldradio you can make contact with other individuals who share your interests.

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Second-class postage paid at Sacramento, CA.

## Linking amateurs with Red Cross

### Ted Harris, N6IIU

The Palo Alto Area (California) Chapter has been asked by the National American Red Cross to coordinate amateur communications within the 13 Western United States and the Pacific Trust Territories. This includes over 400 Red Cross chapters.

Over 100 Red Cross chapters have active Amateur Radio volunteers. We hope to find amateurs who would be willing to help coordinate disaster communications with all Red Cross chapters. Our goals are:

1) Provide American Red Cross chapters with capable, qualified amateurs who are willing to work with Red Cross volunteers in planning, drills and actual disasters. Within the chapter area (usually a county or portion of a county), disaster communications can usually be handled via local repeaters.

Some Red Cross chapters don't know how to reach their local amateur. Amateurs do not advertise in the Yellow Pages! This first goal, then, is to provide a means for the Red Cross and amateurs to find each other.

2) Once an amateur is "discovered" by the local Red Cross chapter and has agreed to provide disaster communications, he should take some of the basic Red Cross disaster classes such as Introduction to Disaster Services and Damage Assessment.

Once familiar with Red Cross procedures, the amateur thus becomes a very necessary part of the local chapter's disaster committee. He has the unique ability to coordinate vital communications with various agencies that the Red Cross works with during a disaster.

If the disaster is too large for the local chapter, the chapter needs to get in touch with the Western Operational Headquarters in Burlingame, California. Unfortunately, at the beginning of the disaster, most telephone systems are hopelessly tied up. Amateur Radio to the rescue!

By pre-selecting one of his local home, high-power, high-frequency stations, the communications coordinator for the local chapter can have that station contact the

Palo Alto Area Chapter station and phone patch vital disaster information such as the nature, extent, damage, manpower and supplies needed to help the affected chapter. Frequencies are 3930 kHz, 7230 kHz, 14.230 MHz and 21.330 MHz (± QRM). (More info will be sent direct to participating amateurs.)

Now here is where we need help. The Palo Alto Chapter has compiled a listing of over 570 amateurs and Red Cross chapters in the 13 Western states. Sorted by ZIP code, this listing will be sent to all participants. The idea is to find your ZIP code and look to the adjacent codes for the nearest Red Cross chapter.

Send your name, call, address and home/work phone numbers to: Rick Joslin, WB5VUL; Palo Alto Area Chapter; American Red Cross; 400 Mitchell Lane; Palo Alto, CA 94301. If sending a radiogram, Rick's home number is (415) 965-2421.

States especially needed are: Washington, Alaska, Hawaii, New Mexico, Utah, Idaho, Wyoming, Colorado and Montana. □

## CAP seeks equipment

The Civil Air Patrol is seeking donated radio equipment. The equipment needs to work on or be convertible to the following frequencies: 3.5-5 MHz SSB, 50-500 watts, and/or 143-149 MHz FM, 1-150 watts. New or old, used or unused, working or not, complete or incomplete ... regardless of condition, any donated equipment received will be tax deductible.

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## International Repeater Directory

The *International Repeater Directory* — including information on obtaining a reciprocal license when traveling to a foreign country, international channel numbering system, etc. updated for 1984 — is now available. The price is \$3.25 or 10 IRC's.

Send your order to Julian Baldwin, G3UHK, Castle Drive, Maidenhead, Berks, ENGLAND SL6 6DB. Ask for International Ed.

— Fox River Radio League, Aurora, IL □

## Corrections

"Bip" Bachman, W6BIP, has informed us that his half-wave Zepp antenna is 137 feet, not 130 feet, as was stated in the front page article of the April issue ("Reducing TVI and RFI"). Also, the health and welfare traffic that "Bip" handled occurred after the Nicaraguan earthquake of 1973, not in Guatemala in 1976. □

## Roy Neal to speak at convention

The Oregon State/ARRL Northwestern Division Convention, to be held in Seaside, Oregon on 1-3 June 1984, will feature Roy Neal, K6DUE, as guest speaker at the banquet. His subject will be "STS-9: Behind the Scenes" and as an added feature, will make a QSL card presentation to Lance Collister, WA1JXN. Collister was the first radio amateur to make contact with a fellow ham orbiting in outer space.

Roy Neal, NBC News and Science Editor, was very active in the "Ham in Space" program, so this presentation is a fitting conclusion to the STS-9 activity. — Al Berg, WB7SIC □

●●●●●  
If you received this publication and are not a subscriber of **WORLD RADIO**, it was no accident. Please consider it an invitation to join. We can be very friendly.

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Paul Shuch, N6TX, member of the VHF/UHF Advisory Committee, talks about satellite activity and the new band plan proposed by ARRL.



Just like a Congressman going to Washington, Bill Stevens, W6ZM, goes to Newington, to fight for what the people who elected him want. (Photos by N6WR)



Bob Thompson, K6SSJ, reports on his activities with the DX Advisory Committee.

## Pacific Division ARRL cabinet meeting

### Norm Brooks, K6FO

I feel that I have participated in Amateur Radio democracy. On 10 March 1984, I attended my ARRL Director's "cabinet" meeting prior to his departure for Newington, Connecticut, later in the month. And I have a feeling he knows pretty much what his constituents in the Pacific Division want.

The Pacific Division has been holding these meetings for many years. Originally, under the Section Communications Manager (SCM) concept, this meeting would be attended by the SCM's and representatives of all the affiliated clubs in the division. This made a huge meeting of well over 150 people. Now, with the new Section Manager organiza-

tion, the meetings are held in two levels. The Section Manager has a meeting with his assistants as well as representatives of his affiliated clubs. Then the decisions and directives from that meeting are brought to the cabinet meeting by the Section Manager. The Pacific Division representatives to the various ARRL Advisory committees also attend.

Bill Stevens, W6ZM, Pacific Division Director, opened the meeting with a showing of the new videotape, *Amateur Radio's Newest Frontier*. Roy Neal, W6DUE, is producer and narrator. Several other amateurs who work in the video and broadcasting field have contributed their talents. The finished product is superb. Pacific Division repre-

sentatives on the various ARRL advisory committees were asked to report on their activities for the past year.

### The VHF/UHF Advisory Committee (VUAC)

Paul Shuch, N6TX, member of the VUAC, led off with a complaint. How could the ARRL negotiate with NASA on Dr. Garriott's (W5LFL) spaceflight without asking the VHF/UHF advisory committee for advice on frequencies, schedules, etc.? Does the right hand know what the left is doing?

There are now seven amateur satellites in orbit and in use: four Russian sputniks — RS-5, RS-6, RS-7 and RS-8; UoSAT A/OSCAR-9; OSCAR-10; and UoSAT B/OSCAR-11. Current simplex operations seriously interfere with the uplinks and downlinks for some of these and future satellites. The sub-bands 145.8 to 146.0 MHz, and 29.3 to 29.5 MHz should be publicized and protected from interfer-

ence from 2-meter and 10-meter FM operation. There are no current interference problems with 435-436 MHz and 1260-1270 MHz, but plans should be laid to keep future compatibility.

Did you know the Japanese radio manufacturers control our band plans? Paul reported that the old ARRL band plan for the 23cm band (1.2 GHz) called for 25 kHz channel spacing and 10 MHz repeater splits. (10 MHz between the repeater uplink frequency and the downlink frequency.) Then ICOM came along with a transceiver (and a repeater) for the 23cm band. It uses 10 kHz steps and 20 MHz repeater splits. So now the ARRL Board has called for a new 23cm band plan. The new proposal is for 20 kHz steps and 20 MHz splits which would be ICOM compatible.

The possible new 23cm band plan will include the following repeater allocations: *inputs* — 1291.01 to 1295.99 MHz; *outputs* — 1271.01 to 1275.99 MHz. Repeaters to be assigned in 20 kHz steps, starting at the high end. This represents 250 possible repeater pairs. Note that the 10, 6, 2, 1 1/4-meter and 70cm bands, combined, have but 177 coordinated repeater pairs. (Frustrated repeater operators take note — 23cm (1.2 GHz) is your new frontier.)

The Satellite Experimenters Handbook has finally been published by the ARRL. The authors and editorial staff have done an outstanding job.

### Public Relations Advisory Committee (PRAC)

Your reporter, Norm Brooks, K6FO, is the Pacific Division representative on ARRL's PRAC. We, too, had a recent experience that showed the ARRL staff didn't know what the committee was

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doing. In our case, we were directed by the ARRL Board, in October 1983, to develop a handout suitable for presentation to the general public as introductory information about Amateur Radio. The proposals were to be ready for the March 1984 Board meeting. In the midst of this, an ARRL staffer sent all the members of the PRAC a draft of his efforts at updating an old general purpose publicity brochure.

Additionally, our committee is developing a handout on Amateur Radio suitable for use by the professional press. We are also looking into a possible sound and slide show on Amateur Radio for potential users of Amateur Radio.

#### Emergency Communications Advisory Committee (ECAC)

Ron Menet, N6AUB, is not only the Pacific Division member of the ECAC, but also its chairman.

The Emergency Coordinator's Handbook, which was announced at the Pacific Division Convention in Santa Cruz a year ago, is not out yet. In fact, the League is still looking for a staff person to do the job, along with writing an emergency operators training course. The League has publicized the opening, and is offering \$18,000 per year salary. Ron said he and others are planning to do the job themselves, without spending League money. Again, it is a case of one group not knowing what the other is doing.

Dwayne Eskridge, W6LKE, Section Emergency Coordinator of the East Bay Section, is involved in the handbook writing. Different parts of the book have been farmed out to knowledgeable writers. Dr. David Taylor, N6DRP, will coordinate the effort. Copies will be sent to League headquarters for publication.

#### DX Advisory Committee (DXAC)

Bob Thompson, K6SSJ, reported on his activities with the DXAC. He reports that communications in the committee work quite well. Copies of correspondence between members are duplicated and disseminated by Don Search, DX staff member at League headquarters. However, even Search is currently on the hot seat because he held up information on three potentially new DXCC countries. The material didn't get out to committee members until a few days before a vote was to be taken. The members would like to have time to circulate their ideas and discuss them.

The new countries up for discussion are 4U1VIC in Vienna, Baker-Howland and Pribilof Island. 4U1VIC is in a United Nations part of Vienna, Austria. The old Baker-Howland would be de-

leted, and the new native government recognized. Pribilof Island, now part of Alaska, fits all the criteria for a separate DXCC country, and will probably be approved.

There is a lot of discussion in the DX community about possibly deleting Spratly Islands. Bob feels a country should not be deleted just because it is dangerous to go there. Spratly Islands are widely spread out with hundreds of miles between them. Various nearby countries claim them. There is some sentiment for deleting them until the administrative "ownership" of each island is settled.

There was much discussion on DX operating ethics. How wide a band should a DX station listen on? 50 kHz? 10 kHz? Who's going to be the policeman to finger the offender? What if the infraction happens in a contest not sponsored by the ARRL? In all his years of DX'ing, Bob knows of only one or two who have been dropped from DXCC or Honor Roll for inproprieties. But he promises to look into this subject in greater depth.

#### Repeater Advisory Committee (RAC)

"Stew" Stewart, KF6SD, reported that he is a brand new member of the RAC. So far, he is aware of a few cases of interference between the Bay Area and the Valley. Coordination is going ahead on all bands. More and more, records are being put into computer data bases to avoid their being lost when there is a change in coordinators. There have been a few cases of sanction violations — cases where repeaters have been moved from low level sites to mountaintops without notifying the Northern Amateur Repeater Council.

Paul Shuch, N6TX, offered the thought that linear translators should be protected from interference by FM repeaters on the same frequency. Space should be reserved for linear translators in the band plans.

#### Communications

If you've read this far, you realize the reports show a lack of communications between individual committee members, committee chairmen, the Director and the ARRL headquarters staff. More correspondence is needed, more phone calls made, etc. It was agreed to have this cabinet meeting more often than once a year. The final agreement was four times a year, with locations rotating around the Division.

#### Do-nothing officials

How do you communicate with a committee member who won't answer your letters? Some won't even answer a Director's letter. Stevens explained it is unfortunate when such a person is in an elected office because the membership put him there. Too often, a person gets the minimum signatures needed on a nominating petition, and no one else bothers to run for the office. That person then becomes elected by default.

Members should seek out the best person for the office and get him or her to actively run for that office. The League Board of Directors is responsive to an active membership, not one that is apathetic.

#### Call Directories

The League is taking over the publication of the three Call Directories from the Buckmaster Publishing organization. Buckmaster will retain their mailing label business, which is their primary interest. Although Stevens declared the ARRL is not in competition with the Callbook, he was challenged with, "What amateur would buy both?"

It was agreed that two of the directories, by name and by geographical location, had a lot of value, especially the geographical. It is useful to interference hunters when tracking down accidentally "open mikes."

It was pointed out that the geographical book is "full of laughs" because city name spellings are not checked. Any amateur who misspells the name of his city on his FCC license application can create an exclusive listing. For example, one amateur is in Sacramento, California all by himself. Half the amateurs in the Big Apple are in New York, New York, the rest in New York City, New

York. Phoenix, Arizona is spelled seven different ways.

#### Conventions

Stevens asked why the Pacific Division Convention has circulated around the Division, but has not been in Sacramento for 15 years? How does a convention get established? It was generally agreed a convention must be plugged year after year to build up a following. When one is over, all must be aware of when the next one will be, and start working on it. Location is important. For example, 60 percent of all U.S. amateurs live within one day's driving time to Dayton, Ohio.

#### How build interest in ARRL?

Jan Manford, N6DDO, asked "How can I get Dick Bash's wonderchildren interested in the ARRL?" Stevens gave her copies of 32 reasons why you need the League and the League needs you.

Doc Gmelin, W6ZRJ, Honorary Vice President of ARRL, said there are many reasons why people are not interested, and you must keep working on them. Stevens added that identification with the League is important. He pointed to the ARRL banner which was displayed — "Do you have this prominently displayed at every meeting?" Wear your ARRL pin all the time. Sell League advantages and services (QSL Bureau, insurance, etc.)

League insurance now covers computer hardware and software. Paul Shuch checked into this and found that League insurance will cover your computer, even if you use it for business. At the 1 percent rate, it is a bargain.

The League is looking into paying a club \$5 for signing up a new League member, in addition to the \$2 the club gets for renewals.

(please turn to page 24)



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# Special Events...

## Gloucester club's 25th anniversary

The Gloucester County ARC will operate W2MMD on 04 May, 1700Z, to 05 May, 1700Z, to commemorate the club's 25th anniversary. Phone operation in lower portion of General Class bands 10-80, and CW in Novice bands.

Commemorative certificate by QSL to GCARC, P.O. Box 370, Pitman, NJ 08071. □

## SUN DAY

Carl Zelich, AA4MI

The Florida Solar Energy Center (FSEC) of the State University System of Florida and the Indian River ARC will celebrate *SUN DAY* on 5-6 May, 1500Z-2200Z. 5,880 photovoltaic 4-inch diameter solar cells will provide for heating, cooling, cooking and Amateur Radio operations during this public event, *SUN DAY*.

W4NLX/4 will operate on *SSB* — 7.240, 14.240, 21.370 and 28.518; *CW* — 7.040, 14.040, 21.040 and 28.003; *FM* — 146.28/88. A beacon will be on 1296.05 MHz.

For all shortwave listeners (SWL) and Amateur Radio operators, *The Solar Collector* — a quarterly high technology newsletter — is available free, *ON REQUEST*. Also, a multicolor certificate is available. Send a business-size SASE to: FSEC, 300 State Road 401, Cape Canaveral, FL 32920. □

## Balloon race

The Alamance ARC, K4EG, will be operating an event station 12-13 May, from the site of the Regional Hot Air Balloon Race, Burlington, North Carolina.

Each day's operation will be from 1100 UTC to 2200 UTC. Frequencies of operation will be 10 kHz inside the lower General phone portion of 40 and 15 meters, and 7.125 and 21.130 kHz in the Novice bands.

An attractive commemorative QSL will be issued to all stations worked for a QSL and SASE. QSL to: Alamance ARC, K4EG, P.O. Box 3064, Burlington, NC 27215. □

## Spring Convocation

The HANDI-HAM System's special event station, W0EQO, will operate from Camp Courage during the System's 15th Annual Spring Convocation.

Check-in for campers will begin at 4:00 p.m. on Friday, 11 May, with check-out Saturday evening.

Station W0EQO will operate from Camp Courage during the following schedule (times are CDST and frequencies will be  $\pm$  QRM): Friday, 11 May — 8:00-10:00 p.m. on 3900 kHz; Saturday, 12 May — 9:00-11:00 a.m. on 40 meters; 11:00 a.m. - 4:00 p.m. on 14300 kHz; 4:00-10:00 p.m. on 3900 kHz.

Special certificate for SASE to: HAN-DI-HAMS, 3915 Golden Valley Rd., Golden Valley, MN 55422. — Harry Benjamin Jr., WB0QP □

## Air Force Museum

To celebrate the observance of Armed Forces Day, the United State Air Force Museum will, for the second time, host the operation of an Amateur Radio special event station.

To be housed in the museum's WWII Nissen Hut, participants will operate under the call sign K8DMZ from 1400Z to 2200Z Saturday, 19 May. Amateur Radio operators will work primarily in the General Class phone segments of 75, 40, 20, 15 and 10 meters, with periodic excursions to the Novice subbands. FM and SSB operation on the 144, 220 and 432 MHz bands is also planned. The specific frequencies to be used will depend upon existing band conditions.

To commemorate the event, the museum will issue a special certificate for each two-way contact.

The largest and oldest military aviation museum in the world, the Air Force Museum is located six miles northeast of Dayton at historic Wright-Patterson Air Force Base. □

## NISKA-DAY '84

NISKA-DAY '84 will be celebrated 26 May to mark the 175th birthday of the community of Niskayuna, New York. To help celebrate the anniversary, the Niskayuna High School Club Station, WB2OKK (OK Kids), will operate from 1500Z to 2100Z up 10 kHz from the low end of the General phone band. Operations are planned on 15, 40, 75 and 2-meter bands.

A commemorative QSL card may be obtained by sending an SASE to ARS WB2OKK, Niskayuna High School, 1626 Balltown Road, Niskayuna, NY 12309. □

## Historical Museum

The Alamance ARC, K4EG, will again be operating an event station, 19-20 May, from the "Fiddler's Picnic" on the Historical Museum grounds in Alamance, North Carolina.

Operation will take place from 1400 UTC to 2100 UTC Saturday and 1700 UTC to 2100 UTC Sunday. Frequencies of operation will be 10 kHz inside the General phone portion of 40 and 15 meters, and 7.125 and 21.130 kHz in the Novice bands.

A commemorative certificate will be issued to those worked for a QSL and a business-size SASE. QSL to: Alamance ARC, K4EG, P.O. Box 3064, Burlington, NC 27215. □

## 'Big Red One'

On 19-20 May, Armed Forces Day Weekend, the Wheaton Community Radio Amateurs, Inc. will conduct a special event from the First Infantry Division Museum "Cantigny" in Wheaton, Illinois. The special event call will be N9BRO.

The 24-hour-long event will be on all bands, beginning at 1700Z (GMT), 19 May. Frequency will be 50 kHz up from the bottom of the General phone bands and 25 kHz up from the bottom of the General CW bands; 25 kHz up from the bottom of the Novice bands; RTTY on 146.70 simplex, 14.087 and 21.087; 2 meters on 147.54 simplex.

Certificate via WCRA, P.O. Box QSL, Wheaton, IL 60189. Send \$1 or 5 IRC's. □

## Portsmouth Seawall Festival

The Portsmouth ARC will operate W4POX at the Portsmouth Seawall Festival at Portside, 26-28 May, 1500-2200Z. Frequencies will be around 7230 and 14.290 MHz.

For special commemorative QSL, send

your card and SASE to W4POX, P.O. Box 6503, Portsmouth, VA 23703. For QSL and a large commemorative certificate, send your card and a 9" x 12" envelope with two units of first class postage. □

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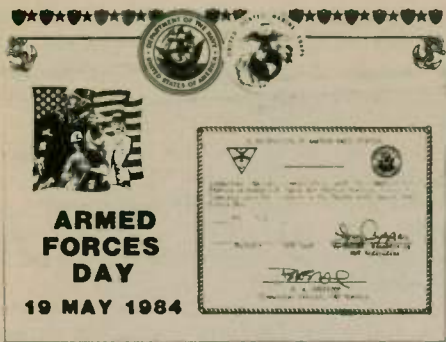
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# JOHN RICHMOND





## Michigan Week

1984 will be the 26th year that radio amateurs have had their own program to publicize Michigan and its products. Just as for the past 25 years, the governor will award Achievement Certificates to hams who take an active part in telling the world of Michigan's unlimited resources, opportunities and advantages.

Certificates are awarded on the following basis:

1) A Michigan amateur submits log information and names and addresses (if possible) of 15 or more contacts made to

out-of-state or DX hams with information regarding Michigan.

2) An out-of-state ham, including Canada, submits log information and names and addresses (if possible) of at least five Michigan amateurs who relate facts to him about Michigan.

3) A foreign ham, excluding any resident of Canada, submits the call letters and name/address plus log information for at least one Michigan amateur who has told him about Michigan.

4) Only QSO's made during Michigan Week, 19-26 May, will be considered valid.

All applications for certificates must be postmarked by 01 July 1984 and mailed to Governor James Blanchard, Lansing, MI 48902.

State Bird: Robin; State Fish: Trout; State Flower: Apple Blossom; State Tree: White Pine; State Stone: Petoskey Stone; and/or local facts you are aware of.

Spread the word to others about this award throughout Michigan Week!

•••••

Check your license expiration date.

## Tennessee Naval Air Station event

C.R. Thompson, W4ODR

In recognition of the 35th Annual Armed Forces Day celebration, Amateur Radio station W4ODR — located aboard Naval Air Station Memphis, Millington, Tennessee — will be operating on Saturday, 19 May, 1400Z-2200Z. Plans call for operation on 7.230 ( $\pm 10$  kHz), 14.280 ( $\pm 10$  kHz) and 21.370 ( $\pm 10$  kHz). CW frequency will be 21.145. 146.52 will be the 2-meter frequency. It is hoped that operation will be continuous on all bands, but check all frequencies to be sure. Special certificates and QSL cards will be available to those who work W4ODR. QSL to Amateur Radio station W4ODR, P.O. Box 54278, Millington, TN 38054.

A brief description of the Navy Memphis complex follows.

The 3,400 acre Navy Memphis complex is located 13 miles north of Memphis, Tennessee, and five miles east of the Mississippi River. NAS Memphis is the home of the Chief of Naval Technical Training (CNTECHTRA) and the Naval Air Technical Training Center (NATTC).

CNTECHTRA administers the technical training program for the entire U.S. Navy. Training conducted under the auspices of CNTECHTRA begins with the basic training for all Navy recruits and officer candidates. It continues through various levels of technical skills training and includes instruction for the highly advanced technicians who maintain and operate the extremely technical and sensitive devices found on the Navy's aircraft, ships and submarines.

Over 3,000 Navy courses of instruction are conducted throughout the command's network of 58 schoolhouses, located at 27 different installations, stretching from the East Coast to the West Coast, Great Lakes to the Gulf and across the Pacific to Hawaii. The coordination, supervision, planning research and guidance for these courses take place at the Millington-based headquarters.

NATTC is the largest single command in the Navy Memphis complex with over 40 different courses of instruction. It stands some 100,000 strong, including students, instructors and support personnel. The training center's mission is to train selected Navy and Marine aviation personnel in aeronautical technical phases of naval aviation and other related subjects, as directed by the Chief of Naval Operations.



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### FT-203R ACCESSORIES

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Part 97, the Amateur rules — is necessary.

The Notice of Proposed Rulemaking to allow recovery of costs in the Volunteer Examining Program was circulating among the FCC Commissioners for approval late in February. As of 05 March, the item lacked only one Commissioner's signature.

Experimental one-way Amateur Radio space operation from STS-17/41G is to begin in September, following the launch scheduled for 31 August. Apparently, no problem remains with FCC clearance of the operation except compliance with the Rule Section 97.423 requirement for the third pre-space operation notification "... no less than three months prior to initiating space operation." It had not been received at the time this was written.

More than one Volunteer Examination Coordinator (VEC) may serve in one examination region, contrary to my first paragraph in last month's 'Highlights'! Also, "the same organization can serve more than one region." However, each VEC in a region must be "willing to take on the entire region."

Five VEC agreements have been sent out to applicant organizations by the FCC for signature and return. As of 05 March, three have been signed and returned, and the applicants were thereby eligible to start coordinating the giving of examinations by Volunteer Examiners. They are:

Region 11, Anchorage ARC, P.O. Box 101-987, Anchorage, AK 99510-1987; Region 2, Metroplex Amateur Communication Association, P.O. Box 237, Leonia, NJ 07605; Region 12, Director of MARS, P.O. Box 7388, Cidra, PR 00639. The remaining two were: Region 8, Dayton Amateur Radio Association, P.O. Box 44, Dayton, OH 45401; and, Region 9, DeVry Amateur Radio Society, 3300 N. Campbell Ave., Chicago, IL 60618. Also, on 05 March, a sixth application arrived from a Dallas, Texas club (Region 5).

Early entry of U.S. amateurs into the 18.068-18.168 MHz band does not appear likely because the U.S. military circuits in the band are still active, and their higher bands are becoming less useful because of lower sunspot numbers. This is the view of FCC's Spectrum Management Division Chief. However, he says prospects are better at 24 MHz, and that a petition for operation there by amateurs on a non-interference basis would not receive much opposition. He also advised that "The Air Force is actively seeking a replacement ..." for the 10.109-10.115 MHz channel "... and it shouldn't be too much longer." (ARRL 02/09/84).

ARRL has filed an application for an Experimental license to authorize participants in its Antenna Design contest to do one-way tests on band-edge frequencies in the 18 and 24 MHz bands.

FCC rulemaking action to remove the power restrictions from the 160-meter band was underway early in February. Appropriate amendment of Part 2, FCC's frequency allocations table — as well as

Beginning 01 October 1984, manufacture or import of cordless telephones operating just below the amateur 1800-2000 kHz band is forbidden by a recent FCC rulemaking action.

Do amateurs really want a lot of their fellow amateurs using Amateur Radio as a cordless telephone? That is the reaction of John Johnston, Chief of FCC's Personal Radio Branch, to questions about the legality of simplex autopatches.

The expanded RACES allocations of PR Docket No. 83-254 should have included the entire 52-54 MHz repeater sub-band, according to a petition for reconsideration filed with FCC by a Southern California repeater association (SCRRBA). The Association referred to the Commission's provision for RACES to operate in the 146-148 MHz repeater sub-band in the 83-254 proceeding.

See last month's 'Highlights' for the expanded and added RACES frequencies, which became available 26 March 1984.

Because the U.S. WARC-79 proposals included maintaining the amateur secondary allocation at 2310-2390 MHz, the FCC should have done so in its Docket No. 80-739 WARC implementation proceeding. This is one of the bases for petitions for partial reconsideration filed with the FCC by the ARRL and the SCRRBA (Southern California Repeater and Remote Base Association).

Throughout the proceeding, the FCC had maintained that issues settled during the WARC preparatory process were not to be revisited in Docket 80-739. In withdrawing the Amateur Service secondary allocation in this band, the FCC has violated its own ground rules with respect to the WARC implementation proceeding.

SCRRBA follows a similar line of reasoning and claims that there is no technical need for deleting the amateur secondary allocation from the band. (ARRL Letter, 03/01/84)

The United States will welcome temporary amateur third-party agreements with any country participating in the

Olympic Games in Los Angeles. This solicitation has been and is being sent to all member nations of the International Telecommunications Union by the Secretary of the ITU via their Notifications (#1195, 02/10/84) and Operational Bulletins (#307, 03/01/84 and #313, 05/24/84). ARRL Director Holladay (California) advises that it appears that amateur stations will be allowed in the Olympic villages, after all.

A reciprocal amateur operating agreement between the United States and Japan is under negotiation via diplomatic channels with draft notes being exchanged. "There appears to be no objection in principle" was the advice of a concerned FCC staff member, but he refused to speculate as to when an agreement might be reached, citing the long time which has transpired since negotiations were first initiated.

A change of the July FCC examination session to April or May is being sought by the Utah ARRL Section Manager to get current trainees licensed in time to operate amateur stations in the floods expected there in late spring.

Salary cost alone for the FCC to administer amateur examinations was \$159,000 for fiscal 1981 (ending 09/30/81). Of the 50,913 amateur tests, 31,500 were given at field offices and 19,400 at remote locations. Costs for Commercial and Amateur examinations were: Travel \$22,900; District office exam room rental \$162,000; Remote exam room rental \$12,500; Temporary help at exams \$12,500. The total came to nearly \$370,000, or \$7.26 per exam.

Will there be a PA0 on a U.S. space shuttle this fall? A Netherlands astronaut has asked to ride on one of our space shuttles, and unverified word has it that he is an amateur licensee of his country, with which we have a reciprocity agreement for amateurs!

Death threats against the judge who sentenced Richard Burton, ex-WB6JAC, to prison were made on the air by a few individuals who claimed to be his supporters. Similar threats were made

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## Amateur Radio call signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of 01 February 1984.

For more information about call sign assignment in the Amateur Radio Service, see Section 97.51 of FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17325.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	NE0N	KD0NB	N0FHG	KA0SAX
1	KU1T	KB1MD	N1CZO	KA1LHH
2	NE2U	KD2FH	N2ETR	KA2UEL
3	KS3M	KC3MK	N3DUQ	KA3MGK
4	WY4O	KI4GS	N4JTX	KB4IPU
5	NO5H	KE5LV	N5GTU	KA5SZB
6	NY6O	KF6YN	N6KCA	KB6DVQ
7	NG7A	KD7TC	N7FZU	KA7SDT
8	NG8X	KD8PI	N8FOH	KA8TWQ
9	NA9C	KD9GW	N9EJW	KA9RHP
N. Mariana Is.	AH0D	AH0AB	KH0AG	WH0AAG
Guam	AH2T	AH2AX	KH2BM	WH2ADZ
Johnston Is.	AH3A	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Hawaii	WH6Q	AH6FF	NH6AS	WH6AZB
Kure Is.			KH7AA	
Amer. Samoa	AH8B	AH8AB	KH8AC	WH8AAO
Wake Wilkes Peale		AH9AB	KH9AB	WH9AAA
Alaska	**	AL7FR	KL7TW	WL7BCF
Virgin Is.	KP2J	KP2AT	NP2BA	WP2ADP
Puerto Rico	WP4C	KP4HQ	NP4HX	WP4DGY

\*\*All of the Group A call signs for Alaska have been assigned. Any request for a Group A call sign will now be assigned a Group B format.



against amateurs and FCC officials who assisted in Burton's prosecution. The threats, which were made on a Los Angeles 2-meter repeater, were monitored and recorded as evidence.

Those against whom the threats were made take them seriously, and the FBI has been called in to investigate the matter. Action by the FBI as well as the FCC is expected. (*Westlink Report* 02/10/84)

In spite of budget and workload problems, the FCC continues routine monitoring of the amateur bands for rules violations. Attention is not confined just to amateur operator infractions but to the use of amateur bands for non-amateur communications and to use therein of non-amateur equipment or devices.

A Richmond CB operator forfeited \$1,000 to the Norfolk, Virginia FCC office when FCC engineers found him operating on unauthorized frequencies. Although CB licenses are no longer required, users are still bound by the Commission's rules (Part 95) and will be prosecuted for violations.

Contrary to implications that it is conducting a special drive to clean up improper use of amateur bands in Southern California, the FCC advises that its activity level there is a normal reaction to the problems of the area.

The high density of amateur population and the many mountaintop repeaters is cited as a factor which increases the interference problems encountered in that area. However, the FCC advises it is preparing to do a special amount of monitoring for the Olympics because of all the radio equipment that will be brought in from the other countries which will have the potential for causing tremendous interference problems, not just to amateurs but to land mobile and business radio operations, in the Los Angeles area.

"Reports of reinstated licenses probably a hoax" according to *Westlink Report*, 02/24/84. "No revoked amateur licenses have been reinstated within the past 30 days, according to both the FCC and the Department of Justice. This information comes in the wake of on-the-air claims made by at least two West Coast amateurs that their suspended or revoked licenses had been reinstated, and that all charges against them of regulatory violation had been dismissed." Investigations and Compliance offices personnel of FCC "... stated categorically that no West Coast hams currently under suspension or revocation orders have had their licenses reinstated and that investigations of the matters are proceeding."

The Amateur Radio station and related gear of Harold R. Claypoole, ex-N6BII, was seized 15 February by U.S. marshals armed with a search warrant. The warrant was issued by a U.S. Magistrate acting on an affidavit submitted by the Engineer-in-Charge of the FCC San Diego Office (*W5YI Report*, 03/01/84).

The most recent termination of Claypoole's operating privileges was on 25 March 1983 by order of the Commission. In spite of this, he has continued to operate.

Claypoole was first licensed in the Amateur Radio Service in 1952. That license expired, and in 1960 he applied for a new amateur station license and for a Conditional Class operator license. The application was designated for a hearing (*continued on next page*)

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# Reducing TVI and RFI

Part II

Norm Brooks, K6FO

## Grounds (continued)

If you live in an area where there is little or no soil, you can make a chemical ground by following the instructions in W5EGS's article on page 16 of QST for December 1976.

The first thing to check when RF problems are suspected of causing TVI is the ground system at the transmitter. How do you ground a transmitter for RF if you have a second floor radio room? One way is to use a copper screen for an artificial groundplane — it could be put under a carpet. Then connect the screen to ground with heavy wire an integral number of half-wavelengths long at the operating frequency. You can use RG-8/U coaxial cable as the half-wavelength ground wire. See Figure 3. Use a noise bridge to cut the coax to a half-wavelength, because the velocity factor of coaxial cable changes with age and type of dielectric.

## Coaxial cable

There is an old saying that particularly applies to coaxial cable — "You get what you pay for." There is a table on page 31 of the April 1981 QST which shows the relative isolation and the ratio of power radiated from coaxial cable of various qualities. Cheap cable can have as little as 40 percent shielding which, when compared to more expensive cable with 98 percent shielding, would radiate power through the shield in the ratio of 3500 to 1.

To reduce the standing wave ratio (SWR) on a coax feedline, try adding different lengths of coaxial cable.

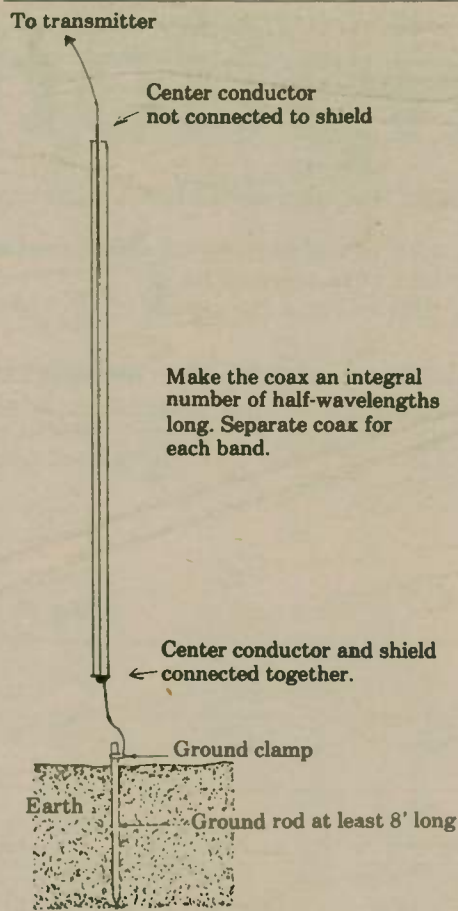


Figure 3 — Ground rod system of grounding is good if the rod is driven well into some moist earth.

## The antenna rotator

Did you know that your antenna rotator might be causing TVI? An article on page 65 of the August 1970 issue of 73 Magazine addresses the subject.

The facts are that the rotator controls include diodes, and diodes are non-linear devices. Thus, you have the makings of a

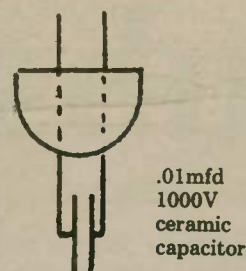


Figure 5

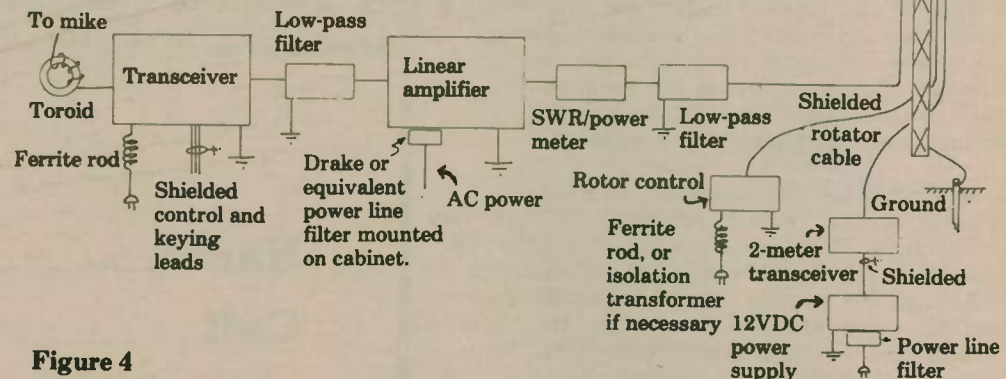


Figure 4

TVI generator. The long multi-wire cable from the rotor to the control box makes an excellent antenna, both to pick up the transmitted RF and to radiate the harmonics caused by the diode rectification of this RF.

The article suggests bypassing every control lead to the chassis with .01mfd 1000 volt ceramic capacitors. Bip suggests using shielded cable. An RF line filter in the control box power lead will help, too. In Bip's case, he put in an isolation transformer in the control box power lead.

At the TV receiver, never put the TV rotor control box on top of the TV set,

for the same reasons. Keep the box and its diodes as far from the set as conveniently possible.

## Ferrite rods

Bip is a firm believer in the use of ferrite rods (or toroidal cores) to make any wire lead into an RF choke. By any wire, he means AC power cords, control wires, speaker leads, mike leads (even though shielded). More than one lead can be wrapped around a toroidal core. If you wrap two leads, run one in one direction, the other in the reverse direction. It is important that the ferrite rods or cores (please turn to page 12)

## FCC

(continued from page 9)

on the basis of unlicensed operation and "transmissions of an indecent and obscene nature." The application was denied by the Hearing Examiner. Claypoole was subsequently relicensed, on 12/18/62, after he made promises of compliance.

His most recent licenses were granted 06 March 1979 for a five-year term. He was cited in 1983 for unauthorized one-way transmissions, transmission of music, use of a call sign not assigned to him and willful and malicious interference, the result being the suspension and revocation effective 03/25/83.

Amateur license statistics as of 31 January 1984 were: Operators — Extra Class, 34,674; Advanced, 95,782; General, 118,023; Technician, 77,518; Novice, 85,482; Total operators — 411,479; Club stations — 2,413; Military recreation stations — 191; RACES stations — 479; Total stations — 414,562. The FCC shows 252 "Secondary Stations" in their release. They are non-renewable, and all should have expired in March 1983.

The FCC licensing facility at Gettysburg, Pennsylvania acted on 11,104 amateur applications during January 1984, and it reports an average of less than three weeks (13 working days) to fully process an amateur application received in good condition. This is about the same for January 1983.

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# Reducing

(continued from page 10)

used are made for high frequency RF, not audio or microwave.

Make up a test cord by wrapping an extension cord on a ferrite rod, taping it on securely. This could be put in the TV power lead. It would be better, though, to wrap the TV cord on the rod, keeping the rod as close to the set as possible.

To reduce RFI in a stereo system, wrap the speaker leads on ferrite rods as close as possible to the stereo. Use Audio Interference Phone Input Filters, manufactured by J.W. Miller Co., # C-505-R in series with the phono and tape deck cables.

Johan Devoldere, ON4UN, wrote a comprehensive article on the use of ferrite rods. See "Solving RFI Problems in Home Entertainment Devices," starting on page 93 of Ham Radio Magazine, July 1973.

## Your system

Figure 4 shows a typical amateur installation with TVI/RFI reducing components installed. Note the grounds, ferrite rods, shielding, etc. Use two low pass filters, as shown. Put your SWR or power meter between the linear amplifier and the output low-pass filter, because SWR meters have diodes, too. If any harmonics are generated there, the low-pass filter will help keep them home.

The usual installation has a 2-meter antenna at the very top of the tower. Here again, just like the rotor, if there is any non-linearity in your 2-meter rig, it can generate harmonics and cause TVI without even being turned on! It can wipe out TV channel 2 when you operate on 10 meters. When chasing TVI, to eliminate this factor, disconnect your 2-meter gear from its coax.

Early in your TVI hunting, put a dummy load at the end of the coax at the top of the tower, instead of the antenna. If there is no TVI then, but the TVI comes back when reconnecting the antenna, you can be sure the RF radiated by the antenna is getting into something non-linear and reradiating TVI.

One amateur ran a 240 volt power line to his station using overhead wiring. TVI was eliminated by putting the power line in metal conduit.

When house wiring picks up your RF, it can be tuned out by plugging in capacitors into outlets around the house. See Figure 5. Make up six or so.

## Filters

Filters are a *must* in the antenna leads of both your transmitting installation

and the TV receiver. For transmitting use a low-pass filter. This passes your transmitted frequencies, but cuts off harmonics above 40 MHz or so. Bip recommends filters made by Drake. On the TV receiver, the opposite kind of filter is needed. This is a high-pass filter, which passes the TV frequencies, but holds back your strong fundamental frequencies. Drake filters are available for both 300 ohm feedline and 75 ohm coaxial cable.

Ham Radio Outlet sells a high-pass filter — model TVR — for about \$5, and it is excellent.

If you see your TV complainant's set, get the make and model number. Check it against the RFI Assistance List in QST, May 1981, page 47. Perhaps the manufacturer of the set will provide a filter. In any case, get someone else to put the filter on. If you work on the set, you'll be blamed for any future problems with the set, even two years later.

Legally, you're not required to pay for a filter for your neighbor's TV set. However, Bip looks at this philosophically. If you were a golfer, you'd pay for lost balls and greens fees. You'd consider it the cost of enjoying your golf hobby. Bip suggests stocking filters and ferrite rods, so you can "loan" them to your neighbors. The money you spend this way to enjoy your Amateur Radio hobby could be well worth it.

## More information?

Bip has collected a series of notes which includes reprints of some of the articles referred to in this article. They have been reproduced as a public service by Varian Associates (Eimac). Bip will be glad to send you a copy if you will send him a large (9" x 12") SAE with 63 cents postage. His address is W.E. "Bip" Bachman, W6BIP, 880 Dartmouth St., San Francisco, CA 94134.

## References for W6BIP's RFI/TVI presentation (Magazines are usually available at your main county library.)

- 1) "A Ground Is Not Always A Ground," by Robert L. Ruyle. Popular Electronics, August 1967, page 60.
- 2) "Improving Earth-Ground Characteristics," Roger Hoestenbach, W5EGS. QST, December 1976, page 16.
- 3) "RF-induced Problems and Solid-State RTTY Terminals," by Bill Henry, K9GWT. CQ Magazine, December 1981, page 36.
- 4) "TVI Can Be Reduced," by Philip Rand, W1DBM. QST, May 1948, page 31.
- 5) "Coaxial cable — The Neglected Link,"

by Charles Brainard, WA1ZRS. QST, April 1981, page 28.

6) "The Amateur's Workbench," "Keeping It Home," by Joe Carr, K4IPV. Worldradio, July 1980, page 50.

7) "TVI From An Antenna Rotator," by Edwin Hill, W3URE. 73 Magazine, August 1970, page 65.

8) List of TV Channel Frequencies Reference Data for Radio Engineers, 4th Edition, by International Telephone and Telegraph Corp., page 787.

9) "Solving RFI Problems in Home-Entertainment Devices," by John De Volder, ON4UN. Ham Radio, July 1978, page 93.

10) "Doughnuts for Tennessee Valley Indians," by John Wick, W1HIR. QST, March 1982, page 16.

11) "RFI Assistance List Update," by

Harold R. Richman, W4CIZ. QST, May 1981, page 47.

12) "TVI from the Health Remote Coaxial Cable Switch," by Jim Abercrombie Jr., N4JA. QST, September 1982, page 42.

13) "Tracking the Terrible TVI," C.L. Chuck Hutchinson, K8CH. QST, February 1983, page 33.

14) "Color TVI — A Solution," Carl Eichenhauer, W2QIP. QST, March 1981, page 22.

## Bip's credentials

W.E. "Bip" Bachman, W6BIP, has been a radio amateur for over 56 years, having received his NU6BIP call in May 1928. Received his BSEE Degree from the University of California, Berkeley, in 1934.

He enjoys contests — has about 5,000 contacts a year on his home station on both CW and phone — all on different frequencies. This total does not include 2-meter contacts.

Bip was employed as a ground radar engineer during World War II with the Signal Corps and Air Force. He was with General Electric from 1947-1959, starting as foreman of the TV and Radio West Coast Service Center, and later as electronic field engineer, covering all GE equipment made for military aircraft, including radar, infra-red equipment, auto-pilots, navigation systems and miniature computers.

He worked for Ford Aerospace and Communications Corp. (formerly Philco-Ford Western Development Laboratories) as an Engineering Specialist from May 1959 until retirement in December 1976. While there, Bip developed state-of-the-art modifications for the Air Force satellite tracking stations. In 1960, while president of SPARK (the ham club of Philco-Ford), he motivated the members of that club to build the electronics for OSCAR-1, which was successfully launched into orbit.

W6BIP was SCM of the San Francisco Section of ARRL from 1961-1963 and Assistant Director of the Pacific Division of ARRL from 1961 to 1978.

In 1974, he was awarded the Pacific Division Outstanding Amateur Merit Award for R&D on Hi-Fi Interference at the annual Pacific Division ARRL Convention in San Mateo, California. He was named "DX'er of the Year" for 1982 by the Northern California DX Club. □

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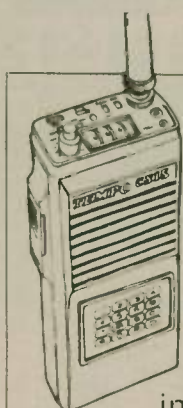
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# PUBLIC SERVICE

## Ham/police cooperate

Lenore Jensen, W6NAZ

Several "police-type hams" assisted Officer Frank Pettinato, WB6ELR, conduct a thorough all-day training session on 04 March, at the Los Angeles Police Academy, with more than 100 attending the "AREST" support team meeting.

Some are Reserve Officers in uniform, and several are Specialist Reserves in "civvies." The rest were ham volunteers willing to participate in special surveillance activities as well as for those of the upcoming Olympics in the City of the Angels (and assorted others.)

Pretty Jacquie Muller, KF6ZFK, a Technical Reserve officer, recently earned her uniform by passing the same rigorous four-month Academy training as that given to males. She climbed walls, did countless push-ups, learned to shoot guns and studied law, community relations, etc. Jacquie gave a helpful talk explaining the differences between theft, burglary and robbery which are so often misunderstood. (Robbery involves the elements of force or fear, to an individual. It's a felony, as is burglary.)

Her daily work is as assistant vice president of a prominent bank, and she comes from a family which has lived in Los Angeles for five generations — hence, her strong desire to be involved in community service. On most weekends, she rides in patrol cars. Having started as an observer to ham volunteers in surveillance work, she quickly decided to earn her own ticket.

Officer Larry Abker, who plans to have his own call very soon, conducted a refresher course in CPR, urging all present to become proficient in this life-saving technique.

The ARRL District Emergency Coordinator for the Northwest part of the huge Los Angeles Section is Len Drayton, WA6LAU. He had just completed the Academy's training, anxious to help the city's challenge of expected crowds in July and to find best ways for amateurs of ARES to serve. He now is a Technical Reservist.

Emergency Coordinator to the city of Los Angeles for ARES is Bob Burns, N6ZH, who serves as a Specialist Reserve officer in computers and photography. Others holding the Specialist title are Frank Iverson, WA6ZCQ, and the well-known attorney, Joe Merdler, N6AHU, who does much of his police assistance to the city of San Fernando. Norm Friedman, W6ORD, is another with Specialist rank.

Don Rubin, KA6QOV, is a uniformed Technical Reserve officer who assisted Frank Pettinato in the coordination of



Amateurs who work closely with the West Valley Division of Los Angeles Police Department (left to right): Bob Burns, N6ZH; Frank Pettinato, WB6ELR, Len Drayton, WA6LAU; Jacquie Muller, KF6ZFK; Dan Rubin, KA6QOV; Frank Iverson, WA6ZCQ; Norm Friedman, W6ORD; Larry Abker, soon to be licensed; and Joe Merdler, N6AHU. (Photo by Gene Ford, N6ERJ)

the day for the West Los Angeles Division of LAPD.

Line Reserve Officers (entitled to wear guns) include Al Westersten, NB6K, and Tracy Lusk, WB6CJW. Another Line Reserve works full time as a desk officer at the San Fernando post — Kathy Christopher, KA6SZA.

An especially informative exercise of the day was a "street crime" enacted by some of the officers dressed in street clothes. The volunteers attending used binoculars to watch both a robbery and a burglary. Following the incidents, a discussion proved how differently people can see the same thing. Gene Ford,

N6ERJ, and Bob Burns then played back a videotape of the performance to prove the actual facts. Pettinato gave tips on how to be an accurate observer.

Although the day was mainly a project of the West Los Angeles Division, other areas have their own ham cooperation. Van Nuys has an effective Ham Watch team which has been documented here earlier.

As the population of the Southland increases at a rapid rate, police population remains the same size. Therefore, amateurs can perform invaluable public service when needed. □

## Amateurs 'tune up' for Marathon

Seven members of the Lincoln ARC provided checkpoint communications for the Lincoln Track Club's 9th Annual "Statehood Day Run," on 25 February. The race, which consists of a three-mile as well as a 10-mile competition, drew entries from throughout the Midwest. Club members linked checkpoints with

race officials in order to provide race information, as well as to report problems (none occurred).

This event is an important "tune-up" for the club's coverage of the annual Lincoln Marathon, which takes place in May. — Reynolds Davis, K0GND □

## How to handle health and welfare traffic

Jim Cannon, WA4PIZ

As a ham, sooner or later, someone is going to ask you to find information concerning a friend or relative in a disaster area. I am sure with your experience and natural ability, you will be able to get the job done, but maybe a few helpful hints are in order.

1) If you do not know anything about nets, start learning. Although emergency nets do not operate like traffic nets, there are many things you can learn from them such as net discipline. Also, emergency nets usually operate on the sectional net frequency. They will usually be on 75 meters at night, and also on 40 meters during daytime hours.

2) Explain to the inquirer that it may be difficult to get the information requested. The first order of business in the disaster area will be establishing communications within the area and with disaster service agencies such as the Red Cross outside the area. After this, health and welfare messages coming out of the area are given first priority. If telephone service has been interrupted, it will be extremely difficult to get any direct information.

3) Find out as much information as possible about the affected party. Get not only address and phone number, but the general location of the individual. Is it in the northeast or southwest of the city? What are nearby landmarks? With this information you may be able to get a report from the disaster area, which will at least partially relieve a troubled mind.

4) Locate the net frequency or frequencies and listen to see if they are receiving health and welfare traffic. If they are, you will probably need to make a formal radiogram. Check the ARRL message listing for numbered messages on health and welfare traffic. If the net is busy handling other traffic, look around the bands. Usually you will be able to find (please turn to page 16)

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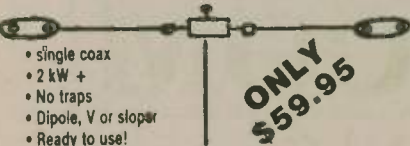
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## Public Service

(continued from page 14)

someone else in or near the area who can assist in some way. You may be able to pinpoint the most affected area, the extent of the damage and whether there are any known casualties just by listening in.

5) Exercise patience. Wait your turn, and be ready to wait a long time. Do not become part of a pile-up. This is not rare DX, but serious business. Treat it that way.

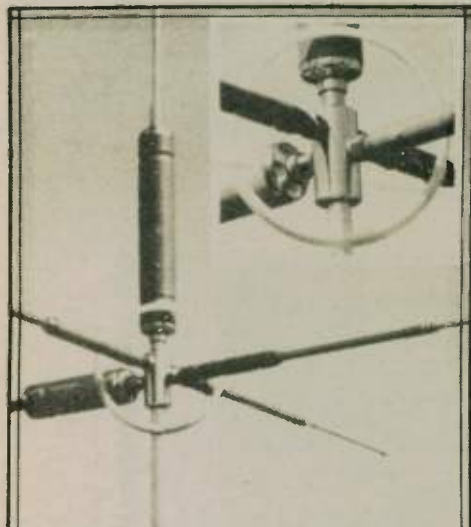
6) When you contact someone in the disaster area, be concise in your inquiry. That operator will want to know only name, address, phone number, and the name of the party inquiring. If he needs additional information, he will let you know.

7) Keep your inquirer posted on what you have found out or what you are doing to find the information. Ask him to call back if he gets the information from another source, so you can halt your operations.

8) Wear your crucifix, rub your rabbit's foot continuously, and throw some salt over your shoulder. You'll need all the outside help you can get.

— Birmingham ARC, AL

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## Cooperation — key to their success

On Friday, 17 February, President Howard Cochran, W4PPN, met with Stu Taber, Deputy Manager of the Greater Carolinas Chapter of the American Red Cross, for a presentation ceremony of a check in the amount of \$750. This was offered as a gift from the Mecklenburg Amateur Radio Society as a token of appreciation for the two organizations' continued cooperation in public service, and in pledge for continued future association.

The Mecklenburg Amateur Radio Society has stood ready and prepared for a number of years to aid the Red Cross with communications in the event of natural disaster or nuclear emergency, and has participated in many drills and public events.

In return, the Red Cross has provided, for many years, the use of their fine facilities for meetings, mail service and location of our club room and radio room.

— Mecklenburg ARS, Charlotte, NC

## Flood emergency in Pennsylvania

**Richard Sheasley, K3QDA**

On 14 February, at 1715 local time, the Lycoming County ARES was activated to stand-by status due to heavy rainfall which was causing small stream flooding and also was causing the Susquehanna River to rise rapidly. The condition was aggravated by the fact that the ground was frozen and none of the rain was soaking into the ground.

At 1757 EST local time, the net was called to emergency status on the request of the Lycoming County Emergency Services Director. The County Amateur Radio officer, Louis Paulauski, KC3FO, and the Emergency Coordinator Richard Sheasley, K3QDA, activated the net to emergency status and turned Net Control over to Senior NCS H. Vincent Bardsley, KB3OM, who then started what was to be a long net session for all. The Amateur RACES station (WC3AAN) was also activated at that time.

At the request of the Red Cross office, Don Godfrey, K3QFW, was sent to Red Cross Headquarters around 2011 EST. They then requested that other ARES members be assigned to go to evacuation centers, as they were needed.

The first center was opened at Round Hill School in Old Lycoming Township, which was hardest hit by the flooding of Lycoming Creek.

Paul McBride, W3ILG, and son, Matthew KA3IDD, were assigned to the

Round Hill School location and were there until the next morning.

Other centers were also opened, and communications were provided by ARES members. The following centers were opened: Jersey Shore, Pennsylvania — WA3MIX and KC3EH; Muncy, Pennsylvania — WB2TGW and WB3KRX; Red Cross Headquarters — K3QFW and W3JMY.

County station WC3AAN operators were: KC3FO; K3QDA; John Good, KB3LR; Jim Stratton, W3JEZ; Harold Bennett, W3FUB; K3QFW; Bill Hitchens, KC3EC; and Charles Hanford, K3EJK. The Clinton County station WC3AAA was operated by John Kruk, K3KR, and provided upstream river readings to Lycoming County until the river crested on 15 February at Lock Haven with a reading of 22.50 feet (flood stage is 21 feet).

The total stations active during the flood emergency totaled 50 stations. The net used the local 146.13/73 repeater, operated by the West Branch Amateur Radio Association, as the primary net frequency. The Bald Eagle Repeater Association's 147.69/09 repeater was also used for passing traffic and information.

The net was deactivated from emergency status around 1506 EST, 15 February, and placed on stand-by until later that evening. The total damage to Lycoming County was later estimated at more than \$5 million.

## Accident and spill require ham help

**Betty Taylor, WB9IGY**

On Saturday, 24 September, at 10:05 a.m., a personal injury accident with possible entrapment was reported to the sheriff's department. Two vehicles had collided on a narrow road bordering a gravel pit. One vehicle was submerged in 20 feet of water; the other was near the edge.

The civil defense was notified to coordinate other emergency services. The Hancock ARC was among those activated. Our purpose was to assist in traffic control and backup communications. Paul Daugherty, K9UXW, and Jerry Young, KA9QAF, were the first amateurs to arrive and set up their command post.

A wrecker pulled the first vehicle away from the edge, and rescue personnel removed the victims trapped inside. Divers removed the two occupants of the submerged vehicle. Another passenger who had been thrown from one of the cars was critically injured and required CPR.

When the sheriff's communications van arrived, it was parked next to the Amateur Radio Command Post to coordinate communications with all agencies involved. By 10:40 a.m., the victims had been removed from the vehicles and were enroute to the hospital. The wreckers were removing the one vehicle from the water.

At 10:50 a.m. Nick Gulling, N9CKO, sheriff of Hancock County, radioed EOC that there was another accident, just south of the Hancock Madison County line. Two cars and a truck carrying ammonia anhydrous liquid were involved. John Morris, KA9LPN, remained at the first site while the other mobile units were dispatched to the second site. Chalmer Swarts, WA9QVW, was stationed at the hospital to report arrivals and their condition. He also relayed information to other agencies to notify next of kin.

At 10:57, Tom Leonard, WB9RZG,

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arrived at the new Command Post set up by the Buck Creek Fire Department. He advised all Amateur Radio operators to avoid the immediate area due to fatal fumes. Tom coordinated with the sheriff, N9CKO, for the placement of amateur mobile units to block traffic and seal off the area. All roads were secured by 11:15 a.m., and the area was evacuated.

The civil defense director, Earl McCarthy, and two Amateur Radio operators got too close to the scene on the downwind side and were declared "early casualties." The civil defense chemical expert's truck battery ran down, eliminating the use of his civil defense radio. A third civil defense radio in the Emergency Coordinator's truck, Wayne Taylor, K9BRF, would not work. All messages to the EOC had to be relayed via 2 meters.

REACT was helping with traffic, evacuation and stretcher duty. They were outside the range of their base station and the EOC. Because of this they did not receive the information about the dangerous chemical fumes. Five members of the team were casualties. Paul K9UXW had a CB rig in his car. He relayed the information to other REACT units in the area.

At 12:10, Tom advised all units that the air was cleared and breathing apparatus no longer was needed. The perimeter area was moved to the actual site. The victims were treated and decontaminated at the scene and transferred to the hospital. Chalmer advised that the first ambulance arrived at 11:55. By 12:30, all personnel were released from duty.

Had you been monitoring the Hancock County ARC repeater, 145.33, on 24 September, you would have heard the above action. The Hancock Memorial Hospital, in conjunction with the county sheriff, scheduled this county-wide drill. The Hancock County ARES Emergency Coordinator, Wayne Taylor, K9BRF, decided this was the best exercise he could find for the annual Simulated Emergency Test (SET). Wayne is also the Civil Defense Communications Officer.

The standard operating procedures in Hancock County call for the first amateur on the scene to set up the Command Post (CP), and to coordinate with other agencies. The CP operator relays information to the Emergency Operations Center (EOC). The net control operator can dispatch additional amateurs as needed into the area.

Most of the club members have been trained in this procedure and the procedures for setting up the CP. They have also been trained in Net Control Operations. During drills such as this, new members — including Novices — ride with an experienced operator to get their on-the-job training.

This was our first exercise in hazardous material disasters. We need additional training in the proper handling of these events. We found that our county maps were inadequate for county line accidents (road numbers and names change in the adjacent counties).

The coordinated communications at both sites worked well. The sheriff, civil defense, hospital, fire and rescue units were complimentary of the Amateur Radio assistance in handling messages, relaying information, sealing off the area and yet staying out of their way. As was stated by one official, "Too often, volunteers are anxious to help even in areas they know nothing about and end up being a nuisance instead of help. All too often they become another victim." □

## WIA welcomes non-VK's

**Jim Linton, VK3PC**

On a recent visit to Australia, Ruthanna Pearson, WB3CQN, met many of her DX friends, including the YL's of the Australian Ladies Radio Amateur Association.

She spoke highly of the hospitality extended by the VK's, and others who have already visited Australia will know exactly what a friendly place it is Down Under.

Ruthanna met the Victorian president of the Wireless Institute of Australia (WIA) — Jim Linton, VK3PC who presented her with a WIA membership certificate.

WB3CQN is one of a growing number of non-VK amateurs who are joining the WIA, which is the world's oldest radio society. It was formed in 1910 and next

year, it will celebrate its 75th anniversary with some special activities. It is negotiating for a special call sign prefix to be issued, and word has it this could be 75WI.

Ruthanna said she expected many amateurs would join the WIA once they heard they could become members.

Membership subscription is A\$35, which should be sent to the Secretary, Victorian Division, Wireless Institute of Australia, 412 Brunswick St., Fitzroy 3065, Victoria, AUSTRALIA.

Overseas WIA members receive the WIA's monthly magazine called *Amateur Radio*, are eligible for Australian awards including the WIA's DXCC, and can use the free QSL bureau operated by the WIA in VK3. □



**Jim Linton, VK3PC** — Victorian president of the Wireless Institute of Australia — presents Ruthanna Pearson, WB3CQN, with a WIA membership certificate. (Photo by Ken McLachlan, VK3AH)

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## STATION APPEARANCE

Dr. Bruce Egalka, WT4T, of St. Petersburg, Florida, wins this month's Station Appearance.

He has been a ham since June 1975, when he received his Novice ticket. Since then he has held a General, Advanced, and is now an Extra Class licensee.

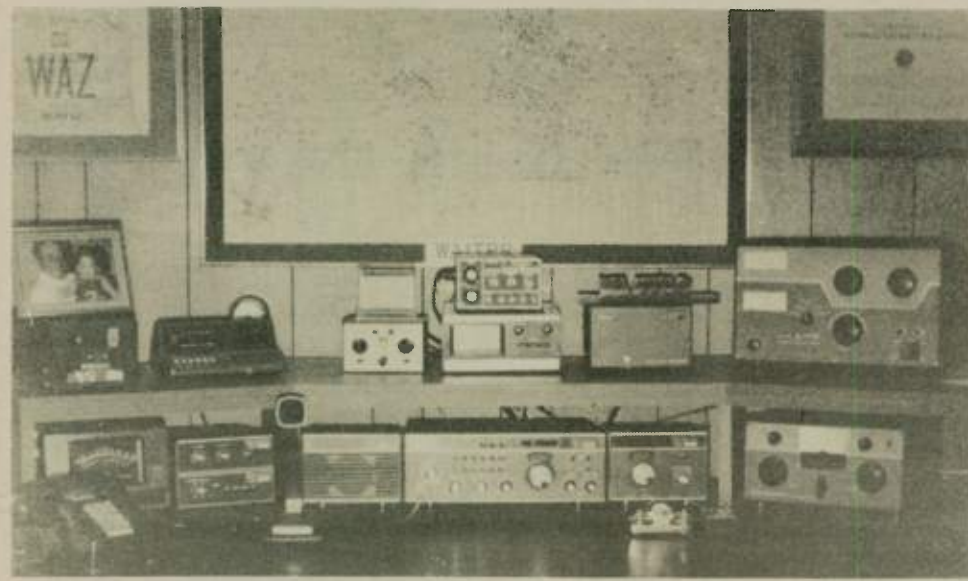
Bruce was a practicing dentist for 34 years in the New Haven, Connecticut

area, and retired to St. Petersburg, Florida in September 1979. He is an avid DX'er with 299 countries confirmed for DXCC.

His station consists of a Drake TR7A transceiver, MN-2000 matching network, Drake L-4B linear amplifier, Drake speech processor and phone patch, Drake remote VFO, microphone and matching MS-7 speaker. Also included is the electronic keyer and chrome Bencher paddle.

He uses an ICOM 730 transceiver for mobile operation with a Spider Antenna System, along with ICOM 2-meter gear. His base station antenna is a 6-element tribander beam at 52 feet (Wilson SY 36 System). For 30, 40 and 80 meters, he uses a Murch multiband dipole, also at 52 feet.

Bruce was also the second recipient (in 1978) of "The Worked 100 Nations Award", given by Worldradio when Dr. Egalka was WA1TPR. □



## Eagle Scout ham

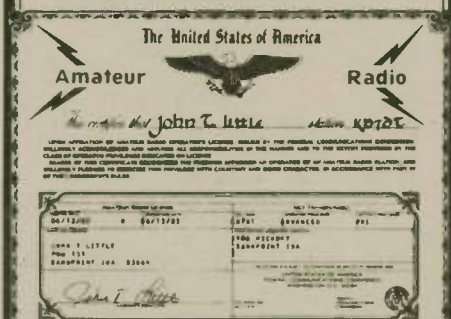
Michael R. Dargel, N1AMR, of East Lyme, Connecticut, was recently awarded the rank of Eagle Scout. Dargel, a sophomore honor student at East Lyme High School, has been a member of Troop 24 in Niantic, Connecticut since March 1981.

Dargel's Eagle project was to organize and direct Troop 24 scouts in the restoration of the entrance drive to the Smith-Harris House, a historical landmark in East Lyme.

Dargel, 15, received his Novice Amateur Radio license in 1977 at the age of 8. He upgraded to General in 1979. Along

with his father, Robert KA1BB, and 11-year-old brother, Brian KA1GKT, he is an active member of the Tri-City ARC.

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## Focus on Amateur Radio

J.A. "Doc" Gmelin  
W6ZRJ

The slow wheels of government — in this case, the FCC — grind toward the establishment of the long-awaited volunteer examiner (VE) program for Amateur Radio licensing.

In its latest move at the time of this writing, the Commission had finally appointed Volunteer Examiner Coordinators for five of the 13 call area regions defined in Section 97.507(b) of its Rules. Four of the five appointments are Amateur Radio clubs, while the fifth is the Region 12 Director of MARS in Puerto Rico.

Meanwhile, the ARRL continues to work toward the establishment of its own ARRL VE program. Final drafting of the League's plan is underway and was to be presented to the Board of Directors in March.

While the ARRL plan, in great part, hinges on the FCC enacting rules permitting the recovery of VEC expenses, the League is also wisely working out a program to achieve the maximum integrity and operation of Amateur Radio license testing.

The League's Board of Directors is to be commended for approaching a proposed system of testing with some caution.

Many amateurs question whether or not the new system will work, and many old-timers remember the abuses that were found in the old Conditional — or Class "C" — license program.

There were many cases where amateurs in some outlying areas actually bragged of the fact that they "got their license without taking any code test at all, or at least a code test that was questionable as to whether the candidate had actually been able to send and receive the necessary 13 wpm.

While both the League and the FCC are well aware of the problems of a volunteer exam system and are trying to make it as foolproof as possible, not everyone is honest. Human greed may lead to the "selling" of amateur licenses, as was reported to have been done at times in the old Class "C" program.

It is interesting to note, however, that there has been a form of "volunteer" exam program going for over 20 years, that being the Novice license exam, which can only be given by volunteer examiners.

How successful has this program been? It appears to have been nearly perfect, judging from the number of exams that have been given over the years without much cheating.

Of course, with the Novice license, only CW can be used. Thus, those who want to bypass the learning of code — or at



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least keep CW operation at a personal minimum — might not be interested in obtaining the Novice license.

One might have been able to cheat under the old license structure, but could rise no higher than Technician Class without taking a code test of at least 13 wpm at an FCC exam point. With an all-volunteer exam system, it may be possible to cheat on both the code and technical exam for all classes of license.

The Commission is attempting to build in "checks and balances" to see that this does not happen. If there are at least two or more examiners, it is believed there will be some reliability as to the honesty of the program. But it still might be possible for two or more individuals to work together to "sell" licenses to those who do not want to have to learn the code and/or perhaps the electronic theory necessary to pass the test.

In its release of "VEC Guidelines" in late February, the FCC gave instructions for Volunteer Examiner Coordinators (VEC's), making it clear that they are attempting to establish high integrity in this program.

The VEC will be responsible for most of the aspects of the Amateur Radio exams, and the FCC stresses that volunteer examiners will play the key role in establishing the necessary testing integrity.

The Commission strongly recommends that only Extra Class radio amateurs be appointed as volunteer examiners, since only Extra Class licensees can give all amateur tests.

It is probable that Extra Class amateurs might be the most reliable, since they have already gone the "full route" in the Amateur Radio license structure, and thus have established a certain proven reliability. But holding an Extra Class license is no sure sign of honesty, and no matter what class of license an individual holds, he may not be completely honest or above "taking a bribe."

In the eight-page document released by the FCC on 27 February, the Commission also lists 16 VEC functions for establishing local volunteer exam programs.

The 16 instructions are most detailed and make the job of the VEC a major operation. In all probability, such work will only be handled by Amateur Radio clubs or organizations, since the work requires more detailed activity than a single individual might wish to do.

Many amateurs, wondering about how well the program will work, have adopted a "wait and see" attitude. Will the program really turn out to have high levels of integrity and honesty? Will the program even be able to keep going after an initial push? After all, this may turn out to be more work than even a local or regional radio club would wish to take on.

What will the Amateur Radio community receive by the establishment of the new program?

Well, first of all, there will be many more opportunities than at present for people to take amateur exams. And they will not have to travel relatively long distances to an FCC office to take the test, as at present. And since there may not be as much pressure from what some individuals feel is the "hostile" environment in an FCC office, less may fail the exam due to nervousness.

Are these advantages worth it? Only time will tell. Let's give the program a try before we pass final judgment. □

## Pitcairn Fuel Fund

Dr. Charles "Mert" Moser, W6HS

The following have made contributions to the Pitcairn Fuel Fund:

The Magnificent Group Amateur Radio Net; Bill Montgomery, WA6ZSS, Laguna Beach, CA; Bob Reinauer, N7FOY, Bainbridge Island, WA; Vince Hooper, W6PRH, Camarilla, CA; Maurice J. Hindin, W6EUV, Los Angeles,

CA; Jack Casebeer, K6CE, San Carlos, CA; and Bob Craig, K6XZ, Santa Rosa, CA. TOTAL: \$117.00 □

## CAP needs you

John Lindvay, WB3IFD

Erie Squadron 502 is inviting local Amateur Radio operators to participate in the Civil Air Patrol. They are especially interested in amateurs for their radio expertise. □

The local squadron meets each Wednesday at the Armed Forces Reserve Center at 7:00 p.m. The cost of membership is \$26/year for adults and \$16/year for cadets. They have their own HF and 2-meter frequencies. They are also known for their excellent training programs for flying and related subjects.

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— Erie, PA □

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# DX WORLD

**John F.W. Minke III, N6JM**

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## Activities Calendar

28-29 April H-26 Helvetia Contest  
 26-27 May CQ World Wide WPX Contest (CW)  
 09-10 June World Wide South American Contest (CW)

## W-100-N

227. JG3RTT Nobuyoshi Muraoka  
 228. JA1HSF Katsumasa Kudoh  
 229. JA8UUA Yorimitsu Igarashi

Very interesting for 1984 — of the seven applications for Worldradio's Worked 100 Nations Award, all of them have been from Japan. JA1HSF and JA8UUA did theirs all single band, SSB, on 10 meters and 15 meters, respectively.

## Clipperton Island (FO0X)

The Clipperton DXpedition was cancelled, and the team returned to San Jose, California, by plane Sunday, 18 March. From what we can gather, the team was denied permission to land.

One consolation for the team is that they will have a shot at the Kermadec DXpedition that showed just before their return.

The present list of calls of the operators include W6OAT, W6SZN, W6TPH, W6RGG, KK6X, N6BLN, K3NA, N7NG, FO8IW, FO8AL, FO8GW, F6GXB, F9LX and DJ9ZB. The calls to be used were FO0XU through FO0XZ, with one call per band, simultaneously operating three stations around the clock.

Worldradio readers who have followed this column for a number of years will remember six years ago when the DX editor went along with the DXpedition as a member of the crew. Charles Signer, WA9INK — 'DX World' columnist at the time — was the stateside liaison behind the Clipperton DXpedition. Charles was busy with Clipperton, so at that time I assumed the role of DX Editor.

Over 28,000 contacts were made during that eight-day DXpedition, 20-27 March. Transceivers used during the operation were Atlas 350XL. Calls of the operators on that DXpedition were F5II, F6AOI, F6AQO, F6ARC, F6BBJ, F6BFH, F9IE, F9JS, HB9AEE, HB9AHL, HE9SWL, WA4WME (who — if I remember correctly — received a beautiful sunburn), W6HVN, N6IC, W6QKI, W6SO and WA9INK.

Since Charles was involved with the paperwork of the DXpedition, and was also an employee of Worldradio, Worldradio's address was used for correspondence. Many people assumed that this was a Worldradio function, which was not the case.

## Kermadec Island (ZL8)

The DXpedition to Raoul Island in the Kermadec group showed the weekend of 17-18 March. At least three calls were

heard at this location that weekend — ZL8AMO, ZL8BQD and ZL0AJW/8. The bands were buzzing despite the jamming, confusion, etc. The team was working them at a tremendous clip.

A 10-day stay was planned. At the rate they were going, almost everyone who made an honest effort should've worked the DXpedition.

Warwick ZL8AFH is available from Kermadec and has been on often, usually on the following frequencies: 3.795, 7.085, 7.195 and 14.220 MHz, between 0800 and 1000 UTC. The DXpedition should take some of the pressure off of Warwick.

## Aves Island (YV0)

YV0AA showed from Aves Island the beginning of March and was on only for a couple of days. Duration of the stay overlapped into the ARRL International DX Competition. Alert DX'ers were able to snag this one on CW, while many of the rest of the crowd were elsewhere trying to pile up points in the contest. This editor got him for a new one on 40 meters with about 20 watts output into a sloping dipole toward the northeast. QSL information for YV0AA is listed at the end of this column.

## Cocos Island (TI9)

The DXpedition to Cocos Island is also

history, with the DXpedition operating under several calls (TI9CF, TI9CCC, TI9CRM, TI9JVA, etc.), depending upon the operator at the time. The DXpedition appeared on Sunday afternoon, the 19th of February, and operated through until Friday.

According to RSGB's *DX News Sheet* editors Martin Atherton, G3ZAY, and Don Field, G3XTT, the team had interaction problems between the stations, which would not allow them to run simultaneously on certain combinations of bands.

QSL information for this operation was given in last month's column.

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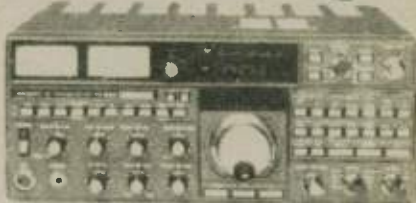
FT-ONE



IC-751



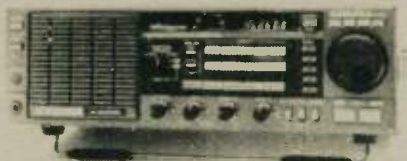
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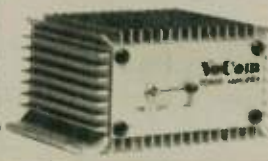
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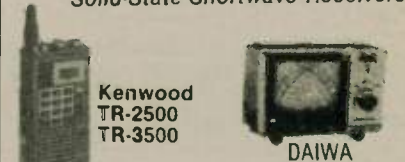
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### Marshall Islands (KX6)

Dave Sublett, KX6DS, who operates as K4TO while in Alabama, has been very active on the bands giving out Kwajalein to the deserving. In his letter dated 01 March, Dave writes, "I've been on Kwajalein, Marshall Islands, for three months now. I work 80 through 10 meters, SSB and CW. I've made 8200 QSO's — 75 percent on CW, more than 50 percent on 80 and 40 meters. I'm in the process of putting a TH7DX on a 45 ft. telephone pole. So far I've only had a homebrew vertical and a 125 watt output from a TS930S. I have no linear amp yet, but hope to soon. I expect to be here two years."

Please see additional comments from Dave in the section 'QSL Information'. Dave has been reported on 21.024 MHz around 2400 UTC, and later near the same frequency at 0800 UTC working Europeans.

Other active calls reported on the bands include KX6PO, worked on 7.087 MHz from Europe at 0745 UTC, and stateside near 21.330 MHz from 1900 UTC. KX6DX has been reported on 7.005 MHz around 1000 UTC, KX6DF on 21.285 MHz from 2100 UTC, and KX6OI on 14.290 MHz at 0700 UTC.

Five-band DXCC types might check with KX6DS to complete this one for the required five bands. Dave says that as long as he is on Kwajalein, he will try to give as many KX6 contacts as needed, CW or SSB, 80 through 10 meters.

### Franz Josef Land (UK1P)

Take a listen for UK1PGO if you need Franz Josef Land, who has been reported on 40 meters near 7.060 MHz around 0700 UTC. He is also on 7.095 MHz every Tuesday from 0700 UTC.

The station has also been reported on 80 meters where he has been worked at 0530 UTC on 3.502 MHz.

### Turkey (TA)

The problem with writing this column, even though I have all the information, I still don't work the ones I seem to need, including this one. But that is my own fault, as I should keep the necessary information at my fingertips, right next to the rig. So, if N6JM listens carefully, he might find TA0A/2 or TA1UA/2 on 21.025 MHz around 1300 UTC. Also, TA2TAT was reported on 7.014 MHz at 2200 UTC working into the East Coast.

Another station, TA1SU, has been busy working Europeans on 3.586 MHz at 1945 UTC and 7.075 MHz at 1915 UTC.

### Congo (TN8)

Not much on this one. Joerg TN8AJ has been reported on 40 meters only and was scheduled only for three weeks of operation. QSL this one via Wolfgang Lichthardt, Y25LO, Logauweg 6, DDR-117, Berlin, WEST GERMANY.

TN8EE was on vacation in France and was due to return to The Congo in March. Most likely he is on now.

### 160 meters

This band is just about through for North America for the season, but here are a few of what is lurking about on the

top band. Frequencies and times, of course, are kHz and UTC:

CO2CQ	1825	0500
CT4BD	1832	0600
CY9SAB	1835	0400
EA8QO	1833	0600
EA9KF	1825	0400
EI8BK	1832	0300
FC9VN	1832	0600
FG0HLI/FS7	1829	0200
GD4BEG	1826	0600
HK6BRK	1829	0400
W4US/HR1	1829	0100
JY9RC	1840	2300
KH6DX	1826	1200
KL7Y	1817	0800
LA7XP	1827	0300
LZ1KDP	1828	0100
OK2PG	1834	0600
OY7ML	1834	0700
SP9DH	1833	0300
SV0AA	1831	0400
SV5OX	1833	0300
UO5GQ	1850	0500
ZB2EO	1832	2300
ZK1XR	1812	0800
4X4NJ	1832	0300
7X5AB	1847	0500
9H1CG	1831	0300
9K1BE	1831	0300

Most of the above are reports of stations on the East Coast. European sources list the additional calls:

H18DAF	1826	0345
J37XC	1825	0415
TF3KG	1831	0500
YV1OB	1826	0445

Look for one of the summer issues for the 160-meter frequency allocations.

### Toda Republica Argentina

This is one of the several awards sponsored by the Radio Club Argentina. To qualify for the TRA award, you must have worked and confirmed all 25 of the Argentine provinces. There are no mode or band restrictions, but all contacts must have been made since 20 November 1945.

Applications should include the name of the province, call, date, band and mode. QSL cards are required, although they may be verified by your national Amateur Radio society stating that the necessary cards have been checked.

Please be aware that the ARRL is not equipped to check QSL cards for awards other than ARRL awards (or the IARU WAC). The cost of this award is \$5 U.S. or 10 IRC's. Address all applications to: Radio Club Argentino; Award Manager; Sr. Ricardo Schroder, LU8AEJ; Casille de Correo 97; 1000 Buenos Aires; ARGENTINA.

Argentine provinces:

LU1AA - LU9CZ	Capital Federal
LU1DA - LU9EZ	Buenos Aires
LU1FA - LU9FZ	Santa Fe
LU1GA - LU9GO	Chaco
LU1GP - LU1GZ	Formosa
LU1HA - LU9HZ	Cordoba

LU1IA - LU9IZ	Misionera
LU1JA - LU9JZ	Entre Rios
LU1KA - LU9KZ	Tucuman
LU1LA - LU9LZ	Corrientes
LU1MA - LU9MZ	Mendoza
LU1NA - LU9NZ	Santiago del Estero
LU1OA - LU9OZ	Salta
LU1PA - LU9PZ	San Juan
LU1QA - LU9QZ	San Luis
LU1RA - LU9RZ	Catamarca
LU1SA - LU9SZ	La Rioja
LU1TA - LU9TZ	Jujuy
LU1UA - LU9UZ	La Pampa
LU1VA - LU9VZ	Rio Negro
LU1WA - LU9WZ	Chubut
LU1XA - LU9XO	Santa Cruz
LU1XP - LU9XZ	Tierra del Fuego
LU1YA - LU9YZ	Neuquen
LU1ZA - LU9ZZ	Antarctic bases

Thanks go to Alan Shawsmith, VK4SS, and his 'Work the World' column in the Australian Amateur Radio publication, *Amateur Radio Action*. From the above list of provinces, note that the first letter in the suffix of the call indicates which province, not the numeral. Argentina doesn't have call area.

This is a difficult award to complete as all 25 provinces are required. I might suggest checking 10 meters at the high end of the band (28.900 and above), as many of the Argentine Novice operators are up there.

### Comments

Lou Bean, KV4JC, writes, "I note that Burma consistently rates at or near the top of the *Worldradio's* 'Most Wanted' DX list. It would be on mine also, if I hadn't already worked it and have a beautiful QSL to confirm XZ9A. Great, only ARRL, in its mysterious ways, does not allow this 'country' for DXCC. One wonders why. Granted, the card shows 'East Burma' and bears an imprinted seal showing 'Government of Kawthoolei'; all maps I've checked make no distinction. Can anyone clarify why this XZ9A is not approved for DXCC?"

I think you have answered your own question, Lou. The government of Burma does not authorize Amateur Radio and does not recognize East Burma or Kawthoolei as independent states from Burma. Therefore, those XZ5A and XZ9A calls cannot be credited as Burma for your DXCC. There is nothing mysterious about Newington Radio Club's reasoning at all. That is the way it is. But as you say, it is a beautiful card. Incidentally, the "Most Wanted" list is not ours, but that of *The DX Bulletin*, edited by Jim Cain, K1TN.

Lou adds a postscript to his letter, "I've only held my license for 52 years (ex-W6FQK, W9DRW, W0VPJ), and this is the first time ever, that I worked Burma! Sure is a tough one."

An interesting note was received from Leonard Robinson, W6WO, who writes, "I received a card from KL7PJ/P for a 14

MHz CW contact so decided to check my 'KL7' files and found KL7DNE, CG Loran Radio Station, St. Paul Island." The date of this contact was 21 May 1961.

The recent Pribilof Islands DXpedition by the Alaska DX Association was from St. Paul Island (calls KL7PJ/P on CW and KL7RA/P on SSB). If the club ever succeeds in getting the Pribilofs as a separate DXCC country, I wonder if this will be retroactive to all contacts made from this island group.

### Clubs

The Kansas City DX Club held a "Reunion Night" on 26 March to celebrate its 25th birthday. From what they can determine, the club was formed sometime between 1956 and 1958, which included several inactive years. As a consequence, they are celebrating their 25th year of full-time operation. I wonder what they will come up with during the year.

### Those Most Needed Surveys

It seems that everybody is into Most Needed Surveys now. The one we use in our column is that of *The DX Bulletin* and is based entirely on subscribers. It does not actually reflect the needs of others and especially from other parts of the world.

*Amateur Radio Action*, an Australian Amateur Radio publication, is preparing

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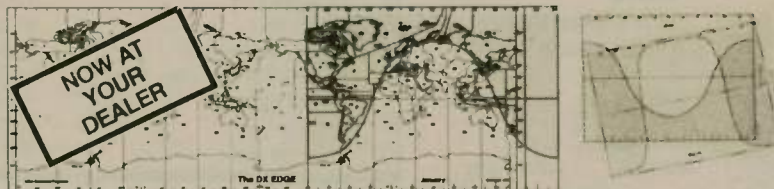
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JUNE 1984

UTC	AFRI	ASIA	OCEA	EURO	SO AM
0100	16.6	21.0	26.4	16.2	21.9
0200	14.8	21.5	26.5	15.6	21.5
0300	14.6	21.9	27.0	15.4	20.0
0400	18.1	21.8	27.1	15.7	18.4
0500	17.7	20.6	26.1	15.1	17.3
0600	15.8	19.2	23.8	15.3	15.7
0700	14.0	18.5	20.8	15.2	13.4
0800	12.4	18.3	17.6	14.0	11.8
0900	11.3	17.7	15.0	12.2	12.5
1000	11.2	16.4	13.6	12.6	15.9
1100	12.0	15.1	13.3	13.0	15.7
1200	13.3	14.5	13.1	14.1	15.8
1300	14.9	14.8	12.9	15.7	17.8
1400	16.3	16.0	13.1	17.3	20.1
1500	17.3	18.0	13.8	18.5	21.0
1600	17.7	18.4	14.0	18.9	20.6
1700	17.9	18.0	12.9	19.0	20.9
1800	18.4	17.9	11.9	19.4	22.6
1900	18.9	18.7	12.9	19.8	24.4
2000	19.0	20.6	16.4	19.8	25.2
2100	19.0	21.8	20.8	19.4	25.0
2200	19.3	21.9	24.3	18.5	23.3
2300	18.8	21.6	26.1	17.7	21.8
2400	17.9	21.2	26.5	16.9	21.5

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a Countries Needed Survey directed at amateurs in Oceania. The forms for this survey were included in the February issue of *ARA* (Volume 6, No. 11). Interested parties in Oceania should write: ARA DXCC Survey, GPO Box 628E, Melbourne 3011, AUSTRALIA. By participating in the survey, you will have a chance to win an External VFO from Dick Smith Electronics.

*Amateur Radio Action* is also preparing what they call the "ARA DXCC Honour Roll," in which they say, "Commencing immediately, Oceania will boast its own DXCC Honour Roll with all the prestige and satisfaction currently associated with acceptance to that great institution in 'Kilowatt Country'. There will also be a special section for Novice license holders."

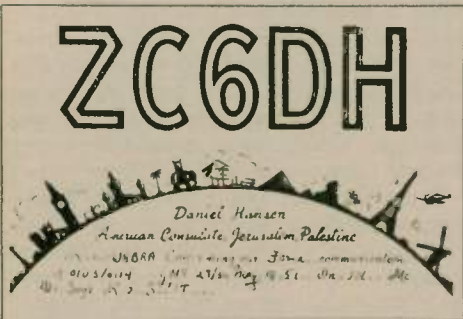
The comment "Kilowatt Country" is interesting. I wonder who they mean? I bet the average Australian runs more power than I do, as all I use is an IC-740 without an amplifier.

### Antique QSL Department

I went back through my files for these that were submitted by Dave Kennedy, N4SU, about three years ago. Dave was operating as W8BRA when he made the contact with VS2CP (the one with the smiling kitty) of Malaya, on 24 December 1949. Dave received a report of RST 559 for this contact on the 20-meter band.



The operator was Phil Zeid, operating from Scarboro Estate, Sungei Patani, Kedah, who also held the call G2HAG. The back of the card indicated that the card was sent through the QSL bureau, the W8 QSL Manager being William B. Davis, W8JNF, of Cleveland. Malaya became a deleted country in 1963.



Dave also submitted the ZC6DH card for a contact he made in 1951. The operator, Daniel Hansen, was with the American Consulate in Jerusalem, Palestine. This country also made the deleted list in 1968.

Mozambique has not been deleted, although it might as well be, as there has not been any activity from there in recent times. The CR7AK card was submitted by Don Haskell, W7CL, who worked this station back on 16 December 1938. Don says his rig at the time was 47 oscillator, 46 doubler, 210 buffer, 211D driver and 852 final. He received a RST 449 for the 20-meter contact; he was then using the call W6CPM. Back in those days, the 6th call area included more



than just California. The card was printed in blue with gold trim. The operator of CR7AK was indicated as P.L. Feuilherade.

### QSL information

Dave Sublette, KX6DS, requests that all QSL cards for K4TO/KX6 and KX6DS be sent via the North Alabama DX Club, P.O. Box 4563, Huntsville, AL 35815-4563. Please include an SASE or SASE and IRC.

He does not wish to receive QSL cards through either the KX6 bureau or the 4th call area bureau, or direct to his personal P.O. Box number on Kwajalein. Dave says, "The volume of QSO's I am making renders it totally unfair to the volunteers at these bureaus and too slow and expensive by my box number. Besides, my P.O. Box is only 2" by 6" by 12" deep or so. Can you imagine the post office trying to cram 600 QSL's per week into this space?"

"The folks at NADXC are really doing a great job. Believe me, it takes a big load off my shoulders and I appreciate it. Thanks a lot."

Charles Gspann, W2ZEE, requests help on obtaining a QSL card from Noel Lokuge, 8Q7AV, for a contact made back in August 1980. Immediately following the contact, Charles sent his QSL card, including IRC's. Later he sent another card, but as of mid-February 1984, nothing has been received from Noel. Any suggestions for Charles? In my case, I worked Noel and received his card. You might check to see if you are using his correct address. The address on his card gives: Noel Lokuge, Four Winds, Male, REPUBLIC OF MALDIVES. Also, be sure not to indicate — in any way — reference to Amateur Radio on your envelope.

Effective 01 February, 1S1CK (Spratly Island) QSL cards now count for DXCC credit. This was from the DXpedition to Panata Cay last fall by Chito Kintanar, DU1CK, and Waling DU1US. In addition to 1S1CK QSL cards, credit is now being given with the acceptance of TN8EE QSL cards for The Congo.

Having trouble with getting your QSL cards from LU5ZR, LU5ZI, LU5ZE and LU5ZA? (Yes, I am, ed.) Try this address: Gorostriaga 2320 P-15A, 1426 Buenos Aires, REPUBLIC OF ARGENTINA. Don't use the Callbook of LU2A, as the mail is being stolen.

Those of you who were fortunate enough to work the space shuttle and are still waiting for a QSL card, (and haven't mailed an SASE for it), should send one to: STS-9, ARRL, 225 Main St., Newington, CT 06111. Be sure to mark your envelope "2-way QSL".

Harvey McCoy, W2IYX, of *The Long Island DX Bulletin*, reports that several DXpeditioners have noted undecipherable scribbling on some QSL cards received and have had to discard them without answering them. Also, some people use their local time instead of UTC, which slows the process of answering QSL cards. This really amazes me how any DX'er would keep his log in local time when all the available information is in UTC. My station clock and log are always in UTC.

### QSL routes

A6XYB	-W6EYB	FP0HOQ	-NS4M	A22BW	-P.O. Box 76, Francistown, BOTSWANA
A22ED	-K4EBY	G8GRN/5X5	-G4CTQ	A24JH	-P.O. Box 76, Francistown, BOTSWANA
A22MT	-ZS6BDL	H44R	-H44DX	A71BJ	-P.O. Box 180, Harrow, Middlesex, ENGLAND
A22ZM	-ZS5CU	H21OT	-W2KF	A92P	-P.O. Box 14, Manama, BAHRAIN
A35WW	-JA5DQH	HLIANV	-JA4HST	AP2P	-P.O. Box 999, Rawalpindi, PAKISTAN
AH2E	-N9AVY	HL9AH	-N7DOF	C6ADV	-D. Perrier, P.O. Box 301, Autec, FPO Miami, FL 34058
AH2K	-KH6JSG	I2GYH/IA5	-I2MMH	C21RK	-P.O. Box 139, NAURU
AH2L	-W4PKM	J6LJG	-W2LZX	CR9CT	-P. Weaver, P.O. Box 12727, HONG KONG
AH3AA/KH9	-W1ISD	J28DS	-F6DZD	D68WB	-W. Barrett, P.O. Box 340, Moroni, COMOROS
AH6BK	-NE4S	JY8JK	-G3KPV	DF3LK/ZS3	-P.O. Box 670, Walvis Bay, REPUBLIC OF SOUTH AFRICA
AH6DY	-KW6HF	K2BDY/DU7	-K4PT	DU6BE	-P.O. Box 607, Bacolod City 6001, PHILIPPINES
AH9AA	-KW6HF	K2KTT/PJ7	-K2KTT	EF9HE	-P.O. Box 33, Malilla, SPAIN
AH9A	-K4AVU	K4LTA/PJ7	-K4LTA	EL2GE	-P.O. Box 2751, Monrovia, LIBERIA
AH9B	-JA2VUP	K4FW/VP2K	-K4FW	EL2P	-P.O. Box 1929, Monrovia, LIBERIA
A15P/KP2	-A15P	K6SD/HR2	-W6MZB	FW8AF	-P.O. Box 92, Matauta, WALLIS ISLAND
AK5D/CE	-KA6JNW	KX6OH	-VK9NS	FY7KRU	-P.O. Box 450, Kourou, FRENCH GUIANA
AM8AFS	-EA8XO	LG5LG	-SM0MLL	H44IA	-P.O. Box 219, Honiara, SOLOMON ISLANDS
AM9AM	-EA9IE	L08EDK/Z	-LU2CN	HK1QQ	-P.O. Box 523874, Miami, FL 33152
AM9IB	-EA9IB	L20KRB	-L21KRB	J28CL	-Philippe, B.P. 1928, DJIBOUTI
AM9IE	-EA9IE	N2TM/SV5	-N2TM	J28EC	-P.O. Box 1076, DJIBOUTI
AM9KF	-EA9IE	N4BP/CSA	-N4BP	J28ED	-P.O. Box 2417, DJIBOUTI
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AP2UR	-W8QFR	OH9TH/4U	-OH9RJ	JY5RBM	-P.O. Box 7698, Amman, JORDAN
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DF0WCY	-DL2ZAE	T080IW	-K1CC	TI6GDL	-P.O. Box 887, Port Limon, COSTA RICA
DJ3XD/HB0	-DJ3XD	T22XN	-DK2XN	TU2DI	-P.O. Box 350, Abidjan 01, IVORY COAST
DJ5WCY	-DF6EX	U3LQM	-UK3LAF	TU2GC	-B.P. 21, Toulepleu, IVORY COAST
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ED7WCY	-EC7CGA	V3EN	-N6ADI	VP8WA	-P.O. Box 38, Port Stanley, FALKLAND ISLANDS
ED5WCY	-EA5AR	V3EO	-N6ADI	VP8ZV	-P.O. Box 38, Port Stanley, FALKLAND ISLANDS
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EM5K	-UK5KAA	V3ES	-N6ADI		
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FG0MV/FS	-I8KDB	V3FL	-N6ADI		
F081W	-K1CC	V3JY	-N6ADI		

V30DX	-N6ADI	3A2WCY	-3A2ARM
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VK3WCY	-VK3ER	3D6BK	-NT6M
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VQ9AC	-KA3EDN	402WCY	-YU2DX
VQ9BC	-WB6WUH	404WCY	-YU4EBL
VU7JXO	-WA3TLB	405WCY	-YU5CXY
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WA0011/KH2	-WA0011	408WCY	-YU8KZB
WB01VS/KH7	-K6EDV	409WCY	-YU7BCD
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 8R1J -P. Taylor, P.O. Box 10767, Georgetown, GUYANA  
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 9M2CK -P.O. Box 777, Kuala Lumpur, MALAYSIA

9Q5RN -P.O. Box 12646, Kinshasa, REPUBLIC OF ZAIRE  
 9X5BG -P.O. Box 1325, Kigali, RWANDA

Contributors this month include W2ZEE, N4SU, N6AW, W6WO, W7CL, W9LNQ, W0CUB, KV4JC, KX6DS, Grupo Argentino de CW, Redwood Empire DX Association, Northern California DX Club, Southern California DX Club, Kansas DX Association, Kansas City DX Club, Amateur Radio Action, The Long Island DX Bulletin, The DX Bulletin and DX News Sheet.

Right now we are in the middle of planning our summer vacation tour. Those of you attending the ARRL National Convention in New York City, look for us at the Worldradio booth. I will also be running around trying to report on the activities for coverage in our paper. I will also be following my daughter around as she does her thing singing the national anthem at several baseball stadiums, (including the Canadian teams this year). Hope to see you in New York City. de John N6JM. □

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## Pacific

continued from page 4

### Proposals

The Section Managers and others had previously put their proposals in writing. These were the proposals that came from the affiliated clubs and Section assistants in the Section Managers' meeting. If passed, Director Stevens will present them to the ARRL Board later in the month.

- Tabulate the source of votes by ZIP code for two years only. This info would dispel the argument that population centers (and clubs) swing the votes. (Passed)

- Set up a welcoming program for foreign amateurs. Tell them rig customs, reciprocal licensing, operating procedures, list of radio clubs, etc. Doc Gmelin said the League was directed to do this 10 years ago. Apparently, they are not now doing it. (Passed)

- For DXCC credit for a satellite contact, remove the "above 1500km" rule. The West Coast is at a disadvantage, as East Coast amateurs can work

Europe on low orbiting satellites. (Passed)

- On a regular basis, articles in QST should stress proper operating techniques. (Passed)

- Since the FCC has stated it supports the ARRL VHF/UHF repeater band plans, the League should work more closely with the volunteer frequency coordinating groups. (Passed)

- What is the League doing on RM-4040? Some CATVI cases have been going on for over three years. The League should work toward bringing CATVI cases to a head promptly. (Passed)

- The directory of headquarters staff and their responsibilities (printed on yellow paper) should be updated and published promptly and regularly. (Passed)

- Put emphasis on the words *American Radio Relay League* when referring to the League. Saying "A double R L" should be a no-no. (Passed)

- Limit official appointments in the ARES to members of the League only. (When started in 1936, it included all, whether ARRL members or not.) There was much difference of opinion on this.

(Not passed)

- The basis and purpose of the Advisory Committees should be again reviewed by the Board of Directors and revised if necessary. (Passed)

- An affiliated club should be paid \$2 from headquarters when the member renews his membership directly to headquarters. (Passed)

- The page 8 listings in QST should be printed only every three or six months. The space to be used by QEX experimenters news. (Not passed)

- Move/Study the feasibility of a move of W1AW to another more central location in the United States. (Move not passed, Study passed)

- Limit the color of in-house printed materials to black and white. (Passed)

- Create/Study the need for a new department to coordinate public service activities, now under the Communications Department. There is not enough emphasis on these activities because of contesting, etc. (Create not passed, Study passed)

- Communications Department should change the requirement for Brass Pounders League certificate from the present 100 to 50 originations plus deliveries. (Passed)

- Life membership dues for members 65 or over be based on an actuarial table of life expectancy rather than a flat 25 years. (e.g., 66-70 16.7 years, 71-75 13.5 years, etc.) (Passed) □

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*RTTY TODAY* is available in a large 8-1/2" x 11" soft-bound edition, with easy-to-read style and format. The cost is \$8.95 (U.S.), plus \$1.75 shipping-handling. It can be ordered from Universal Electronics, Inc., 4555 Groves Rd., Ste. 3, Columbus, OH 43232. □



# W5LFL

(continued from page 1)

mented W5LFL. Between operations, he took the antenna down, to allow the others to look out the window, and taped it to a side wall.

"Every objective we set for ourselves pre-flight was achieved during the time we were able to operate the transceiver," said Garriott. "I was on the air for a total of about four or five hours. During that time, more than 300 two-way contacts were established." Among the lucky ones was Worldradio's DX Editor, John Minke, N6JM.

Garriott went on to say that he thought the 2-meter FM transceiver was an "excellent choice for this first effort. It's hard to imagine how we might've done things much differently." He did, however, mention two things he felt could be modified on future operations. One was the fact that there was no variable adjustment on the squelch circuit in the transceiver.

"The squelch circuit," Garriott explained, "operated such that it compared the signal at the center of the band with what it interpreted to be noise coming from the outer edges of the pass band.

"With  $\pm 3.5$  kHz (Doppler shifts), all these other signals coming in provided what the transceiver thought was a lot of extra noise on the fringes of the pass band. Therefore, if the signal wasn't stronger than the sideband noise, it turned on the squelch. Thus, the transceiver would be deadened, whereas I really had plenty of good signals, but just had no opportunity to inhibit the squelch.

"I probably missed 30 to 50 percent of the opportunities because of that squelch circuitry."

The type of headset used was the other point in need of modification. "I was operating with a very lightweight headset," said Garriott. "Just a little single bar over my head with one earpiece and a little sponge underneath that."

This was an advantage when used in a spacecraft, since there were several other things each astronaut had to be aware of at all times. However, it created a difficulty in working with ham equipment, for the obvious reason of too much outside noise.

"What we really needed," said Garriott, "was a pair of good headphones that would really isolate you from the outside world." He added that a double microphone jack would also be an advantage.

When will amateurs have another chance to work an astronaut in space via Amateur Radio?

Possibly, early next year, according to W5LFL. Tony England, another astronaut who is also a ham, is scheduled for a flight at that time. If Garriott gets a chance to do it again, he says he'll take time out of each transmission to inform hams that there is no receive on the downlink frequency — something he wishes he'd done on the STS-9 flight.

What finally made it possible for

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Amateur Radio to be used on space flights?

Two things, Garriott says: 1) new equipment, such as battery-powered hand-talkies, and 2) an advocate like Roy Neal, K6DUE.

Garriott explained that Neal had talked to the Associate Administrator for the Office of Space Flight at NASA, Lt. Gen. Abrahamson, and convinced him what a good idea this would be, and what the potential was for public involvement, as well as its potential use as a demonstration for backup communications.

The fact that a top official was in favor of this plan was, in Garriott's opinion,

"the most important thing that has changed" in the last few years.

What about the distant future? Does Garriott see Amateur Radio playing an important role in space stations and long space flights?

"Clearly, when you have people in orbit for from three to six months, everyone will recognize that you'll need some off-duty recreational activity. I'm convinced you'll find ham activity as one of those recreational interests, and that will expand opportunities."

Copies of the transmission tapes are available from ARRL: complete tape — \$5; brief highlights tape — \$3. Order

from ARRL, 225 Main St., Newington, CT 06111. An ARRL videotape made after the flight — *Amateur Radio's Newest Frontier* — is also available (\$25 VHS, \$35 U-matic, postpaid).

After his talk, Dr. Owen Garriott received two awards. The first was a certificate presented by ARRL Pacific Division Director Bill Stevens, W6ZM, for W5LFL's "unusual contribution to Amateur Radio." The second was a plaque from San Jose City College space communications students, presented by Paul Shuch, N6TX, in tribute to Garriott's "contribution to technical education."

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### UoSAT-2 becomes OSCAR-11

On a flawless launch of the Delta-174, at 1759 UTC, 01 March, from Vandenberg AFB California Uosat-2 separated from the rocket to become OSCAR-11.

On the first two orbits, good data was received from the 145 MHz beacon. On the third orbit, the spacecraft was "instructed" to activate the 145 MHz beacon for the succeeding 10 hours during the time it was out of range of the University of Surrey command station.

The following narrative was derived from a telemail report sent to us by Skip Reymann, W6PAJ:

The first indications that all was not well came from the printer when Larry Kayser wanted to know why he could not hear UO-11 followed by t/m from Phil Karn, etc. The UoS Command Team was "revived" and awaited the first pass of the day, orbit #8. The spacecraft was silent (again as expected) at AOS; however, repeated attempts to reactivate the 145 MHz beacon using the s/c computer failed, as did direct command.

Heated analysis of the situation resulted in the preliminary theory that the "Watch-Dog" timer (a device that deactivates the 145 and 435 MHz beacons after 21 days if no commands have been detected from the ground — remember UO-9!) may have been incorrectly initialized, and thus may have terminated transmissions prematurely. The "Watch-Dog" can be reset by command and this, and reactivation of the 145 MHz beacon, were attempted on orbit #9 — with no success.

Continued attempts on orbit #10 yielded nothing and things began to look rather grim. At that time, no reason could be found for the premature shutdown of the beacon, and the prevailing theories tended toward cataclysm. Additionally, t/m "went down," and we had to resort to phoning around to gather more pieces of the picture! Data from G. Ratcliffe via phone from Australia confirmed that the spacecraft systems were functioning nominally when he tracked UO-11 just before termination of transmissions. The spacecraft was in very good shape!

Detailed examination of the s/c computer software used during the first few passes showed that the timing had been in error (the timing clock selected had been running at eight times that required), resulting in premature observations! This now veered the theories away from the "Big Bang" and toward some sort of spacecraft systems problem.

Lack of feedback from the spacecraft keeps us effectively blind, and all we can do is postulate the most likely theories based on pre-launch experience. The current theory is that there may be a problem with the 145 MHz beacon, causing it to fail to operate correctly and generate wide-band noise and block the command receivers. This theory is based on observations of the performance of the beacon during test where some problems of this nature were encountered but were later believed to have been fixed.

The Surrey Command Station is continuing to attempt to command the 145 MHz beacon OFF and the 435 MHz beacon ON — so far without success. If the 145 MHz beacon is ON but not operating correctly, it should be

possible to observe it with high-gain antennas and spectrum analysers, etc. Should this prove to be the case, it may be most profitable to attempt to command the spacecraft using the 1.2 GHz command uplink as this uplink is the most independent of the VHF/UHF systems.

All we can do is try out various theories. We tend not to favor total system failure or spontaneous detonation at present; rather, some more limited scenario. We shall keep you posted as to our thoughts and progress. Needless to say, everyone here is somewhat disappointed after the efforts of the last months and such a flawless start to UO-11's life! We still have faith, though! — *Martin Sweeting, G3YJO, UoSAT Program Manager, and UoS Team*

Harold Price, NK6K; Richard Collister Jr., WA1JXN; David Blaschke, W5UN; and Michael Staal, K6MYC — all of whom have substantial power and moon-bounce directional antenna capabilities — attempted to command the UO-11 after tracking it without success.

UoSAT-11 has another command re-

ceiver operating on 24cm, which is in addition to the 2-meter and 70cm receivers. It is hoped that this unit can be commanded when facilities are set up to do so.

A theory for the current problem is that in the cold space environment, the 2-meter receiver and 70cm receiver are not functioning properly, and that the ultimate warming by the sun will overcome the anomaly.

There is also a "watchdog timer" aboard the UO-11, designed to turn off the receivers if no commands are heard for 20 days. This automatically breaks the loop in which the spacecraft finds itself currently. A special command encoder had been sent to Chip Angle, NC6A, with which an attempt was to have been made to command the 24cm receiver.

The construction design and qualification of UO-11 launch was accomplished in record time — in itself a great achievement.



Roy Neal, K6DUE (right), calling Bert Hicks, WB6MQV, prior to the taping of segments of *Amateur Radio's New Frontier (II)*, while Bill Pasternak, WA6ITF, looks on. (K6PGX photo)

At press time, all of the indications and reactions from the AMSAT community were upbeat, and efforts to bring UO-11 on track are continuing.

### Amateur Radio's Newest Frontier

The ARRL Foundation-funded video program, *Amateur Radio's Newest Frontier (II)*, has been available since mid-February. Contact ARRL Headquarters, Newington, CT 06111, for details on how to obtain the tape. It is available in 3/4-inch U-matic, VHS or BETA formats.


As should be obvious, the newest frontier of Amateur Radio is space. The video program depicts various NASA space activities, including the recent STS-9 two-way communications between Dr. Owen Garriott, W5LFL, and amateurs around the world.

I talked with David Lieberman, XE1TU, of Mexico City, who reported his two-way contact with W5LFL. Dave is anxiously awaiting his signed QSL from Owen. That contact was one of those listed as confirmed from the audio tape records.

For those who are interested in trying to track UO-11, here are the Keplerian elements for your computer inputs, along with similar data for OSCARs 9 and 10. (Courtesy of Amateur Satellite Reports)

**Satellite: OSCAR-9**  
**Catalog number:** 12888  
**Epoch time:** 84059.37579141  
 Tue Feb 28 09:01:08.377 1984 UTC  
**Element set:** 589  
**Inclination:** 97.5794 deg.  
**RA of node:** 32.4183 deg.  
**Eccentricity:** 0.0004812  
**Arg of perigee:** 120.6543 deg.  
**Mean anomaly:** 239.5299 deg.  
**Mean motion:** 15.24558043 rev/day  
**Decay rate:** 6.413e-05 rev/day<sup>2</sup>  
**Epoch rev:** 13280  
**Semi-major axis:** 6867.216km  
**Anom period:** 94.453603 min.  
**Apogee:** 507.926km  
**Perigee:** 501.317km  
**Beacon:** 145.8250 MHz

**Satellite: OSCAR-10**  
**Catalog number:** 14129  
**Epoch time:** 84063.83285908  
 Sat Mar 3 19:59:19.24 1984 UTC  
**Element set:** 90  
**Inclination:** 25.6632 deg.  
**RA of node:** 212.1030 deg.  
**Eccentricity:** 0.6091272  
**Arg of perigee:** 250.9131 deg.  
**Mean anomaly:** 36.7286 deg.  
**Mean motion:** 2.05853435 rev/day  
**Decay rate:** -2.8e-07 rev/day<sup>2</sup>  
**Epoch rev:** 544  
**Semi-major axis:** 26105.808km  
**Anom period:** 699.526826 min.  
**Apogee:** 35633.003km  
**Perigee:** 3829.487km  
**Beacon:** 145.8100 MHz  
 (please turn to page 40)



# AMSAT

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Please send additional free information on the Amateur Space Program and AMSAT membership. Enclosed is a business-sized, self-addressed, stamped envelope.

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Yes, I want to become a member of AMSAT and receive *ORBIT* Magazine! Enclosed are my annual dues of \$24 (\$26 overseas - surface. Special rates are available if you desire air mail delivery service).

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## TEACHER

Alan Kline, KB1DJ

P.O. Box 54  
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### (Part I)

This month's column starts a four-part series on how our Fall 1983 educational program was developed and implemented. The 28/88 Educational Committee had planned only to have its regular code and theory classes on Thursday nights for adults. But, as you will read, the program expanded to a many-faceted educational experience for both kids and adults.

At the beginning of each school year, I don't try to over-extend myself or my instructors. We might want to offer the local ham community every possible level of teaching, but realistically, we only teach Novices and Generals. In writing about how our programs developed, you can share with me and hopefully remember some of your own experiences in trying to teach people about Amateur Radio.

### Start up

Our Amateur Radio educational year begins at the last club meeting before our summer recess. Traditionally, this meeting is a wine and cheese tasting night, with an excellent speaker. It is the first meeting the new club officers reside over, and the YL's and XYL's are encouraged to attend. To further entice the non-ham women to attend, the monthly raffle has a major prize of a weekend at a local resort; the rest of the prizes are also for female non-hams.

I take this opportunity to single out a club member who has been the best asset to the educational committee during the past year. The ham is dubbed "Instructor of the Year". Sometimes, I give him a \$50 savings bond or some piece of ham gear I know he needs or wants. It is very impressive to get the award in front of the club and the wives.

After giving the instructor this award, it is highly unlikely that he'll decide not to teach for at least one more year. If he had any thoughts of retiring from teaching a code and theory class, he usually forgets those thoughts. This gives me at least one ham to start the next year's classes with.

We have no organized classes during the summer months of June, July and August. I use these months to get caught up on paperwork and help out the local members of the HANDI-HAM System. This past summer, we put up two new low-band antenna systems and helped three members to upgrade.

Around the middle of August, I pick out the dates our ham classes will have to start in September. Picking the starting dates were difficult last year, as the Jewish holidays and a business trip to the San Diego area affected when I

could start. As the classes were to start the Thursday of the week we were returning from the West Coast, all the final details had to be set before I left.

As I believe in continuity, the classes have been at the same location for five years, and the classes at that site have developed a good reputation. I draft a combination poster/flyer/registration form and print a few thousand at work. I went against my own rules and offered all levels of classes — Novice, Tech/General, Advanced and Extra.

Here's where human nature starts to take over. I wonder if there will be enough students or instructors for all the

students to get an adequate education, or whether it can all be coordinated in the four weeks before I have to go away on business. Well, we can only try.

September is not the best time to start the course, mostly because it is a very busy time of the year. Both public and religious school starts, youth hockey begins (three nights a week), and Cub Scouts is organized.

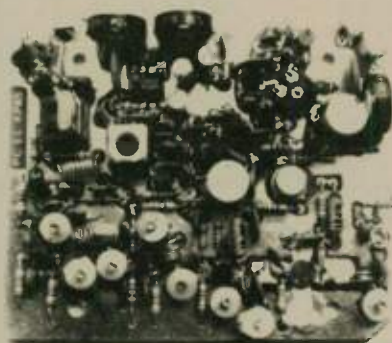
Much time is spent as a shuttle bus for the kids. I am also making the time to be a WEBELOS Scout leader, so my time is spread just as thin as the kids'. The XYL is just as busy; her extra time (when there is any) is spent as a local chapter

president of Women's American ORT.

Add to all this activity my job. I had spent 18 months working part-time on a new 100-page catalog and had it printed during the summer. My boss decided we should have a new price list to match, so I was assigned the job of creating a 32-page new format price list that had to be laid out, checked and printed in three weeks. It was a very interesting month. Somehow, Amateur Radio code and theory classes had to be coordinated through all this turmoil and pressure.

The handout/flyer is first sent to all 700 names on our mailing list, plus the (please turn to page 33)

## THE "KREEPIE PEEPIE" ATV TRANSMITTER IS HERE!



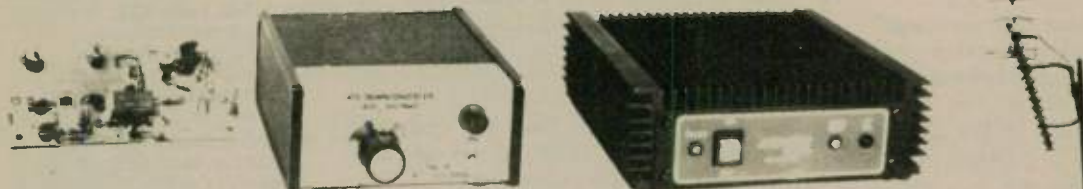
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### Bribery

Do we need to bribe members to come to club meetings? Many clubs do, with drawings and prizes. Here are examples.

From *Kettle Drums*, Kettle Moraine ARC, Waukesha, Wisconsin:

A suggestion brought up by Ken Secora, N9KS, was voted by the club to be implemented. The idea is to get more members to come to the meetings.

At each meeting the club will put up a \$10 door prize. Sometime during the meeting, a drawing will be held to determine who will win the prize. The catch is that you must be a paid-up member as of that meeting, and you must be present to win. If the person whose name is drawn is not present, then the money will be held until the next meeting. Then the pot will be \$20.

So, as you can see, if there are no winners for some time, it could grow and be well worth your while to attend. See you at the meetings.

The PHD Amateur Radio Association, Liberty, Missouri, also bribes its members to read the club's excellent newsletter *PHD News*, which is edited by Bill Hulse, W5NI.

Each month you will find someone's membership number hidden in *PHD News*. That is the number from your 83 membership card. If your number is the lucky one, pick up a five-spot from our treasurer before the meeting starts; after that, you are out of luck. We have added one extra door prize that is worth at least \$10. Also, you can now increase your odds by wearing your club badge three times. An ID gets two, and if you don't want anyone to know who you are, you still get one chance. Only one winner per member.

The clipboard for sign-ins will be at the back of the room. Sign in and pick up your tickets before you find a seat. *Chuck Miller, WA0KUH, Circulation and Want Ads*

From *Newsletter*, Sheboygan County ARC, Inc., Sheboygan, Wisconsin:

What's wrong with our club meetings? Several years ago, the membership gave the board of directors full power to conduct the club business at the board meetings and report back to the club at the regular meetings. The purpose of this wasn't to leave the members out, but to streamline the meetings.

The regular meetings should be devoted to informative and interesting programs (live talks on all aspects of Amateur Radio, guest speakers, films, demonstrations, etc.). The meetings should consist of two parts: a report from the board to the membership, and a program. All old and new business should be discussed at the board meetings. This is the reason for a large board of directors. People with club business to bring up should attend board meetings for this purpose.

Think of yourself as a new member. Would you like to attend a meeting that was entertaining and informative, or one where all they discussed was dry club

business that you couldn't care less about? What kind of meeting would you be likely to come back to? — *Jim Daniels, WA9SNU, Editor*

### Club 50th anniversaries

Fifty years ago, we were in the midst of the Great Depression. Many an idle or partially employed person looked for a hobby to occupy his time. Amateur Radio filled this need, and as a result, many radio clubs were formed at the time.

The Tri-Town Radio Amateur Club, Inc. of south suburban Chicago is one such club. Its 50th anniversary was in 1981. To celebrate, they published a very impressive, 44-page, 50th anniversary book.

It is replete with photos, old and new. Copies of page 1 of the club newsletter — *The Oscillator* — are shown, and one can see the development of the paper through the years. Photos of club activities, such as Field Day, show the technological changes in equipment. Copies of much favorable newspaper publicity is shown.

The high point in the club's activities was to provide two amateur stations for the Chicago World's Fair, which ran for two years. The reader also quickly notes that one of the prime movers in the club was Goodwin L. Dosland, W9TSN/W0TSN, who later became president of ARRL.

The club is to be congratulated for having had classes of some kind going continuously since 1932!

From *RF Carrier*, Dayton Amateur Radio Association, Dayton, Ohio:

### Amateur Radio on the Dayton Area cable system

The Kettering Medical Center ARC is televising the program portion of their monthly meeting and presenting it "live" over both Dayton area cable systems. The Kettering club meets at 7:00 p.m. the first Tuesday of each month at the Medical Center.

The program can be seen on Viacom channel 30 and Continental Cable channel 13. As an extra, viewers can call in on 147.675 and ask questions. The questions will be relayed to the speaker and answered on the air, if possible.

The club is making good use of the excellent facilities at KMC, and to our knowledge, this is the first time an amateur club has presented a program of this nature on a regular basis.

### Sister cities

Does your city have a Sister City? If not, here's an idea from *Loud 'n Clear*, Jackson County ARC, Inc., Ripley, West Virginia:

Would your club like to promote international good will? Communicate with your town's counterpart. The Schaumburg ARC (IL) contacted Schaumburg, Germany, and recently the Falmouth ARC (MA) talked with Falmouth, England. Search out your town's name in another part of the country or world and promote good will by contacting: Sister Cities International, 1625 I Street, NW, Suite 424, Washington, D.C. 20006.

This year, Ripley is celebrating its 150th anniversary, and its counterpart was found in several other states and in England. I know there are several towns named Ravenswood, and I think one is also in England. How about checking on Evans, Millwood, Cottageville, Mason,

# VISIT YOUR LOCAL RADIO CLUB.

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Hank Davis, W6DTV (707) 823-7885  
County Office of Emergency Service  
1st Wednesday/monthly - 7:30 p.m. rptr 146.13/73

South Bay Amateur Radio Association  
P.O. Box 91 • Fremont, CA 94536  
Fremont School, 40230 Laiolo Rd  
3rd Wednesday — 7:30 p.m.

Stanislaus Amateur Radio Assoc. (SARA)  
P.O. Box 4601 Modesto, CA 95352  
Stanislaus Co. Administration Bldg.  
12th & H Streets • 3rd Thurs./monthly 7:30 p.m.  
145.39 MHz WD6EJF

Stockton Amateur Radio Club  
U. of Pacific, Rm. 122  
Kensington & Mendocino Sts.  
2nd Wednesday/monthly - 7:30 p.m.  
Rptr. roll call: Wed. 8 p.m. - 147.165/765

Ukiah Amateur Radio Club  
P.O. Box 1373, Ukiah, CA 95482  
Meets: Carpenters Union Hall  
2nd Monday/Monthly 7:30 p.m.  
President: Bob Rowe - KA6CXM (707) 485-7147

Valley of The Moon Amateur Radio Club  
358 Patten St., Sonoma, CA 95476  
Darrel Jones, WD6BOR (707) 938-8086 For Info.  
Meets: odd months, 2nd Tuesday, 7:30 p.m., Sonoma Police Dept.; even mo., 2nd Sun., 11 a.m., bkfst.

West Coast Amateur Radio Club  
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Fountain Valley Recreation Center  
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Call KA6RRR (714) 636-8661 for dates

Western Amateur Radio Assoc.  
Cerritos Park East  
166th St. and Carmenita Ave.  
Cerritos, CA.  
1st Tuesday/monthly 7:00 p.m. - 145.400

West Valley Amateur Radio Club  
American Legion Hall Post #826  
5320 Fallbrook Ave.  
Woodland Hills, CA  
2nd Thursday/monthly — 7:30 p.m.

West Valley A.R.A. W6PIY  
Meets: Los Gatos Red Cross Bldg.  
18011 Los Gatos - Saratoga Rd.  
Los Gatos, CA 95030  
1st and 3rd Wednesdays/monthly

Yolo Amateur Radio Society (YARS)  
Rolind Mahan, AJ6P (916) 756-0882  
Heart Federal S&L, Conf. Rm.  
3rd & F Sts. (opposite Davis PD)  
Davis, CA 95616

### CONNECTICUT

Tri-City ARC, Inc.  
P.O. Box 686, Groton, CT 06340  
Meets: Groton Public Library  
Rt. 117, Groton, CT  
2nd Tuesday/monthly - 7:30 p.m.

### FLORIDA

Platinum Coast Amateur Radio Society  
1150 S. Hickory St., P.O. Box 1004  
Melbourne, FL 32902-1004  
Meets: 2nd Monday/monthly at Melbourne Red Cross  
Talk-in on 146.25/85 or 146.01/61 rptr.

Indian River Amateur Radio Club  
PO Box Five, Cocoa, FL 32922  
1st National Bank, Merritt Island  
Cor. SR 3 and SR 520, Merritt Island  
4th Tuesday/monthly - 7:30 p.m.

### HAWAII

Big Island Amateur Radio Club  
Helco Auditorium  
1200 Kilauea Avenue, Hilo  
Call-in 146.28/88  
2nd Tuesday/monthly - 7:30 p.m.

### ILLINOIS

Bolingbrook Amateur Radio Society  
Fountaindale Library  
300 W. Briarcliff Rd., Bolingbrook  
(312) 739-0045 / call in 147.93/33  
3rd Monday/monthly - 7:00 p.m.

### ARIZONA

Tucson Repeater Association  
P.O. Box 40371, Tucson, AZ 85717-0371  
2nd Sat/monthly — 7:30 p.m., Pima Co. Bldg.  
Net Thurs 7:30 p.m. 146.22/82 (146.28/88 & 147.69/09)  
(602) 747-8903 or 899-4776

### CALIFORNIA

Amador County Amateur Radio Club  
P.O. Box 1094, Pine Grove, CA 95665, Pioneer Elementary  
School, Pioneer, CA • 1st Thurs./monthly 7:30 p.m.  
WA6WIY Rptr. — 146.835, 146.235.  
Net Tues. 7:30 p.m.

The Amateur Radio Club of El Cajon, Inc.  
Parkway Jr. High School  
La Mesa, California  
2nd Thursday/monthly — 7:30 p.m.

Conejo Valley Amateur Radio Club  
Home Federal Savings and Loan  
164 W. Hillcrest Drive  
Thousand Oaks, CA  
1st Thursday/monthly — 8:00 p.m.

Electronic Museum ARC  
Foothills College, Los Altos  
Last Monday/monthly - 7:30 p.m.  
(except January and December)

Fresno Amateur Radio Club, Inc.  
P.O. Box 783, Fresno, CA 93712  
Meets: 2nd Friday/monthly - 8:00 p.m.  
Wawoha Middle School; 4524 N.  
Thorne; Fresno. W6TOR 146.34/94

Gabilan Amateur Radio Club  
Monterey Savings & Loan Public Room  
Corner First & Westwood  
Gilroy, CA 95020  
2nd Thursday/monthly - 7:30 p.m.

Livermore Amateur Radio Club  
3508 Gresham Ct., Pleasanton, CA 94566  
Meets: Valley Memorial Hospital  
Multi-purpose room, Livermore, CA  
2nd Saturday/monthly - 9:30 a.m.

MT. Wilson Repeater Association  
P.O. Box 977  
Yorba Linda, CA 92686  
WA6KOS Repeater — input 146.40 output 147.435  
Amateur Radio QST Net — Monday at 7:00 p.m.

North Hills Radio Club  
P.O. Box 41635, Sacramento, CA 95841  
Meets: Gethsemane Lutheran Church  
4706 Arden Way, Carmichael, CA 95608  
3rd Tuesday/monthly

Sacramento Amateur Radio Club, Inc.  
Contact: Norm Nelson, KA6YRC, (916) 428-7122  
after 6 p.m. Meets: Army Reserve Ctr., Army Depot,  
Fruitridge and Florin-Perkins Road  
2nd Wednesday/monthly - 7:30 p.m.

San Gabriel Valley ARC  
Bowling Green Clubhouse  
405 S. Santa Anita Avenue  
Arcadia, CA 91006  
1st Tuesday/monthly - 7:30 p.m.

Santa Cruz County ARC  
PO Box 238, Santa Cruz, CA 95061  
Last Friday/monthly — 7:30 p.m.  
San Fran. Fed. Savings, 1995 41st Ave., Capitola  
K6BJ repeater 146.19/146.79

S. Counties Amateur Teleprinter Society (SCATS)  
2nd Sat/monthly — alternates in L.A. & Orange Counties.  
60 WPM RTTY Net, Wed. 8 p.m. on 146.10/70 W6IWO/RPT.  
For info. call Jean Carter, KA6HJK, (714) 523-9519

Sierra Foothills ARC  
PO Box 3262, Auburn, CA 95604  
Office of Education Bldg.  
360 Nevada St., Auburn CA 95603  
2nd Friday/monthly — 1930

Simi Settlers ARC (SSARC)  
PO Box 3035, Simi Valley, CA 93063  
3rd Thursday/monthly - 7:30 p.m.  
Bank of A. Levy (across Larwin Sq.)  
K3HZPIR 147.165/765 Simplex 147.48



For information on how to get your club listed in this column, plus receive many other benefits, write to Dave Tykol, WA6RVZ, Club Liaison, Worldradio, 2120-28th Street, Sacramento, CA 95818.

**Chicago Suburban Radio Association (CSRA)**  
Clyde Federal Savings & Loan Assn.  
7222 West Cermak Road  
North Riverside, IL 60546  
2nd Wednesday/monthly - 8:00 p.m.

**Fox River Radio League**  
Valley National Bank, Lower Level  
Northgate Shopping Ctr. & RT. 31, Aurora, IL  
(312) 898-2779 for more information  
2nd Tuesday/monthly - 8:00 p.m.

**Radio Amateur Megacycle Society, Inc.**  
Irvingwood Acacia Church  
3900 N. Plainfield, Chicago, IL 60634  
(312) 625-2879  
3rd Friday/monthly - 8:00 p.m.

**Six Meter Club of Chicago, Inc. - K9ONA**  
Land of Lincoln Savings & Loan  
6655 W. Cermak Rd.  
Berwyn, IL 60402  
2nd Friday/monthly 8:00 p.m. Rptr. 146.37/97

#### INDIANA

**Allen Co. Amateur Radio Tech'l Society, Inc.**  
PO Box 10342, Ft. Wayne, IN 46851  
Allen-Wells Chapter House • Amer. Red Cross  
1212 E. California Rd., Ft. Wayne, IN 46825  
3rd Tuesday/monthly - 7:30 p.m.

**Fort Wayne Radio Club**  
Ron Koczor, K9TUS  
PO Box 15127, Fort Wayne, IN 46885  
The Salem Church  
3rd Friday/monthly - 7:30 p.m.

**Indianapolis Repeater Assoc.**  
4th Monday/odd numbered months  
Carson Manufacturing  
5154 N. Rural St., Indianapolis  
146.10/70 147.72/12 146.625/025

**Northeastern Indiana ARC**  
Jim Sellers  
P.O. Box 745, Auburn, IN 46706  
Daily 6 p.m. net on 147.96/36  
2nd Tuesday/monthly - 7:30 p.m.

#### IOWA

**RSCB (Radio Society of Council Bluffs)**  
Richard Swig, WA0ZQG, Secretary  
104A Jennings Road  
Council Bluffs, IA 51501  
2nd Tuesday/monthly - 7:30 p.m.

#### MARYLAND

**Frederick Amateur Radio Club**  
Old Frederick Court House  
Rick Ogden, N3RO  
(301) 845-2670  
Meets: 2nd Tuesday/monthly - 8 p.m.

#### MICHIGAN

**The Metropolitan A.R.C.**  
Harper Woods City Hall  
I-94 & Eastwood (Between Vernier & Moross)  
Repeater - 448.55T/443.55R.  
1st Sunday/monthly - 2:00 p.m.

**South Eastern Michigan A.R.A.**  
Meets: 1st Fri. monthly 7:30 p.m. K8FC Rptr. 147.75/15  
Grosse Pointe North High School  
Building C, Cafeteria Commons  
Info. Contact WB5YKO (313) 774-2531

#### MASSACHUSETTS

**Q.R.A. (Quannapowitt Radio Assoc.)**  
Masonic Hall — Salem Street  
Wakefield, MA 01880  
2nd Friday/monthly Sept-May 8:00 p.m.

#### NEW HAMPSHIRE

**Great Bay Radio Assn., WB1CAG**  
P.O. Box 911, Dover, NH 03820  
(603) 742-0130/332-8667  
2nd Sunday/monthly - 7:00 p.m.  
Dover Dist. Court. Talk-in 147.57

#### NEW JERSEY

**Central New Jersey Chapter No 138, QCWA**  
Net: Ea Tue. evening-10:00 p.m. 147.645/147.045 MHz  
Mtgs: Quarterly, Membership or more info:  
Bob McKinley, W2OMR, Sec., 89 Stratford Rd.,  
Tinton Falls, N.J. 07724 (201) 542-2113

#### NEW YORK

**Amateur Radio Assoc. of the Tonawandas**  
City Hall, Community Room  
200 Niagara Street  
City of Tonawanda, NY 14150  
3rd Tuesday/monthly - 8:00 p.m.

**Hall of Science Amateur Radio Club, Inc.**  
PO Box 131, Jamaica, NY 11415  
Queens County Dental Society Bldg.  
86-90 188th St., Jamaica, NY  
2nd Tuesday/monthly - 7:30 p.m.

**Long Island Mobile Amateur Radio Club (LIMARC)**  
146.25/85, 147.975/375, 223.22/224.82, 444.125/449.125  
Membership: Woody Gerstner, WB2IAP, 42 Mohawk Ave.,  
E. Atlantic Bch., NY 11561. Net Mon. 8:30 p.m. 146.25/85  
Meets 1st Tues/8 p.m., H.B. Thompson, JHS, Syosset

**Staten Island Amateur Radio Assn. (SIARA)**  
P.O. Box 495  
Staten Island, New York 10314  
Third Friday/monthly — 8:00 p.m.  
Rm. B-127, College of S.I. — Sunnyside

**Suffolk County Radio Club**  
Meets 3rd Tues. monthly, 8 p.m.  
Bohemia Recreation Center  
Smithtown Ave., Bohemia, Long Island  
More info! Dave Potter, W2GZD, (516) 472-2394

#### OHIO

**C.A.R.S. (The Clyde Amateur Radio Society)**  
Ervin Remaley, K8BCAS, Secretary  
2nd Tuesday/monthly - 7:30 p.m.  
Community Rm., City Building, Clyde, OH  
Repeater 144.75/145.35

**Findlay Radio Club**  
1333 W. Sandusky St./Box 587  
Findlay, OH 45840  
Repeater 147.75/15  
1st and 3rd Thursday/monthly - 7:30 p.m.

**NOARS-Northern Ohio Amateur Radio Society**  
P.O. Box 354, Lorain, OH 44052-3rd Mon. 7:30 p.m.  
K8KRG — Home of the WW II Submarine USS COD  
WB8JBM — Noars Contest Station — K8KRG/Repeaters: —  
146.10/70; 144.55/145.15; 449.8/444.8; 223.10/224.70

#### OREGON

**Oregon Tualatin Valley ARC**  
Beaverton Elks Lodge  
3500 SW 104th Ave.  
Beaverton, Oregon  
2nd Wednesday/monthly - 7:00 p.m.

#### SOUTH CAROLINA

**Trident Amateur Radio Club (TARC)**  
P.O. Box 73, Summerville, S.C. 29484-0073  
Meet-Park Circle Presbyterian Church  
North Charleston, S.C.  
3rd Monday — 7:30 p.m./Nets — Tuesday 8 p.m.

#### VIRGINIA

**Eastern Shore ARC (ESHARC)**  
110 Church Street  
Chincoteague, VA 23336  
Repeater WA4TVS 147.855/255  
Net Mon. 9 p.m. Mtgs. as announced

**Southern Peninsula Amateur Radio Klub (SPARK)**  
Repeater 146.13/146.73 - K4DHO/R  
Salvation Army Community Center (Big Bethel Rd.)  
Hampton, VA  
1st and 3rd Tuesday/monthly - 7:30 p.m.

#### WEST VIRGINIA

**Jackson County Amateur Radio Club, Inc.**  
Bob Morris, WA8CTO, Sec.-Treas.  
308 Edgewood Cir., Ripley, WV 25271  
First National Bank of Ripley, WV  
1st Thursday/monthly - 7:30 p.m.

#### WISCONSIN

**Racine Megacycle Club**  
Red Cross Building  
4521 Taylor Avenue  
Racine, WI 53405  
2nd Monday/monthly - 7:30 p.m.

Racine, etc. I think this would be interesting. How about it?

#### What you get for your dues

President Dino Raptis, KR9V, of the Fort Wayne Radio Club, Fort Wayne, Indiana, writes a column — 'Dino's Corner' — in the club's newsletter *Splatter*, edited by Ron Koczor, K9TUS:

I told you last month that I would try to tell you some of the ways you get your dues back from FWRC. Well, here goes!

Let's look at the contesters. We provide log and contest entry forms for most major contests at our meetings. No need to mail away to ARRL or CQ Magazine to get them. For the DXers, we have a DX countries list and the outgoing QSL card service free for ARRL members and nearly free for all others, including to stateside managers. If you mail any number of QSLs, this service alone is worth more than the annual dues!

For the ragchewer who QSLs mostly stateside, we handle all stateside QSLs through Jim Smith, K9JS . . . so there are savings there for you. If you send more than 40 QSLs a year to statesiders, it pays to belong to FWRC.

I can hear you now saying you're not a contester or DXer. Well, fine! For you we have the license renewal service (are you using it?), the Fort Wayne Service Award, the club Elmer program, code and theory classes, the Tuesday Night Net, the Worked Fort Wayne certificate, and more. At each meeting, we draw for a free year's subscription to *Worldradio*. Do

you come to the meetings and try for that?

How about the May banquet? Sure, you have to pay a little there, but if you eat out at all, you know that the prices we pay for our banquets are more than reasonable. In fact, did you know that FWRC pays roughly a third of the cost for the meal?

Then there's Field Day, the FUNFEST and other activities. Some of these are not entirely free, but the club picks up the biggest share of the cost. Of course, there is one more item . . . the *HAM-SPLATTER*, which is the best in the world! I feel that no other newsletter I've seen can beat it for info about this club, its members, ARRL and other news which affects us all.

Let's face it. You get more than your money's worth for your dues. If you don't use any of these services, then you're not spending your money wisely. If I still haven't hit the bell for you, see me at the meeting; I have more.

The only way you wouldn't get your money's worth out of your FWRC dues is if you do not operate or use your ham radio ticket!

Since we're talking about saving money, let's talk about the new \$2 rebate program. Starting 01 January of this year, if you are an FWRC member and join ARRL or renew ARRL through the club treasurer, we will give you \$2 back on your FWRC dues — right on the spot! That means your FWRC dues are \$6 a year. This is a program you definitely should take advantage of. □



## NYE VIKING 3KW MASTER TUNER

**Maximize Power Transfer**  
Match your transmitter output impedance to almost any antenna system for maximum power transfer.

**Pi Network**  
Low Pass Pi Network tuning — 1.5 to 30MHz. Heavy duty, silver plated continuously variable inductor with 25:1 vernier dial. 7000 volt variable capacitor and 15,000v switch selected fixed capacitors on output side. Tunes 40 to 2000 ohm antennas.

**Automatic SWR**  
Hands free metering of SWR. No reset or calibration needed. Separate power meter — 300 or 3000 watts. Easy to read 2 1/2" recessed, backlighted meters show SWR and power continuously.

**Antenna Switch**  
Pushbutton antenna switching to 4 antennas (2 coax, single wire and twin lead). Tuner bypass on one coax output. We designed this rugged switch to handle the power.

**3KW Balun**  
Trifilar wound, triple core toroid gives balanced output to twin feeders from 200 to 1000 ohms and unbalanced output down to 20 ohms.

**Model Options**  
MB-IV-01 includes all MB-V features less antenna switch and balun. MB-IV-02 is identical to MB-IV-01 with the addition of a double core balun.

**You Also Get**  
■ Harmonic Suppression  
■ Receiver Impedance Matching  
■ Heavy Gauge Aluminum Cabinet Shielding  
■ Nye's TWO YEAR Warranty.

Available At Leading Dealers.

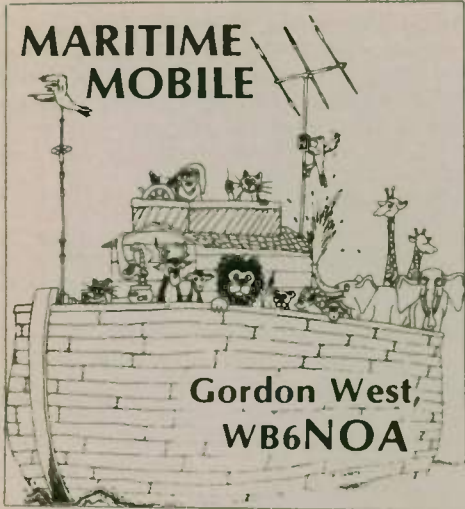


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## WE BUILD IT SO YOU CAN BRAG ABOUT IT!



## MARITIME MOBILE



Gordon West,  
WB6NOA

### Thank you! Thank you!"

I appreciate your letters. I can see that we have an audience made up of more than mariners. We are happy to have you aboard because much of the material we cover in this column also pertains to mobile installations and motorhome installations of HF and VHF equipment.

### New equipment reviews

Most of your letters indicated you liked our frank equipment reviews — as opposed to the usual glowing reports on radio equipment that magazine editors normally call "advetorials."

ICOM has finally caught up with the back orders on its new IC02AT microprocessor hand-held. It's quite a unit. The best features are the programmable off-sets and programmable PL tones that you can store in the 10 memories along with your favorite repeater. I am convinced that someday soon most repeaters will go to subaudible tone incode/decode. They will still be open repeaters but will require a PL tone for access. This will allow more than one repeater to share the same frequency within a certain geographic area.

Anyway, the new ICOM 02AT hand-held does a great job in memorizing all of the information necessary to bring up each and every repeater with a single push of a single memory button. Power output on this hand-held is magnificent, reliability very good after they made some small modifications to prevent static from dumping the memory, and of course, its size is great, too. Also, if you have any other ICOM hand-held products, all of your accessories will fit this new unit.

The audio output stinks. It's muffled, not loud, and is a disgrace for any hand-held. They say it's because of the small, flat speaker in the unit. Maybe. Even an extension speaker sounds muffled, so I'm not convinced that it's strictly the built-in speaker. Most ham hand-helds simply don't have enough audio output to be heard when worn on your belt. The new ICOM audio is deplorable!

I still think it's the most sophisticated hand-held around. Just don't expect a lot of volume from the speaker.

Incidentally, we still have stock of waterproof ICOM (or any hand-held) clear vinyl bags. It will hold any hand-held and keep it dry as a bone, whether you are under water or in a rainstorm. You can transmit and receive easily through the vinyl bag, and it will hold any type of hand-held. We have plenty left at \$30 here at Radio School, 2414 College Dr., Costa Mesa, CA 92626.



### A good mobile performer

As promised, we have finally completed our reviews of the relatively new Yaesu 757GX worldwide rig, and it's indeed a dandy. It will sure give Kenwood a run for their money because this radio is priced about \$50 less and comes with some features the Kenwood 430 doesn't have.

The "extras" that come standard with the Yaesu include the 10-meter FM module as well as full break-in, full-duty cycle, a narrow CW filter, and a built-in, iambic keyer with dot-dash memory.

Yes, in an emergency, it will work nicely on transmit on maritime frequencies to signal for help. Once again, the set cannot be used legally on marine channels, but only in an emergency would you ever attempt to transmit out of band.

To enable the transmitter for MARS, CAP and all-band transmit, it's the tiny black slide switch hidden beneath the wiring harness just inside the front top part of the radio's innards. It's just

behind the up/downband switch. Slide it to the left and you are in business. No other modification is necessary.

The new Yaesu lacks some features that the Kenwood 430 has, such as variable dial speed tuning. Also, the new 757 does not appear to have that extra digital readout that Kenwood has. You also cannot memorize, on the new Yaesu, the transmit mode that you can with the Kenwood.

Other than that, your best bet is to go down to your local radio store and see which one you like best. They're both goodies for maritime mobile operation if you're looking for a compact transceiver that stays on the air in heavy seas. (These two sets are also about the smallest ones available for mobile unit operation.)

### FCC scene

As I'm sure all of you are aware, this is the year of transition between FCC testing and volunteer examiners giving the test. If you plan to upgrade, you will need to contact your local FCC office for an appointment. This is accomplished by filling out FCC Form 610 and sending it to your local FCC office, along with a copy of your current license. They will then send you an appointment for upgrading exams in May, August or November.

By the end of this year, we should have teams of three Extra Class volunteers who will administer all exams for upgrading.

The Radio School General Class code set has been helpful for mariners (and everyone else) increasing the code speed from 5 wpm to 13 wpm, and to successfully pass the code test.

There is also a 4-set code and theory course available for mariners you may know who want to get their Amateur Radio licenses. Yes, Radio School also offers a successful 4-set stereo Extra Class code course, for those of you going for the big one.



### Mail order upgrade courses

Each course is available from Radio School, 2414 College Dr., Costa Mesa, CA 92626 for \$39.95, and this includes the 4-set cassette carrying case plus a host of paperwork to assist you in passing the exam and upgrading. Add \$2 for postage. Yes, the study tapes reflect the new code and written examinations.

The FCC also has some strong words about maritime mobile nets and hams at sea that try to order parts through these nets. Here's John Johnston, Chief, Personal Radio Branch, Special Services Division of the Federal Communications Commission in Washington, D.C., with this comment:

This is in response to your recent correspondence concerning business communications in the Amateur Radio Service, and the use of phone patch.

Referring to your example of a yacht in international waters ordering equipment via amateur radiocommunications, we interpret such communications to be business communications, in accordance with the enclosed copy of a Commission ORDER in the matter of business communications in the Amateur Radio Service. Your letter states that in the case of the yacht in question, equipment was not needed for the immediate protection of life or property.

The Amateur Radio Service should not be used in lieu of other radio services for the transmission of business communications. For example, the Maritime Mobile Radio Service was established to fulfill the needs of vessels in similar circumstances to those you describe. Marine coast stations are situated throughout the world to handle this type of communication.

## The Spider<sup>TM</sup> Maritimer<sup>TM</sup> Antenna

U. S. PAT. 4349825

The only multi band amateur radio antenna designed specifically for use on ocean-going boats and in areas close to the ocean.

- Non-magnetic stainless steel mast with nickel-chrome plated fittings give the best protection against salt water corrosion.
- No switches of any kind—no moving contacts to corrode, ever!
- Four amateur bands without changing coils—10, 15, 20 and 40 meters. PLUS, add the Spider<sup>TM</sup> Adapter collar and special resonators for commercial marine frequencies and you have SEVEN bands at your command at all times without any switching or changing coils.
- Less than six feet high so it can be stern-mounted on the transom for an easy installation.
- Approximately 50 ohm base impedance—requires no antenna tuner in the transmission line.
- SWR is approximately 1:1 at all selected resonant frequencies.
- Each resonator is tuned to the desired portion of the band by a tuning sleeve which slides over the outside of the resonator.
- **Accessories for Marine Use**—Stainless steel and corrosion-resistant ball mounts, angle mounting brackets, stud mounts and quick disconnects. RG58C/U coaxial cable with non-contaminating jacket. Coaxial fittings. Copper foil ground strapping.
- A note or phone call will get you full information and prices—include phone number.

**MULTI-BAND ANTENNAS**  
7131 OWENSMOUTH AVENUE, SUITE 163C  
CANOGA PARK, CALIF., 91303  
TELEPHONE: (818) 341-5460

## DENTRON LIVES THROUGH COILCO ELECTRONICS, INC.

Coilco has purchased the inventory of Dentron Radio Co., Inc. Coilco has excellent and fast repair service and parts available for most Dentron Equipment. Our factory will be manufacturing similar equipment in the near future.

For further information on parts and service, contact:

**COILCO ELECTRONICS, INC.**  
223 NORTH MICHIGAN AVENUE  
EDGERTON, OHIO 43517  
(419) 298-2346



For our many readers who are information officers of Amateur Radio clubs, may I recommend an organization called Fair Press Services, P.O. Box 19352, 20th Street Station, Washington, D.C. 20036. This organization offers weekly FCC news releases on the latest of Amateur Radio happenings. The subscription service is about \$15 per month, and they will keep you right up to date on the latest in FCC matters in Washington.

### Net news

This month, let's salute *all* maritime mobile nets, and the hard-working net control operators that keep these gatherings possible. Running a net is tough business, and it's up to all of us to lend a hand on your favorite net frequency.

For maritime mobile stations, this might include giving local weather conditions, relaying radio traffic to nearby boats in the same harbor, and asking whether or not any land stations have traffic for your particular cruising area or harbor.

Listening in on some of the nets leads me to believe that many maritime mobile stations are simply taking their net control operators for granted. Okay, so you have phone patch traffic for Eastka-peepee, Iowa. You have also had phone patch traffic for the states every single day for the last 15 days. Has it ever occurred to you that you might be overworking your favorite daily maritime net with your daily phone calls to the states?

I think you *have* if you're making phone calls *every day*. The phone patch business is something we don't dare abuse. There are few radio services left that are still allowed to interconnect via the phone patch. How about coming up on the net one day without telephone patch traffic and just asking as to whether or not you can help out?

Don't think for a moment that I haven't been in your same position — far out at sea and needing to make a phone call. Believe me, after living on a boat for

over a year in Mexico, I well realize the importance of Amateur Radio and telephone capabilities from it. I also weigh the importance of my phone traffic, and try and keep requests for phone calls ashore to a reasonable level.

If you ask me, one call a day, every day, from any one vessel is taking advantage of the whole maritime net business. Put yourself in their place — you're the one on vacation, not us, so don't burden us with daily phone patch traffic if it can be handled on other commercial radio frequencies. And if it even smells like business traffic, don't even try and run it through any maritime net control station — or for that matter, any Amateur Radio station. I'll get off my soapbox now.

Gordon West — on the air Mondays-Fridays, 1800 UTC, on 14.340 MHz. Technical questions and antenna comparisons. Welcome. Equipment recommendations and business traffic not allowed. Call WB6NOA.

This month we will feature an installation that may not be up to par. It's a system that I personally put aboard a boat that is cruising thousands of miles away in the South Seas.

The letter to me reads, "My system is not working as good as ----'s system, and since it wasn't working as good, the installation should be considered a failure."

It's very important, when putting radio equipment aboard a boat, in a car or in a motorhome, that several different antenna systems (and the corresponding ground system) be tried out to see which one works best.

As I have said many times before, what's a great antenna system for one



Check for moisture in your coax once a year.

installation might be a terrible one for another. Quite frankly, it's really trial and error when you are loading backstays, jamming signals into side stays, using remote tuners, or trying to get out on an inverted Vee when it is inside other standing rigging.

It's quite impossible to guarantee that any one type of installation will *always* be better than another. That's the fun of Amateur Radio — experimentation. One of the technical art phases of Amateur Radio is experimentation with an antenna system. This involves comparison of your signal to known stations that always seem to get good results. Without comparison, there is no telling whether or not your S9 signal is indeed a good one for your area, or band conditions might just be bad — or good. Also, check your coax feed system for moisture on R × 10,000 ohms.

Run some tests with your local net control operator when cruising in distant waters, and compare your signal to other

boats around you. If you are finding that someone else is always getting the better signal report, analyze their antenna and ground system, and see *why* it's working out so well. Then try and duplicate it for your boat. If it's identical, but you still have bad signal reports, try an altogether different system of antennas, tuners and grounding. After all, how expensive is it to cut two 16½ ft. pieces of wire and make yourself a 20-meter dipole?

Oh yes, Fred Boehme, KH6UY, in Hawaii cautions mariners to keep keel bolt ground connections as *dry* as possible, to prevent *rusting*.

The most accurate reports on system performance come from on-the-air *comparisons* to a distant skywave station. Each station wishing the comparison should transmit for about 10 seconds and then turn it over to the other station. It's usually an easy job to determine from the skywave as to which station has the stronger signal. You *must* experiment.

Above all, don't get mad or vindictive if your ham installation isn't working as well as someone else's. This is an Amateur Radio antenna system — it's a trial and error scheme when you're working with non-resonant long-wire antennas or mobile whips mounted on an un-standard groundplane on your boat, car or motorhome. Instead of getting mad, get *interested* in the technical aspects of antennas and grounds, and have some fun comparing the performance of your station against someone else down the street or in the next slip over.

Above all, have fun with your Amateur Radio equipment. Stay up to date on what's new in Washington with the FCC rules, and get on the air every day and operate. Give the net control operators a hand — not a long-distance phone call demand every single day. You might even send the net a QSL card with a picture of your boat and let them know how much you appreciate all their help.

See you next month! □

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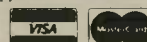
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**TRAFFIC**  
**Chuck Clark, K4ZN**  
 Assistant Director  
 Roanoke Division, ARRL

## MARS

Before World War I, the military tended to think of amateurs as nuisances. At one time, the Navy even tried to get us legislated off the air because we interfered with their communications. Fortunately, the Marconi company pointed out that it was not our fault, but rather the obsolete equipment the Navy was using — the receivers that lacked the selectivity provided by Marconi gear — that was responsible for the interference, and was able to defeat the bill in Congress and save the day for Amateur Radio.

But with the entry of the United States into the war, suddenly the military needed all the operators it could get, and thousands of amateurs saw service. After the war, the military did not forget, and since the 1920's, the military and Amateur Radio have worked together.

At present, there is the Military Affiliate Radio System (MARS), which is actually three systems, run respectively by the Army, the Navy/Marine Corps and the Air Force. It is not an Amateur Radio service, although all civilians who participate in it must be licensed amateurs, and their membership is automatically terminated if they fail to renew their amateur licenses or to renew their membership in MARS when they renew their amateur licenses.

MARS nets operate outside the amateur bands, on U.S. government frequencies, and MARS stations are government stations. As such, they are not subject to the FCC, but rather, to the branch of the military that they support.

Incidentally, it would be interesting if someone would bring this fact up in a court case involving zoning restrictions, antenna limitations and radio-frequency interference, perhaps making a motion for dismissal of the case because a MARS station is a U.S. government station and so not subject to such ordinances.

MARS has several purposes. Primarily, it serves as the backup system of communication to be used if regular communication channels are inoperative

or overloaded. In addition, it serves as a means of training operators and electronics technicians, increasing the number of such people who would be vitally needed in an emergency. And it serves as a traffic net much like the National Traffic System (which is, in fact, modeled fairly closely on the MARS pattern), providing military personnel and others — particularly those serving overseas — with a free message and phone patch service.

MARS operation is somewhat different from amateur operation, even amateur traffic net operation. Procedures are generally more carefully observed and are slightly different from those of amateurs.

On CW and RATT nets, the Z signals are used in addition to the Q signals: ZGN, station not heard; ZKA, this station is net control; ZKE, checking into net; ZKJ, closing station; ZUJ, please stand by.

On voice, precisely defined phrases are used. Thus, you don't say, "Back to you." You say, "Over." And you must always say, "Over" or "Out" at the end of each transmission, depending on whether or not you expect a reply.

If you want to hear examples of snappy operating, listen to the MARS nets that operate just outside our 40- and 80-meter bands (and sometimes near the 20-meter band also). Oh yes, MARS does have a few examples of poor operating too, and you may hear them, but in general, the quality is up with the best of the amateur nets.

As noted, there are MARS frequencies just outside our amateur bands. But MARS also uses frequencies far removed from our bands, 500 kHz or more away, so that most amateur band-only transceivers cannot reach them without modification. This is true of all the services, but particularly true of Air Force MARS. Fortunately, amateur ingenuity is as active in MARS as it is elsewhere, and no matter what kind of rig you are using, you will find somebody in the system who can tell you how to modify it to operate on any MARS frequency within reason.

Unlike amateur operation, MARS operation takes place on exactly specified frequencies. The various national and international frequency managers assign channels to fixed stations, with a center frequency and an allowable bandwidth. Further specifications, such as mode, carrier frequency and the like are up to the user.

In the case of MARS stations, the user is the military service, and it specifies the carrier frequency for SSB (usually 1.5 kHz below the assigned center frequency), the frequency shift and speed for RATT — the type of emission for VHF. And the frequency has to be maintained closely, because some of the stations (and in many cases, the most important ones) on the net are operated by military personnel, many of whom are not qualified to tune their transmitters.

MARS members assume no obligations by joining, and are free to resign at any time. The only restriction you assume is

that by joining one service's branch you are forbidden to join another, as you may belong to only one of the three organizations at any one time. You are expected to operate at least 12 hours in each quarter (comes out to about one hour per week) to maintain your status as an active member.

Any amateurs who wish to render this public service, or who merely want to find out more about it, may write to any or all the MARS headquarters:

Chief, Army MARS, U.S. Army Communications Command; ATTN: CP-OPS-OM; Fort Huachuca, AZ 85613.

Chief, Air Force MARS; HQ AFCC/TPMOG; Scott AFB, IL 62225.

Chief, Navy-Marine Corps MARS; Building 13; U.S. Naval Communications Unit; Washington, D.C. 20390.

## NCS

This is not an abbreviation for Net Control Station, at least this time. It stands for National Communications Service.

The NCS is an agency of the federal government charged with the mission of keeping vital communications links operating during time of disaster, and in particular, in the event of hostile military action. Amateur Radio is recognized to be one of these vital links, and its use is included in the plans of NCS.

NCS has been testing various amateur links that might be important in an emergency, so don't be surprised if you occasionally handle a piece of traffic for that agency. In fact, give it special attention; see that it is handled without delay: it may be that it is part of a test, several messages being sent via various circuits, such as MARS, NTS, Civil Air Patrol, and RACES nets, to see which gives the best service. The messages are often very simple: "Message number one. Please acknowledge." The reply: "Received number one at 5:37 p.m."

## Move it, move it

This month's column will close with some words from Dan Ostroy, K2UL, that appeared in the January-February 1984 *New Jersey Traffic Bulletin*:

A point that should be drummed into the head of every net control station who dares to call up a traffic net: You are there to move the traffic, not to endlessly take check-ins! Too many times I have seen net sessions go to quarter past the hour and still no stations have been paired up and sent off frequency to pass traffic. How frustrating it is to check into a net with traffic that could be handled immediately and yet have to sit idly by while NCS listens to stations checking in QRU for the next 10 or 15 minutes . . .

Here's a hint: when the first one or two check-ins have a large amount of traffic to list, halt the check-in process and ask for takers for the listed traffic before continuing to check in further stations.

My point is simply this: net time should be used efficiently. Every minute that goes by without traffic being passed is wasted. Some of us (especially those with 4-month-old babies crawling around the shack) have a difficult enough time finding a few minutes for net participation.

There is more to being a net control than taking check-ins. You are expected to control the net, and that means get the traffic passed and the stations cleared in as short a time as possible. □

**The deadline for news releases and special announcements is the 10th of the month, two months prior to issue date. Example: Deadline for the August issue is 10 June.**

## Why own a 1st Class Radio with a 2nd Class Sound?

### May we suggest an answer?

Now for the first time, a new ingenious compact sound system allows you to hear weak signals like never before, sort out the rare ones, and listen to quality like you have never heard from your receiver, handie talkie or scanner.

Usually, accessory speakers are no more than 50 cent speakers in 50 dollar boxes. Their efficiency, frequency response and distortion levels are minimal and since most all of the new transceivers have less than one watt of audio, our ability to understand becomes very difficult.



The new SS-2 Heil sound system contains two five watt amplifiers, a 3.5" woofer with a half pound magnet, and a 1.5" tweeter with a 12 DB per octave passive crossover-network. The tweeter is crossed over at 1500 HZ., right where the response of the human ear starts to fall off and the huge woofer fills out the mid-range and low frequency response. No single, cheap speaker can begin to give you this type of response.

The second five watt amplifier can be used to drive a second speaker enclosure and will be used in a dual diversity system using the Heil parametric equalization system which will be introduced very soon.

When most receivers are running at a comfortable listening level, their little one half watt amplifiers are being pushed into extreme distortion levels. The extended response, the added efficiency and additional output power of the SS-2 will lower your noise floor, reduce noise and allow you to copy signals that were, heretofore, impossible to hear.

Mobile operation with the new Heil sound system is unbelievable. The 5 watts of output and the tweeter system really adds to the articulation factor making signals much easier to copy. The system makes handie talkie receivers come alive! An accessory mounting bracket will allow easy under the dash mounting for the SS-2.

The SS-2 measures 3 3/4" x 5 x 3 3/4". It weighs 2 lbs. and is housed in a high impact silver beige case. Power requirements are 12 - 13.8 volts D.C. at 400 MA. A red L.E.D. is mounted on the front panel for power up indication. All input/output connections to the amplifier is made through a 5 pin D.I.N. Accessories include a 110 volt power adapter, a mobile lighter plug adapter and a mobile mounting bracket.

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## • Silent Keys •

### Donald Bugar

Donald Gunn Bugar, W6PAX, died 11 January, in his La Jolla, California home at the age of 62, after a lengthy illness.

His career in electronics started in 1940 at Consolidated Vultee Aircraft. In 1947, he went to work for Henry Radio in Los Angeles as a salesman and in the same year started his own company —

### Teacher

(continued from page 27)

repeater club Board of Directors. I call the info into the weekly net control station of our public service/bulletin net. They announce the ham class info on the twice-weekly net for four to six weeks. This is how I expect the repeater club members to first hear about the classes.

I give a landline to the club's PR lady. Lately, we have been most lucky. Marguerite Moran, KA1HVC, has done a great job as PR person. She gets the class announcement in the local newspapers, on the radio (AM/FM), puts it in the upcoming club newsletter, and has it mentioned on a local AM radio talk show.

During the Grenada invasion, it was her husband who was filmed monitoring the Amateur Radio QSO's of the college in Grenada. She, alone, accounted for 50 percent of the Novice Class knowing about the class. A very special woman and radio amateur.

Even with all this outside pressure, the classes seem to be going OK. I am trying to concentrate on my job and family, hoping the ham classes will fall into place on their own. But the third week in August, a local newspaper had an ad for another ham class starting up at the nearby state college.

Fellow club members were outraged that a local ham (not a club member) would try to compete against us. It seemed that a past student of ours was studying to become a teacher and thought that by teaching an Amateur Radio course, he might gain some teaching experience.

I gave him a call to check it all out. He was charging \$45 a person, not including books. He wasn't planning to give an exam or any hands-on experience with a low-band station. Just about the opposite of our regular program. We were offering the course for \$20, exam included, and a low-band station for the students' use.

As our goal was to be the same — more new hams, I wished him luck. In the back of my mind, I wondered if there were enough people to support two Novice classes in towns only five miles apart. My thoughts were put to rest during the second week of our classes, when a few students said they had tried to sign up for the other class, but the state college told them it was cancelled.

Now, back to reality. The mailing that was made to the 700 potential students on our mailing list was put in the mail exactly six weeks prior to the first night of class. This six-week timing has proved to be critical. If you tell them too late, they can't make arrangements to be free on that night. If you announce the class too early, they file the notice in the trash barrel.

(Continued next month)

Custom Electronics. He designed, developed and assembled all types of electronic equipment. In 1948 he went to work for the Armed Forces Radio Services as the Operational Engineer for KCBA, KCBF, KGEI, KGEX, KNBX, KWID and KWIX overseas radio stations. In 1949 he joined the Institute of Radio Engineers, New York City.

In the early '50s, he was an electronic engineer with Naval Electronics, as a civilian employee. He was assigned to Long Beach Naval Shipyard, Point Mugu Missile Test Center and Naval Electronics in San Diego.

Bugar held management positions from 1955 to 1966 with the Cubic

Corporation, Electro Instruments, Ets-Hokin and Galvin, Stevens and Evans, Inc. and Beckman Instruments. In 1966 he founded another company, the Elgar Corporation, with Bob Elliston.

Elgar manufactures and designs state-of-the-art power sources and line conditioners for computers and other sensitive electronic equipment. In 1978 Elgar was sold to the Onan Corporation, but Bugar remained as a consultant until his death.

He was licensed as W6PAX in 1935 at the age of 14. He held an Advanced Class amateur license as well as a First Class commercial license. Don ran a homebrew station until the late '60s, when he

purchased his first transceiver.

He actively supported Amateur Radio his whole life. W6 "Pills, Antidotes and X-rays" will be missed on 20 meters. 73's old buddy. — John Brandon, KA6DDL □

### See you in Worldradio

If you participated in or know of an interesting event involving Amateur Radio, send in the story to Worldradio. Pictures are especially welcome and will be returned. Worldradio, 2120-28th St., Sacramento, CA 95818. □

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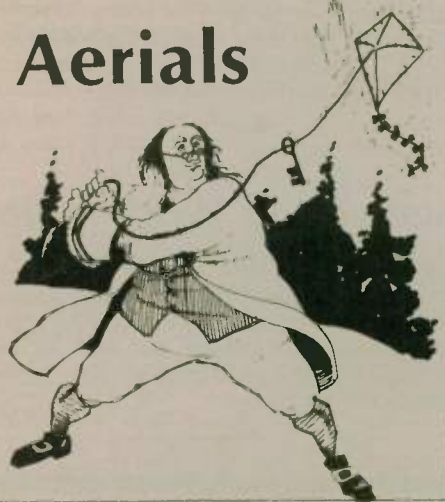
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# Aerials



## Lil Paddle

A letter from a reader tells us that Kenwood states that one should not use his 430 unless the SWR is below 1.5 to 1. That's just plain ridiculous!

If the rig had any decent circuitry, the power would back down at the proper ratio. There was another rig that at 2 to 1 would find the circuit breaker opening. More bunk. What these manufacturers have done is make their radios inoperable in an emergency, when circumstances may well be less than ideal.

Have we indeed, with these no-tune radios, taken a step backwards? In days past, we had "tune" and "load" controls between the tube and the antenna. That way, we matched the impedance of the antenna. One dipped the plate and peaked the load. The network was indeed an antenna tuner, or matching device.

Thankfully, no one in those days ever uttered the foolishness of, "Oh, the Pi-network just fools the plate." Today, you will hear people say the antenna tuner doesn't match the antenna; it just fools the transmitter.

Possibly along with radios, people have also taken a step backwards.

Rigs of days gone past would state in the accompanying literature that they were capable of, let's say, 25-100 ohms. They would have been capable of more, had the manufacturers wished to build the network with more range. Such a

plan, though, would have needed more room and the radios would have had to have been larger.

Today, with no matching network built in, one must — if encountering an antenna system that deviates but a bit from perfect — use an antenna tuner.

Our latest letter writer relates that he could not, when using the Kenwood AT-130 tuner, get the SWR below 1.7 to 1. That would indicate that the tuner has a rather limited range over which it can work. One should be able to, with a good tuner, get the SWR down to 1 to 1 on practically anything. Having never used that particular tuner, I cannot comment on it directly.

But with others, and having experimented at great length myself, and also having watched some of Kurt's madness (including wrapping a coil of wire, two wavelengths long when stretched out, round and round a hula hoop, which he succeeded in spanning the continent with as it hung on a door in the shack), I can say that everything was able to be matched down to the 1 to 1 level.

The controls have to be moved slowly. If they are turned too fast, one will pass the matching point without knowing it. With some loads, the matched point will be but a sliver. It is also a "going back and forth" process — first to the transmitter side, then to the antenna side, then back, etc.

If you seem to be close, but it just won't get down all the way, try one setting higher or lower on the inductor.

If you should be in a situation such as one amateur, writing to us, stated: "indoor, third floor, no ground, a mobile antenna," do not despair. Use a jolly antenna tuner. On the back of the tuner, where there should be a ground lug, fasten some wire — one quarter-wavelength long — at the frequency you wish to operate.

No, it does not have to be stretched out. You could even run a wire to the

cold water pipe in the loo, disconnecting it when not using the radio. For it is sad, but true: A vertical without a radial is, to quote President Harry Truman, "ma-nure".

Purists may wish to use the Belden 9913 50-ohm coax. It has half the loss of RG-213. So it is more expensive. How much did you pay for your amplifier? Why throw the power away?

For those restricted to indoor verticals and having a rough go of it, try two verticals. Yes, two. Use a T-connector on

the back of the tuner. I saw a Webster Bandspanner the other day. It certainly brought back the memories.

How much did you spend for your transceiver? So it is not a bad idea to spend but a few dollars more to get the proper enjoyment from it.

Away from the restricted space dilemma to those with no such problems. However, it seems that one manufactured 40-metre, 3-element Yagi needs severe changing of the lengths of the elements to obtain the correct operating parameters. Shame! Where is their antenna range . . . in a subway?

Two-metre operators are saying some nice things about the AEA HR-1 antenna.

If you are using open-wire line feed and things just aren't working as well as you feel they should be, add about one-eighth of a wavelength and see if that improves the situation. The same thing holds true for coax.

Another letter writer said we don't mention that wonderful antenna tool, the noise bridge, enough. Considering its great usefulness, in being the only instrument that tells the real truth (if the directions are followed), he is probably correct.

How many amateurs have a dummy load? That's one way to calibrate your SWR bridge. See if it's giving you the real story. The truly concerned would, of course, be using a Bird wattmeter.

Correspondence is invited.

(Cut out this infernal guessing game. KNS and LP are NOT Stu Meyer or Leo Meyerson or Ellen White, nor are they Art and Madeline Greenberg. Just let them leave their silver bullets and ride off.)

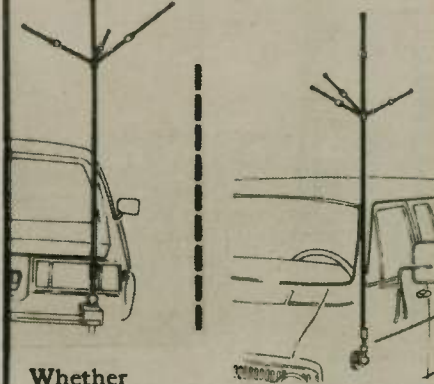
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Jim Gilbert, VE8JG (left), paid a surprise visit to Harry Hansen, K9JIQ's QTH last summer. Be sure to look at Jim's license plate.

## Surprise visit

Harry Hansen, K9JIQ, had a chance to meet with one of his radio buddies last summer, when Jim Gilbert, VE8JG, came through Park Ridge, Illinois with his family.

"I had been talking with Jim for over two years," Harry writes, "CW on the 14 MHz band. Jim's wife, Karen, and his family and my family were always good topics for conversation."

"It was only a three-hour eyeball visit over lunch with his family with lots of QRM. They were on their way to St. Thomas, Ontario on vacation, and Jim for an extra class in school. He is a school teacher in Fort Simpson, Northwest Territories.

"If any hams are looking for VE8, look at 14040 or 14064 around 0130Z.

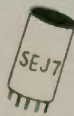
"P.S. He only has two bear license plates — hi!" — Information submitted by Harry Hansen, K9JIQ

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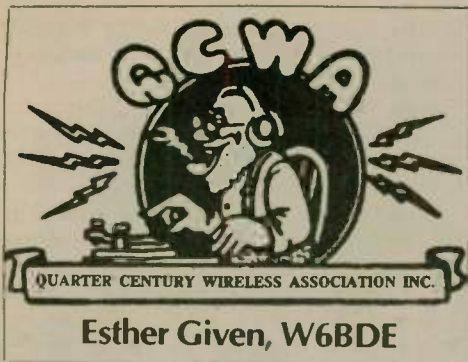
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There are currently 147 chapters of QCWA, which bring the friendship, goals and purposes of the organization into the geographically attainable neighborhoods of its members. As with other fraternal and service organizations, the relationship between QCWA International, the host group and the chapters is based on the principles established by the parent association.

Local chapters may be formed when at least 10 QCWA members living in the same geographical area petition for charter. Each member of a chapter must be, and continue to be, a member in good standing of the international association. Chapters may not offer associate or other classification of membership to include non-QCWA members. The constitution and bylaws of each chapter must be consistent with those of the host organization.

When formed, a QCWA chapter agrees to abide by and operate according to the QCWA requirements. The QCWA chapter serves to unite members in a given geographical area so they may meet together frequently, get to know each other, exchange ideas, work together toward a common goal and honor the achievements of its members. QCWA chapters can be credited with much of the growth of the association in both membership gain and support of its policies and goals.

Many chapters have made substantial contributions to the QCWA Scholarship Fund in memory of Silent Keys. Chapter secretaries make periodic reports to QCWA Headquarters concerning membership activities and accomplishments. They also keep a supply of application forms for membership, supplies and the various certificates. Petitions for chapter charter are available from QCWA Headquarters, 1409 Cooper Dr., Irving, TX 75061.

The Dayton-Cincinnati Chapter of QCWA will hold its annual banquet during the Dayton Hamvention on Friday, 27 April, at Neil's Heritage House Restaurant, 2189 South Dixie Drive, Dayton, Ohio. The COD bar opens at 6:30 p.m., and dinner is at 7:30 p.m. An illustrated presentation will be given by Dr. Jerrold Petrofsky, N0AQM/8, who has gained worldwide recognition as the developer of computerized equipment that enables the paraplegic to walk.

Further information and reservations will be handled by Doug Horner, W8PH, 186 Golfwood Dr., Dayton, OH 45449; (513) 859-3210.

QCWA is proud to announce the appointment of Onie Woodward, WIZEN, to serve as activities manager. Duties and responsibilities of this office include the supervision of QCWA International nets (other than chapter nets);

appointment of net controls; planning and conducting QSO parties; procurement and distribution of operating awards; announcements for nets and newsletters concerning QCWA activities; and appointing chapter members to assist in providing the best possible activities program for Amateur Radio.

QCWA's spring meeting of the Executive Committee and Board were held at the Ramada Hotel in Dallas, Texas. Working executive sessions were conducted all day Friday, 06 April, followed by an open meeting on Saturday, 07 April. □

## Atlanta Radio Club scholarships

Morris Johnson, KB4IT

The Atlanta Radio Club (Atlanta, Georgia) announces that three cash \$750 scholarships will be awarded to graduating high school seniors who enter an accredited college or university in the fall of 1984. Recipients must be licensed U.S. Amateur Radio operators at the time of application. Final selection will be based on scholastic attainment, work and progress as an active Amateur Radio operator, and future potential or promise.

For additional information and application forms, write to: Phil Latta, W4GTS, Secretary, Atlanta Radio Club Scholarship Committee, 259 Weatherston Parkway, Marietta, GA 30067.

Completed applications along with the required high school transcripts must be received no later than 30 June 1984. □

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Dr. Paul Uhlig must have put in a special order for his call sign. He operates out of his QTH in Wichita, Kansas as K0MD. □

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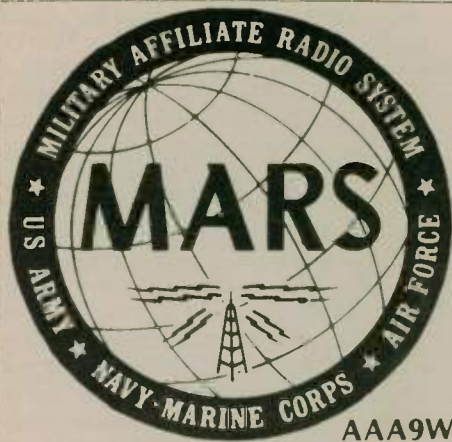
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Vern Hansen,

AAA9W  
KD6UI

The following article appeared in the March 1984 edition of the 7th Signal Command Western Area MARS Bulletin. The article was prepared by Phil Coulter, AAA8MT/W7PX.

Earl V. Hawley, W7LBK/AAR8BW, joined MARS in September 1949 and is still a dedicated, hard-working member. His amateur call is W7LBK and his former MARS call was A7LBK (now AAR8BW), and I am sure a good many of you have had QSO's with him. He may be a little shy, as may great "doers" are, which may explain why he did not send in a photo of himself to accompany this epistle. Each reader will visualize a favorable picture after his accomplishments have been enumerated here.

He was first licensed 11 April 1947 and now holds the Advanced Class ticket, as well as a First Class radiotelephone operator license. His greatest ham interest is on the 80 and 40 HF bands and 2-meter VHF, in the modes of CW, phone and RTTY. Earl also handles considerable amateur message traffic and fills in some of his spare time on radio construction projects — both amateur and MARS.

Earl was Montana State MARS Director for the period 12 January 1961 to 14 March 1973. His was a directorship outstanding in dedication and fondness for MARS, and the program prospered under his able leadership. His concern for individual members and training help for us all was sincerely appreciated by the Montana MARS membership.

The "Operator of the Month Certificate" was awarded Earl on 29 August 1974. In addition, at the termination of his Montana State MARS Directorship, he was the recipient of a "Department of the Army Certificate of Achievement" for his many years of exemplary devotion and dedicated support of the Army Affiliate Radio System and the inspiration furnished to MARS members in Montana. The certificate also stated,

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"Mr. Hawley's outstanding public service reflects highly on himself, the Amateur Radio operators of the United States and the Army Affiliate Radio System."

A further recognition was a letter Earl received from the Area MARS Director (now AAA9W), reading, "On behalf of the entire Western Area MARS membership, I wish to express my sincere appreciation for your time and effort in improving and updating the Army MARS Program."

Another activity which kept Earl busy was being publisher and editor of the Montana MARS News Letter for a 10-year span.

ARRL amateur appointments included "Emergency-Coordinator" June 1947 to September 1983; Official Relay Station and Official Observer from January 1948 to September 1983. He has been a member of ARRL for 38 years and is a member of the National QCWA, as well as the local Treasure State Chapter No. 104, QCWA.

Philipsburg, Montana — a mining town between Drummond and Butte — was the place of Earl's birth, 31 March 1920. He attended and graduated from Billings High School, Billings, Montana; date of graduation was the year of 1938.

For many years, he was a faithful and loyal employee, as a laboratory analyst, at the Farmers Union Central Exchange Oil Refinery located at Laurel, Montana. Hawley retired June 1982 and subsequently, he and his lovely wife moved to Spokane, Washington, where they now reside.

His military activity started with joining the National Guard on 01 December 1936, and was called to active duty for World War II on 16 September 1940, which took him on a tour of duty in the South Pacific area of Australia and New Guinea. He retired with the rank of major on 31 March 1980.

W7LBK/AAR8BW's home station equipment consists of a Kenwood TS 830-S, a Kenwood TR-2500 and a KDK 2015R. Due to apartment restrictions, Earl is using only a 30 ft. wire and tuner for HF band antenna and a Larsen 5/8-wave mag-mount antenna, mounted on a TV tray in his basement for 2-meter operation. In addition, he has a TRS-80 model III computer with a macrotronic terminal 3 used for RTTY, etc.

Earl Hawley's move to Spokane was Montana MARS' great loss, but a real gain for hamdom and MARS in Washington.

We salute you and again thank you, Earl, for your many years of unselfish devotion to the cause of MARS. □

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Assistant Secretary Thomas E. Cooper represented Secretary of the Air Force, Verne Orr, WA6IOG, at the award presentation for Hickam AFB MARS Director Clarence Mohica, AGA8HI (ex-KH6HAT), on 25 January 1984 in Washington. Left to right: Assistant Secretary USAF Thomas E. Cooper, (Mrs.) Myrtis Mohica and Clarence Mohica.

## Hickam MARS Director honored

**Rufus McCracken, KH6QL/AFA8CC**

Clarence Mohica, AGA8HI (ex-KH6HAT), is the first USAF employee to win the Congressional Award for Exemplary Service to the Public. The award was established in 1981, for outstanding personnel in the Department of Defense that the president and Congress wish to honor for their public service.

Washington's Personnel Director, Donald J. Devine, said that selecting a winner was not an easy one. "They are all highly motivated federal employees who are known for their willingness to 'Go the extra mile' in providing service to the public." There were 73 nominees from 41 departments for the three awards.

Going an "extra 30 miles" through heavy rains and high winds when Hawaii was hit by Hurricane Iwa (worst storm in 23 years), Mohica traveled that distance over the Pali to set up an auxiliary MARS station at Bellows Air Station

that linked state MARS members and Hickam. The storm also severed the underwater cable to Johnston Isle, and Mohica established HF and RTTY overnight to carry on required contact with that important military station (750 miles away) for several months.

In his spirit of always trying to do more, Mohica provided morale and welfare messages between Johnston and relatives on the mainland. More messages were handled in one month by Hickam MARS than the heavy traffic loads during the Viet-Nam War.

Another goodwill gesture was a "Talk to Santa Claus" for the kids at Hickam Base Exchange during Christmas week. Many bright-eyed children had the thrill of talking to Santa by radio for the first time.

Most important, in serving the public, has been the program Mohica initiated at Tripler Army Medical Center for weekly phone patches and messages for the hospital patients to their loved ones on the mainland — free throughout the United States. A handi-talkie was used from Tripler to Hickam MARS through Anaheim Rockwell International (AFC6RI) via WATS line throughout the CONUS.

This system has been in operation for a number of years and has won Mohica and his radio operators and state MARS members many "thank you's" and tear-jerking letters of appreciation.

One from the Secretary of the Air Force, Verne Orr, WA6IOG, says in part, "As an Amateur Radio operator myself, I couldn't help but be impressed by your initiative and your creativity in responding to the needs of the citizens in your area. It's clear that your concern for our people at the Tripler Army Medical Center has contributed in no small way to their speedy recovery. Additionally, your support during the storm in Hawaii obviously contributed to alleviating a great deal of personal suffering. Once again, please accept my thanks for a job well done." □

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## Care of emergency power systems

Allen Mills, AFA6PD/AFF6D  
R6DCM/Net Manager 6S1

1) First and foremost, emergency power equipment must be tested on a regular basis. A schedule of once per month should be followed. Keep a log because it is hard to remember.

2) The test should be under load or as near full load as possible. Operating the system into light a light bulb isn't enough. Operate for 30 minutes each time.

3) Change motor oil regularly. Use "SE" grade or better. Between tests, the gasoline will have a tendency to produce varnish and gum. This can be reduced by adding inhibitors available from service stations or an auto parts store. Don't put too much gas in the tank at a time. It is better to keep a supply in gas cans and rotate these regularly to your car so you always have a "FRESH" gas supply for generator use.

4) On the wiring: **BE SURE** you have a quick, sure system with leads heavy enough to handle the current. By a "SURE" system, we mean one that will feed the current in to your equipment **ON-  
LY, AND NOT BACK OUT THE  
POWER LINES.** Power company linemen take a dim view of systems that connect up to a floor socket. This feeds the power out of the pole transformer. The high voltage thus produced can cause death, serious injury and damage the generator and electrical wiring in your home beyond repair.

5) Don't wait until the emergency to try powering your equipment with emergency power. Spark plugs have a habit of becoming noisy, and grounds and bypasses don't always do the job they were designed to do. During an emergency, signals in general are likely to be weak. Under these conditions, you don't need the crackle of an emergency generator to obliterate the signal.

6) When you have your USAF MARS station wired for emergency power, have it ready to go with a pull of the rope and the flick of a switch, and tested, ignition noise free, and operated under load on a regular basis. Then you are *really* USAF MARS ready for contingency and emergency operations.

When using electronic equipment powered by generators, remember these facts:

Before connecting any electronic equipment to emergency generators, the generator's wave form should be checked for voltage spikes. Spikes are sharp voltage peaks and should not be used to power any electronic equipment. These spikes can cause severe damage. Look at your generator output with an oscilloscope and exercise caution. □

## Region IV conference

The Region IV United States Air Force MARS will hold their annual conference on 4-6 May. The conference will be held at the Rhodeway Inn, Lufkin, Texas.

On Friday night, there will be an administrative meeting of the headquarters personnel, state MARS directors, and all of the Region IV officials. The Hospitality Room will be open for all those not attending the officials' meeting.

For further details, contact Ed Langston, N5CIP (conference chairman), 1123 Sayers St., Lufkin, TX 75901. □



It probably will go down in history as one of the poorest-kept secrets in Amateur Radio, but the Heath HW-9 finally has been unveiled by the company.

Rumors have circulated for almost a year that the venerable HW-8 was to be replaced by a more state-of-the-art transceiver. The speculation was fueled last year when Heath introduced a QRP SWR/wattmeter and a QRP antenna tuner, both sporting the darker colors to which most commercially-made gear is moving.

Indeed, speculation about the introduction of a new QRP rig by one of the major low-power manufacturers — Ten-Tec, Heath or Kenwood — was so widespread just prior to the ARRL National Convention in Houston last fall that low-power enthusiasts could be seen moving back and forth among their

exhibits, trying for a first glimpse or a word about the mystery rig. There was none, however.

Late in January, Heath began admitting it had discontinued the HW-8 and was about to introduce the HW-9. It was a whole new ballgame, and speculation turned from when and who would introduce the new QRP rig to what it would contain.

The HW-8 is a tough act to follow. It is a proven performer and a favorite with QRP'ers, especially among those who enjoy a little tinkering and experimenting with modifications. It was, after all, a fairly vanilla rig, but one which still would perform.

They are not likely to disappear from the air simply because the HW-9 is out any more than HW-7's dropped from sight when the HW-8 made its debut.

For you trivia buffs, the HW-7 was introduced in 1972, had only 40, 20 and 15 meters, and sold more than 10,000 units before it was discontinued three years later. The much-improved HW-8 debuted in 1975, adding 80 meters to the frequency line-up and offered a better, direct-conversion receiver. Now, more than 15,000 sales later, the HW-8 has been retired.

David Poplewski, KC8IV, Heath's product line manager for communications, said the HW-8 brought a healthy



The HW-9 with matching power supply. (Photo courtesy Heath Co.)

stream of mail from builders and users, primarily with suggestions for modifications and improvements.

It's obvious from reading the specifications that Heath has taken many of those suggestions seriously, for they are incorporated in the HW-9. For instance, there now is an RIT (receiver increment tuning); the receiver is a single-conversion unit with a 9 MHz IF; a four-pole crystal filter in the IF section and an active audio filter should aid selectivity (that was a major weakness in the HW-8); all bands are available, although the basic rig comes with 80, 40, 20 and 15 meters as standard; and an optional accessory adds the 30, 17, 12 and 10-meter bands; it offers full break-in keying (farewell to a noisy relay); and it has a power output of up to 4 watts (3 watts on 10 meters).

David says the HW-9 essentially is a stripped-down version of Heath's larger Model 5400 transceiver — a move other manufacturers have tried with varying degrees of success. There now are two printed-circuit boards on the inside, and the whole thing is tucked neatly into the same size cabinet that served the HW-8.

The price tag for all this? As of this writing, that's still up in the air, although the rumor mill reports the starting cost for the basic rig at around \$250 and a top price in the \$300 range, with the accessory band pack cranked in.

The price, of course, will be a major factor in the success or failure of the HW-9. The HW-8, for instance, was creeping steadily toward the \$200 mark when it was discontinued, and that is a little steep for a CW-only rig that could be squeezed for about 3 watts output — tops.

Availability? Some time in mid-April, according to the best estimates. It might be that long before the first HW-9's are sent to reviewers for testing and reporting.

Heath, which helped pioneer the build-it-yourself movement, has taken a sizeable risk in introducing the HW-9, especially in the face of fierce foreign competition with rigs loaded with lots of gongs, whistles and bells. Is there still room for a simple, straightforward, CW-only transceiver in kit form in today's Amateur Radio?

There should be. For one thing, Ten-Tec left a vacuum in the low-power field when it discontinued its Argonaut series more than a year ago. Second, there remains a healthy segment of the Amateur Radio population — especially QRP'ers — which enjoys building and experimenting, even if it's on a commercially marketed kit. And third, many of us still like to grab up a sturdily designed and built rig (i.e., the HW-8) and head out into the fields or into the mountains with it for some pure fun and enjoyment in QRP operating.

David says Heath has been bombarded with requests for information about the new rig. Once the news leaked, the chase was on.

"Quite frankly, it feels good to have a tiger by the tail," he says. □



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Ron Flynn, KB8LU

This column will be the last one you will read before the 1984 Dayton Hamvention takes place. You'll find the latest information, as of 01 March, on what to expect at Dayton, below. First, however, I've received a number of comments concerning my March column and the Magnum SSTV system.

A number of people reported to me over the air or in writing that they have had difficulty getting information and questions answered from Magnum. I have personally found this to be the case. Over the past few months, I have written Magnum on four separate occasions and I have never received one word in reply.

I have a price list I received in a general mailing from Magnum about six months ago, but it is outdated as many products and prices have since changed. As I understand the situation, Charles (Ben) Blish, N4EJI, developed the hard-

ware and software for the system and sold it to Magnum. He no longer has any business connection with Magnum.

Ben is quite active on SSTV. He operates the Magnum system and is the source of the information I have about the Magnum hardware and software, and is quite helpful in answering questions about the Magnum system he runs.

Though he has no obligation or business connection with Magnum, Ben is carrying Magnum. Magnum is now aware of their service and communications problems, and hopefully they will be corrected by the time you read this. I have a Magnum system on loan for review purposes. The hardware and software work flawlessly. My unit arrived without the CW, RTTY and speech portions of the system, and I am still waiting for them.

#### Hamvention plans

SSTV plans for the 1984 Dayton Hamvention are pretty well finalized at this time. There will be a Friday night SSTV meeting at the Holiday Inn North at 7:00 p.m. on 27 April. Mostly computer-based SSTV systems will be demonstrated.

Ed Cox, AA4BB, has developed a hardware/software SSTV system for VIC-20 and Commodore-64 computers, and he will be there along with Ben N4EJI and the Magnum system. Bob Suding, W0LMD, will be emcee, and I assume he will show his computer-based scan converter for the third year in a row.

The meeting is officially titled the "SSTV/ATV Experimenters' Get-together". Maybe there will be ATV stuff there too?

The emphasis at the annual ATV/SSTV forum held Saturday afternoon at Hara Arena will be on ATV. A new 56 kilobit FSTV transmission system will be explained, as well as paralleling high-power amps for ATV. Also, the use of a kilowatt amp for UHF FSTV will be discussed. Ralph Taggart, WB8DQT, has been working on a FAX system for the TRS-80C in conjunction with FAX software written by Clay Abrams, K6AEP. Ralph will demonstrate the new FAX system and some of the SSTV modes on the CoCo.

IVCA (International Visual Communications Association) is scheduled to hold their meeting Friday night, 27 April, at the Holiday Inn North in an adjoining room to the above get-together, at the same time. Their latest newsletter promises ATV, SSTV, RTTY and other demonstrations and refreshments. It is possible these two meetings will be

combined in the one large room with room dividers removed.

IVCA still must have a business meeting somewhere to elect officers and assign committees for the upcoming year.

Volker Wraase is expected to come from Germany with his new SC-01 scan converter. The first of the new Robot 1200C scan converters are expected to be shown at Dayton. It is not certain at this time what other commercial SSTV companies will have booths at Dayton this year.

A lot of on-the-air speculation has been centering on what Interface Systems of Texas will bring to Dayton this year. They have had a new scan converter on the drawing board for about a year and a half, and maybe it is ready for amateur SSTV?

A computer interface is a more likely possibility. A prototype was shown last year at Dayton. Who would write the software, what it would do and for what computers is still unknown. It will really have to be something to outperform the Magnum system though.

A third possibility is a higher resolution mod for color on an existing scan converter.

#### Other notes

Clay Abrams, K6AEP, has gone about as far as he can with SSTV and the TRS-80C. To add new features to his software would require removing some formats or features. The market is just about saturated with those who will buy that system. With a camera interface still lacking, several SSTV'ers are turning to other systems. Who can go three years without being able to snatch camera video? I personally think Clay has tired of SSTV and is moving on to a

new market. He's into FAX and weather satellite photos now.

Multimode Corp. of Texas, which makes hardware for Clay's software, is shifting their production emphasis to FAX. The camera interface work has been abandoned and documentation turned over to Larry Fritz, AG80. It is not known when or if one will be developed.

I've copied some 34-second R-G-B color SSTV transmissions recently on 10 meters. I can copy the 34-second frame rate on the equipment I have, but cannot store and view the R-G-B transmissions in color. Who can?

Sam Mormino, WA7WOD, recently sent a 34-second frame rate R-G-B color SSTV picture 2-2-2 on a net. That transmission took over three minutes for only one picture! After all that, no one on the whole net could copy it in color. The comments ranged from "That's ridiculous" to "I took a nap while it was going."

We don't need another new SSTV format. That's much too long for one color picture. It isn't that much better a picture than shorter transmissions.

It is really sad to have to report the antics of a few SSTV'ers. For nearly two years, 25.5-second color has been sent on SSTV. Many SSTV'ers have been unable to copy these line sequential transmissions. Little was ever said and nothing done about or to those using this format. Now, the new Robot single-frame color format is gaining popularity. I can't copy those transmissions in color, but I can at least see the pictures in B&W, and so can everyone else — unlike the 25.5 format.

A few SSTV'ers are actually plotting and organizing to drive the Robot color format off 14.230 MHz. What a disgrace. I hope those involved come to their senses quickly. □

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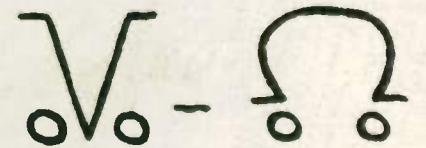
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## Ohm-Brew

The winner of this month's Ohm-Brew contest is George Oster, K0EDA, of Ames, Iowa. If you're having problems figuring this one out, the answer is on page 41.

All entries should be neatly drawn on 3" x 5" cards, for easy handling. On the backs of the cards, print or type your



name, address and call sign. Entries not used will not be acknowledged, due to the volume of entries received. □

## Two-meter beacon

The Lincoln Communications Society of Lincoln, Nebraska has constructed a beacon transmitter to provide a signal for propagation studies and frequency reference. The beacon currently operates A1 (CW) on 144.055 MHz with an output power of 10 watts to an omni-directional

antenna. The beacon location is in the northeast corner of Grid Square EN-10. The ID call sign is WB0QIY/B.

Reception reports should be sent to Lincoln Communications Society, ATTN: Secretary Charles Conner, K0NG, 1801 So. 48th St., Lincoln, NE 68506. — Charles Conner, K0NG □

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Following are excerpts of a speech given by Bruce Humphrys, K0HR, at the ARRL Convention banquet in Cincinnati, Ohio on 25 February.

Dear friends . . . what a pleasure to be a part of this great ARRL convention! The fellowship of Amateur Radio is best exemplified in the periodic gatherings of hams like us to chew the rag, compare notes and ideas, look at the new gadgets, and learn more about our fascinating pastime. After a day-and-a-half of exciting activity, you look forward to a stimulating banquet and mind-expanding speaker. Maybe Barry Goldwater, or Roy Neal — or even Owen Garriott! The type of speaker who rivets you to your seat, who makes you giggle with delight recalling past operations which parallel your own experiences, who makes you wonder at the advances preferred by our racing technology.

Instead — you got me! Not being able to do any of that, I humbly offer the following little piece of history — for those of you who were not yet born on the first of December last year; or who were on a two-week binge; or were similarly occupied, I ask for your complete attention to these next words. (Owen Garriott tape)

A signal on 2 meters — not very much unlike what you would hear on any major repeater or simplex frequency. Ah, but what a location! Zipping along at 18,000 mph in America's most expensive dump truck, in orbit, around the Earth, with a ham on board . . . and operating! Technically speaking, there was nothing astounding about this contact; the distance was something like a couple of hundred miles straight up; the band in use is a very common one for ham communications; the mode also is common. Everything was pretty ordinary. Even the pile-up sounded like 20 meters. What made this operation special was the imagination of ham operators everywhere. Those amateurs who were fortunate enough to be able to copy Owen, and, I suspect, even many who weren't, could imagine themselves right up there in that spacecraft, waiting anxiously for the minutes to go by, waiting for their first contact. Wondering what it'll sound like — being on the other side of the Van Allen Belt, being the one station that everyone in the world is trying to contact, wondering if the equipment will work — is the antenna in the right place? Am I gonna mess up my procedure? Will I be heard? Will I be able to copy anybody? Will I have the right stuff?

We all know what it felt like to hear Owen's signal down here. But can you imagine what he felt like, pushing his

microphone button for the first time? Perhaps not as momentous to the "outside" world as man's first words from the surface of the moon, but probably every bit as significant a moment for radio amateurs.

There can be no doubt that Amateur Radio is exciting. Some amateurs who remember what a Trimm headset looks like or what galena crystals are used for may poo-poo the idea of the excitement of being on the air. They've done everything in Amateur Radio — and everything's cool. Well, I still have my Trimm headphones, and I'll not lie to you — I get very excited about Amateur Radio almost every day. To be sure, something like Owen Garriott's voyage gets the juices up, but there are many, many other things in my Amateur Radio experience which are almost as fun.

One of the most satisfying ventures I personally am engaged in is our work with the Courage HANDI-HAM System, and within that, adapting equipment.

The Courage HANDI-HAM System, is an international, non-profit service organization serving some 5,000 people around the world who are interested in Amateur Radio. In a phrase, we help handicapped people become hams. In reality, we do a lot more than that.

Basically, we provide three essential services to handicapped people wishing to become hams or upgrade their class of license: we provide all the educational material and personal tutoring a person may need; we provide high-quality, well-engineered Amateur Radio equipment on a loan basis so our members can get on the air while saving up for their own station equipment; and we engineer and provide special devices and techniques for ease of station control. Technology has enabled us to bring Amateur Radio within the reach of thousands of severely handicapped persons. But so has imagination — just like Owen's space ride.

Both technology and imagination are necessary to convert a hunk of gear into something useful to persons with handicaps. Most ham radio shacks contain a lot of "stuff" — transmitting stuff,

receiving stuff, antenna stuff, keying stuff and 2-meter stuff. You probably don't realize that most, if not all, of your stuff could be considered "adapted equipment."

Take your clock, for example. Whether or not you have a clock, you know there is "time". You can look out your window and reckon whether it's daytime or nighttime; maybe morning or afternoon. A clock is nothing more than a piece of equipment which enables us to use something we don't have direct access to.

Taking this a step further — think of radio. Radio itself exists — there are strange electromagnetic waves buzzing through our heads all the time — carrying intelligence. Trouble is, we can't hear them or make any use of them without some piece of gear to make them accessible to us. That piece of gear is a radio receiver. It is a piece of "adapted" equipment — it adapts our hearing senses to receive electromagnetic waves.

If you can think of virtually all radio gear in this light, you won't get hung up on thinking of what we use in the HANDI-HAM System to make gear more usable. Think of adapted equipment not as something special, just an extension of what is already there.

There are all types of equipment which make station control and use easier for people with handicaps. From the very simple and easy-to-construct to the very complex. I'll not say that the more complex are more sophisticated — some of the simplest gear is amazingly adept. Take our beam direction indicator, for example. One of the nicest pieces of "stuff" you can have around your ham shack is a rotating antenna. And yet, if you are blind, trying to figure out which direction your antenna is pointing can be a worrisome task. I suppose you might want to try training your guide dog to bark in compass degrees; or maybe put up the antenna real close to a steel tower, so that when your hum-dinger super megacycle masher turns due north it

scrapes along the metal and causes a ruckus. Neither solution is very practical, however.

Our beam direction indicator is actually a Wien bridge. We use the 50 ohm resistor which is up in the rotator as one leg of the bridge; a 50 ohm variable resistor in the unit itself as another leg. The beam direction indicator simply hooks onto the back of a ham-M type of control box with three wires. When the two potentiometers are balanced (that is, "pointing" in the same direction), there is no output from the bridge; voltage is nulled. If either one of the variable resistors changes value, the bridge is unbalanced and voltage appears at the output. This voltage is fed to a voltage-driven oscillator. If there is voltage present, it oscillates. If not, it doesn't. The more voltage present, the higher the tone of oscillation.

Here's how you use the beam direction indicator: Turn on the rotator control and the beam direction indicator. The front panel of the beam direction indicator is labeled with Braille, just under the pointer of the knob connected to the 50 ohm variable resistor. Move the pointer of that pot to the desired direction you want the antenna to point.

Chances are, the beam direction indicator will oscillate, inasmuch as the bridge is probably now unbalanced. Now, rotate your antenna until the oscillation stops. The bridge is again balanced (both pots are pointing in the same direction), and there is no tone. Simple and very effective. And cheap — it costs about \$5 to build one of these devices, and it opens a whole new world of operating convenience to the sightless radio amateur.

Another simple device is our "buzzing" LED! Many new transceivers are broadbanded, requiring essentially no tune-up. All you have to do is turn up the microphone gain until the little green LED lights. Bingo! Trouble again for the sightless ham. Can't see the LED. Maybe you could hire a little kid down the block to tell you when the thing is lit, but he'd probably want too much money.

The solution is to place a Piezo-electric buzzer (we found a couple hundred of them in a surplus electronics store) across the LED. Now, as the LED lights, the buzzer buzzes. The buzzer in no way degrades the performance of the LED or the circuit it's tied to.

Perhaps one of the more complex situations done in recent years by the system has been the station of Bill Savada, KA4DAA. Bill has a malady called universal allergy. He's allergic to essentially everything — except stainless steel and some ceramics. It's a condition brought on, supposedly, by exposure to hydrocarbons in the atmosphere. A "fall-out" of our polluted world. Sure enough, there has to be some pre-existing condition which contributes to contracting the disease, but there is no doubt that continued exposure to crud in the air wiped Bill out.

He lives completely isolated in Texas in a stainless steel and porcelain trailer home. He had received his Novice license before the disease manifested itself, but was unable to get on the air or own any equipment. He is allergic to everything in an Amateur Radio rig. He would have violent physical reactions to the smells given off by resistors, capacitors, plastics and things like that. Not the easiest environment to inject Amateur Radio into.

Bill had contacted the ARRL, telling

## Are you radioACTIVE?



Dean LeMon, KR0V sure is! Dean got active in Amateur Radio when he was 16 years old and earned his Extra Class license in less than four years! "It's a fascinating hobby and a great way to meet all kinds of new people from all over the world."

Dean has cerebral palsy and got started in Amateur Radio with help from the Courage HANDI-HAM System. The HANDI-HAM System is an international organization of able-bodied and disabled hams who help people with physical disabilities expand their world through Amateur Radio. The System matches students with one-to-one helpers, provides instruction material and support, and loans radio equipment.

Isn't it time you got radioACTIVE with the Courage HANDI-HAM System?

Call or write the Courage HANDI-HAM System W0ZSW at Courage Center, 3915 Golden Valley Road, Golden Valley, Minnesota 55422, phone (612) 588-0811.



them of his plight. They, in turn, contacted us. After a lengthy period of consultations with Bill's physicians and others associated with his special disease, we were able to get a firm idea on exactly what kind of adaptations Bill needed.

Our volunteer technicians designed an entire Amateur Radio station, completely enclosed in an air-tight stainless steel box! All functions of the transceiver had to be operational from the outside of the box, of course, and yet there could not be any air leakage at all — or Bill would react to it.

Special sealants were developed by a volunteer engineer working for the 3M Company. The box itself was fabricated by a local company for free. (They didn't even charge us for the stainless steel!) The box was designed to hold a Ten-Tec Century-21 transceiver, and also — (when Bill got his General license) — a Ten-Tec Argosy transceiver.

The station was built and bench-tested for hours before going to Texas. Since the thing was hermetically sealed, we didn't want to chance the seal being broken by air shipment. A HAN-DI-HAM member who was driving to Mexico took the unit in the back seat of his car, carefully padded. He turned it over to another HAN-DI-HAM member who worked for NASA in Houston — who installed it in Bill's trailer. A Butternut antenna was installed, and all checked out.

At an appointed hour, I called KA4DAA on 15-meter CW. Minutes ticked past as I called again — and yet again. Then, out of the background noise came a strong and steady signal. It was Bill, on the air for the first time. Some 20 minutes into the contact we were QRM'ed by a DX station (F9HR — the similarity to my call was striking). Bill excitedly bade me "73" and called F9HR. Thus, he ended forever his isolation.

There are some people — many of them hams — who just don't want to get involved in helping people out, especially when it comes to helping out a handicapped person. And that's OK — it really is. It takes a certain kind of commitment to work with people, and not everyone's cut out for it.

But for those of you who might be on the fence, I'd like to offer this: A ship that stays in the harbor is safe — but that's not what ships are built for. We can, and undoubtedly do, enjoy our hobby in a very personal and private way. Our accomplishments are ours to treasure and boast about and reflect upon forever. But that's not all we hams are "built" for.

Amateur Radio, by its very nature, is outgoing, all-encompassing and fraternal. Leave the harbor once in awhile —

become involved in the voyage of another human, if only for a short time. Experience the thrill of helping someone else make his first contact. Use your imagination to couple technology with need. You may never ride in a space shuttle, but you can experience the same heady feeling of accomplishment by tackling a problem, reasoning it out to a clever solution, and implementing the solution to the betterment of a fellow ham.

To start you on your way, I'd like to leave you with this little exercise. Teaching Ohm's Law to a new Novice can be tough — and exhilarating. We have all used buckets of water, and magic circles, and what not. But, it seems, those three components of the formula still get mixed up. The next time you have to instruct someone in how to remember where the "E" and the "I" and the "R" go in the formula, try this.

Close your eyes. In your mind's eye, visualize a desert plain. Nothing to spoil the horizon spread before you. Sitting out a little distance, over there on the right, is a rabbit, just sitting there on his haunches, preening his coat. Off to the left a bit is an Indian. Full headdress with feathers, wearing moccasins. In between the rabbit and the Indian is a fence — one that's made up of logs crossed like the letter "X". Up in the blue sky is an American bald eagle slowly soaring upon the hot currents of desert air. Just the rabbit, the Indian, a fence and the eagle. Nothing else. And there you have it — Ohm's Law.

You see, the eagle stands for the "E" in the formula (voltage); the Indian stands for the "I" (current); and the rabbit is "R" (resistance). The fence, of course, is important, too.

If the Indian looks out, shielding his eyes against the brightness, he sees the eagle over the rabbit (I equals E over R); if the rabbit stops preening himself and looks up, he sees the eagle over the Indian (R equals E over I); and if the eagle looks down, he sees the Indian and rabbit on the same level, but separated by a great big "X" (E equals I times R.)

Space travel has been made accessible to us all through the fantasy of Owen Garriott's flight. So, too, is Amateur Radio accessible to all through the advent of our own technology and imagination. Remember the eagle, Indian and rabbit. Leave the harbor once in awhile and embark on a wondrous voyage! □

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## Roanoke Division League meets

Ted Wolfe, WD4KHL

The ARRL Roanoke Division League Planning Meeting will be held 12-13 May at the Ramada Inn in South Charleston, West Virginia. Every Amateur Radio club in the Division — covering the states of West Virginia, Virginia, North

and South Carolina — should send a representative to the Planning Meeting to provide input for consideration by the ARRL.

Field input helps the League develop its policies on many matters of interest to radio amateurs. □

## AMSAT (continued from page 26)

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Catalog number: 14781

Epoch time: 84067.40409430

Wed Mar 7 09:41:53.747 1984 UTC

Element set: MH 3-11-84mod

Inclination: 98.2510 deg.

RA of node: 129.8480 deg.

Eccentricity: 0.0006061

Arg of perigee: 243.8620 deg.

Mean anomaly: 116.1950 deg.

Mean motion: 14.61903052 rev/day

Decay rate: 4.76e-06 rev/day<sup>2</sup>

Epoch rev: 83

Semi-major axis: 7062.253km

Anom period: 98.501744 min.

Apogee: 705.268km

Perigee: 696.708km

Beacon: 145.8250 MHz

Amateur Satellite Reports is published every other week for AMSAT to enhance communications about Amateur Radio satellites and the Amateur Radio satellite program. Subscriptions for United

OSCAR-9:

Mon Mar 12 01:01:21.499 1984 UTC: As-

cending node at 140.0 west

Nodal period: 94.50379 min.

Longitude increment: 23.624167 deg. w/orbit

Element set 589, epoch: Tue Feb 28

09:01:08.377 1984 UTC

OSCAR-11:

Mon Mar 12 01:23:59.23 1984 UTC: As-

cending node at 56.4 west

Nodal period: 98.55997 min.

Longitude increment: 24.639067 deg. w/orbit

Element set MH 3-11-84mod, epoch: Wed Mar

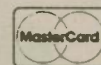
7 09:41:53.747 1984 UTC

States, Canada and Mexico are \$22 annually (26 issues), from *Satellite Report*, 221 Long Swamp Rd., Wolcott, CT 06716. □

## AT LAST A MINIATURE BASE STATION AT A MINIATURE PRICE...

The MX-15 is a 15-meter band SSB/CW hand-held transceiver. It measures only 1½" (D) × 2½" (H) and offers 300mW for SSB and CW operation. A single-conversion receiver employing a MOS/FET front-end offers clear and sensitive reception. As a base or portable station, the MX-15 offers an unlimited challenge in QRP operation. Additional accessories are available to extend your operation.

The MX-15 comes with full 90 day warranty and is available from factory direct or HENRY RADIO (800) 421-6631



\$129.95



### ACCESSORIES SUPPLIED

- Standard Frequency crystal of your choice
- 6 pc. AAA Batteries
- DC Cable
- Instruction sheet

### ACCESSORIES AVAILABLE

- MX Channel crystal.... (Standard Frequency) \$7.00
- MS-1 External Speaker-Microphone \$23.50
- Noise Blanker Kit \$6.50
- NB-1 Side Tone Kit \$11.50
- SP-15 Telescoping antenna \$19.50
- 2M2 DC-DC Converter set \$17.50
- PR-1 Mobile Rack Kit \$23.50
- VX-15 External VXO (one crystal supplied) \$53.50
- PL-15 10W Linear amplifier \$89.50

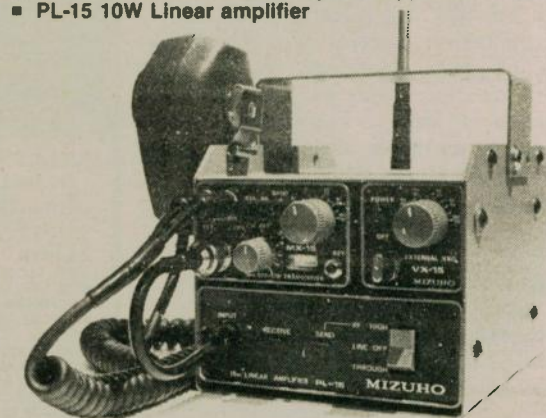


Photo shown MX-15, VX-15, PL-15, SP-15, MS-1 and PR-1

ACE communications, Inc. 2832 D WALNUT AVENUE, TUSTIN, CALIFORNIA 92680 (714) 544-8281  
TELE X 655-306





Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

## Mail-order course

Gordon West's Radio School announces a complete Novice Class mail-order course to prepare students and their volunteer examiners for the Novice Class test.

Students will find the following items in their complete Radio School Novice Class Home Study Course: four stereo code-learning tapes; two stereo 200 Q&A tapes; two vinyl cassette carrying cases; code oscillator set; Novice 200 Q&A license manual; FCC-published 200 Novice test questions; typical Novice Class multiple choice examination; FCC Form 610.

This complete Novice course also includes a separate package for the volunteer instructor to administer the exam. The volunteer examiner's test package contains the following items: 5 wpm code test tape; 20-question theory test meeting FCC Novice Class requirements; details on filling out reverse side of Form 610; details on how to conduct the exam and where to send Form 610.

The FCC Notice of Proposed Rule Making NPR Docket 83-27 outlines a volunteer examiner program where local hams will take over the responsibility of giving Amateur Radio tests. Public law 97-259 amended the Communications Act of 1934, and that allowed the FCC to accept the voluntary services of licensed radio amateurs in preparing and administering the Amateur Radio Service exams.

No longer will exam questions be kept secret. The FCC is publishing all examination questions for all levels of Amateur Radio licenses. Similar to aircraft FAA exam procedures, publishing companies and Radio School, Inc. have developed multiple choice-type answers for these questions, as well as a key giving the correct answer for each and every question. This allows the beginner student to know exactly what is required to pass the 20-question FCC Novice Class test.

Radio School has been producing stereo code tapes for the last five years. Stereo code tapes allow students to learn the code while listening to instructions on one channel and the code on the other channel. Students can turn down the voice channel to practice the code without help, and then turn down the code channel and practice sending the code letters after the voice channel commands. Radio School has not only beginner code courses, but complete code courses for the General and Extra Class licenses.

Radio School theory tapes cover those questions to be asked on an Amateur Radio examination for a particular class of license. This allows students to practice their theory while driving in a car to make better use of their time while on the road. The theory tapes are also ideal for the visually impaired student who cannot read regular textbooks. Whenever possible, the theory tapes should also be used

## Ohm-Brew Answer

A VOLTSWAGON PULLING A MOBILE OHM.

in conjunction with quality license and question-and-answer manuals for the Amateur Radio license exam.

The complete Novice course is offered mail order for \$60, plus tax and \$4 postage. Students can contact Gordon West personally on a hotline number for additional help on any questions on the exam.

"Whenever possible, students should always attend a regular Amateur Radio class. This allows them to see Amateur Radio equipment live, and to broaden their horizons about the Amateur Radio community they are soon to enter.

"Each year, through our local college system, we train about 1,000 students to pass their Amateur Radio tests and become good operators. However, throughout the country, there are many areas not served by Amateur Radio instructors. We hope that our mail-order courses will help fill this bill.

"Our Novice Class course also goes one step beyond and includes material for the volunteer examiner to give the student their beginner Amateur Radio Novice Class test. With our experience in teaching, there is no other course like this one for the beginner," comments Gordon West, noted national radio columnist and three-time nominee for the coveted ARRL "Instructor of the Year" award.

For more information on new FCC testing policies, write to Gordon West's Radio School, 2414 College Dr., Costa Mesa, CA 92626. □

## Heil Sound System

A new ingenious sound system is available from the engineers at HSL. Not just another speaker, but a complete sound system which contains two 5 watt amplifiers, a 3 1/2" woofer with a 1/2 lb. magnet, a 1 1/2" tweeter with a 12dB per octave crossover network at 1500 Hz, right where the response of the human ear begins to fall off, and you need that extra punch for maximum articulation. No single-speaker system can give the needed response so desirable in high noise conditions.

The second 5 watt amp can be used to drive a second speaker system that is used in a new dual diversity system that will be introduced late in 1984.

Mobile operation is enhanced with the new HSL SS-2. An accessory mounting bracket allows mounting under the dash — a very easy task.

The HSL SS-2 measures 3.75" x 5" x 3.75" It weighs 2.2 lbs. and is housed in a high-impact silver beige case. Power requirements are 13.8 volts DC at 400 MHz. A red LED is mounted on the front panel for power-up indication.

All input/output connections are made through a 5-pin DIN plug on the rear panel. A 110 volt power adapter and a mobile lighter power plug are also available.

The price of the sound system is \$54.95. Order from Heil, Ltd., No. 2 Heil Industrial Dr., Marissa, IL 62257; (618) 295-3000. □

## Free test tapes

Free Amateur Radio code test examination tapes are available to qualified volunteer examiners. These 1 1/2 hour-long stereo code test tapes meet FCC code test standards as outlined in the CCITT Recommendation R.140, as adopted by the VIIth Plenary Assembly in November 1980.

Four stereo tapes are available, each 1 1/2 hours long, for code tests at 5 wpm, 13 wpm and 20 wpm. A 10 wpm tape tests students' progress in reaching the 13 wpm code level.

"Radio School is making this offer of free tapes to all volunteer examiners in order to stimulate the volunteer examiner program," comments Gordon West, WB6NOA, Radio School President.

"Multiple 5-minute examinations with announcements to the students have been recorded in stereo on these tapes — all the volunteer examiner needs to do is to pick any of the 5 wpm messages (plus the one-minute warmup) and start the tape recorder," adds West.

Volunteer examiners are now permitted to give the Novice Class examination. A General Class license or higher, plus a few other restrictions, is all that is necessary to give the test. Soon, volunteers will be able to administer other code tests — and these tapes can be used for that purpose.

Amateur Radio operators wishing to receive any or all volunteer examiner code tapes should write Gordon West's Radio School, 2414 College Dr., Costa Mesa, CA 92626. Please include \$1 handling for each tape requested, and specify code test speed. Examiners wishing all four tapes will also receive a vinyl carrying case that neatly stores all four examination tapes. □

## Computer Aided Transceiver

Yaesu Electronics Corporation is proud to introduce the FT-757GX Line, the latest generation of CAT (Computer Aided Transceiver) technology from the engineers at Yaesu Musen Company, Ltd.



YAESU FT-757GX

Controlled by three 8-bit microprocessors, the FT-757GX is a full QSK synthesized transceiver offering general coverage on receive and ham band transmit capability, with expanded coverage available for MARS operators. The transmitter section is specified for up to 30 minutes of continuous operation at a nominal output of 100 watts.

For maximum operating flexibility, the FT-757GX performance package includes dual VFOs, eight memories, all-mode squelch, and a variety of scanning features. A 600 Hz CW filter, electronic keyer module, AF speech processor, and FM capability are all included in the purchase price.

Among the high-performance options for the FT-757GX Line are the FC-757AT Automatic Antenna Tuner with band/antenna memory; the FP-757GX Compact Switching Regulator Power Supply; the FP-757HD Heavy-Duty Power Supply (for continuous duty applications); the FP-700 Standard Power Supply; and the FTV-700 Transverter.

For further information on the FT-757GX Line or other Yaesu transceivers designed for computer interface, contact: Yaesu Electronics Corporation, P.O. Box 49, Paramount, CA 90723. □

Prices and Availability Subject to Change

<p><b>TEN-TEC 2591</b></p>	<p><b>SANTEC ST 142</b></p>	<p><b>YAESU FT-757GX</b></p>
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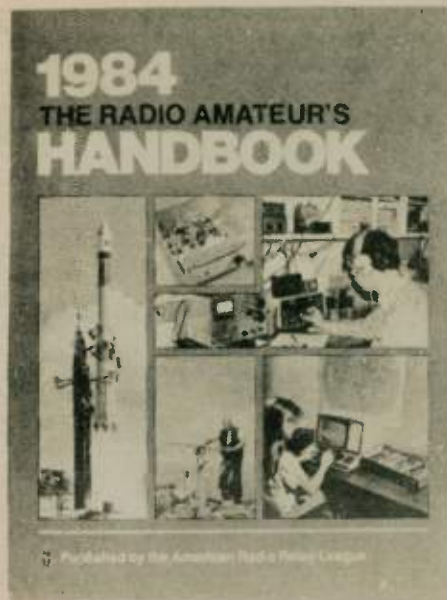
AEAA	CP-1/IC-64 or VIC-20 Software Package.....	Call
	MP-20 or MP-64 Interface Package.....	\$129.00
	AMT-1 Amtor/RTTY/CW.....	449.00
ALLIANCE	HD73 (10.7 sq. ft.) Rotator.....	\$99.00
	U110 Small Elevation Rotator.....	49.00
AMERITRON	AL-80 QSK Amp.....	\$599.00
ASTRON	RS7A 5-7 Amp Power Supply.....	\$49.00
	RS10A 7.5-10 Amp Power Supply.....	59.00
	RS12A 9-12 Amp Power Supply.....	89.00
	RS20A 16-20 Amp Power Supply.....	89.00
	RS20M 16-20 Amp w/meter.....	109.00
	RS35A 25-35 Amp.....	135.00
	RS35M 25-35 Amp w/meter.....	149.00
	RS50A 37-50 Amp.....	199.00
	RS50M 37-50 Amp w/meter.....	225.00
AZDEN	PCS4000 2M mobile rig.....	\$280.00
BENCHER	BY-1 Paddle/BY-2 Chrome.....	\$39.00/49.00
BUTTERNUT	HF6V 80-10 Meter Vertical.....	\$119.00
CONNECT SYSTEMS	Private Patch II.....	\$425.00
CUSHCRAFT	A3 Tribander 3EL.....	\$215.00
	A4 Tribander 4EL.....	279.00
	214B/214FB Boomers 14EL 2M.....	75.00 each
	32-19 Super Boomer 19EL 2M.....	89.00
DAIWA	CN-520 1.8-60 MHz SWR/Pwr Mtr.....	\$83.00
	CN-620B 1.8-150 MHz SWR/Pwr Mtr.....	110.00
	CN-630 140-450 MHz SWR/Pwr Mtr.....	129.00
	CN-720B 1.8-150 MHz SWR/Pwr Mtr.....	150.00
ENCOMM (SANTEC)	ST-142, 222, 442, Also Stocking KDK FM-2033	
	The Handhelds Still Offering the Most Features	
	Call for Your Discount Price	
HAL	CRI 200 Computer Interface.....	\$270.00
	CRI 100 Computer Interface.....	225.00
HY-GAIN	TH7 DXS 7EL Tribander.....	\$439.00
	TH5 MK2S 5EL Tribander.....	389.00
	Explorer 14 Tribander.....	279.00
	CD45 8.5 sq. ft. Rotator.....	129.00
	Ham IV 15 sq. ft. Rotator.....	199.00
	T2X 20 sq. ft. Rotator.....	249.00
	Free Shipping on all Crank-up Towers	
ICOM	IC-02AT Now Available.....	\$315.00
	27A New Ultra-Small 2M.....	335.00
	271H 100W All Mode.....	Call
	471A Deluxe Base Xcvr.....	Call
	751 Ultimate Transceiver.....	1200.00



ICOM IC-27A

25H With Free Memory Backup	Call
745 Amazing Transceiver	\$869.00
IC-2AT	\$215.00
3AT/4AT Handhelds	235.00
45A 440MHz	335.00
R71A New & Improved Receiver	Call
KLK	
Oscar Antennas in Stock	Call for Prices
KANTRONICS	
The Interface II. The brand new computer interface for CW, RTTY, ASCII. Software Available for VIC20, C-64, APPLE, ATARI, TR80C, TI99	
Amtor Software Now Available	
KEN-PRO	
KR-500 Elevation Rotator	\$179.00
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NLA-150-MM5/8 Wave 2M Mag Mt	\$39.00
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313 VHF Conv for HT	\$36.00
Very Large Stock of MFJ Products. Call for Discount Pricing.	
MIRAGE	
D24N 440 MHz Amp	\$179.00
D1010N 440 MHz Amp	279.00
B1018 10-160 Amp/Preamp	245.00
B3016 30-160 Amp/Preamp	199.00
SHURE	
444D Desk Mic	\$55.00
TEN-TEC	
The fantastic Corsair	\$1020.00
2510 Oscar Transverter	425.00
2591 2M Handheld	Available
TOKYO HY-POWER	
HL 160V 3 or 10/160W Preamp	\$295.00
HL 180V 25/160W Preamp	269.00
HL90U 10/80W UHF Amp/Preamp	305.00
HL82V 10/80W Preamp	139.00
HL45U 10/45W UHF Amp/Preamp	175.00
YAESU	
FT-980 Computer Aided Xcvr System	\$1289.00
FT-757GX Super Buy	740.00
FT-208R 2M Handheld	265.00
FT-726R Triband Xcvr	Call
FT-203R New H.T.	Call





## The 1984 Handbook

Another super edition of the standard manual of RF communication! Each year, *The Handbook* is revised to reflect changes in the state-of-the-art, and this 61st edition is no exception.

The chapter on Specialized Communications Systems has been completely revised with new material on Packet Radio, AMTOR, Spread Spectrum, etc. The Interference chapter has been reorganized and updated, and you will find a new and better index.

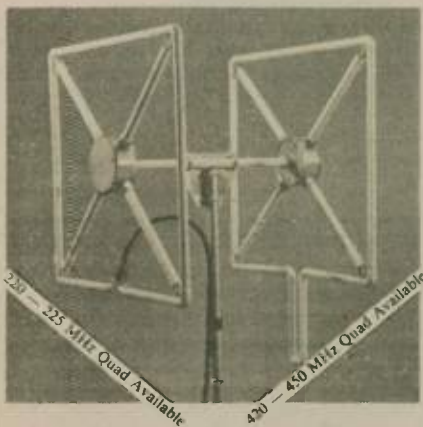
There are new tables for low and high-pass filters; an updated section on amplifier operation; a new kilowatt amplifier for 160, 80 and 40 meters; a 4-1000 amplifier for 6 meters; and a refined version of the Deluxe Audio Filter.

In 640 pages and 23 chapters, *The Handbook* presents everything from electrical laws and circuits to sophisticated communications techniques, including packet radio and spread spectrum.

The 1984 *Handbook* is available for \$12 in the United States, \$13 in Canada, and \$14.50 elsewhere. The clothbound edition is available at \$17.75 in the United States and \$20 elsewhere. All payments in U.S. funds. Checks must be drawn on a bank within the United States. Please enclose \$1 for postage and handling.

Send orders to: Publication Sales Dept., ARRL, 225 Main St., Newington, CT 06111.

### ACOA QUAD ANTENNA FOR 2-METERS



- All metal (except insulators) rugged construction
- Withstands any weather conditions
- Copper radiator and reflector elements
- Covers entire 2-meter band
- Ready to mount on your rotor
- Weight — 9 pounds
- Wind surface area — 0.85 square feet
- Dimensions — 19 x 26 x 17 inches
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(408) 246-2051

## General coverage receiver

ICOM introduces the IC-R71A 100 kHz to 30 MHz professional-grade general coverage receiver with the same superior performance of the IC-R70, plus innovative new features at the incredibly low price of \$799.

This easy-to-use and versatile receiver features: keyboard frequency entry; 32 programmable memories; SSB/AM/RTTY/CW/FM (optional); wireless remote control (optional); scanning; selectable AGC and noise blanker; passband tuning; three tuning rates: 10 Hz/50Hz/1kHz; two optional CW filters: FL32 500 kHz and FL63 250 Hz; FL44A optional high-grade crystal filter 455 kHz.

Demanding no previous shortwave receiver experience, the IC-R71A makes it possible for



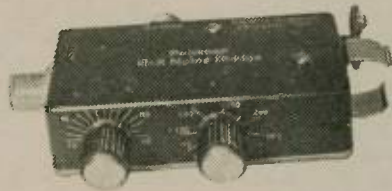
anyone to listen to worldwide communications. Utilizing ICOM's DFM (Direct Feed Mixer), a 100dB dynamic range, deep IF notch filter and adjustable AGC and noise blanker, the IC-R71A provides crystal clear reception even in the presence of strong interference or high noise levels. A quartz-locked rock-solid synthesized tuning system provides superb stability.

The pushbutton keyboard provides instant selection of frequencies which is accomplished by pushing the digit keys in sequence of frequency. Memory channels can be called up by pressing the VFO/M switch, then keying in the memory channel digit/s.

Options include FM, synthesized voice frequency readout, a wireless remote controller, a DC adapter for 12V operation, a mounting bracket, two CW filters and a high-grade crystal filter-455 kHz.

For more information, write to: ICOM America, 2112-116th Ave. NE, Bellevue, WA 98004.

## R-X Noise Bridge



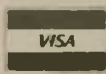
- Learn the truth about your antenna.
- Find its resonant frequency.
- Adjust it to your operating frequency quickly and easily.

If there is one place in your station where you cannot risk uncertain results it is in your antenna.

The Palomar Engineers R-X Noise Bridge tells you if your antenna is resonant or not and, if it is not, whether it is too long or too short. All this in one measurement reading. And it works just as well with ham-band-only receivers as with general coverage equipment because it gives perfect null readings even when the antenna is not resonant. It gives resistance and reactance readings on dipoles, inverted Vees, quads, beams, multiband trap dipoles and verticals. No station is complete without this up-to-date instrument.

Why work in the dark? Your SWR meter or your resistance noise bridge tells only half the story. Get the instrument that really works, the Palomar Engineers R-X Noise Bridge. Use it to check your antennas from 1 to 100 MHz. And use it in your shack to adjust resonant frequencies of both series and parallel tuned circuits. Works better than a dip meter and costs a lot less.

The price is \$59.95 in the U.S. and Canada. Add \$3.00 shipping/handling. California residents add sales tax.



Send for FREE catalog describing the R-X Noise Bridge and our complete line of SWR Meters, Preamplifiers, Toroids, Baluns, Tuners, VLF Converters, Loop Antennas and Keyers.

# Palomar Engineers

Box 455, Escondido, CA 92025  
Phone: (619) 747-3343

## Enhancer/Stabilizer

Enhancement and stabilization are basic necessities for even the beginning videophile. That's just what the MFJ-1423 offers: all the controlled, detailed sharpness and picture clarity of an enhancer, combined with a stabilizer to remove picture roll and override copyguard.

The Enhancer allows you to control the picture by defining, clarifying and sharpening the fine details of the picture to the desired degree. The Enhancer features an exclusive new light enhancer mode that enhances light areas only, which yields reduced snow in the dark areas of the picture.

The Enhancer has two adjustment features that let you control the picture: 1) the Enhancement Control lets you decide the degree of



sharpness and clarity you want; and 2) the Noise Cancel Control helps eliminate snow which is sometimes brought on by increased enhancement.

An Enhancer BYPASS switch also gives you the added convenience of being able to make a quick, clean, definite comparison between the unenhanced and the enhanced picture just by the touch of a button.

The Stabilizer removes picture roll caused by copyguard. It features a Stabilizer BYPASS switch including an LED for ON-OFF identification at a glance, and a stabilizer control knob that is non-critical to adjust. Just turn the knob until the picture locks in, then sit back and enjoy the picture.

The Enhancer/Stabilizer features a Power ON-OFF BYPASS switch so you won't be bothered with reconnecting at times when the Enhancer/Stabilizer is not needed. The front panel has an LED Power ON-OFF indicator, and is operated by high-quality aluminum knobs and switches to make tuning and adjusting feel as smooth as silk.

The back panel controls include: 1) A Channel Selection Switch to correspond to channel 3 or 4 on the television. 2) The RF Out consists of a built-in RF Modulator which allows listening and viewing on any standard television. It outputs a signal that connects directly to the VHF of the television. 3) An Audio In jack, which is where the audio signal from the source (VCR, video disk, camera, etc.) is connected. 4) Two Video Out and one Video Out/Bypass jacks to output the enhanced-stabilized video

signal. The Video Out/Bypass allows you to bypass the MFJ-1423 when in the OFF position. A built-in distribution amplifier allows three copies to be made or viewed simultaneously. 5) The Video In is where the video signal from the source is connected. 6) The PWR jack is where the AC Adapter is connected.

The MFJ-1423 operates on 110VAC, or on 112VDC as a portable (possibly for camera use). All connections on the back panel are RCA jacks. Three cables for hook-up are included.

The unit is housed in a rugged, black aluminum cabinet, with an attractive, brushed aluminum front, and measures 7" x 2" x 6" overall.

This product, with its all new circuitry, is available from MFJ Enterprises, Inc. at an incredible value for only \$119.95, plus \$4 shipping and handling.

MFJ offers a 30-day money back trial period on all direct purchases. If you are not satisfied, return the unit and get a full refund (less shipping). MFJ also offers a one-year unconditional guarantee on all MFJ products.

To order, call TOLL FREE 800-647-1800 and charge it to your VISA or MasterCard; or mail your order with check or money order to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762.

## Amateur Radio game

The Dayton Hamvention 1984 saw release of Amateur Radio's first official game product called HAMFEST! © 1984. It is produced and distributed by QCD Marketing Services, (a division of QCD Publications, Inc., which publishes the long-time ATV Journal, A5 ATV Magazine), P.O. Box H, Lowden, IA 52255; (319) 944-5421.

HAMFEST! has its own colorful game board, dice, money and drawing cards. Players move around the game board buying as much "Ham Radio"-type equipment as they can afford while trying to advance themselves from Novice to Extra Class FCC license. Along the way, there are helping QSL cards and penalty QRM cards.

Two squares are designated FCC test areas, from which each player draws special FCC cards to determine whether or not they studied hard enough to pass to the next grade license. An additional two squares designate hamfest locations from which all players begin a trade/buy/sell limited time period. There is also a bank and retail store. The first player reaching the Extra Class FCC license status is declared "SUPER HAM" and the winner!

HAMFEST! is available at most Amateur Radio retail dealers, or is available direct from QCD Marketing Services. An additional \$3 must be included for mail order postage/handling. HAMFEST! retails for \$19.95 and is fun for the entire family!

## Computer program

I have written a new program for the VIC-20 and the C-64. I am calling it BSM. It stands for beam heading, sunrise/sunset and MUF calculator.

All you do is enter the month, the day, the solar flux or sunspot number, and the DXCC country prefix of the location you want to work. The computer will automatically look up the latitude and longitude for that location, along with the country's name, and then it will first calculate the beam heading for that location, long-path and short-path, the mile and kilometer distance, the sunrise and sunset time for that location, and then the Maximum Useable Frequency for that location during each hour in a 24-hour period. This information can be displayed on the screen or the printer.

Price will be \$18 plus \$2 shipping and handling. VIC-20's will require a minimum of the 16K memory expander.

To order, write to me: Walt Grosch, KA9GLB, 4880 N. 49th St., Milwaukee, WI 53218.

Let Worldradio know what you do in Amateur Radio; many others will be interested in your experiences.



# HAMFESTS



waves, satellite communications, etc.  
 Food and drink will be available.  
 Talk-in on 146.16/76 and 146.52.  
 For more information, contact Richard Ferguson, KA0DXM, 1150 Albion Rd., Boulder, CO 80303; (303) 499-2871. □

Talk-in on 146.52 MHz.  
 For info/tickets/space reservations, send SASE to CARC, 5631 W. Irving Park Rd., Chicago, IL 60634, or phone (312) 545-3622. □

Talk-in on 147.63/03, 146.52/52 and 146.94/94.  
 For more information or tickets, send SASE to: Dave Spangler, 45 Grant St., Wabash, IN 46992. □

## Illinois

The CHICAGO ARC's Evening Mini-Hamfest will be held Wednesday, 02 May, 6:00-10:00 p.m. at the Edgebrook Golf Course Field House at 6100 North Central, between Elston and Devon.  
 Admission is \$1. Card table spaces \$3. Door prizes. Refreshments.

## Indiana

The 16th Annual WABASH COUNTY ARC Hamfest will be held Sunday, 20 May, from 6:00 a.m. to 4:00 p.m., rain or shine, at the Wabash County 4-H Fairgrounds.  
 Indiana's largest spring hamfest is ARRL-approved and will feature a flea market (tables available), free overnight camping, bingo for the ladies, prizes and refreshments. Tickets are \$2.50 in advance, \$3 at the door.

## Missouri

The CENTRAL MISSOURI RADIO ASSOCIATION is pleased and proud to announce Columbia Hamfest '84, to be held 5-6 May at the Hilton Inn of Columbia, Missouri, I-70 and Stadium Blvd.  
 This year's hamfest promises a wide variety of forum topics for hams and non-hams alike, hospitality room, hard-surfaced flea market,

## Arizona

This year, the COCHISE AMATEUR RADIO ASSOCIATION, Inc. will upgrade from a swapmeet to a full hamfest. It will be held in St. David, Arizona, 4-6 May. Tours are planned to Tombstone, the Bisbee Lavendar Pit, and other places of interest. A flea market is planned, and all tailgaters are most welcome.

CARA has now acquired a 40-acre parcel, which we plan to turn into an antenna testing range and other facilities for the amateurs. We do need your help.  
 Talk-in on 16/76 and 52 simplex.  
 For more details, contact CARA, P.O. Box 1855, Sierra Vista, AZ 85636, ATTN: Bob Clay, KB7HB. □

## California

The 1984 West Coast VHF/UHF Conference will be held 4-6 May, at Paso Robles Inn, Paso Robles, California.  
 A lecture program, antenna gain measurements, flea market and noise figure tests will be featured, as well as a prize drawing and Saturday evening buffet. Buffet tickets (limit of 90 people) are \$11. Conference admission tickets are \$3 in advance (pre-register by 30 April) and \$10 at the door. Contact the Paso Robles Inn for room reservation - (805) 238-2660.  
 For more information or to pre-register, contact Mike Goshay, K6HXW, P.O. Box 493, Arroyo Grande, CA 93420. □

The FRESNO ARC proudly presents the 42nd Annual Fresno Hamfest, 18-20 May, at the Tropicana Inn in Fresno.  
 The activities include a Friday golf tournament and wine tasting. The main day of activity is Saturday, with a full slate of activities planned. These include technical sessions on various Amateur Radio techniques and digital electronics; eyeball QSOs; ARRL activities; a transmitter hunt on 146.52 MHz; a "sip and puff" CW contest; and an all-day swapmeet. The ladies' program includes a microwave cooking demonstration, lunch and a craft factory tour.  
 The Saturday evening banquet will be a buffet with three entrees. The banquet speaker will be Alan Kaul, W6RCL, of NBC News. He is a producer of Amateur Radio videos and works on Westlink broadcasts.  
 Full registration is \$23 before 11 May and then \$25. Banquet-only tickets are \$14 before 11 May, then \$16. Partial registration is \$5. The ladies' luncheon and program is \$6.50. The hamfest site is close to shopping centers and restaurants.  
 For more information and registration materials, please contact the Fresno Hamfest, P.O. Box 783, Fresno, CA 93712-0783. □

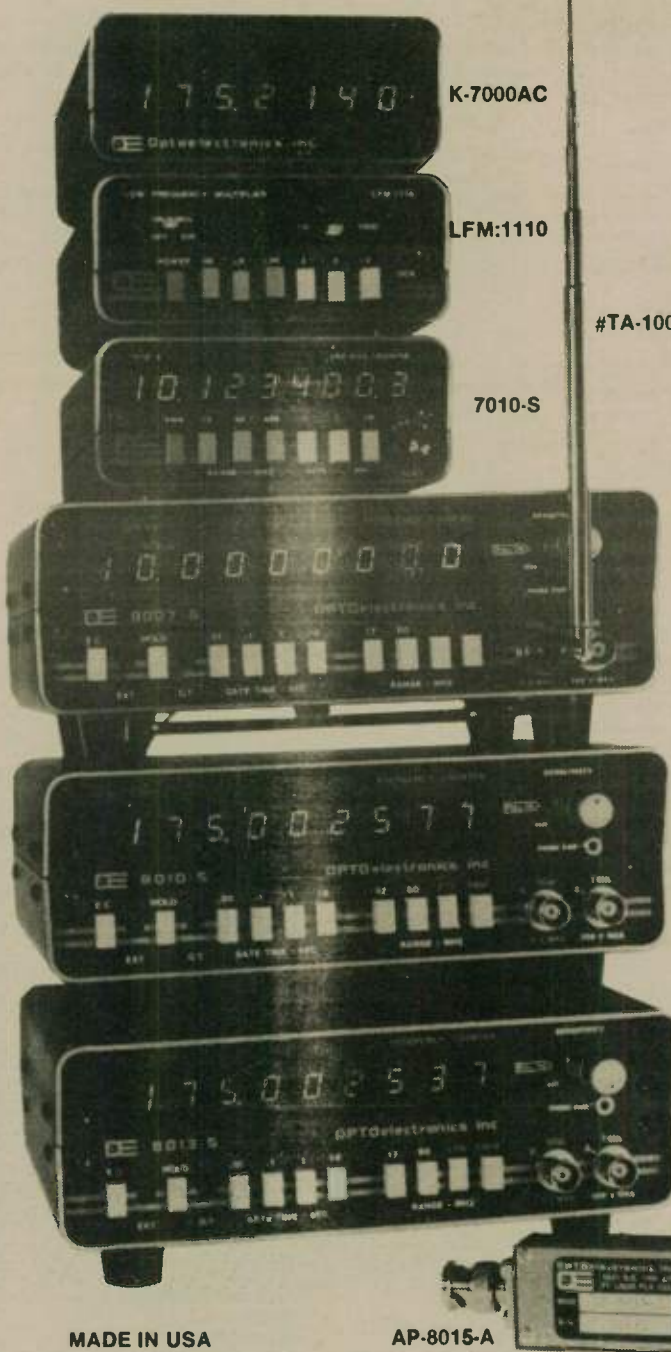
## Colorado

The Boulder, Colorado ROCKY MOUNTAIN VHF SOCIETY will hold the annual spring hamfest on Sunday, 20 May, from 9:00 a.m. to 3:00 p.m. rain or shine. The hamfest will again be at the Boulder National Guard armory at 4750 North Broadway. The admission donation will be \$3 per family, and there is no seller's charge. We suggest that sellers bring their own table. Some tables will be provided; if any seller needs more than one table, they must contact the organizers in advance.  
 The door prizes will include a synthesized FM transceiver, and extra raffle tickets will be available. In addition to the big ham swap, we will again hold our popular technical demonstrations and seminars, covering topics such as packet radio, fast-scan ham TV, micro-

# FREQUENCY COUNTERS to 1.3 GHz

By OPTOelectronics inc. Ft. Lauderdale, Florida

EST. 1974



**MODEL K-7000-AC** 10 Hz to 550 MHz counter. 50 Ohm & 1 Megohm inputs via BNC type connectors on rear panel. This model is available in optional kit form.

- #K-7000-AC counter assembled 115VAC/12VDC ..... \$150.
- #K-7000-ACK counter kit form ..... 120.
- #Ni-Cad-70S internal Ni-Cad battery pack ..... 25.

**MODEL LFM:1110** Low frequency multiplier. A frequency counter accessory enabling tone frequencies to be counted faster and more accurately. Has low pass filter for off-the-air. Tone-squelch measurements. BNC input/output.

- #LFM:1110 115VAC/12VDC ..... \$150.

**MODEL 7010-S** 10 Hz to 600 MHz counter. 50 Ohm & 1 megohm inputs via BNC type connectors on rear panel. ±1 PPM TCXO standard ±0.1 PPM TCXO time base optional for greater accuracy. 10 mV average sensitivity. Very compact 6 1/2 digit counter: Size 2" H x 4" W x 5" D, 1 lb.

- #7010-S 600 MHz counter 115 V AC/12 V DC ..... \$235.
- #TCXO-80 ±0.1 PPM TCXO time base ..... 75.
- #Ni-Cad-76 Internal Ni-Cad Battery Pack ..... 25.

**MODELS 8007-S, 8010-S, 8013-S** Deluxe series with frequency ranges of 10 Hz to 700 MHz, 1 GHz and 1.3 GHz. Standard features include: external clock input/output, excellent sensitivity, sealed ±1 PPM 10 MHz TCXO time base, 4 gate times, 9 digit resolution to 175 MHz, front panel power jack for optional Broadband Preamp accessory, 115 V AC or 12 V DC operation, high quality compact construction housed in rugged aluminum cabinet. Optional features: internal Ni-Cad rechargeable battery operation, precision ±0.1 PPM TCXO or ±0.05 PPM proportional oven (OCXO) time base. All time base oscillators, including the standard TCXO, have 10 turn calibration adjustment accessible from rear panel. Size 3" H x 7 1/2" W x 6 1/2 D. 2 3/4 lbs.

- #8007-S 700 MHz counter ..... \$350.
- #8010-S 1 GHz counter ..... 425.
- #8013-S 1.3 GHz counter ..... 495.

- OPTIONS:**
- #TCXO-80 ±0.1 PPM TCXO time base ..... 75.
  - #OCXO-80 ±0.05 PPM (prop. oven) OCXO time base ..... 125.
  - #Ni-Cad-86 Internal Ni-Cad battery pack ..... 60.

**MODEL AP-8015-A** Broadband Preamp with 25 dB nominal gain from 1 MHz to 1 GHz, 10 dB gain at 1.3 GHz. Noise Figure less than 5.5 dB. supplied with AC adaptor or may be powered from power jack on 80XX-S series counters.

- #AP-8015-A ..... \$195.
- #TA-100 Antenna, RF pick-up telescope style with right angle elbow and BNC connector ..... \$12.

- FULL YEAR GUARANTEE — ALL PRODUCTS.
- CERTIFIED NBS TRACEABLE CALIBRATION.
- ALL ALUMINUM CABINETS.

MOST ITEMS SHIPPED FROM STOCK  
 Prices/Specifications subject to change without notice or obligation.

MODEL	RANGE (FROM 10 Hz)	TIME BASE		AVERAGE SENSITIVITY		GATE TIMES	MAX RESOLUTION					SENSITIVITY CONTROL	EXT CLOCK INPUT/OUTPUT	METAL CASE	PROBE POWER JACK
		FREQ	STAB-DESIGN	BELOW 500 MHz	ABOVE 500 MHz		12 MHz	17 MHz	60 MHz	175 MHz	MAX FREQ				
K-7000-AC	550 MHz	5.24288	±1 PPM-RTXO	15 mV -24 DBM	N/A	(2) .1, 1 SEC	10 Hz		100 Hz			No	No	Yes	No
7010-S	600 MHz	10.0 MHz	±1 PPM-TCXO ±0.1 PPM-TCXO	10 mV -27 DBM	20 mV -21 DBM	(3) .1, 1, 10 SEC	.1 Hz	1 Hz		10 Hz		Yes	No	Yes	No
8007-S	700 MHz	10.0 MHz	±1 PPM-TCXO ±0.1 PPM-TCXO ±0.05 PPM-OCXO	10 mV -27 DBM	20 mV -21 DBM	(4) .01, .1, 1, 10 SEC	.1 Hz	1 Hz		10 Hz		Yes	Yes	Yes	Yes
8010-S	1 GHz														
8013-S	1.3 GHz														

**OPTOelectronics inc.**  
 5821 NE 14 AVE. FT. LAUDERDALE FL 33334

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 Foreign orders add 15%



display tables, and shuttle bus service to parking areas and shopping centers. Saturday night banquet tickets, dealer tables, reserved flea spaces, advance prize tickets and hotel reservations available upon request.

Talk-in on 16/76 or 220.42/02.

For information and reservations, contact Ben Smith, K0PCK, Route 1, Prairie Home, MO 65068; tel. (816) 427-5319. □

## New Jersey

The TCRA (TRI-COUNTY RADIO ASSOCIATION) Hamfest will be held rain or shine on Sunday, 13 May, at the Passaic Valley Community Center, off Valley Road, Stirling, New Jersey, 9:00 a.m. to 4:00 p.m.

Indoors. Door prizes, refreshments, rest rooms, free parking. Tables \$6; registration \$2.50.

Talk-in on 147.855 and 146.52 simplex (repeater call — W2LI/R).

For table reservations or information, contact Dick Franklin, W2EUF, P.O. Box 182, Westfield, NJ 07090; (201) 232-5955 or 270-3193. □

## New York

The SUFFOLK COUNTY RADIO CLUB Indoor and Outdoor Flea Market will be held Sunday, 06 May, 8:00 a.m. to 3:00 p.m. at Republic Lodge No. 1987, 585 Broadhollow Road (Route 110), Melville, New York.

There will be refreshments on the premises and plenty of free parking. General admission is \$2. (Wives and children under 12 free.)

Indoor sellers' tables are \$7 and outdoor space is \$5, which includes one admission.

Talk-in on 144.61/145.21 and 146.52.

For additional information contact: Richard Tygar, AC2P, (516) 643-5956 evenings. □

## Oregon

The 1984 Oregon State/ARRL Northwest Division Convention, co-sponsored by the NORTH COAST REPEATER ASSOCIATION and the OREGON TUALATIN VALLEY ARC, will be held at the Seaside Convention Center, Seaside, Oregon on Friday, 01 June through Sunday, 03 June. Hours are 5:00 to 8:00 p.m. Friday; 8:00 a.m. to 5:00 p.m. Saturday; and 9:00 a.m. to 2:00 p.m. Sunday. Pre-registration is \$5 per single and \$7 per couple, \$2 for teens with parents. Children 12 and under free.

Those who pre-register before 15 April will receive a special ticket for a drawing for either an ICOM or Yaesu hand-held, plus extra tickets for main prize drawing. Registrations between 16 April and 15 May will receive one extra ticket for main prize drawing.

Seminars will be held on such subjects as antennas, DXpedition, packet radio, computers and Amateur Radio, and power supplies. Banquet speaker will be Roy Neal, K6DUE, NBC Science Editor. Master of Ceremonies will be the Honorable Judge Greg Milnes, W7AGQ. Banquet cost is \$13.50 per person.

Talk-in on 146.52 (simplex) and local repeater 145.45(-600).

For more information and/or reservations, write to: Doc McLendon, W7GWC, P.O. Box 920, Seaside, OR 97132. □

## Pennsylvania

The 2nd Annual Southern Alleghenies Hamfest will be held 13 May, from 8:00 a.m. to 5:00 p.m. at the Bedford County Fairgrounds located one mile west of Bedford on Route 30 and one-half mile west of the Route 220 Bypass. This location is close to the Bedford Exit of the Pennsylvania Turnpike.

The sponsoring organizations are the BEDFORD, ALTOONA, SOMERSET, (all Pennsylvania) and CUMBERLAND (Maryland) ARC's and the BLUE KNOB REPEATER ASSOCIATION.

Admission will be \$3; inside spaces \$5 each; outside tailgate spaces \$2. All the special features of a good hamfest will be available, and we are making arrangements for reduced rates to visit restored Old Bedford Village.

This would be a treat for the XYL on Mother's Day!

Talk-in on the Bedford repeater, 145.49 and 146.52 simplex.

For more information, contact Tom Gutshall, W3BZN, at RD 1, Box 71, Altoona, PA 16601; phone (814) 942-7334. □

The WARMINSTER ARC announces its 10th Annual Hamfest, to be held Sunday, 20 May, rain or shine, at the Middletown Grange Fairgrounds, Penns Park Road, Wrightstown, Pennsylvania.

Gates open at 7:00 a.m.; open to vendors at 6:00 a.m. Cash grand prize drawing at 2:00 p.m. Prizes all day. Food and drink available. Donation \$3; pre-registration \$2. XYL's and children free. Tailgaters: \$2 additional per 10 ft. outdoor space (some 8 ft. indoor spaces available, no power).

Talk-in on 147.69/09 or 146.52.

For hamfest info and pre-registration, contact: Bill Cusick, W3GJC, Apt. 706 - Garner House, Hatboro, PA 19040; (215) 441-8048. □

## South Carolina

The Greenville Hamfest — sponsored by the BLUE RIDGE AMATEUR RADIO SOCIETY — will be held at the American Legion Fairgrounds, White Horse Road, one-half mile north of I-85 in Greenville, South Carolina, Saturday, 05 May and Sunday, 06 May. Admission is \$4; \$3 in advance.

Talk-in on 146.01/61.

For further information, write Hamfest Chairman, Phil Mullins, WD4KTG, P.O. Box 99, Simpsonville, SC 29681. For advance sales, write Mrs. Sue Chism, N4ENX, Rt. 6, 203 Lanewood Drive, Greenville, SC 29607. □

## Tennessee

The RADIO AMATEUR CLUB OF KNOX COUNTY will hold its 18th Annual Hamfest on 26-27 May, at the Kerbella Temple Auditorium (just east of U.S. 441, at the Tennessee River behind the Vol Inn Motel).

The 'fest will last from 9:00 a.m. to 5:00 p.m. Saturday, and from 10:00 a.m. to 4:00 p.m. Sunday. Admission \$3. There will be radio and computer forums, dealers, indoor and tailgate flea markets, and many prizes. Free parking.

Talk-in on 147.90/30.

For information, contact Larry Poore, N4EHR, 4320 Felty Dr., Knoxville, TN 37918; (615) 687-3154. □



## Florida QSO Party

This is the 18th Annual Florida QSO Party sponsored by *Florida Skip*. It will be held 05-06 May, at the following times: Saturday — 1400-1900Z (10:00 a.m. to 3:00 p.m. EDT); Sunday — 0001-0500Z (8:00 p.m. to 1:00 a.m. EDT); and Sunday — 1500-2300Z (11:00 a.m. to 7:00 p.m. EDT).

**Conditions of entry:** Each entrant agrees to be bound by the provisions of this announcement, the regulations of the applicable licensing authority and the decision of the Florida Skip Contest Committee, which is final.

**Valid contacts:** All amateur bands 160 through 2 meters may be used. All stations will use separate logs for phone and CW. Phone and CW are separate contests. A station may be worked once on each band and once on each mode. Neither crossband or crossmode contacts will count. No repeater contacts may be counted for contest credit. Florida stations may work other Florida stations but for contest points only (no multiplier credit). Out-of-state stations may not work each other for contest credit.

**Entry classes:** Florida stations are divided into two classes. *CLASS "A"* stations are those operating portable (under FD rules) or mobile on emergency power and running 100 watts or less *output* inside Florida but outside their home counties. *CLASS "B"* stations are all other stations operating in Florida. Entrants may be single-operator or multi-operator, and this must be indicated on the summary sheet.

**Exchange:** Florida stations send a signal report and county of operation. Out-of-state stations send signal report and U.S. state, Canadian province or DX country.

**Suggested frequencies:** CW — 3,555, 7,055,

14,055, 21,055 and 28,055 kHz; Phone — 3,945, 7,279, 14,279, 21,379 and 28,579 kHz.

**Scoring:** Florida stations count 1 point per QSO with out-of-state stations and other Florida stations. Multiplier is the total of states (49 maximum), provinces (12 maximum), and DX countries up to 27 (27 maximum) actually worked. Maximum multiplier is 88. Out-of-state count 2 pts. per QSO with each Florida station. Multiplier is the total number of different Florida counties worked (67 maximum). The score is the product of QSO points and multiplier. Florida Class "A" station *ONLY* multiply final score by 1.5 to obtain total score.

**Awards:** Certificates on phone and CW will be awarded for the top single-operator score in each state, province and DX country. Also the top scorer in each Florida county will be awarded a certificate. Multi-operator winners will receive certificates as activity justifies. There will be five plaques awarded to: High Single Operator Florida CW, High Single Operator Out-of-State CW, High Single Operator Florida Phone, High Single Operator Out-of-State Phone and to the Florida club with the highest aggregate score. A minimum of 25 contacts must be made to be eligible for a certificate.

**Disqualification:** The ARRL Contest Disqualification Criteria will be used in deciding upon disqualifications. Among reasons for disqualifications are improper reporting, excessive dupes, errors in multipliers, late logs and cheating.

**Reporting:** Phone and CW entries are to be separated with separate logs for each. Along with legible logs in chronological order, a summary sheet is required with each entry. Those with 200 QSO's or more must supply a dupe sheet. The summary sheet must contain claimed score, number of QSO's, multiplier total, station call sign, entry class, power source for Class "A" entries and complete address. The name of the Florida club for which aggregate total credit is being assigned must also be on the summary sheet. A signed declaration that rules and regulations have been observed must also be included. A sample summary and log sheet are available for an SASE from the QTH below.

**Deadline for entries:** All entries must be postmarked on or before 03 June 1984. Mail all entries to: *Florida Skip* Contest Committee, c/o North Florida Amateur Radio Society, P.O. Box 9673, Jacksonville, FL 32208. □

## RADIO STORE

**ARIZONA**  
Ham Radio Outlet  
1702 W. Camelback  
Phoenix, AZ 85015  
(602) 242-3515

**CALIFORNIA**  
C & A Roberts Inc.  
18511 Hawthorne Blvd.  
Torrance, CA 90504  
(213) 370-7451  
834-5868 (24 Hr. Phone)

Ham Radio Outlet  
2620 W. La Palma  
Anaheim, CA 92801

Henry Radio  
931 N. Euclid  
Anaheim, CA 92801

Ham Radio Outlet  
999 Howard Avenue  
Burlingame, CA 94010

Jun's Electronics  
3919 Sepulveda Blvd.  
Culver City, CA 90230

Fontana Electronics  
8628 Sierra Avenue  
Fontana, CA 92335  
(714) 822-7710 or (714) 822-7725

Jun's Electronics  
7352 University Ave.  
La Mesa, CA 92041

**MASSACHUSETTS**  
TEL-COM Communications  
675 Great Road  
Littleton, MA 01460  
(617) 486-3400 or 486-3040

**MICHIGAN**  
Purchase Radio Supply  
327 E. Hoover Ave.  
Ann Arbor, MI 48104  
(313) 668-8696

**MISSOURI**  
Henry Radio  
211 N. Main Street  
Butler, MO 64730

**NEVADA**  
Jun's Electronics  
460 E. Plumb Lane, #107  
Reno, NV 89502

**NEW HAMPSHIRE**  
Rivendell Associates  
RFD5  
Warner Hill Rd.  
Derry, NH 03038  
(603) 434-5371

**NEW YORK**  
Radio World, Inc.  
Oneida Cnty. Airport Terminal Bldg.  
Oriskany, NY 13424  
(315) 736-0184  
(800) 448-9338/out-of-state

**OHIO**  
Universal Amateur Radio, Inc.  
1280 Aida Drive  
Reynoldsburg (Columbus), OH 43068  
(614) 866-4267

Henry Radio  
2050 S. Bundy Dr.  
Los Angeles, CA 90025  
(213) 820-1234

Ham Radio Outlet  
2811 Telegraph Ave.  
Oakland, CA 94609

The Radio Place  
2964 Freeport Blvd.  
Sacramento, CA 95818  
(916) 441-7388

Ham Radio Outlet  
5375 Kearny Villa Road  
San Diego, CA 92123

Quement Electronics  
1000 S. Bascom Avenue  
San Jose, CA 95128

Tele-Com/Alltronics  
15460 Union Avenue  
San Jose, CA 95124  
(408) 377-4479 or 371-3053

Ham Radio Outlet  
6265 Sepulveda Blvd.  
Van Nuys, CA 91401

**HAWAII**  
Honolulu Electronics  
819 Keeaumoku Street  
Honolulu, HI 96814  
(808) 949-5564

**ILLINOIS**  
Aureus Electronics, Inc.  
1415 N. Eagle  
Naperville, IL 60540

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# Michigan QSO Party

The 1984 Michigan QSO Party will be sponsored by the Oak Park ARC. Phone and CW are combined into one contest. Michigan stations can work Michigan counties for multipliers. A station may be contacted once on each band/mode. Portable/mobiles may be counted as new contacts each time county changes.

**Operating times:** 1800Z, Saturday, 19 May to 0300Z, Sunday, 20 May; 1100Z, Sunday, 20 May to 0200Z, Monday, 21 May.

**Exchange:** RS(T), QSO number, QTH, county for Michigan; state or country for others.

**Scoring:** Multipliers are counted only once. Michigan stations: 1 pt. per QSO × (states + countries + Michigan counties) on phone. Each CW contact is 2 pts. per QSO. Alaska and Hawaii count as states. VE counts as a country. Maximum multiplier is 85. QSO points as follows: \* 1 pt. each Michigan phone QSO and 2 pts. for each CW contact. 5 pts. for each club station contact with W8MB/W8MB/mobile. Maximum multiplier is 83. VHF-only entries: Same as above except multipliers per VHF band are added together for total multipliers. No repeater contacts are allowed.

(\* Non-Michigan stations: QSO points × Michigan counties)

**Suggested frequencies:** CW — 1810, 3540, 3725, 7035, 7125, 14035, 21035, 21125, 28035, 28125; Phone — 1815, 3905, 7280, 14280, 21380, 28580; VHF — 50.125, 145.025, 146.52.

**Awards:** Michigan: Plaques — High Multi-operator/single transmitter score, High Michigan score, High Michigan (Upper Peninsula) score, High aggregate club score and High VHF-only entry (minimum of 100 QSO's), and High Michigan Mobile score. Certificate: High score for each county (min. 50 QSO's). Out-State: High Out-State plaque and certificates for high score each state and country.

A log and summary sheet is requested showing the scoring and other pertinent information, name and address in block letters, and a signed declaration that all rules and regulations have been observed. Michigan stations include club name for combined club score.

Party contacts do not count toward the Michigan Achievement Award unless one fact about Michigan is communicated. Members of the Michigan Week QSO Party Committee are not eligible for individual awards. Decisions of the Contest Committee are final. Results will be final on 30 July 1984 and will be mailed to all entries that have sent in an SASE. Mailing deadline is 30 June 1984.

Send logs to: Mark Shaw, K8ED, 3810 Woodman, Troy, MI 48084.

K9HRC	35	16	1,680	N5BXX	38	15	1,140
N9BKT	33	14	1,176	NJ5J	33	12	828
WD9IFS	25	10	500	N5CNH	21	11	462
WD9FMI	21	11	462	WA5DTK	12	7	168
KC9OZ	12	6	144	UTAH			
K9JPQ	5	5	75	*W7LN	26	11	759
K9KBD	1	1	2	K7SQD	12	4	96
INDIANA				VIRGINIA			
*WD9BB	107	27	5,778	*W4KMS	36	15	1,560
KN9C	68	22	3,102	K4OD	21	14	882
IOWA				KC4ZA	11	10	330
*K0HQE	34	16	1,616	WA4PGM	10	7	175
KA0DLM	16	5	100	WEST VIRGINIA			
KANSAS				*W8VEN	23	10	460
*WD0CCW	39	18	2,070	*WISCONSIN			
N0CLV	40	15	1,395	*WB9PYE	24	11	682
WA0TKJ	18	10	480	*K9GTQ	23	12	552
KENTUCKY				K9GDF	10	9	270
*WA4EBN	39	18	2,106	CANADA			
MAINE				Ontario province			
*W1DLC	66	22	3,608	*VE3EQF	24	14	952
WB1EIL	35	15	1,575	VE3FEA	21	12	528
WB1GLH	4	3	24	VE3NQG	13	5	130
MARYLAND				BRAZIL			
*W3HQU	72	21	4,536	*PY1NEZ	16	6	192
*W3FG	67	20	3,520	JAPAN			
KB7IX/3	22	9	405	*JA9YBA	35	14	1,106
MASSACHUSETTS				(opr. JA9LNJ, JA9NFO)			
*KA1CLV	60	20	3,100	*JH3DPB	32	14	896
MICHIGAN				*KA2KS(KV7J)	25	11	704
*KA8IIN	79	21	3,948	JA7YFB	23	11	605
*KS8Q	64	19	3,173	JA1IBX	14	10	420
WB8VU	28	15	1,260	JA7KE	11	9	297
W8YL	10	8	240	JA7FAS	2	2	10
KA8MSU	5	4	60	NEW ZEALAND			
MINNESOTA				*ZM2RY	3	3	24
*WA0QIT	20	9	432	WASHINGTON			
MISSOURI				Asotin County			
*KM6A	25	14	924	*KN7L	275	50	38,750
NEW JERSEY				Benton County			
*KC2ME	29	11	759	*N7EPN	239	50	23,900
NEW MEXICO				Chelan County			
*W7LHO	37	15	1,350	*K7GAH	106	34	10,812
NEW YORK				Clallam County			
*WA2PHA	63	20	2,620	*W7MPD	52	28	4,284
W2WSS	29	12	1,044	Coulitz County			
N2DCH	17	9	333	*KJ7N	84	32	8,064
WB2TKD	15	7	210	*K07W	83	30	6,990
WB2AFQ	13	6	156	K7OZ	33	21	2,037
W2EZ	7	6	126	Ferry County			
WB2PTP	7	3	42	*KD7H/7	66	31	5,983
NORTH CAROLINA				Grant County			
*K4JEX	59	19	2,793	*W7WMO	443	59	64,192
W4OMW	26	14	1,022	W7GB	70	36	7,524
KB4GZ	32	13	832	Grays Harbor County			
K4YFH	5	3	36	*KW7R	282	50	34,050
NORTH DAKOTA				N7AAL	101	39	7,878
*KC0UM	14	8	224	Island County			
OHIO				*N7AYF	1,048	100	209,600
*WB8LZR	14	9	252	K7ZR	53	27	4,185
OKLAHOMA				King County			
*KD6YR	39	12	936	*K7NWS	688	53	77,592
OREGON				(opr. AK7S, KS7F, KS7Z, KA7COD)			
*WA7RQS	154	36	11,124	*KA7DJR	637	55	70,070
PENNSYLVANIA				*KU7F	447	69	61,686
*WA3HAE	113	26	7,358	*N7AOP	246	53	27,454
KQ3V	60	18	2,160	*K7UU	167	40	15,240
AD8J/3	52	16	2,016	KB7WD	143	47	13,442
WA3JXW	46	18	1,962	NA7O	168	39	13,104
WB3DH	50	15	1,830	WB7FAH	104	32	8,672
WB3JZE	24	11	715	W7DRA	90	32	8,640
KA3AFY	21	10	540	K7RS	110	37	8,140
RHODE ISLAND				K7LAY	92	37	6,808
*WB2NDE	98	26	6,084	AK7S	103	36	6,798
+K2QE				KS7Z	83	36	5,976
SOUTH CAROLINA				WA7NOH	75	26	5,850
*KE4VP	23	9	414	W7WA	88	25	5,200
SOUTH DAKOTA				KS7F	71	26	3,978
*WA0BZD	1	1	2	K7LYT	56	22	2,464
TENNESSEE				KT7G	58	18	2,448
*K4UVH	35	14	1,064	W7ERH	47	21	2,331
WD4SIG	6	4	72	W7JIE	26	7	546
TEXAS				N7CAL	7	5	105
*W5PWG	79	22	4,532	A17V	9	6	104
*W5SOD	68	19	2,812	K6DOW	12	4	96
W5NR	32	17	1,632	WA7EJX	1	1	2

WA7YFJ	1	1	2
Kitsap County			
*KC7GQ	218	46	20,056
*W7IIT	110	34	11,220
Kittitas County			
*WA7STA	49	23	2,254
Mason County			
*W7DFO	109	33	8,778
Okanagon County			
*KD7H	230	41	25,420
Pacific County			
*K7NPS	254	44	28,204
Pierce County			
*WA7RWK	376	52	39,104
*N7EPD	181	46	24,978
*W7DK	147	39	14,820
(opr. KG7V, W5PBL, KL7UR, KA7CXU, K7QLC, N7DRT, K1DP0)			
W7BUN	66	27	3,564
W7WG	13	4	128
Skagit County			
*K7EQ	167	43	19,092
Snohomish County			
*W7IEU	217	44	28,644
*W7TSQ	202	46	18,584
K7HBN	45	23	2,967
Whitcom County			
*W7CAO	201	42	16,884
Whitman County			
*W7YH	4	4	48

**LEGEND:** \*Winner of QSO Party Certificate Award. Numbers after call letters are: QSO's, multiplier and total score.

Log information has been forwarded to our Awards Chairman, Leroy Brashear, W7RJW, for those of you who worked five or more BEARS members during the Washington State QSO Party. If you haven't already been issued the award, one will be coming your way. For those of you who worked less than five BEARS members during the Party and do not have the Worked Five BEARS Award, check your log for previous contacts with BEARS members as there is no time limit for contacts necessary for this award.

For all awards available from the BEARS, see page 28 of the August 1979 issue of *73 Magazine*, or contact our Awards Chairman, W7RJW. Send all your requests for these awards or information on them to Roy Brashear, W7RJW, 5711 S. 129th St., Seattle, WA 98178; (206) 772-4120.

The 1984 Washington State QSO Party will be held on the weekend of 15-17 September 1984. In case you forget to mark your calendar, a reminder will be sent out during August 1984 (July 1984 for DX stations) to all who have sent in an entry in either one of the last two years. Also, rules should appear in the August or September issues of *QST*, *CQ*, *73* and *World-radio*.

Try to develop a 'friendly' competition with the hams from your local area. The suggested frequencies are only suggestions, so don't hesitate to spread out to alleviate heavy QRM at the listed frequencies. We want to thank everyone for their participation and especially to those of you who sent in entries. See you all next September. — Willis Propst, K7RS

# Washington State QSO Party results

(Sponsored by Boeing Employees' ARS)

ALASKA			
*NL7D	42	19	1,653
KL7DG	6	6	108
ARIZONA			
*W7RIR	63	22	3,256
W7ZMD	24	13	858
WA7NWL	5	3	30
ARKANSAS			
*W5RYB	67	20	3,080
W5EIJ	17	7	238
CALIFORNIA			
*W6NNV	35	19	1,995
*AA6EE	35	18	1,782
N6JM	13	10	370
W6KZJ	12	7	252
K6MO	7	7	147
COLORADO			
*WB8ZRL	46	18	2,106
CONNECTICUT			
*W1NG	79	24	4,488
W1TEE	36	16	1,696
FLORIDA			
*W4WIJ	71	21	3,360
*K4DDB	66	19	3,078
W8BZY/4	14	10	420
GEORGIA			
*KE4XW	112	29	6,786
AK4T	50	18	1,854
K4BAI	33	17	1,530
AA4EI	21	10	550
K4BAM	20	9	531
IDAHO			
*KA7PMP	23	11	759
KU7Z	9	5	90
ILLINOIS			
*W9QWM	95	28	6,832

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- KENWOOD - TR220, 7200
- MIDLAND - 13-500, 13-505, 13-520
- REGENCY - HRT-2, HR2, 2A, 2B, 212, 312 (No Sub Band)
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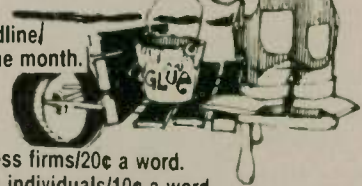
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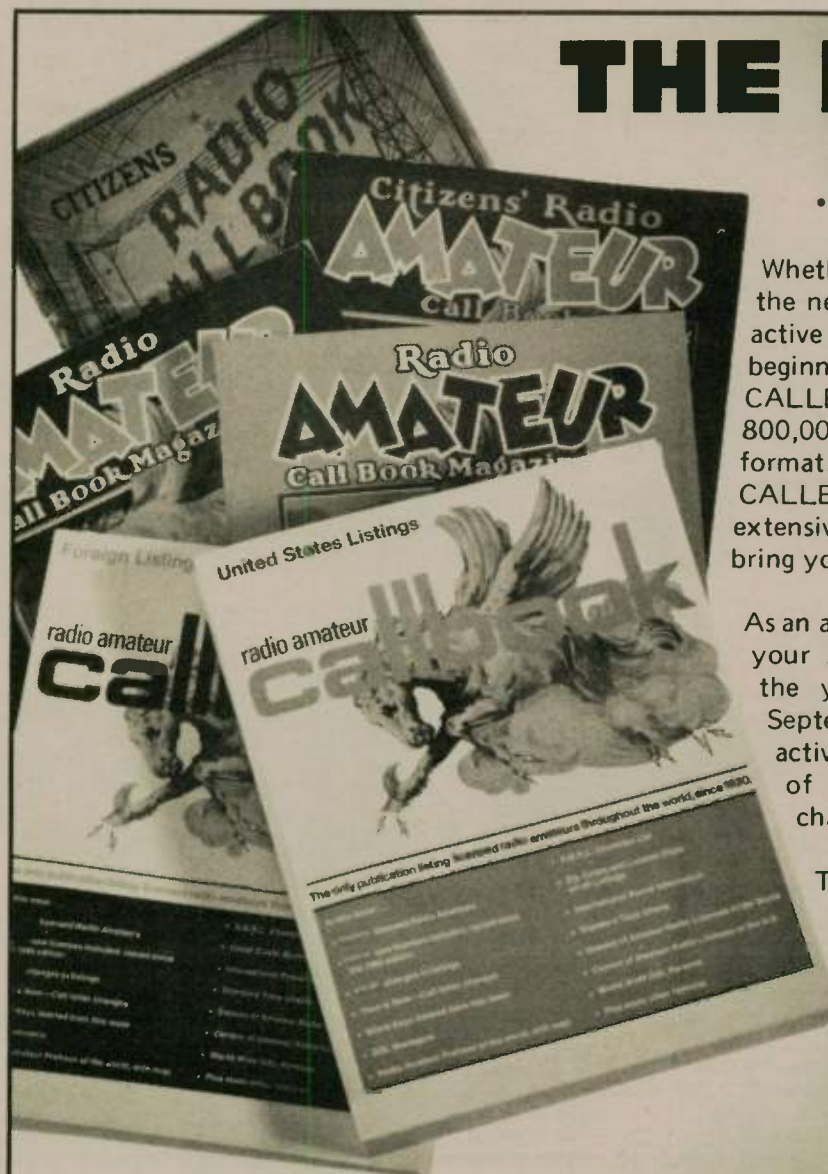
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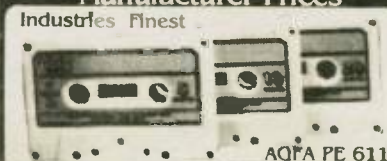
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