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He taught skills and values

MICHAEL C. MIGLIACCIO, N3HLM

He was a big man, with a big message. Our 1970 high school yearbook referred to him as a man "big in stature, big in scope of interests, big in his outlook, big of mind and big of heart." It was the West Philadelphia Catholic High School for Boys that I attended from 1966 to 1970. The school became home for 50 years to Brother Gregory Martin, FSC, a member of the Christian Brothers, a Catholic religious order. This story can be told anywhere, in any era, at any school about men and women who serve selflessly as elmers to young amateurs. Brother Martin, W3QXV, brought to those who made the effort a brave new world of radio, electronics and life skills.

An urban school possessing an insatiable appetite for athletic excellence with almost 2,000 students (then all boys) was also the launch pad for many a technical career for the less than a dozen teenagers at any one time who dared to become avid members of the school's radio club and its school station, W3WWS.

This tall hearty man, Brother Martin ("Marty"), made an impression on many young minds over the years with his after-school Morse code practice sessions and theory classes inside a small classroom with an old slate chalkboard. "You must also learn the code," he would say, while providing us with mimeograph copies of his "circuit of the week." In teaching the theory he would cross-reference concepts learned in our school curriculum such as math and general science, making those school subjects even more interesting to us. His attention to detail in teaching theory made my first year of college electronics a snap, and so too for others.

The West Catholic Boys High radio club was never a big activity, and certainly not as glamorous or hailed as loudly as the athletic teams or drama club, but the interest was there. On the day before Easter in 1968 we all

Brother Gregory Martin, FSC, helping Michael C. Migliaccio with the Morse code.

assembled to help replace the dipoles hanging high above the school roof, each student bringing an assigned tool or clean-up item. Brother Martin brought his 200W soldering iron, solder and antenna wire.

Our shack was a tiny room reachable from a third floor classroom by a steep six-rung metal stair. This tight space with its two windows facing south on to Chestnut Street had a homemade work bench and a long vertical ladder that led to the roof via a hatch door. An array of equipment accruing over the ages sat upon the bench equipped with a big lever to actuate the grounding switch. The Johnson Ranger I transmitter and Drake II B receiver already inhabited the shack when our "new" Hot Water-16 arrived.

Marty was the motivator, the teacher, the inspiration. He would tell us stories to teach us lessons such as how he rebuilt and rewound the flood damaged school bell transformer during World War II, despite a copper wire shortage, and made it work again. During World War II a friend with a contract to build electrical cables (he called them the "gun cables") for the Army was having difficulty in getting them made to pass government inspection and acceptance. Marty came to the rescue and assembled them successfully. His comment was, "My brother was in the Army unit that used them during the war, and I knew his life and

(please turn to page 27)

Radio Shack HT alert

GORDON WEST, WB6NOA

I had the opportunity to review the new Radio Shack HTX-202 2M hand-held transceiver. It's a bargain of a radio for $249. It features an extremely tight receiver with enough bandpass filtering to cancel out troublesome intermodulation encountered with other hand-helds at twice the price. It was hard to believe—a red-hot receiver and absolutely no problem with paging transmitters bleeding over onto the 2M band.

The new HTX-202 is primarily designed for the new no-code beginning ham. This exciting transceiver offers 16 channels of memory, built-in CTCSS encode and decode, built-in auto dialer, a rechargeable battery pack that is of the same design as the big ICOM battery packs, and provisions for an accessory speaker/microphone. Over 7,000 Radio Shack stores throughout the country will carry this new rig. With its red-hot receiver, it's bound to be a hit for beginners.

But there may be bad news for those who regularly operate SSB on the bottom portion of the 2M band. With 144.200 MHz designated in the national band plan for working weak-signal CW and SSB transmissions, we would hope that any FM activity stays well above 144.300 MHz.

As the Radio Shack hand-held transceiver comes from its Korean manufacturer, it powers up smack dab on 144.200 FM. Most new 2M hand-helds usually power up on 146.000, not down on 144.200 MHz. 144.200 MHz is also pre-set in the first memory channel. Double bad news for those of us on 144.200 single sideband.

I think we will find Radio Shack quite cooperative in working with their supplier to possibly re-do the MPU so the unit comes up on the FM portion of the band. But for the first year of new Radio Shack hand-helds, they will be powering up on 144.200 FM. I think we are all concerned that the beginning operator might think that their memorized channel 1 is an okay channel for FM simplex, and this is where we need to all group together and politely inform them that FM starts above 144.300. Don't scream at them when they come over on ongoing SSB communications near the national calling frequency, but rather inform them how to QSY up the band. Remember, these will probably be beginners getting started in our ham radio hobby, so let's not set a bad example by simply calling them idiots for not knowing about the national band plan.

Swinging over to FM to communicate with these new operators will certainly cause some QRM on .200. But if we can briefly switch them up to, let's say, 146.520 MHz FM simplex, they will hopefully steer clear of their pre-set memory channel 1, and these new opeators will ultimately gravitate to FM repeaters, and will helpfully steer clear of FM down at 144.200. I have written Radio Shack a review of this unit, and I have called to their attention this potential problem. Radio Shack is indeed sensitive about how this unit is sold into distribution, and I know they will be open for suggestions on how these rigs work out in the ham world.

The American Radio Relay League authored two pages in the Radio Shack instruction manual about the legal use of this HT, but they somehow overlooked the fact that the unit powers up smack dab in the weak-signal portion of the bottom of the 2M band. So let's be as polite as we can when the inevitable QRM occurs. I'll keep you posted on any further developments from the factory. Be assured that all of my textbooks distributed through Radio Shack stores clearly indicate that the bottom of the 2M band is specifically for weak-signal SSB and CW use only.

If you correspond directly with me about this particular problem in your particular area, I'll forward your comments on to the proper parties at Radio Shack. (Gordon West, WB6NOA, 2414 College Dr., Costa Mesa, CA 92626.) —*Cape Ann ARA, Gloucester, MA* □

CONTENTS

FEATURES

COLUMNS

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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 to this avocation.

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We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio.

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Ann M. Judson, KC7RN, Kirkland, WA
Russel G. Berg, K7VSZ, Greenbank, WA
Kenn Carpenter, WA7GQC, Marysville, WA

Worthy of extra mention regarding this distinguished group is Herschel Harper Green, WA6TIS, retired from the USAF as a Colonel, having been awarded the Silver Star and Purple Heart.

•

Further comments on Field Day . . . It is against the rules to use any structures for antenna supports that are permanently in place at the FD site used. That means that if some group uses, as many do, the same location every year, they can't put up some big pole once and leave it there. That would kind of defeat the spirit of FD.

Well, how about the group that always goes to the same location where there is already a structure up? Amateurs repeatedly use the same light poles, ski lifts, and even trees. But let's face it, your favorite tree may not be handy during the next emergency.

As FD is now structured there is one segment that can operate for the full 27 hours if they do their Le Mans start and start to set up right when it begins. Another segment may operate but 24 hours if they set up prior to the start, up to 24 hours ahead. What does that prove? Who has ever set up for an emergency 24 hours ahead?

At one time the FD rules were 27 hours for everyone. Wouldn't a return to the old rules be more suitable to the true intent of Field Day? Write to your ARRL Director.

•

Carl Jones, WA3SVV, of Grove City, PA, wrote in to relate that at the age of 83 he passed his Extra!

We've received letters regarding how to increase CW speed in order to upgrade. Like learning to type or play the trombone, it takes time. There is no special vitamin one can take. It's kind of like football, three yards at a time.

Often, the "I can't learn it" crowd is guilty of neglecting CW all week long and then putting in a self-defeating two or three hours on Sunday.

The real path is daily practice. Is there really anyone who can't pop a cassette into a walkman, put on a pair of earphones, and devote a mere 15 minutes a day?

•

The ZIP code request program is proving to be highly popular. (See our revamped procedures on p.82.) However, don't be like one amateur who sent in so many ZIPs that the number of labels came to over a thousand! He's not going to find a coffee shop to handle a crowd like that!

For requests of more than five ZIPs, please submit the request on a radio club letterhead.

•

There are many letters coming in saying that we (Amateur Radio enthusiasts) should go after the youth. True. Practically every community has an orphanage (although they go by different names now). I'm sure they would greatly appreciate someone coming in one night a week and giving a class.

There are also organizations for the blind in every city. Often they have buildings with meeting rooms where classes could be given. Wouldn't Amateur Radio mean a lot to a blind person? In some cities, the blind who are unemployed monitor a repeater all night to be of assistance, if need be, when the majority of repeater users are asleep.

—Armond, N6WR

FT-990
All-Mode HF Transceiver

- **Frequency Coverage:** 100 kHz – 30 MHz RX (160-10 m TX)
- Built-in Dual Digital Switched Capacitance Filters
- Built-in High Speed Antenna Tuner w/39 Memories
- RF FSP (RF Frequency-Shifted Speech Processor)
- Dual VFOs with Direct Digital Synthesis (DDS)
- 90 Memories which store Frequency Mode and Bandwidth
- Full and Semi Break-in CW Operation
- Band Stacking VFO System
- Multi-mode Selection on Packet/RTTY; Easy interface to TNCs
- Adjustable RF Power
- Variable Threshold Noise Blanker
- Optional Digital Voice Recorder (DVS-2)
- Front Panel RX Antenna Selection
- **Accessories:**

FT-990DC	Available without power supply
XF-10.9M	2nd IF SSB Narrow 2.0 kHz Filter
XF-445K	2nd IF CW Narrow 250 Hz Filter
TCXO-2	High Stability TCXO
SP-6	External Desk-top Speaker
MD-1C8	Desk Microphone
DVS-2	Digital Voice Recorder Unit
YH-77ST	Lightweight Headphones
LL-5	Phone Patch Unit for SP-6 Speaker

"Yaesu did it again!"

"This is the only HF rig with a dual digital SCAF. It's incredible on a crowded band. Look inside, motherboard and plug-in board design. Un-be-liev-able!"

The innovative technology of the FT-990 is inside, not outside. Like the exclusive dual digital SCAF (Switched Capacitance Audio Filter). And for long term reliability, the motherboard/plug-in module construction eliminates inter-board wiring. The FT-990 also has the same undisputed receiver performance of the FT-1000 as well as other features such as a high-speed, built-in antenna tuner with automatic storage. And, multiple DDS (Direct Digital Synthesis) for quick lock-up time and low level noise. What's more, for maximum efficiency, the FT-990 is a self-contained base station with its space-saving, built-in AC power supply.

Outside, the very functional HF front panel is simple and uncluttered with a large amber display. Easy to use, easy to see. Pure and simple QSO enjoyment – with muscle when you need it! Yaesu makes "high-tech" effortless. Now it works for you, not against you. Have your dealer show you the FT-990 today and see what we mean.

YAESU

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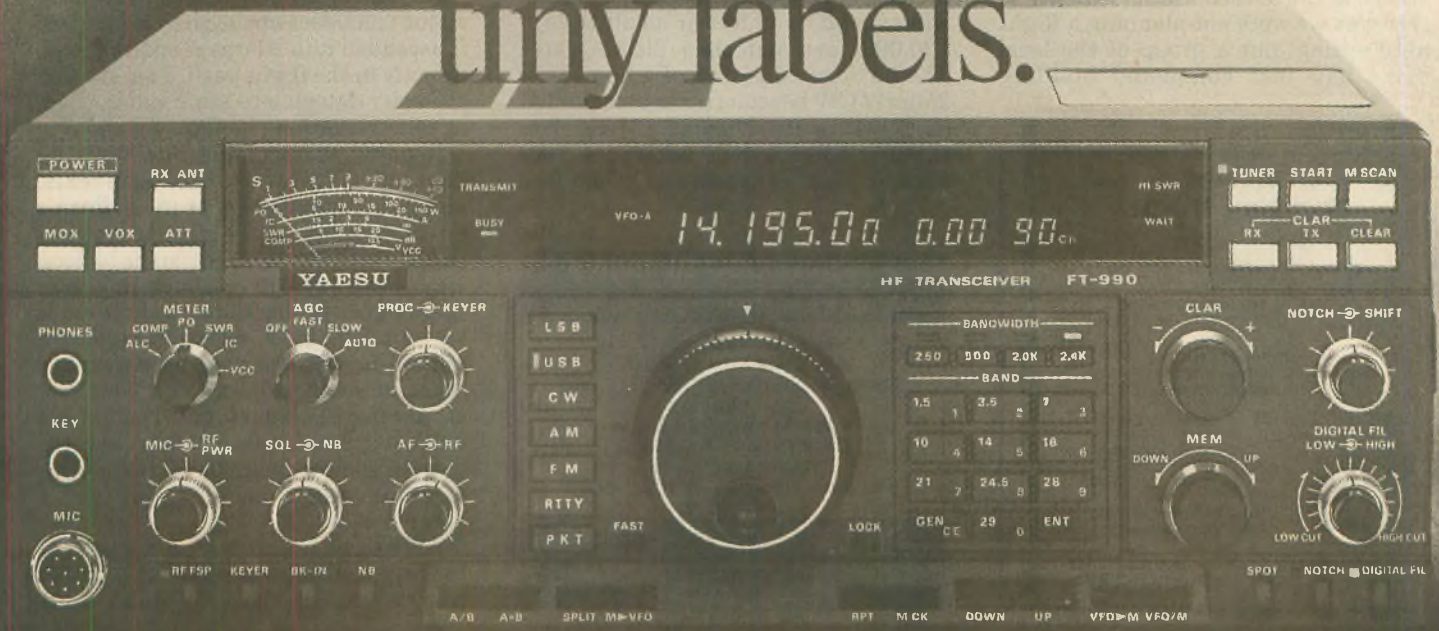

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

NASA Space Link

ROBERT KUCHAR, KE9WA

NASA has established a computer BBS accessible to the public. The NASA Space Link consists of a large data bank with hundreds of articles, photos, and reports regarding NASA activities. There are many items of interest to Amateur Radio operators. There are files on 2M shuttle frequencies, all kinds of information on SAREX, and articles about Amateur Radio activities in space. The articles are written for a wide spectrum of users; there is something of interest for grade school students on up to high school, college and Ph.D. scientist levels, as well as for astronomy buffs, space nuts, history lovers, and ham radio operators.

NASA Space Link includes a collection of over 100 photographs that can be downloaded and displayed on a monitor. These are unretouched spots, just as NASA received them from space. Photos include scenes sent back by the *Voyager* space craft of the planets Saturn, Jupiter, Neptune, and their moons. There are shots (updated as they come in) from the Hubble Space Telescope, and a large collection of Venus images sent back by the *Magellan* space craft. While the photos can be displayed on any kind of monitor, a VGA system works best. The photos are sent in the .GIF format and can be displayed with the *CSHOW* shareware program. By using the page-up and page-down keys and other *CShow* parameters, the photos can be "manipulated" to bring out interesting features, change contrasts, zoom in and out, etc. Three photos to start out with are: HYTSAT.GIF of Saturn (number nine on the Hubble menu); Neptune (number three on the Neptune menu); and Great Red Spot (number 30 on the Jupiter menu). These photos are spectacular!

To reach the amateur section: at menu one select 6; at menu two select 2; and at menu three select 18. To reach the photo section: at menu 1 select 9; at menu 2 select 11; and at menu 3 select 6.

Space Link supports both IBM compatibles and Apple computers. The service is free, menu drive and "user friendly" (simple to use). The only cost is the cost of the phone call. The system is online 24 hours a day and can be reached at 205/895-0028. 73 de Bob, KE9WA, North Shore Radio Club of Highland Park, IL. □

BARC balloon launch

HARL GOODSELL, W7LTH

A break in the weather on Saturday morning, February 15, was all that was needed for about 20 members of the Bridgerland Amateur Radio Club in Cache Valley, Utah, to launch the third in a series of large weather balloons carrying Amateur Radio gear.

This particular flight was the first in the series to carry high school student experiments. Steve Huff, a senior at Skyview High School in Smithfield, Utah, and a Sterling Scholar, was looking for a way to get an instrument into the upper atmosphere to measure solar radiation. Steve was directed to BARC for assistance, as we had been experimenting with high-altitude balloon flights since last spring.

Due to the severe winter weather in this area we were not planning a flight until spring, but a group of the local hams had just completed building radio direction finders, so it was decided to make a controlled flight and parachute the payload back down to earth before the balloon flew over the mountains. This would also provide us with an opportunity to field test the direction finders.

At 10 a.m. a final weather check was made. The cloud cover had partially cleared and word was passed via 2M for the launch team, tracking teams, and chase and recovery personnel to take up their positions. The launch site, located near the town of Cornish, just south of the Idaho border, had about four inches of snow on the ground but was otherwise in good shape.

The balloon was a Kaysam 105G which was inflated with helium to a diameter of about five feet (this balloon will expand to 30 feet at an altitude of 120,000 feet and then disintegrate). The payload consisted of a homebrew 250mW CW beacon transmitter on 2M (KE7WI), a two-channel 2M receiver (Radio Shack) with a homebrew tone decoder, and a datalogger (Campbell Scientific) to record altitude, temperature, battery voltage and sun radiation. A 5 ft. nylon parachute, controlled by an electronic release that could be operated via touchtone signals, was attached to the Styrofoam payload enclosure. The payload weighed about five and a half pounds.

At 11:58 local time the payload had been checked out and a small test balloon was released to obtain last-minute wind directions. The test balloon took a 325-degree northwest path. At 11:34 the balloon fill was started. At 11:38 a prelaunch QST was transmitted on 2M. At 11:42 the payload was attached and the 10-second countdown started. Liftoff occurred at 11:44. The balloon went straight up and then took a 350-degree tack.

As the balloon reached an altitude of about 6,000 feet above the valley floor, it ascended into a large cloud that was directly in the flight path. This allowed the solar detector to see a wider range of solar radiation change.

Reports were coming into tracking control at three-minute intervals, allowing triangulation of the balloon's position. At 11:55 the signal to release the payload was sent. Since the balloon was out of sight in or above the cloud there were a few anxious minutes while we waited for tracking reports to determine if in fact the payload was being parachuted back down to us. (Our first attempt at a balloon flight resulted in a failure of the release system, and the balloon went to over 70,000 feet, over a mountain range and . . . well, that's another story.)

About two minutes after the release tones were sent we received a report from a station about 80 miles away

that he had just lost the beacon signal. Good news, as this meant the payload was indeed coming down, since the reporting station was on the far side of another mountain range.

Position reports were now coming in from members of the recovery crew, most of whom were using their new phased radio direction finders. At 12:03 it was determined that the payload was on the ground in an area just south of the city of Preston, Idaho. At 12:11 there were several recovery crew members triangulating near 300.0S, 240.0W just outside of the city limits. The beacon was still transmitting a good signal, and after several minutes of the frustration of knowing it was "right over there," one of the chase team members climbed up on an old farm fence and spotted the bright yellow parachute lying on the ground a few feet away.

The information was retrieved from the data logger and has since been computer processed. Very good data was recorded, including a low temperature of 12 degrees F, an altitude of just over 7,000 feet (11,000 feet MSL), and some very usful solar radiation information from the student experiment.

We are now gearing up for a flight later in the spring that will make use of a new, smaller radio system, a voice beacon and a packet downlink, and maybe a fastscan TV. This next flight will probably be allowed to reach 110,000 feet and fly for about two and a half hours. □

The Bridgerland ARC has been experimenting with high-altitude balloon flights since last spring. ***(Photo courtesy of Gil Moore)***

Colvins in Brunei

Dear friends,

We have just completed our operation from Brunei as V85KGP. This will probably be one of our last reporting letters on this trip.

Brunei is a very rich country (from oil) and the prices of all things are about the highest we have seen anywhere in the last six months. The hotel rates are extremely high; the lowest priced hotel we've found is $80 a day, the majority of hotels start at $230 a day up to $1,500 a day. A 10-percent tax is added to these prices.

This government is ruled by a sultan. The majority of the population is Muslim. We hear the call to prayer from the many mosques five times a day, beginning at 4 a.m.

The stores here do not keep late hours and the government has seen fit to order more stores to keep open for business and work longer daily hours.

There are not many amateurs here so we are much in demand and have had many QSOs. Our list of contacts for countries worked from here is the largest for this trip. We have worked more than 100 countries on each stop and hope to qualify for DXCC from each one of them.

We now have 221 countries visited during our lifetime, and we have DXCC certificates from more than half of them. Hope to CU from Macao. 73 de Lloyd, W6KG, and Iris, W6QL, Colvin.

OCTO Net for octogenarians

There is a small but growing community of octogenarian ham operators who have banded into a network called OCTO.

We began as a CW net but now are also on SSB. We operate every Tuesday at 1830 UTC on 7.230 LSB, and at 2000 UTC on 14.045 CW (all frequencies plus or minus QRM).

It is very easy to join OCTO. You just need to be 80 or over and pitch in. Our nets are informal. If you hear the word "OCTO" you are on the net. There are no fees, and we publish a monthly bulletin which is supported by informal postage fund gifts.

Anyone who gets on the net and is interested in getting the bulletin may drop a line with name, address and call sign to Lou Nees, NT3S, 45 Marian Terrace, Easton, MD 21601. We will be pleased to hear from you. □

The fat lady has sung

On March 4, 1992, the FCC released a Memorandum Opinion and Order "tidying up" its original Order establishing a codeless class of amateur operator license and terminating the proceeding. The text of the MO&O is quoted below, less footnotes.

Introduction

1. On December 13, 1990, the Commission adopted a *Report and Order* in this proceeding that, *inter alia*, established the Technician Class amateur operator license as the codeless class of amateur operator license. The purpose of this *Order* was to offer an entry-level license opportunity to otherwise qualified persons who find a telegraphy requirement an unnecessary barrier to pursuing the purposes of the amateur service. Since the adoption of this *Order*, we have received over 60 letters highly supportive of our decision. We have also received more than 45 letters informally requesting that we clarify or modify various portions of this *Order*. This *Memorandum Opinion and Order* denies these requests.

Background

2. The objections to our *Order* generally fall into four areas. A number of letters argue that we should have created a new sixth class of license so that codeless licensees could be readily distinguished from licensees who have passed a Morse code examination. Other letters request that we reconsider the privileges of the codeless Technician Class license. Other letters request that we require stations where the control operator is a codeless Technician Class licensee to use a distinctive suffix after the station's call sign when the station is transmitting on the high frequency bands. A few letters still dispute need for a codeless license in any form. The American Radio Relay League, Inc., while not requesting reconsideration of our *Order*, made a number of general comments and pointed out a minor error in footnote 33 of the *Order*.

Discussion

3. Section 1.429 of the Rules, 47 CFR § 1.429, governs the filing of petitions for reconsideration in rule making proceedings. That section requires that petitions for reconsideration must show changed facts or circumstances, or facts that were unknown to the petitioner until after the petitioner's last opportunity to present them to us. None of the letters we have received meet the standards of a petition for reconsideration. The letters fail to present any facts or raise any issue that we did not consider in the *Order*. For example, we found that the addition of a sixth class of license, as requested again, is neither desirable nor achievable without unacceptable effects upon our workload. Further, we determined that our present computer system will not support six classes of license without new and significant expenditures of resources. We also addressed questions about the examination requirements and frequency privileges of the codeless Technician Class license. We concluded that the existing question pools for Elements 2 and 3(A) should contain questions that test whether an examinee has the requisite qualifications to perform properly the operator duties at an amateur station transmitting exclusively above 30 MHz.

4. We also decided that our call sign assignment policy would be inconsistent if we required a station controlled by a Technician Class licensee who also has a Certificate of Successful Completion of Examination (CSCE) for a telegraphy element to append an indicator to the station call sign when identifying. This requirement, if we had adopted it, would have caused stations of codeless Technician Class operators to be identified with shorter call signs than stations of other Technician Class operators who have passed more examination elements and have more privileges. The *Order* also addressed the need for a codeless class of amateur operator license. The comments clearly confirmed that the amateur community is undergoing a dramatic shift in sentiment concerning the value of Morse code as an entry level license requirement. We also found that for the Amateur Service to achieve its purposes, the participation of as many qualified persons as possible who desire to pursue those purposes is needed.

Ordering clauses

5. In view of the foregoing, and pursuant to the authority contained in 47 USC § 154(1), *it is ordered* that the letters requesting modification of the Commission's decisions *are denied*

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 March 1, 1992.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.17(f) of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17325-7245.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0HT	KF0XD	N0RHX	KB0JZI
1	AA1BB	KD1HI	N1LOT	KA1ZTA
2	AA2ID	KF2GS	N2PTH	KB2OKY
3	WW3B	KE3BO	N3LTG	KA3ZUM
4	AC4NZ	KO4SV		KD4KUU
5	AB5EH	KI5YD	N5ZGA	KB5RDZ
6	AB6JK	KM6QY		KD6GNI
7	AA7NO	KG7ZW	N7WRZ	KB7ORK
8	AA8GJ	KF8SS	N8SIM	KB8NOK
9	AA9DK	KF9IG	N9OLC	KB9HOZ
North Mariana Is.	AH0N	AH0AJ	KH0AR	WH0AAR
Guam	KH2Y	AH2CN	KH2FX	WH2AMW
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6LU	WH6FG	WH6CPA
Kure Is.			KH7AA	
American Samoa	AH8D	AH8AE	KH8AI	WH8ABA
Wake Wilkes Peale	AH9B	AH9AD	KH9AE	WH9AAH
Alaska		AL7OB	WL7CA	WL7CEK
Virgin Is.	NP2T	KF2BZ	NP2FF	WP2AHM
Puerto Rico		KP4TN		WP4KXW

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except as indicated herein.

6. *It is further ordered* that footnote 33 of the *Order is corrected* by changing the phrase "the entire 23 centimeter band" to "1270-1295 MHz."

7. *It is further ordered* that this proceeding *is terminated.*

8. For further information concerning this *Memorandum Opinon and Order* contact William T. Cross, Private Radio Bureau, 202/632-4964.

WARC-92 concluded

The Department of State, the Federal Communications Commission and the National Telecommunications and Information Administration issued a joint statement on March 4, 1992, which said in part:

"The agenda for the conference was driven by US technology and US entrepreneurs who have developed the next generation of communications systems that take advantage of the latest communications technology. Thanks to the leadership of Ambassador Baran and the hard work of the US delegation and support staff, new frequency allocations were obtained for innovative technologies such as low earth orbit satellites, space exploration services and satellite based high definition television. Additional frequency allocations were obtained for mobile satellite services and high frequency broadcasting.

The final acts of the conference will be published by the ITU and presented by Ambassador Baran upon return of the delegation to the United States. A service-by-service summary of the agreements reached by the Conference is contained in a detailed press release issued by the ITU on March 3, 1992.

The ITU press release includes a paragraph on the Amateur Service, viz: "Given the fact that no spectrum was freed by WARC-92 in the 7 MHz band, a further worldwide allocation to the Amateur Service in this band was not considered possible. A Recommendation (COM4/C) was therefore adopted, inviting a future WARC to consider the possibility of aligning the allocations to the amateur and broadcasting services around 7 MHz so as to provide a worldwide allocation."

FCC: No more TVI—for them.

The FCC says that TVI and RFI complaints will never again be a problem—for the agency. According to John Theimer, engineer in charge of the Commission's Miami, Florida, Field Operations Bureau office, the FOB has adopted a new policy in dealing with home interference cases. Since the bureau is under-funded to handle individual cases, Mr. Theimer explained, it will therefore no longer respond to these types of incidents.

Theimer, who spoke at the recent Tropical Hamboree, noted that from now on, the only action the FCC will take in response to complaints from the public about RFI and TVI is to send out a letter accompanied by a booklet written to generally cover solutions to a given type of consumer electronics. The letter will indicate that the consumer should contact a given manufacturer for his TV, VCR, radio, thermostat, etc., or service provider (telephone or cable TV company, for example) and request resolution of the problem.

The FCC official said that even though the FCC is getting out of the business of providing solutions, the problem of TVI and RFI is not going away and is one that holds the potential for worsening as the Amateur Radio Service continues to grow. Theimer noted, "We have noticed an increase recently in amateur interference to home entertainment equipment. This may be dictated by a proliferation of amateur stations and equipment out there. So, what I am asking and suggesting is that if you want to keep good neighbor relations, be very sensitive to your neighbor's complaint."

Theimer closed his remarks by praising the vast majority of amateurs who operate their stations without causing interference to the general public, but he also issued a warning that an Amateur Radio license is not a permit to create such a problem. "If I were an amateur and I had a problem with a neighbor, I certainly would try to do everything I could to resolve the problem. Don't take the attitude that because you are licensed by the FCC you have a right to cause all sorts of problems. Even though the neighbor's equipment may be susceptible to interference, you are going to have one sore neighbor and this can mutate into quite a neighborhood conflict." (*Westlink Report*, 2/26/92)

Your reporter enthusiastically agrees with one *Westlink* editorial comment in particular, which noted that the FCC should take the responsibility that Congress has charged it with and set sufficiently high RF immunity standards for manufacturers to achieve before type-accepting their products. Amateurs would be protected from unnecessary RFI complaints and the public would be better served. □

When a foreign amateur visits your area, send photos and story to **Worldradio.**

SPECIAL EVENTS

Armed Forces Day

The Army, Navy, Marine Corps and Air Force are co-sponsoring the 43rd annual Armed Forces Day Communications Celebration and Test on May 16 in celebration of Armed Forces Day. The tests give Amateur Radio operators and shortwave listeners an opportunity to demonstrate their individual technical skill and to receive recognition from the Secretary of Defense or the appropriate military radio station for their proven expertise.

Operations will include CW, SSB and RTTY. Participating military radio stations will award commemorative QSLs for varified two-way contact. Military to amateur cross-band operations will take place from 1300Z May 16 through 0200Z May 17. Military stations will transmit on selected military frequencies (10 through 80M) and listen for amateur stations in the amateur bands. The military operator will announce the specific amateur band frequency being monitored. Duration of each contact should be limited to three minutes. □

International Boundary Marker

The Carthage ARS will operate WA5ROI on May 2 at 1400Z from the only international boundary marker within the United States.

Transmissions will be on all general level ham bands plus the Novice voice band on 10M.

To receive your free picture certificate, with the history of the marker, send a QSL card, contact number and #10 (business) size SASE to WA5ROI, Grady Kyle, Rt. 1 Box 356, Beckville, TX 75631. □

Golden Spike

The Ogden ARC will operate KE7QV on May 10 from 0001 to 2100Z to celebrate the Driving of the Golden Spike in Promontory Summit, UT.

Operation will be on 3.970, 7.270, 14.280, 21.375 and 28.415 MHz.

Send a QSL and SASE to Ogden ARC, P.O. Box 3353, Ogden, UT 84409. □

Telegraph Message Anniversary

The Bay Area ARS will operate KB3MF on May 16 from 1300 to 1900Z in the Baltimore/Washington, MD area to commemorate the 148th anniversary of the telegraph message, "What Hath God Wrought," transmitted on an experimental line from Washington, DC to Baltimore, MD.

Operation will be on CW frequencies 7.110 and 21.035 MHz.

A special 8½ × 11 commemorative certificate will be offered for QSOs. Accurate shortwave reception reports will be accepted in lieu of a two-way contact from non-hams. For this special award, send a QSL card (shortwave listeners send details of the QSO) along with a large SASE to the Bay Area Amateur Radio Society, P.O. Box 805, Pasadena, MD 21122-0805. □

Nite Patrol Anniversary

The Argonne ARC will sponsor a special event station commemorating the tenth anniversary of the Nite Patrol. The net has met continuously every night of the year since its inception in 1982 on the W9QVE repeater. Hosted by Paul, W9FNM, the informal nature of the Nite Patrol has earned W9QVE the title of "the friendliest repeater in the Chicago area."

Operation will be from noon until midnight Central Daylight Time on May 6 through the W9QVE repeater, 145.19 (-600) located at Argonne National Laboratory in Lemont, IL.

All check-ins will automatically receive a commemorative QSL card at their *Callbook* address. □

Camp Merritt Anniversary

The Bergen ARA, in conjunction with Camp Merritt American Legion Post 21 will operate K2UFM on May 17 from 1300-2100Z to celebrate the 75th anniversary of Camp Merritt and the re-dedication of the Camp Merritt Memorial Monument.

Operation will be in the General phone portion of 80, 40, 20 and 15M bands and the Novice portion of the 10M band.

For a certificate, send QSL and SASE 9 × 12 envelope to K2UFM, Warren P. Hager, 31 Forest Dr., Hillsdale, NJ 07642-1351. □

75th Anniversary of Railroad

The Pioneer Radio Operators Society will operate AA2EN on May 30 and 31 from Curriers Railroad Station in celebration of the 75th Anniversary of the Arcade and Attica Steam Railroad in western New York.

Operation will be in the General portions of the 80, 40, 20, 15M bands and the Novice portion of 10M.

For a certificate, send a QSL and SASE to AA2EN, c/o James Luscher, 3 Sherman Dr., Archade, NY 14009. □

Sumter Iris Festival

The Sumter ARA will operate WA4UMU on May 23 and 24 for 24 hours to celebrate the Sumter Iris Festival.

Operation will be on the lower 10 kHz of General bands 40, 20, 15, and 10M and the lower 10 kHz of the Novice/Tech band 10M, voice only (all bands).

For a QSL certificate, send an SASE to the Sumter Amateur Radio Association, P.O. Box 193, Sumter, SC 29150-8862. □

Steamboat River Race Anniversary

The Siouxland ARA will operate K0AAR on June 6 and 7 from 1500-2100Z to celebrate the 120th anniversary of the 1,500-mile steamboat river race between The Nelle Peck and The Far West.

Operation will be on phone on 7.243, 14.255, 21.355 and 28.355.

For a certificate, send SASE to K0AAR, 3407 Jennings St., Sioux City, IA 51104. □

Lewis and Clark Commemorative Station

The St. Charles ARC will operate WB0HSI on May 16 and 17 from 1300-2100Z to commemorate the Lewis and Clark Expedition.

Operation will be on 7.265, 14.265, 21.365, 28.465, 146.67 and on AO-13 145.935 (mode B) and 435.970 (mode J) as propagation and QRM permit.

For a 8½ × 11 certificate, send a large SASE to the St. Charles ARC, P.O. Box 1429, St. Charles, MO 63302-1429. □

Columbia River Anniversary

The Sunset Empire ARC will operate W7BU on May 9 through 11 from 1700 to 2400Z aboard the decommissioned USCG *Lightship Columbia* WLV-604 to commemorate the 200th Anniversary of the discovery of the Columbia River by Captain Robert Gray.

Operation will be in the General 20, 15 and 10M phone subbands and the Novice 10M phone subband.

For a certificate, send a QSL and a 9 × 12 SASE with 39¢ postage to Lightship Columbia, P.O. Box 264, Astoria, OR 97103. □

Brazos Valley ARC Anniversary

The Brazos Valley ARC will operate WD5DRB from 0000Z May 16 through 0000Z May 18 to celebrate B-VARC's 15th Anniversary.

Operation will be in the lower 25 kHz of the General 80, 40, 20 and 15M subbands and 28.488 MHz of the Novice subband, with special endorsement for past or present B-VARC members with callsigns.

For a certificate, send a QSL and SASE to B-VARC, P.O. Box 1630, Missouri City, TX 77459-1630. □

Annual Scout Show

Circle Ten Council—Boy Scouts of America—Dallas, TX, will operate K2BSA on May 9 from 1500 to 2300Z during its Annual Scout Show on the Mandalay Canal at Las Colinas, Irving, TX.

Operation will be on 28.350, 21.350, 14.280 and 7.260 MHz.

QSL with a #10 SASE to Dan Dansby, W5URI, 5805 Walla Avenue, Fort Worth, TX 76133. □

Armed Forces Day

The DuPage ARC will operate club station W9DUP on May 16 and 17 from 1600 to 2300Z to commemorate Armed Forces Day at the Cantigny War Museum, in Winfield, IL.

Operation will be on 7.250, 14.290, 28.400 SSB and 145.25 (-600).

For a certificate, send QSL and SASE to Jack Carr, NV9S, DARC, P.O. Box 71, Clarendon Hills, IL 60514. □

Raleigh, NC Bicentennial

The Raleigh ARS will operate W4DW on May 16 and 17 from 1500 to 2200Z to celebrate the bicentennial of the capital city Raleigh, NC.

Operation will be in the General portion of the voice bands on 75, 40 and 20M and the Novice portion of 10M.

For a commemorative QSL card, send a #10 SASE to RARS 200, P.O. Box 17124, Raleigh, NC 27619. □

Fairfax County Anniversary

The Mount Vernon ARC will operate N4BV and various other callsigns on May 9 and 10 from 1400 to 2100Z from locations on the original Mount Vernon estate of George Washington to celebrate the 250th anniversary of the founding of Fairfax County, VA.

Operation will be on CW 7.130, 14.040, 21.110; phone 7.227, 14.250, 21.325, 28.325; VHF voice 146.655; and VHF and HF packet on 145.670 (DCA and WASDC nodes).

For a certificate, send a QSL and a 9 × 12 or #10 SASE to Steve Schneider, WB4EEA, 8602 Cushman Place, Alexandria, VA 22308. DX stations send two International Reply Coupons (IRC) with a QSL and a self-addressed envelope. A QSL card confirmation will be sent in addition to a certificate only if specifically requested. □

Grays Harbor Anniversary

The Grays Harbor ARC will operate W7ZA from 0000Z May 9 to 2400Z May 10 to commemorate the 200th anniversary of the discovery of Grays Harbor.

Operation will be in the bottom part of the General phone band on 15 through 80M, on the Novice phone portion of 10M, and 40 up from the bottom of the CW bands on 10 through 80M.

For a special QSL card, send a QSL and an SASE (legal size envelope) to ARS: KA7AIR, Joe Ledesma, 516 6th St., Hoquiam, WA 98550. □

Florida Trail Ride

The Fort Pierce ARC will operate KN4RY from 1600-2300Z on May 8 and 1400-2100 on May 9 to commemorate the 5th annual trail ride of the Florida Cracker Trail Assn.

Operation will be in the 40, 20, 15 and the Novice portion of the 10M phone band.

For a certificate, send a QSL card and a large 9 × 12 SASE (two units of postage) to W3DHN, 18 Cordillera, Fort Pierce, FL 34951. □

VHF mountaintopping

JOHN LINDHOLM, W1XX

Recently, VHF has seen a resurgence of an activity as old as VHF itself—mountaintopping. Perched on a mountaintop, a small portable rig with a single yagi antenna only a few feet off the ground suddenly sounds like a kilowatt feeding a killer antenna at home. Simple equipment performs amazingly well from a mountaintop QTH on VHF.

A mountaintop expedition can vary from a spur-of-the-moment Sunday afternoon picnic to a full-fledged weekend contest. Quick trips can also be conducted during band openings.

Since a contest optimizes the opportunity to work a lot of stations on VHF, this article is mostly a "how to" for weekend contest operation conducted by one or two people, but this can be scaled down to a mountaintop stay of shorter duration.

The times are a changin'

Old-timers will remember the drudgery in decades past of lugging "boat anchors" up rocky crevices. Solid-state equipment, however, has made mountaintopping easy.

A key factor in this revival has been the introduction of a worldwide grid-locator system. The use of grid squares in the major VHF contests has tickled the innermost secret desire of every radio amateur—to be on the receiving end of a DX pileup. Now, instead of going on safari to some distant DX land, you can head for some nearby mountaintop located in a rare grid square.

Choosing a site

Choosing a mountaintop site involves prior planning. Your first step to finding VHF heaven involves extensive study of a road atlas. How far do you want to travel? Where are the mountains? How high are they? Can you drive to the top?

Draw the gridline boundaries so you can choose an appropriate peak. Ask some active VHFers which are the difficult squares to work.

I've never operated from a mountaintop without first scoping it out in person. Access is most important; a passable road to the top is ideal.

When you check out a site, bring a compass and a 2M FM hand-held rig. A call on 146.52 MHz simplex should tell you how good the location is. Are you blocked in any direction? Is the peak already "RF-city" with commercial installations—a potential source of interference? Will you be able to clear any trees with a lightweight mast? Is there a picnic table permanently at the

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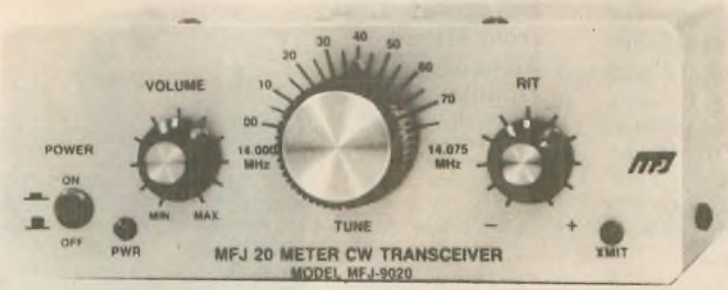

Throw this tiny CW rig in a corner of your briefcase and enjoy DXing and ragchewing wherever you go.

You'll turn lonely nights into exciting adventures as you contact fellow amateurs around the world.

20 Meters is open day and night so you can operate whenever you have a free moment.

With 5 watts you'll have plenty of power to work the world even with a makeshift antenna.

At home with a good dipole, vertical or beam, you'll be able to work almost anyone you hear — can you imagine earning DXCC with 5 watts?

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It's good enough to be your only rig — you get a high performance superhet receiver, razor sharp 8-pole crystal filter, RIT, AGC, vernier tuning, sinewave sidetone, built-in speaker, headphone jack, adjustable semi-break-in, up to 5 watts output plus much more.

Covers lower 20 Meter CW band, 14.000 to 14.075 MHz. 6x6½x2¼ inches. Weighs 1-3/4 lb. Uses 12-15 VDC. Optional plug-in Curtis chip keyer, narrow audio filter, antenna tuner, power pack and antenna.

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Weak DX signals are just as loud as strong local ones because the MFJ-9020 *graceful* Automatic Gain Control (AGC) keeps your audio level constant.

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With 5 watts you'll have plenty of power to work the world even with a makeshift antenna.

You can use any antenna with an SWR up to 3:1. The MFJ-9020 is rugged enough to withstand momentary antenna opens or shorts without damage.

If you're really into QRP you can reduce your power down to milliwatts.

A pleasing *sinewave* sidetone lets you monitor your sending.

You also get quiet adjustable semi-break-in and adjustable automatic transmit offset.

You'll get hours of battery operation — draws only 50 ma. receive, 1 amp transmit.

Looks Great!

The MFJ-9020 is housed in an attractive matte-black aluminum enclosure with a deluxe brushed-aluminum front panel and matched knob set. Machine screws and pressed-in PEM nuts are used — not sheet metal screws.

Has power-on LED, transmit LED and SO-239 coax connector for antenna.

Designed by Rick Littlefield, K1BQT

The MFJ-9020 was designed by Rick Littlefield, K1BQT. He's known worldwide for his reliable high-performance transceiver designs and numerous papers.

K1BQT has given careful attention to board layout, heatsinking, mechanical rigidity, voltage regulation and component selection to ensure stable operation and long-term reliability.

It meets or exceeds all FCC requirements.

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site? If not, plan on bringing an operating table and chair.

Once you've selected an operating site, be sure you have secured the necessary permission to use it. This may simply require verbal permission from some authority or the owner, or it could involve a lengthy exchange of correspondence with a state environmental agency of forests and parks and the signing of a liability release. But be sure you have permission. The last thing you want is the local sheriff shining a flashlight in your eyes at 2 a.m. You'll find rangers on fire watch most helpful in pointing out how to obtain necessary permission.

Power source

Unless you are awfully lucky to find a location that will permit you to just "plug in," make plans for providing your own power. With a single-band operation from a car (with antenna mast mounted just outside the car window), the car battery will probably suffice. Better to be safe than sorry, however; park the car facing downhill!

For a more serious effort using several VHF and UHF bands, a small generator is recommended. If the word generator conjures up an image of an ugly engine block from a 1940 LaSalle, then tune in to the modern world. Small, even attractive, generators in the 500-1000W category that look more like American Tourister luggage are now available.

Equipment

A mountaintop location effectively places your antenna atop a natural tower of hundreds, or perhaps thousands, of feet. with this height advantage, compact, lightweight, low-powered radios will perform nicely. Low-powered portable transceivers are perfect; the popular 10 and 25W multimode rigs are also quite adequate.

If you don't have any sizable trees to get over, you can use simple mast sections that fit together. If you can install the antenna mast right next to the operating position, do it. It will save all the hassle of installing a motorized rotator.

Nothing beats the "Armstrong" method for speed and simplicity. I use a crosspiece of aluminum tubing mounted with U bolts to the mast at arm level. This provides instantaneous antenna-peaking capability—a necessity on V/UHF.

If your mountaintop operation involves staying overnight, additional attention must be paid to having the proper survival equipment. The most luxurious way to go is a van or RV. Otherwise, a tent will be required, but I've found out the hard way that one can expect heavy winds on mountaintops. Large tents blow down easily in such weather.

Further on the subject of weather, expect to need a heavy jacket after dark, no matter what the season. And bring lightweight rain gear, just in case. Finally, don't be surprised to be introduced to a critter or two, especially after dark!

Bob, WA1YKM, enjoys backpacking and has operated 2M from Mount Moosilauke, New Hampshire, elevation 4,802 feet.

Getting started

Okay, you've read this far and are beginning to say to yourself: "Self, I think I'd like to try that." But there is a small voice of caution in you that says: "Don't go bonkers until you've sampled a little first." Good advice!

Start out by setting up on an easily accessible mountain for an afternoon during a contest period on a single band. For a first effort I recommend 2M. With so many 10W multimode rigs out there, 2M is your "bread and butter" band.

Using a multi-element yagi a few feet off the ground of a strategically located mountain or hill can whet your appetite. I first got hooked by operating from the side of a highway on Hogback Mountain, Vermont, with a 3W portable 2M radio to a 30W brick and 11-element yagi.

Now what's holding you back from operating from Mount Everest? —*On Air, an ARRL publication* □

Please send NEWS and PICTURES to **Worldradio**

The Old Old-Timers' Club

DUNCAN KREAMER, W1GAY

The Old Old-Timers' Club began with a membership of 13 in the fall of 1947. Its publication, *Spark Gap Times*, has become a valuable library of material pertaining to the early days of wireless telegraphy. In that light, let us go back and hark to the words of our founder, Bert Ingalls, W1NQ, written in 1965 (Bert is now a Silent Key).

"I was born at 325 Boston Street, Lynn, Massachusetts, on April 8, 1893. Some 12 years later we moved to the old Ingalls homestead at 45 Whiting St., near Lynn Common. Here my grandfather, James W. Ingalls, was living when he built the first brick shoe factory in Lynn, now located on Monroe Street. James was six generations removed from Edmund Ingalls, who was the first white settler in Lynn in 1629. Edmund established the first leather tannery in the Colonies, so my people have been cobblers and shoe manufacturers all down the line. I became interested in electricity as a small boy of seven at the turn of the century. I remember building a galvanometer, which recorded the minute flow of electric current. Seeing an ad in the *Youth's Home Companion*, I sent $3 for an electric light outfit, which consisted of a 3V dry cell, miniature porcelain base and lamp, switch, and 25 feet of annunciator wire. I immediately hooked it up and was delighted to see the lamp glow. Just then my mother called and said it was time to go to school. When I arrived home after school, I found a dead battery, as I had neglected to throw the switch—my first major setback in the hard, cold, cruel world.

About 1906 I decided to build a wireless set, so my father very graciously turned over a portion of the harness room on the second floor of the stable. I had a pole on the house and one on the stable with a four-wire flat-top in between. My first receiver was two pieces of carbon with their sharp edges paralleled and a large darning needle lying across them with a dead #6 cell in shunt. A single 75 ohm receiver was also in shunt. An aerial wire hooked to one side and ground wire to the other side completed the set. After listening for about a week, I intercepted very weak signals from the old "*PG*," Boston Navy Yard, about 10 miles away. The following year, 1907, general information came out on winding tuning coils and making variable condensers, loose couplers, etc. By 1908 I had a high-powered homemade transmitter on the air, consisting of Helix, straight gap, glass-plate condensers mounted in a wooden rack and an open core transformer 18 inches long. This transformer had a three-layer primary of #10 and about 18 secondary pies, each pie consisting of 4,000 turns of #29 DSC (double silk covered) wire. While transmitting, this transformer would walk all around the shack, before it was mounted in a heavy wooden case and strapped down to the deck. In those early days, most of my contacts were with naval stations and commercial ships. George Nichols, my wireless pal, also of Lynn, was complaining one day that the Navy operator at Charlestown refused to acknowledge his calls. So George proceeded to pull out the spark gap in order to get a low-pitched note, like the Massie-Stone sets on the Spanish boats. He then called "NAD" and said the captain wanted all weather reports from Eastport, Main, to Key West, Florida, which kept the Navy busy for the next hour.

A short time later George and I went to Boston to visit old "*BH*" (*Boston Herald*) and there met Tom Stevens, W6KAA, an Old Old-Timer (now a Silent Key), who was on watch at the *BH*. Tom hired us both on the spot and gave us the next two ships, then just being equipped with wireless apparatus, out of Boston. He gave George the *SS City of Macon* and gave me the *SS Nantucket*."

In W1NQ's story lies the essence of the Old Old-Timers' Club: recording the history of wireless communication and of those who live it. History is not static. What is happening today becomes history tomorrow. Through its publication, *Spark Gap Times (SGT)*, the OOTC has chronicled the passing of time in the dynamic field of electronic communication with particular reference to men and women whose contributions have brought us to the present time. This remains our challenge today.

Membership in the OOTC is available to all who would enjoy being a part of this activity. To be eligible, one must have communicated via wireless at least 40 years ago and hold a current valid Amateur Radio operator license. Information can be obtained by writing to OOTC Inc., 1409 Cooper Dr., Irving, TX 75061-5527. □

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Where is KE7KO?

KEN ROUSH, N7SQU

As ridiculous as this thought may appear to the majority of *Worldradio* readers, this author believes that a few readers may not recognize the call, KE7KO. There might even be one or two who would ask, "Who *is* this KE7KO?" He's a VHF net controller. In my part of the world, net controllers are important. Hopefully, they are important in your part of the world also.

For that one or two who still do not recognize the call, we will explain, in detail, that KE7KO is the illustrious, gregarious, gargantuan, happy, friendly, patient net controller for the Greens Peak VHF Repeater Net located in eastern Arizona. Operating through the facilities of N7ENS, the net provides a healthy, educational, and social atmosphere on the airwaves. The atmosphere of this net is far from accidental. It represents the ten-year effort of Paul Reed, who *is* KE7KO.

Having answered the "who" for the few, we should quickly return to our original question, "*Where* is KE7KO?" As my wife, Judy, N7TUX, and I began this brief account, we surmised that KE7KO was in his living room at the "Rainbow Hilton" within the confines of Lakeside, Arizona. Further, we surmised that it was safe to assume that he was in his favorite recliner, resting with his ankle elevated far above his head, suppressing an overwhelming urge to scratch violently beneath the cast gracing his elevated ankle.

Most of the people I have met in Amateur Radio are aware that life is often unfair. Many more assure us that life is often ridiculous. This applies directly to KE7KO. My insurance agent has warned me for years that most accidents occur within 25 miles of a person's home. KE7KO's accident occurred within 25 feet of his front door.

Over the years, KE7KO has stressed the need for the Green Peaks Net to be educational, creative, original, and social. There are many creative people involved in it. Within these far-off mountains one member, Erman, KD7EL, is a walking, talking electronic expert, filled with more electronic information than the *Handbook*. KD7EL and his gracious wife, Beth, KA7AKK, devote countless hours teaching people what Amateur Radio is all about. The net also includes an extremely talented young man in Lakeside, Bob, WB7QON, and a famous Indian trader, Leo, KA7VUY, in Holbrook. Off the beaten path in Navajo there is another gracious, helpful lady, Virginia, WB7ENC, and in the wilds of New Mexico there is a ham who is an expert in the necessary work of wilderness search and rescue, Rusty, KD5SY. Finally, in Winslow, Arizona, the net has in its midst the only man I know who will probably suffer more stress from "puppy training" than I did, John, W7DFW. This net has talent, sophistication, patience, and social concern. What could possibly go wrong within its daily operation?

KE7KO, the net's regular control operator, was recuperating from an accident and off the air. So were all of the experienced, talented members. The truth is that all of the operators mentioned above were either working, kept off the mountain by a blizzard, sick, or shivering in front of a fireplace on the same dark, cold dastardly night in early December, 1991. The net did not have control.

Two close friends, Harry, N7CMC, and Lee, W7EH, drafted the only person left on the air whom they felt might have some understanding of net procedures and a reasonably updated call-list. The poor soul happened to be a no-code Technician, recently licensed and struggling very hard with his code tapes, attempting and hoping to upgrade to General in the spring. Well, as you might suspect, this was an opportunity for chaos to reign.

However, the tradition of Amateur Radio demands *professional* approaches to all emergencies. KE7KO, taking this tradition seriously, had instilled procedures. His leadership, dedication and hard work paid off. The net proceeded following his guidelines. We would like to share these guidelines. After all, in a random universe this could happen to you. *You too* could become a temporary net controller. Should the unlikely and unthinkable happen, we suggest the following:

- Lay out before you the net's roster and any announcements that need to be made.
- Tune to frequency and listen.
- Hearing no traffic, ask if there is any emergency traffic on the frequency.
- Open the net by welcoming everyone to it and stating its purpose. For example, "Welcome to the _____ VHF Repeater Net. This net, while social in nature, is dedicated to public service. This net will, upon notification, comply with FCC rules and regulations and relinquish this frequency for any emergency traffic, as long as such emergency exists. This Net comes to you through the facilities of the ____ Repeater located on ____ in ____, each ____ (morning or evening) at ____ Zulu. This is ____, temporary net control for this (morning or evening). My name is ____. This transmitter is located in ____.
- Ask if there is any priority traffic? If not, then proceed. If so, deal with the traffic, then proceed.
- Ask if there is any traffic to list. Proceed as outlined above.
- Ask if there are any QSTs. Work as outlined above.
- Ask if there is any traffic for the good and welfare of the net. Work with traffic, or lack of it, as outlined above.
- Announce the visitor's call. (Our visitor's call follows the roster.) Request that all visitors check in at that time.
- Next ask if there are any early check-ins.

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• When all stations have checked in, sign off the net, announcing that the frequency is being returned to general communication. Log and transmit the sign-off time.

My wife, Judy, N7TUX, often reminds me (and my friend, Bob, N7SHJ, confirms) that no one should expect to follow a really first class act and equal it or surpass it without adequate experience. However, in unexpected new situations, we all can do reasonably well when we relax and just be ourselves. Net controllers do get sick. They need vacations and they need time with their families. If and when the need arises, relax, be yourself and do your part to keep your net going well until the real net control returns. Have a speedy recovery, KE7KO. □

Nightly check-in on the road to recovery

MILDRED ORAS, K9FHM

I have rediscovered once again how Amateur Radio is a friendly joining of great people, enabling lasting friendships to be cherished. A few years ago, in 1986, I suffered a bad stroke which left my entire left side paralyzed. After spending two months in a hospital and rehabilitation facility I returned home, continuing my therapy as an outpatient. With the help of my husband, W9ZEW, family and friends I am on the road to recovery and back into the main stream of life.

It sure feels good, and I have many amateurs to thank, especially from the Argonne Radio Club here in Illinois. I am confined to a wheelchair but my OM fixed my radio station so it's easy for me to get on the air. One night on my 2M rig I tuned up on a net called the Night Patrol Net. I became interested and I enjoyed the comraderie between these amateurs and the net control, Paul, W9FNM. I continued to listen every night, feeling a change in my daily existence; I came to really look forward to this time each night. One night I felt encouraged to check in, and I was overwhelmed by the other amateurs' welcome. Like a long lost friend they were glad to hear from me. The net controller urged me to keep checking in, and I have.

Now these amateur friends have become a significant part of my recovery. Their friendship helps me to maintain my determination to make progress, and the net's friendly and cheerful leadership of Paul, W9FNM, makes the net a real success. I am 71 years young and have been a ham since 1961. I am very proud to be a part of the Night Patrol Net. □

Happy birthday W9QVE/R

On a cold, bleak day, February 5, 1982, a few dedicated radio amateurs installed a repeater on the grounds of the Argonne National Laboratory, where the radio club holds its meetings. The repeater operates on the frequency pair 145.19/144.59.

To celebrate the 10th anniversary of the friendliest repeater in the area, the Argonne Radio Club operated a special event station manned by member volunteers. During this 12-hour period about 250 amateurs checked in, and commemorative QSL cards were distributed for contacts made.

The radio club operates a skywarn net in addition to its regular Monday night net and its most popular Night Patrol Net, which runs every night from 10:30 to midnight. Through the hard work of the club members the Argonne repeater is going strong 24 hours a day. Happy birthday W9QVE/R!—*Mildred Oras, K9FHM, Cicero, IL* □

Geomagnetic field prediction

Predicted Geomagnetic Field	A-Index	K-Index
Quiet	0 - 7	≤2
Unsettled	8 - 15	≤3
Active	16 - 29	A few 4s
Minor Storm	30 - 49	Mostly 4s and 5s
Major Storm	50 - 99	Some ≤6

BILL DRUMMOND, WN6J

A lot of hams, especially DXers and contesters, keep pretty close tabs on "the numbers" which are broadcast at 18 minutes past the hour on WWV. These are the A-Index and K-Index values for the past and present, but they don't tell you what to expect in the near future, namely, tomorrow.

However, after giving the index numbers, the WWV broadcast always goes ahead with a forecast of the solar activity and geomagnetic field conditions for the next 24 hours. The geomagnetic field prediction is actually a prediction of the A and K numbers, according to the following definitions. Clip this chart and tape it to your operating table. □

CQ SOS!

(part one of two)

DANIAL BEARD, KB7JZI, and
CONNIE CRABB, KB7JZH

Tony Fields dialed around the car's FM radio in hopes of finding a good old-fashioned variety station to help relieve the tedium of the miles that lay ahead of him. This had been an almost perfect vacation. He hadn't thought much of the idea of driving across country when his son mentioned it, but it proved to be a thoroughly enjoyable experience. For the first time in 10 years he and his son spent a week together without the slightest quarrel. His wife and the boy's mother, God rest her soul, would have been stunned at the way Amateur Radio had brought the two together.

The week before, when Tony left his home in Connecticut, his friends had laughed at him for driving to California and for taking along his old homebrewed 20M CW rig. Tony hadn't practiced in years and certainly hadn't planned to use it, but he wanted to show his son what he had done in his youth. Besides, those old glowing tubes and the music of CW had a magic all their own.

David's interest in ham radio had been recently rekindled by a group of his friends in the sunny climes of California. David had shown an interest in radio when he was 13 but the commitment required (and hormones) had driven him into the much more complicated hobby of chasing girls. Now that they again shared a common interest in Amateur Radio, the Folsom Hamfest with its gypsy-like atmosphere and comical contests proved a source of much joy to both.

His scan up and down the car's radio resulted in an ugly mix of heavy metal, moaning country western and elevator tunes that made him feel old. He flipped the radio off. The endless hum of radial tires on pavement was better than those choices. Tony had been surprised and gratified when David asked for his experience and help in setting up an HF station. A grin settled back on his lips when he recalled the discussion they had about the pros and cons of homebrewed antennas as opposed to store-bought. David had spent the better part of an hour talking himself into saving $200 by building an antenna that would work better than the one he had seen in the catalogue.

Tony's reminiscing was interrupted by the roar of a hot rod full of kids passing him at a speed that his little Toyota could only dream of reaching. Tony had turned off the main route to avoid the heavy traffic and get the chance to slow down a little and enjoy the amber waves of grain. The next town was about 30 miles down the road. A bumper sticker extolling the virtues of a small-town football team caught his eye as the hot rod sped on in front of him.

As the sound and the smell of oil smoke faded, Tony's thoughts returned to the events of the week before. At the hamfest, David found a very old but beautiful bug. Just before Tony left, David presented him with a package that contained that bug. David had spent an entire evening cleaning and adjusting it. Beyond its value, Tony would forever treasure it because it was a gift from his son.

The last rays of the setting sun peaked out from under the gathering storm clouds behind him as he crested a small rise in the road. He barely had time to react as he saw the wreckage on the highway in front of him. He jerked the wheel hard to the left to avoid the pieces of the hot rod and the bodies lying in the road. As he headed

into the ditch he hit what was left of the cow that had been killed by the hot rod. The little Toyota stopped as if a great hand from heaven had grabbed its rear bumper.

When the fury of the accident had subsided to only the hiss of coolant escaping a punctured radiator, Tony realized his left foot hurt like the dickens and was wedged between the clutch and brake pedals. Without thinking, his eyes noticed all the red lights on the dashboard and he reached up and turned off the key. The little Toyota had driven its last mile. After taking a moment to get his breath, he pushed and wiggled his ankle free and opened his door. He was mildly surprised that the door still opened. As he unbuckled his seatbelt and swung out of the car, it became clear that he would do very little walking on his left foot. It felt as though the ankle was broken. He limped and crow-hopped back to the kids on the road who had been thrown clear of their car. They were very badly hurt and needed immediate medical attention. He applied all the first aid he knew, but his skills fell far short of what was needed.

Tony dragged several parts of the fiberglass body from the hot rod to the crest of the little hill and left them in the middle of the road to serve as a warning to approaching cars. He knew he was working on adrenalin and that shock would set in sooner or later, but he had much to do before he could think too much about himself. He stumbled and fell on his way back to the wrecked Toyota. Gritting his teeth against the pain, he opened the trunk and dug through his suitcase for the little 2M hand-held that he carried for emergencies like this. When he found it he leaned on the car, turned the HT on, and realized he had no idea what frequency to use. He grunted and reached back into the suitcase for his directory of repeaters. When he found it he stood for several seconds trying to remember the name of the last little town he had passed. The closest listed repeater had a PL tone access and Tony's old hand-held didn't have that feature.

He tried to reach the repeater anyway but was rewarded with silence. So much for that. Nothing else was likely to be within range but he systematically tried all the machines listed in the entire state. Nothing. Not even a damn roger beep. (David called them "courtesy tones" but to Tony they were still roger beeps.)

He tossed the radio back into the suitcase, and he took his clothing and the blanket he kept in the car over to the kids. He didn't dare move them but he could try to keep shock from killing them. He muttered to himself, "There's never a cop around when you need one." Darkness was fast approaching and the storm clouds were closing in. From the trunk of his car, he heard voices on his handy-talky. He limped to it as fast as he could just in time to hear someone deliberately and maliciously jamming the repeater frequency and bragging about it on the airwaves. Before Tony could even try to transmit, the repeater owner shut the machine down. This was obviously not a new problem, as the control operator announced that it would be turned off until Monday morning.

For several minutes, Tony tried in vain to reach the control operator. It was no use. Some idiot might have just cost three desperately injured kids their lives. Tony threw the HT back into his suitcase and spun around to see what else he could do for the kids. As he scanned the scene, his eyes brushed across the battery from the hot rod and an idea came to him.

It was a long shot, but he was running out of options. This road didn't get much traffic. If he waited for someone to show up these kids were doomed. He looked to the sky and said aloud, "Rose, if you're listening, I can use all the help I can get." Ever since the death of his wife Tony made it a habit to keep talking to her, especially in troubled times.

Tony pushed away from the car and retrieved the battery and the horn relay from the hot rod. He had originally built his homebrew rig for 30V, but 24 would have to do. Several minutes of digging under the hood of the Toyota supplied the second battery and relay. He started connecting the little rig to its makeshift power supply. After he had that connected, Tony did a few quick mental calculations and started unwinding the coil from the horn relay. He knew his HT antenna was exactly 19 inches long. That gave him a basis for measuring. In a few minutes he had two stretches of wire measured and cut for 20M. He was beginning to feel very tired and weak, and the pain in his ankle was almost unbearable. He didn't enjoy the two short walks from the car to place the antenna wires, but a weak groan from the young girl on the road spurred him into faster action.

When he flipped the power switch the tubes in the rig warmed to an anemic glow. It took him a moment to realize that he heard static crashes from the little speaker but he had forgotten to pack a key. Panic and anger had just begun to take hold of him when he remembered the gift from his son. He took the semi-automatic key from its ribboned box, and with two more small stretches of wire from the horn relay, he connected it to his rig. He took a moment to get used to the action of the key, then he flipped the transmit switch and began sending his plea for help using a skill he had not practiced in 10 years.

To be continued next month in **Worldradio's** *June issue.*

Irish Net

James Monaghan, N7HKO, has started the Irish Net, which meets on Sunday morning 1700Z and usually has about 40 check-ins from different parts of the world. He's had a lot of nice reactions about the net and says there are a lot of check-ins from EI-land.

James was born in Ireland and has been in the US for nearly 40 years. He's licensed both here and in Ireland (call EI4HD). The IRTS in Dublin, with over 800 members, just celebrated 60 years in Amateur Radio during St. Patrick's Day weekend, March 14 through 17.

The Irish Net check-in frequencies are on 10M at 1700Z on 28.730; when 10M goes out, James says, they move to 15M, 21.310 (±); and when 15M goes out they can be found on 20M, 14.240/.270 (±). James, who frequently attends Amateur Radio conventions and seminars, says the net brings Irish hams together from all over the world.

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The majority of voltage variations result in temporary, minor nuisances, such as having to reset a clock or losing some data on your home computer. Occasionally, though, the disturbance can have more serious consequences.

Voltage surges (increases) and sags (decreases) can start almost anywhere. In your home the routine on/off cycling of a major appliance, such as a refrigerator, can create a voltage disturbance.

Between the electric plant and your home, voltage abnormalities can be caused by many things, such as lightning near the power line, emergency maintenance work on the system or a tree branch touching the line. But in most cases these variations are caused by inclement weather and storm conditions.

Most voltage irregularities are too brief to trip a circuit breaker or blow a fuse, but they can be powerful enough to disrupt sensitive equipment.

The electric company's electrical system corrects many of these situations almost before you know they've occurred. These system "operations" correct the overall problem within seconds. But your sensitive electronic equipment may still be affected.

Fortunately, equipment is available that can help minimize inconvenience to you or damage to your equipment. Consider the use of surge protectors for home computers, TVs, stereos, VCRs and other home electronic products. Surge protectors can absorb some voltage increases and may protect your equipment from the effects of short-term over-voltage conditions. They are widely available and many models cost less than $15.

You can reduce the effects of brief voltage drops by purchasing equipment with battery backup systems or electronic characteristics that can withstand short-term power outages.

Personal computer owners may want to consider the purchase of an uninterruptable power supply system. In the event of an electrical disturbance, these devices maintain the computer's power supply long enough to allow for data storage and protection. This equipment is available in many computer supply stores but is still relatively expensive. — *Triple States RAC, Adena, OH* □

Silent Keys

George W. Clark, KH6BF

Retired Navy Capt. George W. Clark, KH6BF, died on January 1, 1992, at the age of 92. Born in Astoria, Oregon, Clark became interested in Amateur Radio at an early age.

He joined the Navy in 1916 and entered radio school at Mare Island, California, graduating as a second class operator in 1917. He served on cruisers in the Pacific and battleships in the Atlantic during WWI. He was only 18 when he was rated as chief radio operator in 1917.

After Clark's discharge in 1920, he joined the Naval Reserve and also became transmitting station engineer for Federal Telegraph Co. in Hillsboro, Oregon. He was later transferred to Portland and promoted to chief operator at the Marine Coastal Station in 1926, and after that, upon the company's purchase by Mackay Radio and Telegraph Co., to chief engineer in Honolulu. He became district manager of the Mackay company in Hawaii after WWII, and retired in 1963.

During his service in the Naval Reserve, Clark had progressed through the ranks of warrant radio electrician, lieutenant and lieutenant commander. He was called to active duty in 1940 and served in Pearl Harbor's electronics office. He was promoted to commander in 1944, then to captain in 1961. He retired from the Navy in 1959.

Clark was active on the radio until a few days before his death, keeping skeds with friends all over. He was known as "W.C.," and his friends on the Press Wireless Net mourn his passing. Clark is survived by a sister, Ruth Whitcomb.—*Information submitted by James Welch, KK6N.* □

Ormond Abbott, NC2F

Amateur Radio has suffered a loss at the passing of Ormond Abbott, NC2F, of the New York City area. His call letters were easily remembered by all, because they literally stood for "No Chance to Forget." Few can forget this kind yet authoritative, inventive man.

He was vice chairman of the Electchester VHF Club and integrally involved with the United Nations Amateur Radio Club for many years. He was also active in ARRL affairs. —*Information submitted by G. Roeburt, KA2UTF.* □

Something for nothing—a scrounger's notebook

(part one of two)

THOMAS E. KING, VK2ATJ

If you enjoy buying your station in nice neat surroundings then don't read this article! If, however, you have the spirit of adventure and are willing to invest a bit of time then you might pick up a few pointers on a new hobby as well as some FM VHF gear, carpet for the shack, bamboo for that quad, parts for a linear and countless other goodies.

Scrounging . . . It even sounds like a word hams invented but it isn't. According to one popular unabridged definition, to "scrounge" is "to gather together by foraging; to seek out; to borrow, especially a small item one is not expected to return or replace." According to the 1984 unabridged King definition, scrounging is "the pleasureful art of collecting useful and often priceless articles of everlasting amateur use by ingenious, yet completely legitimate, means."

Admit you're a pack rat

Before entering the world of "formal scrounging" it's best not to tell anyone, especially your family, of your desires, as they might not be able to withstand the shock. If you are a married scrounger keep the ham shack locked and avoid telling your wife that you're planning to take up a new hobby. Marriage stability is often shaken when an XYL learns the truth about her husband. If you are contemplating marriage, reconsider your intentions.

You will also have to admit to yourself that you really are a pack rat and that you will be of credit to the scrounging profession as well as do justice to all of your finds including attempt at repair, if practical. Only as a last measure are you to box up items and store them in the shack or, worse, the attic or garage with a note attached fully describing the contents so you don't have to later dig through dozens of similar boxes.

The fun begins at home

In over 20 years of dedicated scrounging I have found only one basic requirement other than an inquisitive and persistent nature common to all foragers: A thick notebook and ready pencil carried at all times to note down possible equipment and parts sources or scrounging ideas are the only tools of the trade. In the serious business of scrounging, memory is not enough!

Your main researching will be done in telephone books. Start with the yellow or white classified pages and let your mind roam and your fingers do the walking over the various possible classifications. Good bold face listings to jot down with firms and addresses are: taxi companies; electronic equipment and supplies agencies; radio and television stations; radio communication equipment and systems; authorized repair stations for commercial equipment; surplus stores; pawn shops; automobile service stations; city municipal services such as telephone, gas, power and water companies; radio and television repair shops; and secondhand stores.

After you're done with that you might start checking listings for fire departments; highway maintenance boards; weather bureaus; forestry and conservation services; railroads; electrification commissions; implement companies; closed circuit TV installations (such as factories, etc.); moving van lines; hospitals; lighthouses; delivery services; construction companies; drive-in cinemas; airports; and finally, state and city law enforcement agencies (such as city patrol and county sheriff, etc.).

Noting down so many addresses can be a large task if you happen to live in a metropolitan area with dozens of radio/TV repair shops, a score of electronic suppliers, and a multitude of utility offices. So a priority approach is needed unless you are a truly dedicated scrounger with lots of time and patience.

If you live in a small city then your first telephone list of "scrounge possibilities" will not take long to compile. Additional aids are as close as your public library. Most libraries have other local, regional and some national directories which are invaluable for further research. It's quite easy to spend many pleasant hours just looking through large-city directories and considering the categories mentioned, day-dreaming of the resulting possibilities.

Now that you've got it, go out and get it

Armed with your trusty notebook full of names and addresses, three

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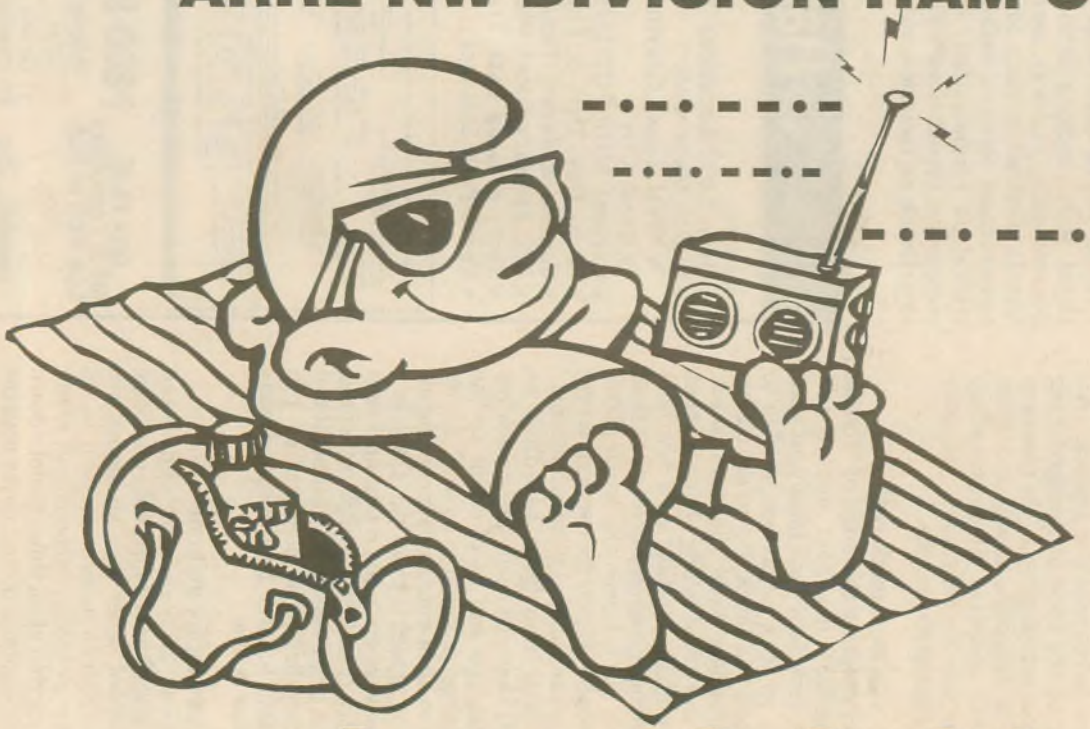
ARRL NW DIVISION HAM CONVENTION



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SUN, JUN 14
9:30am-1:30pm

NAMES (please print)	Calls	NAMES	Calls

Address_____

City_____State_____Zip_____Phone(_____)-_____-_____

paths lay ahead. You can either personally contact everyone on your list, phone them all or dig out the typewriter and write to all of them.

Virtually all firms in small towns and villages can be visited directly, depending only on your available time and transportation. This less formal approach will usually work to your advantage, as business people in small towns will often go out of their way to help, especially if they know you. Even if you're near a town away from home, or on a business trip to a new city, try to squeeze in a stop or two at a service shop or commercial equipment repair station as well as the friendly neighborhood secondhand store. It may be better to contact larger firms by telephone or with a short letter.

Finally, writing a letter will be necessary to contact distant potential sources to which you have no immediate access. Equipment manufacturers, out of town radio and television stations and other city municipal offices can fall into this category. Maybe you might want to contact all airports or authorized commercial equipment service shops within 200 miles.

The scrounge approach

When establishing the initial contact, brevity, courtesy and appreciation should be at the top of your list. Remember that you are asking a favor from a person or company that you have probably just met (or might never meet).

Your introduction whether spoken or written should include the facts: your name and call along with a brief statement that you are an Amateur Radio operator interested in building and experimenting with projects.

After introducing myself, I usually continue, "I am writing to inquire of the possibility of obtaining any old radio or communications equipment and/or parts. As an Amateur Radio operator I am looking for items that might be used for parts or converted for ham use." In a closing sentence I add that I would appreciate any help as well as information of any other outlets for such parts or equipment.

In person, of course, it's possible to be a little less formal and I often use something like the following: "Hello, I'm Tom, VK2ATJ, a ham radio operator from Sydney. I was wondering if you might have any old radio equipment or parts laying around gathering dust that you might be interested in disposing of . . ." As unimaginative as this may sound, it's brief, gets the point across, doesn't leave someone wondering what you want and better yet, it works.

Don't be surprised at anything, and don't get your hopes up too high over a potential scrounge. Also, *never* refuse anything unless it's been under water more than 30 years, and in some instances that still wouldn't matter! I have gotten down to the final moment of making a real find only to get a four valve radio with the line cord cut off and all the valves gone. On the other hand, many unexpected finds have been made when the anticipation level was relatively low and nothing more than a four valve radio was expected to begin with.

What to expect when you least expect it

Many hams think of their neighborhood radio TV repair shop as one of the best possible sources for goodies. Over the years such service shops have provided a gold mine for me in the form of my first FM VHF rig which a shop didn't want, an 80 ft. aluminum tower that a shop was very happy to freely dispose of, several pieces of test equipment, commercial pre-amps and antique radios, to name only a few goodies.

Radio TV service shops can fill up with unclaimed stuff which, after a period of several months to years, is usually thrown out or heaped in the attic, basement or back room. There have been several instances where service shops have either closed or thoroughly cleaned house and, knowing that I wanted anything electronic or related, called me. Repair shops can also tell you whose commercial equipment they have worked on (or who uses commercial equipment), and that can lead to another contact.

Radio and TV stations must keep their transmitters operating at maximum efficiency. This means that final output valves are often thrown away after a set number of hours has been reached. In the Amateur Service these valves would last forever. If you've ever dreamed of the ultimate linear but can't afford the valves . . .

Any mobile service requiring radio communication is also a source for equipment. Often it's easiest to use the "club scrounge approach" when contacting large companies that use mobile radio equipment. This is particularly true of county and state agencies. My first experience with these agencies was through a "permament loan" of many two-piece low-band FM units to a radio club in eastern Kentucky when I was portable 4. This allowed the first activity on 6M in that part of the state. So as a club project you might suggest contacting some of the agencies listed earlier. Don't forget gas, water, power and telephone companies. Actually, anything on wheels is a possible source. Radios get worn out from *all* radio dispatched vehicles eventually. Radio users can come in all shapes and sizes from pizza delivery vans, taxi and cement companies to the sheriff and the local airport. What can you expect when you least expect it? Just relax and accept whatever's offered.

Join us again in next month's **Worldradio** *for more of VK2ATJ's clever bargain tips.* □

He taught

(continued from page 1)

others could depend on these cables so I studied the specifications, followed the instructions and made them right." Single handedly he achieved what a garage full of assembly workers were unable to successfully complete.

When the school needed a new public address system in their auditorium he again served by looking up circuitry in the RCA Tube Manual and homebrewing a unit whose sound came through loud and clear.

"I never missed an opportunity to learn something new," noted the man who taught every subject imaginable in his over 50 years of service to education, including teaching math to radiology students at a local Catholic hospital. He served awhile as school band master, to name one of the many activities.

In 1968 he built the Heathkit HW-16 for us newly licensed hams (I was WN3KFQ then). "You can work the world with this rig," he would tell us, then note that he would sneak into the school late at night to DX. He said about us greenhorns: "Let them turn the knobs and press the buttons and operate. So if they blow a fuse or a resistor, there is no problem—they are learning."

Brother Martin was a resourceful and inventive man; like us urban youngsters, he came from a modest upbringing. In order to run a long cable through conduit, he would have a student bring in a pet mouse, tie a light string on the critter and have it run through the conduit to carry the string to the other end. Once the string was at the other end of the conduit, a heavier rope, followed by the cable itself, would be attached and pulled through by people. The mouse invariably decided to stop halfway through the conduit, and a long wait was in store until the mouse decided to continue the trip.

"Need a part or component? Then scrounge for it," Marty would advise us with his friendly booming voice. Then he would pull out one of his many cardboard boxes full of parts and fish around to find a suitable candidate for a repair or homebrew project.

The late 1960s were a turbulent and confusing time. While there were leaders being assassinated, a war in Southeast Asia, violence in the streets and the emergence of the drug culture, our lives were directed to positive pursuits thanks to a man who brought us high-tech. Some envision the parochial school as a stern and cold environment. Our experience however was that of a special place full of discovery and welcome. The message of service, car-

ing, courage, taking on responsibility and learning are all part of the amateur code and the philosophy of the alma mater.

As a youngster, Brother Martin recalled how his family had a radio receiver in the home. He recalled the A and B batteries and the acid leakage on the floor. "We would attach the headphones to a big bowl from the kitchen so we could all listen at once." Early in his career he found some vacuum tubes and built a radio receiver. He recalled the thrill of hearing the Graf Zeppelin communicating with the tower as it approached Lakehurst, New Jersey, for a landing. Times had changed; when we kids turned on the radio we heard Led Zeppelin.

We learned to open our minds and hearts to a world of people. Brother Martin spoke well of all fellow hams no matter what their religious persuasion or ethnic heritage. The theme was always people helping people.

"Do you want to know the definition of courage?" he once asked us. "A fellow ham I know has lost his vision completely, yet he continues to operate actively. His wife helps tune his rig, and his handicap does not stop him." Never preachy, never dogmatic, his parables of valor and dedication always came through with maximum signal strength.

Marty's interests were indeed big in scope. Flying model planes, leathercraft, model cannons (that actually shot miniature black powder charges), and music occupied his off hours, but always with the intention of sharing it all with the young people. He knew that young minds needed constructive outlets. "I do it all because I love these kids," he admitted.

Today, as always, the elmers of the world are busy in schools, community centers, churches, private homes, teaching, sharing, awakening minds to the skills and values we as amateurs hold with reverence. Elmers, most without notoriety, spawn a new generation of amateur operators and change lives for the best. We know who you are; we thank you. You know who you are—be proud of your special acts.

Brother Martin entered semi-retirement in the 1970s and became a Silent Key April 29, 1985, at age 76. The boys high school building has been closed and sold, and a co-ed West Catholic operates now three blocks away. The radio club and station W3WWS are now a memory.

When demonstrating a circuit or showing us a piece of equipment he built, Brother Martin would say, "I know it'll work, because I have an angel on my shoulder." Thanks to this big man and that angel on his shoulder, we were kept off the streets, and on the road to skills and values. □

Front row: Paul Morley, Steve Dillon, Francis McGee; second row: Bernard Homes, Michael C. Migliaccio, Bill Olszewski, John J. Chambers; last row: Brother Gregory Martin FSC, Ray Foster.

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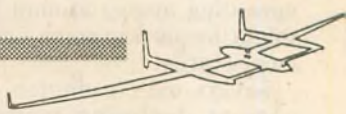

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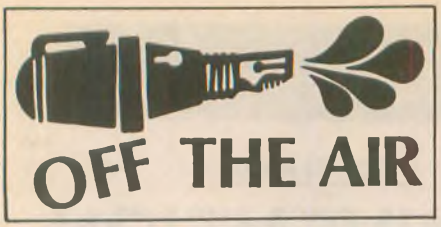

The wolf at the door

The opinions and ideas of David Boyd's, K9MX, article, "Obscenity, the League and the FCC," echo the feelings of a majority of hams in this country who feel that if Newington really has any clout left with the FCC, now is the time to "use it or lose it."

From Newington we keep hearing "Don't complain to the FCC . . . trust us, we'll handle the problem, we'll take care of you!" The question echos back "When?" . . . with no answer. If Newington really wanted to represent the US amateur, then it's time to emulate a few of the organizations who seem to be able to lobby more effectively for their membership. I'm betting that the ARRL does not lobby for its membership like the NRA does, because spreading money around Washington might jeopardize some League tax exempt status!

Stodgy old Newington attempts to combat declining membership by streamlining DXCC, cranking up more weekend QRM generating contests, expanding VE programs, offering trial memberships, creating new awards committees, and generally running in circles. What does it take to drive home the point that these things don't relate to our immediate problem?

Deal with the disasters at hand first! And if there is anyone who doesn't think that a disaster exists, you better wake up! The wolf is at the door, and he's not interested in Field Day.

WALT CROSS, KE6EP
Chico, CA □

Computer reset

My son, who is also a ham, has worked for a number of years for a major GE mobile communications dealer in this area.

They routinely install 90W two-way radios in all kinds of vehicles, including '92 Toyotas. The car computers have a reset on them, and if there is a problem, it merely needs repositioning of wires, antenna and grounding to correct it.

He has never seen a case where the radio gear damaged the vehicle's computer. Once in awhile, the car computer makes noise in the radio, but that is a matter for the car manufacturer.

BOB JACKSON, W2GOW
Mamaroneck, NY □

Check first

In January I purchased a 1992 Pontiac Bonneville. I never questioned putting an HF radio in the car, as I have put HF units in all my vehicles. I traded in a 1989 Olds Supreme SL with a full on-board computer, with which I had no trouble in three years.

Of course a person never gets the owner's manual until after delivery of the vehicle. I was shocked to see in the manual that you could not install anything over 20W. I called my dealer and Pontiac Motors and was told that if I installed an HF radio my warranty would be no good; they don't know what problems I would have—anything from minor problems to blowing out the whole computer.

Now I have a new car in which I am unable to install an HF radio. I would like to warn anyone planning to purchase a new 1992 vehicle (of any kind) to check to see if you are able to install any radio.

H.J. EICHER, N5NYX
Truth Or Consequences, NM □

Accept my compliments

I would like to sincerely thank John Stewart, KF0PQ and Pete Petersen, WY7Z, for their excellent comments on my article, "Are You a Lid on CW?"

I certainly appreciate the clarification that John Stewart gave concerning the ITU alphabet phonetics. I was using what little knowledge I had of military jargon (having not been in the service myself). I remember my code instructor (W9QWM, now a Silent Key) using different phonetics one Field Day when he was helping me operate 75M and he said he learned his particular set of phonetics in the Army during WWII in the Signal Corps. I see now by the chart on page 22 of the January *Worldradio* that his list appears there.

I also looked up the sidebar that John Stewart wrote regarding the ITU phonetics list in the October 1991 issue of *QST*, and all I can say is Amen! My sentiments exactly!

I would like to thank Pete Petersen for pointing out the proper use of the Q-signals as he mentioned in his letter. That was something I had not noticed, and he is correct. The use of "my" and "is" are not really necessary when Q-signals are used properly. Looks like I was a lid who learned from other lids, but by writing the articles recently, I learned a great deal and I hope many others did also.

Pete mentioned the redundant use of "Best of 73s" in his letter. Well, thanks to my good friend Bill Dunbar, AD9E, who is editor of the *Morse Telegraph Club* newspaper, I learned the origin of 73 and 88. (There are other connections that ham radio has to landline, and Bill is working on an article about that.) These terms are part of the "92-code" which Western Union adopted in 1859, and listed "73" as "Accept my compliments" and "88" as "Love and kisses."

Some folks do not like these salutations because they think they stem

from the CBers use of them, but in reality they have been around a lot longer than radio itself. Guglielmo Marconi was not even born until 1874 and his famous radio experiment was not completed until Dec. 12, 1901. The phrase "Best of 73s" is not really proper, I now realize, when you know the real meaning behind the 92-code. I didn't know that before. I had been told that "73" meant "Best Wishes." Scratch that one from my vocabulary ... I have used "Best of 73s" for many years. Since I am the one who is touting proper operating, I will practice what I preach. Thanks again, fellas, for your input! 73 de KA9EPO.

JOHN E. GERCKEN, KA9EPO
Bellflower, IL □

Dangerous imitations

Al Vayinger's, W9ELR, article in the March issue entitled "What do you mean, no antenna wires on top of the building!" is likely to lead to illegal and dangerous imitations.

Although Al might be technically competent in Amateur Radio, and his article has a wishy-washy "safety" warning in the last paragraph, he is apparently blissfully unaware of the National Electrical Code. The NEC has almost universally been adopted by local or state ordinances at every level.

Al's article describes an installation which apparently violates the following NEC provisions:

Article 110-3(b): The instructions that come with the "electrical service box in the condo" will not mention using the box for a coax cable to run through. The instructions will require use of the approved cover in the approved manner and use of approved connectors. It is a code violation to: leave the cover loose to snake the coax out; use an approved connector for an unapproved conductor (coax); or to drill the box to install a different conductor. Al may also have violated the instructions in the box or enclosure at the compressor, but this is not clear.

Article 300-3(a): Although this article permits different conductors to occupy the same enclosure or raceway, the reference is to *approved* conductors. There are no coaxial conductors in the approved lists in Article 310.

Article 810-18(b): For a receiving station, it is a code violation to run the "indoor lead-in" nearer than two inches to conductors of other wiring systems. This violation would apply in the conduit as well as in the "electrical service box in the condo."

Article 810-70: For a transmitting station, it is a code violation to run conductors inside the building less

than four inches from conductors of any lighting or signalling circuit. This violation would apply in Al's "electrical service box in the condo," but is unclear whether it would apply in the conduit.

A "do it yourself" installation which monkeys with the already installed and inspected electrical wiring will certainly violate both the NEC and local ordinances which require electrical permits, inspections, qualified electricians, etc. If you perform such an illegal act, your homeowner's insurance will not cover the results. If anything goes wrong, such as a fire, you could easily find yourself in the legal situation of having to prove in court that your illegal act did not contribute in any way, however remote, to the problem. Good luck!

TOM RUSSEL, NT4H
Portsmouth, VA □

Jury-rigs

Jury-rigs often *do* work (for the past six years in W9ELR's case), but that doesn't mean they are wise, safe, legal, or without risk.

The "fix" suggested by W9ELR should trigger the following thought process:

- *What building codes, design standards, rules, and regulations apply?* Safety? Electrical? Mechanical? (City, state, and/or national)
- *What building permits and inspections are required to legally do the work?* Electrical? Mechanical? Ignorance of the law is no excuse.
- *What impact might the work have upon landlord/tenant fire and liability insurance?* Fire and/or personal injury often result from not-to-code work installations.
- *What physical safety hazards are created by the work?* e.g., roof-to-antenna touch hazard; access to roof is not controlled by W9ELR.

W9ELR doesn't discuss how he routed the antenna coax into and through the air conditioning unit. The hole, grommet, strain relief, and cable routing may violate local mechanical and/or electrical safety rules and regulations. They may also invalidate any warranties on the air conditioner. They may trigger inspections by mechanical as well as electrical building officials.

The purpose of the National Electrical Code (NEC) is the practical safeguarding of persons and property from hazards arising from the use of electricity. It must be noted that the NEC is not intended to be a design specification nor an instruction manual for untrained persons. (The installation of Amateur Radio antennas starts with the provisions of Article 810, but a trained professional will recognize that elements of Articles 640 and 725 must also be considered, as well as specific conditions established in Chapters 1, 2, 3, 4, and 9.) The following items identify areas of probable violations of the NEC for W9ELR's installation:

Conduit fill: The addition of an RG58 coax most likely violates the percent of conduit fill allowed for conductors. (NEC 436-6, 347-11, 348-6, Chapter 9, etc.)

Grouping of conductors: Since the power conductors to the air conditioner are not functionally associated, the RG58 antenna lead-in is not permitted in the same conduit. (NEC 810-2, 640-2(b), 725-15)

Shared enclosures: The RG58 antenna lead-in is not permitted to occupy the same box or enclosure with the power conductors unless they are separated by an effective permanently installed barrier. (This condition probably exists at the air conditioner.) (NEC 810-18 and -70)

Shared enclosures: The enclosure for overcurrent devices shall not be used as junction boxes or raceways for conductors feeding through to other devices. (This condition probably exists at the electrical service box in the condo.) (NEC 373-8)

The above list may not identify all possible violations, nor are the NEC references intended to be complete or all-inclusive. The local *authority having jurisdiction* has the sole responsibility for code interpretations and enforcement.

JOHN BITTINGER, P.E., WA7FBW
Auburn, WA □

Worldradio *has received many letters in response to W9ELR's March issue article. We have forwarded several copies along with a letter retracting support for such an installation.*

We regret that this article was not caught until after the March issue went to press and was distributed. Some of our staff, myself included, were not aware of this conflict with the National Electrical Code. Amateurs are always learning and we strive to create a forum here where amateurs can continually share their knowledge with one another.

We wish to thank all those who wrote and especially the professional electrical engineers who pointed out the details of these violations.

—R. Wortley, KC6RUD □

When you're through changing, you're through. *—Arrowhead RAC, Duluth, MN*

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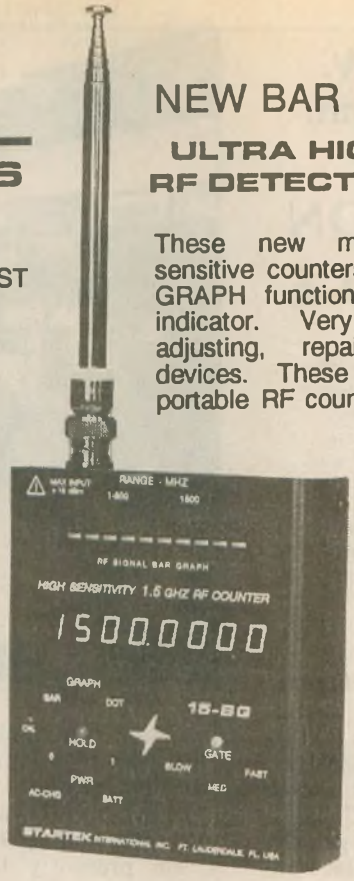

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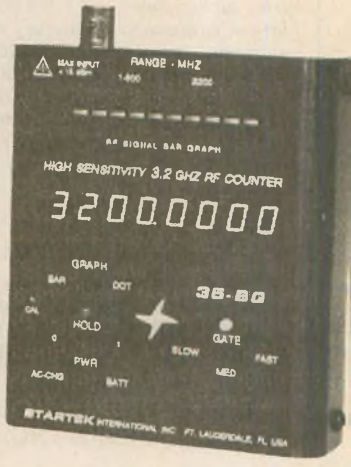

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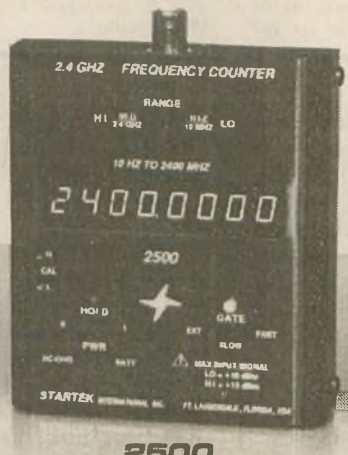

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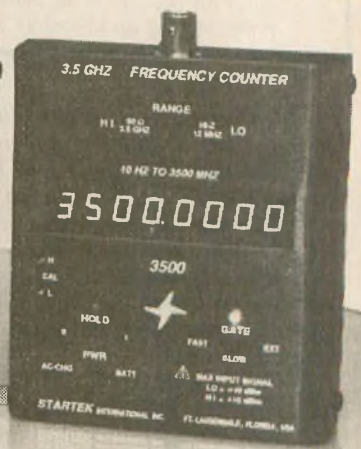

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Bruce W. Eichmann, KE2OP STATION APPEARANCE

Send **Worldradio** *a picture of your shack and the staff will choose a winner to receive a free one-year subscription! Stations will be judged by neatness (wires tucked away, etc.) and accessibility of equipment. Monetary value of equipment is not a consideration.*

Winners will also receive a top quality, Laserjet-printed copy of the DXCC and WAS BeamHeadings list (a $15.95 value) compliments of Jack Hurray, W&JBU.

Bruce Eichmann, KE2OP, displays his station in Medford, NJ.

My station includes an Icom IC 761, IC 701 for HF, two IC 211s (2M), IC 448 (70 cms), Henry 2K4 linear amplifier. Packet includes: IC 228H, Commodore 64 computer with printer, and an AEA PK232 TNC. The computer on the right is a Tandy 1000 TL/2 that I use for my DX logging and word processing.

I have been licensed since 1977 and currently hold an Extra Class license. I am presently the ARRL section manager for the Southern New Jersey Section, and I am active as a volunteer examiner.

My first love is DX, where my goal is to earn DXCC honor roll; I currently need three more confirmations. □

Amateur "Hi"

Ever had a funny or strange experience with Amateur Radio, either on or off the air? If so, type it up (or print neatly) and send it to us for consideration in our monthly AMATEUR "HI" contest. You could win a free year's subscription to **Worldradio***!*

Ann Shaver, AH6KY, relates an Amateur Radio "Who's on first."

My husband, Al, and I had had our licenses for only a few weeks, and it seemed that everything we said, did or thought pertained specifically to our new hobby. One evening Al asked me to phone our friend, Flo, and ask her to do us a certain favor, while he enjoyed some HF magic.

Dutifully I walked off, 2M HT in tow, and made the call. Flo wasn't home, but I had a most enjoyable conversation with her house guest, Annette, whom we knew very well. There was no problem taking care of the favor.

When I returned to the shack, Al asked if I had spoken with Flo.

"No, actually I talked with Annette."

"Oh! That must have been fun. Now, how about calling Flo?"

"No need—I talked to Annette."

"Yes, I understand, but we need Flo's help. You want me to call?"

"No! I told you I talked to Annette."

"Yea, yeah, fine business and all that. But how does talking on a net solve our problem?"

"Well, I have confidence in Annette. Don't you?"

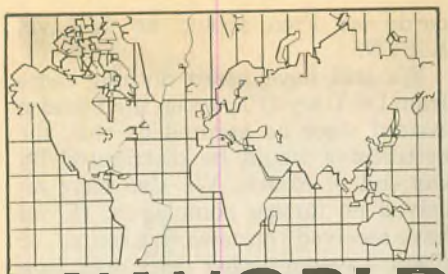
"Nets are nice, but I do need to talk to Flo."

"Annette is Flo's closest friend, and she's staying at Flo's house. I think talking with Annette is the same as talking to Flo. What's your problem?" By this time I was getting pretty hot under the collar!

My husband started laughing, hugged me and said, "I thought you said you talked to 'a net.' "

"I did talk to Annette . . ."

It was a long time before I understood "who's on first"! □



DX WORLD

John F.W. Minke III, N6JM
6230 Rio Bonito Drive Carmichael, CA 95608

Activities Calendar

Apr. 10-12	International DX Convention (Visalia)
Apr. 18-19	Scottish Activity Weekend
May 16-17	Castles on the Air
May 30-31	*CQ* Worldwide WPX Contest (CW)

Refer to your favorite contest section in *QST* or *CQ* for details on the above contest activities.

W100N

The following DXers were awarded ***Worldradio's*** Worked 100 Nations Award during this past period:

422) Joyce A. Birmingham, KA2ANF (all 10M SSB); Feb. 14, 1992.

423) Ronaldo Bastos Reis, PS7AB; Mar. 5, 1992.

Frank Vander Zande, VE7AV

Here is another one of those Canadian DXers from northern British Columbia. Meet Frank Vander Zande, VE7AV, shown here during the Northwest DX Convention in Richmond last July. Frank was busy revealing the secrets of the VE7ZZZ Super Contest Station successes. The station is located in the bush outside of Prince George, which was an old sawmill camp from the late 1950s. Back in the 1960s Frank was further north signing VE8NO at Coral Harbour.

Bahrain (A9)

Don Street, A92BE, still appears to be the major source of contacts from Bahrain for the deserving DXer. On 75M look for Don near 3.799 MHz after 2300 UTC. For the other bands check around 14.200 MHz after 0300 UTC, 28.495 MHz after 1300 UTC, and on 12M near 24.940 MHz at 1330 UTC. We have found Don also reported on 1.842 MHz at 2300 UTC and 7.052 MHz at 2115 UTC; the latter being European reports. *DX News Sheet* states that Don has been unable to obtain permission to operate on 30M.

There have been three other calls reported from Bahrain which include A92DQ near 14.016 MHz at 0300 UTC, A92EV on 24.965 MHz at 1530 UTC, and A92FG on 14.083 MHz at 1745 UTC working the west coast via RTTY.

Morocco (CN)

The following calls were 6M reports for Morocco:

CN2JP	50.105 MHz	1330 UTC
CN8BA	50.107 MHz	1400 UTC
CN8ST	50.110 MHz	1330 UTC

Other bands include reports such as the following:

CN2AQ	21.356 MHz	1430 UTC
CN8CS	14.236 MHz	0145 UTC
CN8NA	21.288 MHz	2015 UTC
CN8NS	14.236 MHz	0215 UTC
CN8ST	14.003 MHz	2300 UTC

Mayotte (FH)

Activity from this one hasn't been much at all. Only two reports during this past period: *Long Skip* reports FH8CB (operator Ilio) on 14.242 MHz around 0400 UTC working into Ontario, and *The DX Bulletin* reports the early February appearance of FH4EH on 28.509 MHz at 1545 UTC with a signal into Maryland.

Clipperton Island (FO0CI)

The Clipperton DX team showed up on schedule and was right in the middle of the ARRL DX Competition to add to the chaos. Our only comment to their operation is, why didn't they stick to CW and RTTY during the contest and work SSB after the contest was over? Listening to their operation, they obviously were not in the competitive mood.

However, we listened to them during the days following the contest, and from the sound of the pileups, Clipperton is still high on the needed list. All QSL requests should go to Charles Spetnagel, N7QQ, 5327 Carol Avenue, Alta Loma, CA 91701. Be sure to include an SASE and a couple extra green stamps to show your appreciation. DXpeditions to remote uninhabited islands such as Clipperton are costly. A couple bucks from each DXer would help pay back the cost paid by the individual operators to go there.

Scotland (GM)

The Scottish Tourist Board (Amateur) Expedition Group has several events planned for Amateur Radio this summer. In April there is the First Annual Scottish Activity Weekend, followed in May with the Second Annual Castles on the Air event. There will be several special event stations participating using the GB prefix.

Several awards are available, such as the Scottish Century Award which requires a mandatory contact with GB2STB plus 100 points. Regional stations are worth eight points, GS stations are worth two points, and GM and 2M stations are worth one point each. To claim this award send log extracts with a fee of $4 to Awards Manager, Robbie, GM4UQG, P.O.

Box 59, Hamilton, Scotland ML3 6QB.

Liechtenstein (HB0)

Ronald Kellerman, DA1RO/KD4DNA, reports that the Wiesbaden Amateur Radio Club will operate as HB0/DA1WA from May 22 through June 14 during another one of the club's annual trips to Liechtenstein. This will be the 17th year of this event.

All bands, 10 through 160M, using both CW and SSB, will be used. Operation will be around the clock. A special QSL card will be printed. For a QSL, US and Canadian DXers should QSL via KN6G, with the rest of the DX community to go via DJ0LC. Of course, as usual, please include an SASE.

Dominican Republic (HI)

Prefix hunters should listen for the DXpedition to National Park Isla Cabritos, located in the middle Lago Enriguilla on Hispaniola. They will be using the call HI6UD from April 16 through 20 on all bands 10 through 80M, SSB and CW. QSL requests may be sent via UDRA-Santiago, P.O. Box 449-3, Santiago, Dominican Republic. Note that this one is neither a separate DXCC country nor IOTA island.

North Korea (P5)

The ARRL reports that the International Amateur Radio Union (IARU) will participate in an international project aimed at establishing Amateur Radio in the Democratic People's Republic of Korea (DPRK). The announcement was made February 27 in Torremolinos, Spain, the site of the 1992 World Administrative Radio Conference (WARC).

The League further states that the project is based on preliminary discussions held in Pyongyang earlier this year, where authorities of the DPRK indicated their positive attitude toward such an initiative. Several Amateur Radio groups and IARU-member societies are offering their cooperation and support. The project group is led by Dr. Seppo Sisatto, OH1VR, and the coordinator for the IARU is the IARU president, Dick Baldwin, W1RU. Detailed discussions are underway and the project is tentatively scheduled for May 1992.

Namibia (V51)

A few have shown from Namibia, formerly Southwest Africa. We understand there are some postal clerks who still think it is Southwest Africa and will not accept mail addressed as Namibia. Anyway, look for the following:

V51BG	28.417 MHz	1930 UTC
V51GB	21.339 MHz	2030 UTC
V51JM	21.327 MHz	2230 UTC
V51KC	28.486 MHz	1345 UTC
V51P	18.126 MHz	0045 UTC

Brunei (V85)

The Colvins—Lloyd, W6KG, and Iris, W6QL—worked from this one in February during their annual YASME tour, signing V85KGP. If you worked them please QSL via YASME, P.O. Box 2025, Castro Valley, CA 94546.

Perhaps the most active station recently from Brunei is V85KX. He has been very regular on 40M between 7.002 and 7.012 MHz from about 1300 UTC. He has also been reported on 3.505 MHz at 1400 UTC, 14.002 MHz at 0830 UTC, and 28.008 MHz at 0300 UTC. All his reports have been on CW. For the WARC bands try 24.900 MHz at 0230 UTC. Other calls from Brunei include the following:

V85AA	3.795 MHz	2245 UTC
V85FC	3.502 MHz	2230 UTC
V85GA	14.180 MHz	1930 UTC
V85/JA9AG	21.024 MHz	2345 UTC

Pitcairn Island (VR6)

The Long Island DX Bulletin reports that Brian Young, VR6BX, has been active in the 40M DX Net (7.179 or 7.184 MHz) every Thursday at 0700 UTC. Brian has been reported elsewhere near 14.205 MHz at 0430 UTC, 24.967 MHz at 2345 UTC and 28.457 MHz at 0045 UTC.

Two other calls were reported on the air from Pitcairn in February, both on 15M CW. Check near 21.035 MHz after 2315 UTC for VR6FM and 21.015 MHz at 0330 UTC for VR6MW. Fred, VR6FM, is one of the newer operators on the island. QSL cards for Fred should be sent via KI6YN.

We still have heard nothing more from Dr. Gary O'Toole on the Pitcairn Award since he assured us that the certificates would be distributed by the end of March. We also have received no further complaints. If you have received your award, a refund, or if you have any other news regarding this, please drop us a line.

Zimbabwe (Z2)

This is another one of those places where the postal clerks will get confused and insist that it be addressed as Rhodesia. Anyway, enough attacks on the post office or we might find our QSLs on hold. Ten meters is a good band to look for a contact with Zimbabwe, as the following calls were reported this last winter:

Z21BA	28.470 MHz	2000 UTC
Z21FO	28.411 MHz	1600 UTC
Z21HQ	28.003 MHz	1715 UTC
Z21HS	28.003 MHz	1330 UTC
Z23JO	28.024 MHz	1815 UTC

WARC band activity produced the following calls from this one:

Z21HJ	24.945 MHz	1345 UTC
Z21HS	10.105 MHz	0515 UTC
Z24JS	24.899 MHz	1445 UTC

RTTY contacts are also available from Zimbabwe. Z21GZ has been reported on 21.082 MHz at 1800 UTC working into Pennsylvania on February 23, with Z21HJ workable on 10M near 28.087 MHz at 1415 UTC.

One of the most active stations from Zimbabwe recently is Z21HS. In addition to the reports for him above he has been reported on 1.832 MHz at 0115 UTC, 7.005 MHz at 0400 UTC, 14.020 MHz at 2230 UTC, and 21.007 MHz at 1630 UTC.

Two other calls were reported during this time period which included Z21CA on 14.036 MHz at 0445 UTC and Z21GC on 21.011 MHz at 1930 UTC.

Franz Josef Land (4K2)

We can remember when Franz Josef Land was a real rare one and activity

from there was just nil. Then it happened back in the spring of 1972—the DXpedition was sponsored by the Estonian Radio Sports Federation and operated by Enn, UR2AR, and Tom, UR2DW. The team in the two-week period operated as UK1ZFI (Zemlya

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Second, they use a directly heated thoriated tungsten filament cathode that prevents the electron emitting layer from instantly stripping off — even if mistuning causes a sudden, severe current overload.

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The heart of the AL-811 power supply is its heavy duty power transformer with a high silicone steel core weighing a hefty 17 pounds.

A full wave bridge using 52.5 ufd of total capacitance (four 210 ufd, 470 volt capacitors) produces 1500 volts under full load and 1700 volts no load. That's excellent high voltage regulation!

Full height computer grade filter capacitors with screw terminals are used — not short stubby, light duty soldered-in "high technology" capacitors that can't dissipate the heat generated by high current.

The rectifier diodes are rated for a massive surge current of 200 amps. They won't blow even if you accidentally short the high voltage supply.

Wire wound, 7 watt, 50 K ohm equalizing resistors safely protect each filter capacitor — not 2 watt, 100 K ohm carbon composition resistors that can open and cause your filter capacitors to explode or fail.

The Ameritron AL-811 power supply is built tough so you get peak performance year after year.

Tuned input provides excellent load for any rig

A Pi-Network tuned input provides a 50 ohm load for your rig. Even fussy solid state rigs can deliver their full drive to AL-811.

Low loss slug tuned coils — tunable from the rear panel — let you optimize performance. High quality low drift silver mica capacitors maintain proper tuning.

Output tank: optimum Q on each band

The low loss pi-network output tank of the AL-811 has been carefully designed for optimum Q on each band and built with quality RF components.

The result is peak performance over each band, wide impedance matching range and exceptionally smooth tuning with efficiencies close to 70%. Even a 3:1 SWR load won't damage the tubes or tank components.

A ball bearing vernier reduction drive makes plate tuning precise and easy.

Quiet pressurized ventilation keeps your tubes safely cooled

A quiet fan pressurizes the cabinet with over 20 cubic feet per minute of cool air.

This large volume of air flow keeps the 811A tube temperature safely below the tube manufacturer's rating — even with a key down carrier at 500 watts output.

Two illuminated meters

Two illuminated meters give you a clear picture of your AL-811 operating conditions so you can tell right away if something is wrong.

The Grid Current meter continuously checks for improper loading. The other meter switches between high voltage and plate current to warn of abnormal conditions.

Ameritron exclusive Adapt-A-Volt™ power transformer

Too high line voltage stresses components and causes them to wear out and fail. Too low line voltage causes a "soft-tube" effect — low output and signal distortion.

Ameritron's exclusive Adapt-A-Volt™ power transformer has a special buck-boost winding that lets you compensate for stressful high line voltage and performance robbing low line voltage.

This makes your components last longer and gives you peak performance — regardless of your line voltage.

Plus more . . .

An Operate/Standby switch lets you run barefoot, but you can instantly switch to full power if you need it.

A transmit LED tells you when your rig is keying your AL-811.

A 12 VDC keying relay makes it compatible with all solid state and tube rigs. A built-in back-pulse cancelling diode protects your rig's keying circuit.

Shielded RF compartment. One year limited warranty. Compact 16" D x 13¾" W X 8" H. 30 pounds. UPS shippable. Shipped with transformer installed and wired for 120 VAC. Draws 8 amps at 120 VAC. Export model Al-811X wired for 240 VAC and includes 10 and 12 meters.

Made in USA

Made in USA. At Ameritron we don't just ship amplifiers we build them to last.

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Get 600 watts of real power and the most for your money. Call your favorite dealer for your best price and order your AL-811 today.

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Franza Iosepha) and managed to collect some 13,000 contacts in 175 countries.

Today, Franz Josef Land is no longer high on the most-needed list. In fact, it probably isn't on it at all. However, there may still be many new DXers looking for this one. Presently, at least three stations have been reported to be very active.

Tuning in on the WARC bands we can find the following activity during February and early March:

4K2MAL	10.106 MHz	1130 UTC
4K2OLQ	10.102 MHz	0400 UTC
4K2CC	18.072 MHz	2230 UTC
4K2MAL	18.077 MHz	1730 UTC
4K2MAL	24.892 MHz	2330 UTC

These last three calls have been active on the other bands also. 4K2MAL has been reported on 40M near 7.002 MHz around 1100 UTC. Most of the activity has been on CW so tune the lower reaches of the bands. There is no set pattern for times.

IOTA

AS-005	Dickson Island	4K4BAQ
	28.009 MHz	0845 UTC
AS-060	Soruk Island	HL4KZW
	21.260 MHz	1330 UTC
AS-063	Laptev Sea Coast group	4K4/UA6WCG
	14.030 MHz	2345 UTC
AS-082	Dunay Island	UA0QFC/A
	14.260 MHz	1830 UTC
EU-034	Hiiuma Island	ES0NW
	10.104 MHz	0715 UTC
EU-035	Novaya Zenlya	4K3BB
	14.012 MHz	0830 UTC
EU-055	Sord Island	LA3IW
	14.260 MHz	1630 UTC
EU-086	Vaygach Island	4K3/UA9XLZ
	14.004 MHz	0630 UTC
EU-124	Holy Island	GW4WJO
	14.255 MHz	0600 UTC
EU-131	Lido Island	IK3PQH
	21.260 MHz	1545 UTC
NA-006	Victoria Island	VG8CB
	14.260 MHz	0700 UTC
NA-009	Cornwallis Island	VE8DR
	21.260 MHz	1930 UTC
NA-029	Prince Edward Island	CZ2OX
	28.460 MHz	1900 UTC
NA-040	St. Lawrence Island	WL7CBM
	28.460 MHz	1730 UTC
NA-041	Baranof Island	NL7BY
	28.520 MHz	2030 UTC
NA-054	Berry Island	C6A/G4AML
	14.236 MHz	0200 UTC
NA-058	Georgia State group	K4JRB
	21.259 MHz	2015 UTC
NA-075	Saltspring Island	VE7TND
	21.287 MHz	1830 UTC
NA-149	Haitian Coast Islands	HH6JH
	14.295 MHz	2030 UTC
OC-144	Banka Island	YC4GDZ
	21.256 MHz	1700 UTC
OC—162	Shortland Island	H44MS
	24.980 MHz	1100 UTC
SA-008	Tierra del Fuego	LU8XPA
	14.243 MHz	0100 UTC

Wasily, RW3DR, was active during the ARRL International DX Contest, operating as VC8DR from Baffin Island (NA-047). He was involved with a ski expedition to the North Pole. He later signed VE8DR from Cornwallis Island (NA-009).

XF0C was very active from Clarion Island (NA-115) and counts separately from the rest of Revilla Gigedo per IOTA credits. However, for DXCC purposes it does not.

If you were one of the fortunate few (only 102 contacts) who worked YV5ENI on June 18, 1990, you have La Orchila Island (SA-054) to your credit.

The Russians have further assigned their offshore islands with special prefixes according to *The DX Bulletin*. Sakhalin Island (AS-018) will soon be 4K7; Kuril Islands (AS-025) to be 4K5, and the northern Kuril Islands to be 4K6.

Russian Robinson Award

The Russian Robinson Award is offered by Valery Sushkov, UA6GPA, of the Russian Robinson Club, for working Russian islands. The award is offered in three classes: 1st class—20 different stations on 10 different islands; 2nd class—16 different stations on eight different islands; and 3rd class—10 different stations on six different islands.

Each contact will "count double for stations or SWL, located on islands." We do not know what they mean here. Is the SWL worth double or are SWL and stations on non-Russian islands who are working on it worth double? There are no band, mode or time restrictions.

The fee for this award is 12 IRCs or $6 US. A list of the Russian islands is two IRCs or $1 US. Send all applications with a certified list of confirmed contacts (do not include the QSL cards) via *registered mail* to Valery Sushkov, P.O. Box 3, Lipetsk 398000, Russia. Of course, do not place any call signs or reference to Amateur Radio on the envelope. In addition to registered mail it might be wise to see if it could be insured too. We wonder if Russia honors international money orders.

Lists (again)

It seems now that we can't get away from the lists. We were listening to the situation on the 14.226 net on March 16 with the YA5MM operation and it was really out of hand. The YL control operator asked for QRP stations. She then asked the guy if he was QRP. His reply was, not then but that he would be when he made the call. This wasn't good enough for her. Her definition of QRP was anything under 20W.

Now we all know to raise your signal 1 S-unit you must quadruple your power. Therefore, going from the genuine QRP maximum power of 5W to 20W is 1 S-unit. And 20W to 100W of us barefoot DXers is 1.5 S-units. But for us barefooters it is a full 2.5 S-units to the kilowatts.

She then got aggravated at the complaints and told one DXer to just QSY and work all the DX he wanted. We have to agree with her there. But most real DXers would rather work YA5MM that way and are just plain frustrated. However, YA5MM decided he wanted to go the list way, so what choice did they have? Yes, the

QRM caused by some is not in the spirit of DXing.

The same thing happened on 40M with the Clipperton DXpedition. Many of us didn't know it was a "controlled" operation. Remember, we operate split on 40M SSB. So after being insulted by the control operators we joined the list. The same old excuse was given by the listmasters—give the little guy with 100W and a dipole a chance. Trying to keep the two frequencies straight and operate split at the same time, many of us wound up unintentionally out of the band on the FO0CI frequency. Why this DXpedition reverted to this type of operation is beyond me. The average DXer on 40M does use a dipole! Chalk up another wonder for the lists.

If the DXpeditions are going to resort to list operations, perhaps they should not be funded by the DX foundations; individual contributions would then be a matter of choice.

I don't believe lists are faster, what with the "Q-S-L the 5-9, you are also 5-9 in Podunk Hollow. My name is Whatever, Q-S-L?" And worse yet is that "When last heard" babble. Then someone has to ask QSL information. Why can't they wait until later? Real DXers settle with a "Roger" or "Thank you." We all get 5-9 anyway, so why repeat it back? Oh yes, the listmaster has to approve the contact before he will allow it.

Antique QSLs

The following QSL card is from J. Paul Caboche, 3B8AD, of Mauritius. However, Paul didn't work this VQ8AS. That was Paul in his younger days back in the 1930s.

Paul operated as VQ8AS from the Salomon Islands in the Chagos Archipelago. Note that this notes H44 in the South Pacific. During the period 1936 to 1937 Paul worked several old-time DXers, including FI8AC, J5CC, FB8AB, and others. Paul is now 74 and has 56 years of DXing behind him.

QSL information

Last month we mentioned the problems with mail to Russia and the other independent states. We are not really sure how to get around this one. However, it might be worth it to try DX QSL Associates, 434 Blair Road NW, Vienna, VA 22180. Brian Treadwell offers mint stamps from many different DX countries, including Russia, for $1 each. Also available are those European QSL-size airmail envelopes for 25¢ each. All orders under $3.75 must include an SASE. Make all checks out to Brian W. Treadwell. Virginia residents be sure to include 4.5 percent sales tax.

If you don't wish to use mint stamps, then go the IRC route. One IRC of the new design should cover a return via Airmail. We think the chances are better with the mint stamps, as often DX stations may have trouble redeeming IRCs and have no other use for them.

QSL help

William Sloan, KK4OZ, is looking for a QSL route for 9K2ZZ. *The W6GO/K6HHD List* gives the route for this one to be W8CNL. Be sure to include an SASE with your request.

In reference to the comment in the March column concerning late QSLs from KC6KW, Dave Gillooly, AA6RE, reports that his arrived around mid-January. The rest of you still looking for a KC6KW QSL card should receive it soon.

Kemper Beasley, K8KZW, is looking for a QSL route for KX6DX (1989). The route had been given to

him incorrectly as WB2XLP, a non-existent call. KX6DX is not in our 1991 *Callbook* and we found one source giving a route as AI6V.

QSL Routes

A22US	—WA8JOC	JW0E	—UC2AHZ
A35DT	—JA3OIN	KH4/N7TNL	—*(see note 2)*
A35MK	—JA3OIN	N6BFM/4U	—W8CNL
A41JR	—YO3DAD	OY2H	—I0WDX
A61AD	—WB2DND	P20A	—P29DX
AA5K/AH0	—JH4WEE		*(see note 3)*
AA7LB/NH0	—JH4WEE	PJ9M	—OH6RM
C56/GM3YOR	—GM3YOR	PJ9Y	—OH6XY
C6AFP	—N4JQQ	R300F	—RA3DKM
CP5/N3JT	—W2GHK	RE92C	—UW4CF
CU1AC	—W2FXA	RH5E/UB5APW	—UW6HS
CY1SF	—VO1SF		*(see note 4)*
D2ACA	—OU3UY	RH6A/UB5APW	—UW6HS
DX2VOA	—W7KNT		*(see note 4)*
EA6ZZ	—WA1ECA	RY0F	—DF8BK
EH8URL	—EA8ZX	ST0YD	—F6AJA
EL0AK/MM	—DL6FU	T26DX	—JG1SHT
EX0FWR	—YU1XA	T32BW	—HA8XX
EZ6L	—UZ6LWZ	T32RE	—HA8XX
FE1OGG	—F6DGT	TI1C	—W3HNK
FO0C1	—N7QQ	TI4SU/7	—SM0RBO
FO0PT	—DJ0FX	TL8IM	—AC3D
FS/JE2HCJ	—JA2JSF	TU4SR	—OH8SR
FY5FJ	—IK2HTW	TZ6NU	—F6FNU
H44MS	—DL2GAC	UF6FAL	—YU1XA
H44OT	—VK3OT	UK3B	—RZ3DZ
HC8A	—WV7Y	UM8QB	—FD1OJO
HF0POL	—SP9DWT	V27T	—YU1RL
HI8A	—JA5DQH	V31DX	—KA6V
HT1T	—SM0KCR	V47UY	—DK7UY
HZ1AB	—K8PYD		*(see note 1)*
I1A	—I1RBJ	V63AX	—W9GW
IA1A	—I1RBJ	V63SA	—WA6BXS
J37M	—W9VW	V63YK	—JA2ECL
J37ZR	—K1RM	V85KGP	—YASME
J77UY	—DK7UY	V85KX	—G3JKX
	(see note 1)	VC8DR	—DL8AAM
J79RM	—N6ZJM	VE7FEI	—KC8PB
J79ZR	—K1RM	VI2RC	—VK2DEJ
JW8THA	—LA5NM	VK9CK	—F6IMS
VK9CL	—F6IMS	ZF2QV	—KT6V
VK9XM	—W5BOS	ZF2RT/ZF8	—WA0PUJ
VK9XN	—W5KNE	ZF2RU/ZF8	—KL7YL
VP2E/DK7UY	—DK7UY	ZF2RW/ZF8	—KC0ZC
	(see note 1)	ZF2RX/ZF8	—WN5YTR
VP2EST	—KT8Y	ZW5B	—PY5EG
VP8CIZ	—LA6ZH	ZZ5A	—PY5CC
VR6FM	—KI6YN	ZZ9A	—PY5CC
WK3D/KH0	—JF2KOZ	1Z9A	—JA8IXM
XE2MOO	—KD5RQ	3D2DD	—W4WET
XE21	—KF7NR	3D2UU	—DF2UU
XF0C	—XE1BEF	4J1700GK	—UG6JJ
	(see note 5)	4K2CC	—UV3CC
XT2BW	—WB2YQH	4N4AA	—YU4SBH
XU0JA	—JA1NUT	4S7CF	—9V1JY
XV4MPT	—JA3UB	4U71TU	—I1RBJ
XV4VT	—JA3UB	5H3RA	—JA3PAU
YA5MM	—LZ1HA	5N8ALE	—DJ2VZ
YB3ASQ	—W7TSQ	5V7JG	—F6AJA
YB3OSE	—W7TSQ	5V7RH	—N3FRT
YC3OSE	—W7TSQ	5W1JU	—JA6ZEF
YI1BGL	—IU2AJ	5X5WR/A	—DJ5RT
	(see note 6)	7P8EG	—K0JZM
YI1RM	—JY5HH	7Q7LA	—G0IAS
YJ8AS	—XE1MD	7Q7TA	—JH1OGC
	(see note 7)	7Q7XX	—JH3RRA
YJ8OT	—VK3OT	8P9EM	—G3VBL
YV5ENI	—I2YAE	8Q7DV	—DJ0EC
YV5/K3UOC	—W1AF	8Q7PV	—DJ0EC
ZA1QJ	—DL1QJ	9K2EE	—W5EE
ZB2JI	—G3VIE	9K2ZZ	—W8CNL
ZD8Z	—W6CF	9M6NA	—JE1JKL
ZF2HM	—K9QVB	9X5NH	—DJ6EA

AH9B/V77 —OKDXA, P.O. Box 88, Weellston, OK 74881

BY4BB —P.O. Box 020-057, Shanghai, PEOPLE'S REPUBLIC OF CHINA

C21BR —Brian Rous, P.O. Box 478, REPUBLIC OF NAURU

CE0YFL —P.O. Box 7, Easter Island, CHILE

FR5ZU/ —Jacques Kiallet, P.O. Box 347, F-97490 St. Cloeilde, Ile de la Reunion, via FRANCE

HH6JH —Fr. John, CP14, Les Cays, Ile a Vache, HAITI

HI8OMA —P.O. Box 3272, Santo Domingo, DOMINICAN REPUBLIC

HK0NAF —P.O. Box 852, San Andres Island, COLOMBIA

HL4KZW —P.O. Box 105, Noktong 548900 SOUTH KOREA

HS1CHB —P.O. Box 1, Bangkok 10900, THAILAND

HX1LVL —P.O. Box 573800, Coise, Savoie, FRANCE

J28GG —P.O. Box 1076, Djibouti, DJ1BOUTI

OD5QX —P.O. Box 597, Tripoli, LEBANON

SU2MT —496 Apt. 144, Ave Al Hourria, Alexandria, EGYPT

T32O —Phil Wider, 48-499 Kam Hy, Kaneohe, HI 96744

V31VOA —P.O. Box 1522, Belize City, BELIZE

V47ITU —Craig Maxey, P.O. Box 608, Basseterre, ST. KITTS

V73CT —OKDXA, P.O. Box 88, Wellston, OK 74881

VP2MEC —Keithly Chambers, P.O. Box 219, Plymouth, MONTSERRAT

VU/HA5BUS —Globex Foundation, P.O. Box 49, Budapest 1311, HUNGARY

WV5S/KC6 —OKDXA, P.O. Box 88, Wellston, OK 74881

QRP with DX Prediction

Hollis Button, WF6U, works QRP with the DX Prediction.

I find this DX Prediction chart, published monthly here in ***Worldradio***, to be very useful. I recently got back on the air, in the fall of 1987, after a lapse of 25 years from Amateur Radio. As an old-timer, I was quickly bitten by the QRP bug and now operate a pair of Acorn 6F4s (class C pushpull finals) with a 6AQ5 four-crystal VXO into a three-element monoband cubical quad up 50 feet and fed with 450 ohm open wire ladder line for a big 3W on 20M. The monthly DX Prediction is cut out and fastened to the front panel of my homebrew transmitter, where it is consulted when I get on the air.

QRP operation demands that a person use all the available data in order to have good QSOs. I find that during the daytime I can put a nice signal into South America, early morning (around 6 a.m. here) is good for Oceana, and evenings bring in Europe nicely when the band is open. I'm getting into the greyline method a little now, but since I do so much homebrewing, the monthly DX Prediction is really appreciated!—*Hollis Button, WF6U, formerly W9PQF in the 30s and 40s, Campbell, CA*

DX Prediction — May 1992

Maximum Useable Frequency from West Coast, Central U.S. and East Coast *(courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22183).*

The numbers listed in each section are the average Maximum Useable Frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Tokyo, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio De Janeiro. Chance of contact as determined by path loss is indicated as bold *MUF for good, plain MUF for fair, and in parentheses for poor. UTC in hours.

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(24)*	20	***24**	19	***20**
10	29	***16**	***22**	*(18)*	***21**
12	36	***21**	***20**	24	27
14	41	25	*(19)*	27	***34**
16	44	24	*(18)*	***29**	***38**
18	***44**	*(20)*	*(18)*	28	***42**
20	***36**	28	35	26	***44**
22	30	31	42	21	***42**
24	26	31	45	19	***35**
2	***23**	29	44	***15**	***29**
4	***24**	27	***42**	***23**	***25**
6	31	25	***36**	***22**	***22**

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(19)*	***26**	***23**	*(16)*	***26**
12	*(25)*	***20**	***21**	22	23
14	*(31)*	***24**	***19**	26	31
16	34	***24**	*(18)*	29	37
18	36	19	*(18)*	28	***41**
20	36	27	35	25	***43**
22	30	***32**	42	20	***41**
24	26	***35**	45	17	***34**
2	23	***37**	45	15	***28**
4	***24**	***37**	43	***22**	***25**
6	30	***34**	***37**	***25**	***22**
8	24	***31**	***25**	20	***20**

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	26	20	***29**	16	***21**
9	27	*(16)*	***23**	21	***24**
11	35	***22**	***21**	***25**	26
13	***40**	25	*(19)*	***28**	***33**
15	***43**	21	*(19)*	***30**	***38**
17	***43**	*(16)*	*(18)*	***29**	***41**
19	***40**	*(20)*	*(26)*	***27**	***44**
21	***33**	25	39	***25**	***42**
23	28	28	43	21	***39**
1	***24**	29	44	***18**	***32**
3	***20**	26	***44**	***21**	***27**
5	28	24	36	***20**	***24**

YB5NC/6	—P.O. Box 206, Rumbai, Pekanbaru 28271, INDONESIA
YI1AZ	—P.O. Box 7376, Baghdad, IRAQ
Z21HS	—P.O. Box 4110, Harare, ZIMBABWE
ZA1HS	—Hiqmet Shypheja, PTT Elbasan, ALBANIA
ZA1TAK	—P.O. Box 66, Tirana, ALBANIA
ZY0P	—Pedro Sirzanink, Rua Padre Roma, 194/704, 88010 Florianopolis, SC, BRAZIL
4K4BAQ	—P.O. Box 5, Dickson Island 66341, RUSSIA
8R1HS	—P.O. Box 10960, Georgetown, GUYANA

Notes:

1. This manager requests cards be sent to him via the bureau.
2. Regardless what information you have heard on this one, the latest address is P.O. Box 1511, Kennebunkport, ME 04046. This is the operator's brother's address. If you previously sent a card here and had it returned, try again.
3. This is the contest call for P29DX, who will handle cards for this call directly at P.O. Box 1783, Port Moresby, Papua New Guinea. Please include with your SASE either one new airmail style SASE IRC or three old style IRCs, US $1, or for US operators a US 29¢ stamp.

Many thanks to the following contributors: DA1RO, GM3MTH, HI3LFE, UA3GPA, V73CT, W3BBL, K4RKI, WA6EYD, KM6QF, K8KZW, AA6RE, W6TUR, KA8RAM, The American Radio Relay League, Salt City DX Association (KB2G), Western New York DX Association (KD2YP), Northern Arizona DX Association (W7YS), Western Washington DX Club (K7WA), *Long Skip* (VE3IPR), *CQ Ham Radio, Amateur Radio Action, The DX Magazine* (VP2ML), *DX News Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *QRZ DX* (W5KNE), *Inside DX* (N2AU), and *The DX Bulletin* (VP2ML).

We receive several DX club newsletters each month. One particular club on the East Coast includes a "needed countries" list of its members. What amazes me is the large number of members who need garden variety DX. There are members who still need such countries as the Ukraine, and UN Headquarters. Several of these fellows hold Extra Class calls. Come on you guys! The Novices and Technicians on 10M do better than that! Very 73 de John N6JM. □

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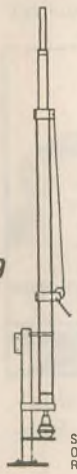

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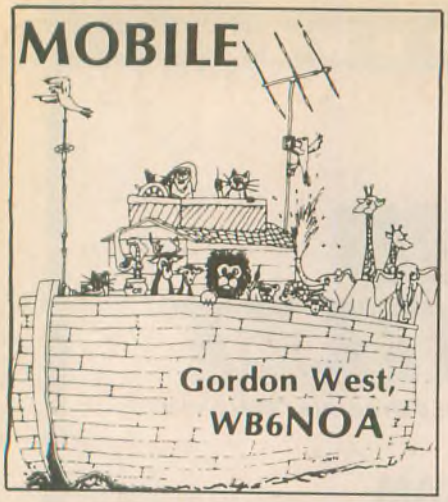

Dualband and triband mobile transceivers offer the following band complements:
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440 MHz and 1270 MHz (Standard Radio)

These are the most common configurations of mobile dualband transceivers for "repeater" range extension. Alinco with their Model #590 was the first company to promote the capabilities of mobile range extension with a dualband mobile transceiver. The plan is relatively straight-forward: Transmit in on one band, and have your signal come out on another band. Conversely, transmission on the other band will cause the signal to come out on the first band.

Let's say you park your mobile vehicle on the roof of the parking structure. You want to stay in touch with your friends, on simplex, 15 miles away. You can't do it with your little hand-held downstairs in your office. But if you have a dualband, crossband "repeater" in your mobile unit, plus a dualband hand-held down below, you may be all set!

You could transmit on 446 MHz simplex, using tone to get into your listening mobile unit on top of the parking structure. It receives your hand-held signal on 446 MHz, and since it has the right tone, trips the COR inside your mobile rig to simultaneously transmit out on 146.520 MHz simplex. Your friends would talk back on 146.520 MHz simplex, using tone to trip your mobile to once again key the COR, and get back to you on 446 MHz. When you both finish communicating, the mobile unit automatically goes back into the receive mode, waiting for a tone-coded signal on either 2M or 70 cm.

An advanced feature might be the capability to remotely control which memory channel you wish to receive on, and which memory channel you may wish to transmit on. That's one of the advanced functions on the Alinco #590, the new Alinco model #599, and the new ICOM 2410. Each of these units would require the optional CTCSS boards, plus the optional DTMF control board circuitry.

This would allow you to actually change the memory channels up on your mobile unit from your little dualband hand-held. You would keystroke in the proper commands to bump your mobile unit up or down on VHF or UHF. I played around with this feature on the two Alinco units, and it works flawlessly as long as you are sure to run your receivers in the full decode mode. On the ICOM 2410, you have the additional benefit of a voice synthesizer

The Alinco 590 and new 599 dualbanders may also be remotely channel-changed.

that tells you what memory channels you are on in case you get lost in the process — great feature!

But there are some precautions when operating your mobile unit as a crossband repeater. First of all, you never want to run it in the crossband repeat mode without your CTCSS decode circuits turned on. This keeps intermod and unwanted signals from accidentally triggering your COR circuitry. This way, you can selectively pass only those signals that have the right CTCSS tone. The early Alinco Model 590 had such a hot receiver, without the decode turned on, it occasionally would lock up due to out-of-band interference. The new Alinco Model 599 now has a terrific tight receiver, and no intermod gets through, but I still

Icom dualbanders *all* may go into crossband repeat.

recommend only running in the crossband repeat mode in the full decode position.

The ICOM 2410 was recently tested, and I found this unit a terrific performer in the crossband mode. They presently have a "limited edition" model, fine for base station use, but a little hard to see in the mobile unit. ICOM is going to a new improved display which will be easier to see in the daylight. But nonetheless, the ICOM 2410 dualband mobile with its crossband repeat and full remote control along with voice synthesizer is a terrific performer.

If you do a lot of camping, it's nice to leave your vehicle at a high location, setting your equipment in the crossband repeat mode. Select frequencies that are simplex and not in use in the local area. Now take your hand-held down to the river or down a lonely trail, and you still have extended range capability as if you were sitting in the cab of your mobile unit. You talk in on one band, and if you have the right tone turned on, your signal comes out on another band. As soon as someone on the other band hears your signal, if they encode the right tone, presto, they come out on your band.

You could get very exotic and work repeaters in this mode, too. But if you aren't careful, you might land on a repeater station that doesn't necessarily require the output to drop to reset. This might lock your unit up for a very long time on transmit, and by the time you get back to your mobile unit, you may have a dead automobile battery! Many repeater operators also request that dualband remotes not work through the repeater system.

You would also want to ensure that you don't accidentally transmit over an ongoing conversation on a channel that you might not hear from your little hand-held down below. About the only way to find out is to ask, "Is the frequency in use—if so, please encode tone 103.5 Hz, and let me know." Sounds ridiculous, but in the full decode mode, that's the only way you can get other stations to be able to

The Yaesu 4700 dualband, crossband repeater, for mobile use.

work through your dualband mobile setup.

In an emergency, the dualband mobile system could serve as a temporary repeater for rescue crews with dualband hand-held transceivers. As long as everyone has the right tone encoded, in order to trip your transceiver that may have separate decode frequencies for each band, you are all set. Again, if you don't run your dualband repeater in the decode CTCSS mode, chances are it's going to lock up, and you won't be able to regain control until the signal on the input disappears!

You could also use your little hand-held as a dualband repeater, but I don't recommend it for a second. Hand-helds don't like long periods of transmission; and if ever someone locked up your hand-held on its input, it would probably fry in about 10 minutes. So, use your hand-held only as the dualband "remote controller" to talk through your mobile unit high up on a hill or atop a parking structure.

I also don't recommend you operate dualband remote control from a fixed location. You will probably incur some questions from the local frequency coordinators for your area. If you do decide to set up a dualband fixed remote control station, check out your system plan ahead of time with both the local VHF frequency coordination group and the local UHF frequency coordination group.

The new breed of dualband transceivers for mobile use have some unique capabilities for dramatically extending the range of your little dualband hand-held. Work with your local radio dealer to explore the many possibilities of a mobile dualband repeater system. □

You know you are really hooked on Amateur Radio when you discover that your "Club Med" vacation stupidly falls on Field Day ... and Field Day finds you on the beach at Bimini, packing a low-band rig and a Honda generator ... surrounded by nice men in white coats helping you into a funny jacket.
— *Western ARC, Cerritos, CA*

My friend Harry

AL MILLER, VE7KC

I was quite looking forward to the time when Harry and I would both retire and we could enjoy our friendship that started so many years ago. That hope was not destined to come true. Harry developed a heart problem in later years and unfortunately became a silent key.

Amateur Radio was a major part of Harry's life history, something I feel I was also a part of in the early years. To get to that beginning we have to go back almost 60 years to when ham radio was called "amateur experimental."

It's hard to remember just how I met Harry but we went to the same grade school and soon found we had a common interest. Radio to us then was crystal sets, hooking up telephones between the house and the wood shed and trying to hear distant stations on the broadcast band.

Suddenly I discovered Amateur Radio, and Harry shared my excitement. We became obsessed with the desire to get involved. Our wires from house to shed became keying lines and the telephones were exchanged for Morse keys and buzzers. We studied like crazy for months—eating, sleeping and dreaming of the day we would take our exam.

That day finally arrived: Saturday morning, 9 a.m., July 29, 1933. The elevator to the 14th floor seemed to take forever. Thank goodness the building only had a 12th and 14th floor, because if we had known the 14th was really the 13th we would have failed for sure.

Walking through the door and being confronted by the all powerful Radio Inspector, the man viewed as being next to the Prime Minister, was awesome and traumatic. After managing the preliminaries indicating that we wanted to take the amateur exam we were ushered in and seated.

I was chosen first to send a little code practice to Harry. After a couple of minutes I was told in a loud voice to stop. It was then Harry's turn to send and then in a couple more minutes there was another loud "stop." Harry and I already had our speed up to about 20 wpm so the Inspector must have been satisfied. Although we didn't realize it at the time, that was our code exam. Next came diagrams and oral questions, and all the time we were feeling failure.

Finally we were asked for 50¢, and 50¢ to us in the Depression was big money. When we asked what that was for the Inspector barked that it was the examination fee—we had passed and did we want it or not. Actually the tough attitude was all a put-on. We found later that he bent over backwards to give the hams a break.

Harry, being a bit younger, continued on with school, I got on the air but Harry didn't have time. I eventually got a job and moved away. Harry finished school and also got a job, then joined the Air Force when Canada entered the war in 1939.

Over the years I saw little of Harry as we were both busy working or studying and raising a family. Little gems of information told me he went to university on his Veterans credits and received a degree *in teaching*. In a few years he went back to university and got his masters and then his PhD. With his qualifications he was appointed to the faculty of the University of British Columbia.

One evening several years ago I thought I would relax and listen to the ham radio. After listening to a few stations I hit one that took my attention. The operator was talking about the University of B.C., his son Wayne and his wife, May. Things started clicking into place—this sounded like Harry. Finally on his signover I got the call letters, VR4CC. I couldn't believe it! It was Harry down in the Solomon Islands. When he cleared with his contact I gave him a call and he came right back with HI AL. Apparently the Canadian government had sent him out on a special educational assignment. Fortunately some departing ham had sold him a FT101 and a G5RV antenna which put him on the air.

When he returned home he brought the rig and antenna with him and stayed active. He applied for a VE7 call and was offered a reissued call with the suffix next to mine. He claimed it was probably the one he would have received if he had taken it when I got mine in 1933.

Later another assignment took him to California where he had further cardiac problems. Unfortunately he was unable to make it to retirement and we were never able to take up our old friendship. Harry always gave great credit for his success to ham radio. He believed it was the Amateur exam that put him in a position to take advantage of all the right circumstances. His ticket put him in the Air Force as a Radar Officer and promotion came fast. So to my old friend Harry it's 73 and SK. □

Didjano?

The first electronic gain controls were rheostats controlling the filament voltage of the tubes.

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Search And Rescue Communications

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Interesting happenings are lined up in Salt Lake City (and perhaps other areas) as the Utah Amateur Radio Club sponsors "Project Nights." They've built VHF power amplifiers, antennas and power supplies, and hold question and answer nets. Who attends? A whole bunch of newly licensed amateurs! The result is on-the-air discussions of antennas, power supplies, computers, feedline characteristics and many other technical topics. There's some excitement on the air. Old-timers (pre-codeless Technicians) are joining in and answering questions and (oh my gosh) learning from the new folks.

Reading the section reports of *QST* I see activity like this is springing up all over. Mention of Amateur Radio involvement in public safety can be found in many reports. And if it's not an actual event, there's training going on.

As Joe Lynch, N6CL (Oklahoma section manager), wrote, "Who does all the work in this section? You do. You, the volunteer who checks in to a net . . . who conducts a class . . . who delivers a message to someone . . . who stops on the air and ragchews, and those of you who promote Amateur Radio in a positive way." Well said, Joe!

In New Mexico 250 of you turned out to support a state ARES meeting. In Virginia Amateur Radio operators are supporting the Red Cross in a big way. Nebraska's Omaha club and the local Civil Air Patrol unit are working together with direction finding, and in Connecticut Amateur Radio strike teams are exploring ways to work with the CAP to set up communications in a disaster situation.

Hey folks, you're making it happen! You're finding out that public service and involvement makes this hobby enjoyable and rewarding. You're on a roll—keep it up.

A bug-free presentation

What happens when you find yourself active in the local group and you're asked to present a training topic or conduct a special meeting? If you're nervous that's a good sign. It's the cocky, know-it-all, can't-teach-me-anything folk who give the poor presentations. Here's some tips for working the bugs out of any presentation:

1. Plan ahead. Outline what you're going to say. Listeners often know when you're "winging it" and come away disappointed. There's nothing wrong with scripting your presentation. Be sure to outline *what* you want to prepare and *how* you're going to present it.

2. Use visual aids. Any presentation is enhanced when you *show* what you're talking about. Again, advance planning and preparation is important. Have your visuals ready to go before you start!

3. Bring handouts, lots of handouts. It's great when participants can take something home. Your handout can reinforce important points and help the learning process. It's better to have too many handouts than have 30 or so people come away with nothing.

4. Be on time! End on time! If you've done your planning, you'll need the time allotted. When your time is up, quit. Usually the folks who run over (and on and on) are poorly prepared and often unimpressive.

5. Plan for questions. Answer as many questions as you can during your scheduled time.

6. Stick around afterward to answer questions and share insights. Your knowledge is valuable and some participants will want to question you in depth.

7. Tell us who you are! During some military-type classes I took the instructors included a "profile" sheet in the handouts. Yes, it was a brag sheet but it helped me understand their qualifications and experience. When you look to the instructor as an expert, you learn more. If you don't include a profile sheet, be sure to tell who you are and a little about yourself.

Finally, don't be afraid to accept presentation opportunities and, if you're the group leader, let others grow by not hogging all the opportunities! You learn by doing and you get better by doing a whole bunch. You can also tape your presentation for later review and critique.

FEMA training

The Federal Emergency Management Agency provides six home study courses, all free of charge. Courses include The Emergency Program Manager, Emergency Management, USA, Radiological Emergency Management, Preparedness Planning for a Nuclear Crisis, Hazardous Materials: A Citizen's Orientation, and the Portable Emergency Data System (PEDS).

The PEDS course is restricted to persons who have radio communications responsibility during emergencies. You'll need an IBM compatible with 640K of memory. The course includes a couple 5¼ in. disks. If you're interested, contact the FEMA at P.O. Box 70274, Washington, DC 20024-0274 or the FEMA's National Emergency Training Center, Emmitsburg, Maryland 21727-8998.

Clean up your act

Each month *Worldradio* shows what someone's shack looks like. I've seen some pretty impressive shacks over the years. How do you look when you're involved where the public views you? How about when the public listens to you on their scanners during an emergency?

It's pretty bad when you have someone from the Red Cross riding along and you have to scoot aside trash that's collected for the past month. If you're net control, it sounds pretty

clumsy to have people waiting while you find pencil and paper, or look for lost forms or alert rosters.

If you're not prepared to respond, *don't*! Responding because you're close isn't too smart if you're not ready. Having a dead battery or no coat or no grab-and-go kit means you're not ready to respond. Someone coming from a 20-minute distance who is prepared is better than someone showing up unprepared.

The weather outside is starting to look good. Now's the time to get the antennas checked, make sure your generators run, measure the battery voltages, tighten and reseal antenna connections and get ready for the summer. In general, do some spring cleaning around the shack!

Self limiting?

We all like armchair signals (you know, the "full quieting" or "40 over S9" reports). How prepared are you when the signals are a little muddy? If you're an FM person, what happens when you need to copy messages off a low band system?

Don't become self limiting as you prepare for emergency responses. There's more to communications than "full quieting" voice modes. Just because you don't have packet or don't have low band capabilities, don't ignore these modes. A lot of your communications will take place and can be handled very well on voice. If your success depends on having an FM linked system in place, think again. It only takes one part of a link to fail. Having packet and HF in your plans (and using these modes) makes good sense.

Along with this comes some HF listening classes. Seriously! It's a skill to copy messages from an S1 signal or through noise crashes. I got started in emergency communications with Southcom and Heathkit HW-18 rigs. I remember keeping an HF rig on all the time with all that "noise" and those static crashes echoing through the room. Yet I could pick out the NCS and handle traffic just fine. It surprised me when other CAP members would come by and "listen" to the net and not hear anything. It's a skill. You learn to listen by doing it—a lot. Don't expect to walk into an emergency center and copy HF traffic without some practice.

Scavenger hunt exercise

Brent Thomas, AC7H, came up with a training idea which I've "enhanced" a bit. I'll call it a scavenger hunt exercise. Here's how it works.

You all show up with your grab-and-go gear. You put your name on a paper and throw it in a bucket. Names are drawn, the first becoming the team leader. The next five are on that person's team.

Each team draws an "assignment" envelope and the exercise is underway. You may have one team set up a field packet station on battery power at any fire or police station. Another team will have to set up an HF station in the park. Still another team will respond to an EOC and function as NCS.

The idea is to challenge the teams to work together and find resources. The teams may have to get on the local repeater and yell for help. Maybe they need someone to help who has a field antenna or a battery big enough to run the HF station.

Maybe no one knows how to set up packet, or they need a portable computer. I'm sure you can come up with some assignments that will be fun but involve some resource seeking. (This is also a great way to get other Amateur Radio operators involved.)

Make it fun. Have one team get a fireman to pass a message to the police station. Have one team set up an emergency repeater. Borrow a practice emergency locator transmitter from the CAP and have one team find it (they'd have to find someone with DF gear). Have a team set up a field command post (for Amateur Radio) and cook something to eat (eating is a critical part of responding).

Let me know if you try this exercise and how it went. I'd like to hear what "assignments" you can conjur up. Thanks for your continued support and the super ideas you keep sharing with me. I appreciate hearing from you. As you, I have a zillion projects in the fire at any given moment so bear with me if I don't get right back to you when you write. I do respond to your letters. Until next month, 73! □

If I were to say there's a competitive side to human nature, I doubt that I'd get an argument from any quarter. But how it shows itself is another matter, sometimes active and aggressive and other times passive and relaxed. Thus, on one hand, we have "head-to-head" contests in Amateur Radio and on the other hand, we have more benign affairs like steadily working toward the DXCC honor roll or a new endorsement for IOTA. But all this is done on the HF bands and propagation plays a role. Indeed, in the course of these active or passive affairs, Amateur Radio operators have been witnesses, albeit unwittingly, to a great amount of radio history.

I've spent a good amount of time and space here talking about disturbances of the bands, such as sudden ionospheric disturbances (SID) from solar x-rays or polar cap absorption (PCA) events from solar protons. Both of these effects are just that, "effects" that disturb our ionosphere. But there are other solar disturbances that don't create any changes in the amount of ionization yet can drive us up the wall. One in particular is solar radio noise outbursts.

Solar radio astronomy got its start back in WWII, an active region on the sun giving rise to a tremendous amount of solar radio noise in the VHF regions. At the time (February and March of '42) the Allies had their hands full and, with the all out air battle over Britain, the British thought the interference was due to a new form of signal jamming by the Germans. Using radar equipment, however, a British scientist, J.S. Hey, showed that the radiation at meter wavelengths came from the direction of the sun.

It should be noted that the Amateur Radio community reported noise outbursts which disrupted communication (and were most likely of solar origin) well before WWII. This has been acknowledged by various sources, including G. Lange-Hesse, of the Max Planck Institute for Ionospheric Physics, in his discussion of the PCA event of February 28, 1942. Those observations were at longer wavelengths like the 10M band, and thus made it impossible to identify the sun as the directional source of the noise.

After WWII, radio scientists took advantage of all the new, secret technology to open up the field of radio astronomy, whether solar or galactic. And all you have to do is read magazines like the *Scientific American* to see how far things have come in the ensuing years. We have fixed our moveable radio telescopes to explore the "radio universe." But in so doing, the push has been to shorter and shorter wavelengths, the aim being greater angular resolution. And the longer wavelengths, typical of solar emissions, have fallen into neglect.

The discovery of solar radio noise was at a frequency in the lower part of the VHF spectrum but, as mentioned, historically such emissions were observed by amateurs in the upper portion of the HF bands. So there was the question of frequencies above and below those two regions.

Needless to say, with the new VHF and UHF technologies from WWII, the spectral distribution of solar radio noise was investigated at once. In fact, it was done not by sweeping a receiver's frequency but by using a number of separate receivers with antennas pointed at the sun. Thus, in the late '40s, solar radio observations were carried out on as many as six to eight frequencies at a time, from 60 MHz to 9000 MHz. Those observations showed that the sporadic outbursts of the sun had something of a dynamic spectrum, the noise bursts on the different frequencies showing up at different times.

Those time differences were measured in minutes and one notable solar outburst in '47 showed that the noise at 60 MHz occurred about six minutes after the event started on 200 MHz. And as you might expect, such separations in time raised the question of differences in location of the noise sources at the different frequencies and the possible outward motion of the source region on the sun. That's another question and we shall defer it until taking care of the dynamic spectrum of solar noise outbursts.

Rather than just give isolated examples to illustrate the matter, let's take advantage of an excellent figure that the Space Environment Services Center publishes regularly in their *Users Guide to the Weekly Report and Forecast of Solar and Geophysical Data.* Figure 1 shows how radio noise varies with frequency and time following a large flare outburst.

In looking at the diagram, the first thing to think about is what you'd observe in the course of time if you only had one receiver. That would be obtained from the diagram by drawing a horizontal line at the frequency in question and seeing what type of noise would be encountered and at what time after the flare started. For our efforts on HF radio, we'd want to draw a line in the upper part of the figure.

The other thing to think about is what you'd observe if you had a number of receivers on different frequencies. For that, you draw a vertical line at the time of interest and you'd see that the noise on the different receivers would depend on the time after the flare outburst. Thus, early in the event the spectrum would be the broadest and the greatest number of receivers would show a response. But well after the flare, the noise would be down in the VHF and HF range, from 1 to 30M.

Having said that radio noise comes from the sun, we have to ask from where on the sun? After all, the sun's more than just a fiery ball in the sky. Indeed, it has various regions that I'm sure you've heard of: the photosphere, where sunspots are located; the chromosphere where all those flame-like prominences erupt from time to time; and the corona, the tenuous region that's the focus of researchers during total solar eclipses.

Solar radio astronomers, turned solar ionospheric physicists, have shown that the noise bursts originate in the corona, from 10,000 km to 1,000,000 km above the photosphere. Indeed, the number density of free electrons in the corona falls off with distance (as one might expect) so the microwave noise bursts can originate and propagate from deep in the corona while the VHF bursts come from about 100,000 km above the photosphere and the HF bursts from 1,000,000 km height. Given those numbers, you can

see how observations of a dynamic spectrum means that some sort of solar disturbance is moving outward through the corona.

To go further in the discussion, we have to take note that there are distinctions according to the type of the noise outbursts. For example, Type II is the term for a "slow drift burst," where the frequency slowly drifts downward by a factor of 10 or so with time and lasts for 20 to 30 minutes.

Next, there is a "fast drift burst," termed Type III, involving a drop in frequency by a factor of 30 or so, which lasts only a minute or so. In contrast to the Type II burst component which involves a narrow range of frequencies at a given time, the steepness of the trace for a Type III burst indicates a broader range of frequencies but only for a brief time.

Beyond those drift bursts, there are the so-called "continuum bursts," Types IV and V, where a broad or continuous band of frequencies show noise at the same time. For our efforts on HF radio, those are the main things we should look to in asking ourselves what we'd hear when a flare occurs. True, we might notice noise from fast and slow drift bursts, but only briefly.

The continuum noise goes on and on and surely would catch our attention if it varied and was of any great intensity. Indeed, that is the "whooshing" sound we often hear on the HF bands and carries a message that something big is going on. Looking at the diagram, you see it comes a bit late, about 30 minutes after the flare begins.

On the other hand, if we're in the

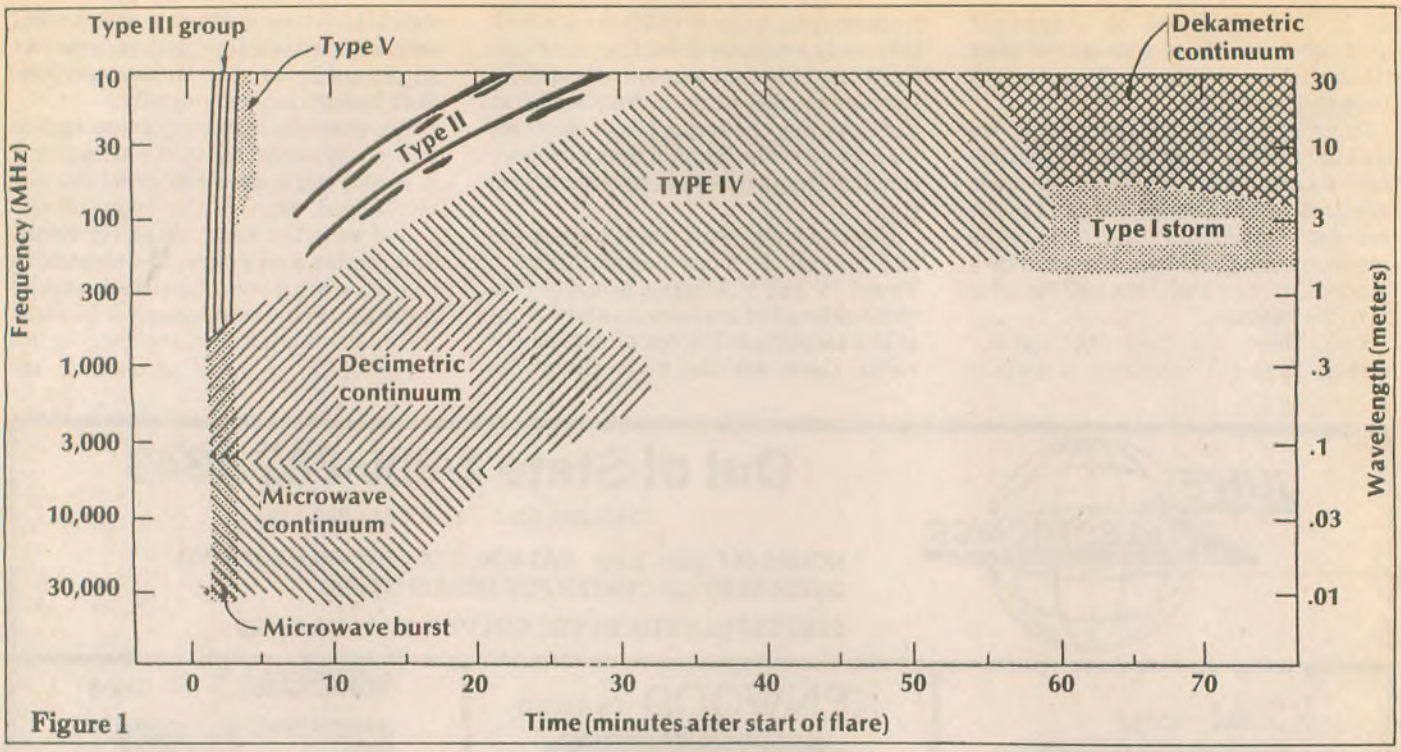

Figure 1

wrong location, such as the part of the earth that is not sunlit, we won't hear the noise burst no matter what frequency we're operating on. So when it comes to these noisy radio photons, to use some physics terminology, they are too low in energy to affect our ionosphere and unless the capture area of your HF antenna is sunlit, we'd never know of their existence or the solar flare that spawned them.

That is true of even the highest frequency shown on the diagram, 30 GHz, where a microwave burst at 10 cm wavelength comes promptly with the onset of a flare. Now 10.7 cm is part of our Amateur Radio vocabulary; that's the wavelength of the sun's steady emission monitored continously to tell us when active regions are going across the solar disk.

For better or worse, the intensity variations of the 10.7 cm component have been correlated statistically with the sunspot number. I say "for better of worse," as the correlation is over long periods of time while we try to use *daily* values of the 10.7 cm flux to infer *daily* sunspot numbers, particularly for our computer programs. Given the statistical fluctuations that go with that game, we are bound to have some surprises and disappointments.

At even higher frequencies than the 10 cm microwave burst at the onset of a flare, there will be an x-ray burst. This is not just harmless, irritating noise; as you well know, it can disrupt HF radio communication. The x-ray burst, affecting the sunlit ionosphere, can disrupt propagation on paths that go beyond into the dark hemisphere. So we don't always have to hear solar noise to know that a flare has taken place.

While I've experienced the adverse effects of solar x-ray bursts, I can't say that I've ever had a QSO overpowered or disrupted by solar noise on the HF bands, but I've certainly been aware of such events from time to time. In the VHF portion of the spectrum, it's a different story. Once, while in Greenland using high-altitude balloon flights to study auroral radiation, a burst of solar noise almost wiped out our telemetry channel. Luckily, the data came through but it was a close call.

By now, in 1992, solar astronomy has pretty well been explored and the sun is monitored only on a routine basis. WWV broadcasts the daily estimates or values of the flux of 10.7 cm solar noise, helping us to follow the progress of active regions across the solar disk. And all the monitoring of solar noise at various VHF frequencies has dwindled down to just a few, NOAA still reporting bursts at 245 MHz and sweep frequency intensity on a scale from 1 to 3 for energetic events, optical and x-ray flares.

Two marvelous books are *Big Ear* and *Our Cosmic Universe,* both by John Kraus, W8JK. Most of you will know the call, W8JK, for the famous HF beam antenna he developed before WWII. Those of you who follow the VHF and UHF activities may know of him for his development of the helical antenna and the corner reflector.

Both books can be obtained from Cygnus—Quasar Books, P.O. Box 85, Powell, OH 43065. I would recommend reading in the order listed above as *Big Ear* follows Kraus' career from his beginnings in Amateur Radio to his teaching and research at the University of Ohio. It just makes great reading and leads right into the next volume on radio astronomy. □

The Youth Forum

Travis A. Wise
KB8FOU

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Greetings!

Welcome to ***Worldradio's*** Youth Forum, a bimonthly column *for* young hams *by* a young ham. I'm Travis Wise, KB8FOU. I'm 16 years old, and I attend Del Mar High School in San Jose, California. I hold a General Class license. I have written previously for ***Worldradio*** and have been very active in encouraging young people to become more involved with Amateur Radio, proving that "young hams do exist." My hope is that this column will broaden this effort as well as encourage prospective hams to get involved with Amateur Radio.

Myths

Maureen Pranghofer commented in the August '89 With the Handi-Hams column that "occasionally one or two teenagers come to the meetings, but never return."

Why don't they return? Some people feel that the difficult theory on the tests may be discouraging young people from pursuing ham radio as a hobby. Many amateurs have expressed that it is ridiculous for us to expect that students who can't do basic math problems in high school could possibly understand the various formulas required for FCC licensing (those for inductive reactance, time constants, bandwidths, etc.). While it is true that the math and theory on the higher class licenses is above the comprehension level of an average high school student, there are hundreds of teenagers who hold General, Advanced and Extra Class licenses, and most understand how to use the formulas.

Public perception

On the telephone line computer BBS that I operate for amateurs, one of the questions asked of every new non-ham user is: "What do you think Amateur Radio is?" I receive many interesting answers ("Yuppie CB radio" is one of my favorite responses). Most of the people who answer the question associate Amateur Radio with technical experimentation, worldwide communication, licensing requirements, or Morse code.

Many of the non-hams who are 18 years old or younger know what Amateur Radio is and are interested in it. Let's face it, it's pretty staggering what hams can do! There is no other hobby or service that will allow you to flip a switch and talk (without any per-usage charge) to someone who is thousands of miles away.

Every amateur knows the thrill of making his first contact. That thrill is re-experienced during many amateur activities, such as participating in Field Day, passing emergency traffic during a disaster, and catching that rare DX station, just to name a few. It's that continual excitement that brings many people into Amateur Radio and keeps them involved. Everyone has much to gain from Amateur Radio, and it can give young people a head start on life in a world of technogadgets and momentous worldwide changes.

When I started in Amateur Radio, many people told me that age doesn't matter. They said that older hams don't look down upon younger hams as being inexperienced and unwelcome, and everyone is treated equally. I couldn't grasp the full meaning of what they meant until I started joining clubs and talking with people on VHF and HF. I suddenly found myself learning social skills which many teens don't learn until after high school.

These skills have helped me in everything that I do, whether it is operating, studying or socializing. After taking on the task of net control for several nets, and helping with communications following the 1989 Loma Preita earthquake, I've learned to communicate more efficiently under pressure. This has helped me when giving reports in my classes, in extracurricular activities, and when talking with my teachers.

One of my first contacts on HF was with a fellow in Sri Lanka. I was in the sixth grade, and I didn't have a very good idea where Sri Lanka was, but I soon found out. After he learned my age, he took 10 minutes out of a very busy contest to tell me about the political situation in Sri Lanka and what life was like there. A few days later, I talked with a fellow in the Cayman Islands who sent not only a QSL card, but a map and brochures describing where he lived. I was able to use that information in a school report.

I can attest that Amateur Radio is a great learning aid for just about every school subject. The most important thing to remember about this is that it's *fun* to learn with Amateur Radio. Perhaps we underestimate those students who "can't do basic math problems in high school." Most likely, they just need to see that those skills are applicable. Once learning becomes useful, it suddenly starts to make sense and even becomes fun. I only wish more schools realized this and incorporated Amateur Radio into their curricula. □

Ethel Smith, K4LMB

QCWA members were delighted to see our 1974 to 1977 president, Frank Gunther, W2ALS, on CNN TV as one of the principal narrators for the program *Empire of the Air.* The program dealt primarily with the three empire builders of the radio industry: Sarnoff, Armstrong and DeForest. It was a two-hour program that left us wanting to see more, and there have been some suggestions that there should be a sequel. There is much left to be told about the studies and experiments conducted in the 1800s by Farady, Loomis, Maxwell, Hertz, Marconi, Tesla and others.

All of the names mentioned above are well known, with the possible exception of Loomis. Somehow his name has been neglected by most historians. Mahlon Loomis was a Washington, DC, dentist who conducted experiments back in 1865 by transmitting signals between two kites flown from two mountains in the Blue Ridge Mountain range near DC. He received patents for his work in 1872 and even described the theory of a "static sea," which bore remarkable resemblance to what was later identified as the Kennelly-Heavyside Layer. Loomis' timing was bad, however. The famous Black Friday crash of the stock market in 1869 made it impossible for him to raise capital to carry on the development. Three decades later, Guglielmo Marconi found financial backing for his work.

QCWA members Ted Heithecker, W5EJ, and Art Kay, W5APX, are now collecting information about Loomis. If you have any details you might be able to provide, please get in touch with them.

QCWA Museum

The QCWA Museum is progressing well but the display site is still under construction and storage space is limited. If you have items which you believe would be appreciated for the museum, write to Leo Meyerson, W0GFQ, and give him a description and possibly photos. DO NOT ship anything until you have received acknowledgement.

Ballots in the mail

Ballots for election of five QCWA directors should be in the mail by now. There are seven candidates running for five positions. Be sure to cast your ballot.

Tapes for the blind

Don't forget that audio cassette tapes are available for any sight impaired person who is interested in hearing highlights of the QCWA Journal. Membership in QCWA is not required and there is no charge. If you know of any prospective member who might benefit from this program, drop a note to: QCWA Tape Program c/o Blanche Randles, W4GXZ, 6002 N. Fremont Avenue, Tampa, FL 33604.

QCWA Scholarships

Applications are now being accepted for nine scholarships which are being offered by QCWA for the coming academic year. Each scholarship pays $800. Applicants must intend to seek at least an Associate degree, and must be recommended by a member of QCWA. There is no restriction on the course of study or the class of license held. Please help us search out deserving candidates. If anyone has difficulty finding a QCWA sponsor, drop a note to Headquarters at 159 East 16th Avenue, Eugene, Oregon 97401-4017. Information and scholarship application forms may be obtained by writing to: FAR Scholarships, 6903 Rhode Island Avenue, College Park, MD 20740. □

Visit Your Local
RADIO CLUB

For information on how to get your club listed in "Visit Your Radio Club," plus receive many other benefits, write to Club Liaison, Worldradio, 2120-28th Street, Sacramento, CA 95818.

ALABAMA

Montgomery Amateur Radio Club (W4AP). P.O. Box 3141, Montgomery, AL 36109. Meets 3rd Mon./monthly, 7 p.m., State Trooper Dist. Office, Coliseum Blvd. & Federal Dr. Nets Sun. 8:30 p.m. 146.84- and Thurs. 8:15 p.m. 147.18+. Info: Fred, K8AJX, (205) 270-0909.

ALASKA

Arctic Amateur Radio Club. Geophysical Institute West Ridge U of A, P.O. Box 81389, College, AK 99708. 1st Fri./monthly, 7:30 p.m.

ARIZONA

Cochise Amateur Radio Assn. (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. WA7KYT/R 146.16/76 rptr.

Scottsdale Amateur Club. Meets 1st Wed. /monthly, 7:30 p.m., Scottsdale Sr. Cntr., 7375 E. 2nd St., Scottsdale, AZ. Net Tues., 7 p.m., 147.18 rptr. Info: Barney Fagan, KB7KOE, (602) 861-2817.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.22/82 (146.88-, 147.08-, 448.550-, & 145.15 Packet).

ARKANSAS

Central Arkansas Radio Emergency Net, (CAREN). Meets 1st Thurs./monthly, 7 p.m., 1111 West Capitol Ave., Little Rock, AR. Thurs. night net, 8 p.m., 146.940, swap net afterward. Severe WX net anytime 146.940. Code 8 theory classes continuously. Info, KB5IDB, Bob Hancock, (501) 771-2617.

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Tues./monthly, 8 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835.

Amateur Radio Club of El Cajon. WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. Rptrs. 147.675(-), 224.080(-). PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info (619) 697-2700.

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Fri./monthly, 7:00 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Conejo Valley Amateur Radio Club (CVARC). P.O. Box 2093, Thousand Oaks, CA 91358-0917. Meets 1st Thur./monthly at King of Glory Lutheran Church, 2500 Borchard Rd. Newbury Park, CA, 7:30 p.m. Info on 147.885/285 and 445.925/0.925 (PL 123) or call N6LQ Ernest (805) 499-5398.

Contra Costa Communications Club, Inc. WD6EZC/Rptr. P.O. Box 20661, El Sobrante, CA 94820-0661. Meets 2nd Sun./monthly at 9 a.m. Hickory Post Restaurant/Lucky Lanes. Nets: 07:10—08:30 M-F; 7:30 Thur. eve. all 145.110. 224.300 & 444.275 w/possible PL 82.5. Info call Ed, KA6OFR, (707) 996-0962.

Corona Norco ARC, (CNARC). Meets 1st Mon./monthly, 7:30 p.m., The Pizza Palace, 1197 Magnolia Ave., Corona, CA 91719. Talk-in 146.535 S.

Downey Amateur Radio Club. Meets 1st Thur./monthly, 7:30 p.m., So. Middle Sch., 12500 S. Birchdale, Downey, CA. Wkly nets—Thur., 7:30 p.m. 146.595 (S). For info: P.O. Box 207, Downey, CA 90241-0207.

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 8 p.m.-10 p.m., Northbrae Community Church, 941 The Alameda, Berkeley, CA. Info: Gordon Firestein, (415) 527-9382.

Escondido Amateur Radio Society (E.A.R.S.). Meets 4th Mon./monthly, 7:30 p.m., North County Blind Activities Center, 157 E. Valley Pkwy., Ste. 1B, Escondido, CA 92025. Info Net Sundays, 8 p.m. 146.88(-) or 743-4212.

Fullerton Radio Club, Inc. W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed./monthly, 7:30 p.m., Sr. Citizens Center, 340 W. Commonwealth, Fullerton. Net ea. Tue., 8 p.m. 147.975 (-600). Info, Bob Hastings, K6PHE (714) 990-9203.

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: First Interstate Bank, 751 First St., Gilroy, CA, 2nd Thur./monthly, 7:30 p.m. Talk-in 145.47/144.87.

Golden Empire Amateur Radio Society (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, Repeater 146.25/85. Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Room 110B, Chico.

Hercules Amateur Radio Club. P.O. Box 5043 Hercules, CA 94547. Meets 3rd Sun./monthly, 6 p.m. at Ohlone Community Center, 190 Turquoise Dr., Hercules, CA. Info: Noel, AB6AC, (510) 799-4458.

Hilltop Amateur Mastertie System (HAMS). Informal mtgs. weekly/Mon. 5 p.m. at Shakey's Pizza, 12924 Washington Blvd., Mar Vista, CA, except 3rd Mon. Call for location. Info, N6FD 213/823-0767.

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly at 4 p.m. (Pot Luck). Veteran's Hall, Lake Isabella WB6ODZ Rptr. 224.50 down 1.6 low-level, 144.50 simplex.

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12+. For info: Rosalie Powers, KC6RKU, c/o LARK, P.O. Box 3190, Livermore, CA 94551-3190. (510) 447-3815.

Marin Amateur Radio Club (MARC) W6SG. Box 151231, San Rafael, CA 94915-1231. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

Monterey Park Amateur Radio Club (MPARC), K6GIP. P.O. Box 403, Monterey Park, CA 91754-0403. Meets 2nd Thurs./monthly, 7:30 p.m., Community Rm.—City Hall, 320 W. Newmark, Monterey Park. Nets: Tues. 7 p.m. 147.48 Simplex — 7:30 p.m. 28.385 MHz. Info: John Duce, N6EDX (818) 280-7052.

Moreno Valley Amateur Radio Assoc. P.O. Box 7642 Moreno Valley, CA 92303. Meets 4th Mon./monthly, 7 p.m., City Council Chambers—City Hall, corner of Cottonwood & Frederick Sts. Net Tues. 8 p.m. 146.655- (PL 1A). Info, Larry Marcum, KA6GND, (714) 656-1643.

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Elks Lodge, on Cypress at Hackberry in Carmichael, CA. (P.L. 162.2) Net K6IS Thurs., 8:00 p.m. 145.190. 220 Net, Tue. 8:00 p.m. 224.40(-).

North Shores ARC. Meets 1st Tues./monthly, 7:30 p.m., So. Clairemont Rec. Cntr., 3605 Clairemont Dr., San Diego, CA. Info: (619) 224-1294.

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at Republic Fed. Savings Bldg.—corner of Seventeenth St. and I-55 Freeway in Tustin. Call in on 146.55 simplex. Contact Ken Koehechy W6HHC at (714) 541-6249.

River City A.R.C.S. Meets: 1st Tue./monthly, 7 p.m. SMUD Bldg., Room B & C, Elkhorn & Don Julio, Sacramento, CA. For info: (916) 483-3293.

Sacramento Amateur Radio Club. Contact: Gary Bryant, KB6KZZ, (916) 646-1171. Meets Sacramento Blood Bank, 32nd St. & Stockton Blvd., Sacramento, CA, 2nd Wednesday/monthly, 7 p.m. Info net every noon on Rptr. W6AK/R 146.910.

Sacramento "Old Timers" Amateur Radio Society and Sacramento Valley Chapter #169 QCWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Lyon's Restaurant, 1000 Howe Ave. For info contact Paul Wolf, W6RLP (916) 331-1830.

San Fernando Valley ARC. Meets 3rd Fri./monthly, 7:30 p.m., Red Cross, 14717 Sherman Wy., Van Nuys, CA. Net every Thur., 8:00 p.m. KB6C/R 147.735(-).

San Gabriel Valley ARC. P.O. Box 88, Monrovia, CA 91017-0033. Meets 1st Tues./monthly, 7:30 p.m. (except Dec.) at Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. W6QFK, Rptr. 147.165/765.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets: 2nd Monday/monthly, 7:30 p.m. at United Way, 1922 The Alameda, San Jose. Net all other Mon., 7:30 p.m. W6UU/R 146.385+/442.425+ PL 107.2

Santa Clara Valley Rptr. Society (SCVRS). P.O. Box 2085, Sunnyvale, CA 94087. (408) 247-2877. 146.76 (–600 kHz), 224.26 (–1.6 MHz), 444.60 (+5 MHz). 2 meter/220 net Mon. 9 p.m. Mtgs.-3rd Fri.

Santa Cruz County Amateur Radio Club, Inc. Meets last Friday/monthly at Dominican Hosp. Ed. Bldg., Soquel Dr., Santa Cruz, 7:30 p.m. Net K6BJ 146.79 Mondays at 7:30 p.m.

Santa Monica—Westside Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Santa Monica Red Cross, 1450 11th St., Santa Monica, CA. Info Net every Tues., 8 p.m., 146.670, -600.

Shasta Cascade Amateur Radio Society (SCARS) P.O. Box 664, Anderson, CA 96007. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm., Grape St., near Parkview Ave., Redding, CA. Net 146.64, Wed., 8 p.m.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150. FM Rpt. Net Thur., 8 p.m., 51.80/51.30 tx. FM Smplx, call freq. 50.300.

Southern Humboldt Amateur Radio Club. P.O. Box 701, Redway, CA 95560-0701. Meets 4th Wed./monthly, 7 p.m., SHARC Clubhouse, Garberville, CA. Rptr. 146.19/79. Info: (707) 923-2373.

Stanislaus Amateur Radio Assoc. (SARA). P.O. Box 4601, Modesto, CA 95352. Stanislaus Co. Administration Bldg., 12th & H Streets, 3rd Tues./monthly, 7:30 p.m. 145.39 MHz WD6EJF, 224.14 MHz.

Tehama County ARC. Meets 1st Fri./monthly, 7 p.m., Sept.-June, CA Div. Forestry Training Rm., Antelope Blvd., Red Bluff, CA. For info: 145.850/145.50 W6SYY/R.

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, at the CD Hall in Weaverville, 7:30 p.m. WA6BXN Rptr. 146.13/73.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., 703 N. College Way, "The Faculty House," (lower level), Claremont, CA.

United Radio Amateur Club K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly except Dec., 7:30 p.m. Monitors 145.52 Simplex 10 a.m.-5 p.m.

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7 p.m., Vaca Fire Dist. Stn. on Vine St. in Vacaville, CA. Repeater: WX6F 147.475 (-1 Meg) PL 127.3. Ph: (707) 447-2680.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92393. *Meets 2nd* Tues./monthly, 7:30 p.m., *Yucca Loma* Elementary School, Yucca Loma Rd., Apple Valley, CA. Talk-in 146-940/340, info net Sun. 7 p.m. 146.940/340.

West Coast Amateur Radio Club. Serving the Greater LA/Org. Co. area and beyond on 145.44-/4zpl. Meets 3rd Thurs./monthly, nets ea. Mon. at 01715 pst/dst & on 144.33S.

West Valley Amateur Radio Assoc. P.O. Box 6544, San Jose, CA 95150-6544. Meets: 3rd Wed./monthly, 7:30 p.m. (except Dec.) W6PIY/R. Net Tue., 8:30 p.m. 147.39+, 223.96-.

COLORADO

Denver Radio Club. Meets 3rd Wed./monthly, 7:30 p.m., Denver Red Cross, 444 Sherman at Speer. Club net: Sundays, 8:30 p.m. 147.33 MHz.

CONNECTICUT

Middlesex Amateur Radio Society, (MARS). 5 North Rd., Cromwell, CT 06416. Meets Tues./weekly 7 p.m., Portland Methodist Church, Main St., Portland, CT. Novice classes, VE sessions *monthly. Contact* Jack, WA1K, (203) 347-8754. Rptr. 147.090+.

Tri-City Amateur Radio Club. P.O. Box 686, Groton, CT 06340. Meets 2nd Tue./monthly, 7:30 p.m. St. Lukes Lutheran Church at Rt. 12. Novice classes. Info, contact Bob, KA1BB, (203) 739-8016.

DELAWARE/PENNSYLVANIA

Penn-Del Amateur Radio Club. P.O. Box 1964, Boothwyn, PA 19061. Sponsor of KA3TWG/Rptr. on 224.220 covering Delaware & Tri-state area. Info/net Thurs/wkly, 20:00 hrs. or call Hal Frantz, (302) 798-7270.

FLORIDA

Gulf Coast ARC, Inc. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., 3852 Prime Place, New Port Richey. WA4GDN Rptr. 146.67/.07.

Indian River ARC, Inc. (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931. Martin Andersen Senior Center, 1025 S. Florida Ave., Rockledge, FL. Meets: 1st Thur./ monthly, 7:30 p.m.

Platinum Coast Amateur Radio Society, PCARS). Meets 2nd Mon./monthly, 7:30 p.m., Red Cross Bldg., 1150 S. Hickory St., Melbourne, FL 32901.

GEORGIA

Dalton Amateur Radio Club, Inc. (DARC). Meets 4th Mon./monthly, 7:30 p.m., Old City Park Sch. Bldg., corner of Waugh St. and Thornton Ave., Dalton, GA. Info, Bill Jourdain, N4XOG, (404) 226-3793.

Metro Atlanta Telephone Pioneer Amateur Radio Club. Meets 1st Tues./monthly alternately between 12 p.m. at 675 W. Peachtree St. and 6:30 p.m. at Morrisons on Jimmy Carter Blvd., Atlanta, GA.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., Helco Auditorium, 1200 Kilauea Ave., Hilo. Talk-in on 146.760(-), 146.880(-) and 147.040(+).

ILLINOIS

Amateur Cross Link Repeater Club. 29.680, 52.825, 147.225, 224.480, 921.225, 1292.10 and ATV on 916.25. Meets 1st Fri./monthly, 7:30 p.m. For info call (312) 594-1628. KD9FA Repeater/Chicago.

Elgin Amateur Radio Society. P.O. Box 1351, Elgin, IL 60120. Meets in EOC Rm. of Elgin Municipal Bldg. 2nd Fri./monthly, 8:00 p.m.

Fox River Radio League. Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. Meets 2nd Tue./monthly, 7:30 p.m. VEC Xams 3rd Tue./monthly, 7:30 p.m.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m. Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S.; Packet Mailbox 145.07. Info: (708) 535-3496.

Schaumburg ARC (SARC). Meets: 3rd Thurs./monthly, 7:30 p.m., Schaumburg Park Dist. Community Rec. Cntr. at Bode & Springinsguth Rds., Schaumburg, IL. Net 145.23, 8 p.m. Thurs. Info (708) 213-0910.

Tri-Town Radio Amateur Club. P.O. Box 302, *Hazel Crest, IL* 60429. Meets 1st & 3rd Fri. (Sept.-June), Hazel Crest Village Hall, 3000 W. 170th Pl. Net Wed. 146.49, 8 p.m. Info: (708) 335-9572.

Wheaton Community Radio Amateurs, (WCRA), P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of *DuPage*, Glen Ellyn, IL. Nets Sun. & Tue. 8:00 p.m., 145.39 MHz.

York Radio Club. Meets: 3rd Fri./monthly, 8 p.m., *Elmhurst* College (Science Bldg.) Elmhurst, IL. Net Mon., 8 p.m. W9PCS/147.42 simplex. Rptr. 442.875

IOWA

Central Iowa Radio Amateur Society *(CIRAS).* Marshalltown, IA. Meets 3rd Sun./monthly, 6:30 p.m., Community College, Rm. 612, (except July & Aug.) Sun. Net 8 p.m. local 146.88. For more info: WBØZKG, (515) 484-4837.

LOUISIANA

Baton Rouge Amateur Radio Club. P.O. Box 4004, Baton Rouge, LA 70821. Meets last Tues./monthly, 7 p.m., Catholic H.S. cafeteria, 855 Hearthstone Dr. Rptr. 146.19/79 & 28/88. Net Sun., 8:30 p.m., 146.19/79.

Southwest LA Amateur Rptr. Club, Inc. (SWLARC). Meets 4th Tues./monthly, 7 p.m. in the Parish EOC Rm. W5BII/R 146.073/146.013. Net MWF, 7:30.

MARYLAND

Peninsula Radio Operators Society, Inc. (P.R.O.S.) Salisbury, MD. Quarterly dinner mtgs. & VE Test sessions. Spring & fall classes. Rptr. K3SVA 146.325/146.925; KC3UV 449.05/444.05. Info: (410) 749-7444.

MASSACHUSETTS

Mohawk Amateur Radio Club. P.O. Box 532, Athol, MA 01331. Meets: 4th Wed./monthly, 7:30 p.m., at the Athol American Legion Hall, Exchange Street, Athol, MA.

MICHIGAN

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 147.51 Simplex Call-In. W8JXU Club Call.

Oak Park Amateur Radio Club. Oak Park Community Center. 14300 Oak Park Blvd. (same as 9½ Mile Rd., west of Coolidge). Oak Park, MI 48237. 2nd Mon./monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

MISSOURI

Gateway To Ham Radio Club, NØDN. Young hams of all ages. Meets 1st & 3rd Sat./monthly, 1-3 p.m., Sacred Heart Sch., 10 Ann Ave., Valley Park, MO 63088 (St. Louis) Net Sun., 8:30 p.m. 146.94 rptr. Beginners classes, VE exams, Club station & mtgs. Info: Rev. Dave Novak—Fax (314) 225-1952.

PHD Amateur Radio Assn. Inc. P.O. Box 11, Liberty, MO 64068. Meets last Tue./monthly, 7 p.m. Gladstone Comm. Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEBRASKA

The Ak-Sar-Ben ARC of Omaha, NE. Meets 2nd Fri., 7:30 p.m. at Omaha Red Cross near 38th and Dewey Streets. Main 2M Net Sunday night 0200Z on 146.94R-.

Pioneer Amateur Radio Club, (PARC). Meets 4th Fri./monthly, 7:30 p.m., Fremont Police Station, Fremont, NE. ARES net 146.67 19:30 CDT/19:00 CST. Info: Dick Klebe, KBØHEC (402) 721-1326.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m. Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy, Las Vegas, NV. Net Mon. 7:30 p.m., 145.39 Rptr. on Black Mountain. Club info, Jim Frye, NW70, 456-5396.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 882-0451. Meets: 2nd Tue./monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.330.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 332-9137/332-7343. Meets 2nd Sun./monthly, 7 p.m., Rochester Court House/City Hall. Talk-in 147.57.

NEW JERSEY

Bayonne Emergency Mgt. ARC (BEMARC). 16th St. & Ave. A Firehouse, Bayonne, NJ 07002. Meets 2nd Tue./monthly, 7:30 p.m. Tri-Band linked repeaters: 145.43/224.28/445.575 MHz.

Bergen Amateur Radio Assoc. (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, VFW Post #6699, E6 Winslow Pl., Paramus, NJ. Nets 28.350 Mon. 9 p.m., 144.400 9 p.m. Wed.

South Jersey Radio Assoc. (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remmington Ave., Pennsauken, NJ 08109. Jan.-Oct. 4th Wed./monthly, 7:30 p.m. Nov.-Dec. 3rd Wed. due to Thanksgiving and Christmas. Talk-in 145.290 rptr. Club call K2AA.

NEW YORK

Genesee Radio Amateurs (GRAM). N.Y.S. Civil Defense Center, State St., Batavia, NY 14020. Meets: 3rd Fri./monthly, 7:30 p.m. 147.285+ W2RCX.

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. For info call Arnie, WB2YXB, (718) 343-0172.

Orleans County Amateur Radio Club (WA2DQL). Meets: Office of Disaster Preparedness (CD), West County House Rd., Albion, NY 14411, 4th Wed./monthly, 7:30 p.m., 145.270– WA2DQL.

PROS, Pioneer Radio Operators Society. Meets: 1st Wed./monthly (except Juiy/Aug.) 7 p.m., Masonic Temple, Rt. 78, Java Village, NY. Other Wed., 8 p.m. 145.170/144.57- Repeater KC2JY.

The Radio Club of J.H.S. 22, N.Y.C., Inc. WB2JKJ, P.O. Box 1052, New York, NY 10002. 24-hr. hotline, (516) 674-4072, FAX, (516) 674-9600. Non-profit org. using Ham Radio to enhance the education of youngsters, nationwide. Join us — "Classroom Net", 7.238 MHz, 7 a.m. E.S.T. PSE QSL!

Suffolk County Radio Club. 3rd Tue./monthly, 7:30 p.m. Bohemia Rec. Ctr., Ruzicka Wy. W2DQ/R 144.610/145.210, 223.080/224.680, 441.625/446.625 rptrs. Info call Jim Heacock (516) 473-7529.

Westchester Amateur Radio Assoc. (WARA). Scarsdale Village Hall, Scarsdale, New York. Meets: 1st Wed./monthly, 8:00 p.m. For info call Dan Grabel, N2FLR, Pres. (914) 723-8625.

Yonkers Amateur Radio Club (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-8995. 146.265/865, 445.150/440.150.

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets: Mondays, 28.350 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240 and Wed. 9 p.m. on 7259. "The Alligators" — all mouth, no ears.

Stanly County Amateur Radio Club. P.O. Box 188, Stanfield, N.C. 28163. Meets 4th Thur./monthly, 7 p.m. at Stanly Community College, Albemarle, N.C.

OHIO

Amateur Radio Fellowship, (ARF). Peggie Hough, Sec., 3888 Stow Rd., Stow, OH 44224. Meets 1st Sat./monthly, 10 a.m., Country Manor Restaurant, 1225 W. Main St., Kent. KA8YKT rptr., 147.075.

Ashtabula County ARC. Ken Stenback, AI8S (964-7316). County Justice Center, Jefferson, OH. 3rd Tue./monthly. 7:30 p.m. County Rptr., 146.715.

Clyde Amateur Radio Society (C.A.R.S.) Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E Rptr. 447.625/442.625. 444.60 (+5 MHz). Net Sun. 9 p.m.

Firelands Area Repeater Assoc. Inc. Meets 3rd Sat./monthly at First Federal Savings of Toledo, Huron, OH. Freq. of Rptr. 146.805/205. Info: Eugene Hutchins, AA8DL, 45 Welton Ave., Norwalk, OH 44857.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., City Hall, Basement Club Rm., Broad & Main. Info Net every Mon., 8 p.m. K8QIK/R 147.63/03 Rptr.

North Coast A.R.C. P.O. Box 30529, Cleveland, OH 44130. Meets 2nd Thurs./monthly, 7:30 p.m. at North Olmsted Middle Sch. cafeteria, 27351 Butternut Ridge Rd., North Olmsted, OH.

Northern Ohio Amateur Radio Society (NOARS). Meets 3rd Mon./monthly, 7:30 p.m., Gargus Hall, Rt. 254, Lorain, OH. Info: Rptr. K8KRG 146.70, DX Alert Rptr. 145.15. "Ohio's Largest General Interest Club"

Silvercreek Amateur Radio Assn. (SARA) Meets 3rd Thur./monthly, 7:30 p.m., Doylestown Village Hall, Doylestown OH. WD8PNF/R 147.99/39 rptr. For info call (216) 745-2573.

Springfield Independent Radio Assoc., (SIRA). Call-in 145.45—224.26. Meets 2nd Tues./monthly, 7:30 p.m., Mercy Hosp. and 4th Tues/monthly, 7:30 p.m., Am. Red Cross. Info: Rodney Myers, KB8WV, (513) 399-1022.

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. W8HHF 147.87/27 Rptr. Rptr. info/swap & shop, Sundays, wkly — 8:30 p.m.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.480 at 8:30 p.m.; 7260 at 9 p.m. Rptrs. 146.31/91 and 146.115/715. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

OREGON

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thur./monthly, 7 p.m., Bend Senior Cntr., 1036 NE 5th, Bend, OR. Net Sun. 7:30 p.m. 147.06+ MHz. Info call: (503) 382-1685.

Keno Amateur Radio Club. P.O. Box 678, Keno, OR 97627. Meets 3rd Thur./monthly, 7 p.m., Keno Fire Station. Rptr. 147.32+ W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736.

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tue./monthly. 7:30 p.m., Boy Scout Cntr., 850 Morton Ave., Butler, PA. Call-in W3UDX 147.96/36. Net 10:10 p.m. nightly.

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly at 7:30 p.m., Shenango Valley Med. Center, Farrell, PA. Net, Thur. 9 p.m. on 147.75/15 W3LIF, Digi. 145.010.

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 672-9985. Meets 1st Thurs./monthly, 7:30 p.m., Neshaminy-Warwick Presbyterian Church, Warminster, PA. Net on 147.690/147.090 Wed. 8:30 p.m. and 28.450 Sun. 9 p.m.

TEXAS

Brazos Valley Amateur Radio Club (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thur./monthly, 7:30 p.m., Sugar Land Community Cntr., 226 Matlage Wy., 3 blks SW of Imperial Sugar Co. at HWY US-90A & Brooks St. (HWY 58) in Sugar Land, TX. Talk-in 145.47, 442.5 rptrs.

Sun City Amateur Radio Club. Meets 1st and 3rd Fri./monthly, 7:30 p.m., 3709 Wickham Ave., El Paso, TX. K5WPH 147.240, 443.4 with remote operation on 6M and 10M.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Rptrs: 146.13/73 & 449.55/(-5) T. VE Exam Info: (804) 898-8031, WARTZ.

Virginia Beach Amateur Radio Club, Inc. (VBARC). Open Door Chapel, 3177 Virginia Beach Blvd., Va. Beach, VA. Meets First Thur./monthly, 7:30 p.m. Info on WA4KXV rptr, 146.97/37.

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m. United Good Neighbors Cntr., 305 S. 43rd, Renton, WA. Talk-in on 146.82 rptr.

North Seattle Amateur Radio Club, (NSARC). Meets 3rd Tues./monthly (except July, Aug., Dec.) at First Interstate Bank, 2825 N.E. 125th St.

WEST VIRGINIA

Jackson County Amateur Radio Club. Clark Stewart, W8TN, Pres., 104 Henrietta St., Ravenswood, WV 26164. Meets 1st Thur./monthly, 7:30 p.m., United National Bank of Ripley. Net Mon. 9 p.m. on 146.67/.07 WD8JNU/R.

Tri-state Amateur Radio Assn. Meets: 3rd Tue./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thur. 9 p.m. on 146.76(–) W8VA/R. Info Bud Cyr, KB8KMH (304) 522-1294.

PUERTO RICO

Puerto Rico Amateur Radio Club. P.O. Box 360693, San Juan, Puerto Rico, 00936.

Paul A. Scipione, AA2AV
MARS call AAA9PR

Part 1: 1925 through World War II

Although most of you know that MARS stands for the Military Affiliate Radio System, how many of you know when and how it got started? I didn't know much about MARS history until I started to do the research for my new book, *MARS: Calling Back To The World From Vietnam* (The History of the Military Affiliate Radio Systems during the Vietnam War), that the three MARS systems will publish later in 1992. Part one will describe the earliest years of MARS. Part two (July issue) will take you through World War II. Part three (September issue) will cover WWII through Vietnam. All three articles include excerpts from my book.

The birth of MARS as the AARS

You cannot talk about the birth of MARS without considering the historical era and technical environment into which it was born. World War I was the father of MARS and the American Radio Relay League (ARRL) was its mother. The US and our Allies won WWI decisively, yet there was much concern about post-war economic and political turbulence in Europe. WWI had also seen the development of many new technologies—flying and aircraft, automatic weapons, submarine warfare, and perhaps most significantly, wireless communication. Following the war, commercial radio grew quickly (KDKA, Pittsburgh, gets credit as the first station, circa 1921); soon everyone either had or wanted a crystal set. Army leaders recognized that if and when another world war occurred, skilled radio operators and technicians would be the key to victory. But in 1925 there were fewer than 25 officers and 400 enlisted men in the entire US Army Signal Corps. Where could the Army find the communicators it needed? The answer was obvious: amateur "ham" operators.

In 1925, the ARRL was only 14 years old, *QST* had been published for 13 years, and there were fewer than 5,000 licensed amateurs in the US. As early as 1921, Signal Corps officers approached the legendary W1AW, Hiram Percy Maxim, about forming a voluntary radio amateur reserve, but the new Army Amateur Radio Service (AARS), the forerunner of MARS, wasn't launched until August 7, 1925. A headline in *QST* touted, "The Army Links Up With The Amateur" and there was a letter from Major General C. McK. Saltzman, the Army's Chief Signal Officer, and an editorial written by W1AW himself urging all hams to join the new AARS.

The birthplace of MARS: Fort Monmouth, NJ

I have been unable to find out just how many hams joined AARS during its formative years, but there is lots of information about the various activities that those who did faced. In addition to participating in hometown training sessions and operating and passing traffic in various nets just above and below the ham bands (where MARS still operates!), all AARS volunteers were required to sign up for a one-week "summer camp" at Fort Monmouth. While there is no evidence of what the AARS operators liked best about camp, there certainly is evidence of what they liked the least: the "Lunk" (not Link!) Trainer. This was a half-buried bunker in which three or four AARS operators at a time were locked in and subjected to "simulated but realistic combat communications situations." Unlit and unventilated, the civilian ham trainees tried to perform their communications duties with high-power fans directing wind, sand and water into their faces and smoke pots providing the smell of burnt gunpowder. The whole bunker also shook with simulated artillery fire. But the exercise went too far when Signal Corps officers dragged over a horse cadaver in an advanced state of decomposition in order to "approximate the odor of decaying human flesh." This latter feature of the Lunk Trainer was later removed upon the advice of Fort Monmouth medical authorities! One shudders to think how few MARS volunteers we would get now with such a summer camp.

The first net control station for the AARS (MARS) system worldwide was established at station 2XBB at Fort Monmouth, although it was commonly referred to as 2CXL. An article in the May 1926 issue of *QST* highlighted this station, including a photo of its commanding officer, Captain Tom C. Rives, who two decades later was a general and Chief Signal Corps officer of the Army. There were two transmitters, one for 40M and the other for 80, both running a maximum output power of 250W. A vertical cage antenna was used for the 40M station, consisting of four wire cages suspended vertically from a top cross-arm swung between 47 ft. telephone poles. The 80M antenna, also wire, was suspended from a rope strung from the tops of two 100 ft. telephone poles. The 220VAC power for the stations came from the fort's main power station, only 150 yards from 2CXL. The *QST* article boasts that during 1927 the station was actively used for DX, with contacts coming from stations as distant as Panama, the Philippines and Hawaii.

One back scratched for the other

So the AARS was off and running, thanks to hundreds of volunteer hams around the country. The Army needed hams and the hams could certainly benefit from the mutual association. Keep in mind that in the mid 1920s a majority of American homes did not have a telephone and that most farm families and others in rural areas did not yet have electricity. There were no landline communications between military posts, nor were there televisions, FAX or computer modems. And it was clearly not cost-effective to run telegraph lines to every home and military unit in the United States. So radio amateurs, who were the in-

(please turn to page 59)

Traffic forecast

Amateur Radio is a natural to link with education. All of its activities and applications could be used to support instruction at all grade levels. Motivation for learning (whether science, math, music, geography, etc.), is built into being able to see, touch, and use a radio. While our past rationale for why amateurs need frequencies (to be prepared and available to aid in emergencies utilizing Amateur Radio) is still valid, it becomes less necessary as technology strides into the future. What future endeavor could carry the same assurance? Education! It is given lip service by all as being of the highest priority.

A school traffic experiment

About a year ago, I mentioned in this column an innovative idea to support a sports meet between two schools in different geographical locations. It should happen this spring. Schools throughout the US have been utilizing a track and field booklet written by the National Association for Sports and Physical Education. It includes sprints, relays, hurdles, jumps, and throws. The idea is to have a sixth grade class in Orlando, Florida, run a track and field meet with a sixth grade in Manassas Park, Virginia. A competitive meet would help motivate the children to engage in sports activities as well as build awareness of cultures, geography, and science through Amateur Radio.

The implementation: Two HF base stations will set up a link. They will establish the mode, frequency and format for passing the traffic. This traffic may consist of tactical communications as well as formal written traffic. The base stations will each have a mobile VHF team at their school. This link will utilize a local repeater (or go direct) to relay the data (start of each event, times) and announce the winners, in real time. Each event should take place simultaneously. Before the meet, the mobile amateur team should make a visit to the class to explain Amateur Radio and give a brief demonstration, perhaps sending traffic from one class to the other. At this point, the base stations would not have to be linked. Someone could just copy the traffic to enter into the NTS at the next net.

The first two schools which have been paired are Parkside School in Orlando, Florida, and Discovery Middle School in Manassas Park, Virginia. WA4QXT, 4RN manager, will coordinate from the Orlando end. N4GHI, STM, Virginia, will coordinate from northern Virginia. Other school districts which wish to participate are Knoxville, Tennessee; Jacksonville, Florida; and El Paso, Texas. This year we hope to have eight sixth grade classes in four paired meets.

If you have some traffic operators in your area who would like to have your school district take part in this traffic activity next year, write and let me know. I can ask the school district coordinator to try and recruit them.

Numbered messages

K6UYK had a great idea to help frequent traffic senders from organizations such as QCWA, OOTC, SOWP, SSA, etc. Why not add a new message number? Number 70 could read, "Welcome to the _____. We are glad to have you with us and hope you will enjoy the fun and fellowship of the organization." Ted says this will shorten many of the greeting messages sent forth and it may provide a stimulus to others to create traffic to members of their organizations, ham and otherwise. It also provides a great opportunity to expose ham radio public service to a new audience. Let Ted, K6UYK, in Hollywood, California, know what you think.

The game

The game should be played well to be enjoyable. To play the game perfectly, you only need to make the person on the other end of your radio produce an exact copy of the information you wish to send. The person on the other end is expected to know what the model of a message looks like (what information is needed and where it goes). The model includes a preamble, address, text, and signature. As the information is sent in the correct order, it is unnecessary to add words such as, "The check is." The only part of the model which is generally transmitted is the word number (as in, "Please copy number"). This is done so the receive station knows you are starting.

On CW a set of signals have been incorporated to enable the receive station to place the incoming information in the correct position. How does one know that the preamble is finished and it's time to move to the address section? It's always after the date. No signal is needed. How does one know when the name line is over and the street address line will begin? The transmit station sends AA to indicate a new line. How does one know when to adjust the pen or word processor to the correct position to begin the text? A break is sent. How does one know when the text is finished? Another break is sent. After the signature and any OP notes, AR announces the end of the message.

As you copy a message, underline any parts where you will need a fill. As you ask the transmit station for fills, you can start from the top and work to the bottom. This sets a helpful pattern. Nothing more is needed than WA, WB and BN for fills. Sending "tel" to announce the telephone line takes six characters, while AA only takes four. And, since you are waiting for AA

rather than more letters, you probably haven't moved your pen (mill) to the correct position. The winning strategy on CW is to use as few characters as needed. For this reason a question mark is not needed (as in CFM N4GHI?) and repeats are not necessary.

Traffic ideas for clubs

The new president of the Shenandoah Valley ARC here in Virginia came up with a list of ideas which could increase traffic activity.

1. Ask everyone to write a message for the monthly club meeting. To do this, you will need some advance preparation. You will need a liaison to take the traffic to your local or section level net or with the ability to put it on packet. Some club membrs may need instruction on traffic formatting.

2. Publicize your club and this activity to local organizations; establish a liaison to share information with them on what the club is doing, send them a club newsletter, and exchange agendas of future meetings.

3. Establish a message center oganization which includes a number of collection and distribution points that could be used as needed in emergency situations for health and welfare traffic. While many city officials may hesitate to turn over tactical communications to Amateur Radio operators, they would probably welcome help on handling health and welfare traffic.

4. Get youngsters involved in ham radio. Organize a junior electronics/radio club for after-school activities oriented toward their interests, radio-electronics tutorials and code practice. A prize, such as a club T-shirt, could be awarded to those who regularly attend meetings. From these kids will come our future traffic handlers.

5. Have club traffic handlers work at the ARRL table at local hamfests. Hand out fliers giving a short description of club and traffic activities.

6. If you have a club station, get it on the air. Join local or section level traffic nets. This gives members a known time to be on the radio. Others may wish to drop by to learn more about the station and traffic handling.

Charlotte Hamfest

Rave reports were heard about W4IWW's traffic presentation at the Charlotte Hamfest in March. It seems he simulated a traffic net using overheads and a lot of humor. He gives this presentation to his local club each year. Wouldn't it be great to have a video of this to show and give us ideas for a traffic program at our own clubs? Let's contact Mike Riley, our traffic leader at ARRL HQ, and request him to make such a video as a traffic aid! □

MARS

(continued from page 57)

novators as well as the users of many of those new technologies, truly represented a national treasure for the entire country as well as the Army. Many of those early hams were engineers and scientists by training and employment, so their ham shacks were often a mini R&D laboratory. And *QST* was more an academic and engineering journal than a hobby magazine. It was a perfect match—the hams and the Army.

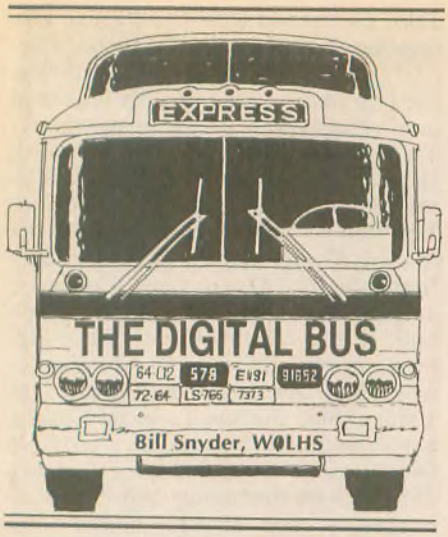
Follow up to the November 91 MARS column

Many thanks to Capt. John H. Ryan, WA2UNO, who wrote me after reading my Nov. 91 MARS column in *Worldradio* about the *USS Repose* and *Sanctuary* hospital ships. John is now retired and living in Hudson, Florida. John mentioned that the *Repose* was completed on August 8 and the *Sanctuary* on August 12 of 1944, and that the two ships were officially launched in May and June of 1945 respectively. They were built as Type CA ships with an aft engine room—the so called Victory ships had their engines amidship. The *Repose* was originally called the *Marine Beaver* and the *Sanctuary* was first called the *Marine Carp*. They were among more than 500 similar ships built during World War II. After laying in mothballs for years, the *Repose* was recommissioned on October 16, 1965, as was the *Sanctuary* on November 15, 1966. They were converted from freighters to hospital ships with crews of 54 officers (including 29 doctors), 29 nurses, a crew of 543, and a total capacity of 760 patients each. The famous *SS Hope* was another of the C4 ships that was re-commissioned as a hospital ship. □

New QRP Society

The North Eastern Illinois QRP Society (NEIQS) has been formed to further QRP operation and promote a forum for exchange of information relating to QRP functions and activities. The group meets monthly, in a social atmosphere, and any amateurs interested in QRP activities are invited to participate.

For further information please contact Donald L. Kozlovsky, KE9GG, 28W256 Purnell Rd., West Chicago, IL 60185; 708/231-3824. □



Followers of my packet friendship with Marty Mullican, GØNJN, the displaced Nebraska Cornhusker in England, will be interested to know that the record travel time for a packet message from the US to Marty is now under six hours. The message that Brian Boccardi, N2MPM, started on February 12 at 1717 UTC arrived at Marty's shack at 2312 the same day. As Marty puts it, "WOW!" The return trip to Brian was not that bad either —just a bit over one day. I've seen some that took weeks.

Other hams report good service on the overseas traffic to Marty. Ed Crosby, WBØVUQ, tells us this: Marty received his packetgram in only one day. Cliff Conklin, WA2LMC, says he got his feet wet with a message exchange with Marty. "No problem," was Ed's comment.

At KA2TIH, Joe Astacio's reply from Marty arrived in the US after making very good time. Along the way, however, it suffered a common fault in the BBS system: It "lost" three hours because a SYSOP did not check his computer clock often enough.

One of the side perks of owning the AMSAT *Instant Track* program for tracking satellites is the clock setting program built into the *IT* software. Menu choice number eight will dial the phone modem to the National Bureau of Standards Office in Colorado, set your computer clock to within a few milliseconds of exact time, and then tell you how far off your clock was when you called. The whole process takes less than a minute and it costs about 12¢ per call. It works great. If you're interested, contact the AMSAT office and buy a copy of *Instant Track*. Not only will you get a great program, you'll help AMSAT financially, as the program was donated to the satellite group by the author. The graphics in *IT* require a VGA monitor, and just running *IT* might get you interested in going on the AMSAT birds.

Multi-media explored

I finally have my 386 clone dolled up with multimedia hardware and software. I'm not very experienced at using it, so I shouldn't be writing about it, but I have some early thoughts I would like to share.

I've been using a CD-ROM for over two years. I bought my first one at the Dayton Hamvention from Buckmaster. They were running a price special featuring a Sony drive and the *HamCall* CD-ROM. So, on an impulse I bought the package. I hooked it to my 286 computer and it worked out very well.

Because I do a lot of writing, I next ordered the *Microsoft Bookshelf* CD-ROM (which contains a dictionary and some other writer's reference works). *Bookshelf* runs in the background of my word processor (PC-type) as a TSR program. It is quickly available by hitting two keys and jiggling the mouse. It works great. I don't think I've ever looked up so many words in a dictionary as I have since I installed that program.

Bookshelf V.1 also contains a Thesaurus, Bartlett's Quotations (all 22,500 of them), the World Almanac, a Zip Code finder, and some other handy data. I don't think I would want to sit down and write without *Bookshelf*. It's ready-to-go in a flash.

So along comes multimedia with a blizzard of hype provided by the manufacturers to the computer magazines. The word "multimedia" got to me; after all, I was an industrial and educational motion picture film maker during my working years. The more I read, the more I wanted to try it out. I was bitten by the bug; badly bitten would be a better description.

About that time Microsoft sent me an upgrade notice for *Bookshelf*. I had my choice of two versions: DOS or Windows. The flyer offered only one upgrade to a registered customer, so I agonized over which one it would be. The *Bookshelf* for Windows flyer (the multimedia version) was done in vivid full color, while the DOS version pages were in dull two-tone printing, as if to say the DOS CD-ROM was old-fashioned backwoods stuff.

Meanwhile, I started to go multimedia. The first thing I did was to add sound. I plugged a *Sound Blaster Pro* card into my computer and discovered, among many things, that I could play CD music in the earphones while I was typing away on the computer. But that wiped out the *Bookshelf* program, so the music CDs went back to the living room.

I had a hard time finding out where to get some of the things asked for by the Microsoft flyer. I had to upgrade my CD-ROM software to version 2.2 (I owned 2.1). Also, I had to put multimedia extensions on the Windows program. Nobody seemed to know where to get those items as this multimedia "craze" was just starting.

I spent time trying to figure out what multimedia software I should have to aid me in this writing "business." I always wanted a current CD-ROM encyclopedia to add to my reference collection. I started to look at multimedia CD-ROM advertising in catalogs. It seemed every manufacturer of CD-ROM gear was packaging a pile of software with a machine. So I blew my yearly ham radio budget on a new CD-ROM player and software package. It had six disks, one of which was another version of *Bookshelf* (with some multimedia effects). The encyclopedia included with the package has a few multimedia bits on the disk, enough to impress beginners, but I gather not the full pile that you would get if you bought the "non-included" version.

When I hooked in the new player and got it running I tried out the new *Bookshelf* version (1991) included with the package. I installed it so I could either run it as a TSR program with PC-type and DOS or through the Windows program. It worked fine. But I discovered it was slower than Version

1. I use PC-type because I can save it in ASCII and then import it into *Ventura Publisher* when I do the formatting for printing. If I want to rework a story, I can go back to PC-type and have no problems changing the ASCII file.

When I tried the 1991 *Bookshelf* in the package, I ordered the upgrade Windows multimedia version from Microsoft. Another fifty bucks into my hobby "work." It arrived and I hurriedly installed it into the 386 computer. After exploring it for a day or so, which I enjoyed, I demonstrated some of the multimedia movies to friends. One favorite demo is "How a CD player works." The pictures are not real movies; they "movie" for a beat, then stop for a beat, and "movie" again. In other words, the picture sort of jumps along rather than being smooth action. The narration and sound are fine and the VGA color is excellent. But it is s-l-o-w.

When you use the dictionary there is a little "button" which looks like a loudspeaker on the screen. If you tap that button a voice pronounces the word through the stereo speakers (Koss Hard Drivers computer amplified speaker system which is plugged into the output of the *Sound Blaster Pro* card).

I've only had a few days with the new Windows multimedia *Bookshelf*, so I'm just feeling my way around in it but, as I write this, I'm looking up words in good old *Bookshelf V.1*, the speed demon.

Eavesdroppings

"MAY THE BELLIE OF BUDDA FOREVER REST OVER YOUR BEER GLASS AND BRING YOU GOOD LUCK ... THE WEATHER HERE IS NICE TODAY IF YOU LIKE FOG ... THIS YEAR I'M GOING TO VOTE FOR RINGLING BROTHERS FOR PRESIDENT, THEY HAVE THE BEST CIRCUS ... MY WIFE BOUGHT ONE OF THOSE CONTRAPTIONS YOU CAN JOG ON WHILE WATCHING TELEVISION ... I'M BREWING COFFEE, WISH IT WERE BEER... I DON'T KNOW WHERE EASTER ISLAND IS BUT I'M PRETTY SURE IT'S NEAR AFRICA ... THANKS FOR THE DICE REPORT FROM LAS VEGAS ... I THINK I MIGHT HAVE WORKED SOUTH AMERICA WITH THE BEAM DISCONNECTED ... NICE TO TALK TO A REAL SLAVE, I'M CALLED A SLAVE DRIVER ... DON'T WORRY ABOUT YOUR SPELLING JUST KEEP AT IT AND YOUR COMPUTER WILL LEARN HOW ... I HOPE MY TAN IS NOT CAUSED BY BEING UNDER THE HOLE IN THE OZONE LAYER... I HAVEN'T HAD A QSO WITH ANYONE WHO WANTS TO RAG-CHEW WITH A MACHINE ... WEATHER HERE HAS BEEN CLEAR WITH LIGHT RAIN ... RIG HERE IS A REN REC RRANCEIVER ... THE COMPUTER REPAIR GUY CHARGES LIKE A HEART TRANSPLANT DOCTOR ... IT'S MIDNIGHT HERE AND I HAD BETTER NOD OFF TO THE LAND OF NOD BEFORE I NOD OFF HERE ON THE KEYS... I HAVEN'T HEARD YOUR FRIEND'S SIGNAL YET BUT I'LL GIVE HIM A FIVE BY FIVE... MURPHY MUST HAVE A NEW LAW, BECAUSE MY STATION UTC CLOCK JUMPED AHEAD ONE FULL HOUR DURING THE RTTY ROUNDUP ... WHY DO PEOPLE "PASS ALONG 73S" INSTEAD OF SAYING THEM.

Thanks to W0HAH, WA6YOO, NQ7Q, W4MTE, W4LNT, WA6PGA, KC9XN, AF4I, N7PGN, W0EBL, WA6VJY, and W7VFR for their help.
73 de Bill Snyder, 1514 South 12th St., Fargo, ND 58103. Packet: W0LHS @ W0LHS.#FARGO.ND.USA. NOAM. DIT DIT. □

Product Review

The W9INN Broad-Bander

TOM TORGERSON, N0MOP

This is another in a series of reviews of "physically short or unique" HF antennas.

A three-band ground or tower-fed *sloper wire* antenna, the W9INN Broad Bander, is a very broad-banded antenna on 160, 80 and 40M. You specify upon ordering for what frequency in each band you would like it cut.

Sloper antennas differ from half-wave dipoles in the following ways: 1) the main element is half the total length of a dipole; 2) it usually slopes from its feedpoint, many times resembling half of an inverted V; and 3) the sloper is "worked" against an earth ground or radials to make up its missing quarter wavelength, otherwise it wouldn't radiate.

There needs to be two quarter wavelength sections for a rudimentary antenna to work. If coax is used, for instance, one quarterwave of wire goes to braid and the inner conductor goes to the opposite side. A sloper can also be worked against a tower instead of earth ground/radials to make up the missing quarterwave. Due to its inherent differences from a dipole, it is often used as a DX antenna for its ability to somewhat "direct" where you want maximum radiating power to go.

Fourteen gauge solid insulated wire for the main sections of the antenna is used. It is annealed to provide easier unwinding and electrical safety. There are two sets of antenna wire, one for 40M and one for 160/80M. The only place they are together is at the common feedpoint. Otherwise, they are separated about a foot apart from each other. The 160/80M section contains what the company calls the "Resonactor," which is not a trap, but a type of lightweight isolation/loading device with less than .1 ohm DC resistance. Depending on frequencies ordered, the overall length is about 105 feet, and the 40M section is 37 feet.

Believe it or not, you actually get more in the package than is required. You get an extra wire section if splicing is needed, a roll of tough Dacron line for installing, and an "end stub" used for pruning for SWR.

The only assembly to be done is inserting the three spacers to keep the 40M element separated from the 160/80M element. Figure 1 shows a typical installation and the shape I used.

About 75 feet of horizontal space is needed to install the antenna if a height of about 35 feet is used as the apex. For test purposes I fed mine about three feet off the ground in the front yard, went up to a chimney mast for the apex, and down the other side to the backyard, tying it off at about five feet off the ground. For safety and efficiency in a permanent installation, the feed and end points should be much higher. The radial system used ranged from no radials (just the ground pipe) to three radials of 30 ft., 30 ft., and 60 ft. length. SWR was less than 3:1 on 1.900 to 1.700 MHz; 3.850 to 4.000 MHz; and on all of 40M.

I first did tests without radials using only the ground from the installation pipe. On 75M phone both day and night I got Q5+ reports but was down about 1 to 2 S-units from my usual antenna. The same results occurred on 40M tests. On 160M I made a contact about 150 miles away but wasn't strong enough to carry on with it.

Things changed dramatically when I added the three radials. A station in

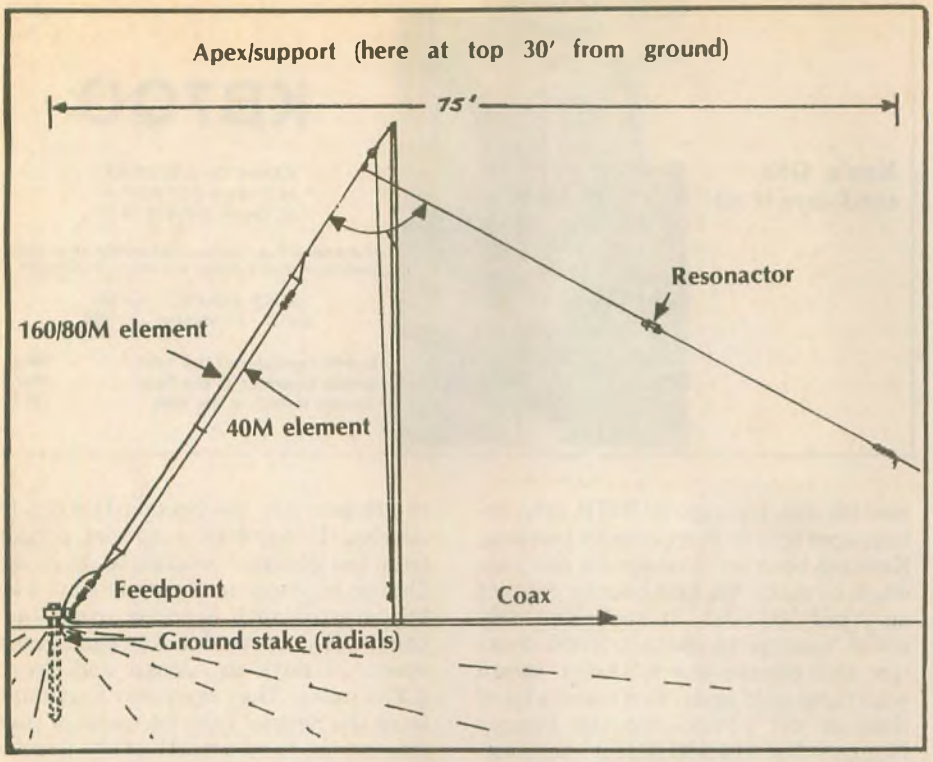


Figure 1. The 40M element is slung under the 160/80M element.

Maryland using 1500W and a loop up 100 feet came back to me! Quite a change from not being able to hold a local contact before. The changes on 75 and 40M were not quite that drastic. I gained about 1½ S-units on the average. I again could easily get to the East and West Coasts on 75M, though.

The instructions suggest trying all the other bands for a workable SWR. I found 15 and 10M to be flat. On 15M I worked Europe and other DX on first calls. Ten meters was fine and I usually gave back what I received in S-meter reports. Using the Ten-Tec 238 matcher I easily loaded up and heard well on all other bands.

I was really pleased to see the low SWR on some of the other bands and how effective the antenna was. It can be installed in many configurations to fit most city dwellers' smaller lots. Extra material is included in the package, and lots of information about slopers, from tower fed to ground fed, is there for you to read and study at your leisure.

An advertised three-band antenna, it delivers even more; with and without a tuner, it covers many more bands effectively. The price, lightweight resonactor, DX plus short haul abilities, and length make it very attractive. The only weak link in the chain is the ground/radial system. The better the system the better the signal; this is especially true for 160M. But as shown by my tests, even a mediocre to poor system still radiates a Q5 signal both local and DX.

I give this antenna a hearty "thumbs up" for the three bands it was designed for *and* for the bands it wasn't designed for. Finally, you needn't have to think about another antenna if you buy an amplifer, since this antenna will take legal power. A good radial system, a 30 to 60 ft. apex and 500W is all you'll need with this antenna.

The 160/80/40M sloper Broad-Bander requires only 50 ohm coax lead-in and a tuner for some non-specified bands. It is available for $61 from W9INN Antennas, P.O. Box 393, Mt. Prospect, IL 60056; 708/394-3414. □

County Hunter

Ace Jansen, N3AHA
51 Kenbrook Circle, San Jose, CA 95111

Ken's QSL card says it all!

KB7QO

KENNETH J. WOSIKA
3413 Mary Ann Avenue
Las Vegas, Nevada 89101

First Amateur Radio Operator to transmit from all USA Counties, including Alaska and Hawaii, SSB/Mobile

POLK COUNTY, IOWA
#3077 - November 25, 1986

Mobile Operator of the Year	1986
Mobile Operator of the Year	1987
County Hunter of the Year	1987

Happy anniversary! We're in the second year of the County Hunter column. The basics: the awards, QSLing, the county hunter net and net procedures. The focus of the next several articles will be the county hunter personalities.

As of March 1, 1992, 748 amateurs have collected the required 3,076 contacts and confirmations to qualify for *CQ* magazine's USA-CA All Counties award. Only two of those 748 have transmitted *from* all 3,076 counties. The first was Kenneth Wosika, KB7QO.

Think now, how many people do you know that have been in all 50 states? Not many. Probably no one you know has been in all 3,076 US counties! This begs the question, why would you want to? Perhaps it's the thrill and enjoyment of operating and being DX from multiple locations. Maybe it's the opportunity to help others achieve their goals by giving them one more needed county contact. Or it could be the excitement of doing something that very few people would ever do, separating you from the masses and making you special and unique. For whatever reason, Ken did do it and he was first. Here's . . .

Ken's story

On November 25, 1986, after only four years of operating mobile, Ken transmitted from his 3,077th county —Polk County, Iowa. It was a media event with TV coverage and many amateurs in attendance. The achievement was covered in Ken's hometown newspaper in Las Vegas, Nevada; in the Awards column of *CQ* magazine, July '87 issue; and in the 10-10 news column of ***Worldradio,*** September '87 issue. Along the way, Ken was honored by MARAC as the Mobiler of the Year for 1986 and 1987, and County Hunter of the Year for 1987.

Before Ken was active as a mobile, he was very active collecting awards. He collected many 10-10 chapter awards and the 3.905 Century Club awards. It was his son, George, KC0MB, who encouraged him to start county hunting. Ken had been an amateur for one year when he made his first county contact on April 30, 1981. It took Ken only seven months to contact 2,000 counties and receive the USA-CA award with three gold seals. Ken spent a lot of time as net control for the County Hunters Net (14.336 MHz)—the fastest way to gather counties. He even helped during a few emergency incidents when county hunter mobiles had spotted stranded motorists.

On May 19, 1982, George, KC0MB, gave his dad Eddy County, North Dakota for his last county, #3076. It took Ken only one year and 20 days to contact all 3,076 counties. He received USA-CA All Counties #384, dated June 7, 1982, with an endorsement for working all counties with mobiles on 20M. He received the MARAC Second Time Around award #34 on May 3, 1984.

Ken made his first contact operating mobile on July 6, 1982, and realized he enjoyed giving out counties even more than collecting them. From then on he was planning mobile trips at every opportunity. On November 7, 1982, he operated from Inyo County, California, to give his son, George, his last county to complete USA-CA.

On August 21, 1983, Ken and his wife, Norma, traveled to Hawaii to celebrate their 41st anniversary. Of course, Ken took his mobile radio and antennas along. They had a rental car on each island and successfully operated from all five counties. Kalawao County was the most rewarding and challenging county to operate from; Ken says it was also the most difficult to get into. (Incidentally, a little side note: I passed the 20 wpm code test in 1987 because I knew how to spell Kalawao. I did not copy all the letters, but I was a county hunter and I knew how to spell all the Hawaii counties.)

If Kalawao was the most difficult for Ken, the second most difficult county to get into was the Second District in Alaska. It required a special permit from the governor's office to drive the Dalton highway to Prudhoe Bay. The trip started with a cruise from Vancouver, B.C. to Alaska. Ken and Norma spent 21 days in Alaska and drove 5,216 miles. They operated four days from the Second District, most of that time on the tundra north of the Brooks Range. The 24 hours of daylight north of the Arctic Circle added to their enjoyment.

The urge to operate from all 3,076 counties became stronger after getting the "tough ones" out of the way. Norma's retirement in March 1985 helped; they spent 201 days on the road in 1985, traveling to 49 states. In 1986, they operated from the temporary county of Armadillo, which was created in celebration of the Texas sesquicentennial. Operating from Armadillo county gave Ken the opportunity to transmit from his 3,077th county.

What's it take to operate from 3,077 counties, traveling approximately 150,000 miles by car and van (not including the air mileage to Hawaii and the cruise mileage to Alaska)? A total of 106,113 contacts were made, including CW. Six amateurs worked KB7QO in all 50 states; 17 worked him in 1,000 or more different counties; six worked him in 1,500 or more counties; and his son, George, worked him in more than 2,000 different counties.

In 1989, Ken and Norma got the idea to go back and fill in the remaining counties in which their son, KC0MB, didn't work him. The pursuit took them back through 49 states again. The highlight of Ken's last county hunting venture was giving George the last county on May 1, 1991.

Ken flew to Anchorage, Alaska, as a guest of Gordon Nightingale, KL7GN. Anchorage is in the Third District, Alaska, the last county for KC0MB. The night Ken arrived, Anchorage experienced an earthquake of 6.0 on the

Richter scale. Fortunately, the earthquake did not put a damper on his enthusiasm. Although conditions were bad, the contact was made and tears were shed. It was the first and maybe last time one amateur contacted all counties with the same mobiler. The accomplishment warranted an MARAC Mobile Award Category Four Plaque #1 to George for "working KB7QO mobile from All US Counties." The achievement was even more special being from father to son.

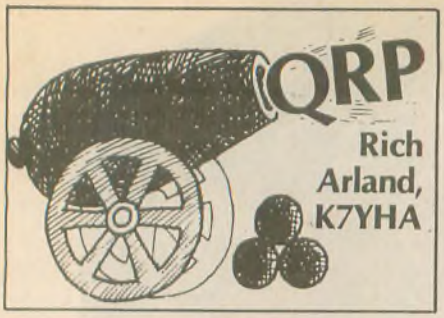
Ken reports he has now traveled over 225,000 miles using two vans. They spent almost all their time in the vans except when they stopped for conventions and to visit friends along the way. He has over 160,000 mobile contacts. Norma started logging for Ken about half way through, saving hundreds of hours. Often times, this allowed Ken to drive and operate while Norma logged. During the 225,000 miles, they had no traffic violations or flat tires. All their experiences with highway officials were very good, though they were asked to move off county lines several times. They were involved in getting quick aid to three very serious accidents.

One of the MARAC awards is a "last county" award. This is given to the mobile for giving someone a last county to finish a particular state. Ken has received 1,319 last county awards, far overshadowing the nearest amateur on the award honor roll list. He has also given counties to 15 amateurs for their last county in the US, #3076. He has received the first award for transmitting from all 50 states twice and the first award for transmitting from all 50 states on CW.

Ken has his own award that he sends to other county hunters. He has sent 22 plaques to county hunters contacting him in all 50 states; 24 plaques for 1,000 counties; and 41 plaques for all Nevada counties (including Carson City).

Currently, Ken is the Pacific Area Director for MARAC, covering the seven western states, western Canada and county hunters in the Pacific countries. Ken is anxiously awaiting a national convention in his area: The 1993 National MARAC convention will be in Seattle, Washington. Ken vows to help promote county hunting and MARAC and takes great pride in the growth of MARAC membership, which is at an all time high.

If all this sounds interesting to you, listen on 14.336 MHz or 14.056 MHz for mobile county expedition activity. Who knows, maybe the addiction will bite you, and you'll be the next amateur to operate from all 3,076 counties. Until July, happy hunting! □



The last two months we have been looking at cost effective ways of putting together a QRP station. Emphasis has been placed on ingenuity and a lot of bargain hunting. This month, we will take a stroll down software lane and get a feel for what kind of software is available for the shack.

Without a doubt, the biggest breakthrough in ham radio since 2M FM is the small computer or PC. It is possible on today's commercial market to purchase a full blown 386 machine running at 25 MHz with dual floppy drives, 60 MB hard disk, and VGA graphics with color monitor for around $1,500. That's fine if you have the means available to spend that kind of money for a computer system. Alternatively, the Tandy CoCo II and III color computers, Commodore's C-64 and the Atari 600 and 800 XL computers make ideal dumb terminals for use on packet, RTTY, CW, AMTOR, FAX, satellite tracking, propagation prediction, greyline openings and log/record keeping. To be sure, there is tons of software available for some of these computer outcasts to turn them into dedicated, stand-alone terminals that will interface well in the shack.

I love to DX and contest using low power. The DX packet cluster is one of the best ways to keep tabs on DX being heard in and around your area. Logging on to the local DX packet cluster offers many advantages to the DXer, none the least of which is instantaneous alerting to DX operations on the various bands. In order to make use of this DXing tool, you must first be in possession of a packet station. Last month I outlined my el cheapo packet station which features a CoCo III computer for the terminal, a small 5 in. black and white TV (liberated from my daughter), a PacComm Micro-2 TNC and a 12-channel crystal controlled TR-2200A 2M rig. The entire cost was around $100. Not bad for recycling older equipment.

My main packet program is *CoCoPact 3* by Monty Haley (Rt. 1, Box 210-B, Evening Shade, AR 72532). This program will run only on the CoCo III computer. It is an outstanding example of the kind of software that will turn an otherwise neglected computer into a valuable asset for the QRPer. Monty also has other versions of *CoCoPact* available for the CoCo II in both 5¼ in. disks and on cassette tape. As stated in the February column, I managed to buy three CoCo IIs and a CoCo III for only $5 each. All needed some minor troubleshooting to get them working, but the price was definitely right. Since I don't have a disk drive for the CoCo I use tape software. A good quality portable cassette tape recorder and the necessary interface cable from Radio Shack makes it possible to load and store programs quite easily. The CoCo series computers can be modified for 12VDC operation very easily, making them a good choice for portable or mobile packet. An investment of under $30 ($5 for the CoCo III and $22 for the *CoCoPact* software) resulted in the basics needed for an el cheapo packet terminal. I am sure that there is a whole bunch of other radio related software out there for the CoCo computers. If anyone has details, please contact me via ***Worldradio*** and I'll pass the information along to the readers.

Electrosoft (P.O. Box 1462 in Loveland, CO 80539) markets a series

of software for the Atari 600 and 800 XL computers. I have used their CW program for over six years with outstanding results. I procured my Atari 600 XL for only $25. The software is in the form of a plug-in ROM cartridge that takes the work out of loading the program. This software is reasonably priced at about $15. Also featured are RTTY (ASCII and Baudot) and packet programs on plug-in ROM and disk media. I am unsure whether any logging, record keeping and propagation software exists for the Atari computers. If anyone knows a source of Amateur Radio related programs for the Atari 600 and 800 XL series, contact me so I can make the information available to the readers.

The Commodore C-64 is probably the most prolific small computer to find its way into the hamshack. Even small hamfests have software distributors who handle C-64 software. Recently my QRP amigo, Fran, KA3WTF, purchased about 15 disks of ham related software for the C-64. I have had a chance to review some of these programs and feel that they can definitely enhance the operations around the shack. Some of the offerings include a Morse code tutorial, packet, RTTY, CW, AMTOR and FAX programs, propagation and greyline prediction programs, beam headings, resistor networks, filter networks, design applications, the famous "Dr. DX" CW enhancement program, contest logging, regular logging programs and many others. The C-64 can be modified to work on 12VDC with some difficulty, making it a candidate for portable or mobile packet.

Now that we have seen "the little three," let's move on to something more conventional in the computer world. A used IBM PC/XT with 640 kB of RAM, 20 MB hard drive, one floppy and monochrome graphics and monitor can be purchased for as little as $400! Considering that this was about the same cost of my C-64 only five years ago, this is not a bad deal. The nice thing about using a recycled IBM (or clone) is the availability of software. The trend today is toward IBM compatible communications software. Slowly, the C-64 and CoCos are being replaced in the hamshack by the IBM clones.

The PC Packet Adaptor is an internal card that will emulate the functions of a TNC and provide unbelievable flexibility using the PC hardware and specialized software. Marketed by Digital Radio Systems, Inc. in Florida, the PCPA board converts the entire PC into a super-TNC. The PCs higher clock speed combined with 640K of memory makes this an ideal approach to packet. In my review of the DRSI PC Packet Adaptor I compared the difference between a standard TNC and the PCPA to the difference between flying an F-4 Phantom II jet fighter and the starship *USS Enterprise*. The PC Packet Adaptor board is extremely advanced and very, *very* flexible.

MFJ Enterprises (P.O. Box 494, Mississippi State, MS 39762) offers several PC based programs for logging, DXing, record keeping, CW and propagation. The MFJ-1268 Memory Keyer with Morse tutor turns your PC into an extremely flexible memory keyer. Standard features include keyer hardware, 100-function-key macros to program and send whatever you want, message within message, use of paddle or keyboard, serial numbering, full speed and weighing adjustments, on-line help screens, CW abbreviations, Q-signals and ARRL NTS traffic codes. In addition, the software includes a Morse tutorial and test administrator to give FCC type code tests. At $49.95 it's a very good way to turn your PC into a fantastic contest keyer and Morse tutor.

MFJ's *Easy-DX* DXCC logging program is another fine example of software that will make the mundane chore of record keeping a breeze. As you enter the call sign of a station, the program tells you whether the country is needed for DXCC, if it was previously worked . . . when and on what band, tracks your QSLs sent and received, provides azimuth and sunrise/sunset times (at the DX location) for gray line prediction, and much more. Logs from the popular CT logging program can be imported and stored. Also included is a packet cluster program that allows you to monitor cluster activity, and when DX is reported on the cluster it will alert you instantly. *Easy-DX* also prints and tracks your QSLs, latest DXCC status, and log sheets. For only $39.95 this software is indispensable for the active DXer.

The W5YI Group (Box 565101, Dallas, TX 75356) offers some software that every active radio amateur needs. The *W5YI Ham Radio Licensing Course* is a highly comprehensive study course that includes the entire question pool for each class of license (Novice through Extra including the new no-code Tech), and the ability to review each and test each element individually. In addition, you can print sample tests or the actual written test. The software also includes the outstanding *Morse Academy* tutorial program that not only teaches the international Morse code but allows the instructor to administer the actual code test. I have previously reviewed this software for *CQ* magazine and have loaned it to two local clubs for their licensing and upgrade classes. Reports from the Endless Mountains ARC and the Murgas ARC confirm that the software is a boon to the instructors and students. It takes a workload off the instructors when it's time to write tests and review material covered. So, if you haven't trained your replacement yet, why not get a copy of Fred's outstanding software, find a willing individual and bring an Amateur Radio "wanna-be" into the fold.

I hope that you have enjoyed the last three months while we have taken a look at low cost approaches to Amateur Radio. The technically inclined amateur can, I am sure, build or modify recycled equipment to improve upon the cost effective theme. This series has been aimed at the newcomer into Amateur Radio along with those of us who must view each purchase with a critical eye toward the family budget. Emphasis has been placed upon procuring equipment, accessories and software to ensure the biggest bang for the buck. Your station is a direct reflection of yourself. (I consider mine a reflection of myself, my messy operating desk and disorganized files included!) To take pride in using ingenuity instead of a credit card in the assembly of your station is perfectly natural. Only don't gloat too much—the goldcard financiers can't stand it! □

CONSTRUCTION

Indoor 10-160M pole-lamp antenna

JOSEPH BALSAMELLO,
W9KJS

Being a radio amateur since 1946 and a long-time subscriber to ***Worldradio*** *magazine, I would like to share a write-up of a progressive "how to" construction, adjustment and operation of a 10 through 160M indoor pole lamp antenna. This vertical antenna occupies a small space and would fit in to the decor of the room where it is installed (preferably in front of a window).*

This write-up was specifically meant for the unfortunate radio amateur who lives in a condo or an apartment complex that has restrictions on outdoor antennas. It is written in a simple form for the beginner in Amateur Radio as well as for the old-time ham who has little or no experience in radio construction work.

Initially, the project got started because of the dilemma Frank, W9KPS, was experiencing after moving into a five-story brick condominium complex. Generally, condo rules prohibit outdoor antennas on the roof. Frank lives on the fifth floor of the steel-reinforced building.

Confronted with my friend's problem, I set upon a search for an indoor antenna that would be suitable. After pursuing several radio books and magazines, I finally found one in a book entitled *Wire Antennas* by W.L. Orr, W6SAI, and S.D.Cowan, W2LX. On pages 128 through 130 was a write-up, with sketches, of an indoor center-loaded pole-lamp antenna for 10 through 80M (160 was added later).

My immediate task was to obtain the necessary materials to construct such an antenna. I found the pole lamp in my own home! Being a widower, with no wife to object, I took a perfectly good all-metal pole lamp that was in the TV room and started to take it apart, removing the light fixtures and internal wiring from the pole and plugging up the holes with metal plug buttons.

Then I cut out a 9 in. section from the middle of the pole. With the use of a vice, hacksaw and file, that part of the project was completed.

Next, a 10 in. wood core form of 1½ in. diameter was needed. The smallest wood pole I could obtain was a 6 ft. long pole having a $1^{9}/_{16}$ in. diameter. Using a wood saw, file, knife and sandpaper, I finally had a 10 in. wood coil form, 1½ inches in diameter.

Next, a search was made for a 90-turn, 2½ in. diameter, 9 in. long tinned #16 wire air core coil. None of the local half dozen radio and electronic supply houses had such a coil. Finally, one was obtained from a used-equipment radio and electronic store.

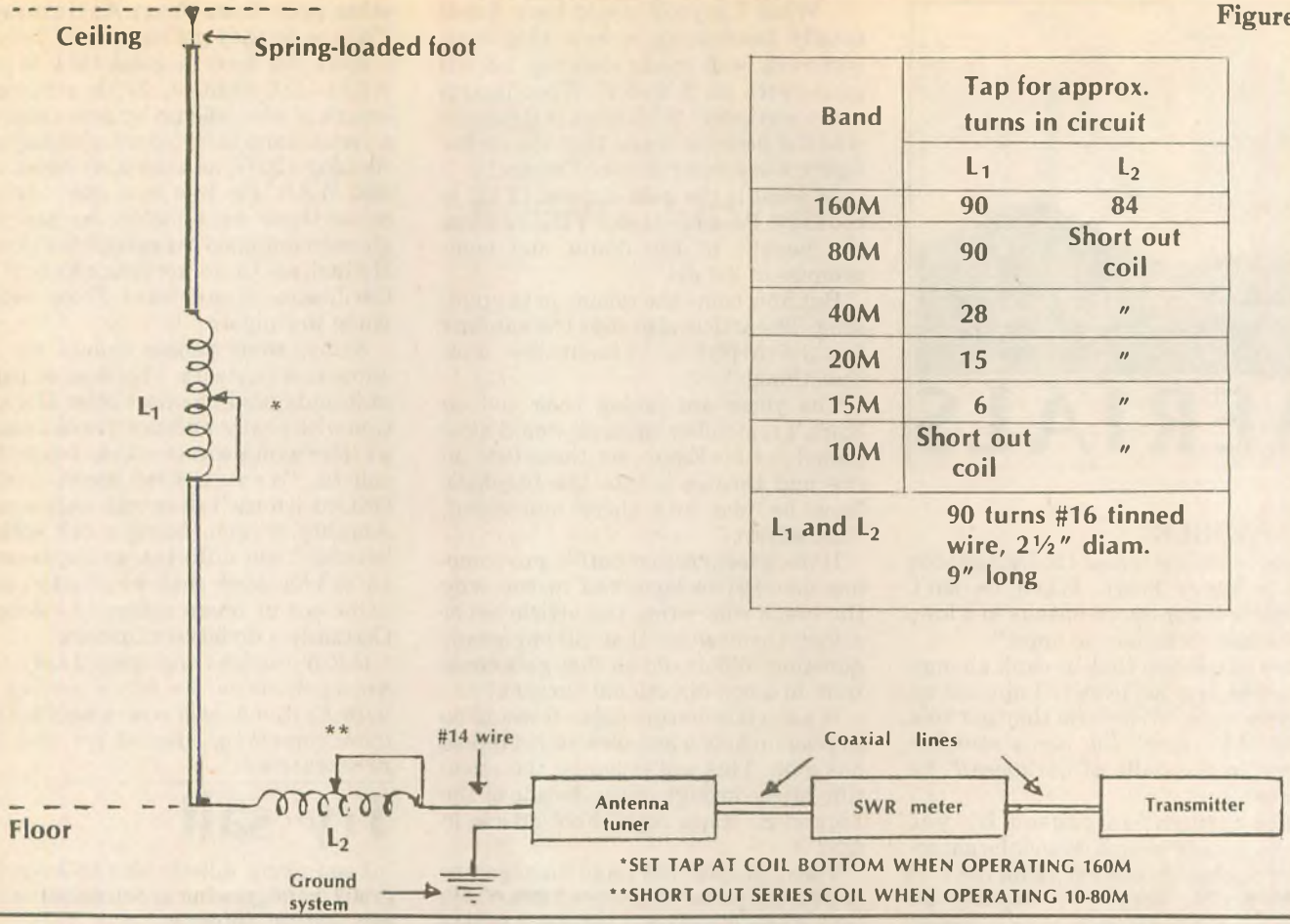
The assembly and wiring job was yet to be done. Both ½ in. ends of the 10 in. wood plug were cut down in diameter to fit inside the two metal pole sections, and holes were drilled for screws to fasten them. Then the coil was slipped over the wood plug and connected at each end to the metal pole sections. A short lead was connected to the coil bottom, having a retractable hook clip on the other end for a coil tap. Finally, a binding post was installed at the base of the pole (where originally the AC line cord entered). With the pole lamp construction completed, antenna tune-up involved adjusting the coil tap and antenna tuner for the lowest SWR, rendering 1.0:1 to 2.1:1 readings on the 10 through 80M bands.

Finally, the 160M band had to be resolved. Imagine 160M operation with an indoor antenna! I finally reasoned that if the pole antenna can work down to 80M and was nothing more than a longwire antenna in a concentrated form, and most of the antenna inductance was in the center-loaded coil, then why not put a similar coil in series with the base of the pole antenna (i.e. 80M + 80M = 160M)? Lo and behold, a 1.0:1 SWR was obtained at 1907 kHz after adjusting the series coil tap and antenna tuner. I deduced that most of the radiation would be from the vertical section of the antenna system.

The antenna was now ready for on-the-air operation. Initial contacts by WB9KPS produced S5 to S9 signals at IV3, ZM6, DK and F6 (10M) stations overseas and S5 to S8 signals at W8 and K9 (20 through 80M) stations in the States. Initial contacts on 160M (1907 kHz) produced S3 to S9 + 40 signals at W9 stations within a 100-mile radius. Initially I had reservations about the performance of an indoor antenna, especially on 160M, considering the shield effect of the steel girders within the building, but on-the-air results proved positive.

The condo uses an electric heating system, with one base radiator near the ham shack. Resistance measurements which I made revealed zero ohms between this heating element and the ground screw at a nearby electrical outlet where a short #14 electric wire connected from this point to the antenna tuner ground post. From this point to the cold water pipe in the bathroom measures 3 ohms. Being that the building is only eight years old, the cold water pipe resistance from the fifth floor to actual ground may not be a factor. Anyway, the indoor pole-lamp antenna is working out on the 10 through 160M bands to Frank's satisfaction and pleasure. □

Figure 1



Band	Tap for approx. turns in circuit	
	L_1	L_2
160M	90	84
80M	90	Short out coil
40M	28	"
20M	15	"
15M	6	"
10M	Short out coil	"
L_1 and L_2	90 turns #16 tinned wire, 2½" diam. 9" long	

AERIALS

LIL PADDLE

Kurt is sitting across the living room with a heavy heart. When he isn't biting his lower lip, he speaks in a low, slow voice: "There is no hope."

I try to tell him that he can't change the world, but his eyes roll upward as he sadly says, "Where do they get this stuff? Why must the hams stumble around in the halls of darkness?" he intones.

This torment is caused by yet another article he saw on an infernal so-called double bazooka coax dipole.

The article says: "... reports an average of 1.5 dB gain over a simple dipole cut to the same frequency and installed at the same height and configuration. From the author's findings this gain figure could be a conservative presentation."

What I myself would have found totally fascinating is how that measurement was made showing 1.5 dB gain—with an S meter? What instrument was used? With what instrument was the decision made that the earlier figure was conservative? The ear?

So what is the gain claimed (if 1.5 is too low)? Possibly three? I'll give them the benefit of the doubt and compromise at 2.5 dB.

But now come the raisins in the pudding. The article also says the antenna (on 3.5 MHz) is "essentially non-directional."

The years are taking their toll on Kurt. I remember when he would have pulled out his Zippo, set the article on fire and thrown it into the fireplace. Now he just sits there muttering, "Incredible."

It does seem rather baffling to someone devoted to logic and reason why the hams who wrote the article never asked themselves that all-important question: Where did all that gain come from in a non-directional antenna?

What a fascinating paper it would be to read on how a non-directional dipole has gain. This will either be the scientific breakthrough of the decade or the Larson E. Rapp April Fool article in *QST*.

These proponents have managed to double the power (3 dB) in all directions with a non-directional antenna? Is this the hammy version of the perpetual motion machine? It meets the definition, more power out of the device than was furnished to it!

Kurt is also in possession of an article in a book that claims 7 dB gain for the ZL special. This is but a two-element Yagi with a phasing line. Alas it, in truth, has no more gain than any other two-element Yagi. As Kurt says, "Where do they get this stuff?"

Kurt did have a good time in the ARRL DX Contest. With a random length of wire held up by a tree limb as a vertical and base-fed with ladder line, running 100W, he worked 41 countries and WAC. He was in a much better mood those days (before he saw the above-mentioned dreadful distortions). He just sat there working away. "The Caribbean is my lake! From Hong Kong to Bulgaria!"

Sadly, some people should not be allowed in contests. I listened to parts of it and heard one particular DX station with a rather distinctive call and in a rather exotic location keep telling the callers, "We've QSOed before. We've QSOed before," over and over again. Another station, using a call with a "stroke" and different prefix, became so exasperated that he blurted out, "One out of seven callers is a dupe!" Certainly a dreadful situation.

(Lil, a gracious and refined lady, has her work cut out for her in putting up with Kurt, who will return next month with something special for true experimenters.) □

Try salt

I am using a little idea to keep the grass from growing around the base of my vertical antenna.

Just cover the ground with rock salt in about a 12 in. circle from the base of the antenna (with edging material deep enough to keep the salt from migrating to surrounding lawn's root system), and your troubles are over. Nothing grows and it is easy to mow around. It also helps keep moisture around the ground rod. —*Glen Winger, W9KXG*

CONTESTS

Michigan QSO Party

The 1991 Michigan QSO Party, sponsored by the Oak Park Amateur Radio Club, will be held during two periods GMT: 1800Z Sat., May 16 to 0300Z Sun. May 17; and 1100Z Sun., May 17 to 0200Z Mon., May 18. 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. Mobiles may be counted as new contacts each time the county changes.

Exchange: RS(T), QSO number, QTH, county for Michigan; state or country for others.

Scoring: Multipliers are counted only once. *Michigan stations:* one point per QSO multiplied by the sum of states, countries plus Michigan counties on phone. Each CW contact is two points per QSO. Alaska and Hawaii count as states. Canada counts as a country. Maximum multiplier is 85. Five points for each W8MB contact. *Non-Michigan stations:* multiply QSO points by Michigan counties. One point for each Michigan phone QSO and two points for each CW contact. Five points 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.

Suggested frequencies: *CW*—1.810, 3.540, 3.725, 7.035, 7.125, 14.035, 21.035, 21.125, 28.035, 28.125; *phone*—1.855, 3.905, 7.280, 14.280, 21.380, 28.580; and *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 QSOs), and high Michigan mobile score. *Certificate:* high score for each county (min. 50 QSOs). *Out of state:* high out of 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 QSO Party committee are not eligible for individual awards. Decisions of the contest committee are final. Results will be final on July 31, 1992 and will be mailed to all entries that have sent in an SASE. Mailing deadline is July 1, 1992. Send logs to: Mark Shaw, K8ED, 27600 Franklin Road, Apartment 816, Southfield, MI 48034. □

Nevada QSO Party

Sponsored by the Frontier Amateur Radio Society, the contest will take place from 0000Z May 9 to 0600Z May 10. Work stations once per band and mode.

Exchange: RS(T) and state/province/country (and county for Nevada stations).

Frequencies and modes: 6 through 160M; CW, SSB, RTTY, SSTV and packet.

Scoring: One point per phone QSO and two points for QSOs on other modes. Multiply by the number of states/provinces/countries for Nevada, others multiply by the number of Nevada counties.

Awards: Certificates will be awarded to the top scorer in each state, province and DXCC country; one each for General and above and Novice/Tech.

Mail entries by June 1 to Jim Frye, NW7O, 4120 Oakhill Ave., Las Vegas, NV 89121. □

Volta RTTY DX Contest

The SSB and RTTY club of COMO and the ARI (Associazione Radiomatori Italiani) are pleased to announce the 26th A. Volta RTTY DX Contest. This contest is organized to increase interest in the RTTY mode and to honour the Italian physicist and discoverer of electricity, Alessandro Volta. The contest will take place from 1200 GMT Saturday, May 9, until 1200 GMT Sunday, May 10. In the future this event will take place on the second full weekend in May. Operation will be on 3.5, 7, 14, 21, and 28 MHz amateur bands.

Classes: Single operator, all bands; single operator, single band; multi operator, single transmitter (list names and call sign of all operators); and shortwave listeners.

Contacts: Stations can be worked only once for each band. Additional contacts may be made with the same station if a different band is used.

Scoring: All two-way RTTY contacts will score in accordance with the *exchange points table.* Contacts between stations within the same country will not be valid, e.g. A W2 station can work W1, W3, W4, etc. but not W2. Contacts made *outside one's own continent* on 3.5 or 28 MHz count double.

Multipliers: A multiplier of one is given for each country contacted. The same country may be claimed again if a different band is used. An additional multiplier is given for each *intercontinental* country worked on at least four bands. A contact with a station which would count as multiplier will only be valid if that station appears in at least four other logs, or if a contest log is received from that station. Final score will be total exchange points multiplied by the total number of multipliers multiplied by the total number of QSOs.

Countries: ARRL country list plus each call area in Australia, Canada and the USA will be counted as a separate country. Do not count the general country multiplier (VE, VK, W) when you count each call area (VE1..0, VK1..0, W1..0). Message must consist of: RS(T), QSO number, zone number. SWLs: The same scoring rules will apply but must be based on stations and message copied.

Award: A special trophy will be awarded to the top stations in each class. In addition, a certificate with special sticker will go to all entrants.

Logs: Use one log per band. Logs must contain band, date, time GMT, call sign of the station worked, message sent, message received, points and multipliers. A summary scoresheet is required with a list of multipliers worked in each band. Comments will also be very much appreciated. All logs must be received by July 30, 1992, to qualify. Send logs to: Francesco Di Michele, I2DMI, P.O. Box 55, 22063 Cantù, Italy. □

Peace to the World

The Radio Sport Federation and the Krenkel Central Radio Club of the former USSR will sponsor the international Peace to the World Contest from 2100 UTC May 9 through 2100 UTC May 10, 1992. The contest is open to radio amateurs and shortwave listeners from all over the world.

Classes: single operator, single band; single operator, all bands; multi-operator, all bands with single transmitter; shortwave listeners.

Operation: QSOs may be carried by CW and phone with a single sideband modulation on 1.8, 3.5, 7, 14, 21, and 28 MHz, as well as through satellites. QSOs through satellites are judged as those made on a separate additional band with multipliers attributed for them. Only one signal at a time may be transmitted from any one station. Club stations must work a band for a minimum of 10 minutes before changing to another. Exchange RS(T) and QSO number.

Scoring: Each QSO made within one country by list of diploma (such as R-150-S) scores one point. QSO with another country within the same continent scores two points; QSO between continents scores three points. *Multipliers:* The number of countries and territories of the world required for a multiplier is determined by the diploma list. For one country/territory worked, count one point for a multiplier on each band. Total multiplier is the sum of multipliers obtained on all bands. The total score is the sum of points gained by a contestant on all bands, multiplied by a total multiplier. (When summing up results only those QSOs and multipliers confirmed by log sheets may be taken into consideration. Infringement of the radio amateur rules in a contestant's country or contest rules, unsporting behavior, inclusion into log sheets more than 2% of repeated contacts, incorrect contacts and multipliers will be sufficient reason for disqualification.)

Awards: Placing is determined separately in each group of contestants in each country, each continent, and internationally. Prizes, medals, and diplomas will be awarded. Foreign contestants having fulfilled the requirements for diplomas R-150-S, R-100-O, W-100-U, P-15-R and R-6-K will receive them on the basis of the logsheet submitted; applications and QSL cards are not necessary if the information concerned is clearly marked in the logsheet.

Logs: Logs must be received by July 1, 1992. Send to CQ-M Contest Committee, P.O. Box 88, Moscow, Russia □

The museum visitor spotted a picture of a group of men sitting around a table. All wore long hair, stretch pants, boots and fancy jackets.

They were signing the Declaration of Independence. —*CHARRO, Brownsville, TX*

California

NORTH HILLS RADIO CLUB will hold Hamfest '92 on May 17 at 8 a.m. at the Carmichael Elks Lodge in Carmichael. Features include food, door prizes and demonstrations of OSCAR, packet and ATV. Admission is $1, including one prize drawing ticket. Inside tables and outside spaces are available. Talk-in on K6IS repeaters on 145.190 and 224.400 MHz. Contact Carl Schultz, WF6J, 2903 Gwendolyn Way, Rancho Cordova, CA 95670-5611; 916/366-9111. □

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The VALLEY OF THE MOON ARC will hold its semi-annual "ham" and egg breakfast, VE exam, swapmeet, ARRL hamfest and ATV and packet radio demonstration on May 2 at 8 a.m. at the Sonoma Community Center. Swap spaces will be $10 and breakfast will be $5. Admission is free. HF antennas and 120V power will be available for testing radios and a club station will be set up and operating through the day on HF and VHF. Talk-in on 147.47 simplex and 144.75/145.35 repeater. Contact Darrel, WD6BOR, at 707/996-4494. □

Colorado

The WESTERN COLORADO ARC will hold its annual hamfest on May 2 in Liff Auditorium at Mesa State College in Grand Junction. This hamfest will offer both seminars and VE testing and will run from 9 a.m. to 2 p.m. Talk-in on 146.94. Contact Ernie, N0OEQ, at 303/242-6035 or Bob, N0OKL, at 303/434-8604. □

Connecticut

The NEWINGTON AMATEUR RADIO LEAGUE will hold its annual Amateur Radio and computer hamfest on June 7 from 9 a.m. to 2 p.m. at Newington High School. Features include tailgating (weather permitting), refreshments and guided tours of ARRL HQ and W1AW. Admission is $3. Tables are $10 in advance, $15 at the door. Talk-in on 144.85/145.45, 223.24/224.84, 443.05/448.05, 146.52. For tables or tailgate reservations and general information contact Les Andrew, KA1KRP, c/o NARL, 68 Wildermere Ave., Waterbury, CT 06705; 203/523-0453. □

Delaware

The PENN-DEL ARC will sponsor the PENN-DEL Hamfest on Sunday, May 3, at the Nur Temple in New Castle. Features will include indoor and outdoor swaptables, tailgating, VE testing, and commercial exhibitors. Tables are available with reservations: indoor with electricity, $10; indoor without, $8; outdoor, $6. Tailgating is $5. Vendor set-up will be at 7 a.m. Admission will be $4. Talk-in on 224.220 (-) and 147.225 (+). For reservations, contact Brian Pasternak, KA3VSP, P.O. Box 1964, Boothwyn, PA 19061; or call 215/497-2124. □

Illinois

The 1992 INTERNATIONAL SUMMER CONSUMER ELECTRONICS SHOW will open its doors to the public for the first time May 30 at noon through the end of the show on May 31 in Chicago. Though there will be no selling on the show floor and electronic gear featured will not be focused on Amateur Radio gear, amateurs will find this show to be an exciting fair of all sorts of new electronic developments, including assistive devices for people with disabilities, as well as informational seminars. Tickets are $8 in advance or $10 at the door. For more information call 800/388-6901. □

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The LEWIS AND CLARK RADIO CLUB of Godfrey will sponsor the sixth annual Lewis and Clark Radio Club Hamfest on Saturday, May 16, at the Lewis and Clark Community College. Features will include VE testing, commercial vendors, ARRL booth, displays on portable ATV and packet, and a drawing. Admission will be $1 or six for $5 in advance. Talk-in on 145.23 repeater. For further information contact Harold, KC9GL, at 618/466-1909 or write to the Lewis and Clark Radio Club, P.O. Box 553, Godfrey, IL 62035.

Iowa

The CENTRAL IOWA RADIO AMATEUR SOCIETY will sponsor a hamfest on May 16 at Marshalltown Community College from 8 a.m. to 4 p.m. Features will include VE exams and door prizes as well as a cash auction. Indoor tables are available for $5, electrical hook-up $2 extra. Tickets are $3 in advance or $4 at the door. For table reservations, tickets or further information contact Charles Lynk, W0DYS, 2460 Reed Ave., Marshalltown, IA 50158; 515/753-6925 or Brian Krumm, N0MXK, 911 South 8th Ave., Marshalltown, IA 50158; 515/752-9658 □

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The 39 HUNDRED CLUB and the SOOLAND ARC will sponsor the 1992 Midwest Division Convention and Hamvoree on May 22 and 23 at the Marina Inn in South Sioux City. Features will include 17 seminars including MARS, packet and AMSAT groups, a Friday night dinner and Saturday night banquet honoring special guest Rodney Stafford, KB6ZV, ARRL Vice President. For flea market information contact Al Smith, W0PEX, 3529 Douglas St., Sioux City, IA 51104 or for more details contact Dick Pitner, W0FZ0, 2931 Pierce St., Sioux City, IA 51104; 712/258-1520. □

Michigan

The INDEPENDENT REPEATER ASSOCIATION is holding its annual Hamfestival on Saturday, May 30, at the National Guard Armory. Features will include VE exams and door prizes. Tables are $4 and dealer set-up will be at 6 a.m. Doors will open to the public at 8 a.m. Admission is $4 or $3 in advance. Talk-in on 147.16 W8HVG repeater. For further information contact Tom, KA8YSM, or Kathy, KB8KZH, at 616/698-6627 or write to IRA, 562 92nd St. SE, Grand Rapids, MI 49315. □

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The WEXAUKEE ARA will hold its annual Swap and Shop on May 16 from 8 a.m. to 1 p.m. at the Cadillac Middle School in Cadillac. Features include swap tables and food. Admission is $3. Tables are $6. Talk-in on 146.38/.98 repeater. Contact Dan Schmidt, KE8KU, at 616/775-0998 or write Waxaukee ARA, P.O. Box 163, Cadillac, MI 49601. □

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The CHELSEA ARC will hold its 15th annual Swap 'n Shop on June 7 at the Chelsea Fair Grounds in Chelsea. Food will be available in the service center. Special handicap parking will be available. Donation is $3. YLs, XYLs and children under 12 are free. Trunk sale is $3 per space. Table space is available at $9 per 8 ft. table. Gates open at 6 a.m. for sellers. Talk-in on 146.980 Chelsea Repeater. For more information, send SASE to 416 Wilkinson St., Chelsea, MI 48118 or call Robert Schantz at 313/475-1795. □

Missouri

The PHD ARA will sponsor the 1992 PHD KC Midwest Amateur Radio Convention on May 30 from 9 a.m. to 5 p.m. at the KC Market Center in Kansas City. Food will be available. Vendor set-up will be available on May 29. For more information, contact PHD Amateur Radio Association, Inc., P.O. Box 11, Liberty, MO 64068-0011; 816/781-7313 or 816/792-2647. □

New Jersey

The 1992 ARRL Hudson Division Convention, co-sponsored by the BERGEN ARA, RADIO AMATEUR TELECOMMUNICATIONS SOCIETY and the HUDSON AMATEUR RADIO COUNCIL will be held on June 6 from 7 a.m. to 4 p.m. at Fairleigh Dickinson University in Teaneck. Features include VE testing, ARRL and FCC forums, and technical seminars. For VE information, call Pete Adely, K2MHP, at 201/796-6622. Admission is $5. Children under 12 are free. Vending space is $30 per indoor space, $10 outdoor tailgating space and $25 per outdoor space with power provided. Talk-in on 146.790(-600) and 146.700(-600). For information and vending space reservations, call Jim Joyce, K2ZO at 201/664-6725, or write to the Bergen ARA, P.O. Box 304, Hackensack, NJ 07601. □

New York

The ROCHESTER ARA will sponsor the Rochester Hamfest on May 16 and 17 beginning at 8:30 a.m. at the Monroe County Fairgrounds in Henrietta. In its 50th year, this show expects about 6,500 attendees. Exhibitor booth reservations and further information may be obtained from Harold Smith,

K2HC, RARA, 300 White Spruce Blvd., Rochester, NY 14623; or call 716/424-7184, 424-1100, or 800/724-8515. □

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The HALL OF SCIENCE ARC will sponsor a hamfest at the New York Hall of Science parking lot, Flushing Meadow Park, on May 17 at 9 a.m. Features will include free parking, door prizes and refreshments. Vendor space will be $8, and set-up will be at 7:30 a.m. Donations of $5 will be accepted at the door. Talk-in on 445.175 NB2A repeater. For further information contact Charles Becker, WA2JUJ, at 516/694-3955; or Arnie Schiffman, WB2YXB, at 718/343-0172. □

North Carolina

The DURHAM FM ASSOCIATION will sponsor a hamfest on Saturday, May 23, under the north parking deck of the South Square Mall in Durham. Doors will open at 8 a.m. and close around 4 p.m. VE exams will be offered by DFMA members; contact Pete Goolsby, KY4Y, 120 Radcliff Cr., Durham, NC 27713 (include SASE). Tables will be available for $10; some electricity will be available. Admission will be $4 in advance or $5 at the gate. Talk-in on 147.225/.825 WA4WTX repeater. For advance tickets, table reservations or further information contact Sid Edwards, W4QWM, 1700 High St., Durham, NC 27707 (include SASE); or call 919/489-2933. □

Ohio

The TRIPLE STATES RADIO AMATEUR CLUB will hold its 15th annual TSRAC Wheeling Hamfest and Computer Fair on Sunday, May 17, from 8 a.m. to 3 p.m. at Wheeling Park. Dealers are welcome; features will include over 36,000 square feet of covered space as well as six acres of flea market space. Free overnight parking is available. Admission is $2 in advance or $3 at the door. YLs and youths under 17 enter free. For further information or advance tickets, contact TSRAC, Box 240, Rd. 1, Adena, OH 43901 or call 614/546-3930. □

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The ATHENS COUNTY ARA will hold its 13th annual hamfest on Sunday, May 10, at 8 a.m. to 3 p.m. at the City Recreation Center. Features will include a large flea market with both indoor and outdoor space, door prizes and good food. Indoor space is available only by advanced registration; contact John Biddle, WD8JLM, 80 Wonder Hills Dr., Athens, OH 45701; 614/594-8901. Free paved outdoor flea market space adjacent to the building for tailgating can be claimed the day of the event. Admission is $4 but, in honor of Mother's Day, YLs and XYLs will be admitted free. Talk-in on club repeater 145.15 (+). For further information contact Carl J. Denbow, KA8JXG, 63 Morris Ave., Athens, OH 45701-1939. □

Oregon

The KENO ARC and the OREGON INSTITUTE OF TECHNOLOGY ARC will cosponsor a hamfest on May 16 from 9 a.m. to 5 p.m. at the College Union Building at the Oregon Institute of Technology campus in Klamath Falls. Features include VE testing, flea market, day-use RV parking and exhibitors. Tables (10 ft.) are available at $10 each. Admission is $4 in advance or $5 at the door. Talk-in on -146.85. For more information, contact Dick Switzer, KB7DWX, at 503/882-1300 or Hollis Kiger, W7UFM, at P.O. Box 120, Keno, OR 97627; 503/882-5129.

Pennsylvania

The BREEZE SHOOOTERS of the Greater Pittsburgh area will host their 38th annual hamfest on June 7 at the Butler County Farm Show Grounds. The annual event now attracts over 5,000 guests and features a large, enclosed area for ham and computer vendors. Also featured will be free parking and free tailgating. Tables are available at $10 each with prepaid reservation. Admission is only $1 at the gate. For further information contact Rey Whanger, W3BIS, Box 8, R.D. 2, Cove Road, Cheswick, PA 15024; 412/828-3694. □

Texas

The KEY CITY ARC will sponsor the ARRL West Texas Section Convention and Hamfest at the Abilene Civic Center on May 2 (8 a.m. to 5 p.m.) and 3 (9 a.m. to 3 p.m.). Features will include free parking and VE exams. Tables are $5 each. Pre-registration is $6 (by April 28) or $7 at the door. Talk-in on 146.160/760. For further information contact Peg Richard, KA4UPA, 1442 Lakeside Dr., Abilene, TX 79602; 915/672-8889. □

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HAM COM 92 will take place on June 5 through 7 at the Arlington Convention Center in DFW Metroplex. Flea market space has been expanded and a new outside under-the-tent flea market has been added this year. For space reservation or further information write to Ham Com registration, Box 861829, Plano, TX 75086-1829 or call 214/521-0016. □

Washington

The YAKIMA ARC W7AQ will sponsor the 1992 Washington State Hamfest on May 23 and 24 at St. Paul's School gym in Yakima. Features will include the first Northwest Packet Radio Conference with seminars for all levels of packet radio enthusiasts. VE testing will be offered on Saturday. Hamfest participants will include MARS, ARES, QCWA and the ARRL. Dealer displays as well as swap tables will be there. Breakfast will be offered on site both days, 7:30 a.m. Admission is $5 in advance, $6 at the door. Talk-in on 146.06/66. For further information contact Dick Umberger, N7HHU, W7AQ Yakima ARC, P.O. Box 9211, Yakima, WA 98909; 509/453-8632. □

Wisconsin

The MANCORAD RADIO CLUB will sponsor a hamfest on May 9 from 8 a.m. to 3:30 p.m. at the Manitowoc County Expo Center. Features will include a flea market, VE exams, and camping facilities (call 414/683-4378). Tables will be available for $3 (8 ft.), $5 with electricity. Vendor set-up at 7 a.m. Admission is $2 in advance or $3 at the door. Talk-in on 146.01/61. For table reservations (send SASE) or further information contact Mancorad Radio Club, Box 204, Manitowoc, WI, 54221-0204 or call 414/682-9151, John, or 682-2557, Lou. □

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Tiare's *QRP Basics*

Tiare Publications offers the first new book for the QRP fan to come on the market for several years: *Low Power Communications—QRP Basics*, by Richard H. Arland, K7YHA, QRP Editor for *Worldradio* magazine.

While designed to introduce QRP operating to amateurs who haven't yet explored this aspect of the hobby, more experienced QRPers will also find it filled with useful information. Arland says that every QRPer he's mentioned it to has been very enthusiastic!

The contents include: QRP History; The QRP Mindset; Getting Started: QRP Antennas; Propagation; Basic QRP Operating; Contesting; Milliwatting; Digital QRP; Solar Power Use; Computers; Getting Organized; QRP Products; and QRP Organizations.

That's not all . . . *QRP Basics* is only half the story. Volume two, *Advanced QRP* will be published late this year and will include chapters guest authored by some of the top names in QRP operating.

The release of volume one is scheduled in time for the Dayton Hamvention. For further information or to order, contact Tiare Publications, P.O. Box 493W, Lake Geneva, WI 53147; 414/248-4845. □

H & M personalized awards

Amateur Radio clubs, hamfest committees, and contesters can now get awards, plaques and gifts uniquely suited to ham radio. H&M Jewelry recently announced a new line of ham radio items, including plaques, trophies, desksets and combination alarm clock/flashlights, all with ham radio insignia and organization or event personalization.

Plaques are available in 9 × 12 in. and 6 × 9 in. sizes, with either solid walnut or walnut veneer bases. Each plaque features a straight key medallion enclosed in a wreath and an engraved brass plate. The engraved plate is available in nearly any color. Plaques may be configured horizontally or vertically.

The trophies make excellent awards for contests and other special events. They're provided with year medallion and straight key medallion enclosed in a wreath, mounted on a 3 × 5 in. marble base. Various heights are available.

Desksets and combination alarm clock/flashlights make excellent gifts and committee and hamfest thank-yous. Desksets are

provided with ball point pen and holder, also mounted on marble base. Front brass plate, engraved with up to three lines of text, provides personalization or event commemoration.

Combination alarm clock/flashlights, great for travelling hams, are provided with engraved or silk screened plates which provide personalization or event commemoration.

Further information is available from Harold, KB2MB, at H&M Jewelry, at 1-800/285-8587, or write to him at 26 Edgecomb Road, Binghamton, NY 13905. Ask for a copy of the latest catalog, too. H&M Jewelry is a leading supplier of fine quality ham radio jewelry and gifts since 1988. □

J-Com *HamBase*

The average age of Amateur Radio licensees in the US dropped from 51.7 to 50.8 between December 1990 and December 1991. There were 36,570 more licensees in 1991 than in 1990, an increase of 7.3 percent. 27,347 new amateurs were in the Technician class, reflecting the impact of no-code licensing. Clubs were excluded from the statistics.

These statistics were obtained from the recently released *HamBase* 1991 database which includes new call signs issued to the beginning of December 1992. Comparisons are made with the *HamBase* 1991 data from the same time a year ago.

Given a call sign, the *HamBase 2.0* program instantly retrieves the name, address, class of license, and birthdate of any of the almost 570,000 licensees in the combined US and Canadian database and displays the information in a window on your computer screen.

Increases in amateur population were seen in all age categories with the exception of those above 80 years old. *HamBase* data is stored in a compressed format, but may be exported to a text file to allow analysis to be performed by a commercial database or a user written program.

New features in *HamBase 2.0* add to its funtionality. Corrections can be made on the screen before printing address labels. These corrections can be stored and later merged into the database. A special category for DX stations with stateside QSL managers links the DX call sign to the stateside manager's address. As an additional feature, the QSO information can be used to produce a QSL card label which may be affixed to the front of a QSL card.

Two new optional programs, *HBPopUp* and *WHamBase* are also available. *HBPopUp* is a TSR version of *HamBase* which can be popped up using a user-defined key combination. It is not necessary to leave your logging or packet program to use *HamBase*, just pop up the *HamBase* window, retrieve the data, and return to the other pro-

gram. The name and address can even be copied to the keyboard buffer for automatic typing into a logbook, word processor, or mailing list program. *WHamBase* is a fully functional windows application program version of *HamBase* for use with *Microsoft Windows 3.0.*

As with version 1.0, a hard disk is not required to run *HamBase.* The program will request the insertion of the necessary diskette and look up the information in seconds. Once the data is installed on a hard disk, however, lookups are virtually instantaneous.

For further information and pricing on *HamBase* for IBM compatible and Macintosh computers, contact Susan Tracy, WA6OCV, at J-Com, Box 194, Ben Lomond, CA 95005; 408/335-9120 or FAX 335-9121. HamBase is a trademark of J-Com. □

MFJ frequency counter

MFJ Enterprises, Inc. announces the release of the new MFJ-346 600 MHz 10-digit LCD frequency counter. Here is a terrific station accessory with literally thousands of applications! The MFJ-346 measures frequencies up to 600 MHz with utmost accuracy. It has a 10-digit LCD readout with large ¼ in. digits that can be viewed even in direct sunlight.

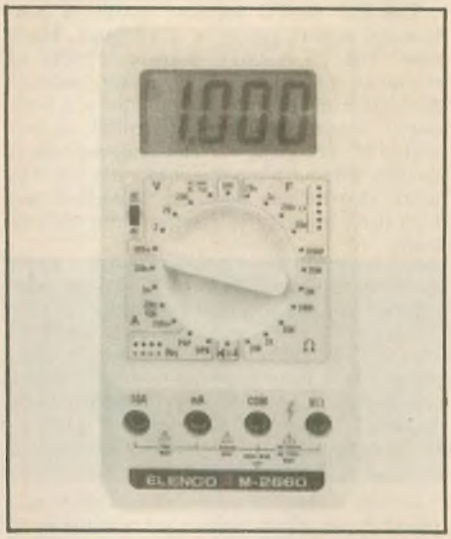
The MFJ-346 is a perfect companion for MFJ's SWR analyzer. It can also be used for exact frequency measurements of hand-held FM transceivers, measuring frequencies of HF transmitters and transceivers, and even measuring unknown frequencies when placed near mystery antennas. It also measures L.O. signals in receivers and reads oscillation frequency of classic regenerative receivers.

The MFJ-346 utilizes high speed ASIC and custom LCD technology. Four gate times let you select various frequency resolutions. It has an accuracy of 1PPM and uses 9V battery or 12VDC with optional MFJ-1312. It comes with MFJ's full one year unconditional guarantee.

For more information or to order, contact any MFJ dealer or MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762; 601/323-5869; FAX 601/323-6551; or order toll free at 1-800/647-1800. □

Elenco multimeters

The Elenco 2600 series of digital multimeters offer a variety of features for everyone. With a highly visible yellow case and extra large display, these meters are handy and easy to use.



The meters have various features such as transistor test, battery checks, capacitance test, frequency counter, logic, and even temperature. With very affordable prices, there's sure to be one that meets all your requirements.

For further information contact Elenco Electronics, Inc., 150 W. Carpenter Ave., Wheeling, IL 60090; 708/541-3800. □

GUY 1.0 guywire modeler

The *GUY* utility makes it easy to investigate the electrical effect of guy wires on antenna systems. Even when broken into insulated sections of recommended length, guy wires can devastate the performance of optimized arrays. The shown radiation patterns demonstrate this surprising effect on a highly directive Yagi. Guywire dimensions for this model were taken from an actual tower installation.

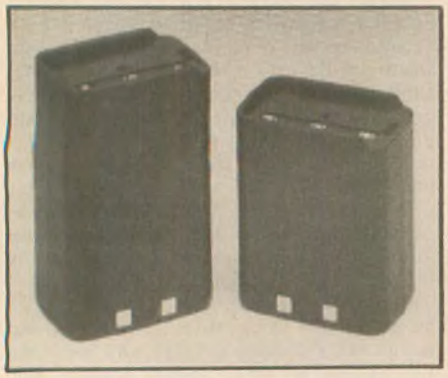
GUY works with *MN antenna analysis* software. Simply tell *GUY* where guy wires are attached and anchored and how they're broken up. *GUY* computes the coordinates of the guywire sections and combines them with an antenna file to generate a complete system model. *GUY* handles multiple guy levels and nonuniform insulated section lengths. You can easily rotate the antenna with respect to the guy wires to determine worst-case interaction. The 3-D display of guy wire currents shows exactly which guy sections are causing problems. This information can save a tremendous amount of time and effort when reworking a guy wire system.

GUY uses US or metric units, works with or without a math coprocessor, and requires *MN 4.0* or later. *GUY 1.0* is $25; *MN 4.0* is $85. Add 7.25 percent tax in California; $5

overseas. The software is available from Brian Beezley, K6STI, 507-½ Taylor, Vista, CA 92084; 619/945-9824 (0700-1800 PT). □

Alexander batteries

Alexander Batteries offers new USA built replacement batteries for Icom portable radios.



Alexander's CM83 is a 7.5V nickel-cadmium battery and is a direct replacement for Icom's BP-83. Capacity is 600mA. A larger capacity is CM84, rated at 7.5VDC and 1000mA. Alexander's CM84 is a direct replacement for the Icom BP-84. The color, texture and fit of each battery is precision-matched to the radio.

For further information contact Thomas Babberl of Alexander Batteries, P.O. Box 1508, Mason City, IA 50401; 515/423-8955. □

Tripp Lite power inverters

Tripp Lite introduces two highly affordable DC to AC power inverters. The PV 600FC and PV 1200FC both offer powerful performance to keep electronic gear running.

The PV 600FC features 600W of continuous output power in a compact, black case. The PV 1200FC features 1200W of modified sine wave output power, polarity protection and a remote on/off interface. Both units feature frequency-controlled output within ± ½ Hz to power frequency-dependent devices without pitch or speed variation. The units also include overload protection and high peak capacity to start and run difficult loads.

Ideally suited for vehicular use, these new power inverters are perfect for installation in TVs, pickup trucks and vans. Rugged construction and reliable operation make these inverters ideal for heavy-duty use or alternative energy applications. Both units feature a full one-year warranty.

Manufacturers of inverters for over 25 years, Tripp Lite features a full line of affordable power inverters from 100 to 1200W in size. The PV 600FC has a suggested retail price of $399; the PV 1200FC has a suggested retail price of $599.

For more information, contact Tripp Lite, 500 N. Orleans, Chicago, IL 60610-4188; 312/329-1777; FAX 312/644-6505. □

Ameritron T/R Switch

Ameritron announces the new Ameritron QSK-5 T/R switch for linear amplifiers priced at $349.

Ameritron's new QSK-5 is an easy to install external adapter that adds full break-in operation to your high-power amplifier. Now you can enjoy operating full break-in CW, packet, AMTOR, and other modes requiring high-speed T/R switching with your existing RF linear amplifier. Further, the QSK-5 can be switched over to your new amplifier in the future for station equipment upgrading. Additionally, the QSK-5 is totally silent and six times faster than mechanical vacuum relays!

Ameritron's QSK-5 uses silent electronic PIN diode switching for lightning-fast operation. Its exclusive sure-switch handshaking eliminates hot switching of the amplifier, minimizes TVI, RFI, key clicks, and possible damage to your linear amplifier. There is also an exclusive amp saver feature that completely turns off your amplifier's plate current between dots, dashes, and words. Your amplifier lasts longer, runs cooler, and works full break-in while running quiet as a mouse! Mechanical vacuum relay QSK switches simply cannot compare to the QSK-5 in speed or quality. As transceiver switching gets faster, mechanical relays will simply not be able to switch fast enough. Electronic PIN diode switching like that used in the QSK-5 is the ultimate solution.

Installation of the QSK-5 is a cinch. You simply plug in a few cables. No complicated internal wiring! The QSK-5 easily handles 1500W PEP (SWR below 1.5:1), and handles 750W on continuous modes like RTTY, SSTV, and FM. Optional cooling fan (CF-5, $39.95) allows sustained operation at 1500W in any mode. Use with positive voltage keying up to 25V (Model QSK-5 for 120VAC: Model QSK-5X for 240VAC).

To order, contact any Ameritron dealer. For more information or for the location of your nearest Ameritron dealer contact Ameritron, 921 Louisville Road, Starkville, MS 39759; 601/323-5869; FAX 601/323-6551; or toll free at 800/647-1800. □

CMOS keyer

K7YHA's product review of the CMOS Super Keyer II in the March issue described this product as a kit. It did not mention, however, that this is a partial kit consisting of the PC board, LSI chip and on-board components. Interested amateurs will need to supply the case, power supply, controls and knobs.

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

Those just starting out in the world of OSCAR communications would like to know when they can hear a satellite. The following charts are produced to give you a rough idea as to when OSCAR-13 will be within range of your location. The three charts as printed are centered on the following geographic locations: East = New York City; Mid = St. Louis, MO; West = Reno, NV.

As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

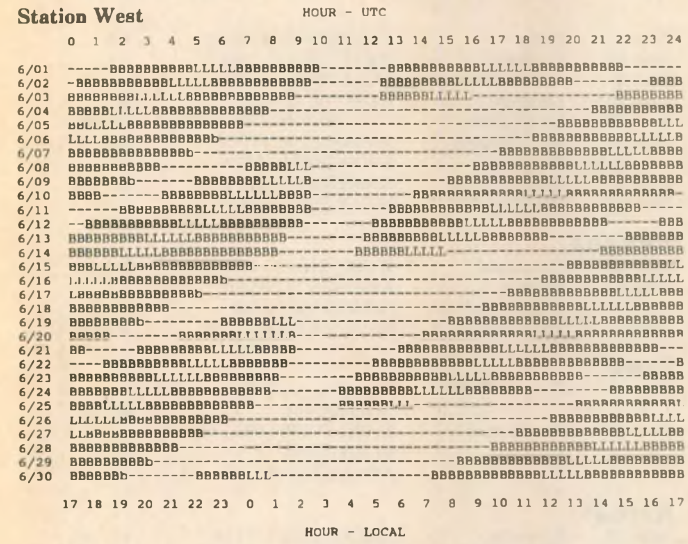
A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 145.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will hear is the telemetry beacon on 145.810 MHz. The letter "L" indicates the satellite is audible but you will hear signals between 435.650 and 436.000 MHz (SSB and CW).

Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send a SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. □

Station West

HOUR - UTC



HOUR - LOCAL

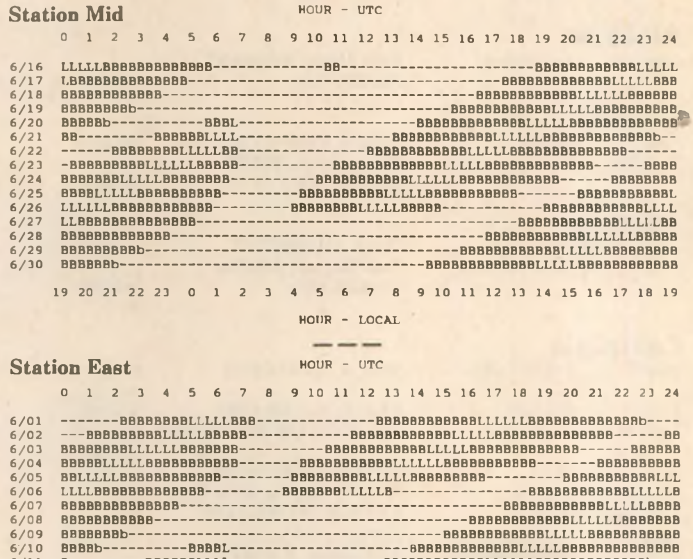
Station Mid

HOUR - UTC

HOUR - LOCAL

Station Mid

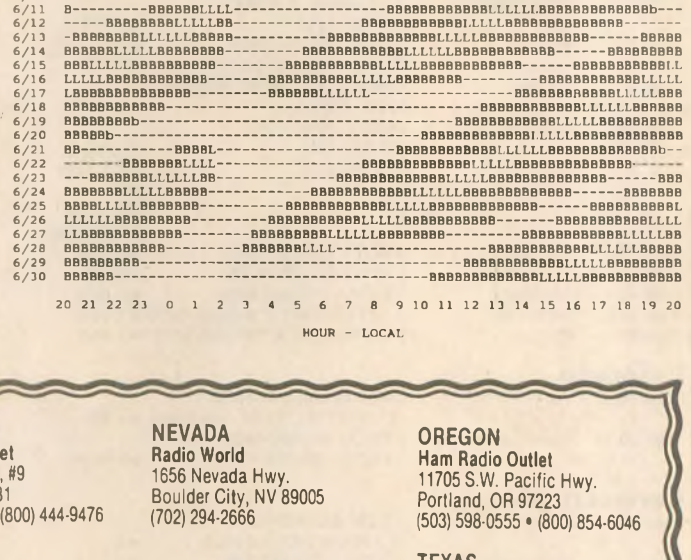
HOUR - UTC



HOUR - LOCAL

Station East

HOUR - UTC



HOUR - LOCAL

VE exam schedules

As a service to our readers, Worldradio presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid June.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r=pre-register w/i=walk-in

Date	City	Contact	Notes
Alabama			
June 20	Tuscaloosa	Kelly Bruce, WD4DAT 205/339-7882	w/i OK
Arizona			
June 6	Tucson	K7OPX 602/886-7217	w/i only
June 20	Tucson	Robert Olson, WV7P 602/577-1050	w/i OK
Arkansas			
June 28	Little Rock	Chuck 501/888-7517	w/i OK
June 13	West Memphis	Gene Bagley, AB5BL 501/739-4029	w/i OK
California			
June 6	Apple Valley	N6ZCA 619/244-4012	p/r pref, w/i OK
June 6	Burbank	KE6AR 818/349-0927	w/i OK
June 13	Camarillo	Tom, KC6JLW 805/486-7619	p/r pref; w/i OK
June 7	Chico	W6YKU 916/342-1180	p/r pref
June 6	Concord	Gene, WW6H 415/254-5090	w/i
June 20	Downey	KA3DSE 213/923-5598	w/i
June 2	Fremont	KJ6EP 510/791-6818	w/i only
June 6	Los Angeles	Ali Hassan, AA6WC 213/778-6226	w/i OK
June 13	Modesto	W6XK 209/883-2968	w/i
June 6	Novato	Nels, N6AQY 415/897-8950	w/i OK
June 6	Ontario	Harry J. Kozlowski, KM6LO 818/810-0442	w/i OK
June 20	Redwood City	Dudley, WB6WAU 408/245-4801	w/i only
June 6	Riverside	714/780-2680	p/r 7 days prior; w/i space permitting
June 13	San Pedro	N6DYZ 213/325-2965	w/i OK
June 13	Santa Maria	KI6XG 805/922-8509	w/i OK
June 20	Stockton	N6XMA 209/952-5996	w/i only
June 13	Sunnyvale	AA6IY, KG6XF 408/255-9000	w/i only
June 13	Willits	Don, WA6ACX 707/459-3980	w/i only
Colorado			
June 13	Denver	Glenn Schultz, W0IJR 303/360-7293, 24-hr. voicemail	w/i OK
June 20	Westminster	N0BLU 303/650-6826; N0HNR 303/278-4280	p/r or w/i
Connecticut			
June 28	Milford	NB1M 203/933-5125; WA1YQE 203/874-1014	w/i
June 7	Newington	WM1B 203/379-5708	p/r
June 24	Shelton	WJ1T 203/736-0488	w/i pref
Florida			
June 1	Dunedin	Marv, WC2G 813/938-7810	p/r or w/i
June 27	Ft. Pierce	Fred Newmann, W2EUX 407/340-1069	w/i OK
June 20	Melbourne	WB9IVR 407/724-6183	w/i OK
June 23	New Port Richey	Marv, WC2G 813/938-7810	p/r or w/i
Georgia			
June 28	Atlanta	Dale Gaudier, N4REE 404/396-1332	w/i OK
June 27	Dalton	Bert, N4BZJ 404/673-2214	p/r only
Idaho			
June 13	Boise	W7JMH 208/343-9153	w/i
Illinois			
June 16	Aurora	N9AKE 708/892-1252	w/i pref
June 20	Bolingbrook	NM9J 708/442-7100	
June 20	Chicago	312/929-8500, ext. 2221	w/i
June 27	Chicago	KE9X 312/233-0605	w/i
June 5	Elgin	K9WMP 708/888-8333	w/i
June 19	Elmhurst	WK9U 708/833-7371	p/r
June 6	Hoffman Estates	NO9A 708/593-8658	w/i
June 25	Lombard	KD9I 708/495-0498	w/i
June 20	Loves Park	Paul, WB9HGZ 815/987-6754	p/r; w/i
June 13	Mt. Prospect	WA9DLI 708/437-1464	w/i
June 4	Mundelein	K9IW 708/367-6303	w/i
June 13	Oak Forest	KA9HDN 312/247-0650	w/i OK
June 27	Oak Forest	WG9R 708/687-0511	w/i
Indiana			
June 13	Hammond	WO9H 219/738-2728	w/i
June 6	Portage	KE9I 219/762-0580	
June 6	South Bend	NI9Y 219/259-9445	w/i OK
June 7	Terre Haute	K9EBK 812/466-2122	w/i OK
Iowa			
June 20	Council Bluffs	Lorraine, AA0BS 712/322-1454	w/i OK
June 20	Des Moines	NA0R 515/964-0900 or 515/967-3890	w/i
June 12	Sioux City	K0AAR 712/277-2636	w/i OK
Kansas			
June 23	Emporia	K0JDB 913/343-2158	w/i OK
June 3	Great Bend	WA0PSF 316/792-5363	p/r pref; w/i limited
June 26	Leavenworth	Martha Auchard, WB0ERI 913/651-7350	w/i OK
June 13	Olathe	Joe Scalet, WK0G 913/764-2822	w/i OK
Maine			
June 27	Auburn	WM1C 207/583-6187	w/i OK
June 13	Bangor	K1AG 207/947-4051	w/i OK
June 16	Harrison	KA1REB 207/583-6915	w/i OK
Maryland			
June 13	Davidsonville	NT3Z or NS3V 410/761-7115; or WC3I 301/262-5083	w/i OK
June 20	Laurel	WB3GXW 301/572-5124	p/r pref
June 26	Springfield/Holyoke	WA1ZUH 413/245-3228	w/i OK
Michigan			
June 20	Mackinaw City	Tom, N8KHE 616/436-5033	w/i OK
Minnesota			
June 27	Alexandria	WD0FET 612/763-4479	w/i
Missouri			
June 11	Big Bend	314/567-8777	w/i ltd
June 14	Granite City	Eric, NF0Q 314/946-0948	w/i ltd
June 13	St. Louis	Dave, N0DN 314/225-1952	w/i ltd
Nevada			
June 20	Reno	K7HRW 702/827-8450 day, or 702/972-3933 night	p/r 30 days prior, w/i OK
New Jersey			
June 20	Bayonne	WA2QYX 201/451-9471	w/i OK
June 18	Bellmawr	WA2VQG 609/546-7710	w/i
June 13	Cranford	24-hr hotline: 201/377-4790; or 201/635-7686	
June 10	Fort Monmouth	WB2GYS 908/532-5354	w/i
New York			
June 13	Fort Drum	David, NR2S 315/562-3532	w/i
June 13	Greenvale	WA2BGE 516/921-0085	w/i OK
June 17	Lancaster	Stan, N2IAE 716/887-6608	
June 18	Lower Westchester County	WK6R 914/834-2322	w/i OK
June 6	North Tonawanda	Vern, AA2AC 716/693-5977 days; 634-5276 nights	p/r only
June 7	Yonkers	AC2V 914/237-5589	w/i OK

THE MART

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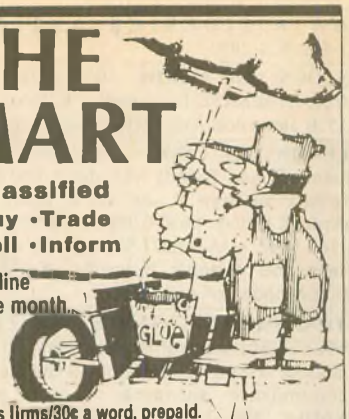
•Buy •Trade
•Sell •Inform

Mart deadline
20th of the month.



Business firms/30¢ a word, prepaid.
Private individuals/15¢ a word, prepaid.

THE MART *Worldradio*
2120 28th St., Sacramento, CA 95818

WORLDRADIO ON CASSETTES for the blind. For information, contact TOM CARTEN, K1PZU, 1602-Y King's College, Wilkes-Barre, PA 18711.

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92033.

ELECTRON TUBES! Transmitting, receiving, military obsolete. . .all types. Large inventory. Fast delivery. DAILY ELECTRONICS, P.O. Box 5029, Compton, CA 90224. 213/774-1255, outside CA 800-346-6667.

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WATTMETERS URM-120, 2 to 1000 MHz, RF 10-1000W using three plug-in couplers. TS-1285 meter, couplers, metal case, manual, used, 20 lbs. $115. Meter and one coupler only, 10 lbs. $70. Select 2-30 MHz, 25-250 MHz, or 200-1000 MHz. TARTAN ELECTRONICS, Inc., Box 36841, Tucson, AZ 85740-6841. 602/577-1022.

AMATEUR RADIO REPAIR: FCC licensed, 17 years experience, lab quality NBS traceable test equipment, reasonable rates. G.B. COMMUNICATIONS, INC., 963 Birch Bay Lynden Rd., Lynden, WA 98264; 206/354-5884.

ICOM BC-35 CLONE drop-in rapid charger—$39.95!! ICOM AA battery case, holds 8 AA NiCads or alkalines, drop-in or wall charge—$15.00. ICOM clone packs, drop-in charge: BP-7 700mAh 12v—$39.00, BP-8 1400mAh 8.4v—$39.00, drop-in or wall charge: BP-5 500 mAh 10.8v—$35.00, BP-8—$40.00, BP-7 500 mAh 13.2v—$43.00. Empty BP-7-8 cases, drop-in charge, w/hardware and instructions—$12.95. Slide-on charge board—$7.00, w/wall xformer—$12.00. Yaesu packs: super FNB-4 800mAh at 12v—$39.00, FNB-12—$43.00, FNB-17/10—$32.00, FNB-14 1000mAh at 7.2v—$42.50, FNB-2—$19.00. Alinco: for the 160 and 560 series HT's 7.2v 700MaH—$35.00, 12v 700MaH—$47.00. New ICOM: BP-83 600mAh 7.2v—$33.00, BP-84 1000mAh 7.2v—$39.00, BP-85B 600mAh 12v—$65.00. Inserts: BP-3—$14.50, BP-5—$20.00, BP-8 1400mAh—$25.00, BP-7—$23.00, Tempo Early S-1—$19.95, Tempo S15—$21.00, Santec flat pack w/connector—$25.00, FNB-17—$19.00. FNB-12 600mAh—$29.00, FNB-4—$26.00, Kenwood 25/2600—$18.00, 2400—$19.00, PB-21—$12.00. We will rebuild your battery pack for the cost of the insert, no additional charge! Send thru the US mail, please. All orders add $3.00 shipping, Illinois add 6.5% tax. Free catalog upon request. Need something not listed? Give us a call, we would love to be of service to you. Send to: DC ACE ELECTRONICS, INC., P.O. Box 364, Lincolnshire, IL 60069; 708/634-3337 or 708/587-2291. Good checks ok. VISA/MC. 1 last special: Sanyo 600mAh AA NiCads $1.30 each!!

ANTENNA SOFTWARE design dipole, inverted vee, quad; also make labels, temp. conversions, and guy wire lengths. For IBM compatible 5.25 360K floppy, $15.00 plus $3.00 s&h. EMIL KUBANEK, W8BVR, 6298 Old Allegan Rd., Saugatuck, MI 49453.

ROSS'$$$$ NEW MAY (ONLY): Kenwood SM-220—$369.90, TH-75A—$349.99, TH-315A—$299.90, TM-411A—$319.99; ICOM 761—$2099.90, 725—$715.00, BC-50—$30.00, BP82—$33.90; Yaesu SC-1—$139.99, 73RTT—$265.90, NC15—$69.99; Shure 444D—$58.90, 526T—$74.90; Alliance HD73—$136.90, U105—$51.90. All limited time offer. Call or send 2 stamps for more specials. Looking for something not listed or hard to find, call or write. Over 9000 ham-related items in stock for immediate shipment. Mention ad. Prices cash, F.O.B. Preston. Hours Tuesday-Friday 9:00 to 6:00; 9:00-2:00 p.m. Mondays. Closed Saturdays & Sunday. ROSS DISTRIBUTING COMPANY, 78 South State, Preston, ID 83263; 208/852-0830.

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FOR SALE: KENWOOD R-5000 general coverage communication receiver. Optional deluxe 6 khz AM crystal filter installed. Very clean, like new. $575.00. BILL WOLVERTON, KI7F, 415 South Prospect Ave., #218, Redondo Beach, CA 90277; 310/316-0316.

PICTURE QSL CARDS of your shack, etc., from your photo or black ink artwork. 500 $28.00, 1000 $44.50. Also non-picture cards. Custom printed cards, send specifications for estimate. Send 2 stamps for illustrated literature. Generous sample kit $2.00, half pound of samples $3.00. RAUM'S, RD 2, Orchard Road, Coopersburg, PA 18036. Phone 1-215/679-7238.

Date	City	Contact	Notes
North Carolina			
June 7	Hendersonville	W2YTO 704/891-4359	p/r pref; w/i OK
June 13	Leicester	Larry, WB4PLA 704/683-1400	w/i OK
June 6	New Bern	Andy Griffith, W4ULD 919/726-5924	w/i
June 14	Salisbury	Isabelle, AB4UX 704/284-2414	w/i OK
Ohio			
June 6	Cincinnati	Herb, WA8PBW 513/891-7556	p/r pref; w/i OK
June 6	Mentor	Scott, KO8O 216/256-0320	
Pennsylvania			
June 6	Erie	W3CG 814/665-9124	w/i
June 20	McKeesport	KQ3W 413/466-5204	p/r 2 days prior
June 4	Philadelphia	ND3Q 215/482-0386 or 215/879-0505	w/i
Rhode Island			
June 11	Providence	NN1U 401/231-9156 or 401/454-6848	w/i OK
South Carolina			
June 20	Charleston	Pat Foster, AC4IH 803/553-3871	w/i
June 2	Columbia	Ray, N4WR 803/345-3373	w/i OK
South Dakota			
June 13	Rapid City	NU0F 605/348-6564	p/r 30 days prior; w/i OK

Date	City	Contact	Notes
Tennessee			
June 8	Blount County	Carroll, W4PCA 615/982-5839	w/i OK
June 14	Jasper	Charles Wooten, KD4XX 615/942-5116	p/r pref
June 20	Knoxville	Ray Adams, N4BAQ 615/688-7771	w/i OK
June 27	Loudon County	Bob Gray, KE4SK 615/458-6115	
June 20	Memphis	Win Guin, W2GLJ 901/754-4552	w/i OK
June 13	Roane County	Richard Spillee, AA4KS 615/354-4281	w/i OK
Texas			
June 6	Amarillo	Don, WD5ILA 806/359-3611	w/i OK
June 9	Houston	ND5F 713/464-9044	p/r pref; w/i OK
June 13	McGregor	AB5BA 817/859-5374	w/i OK
June 13	Midland	KT5G 915/694-9450	w/i OK
June 27	San Antonio	K5JWK 512/657-1549	w/i
June 6	San Benito	WA2VJL 512/399-0806	w/i only
Virginia			
June 6	Virginia Beach	Ed, WD4GOY 804/468-0866	w/i OK
West Virginia			
June 13	Huntington	K8KVX 304/736-6542	w/i OK
Wisconsin			
June 6	Racine	NW9P 414/658-8390	w/i

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Not only do we hear of all the new technology that is here, but we are told that the 8088 chip computer that put computer power on everyone's desk is finally finished...it will not survive after this year!

Certainly, if you're thinking about a new computer for your hamshack (or home or office), it can be confusing as to what is, or is not, the right system to buy.

If you're not "into" computers, many of the technical specifications (like 12 vs. 25 MHz or 16-bit vs. 32-bit) may be lost on you; so, let's see what we can make of this when it comes to the average first time buyer.

To begin with, many of the improvements in the newer personal computers deal with increases in available "on-board" memory, faster data processing speeds and an ability to do multi-tasking (doing several things at once). While all of these things may be great, they can cost a chunk of money. The problem then becomes what is the best for your needs...what is the most cost-effective, and how do you decide?

First, look at your needs. What do you want to do with the computer? Will you alone use it, or will the XYL want to keep records with it or the teenager use it for homework? Will you use this computer in your hamshack exclusively or will you also keep the family financial records on it? Or, will you use it in your small business? These are valid questions you need to consider.

Next, pick out a software package (computer program) you want to use and investigate it thoroughly. Talk to knowledgeable salespeople and ask others who may be using the same software. Once you're sure about the package you want to use, it may help dictate at least the minimum system requirements you have to select.

If you want to use your computer in a business also or see the need to maintain large amounts of data, you should consider at least a 286-based system with a 40-70 megabyte hard disk and an EGA color monitor. You'll quickly appreciate the speed, storage capability and other conveniences that such a system affords.

On the other hand, if you want a basic system you can use for light bookkeeping and routine correspondence (as well as just about anything possible in a hamshack), your best choice may not be the highest technology system.

The 8088 "Turbo XT" computers, popular and plentiful today, may be your answer. A complete Turbo XT with a 30MB hard drive and a mono/CGA card driving a good amber screen monochrome monitor can be put on your desk for around $1,000. And, should you someday want to upgrade, you'll have a good "second" system that can pull full-time hamshack duties or fill another niche in your home or office.

At today's prices, you can probably purchase two Turbo XT's for the cost of one loaded 286 or 386 system. Careful planning may show you that the "older technology" is more affordable, yet just as efficient for your needs. Money saved on the computer itself can be spent for larger and faster hard disk storage, to buy more powerful and expensive software or to obtain a faster and more professional printer.

If you're worried about buying something that is considered "obsolete," you should consider that whatever you purchase will probably have a replacement for it on the market in 12-18 months anyway.

The 8088-based Turbo XT computer presently accounts for about one-third of all computers sold. The reason is a great price for a good, reliable computer. There are some excellent buys on the market for the tight budget and there will continue to be excellent buys on "yesterday's technology."

Consider carefully your prospective computer purchase. And if someone says, "That's old technology," you can smile and know you're being shrewd with your money! —*The Magnolia Report* □

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Ode to an antenna

RICHARD SEARS

What do you have to say, little wire,
hanging in the backyard? What do you have to say?
Can you speak to me?
Oh! Yes you can.
All I have to do is listen a little harder.
Can you tell me of the world?
Oh! Yes you can.
All the time of every day.
You can tell me of the world,
of wars and death and love and life,
you can tell me of the world.
Can you sing to me a song, little wire?
Can you sing to me a song?
Oh! Yes you can.
At night, if I listen hard enough,
you can sing to me a lullaby and lull me off to sleep,
or shake the walls and wake the child,
if I let you sing too loudly.
Can you speak to me in Vietnamese or Quechuan or Greek?
Oh! Yes you can, little wire,
and always have and always will, no doubt.
I can learn from you the languages of the world,
and the stories of their people.
Can you show to me a story, little wire?
Can you show to me a story?
Oh! Yes you can.
You can show to me stories of every kind,
of sports and news and sex and bears,
and most in living color.
But can you tell me of the universe, little wire,
hanging in the backyard?
Can you tell me of the universe?
Oh! You have given me pictures from Mars and Jupiter,
and even whispered stories of the stars.
Oh! Yes, little wire, you have been around a long time,
and even played a trick or two.
You scared my grandfather with stories of the martians,
and told my mother of the Japanese invasion.
What were you doing, little wire,
when Euclid walked the earth so many years ago?
My grandfather began to learn your language, little wire,
not so long ago.
Now I learn from you and make you speak for me,
so they can hear me 'round the world,
or even to the stars.
And what is your language, little wire?
How can I speak to you?
Yours is the language of the rocks and of the stars.
Yours is the language God made for the universe.
Yours is the language of Science and Mathematics.

—Oak Ridge ARC

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