Worldradio

Year 24, Issue 2

August 1994 • $1.25

FEATURED IN THIS ISSUE

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Chico, CA — South Pacific Adventure

Dayton, OH — Dayton '94

Mill Valley, CA — Hams across the water

Nationwide — Field Day comments from around the country

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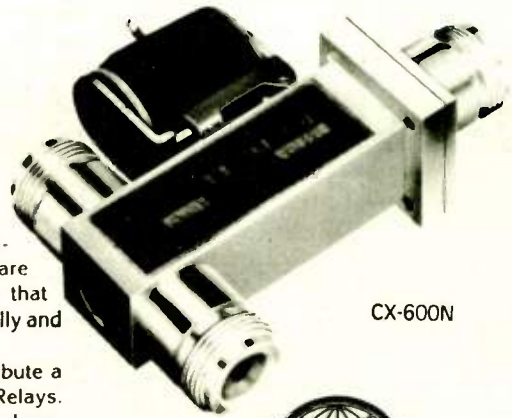

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Hobbies

JIM GORKA, N8MCF

I met someone new the other day. It seemed that we had nothing in common. While getting to know each other, the conversation led to a discussion of our hobbies. You all know mine, his is fishing.

"Fishing is an art as well as a skill," he said, adding that in order to be a good fisherman, he studies the waters, time of year, time of day, equipment and must be an expert at high-tech equipment, bait choices and more.

We soon discovered that we were both fishermen, so to speak, and here is why: He watches the weather, carefully choosing the right lake at the right depth at the right time of year for the right fish. I choose the right band, on the right antenna, for the best part of the day for the right location.

He studies the habits of the fish, carefully choosing the best bait. I carefully listen for the right call, to determine the exact frequency, and for what someone might be listening. He ties his own flies, ensuring that they are just perfectly mated to the line and terrain; I do the same, only with coaxial and balanced cables, ropes and wires.

He uses exacting electronic equipment, like depth-finding sonar, to help locate the big fish. I also use exacting electronic equipment, like spectrum analyzers and 'scope, to help locate the radio signals of pile-ups. His technique is well practiced, the right twitch at the right time and location. My technique is also well practiced, the right call at the right time and location.

We talked for quite a while, trying to contrast our hobbies. The more we talked, the more we determined that our hobbies differed only in the form of the tools we use and what we called our catch — and despite all of our exacting theory, hunches, techniques and expertise — when the bait is cast — or the call is made — neither of us is guaranteed to land the "Big One" — and that it is because of the thrill of just that suspense — pitting our training, experience, equipment and skills against dumb luck — that we will continue to love and practice our own form of "fishing." See you at the pond.

AEA 1994 Amateur Ambassador

AEA is proud to announce the 1994 winner of the Amateur Ambassador Award: Jim Stafford W4QO of Roswell, Georgia. As the 1994 recipient of this award, Mr. Stafford received a $ 1,000 cash award and an all-expense paid trip to the ARRL National Convention in Dallas.

Nominees for the AEA Amateur Ambassador Award are judged on their dedication to Amateur Radio, the influence they've had on those outside Amateur Radio, and any special activities that promote Amateur Radio. Particular attention is given to those who have had a significant positive impact on young people

Mr. Stafford was nominated for this award because of his work with the RadioActive Schools program in the greater Atlanta, Georgia area. The RadioActive Schools program provides students and teachers with the opportunity to get hands-on experience with Amateur Radio, electronics, science, and a host of other things. One of the aims of the programs is to give students experiences that they would otherwise simply read about in a textbook.

In conjunction with the RadioActive Schools program, Mr. Stafford has also been instrumental in several teachers gaining their own Amateur Radio licenses. This part of the program has played a vital part in enabling the schools to continue to offer the exciting opportunities offered by Amateur Radio.

AEA commends Jim Stafford, and the many other deserving amateurs we could not recognize this year, for their efforts in promoting Amateur Radio. Without the endeavors of these dedicated amateurs, our hobby would not be nearly as rich and rewarding.

Thank AEA

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COLUMNS

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Worldradio (USPS 947000) is an international conversation. You are invited to participate.

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. You readers are participants — an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio.

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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Should you visit the Capitol in California, on the first floor you will see huge portraits in oil of previous governors.

That's a pitiful honor compared to being listed as a ***Worldradio*** Super-Booster (Lifetime Subscriber) the latest of whom are:

- Cesar-Victor Llarenas, KF2MF, Brooklyn, NY
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- Ron Faulkner, W6TUR, San Diego, CA
- Keith Mizokami, KD6YEF, Westminster, CA
- Russell Ahlberg, KI6KJ, Auburn, CA

and apologies to Charles Sadler, KB6DM, Anaheim, CA, who, while being listed here, had his call fall victim to a typographical gremlin.

•

When you receive this, the event of the year, FIELD DAY!!! will have just occurred. If you did something out of the ordinary, or different, or interesting, send the story and pictures to ***Worldradio***; even if you say, "I'm going to send our story to the event's sponsor, ARRL," just as the ***WR*** club does every year. After they send it back to you UNused, send it here. We know what's interesting!

•

CQ magazine has come out with an outstanding book titled "The 1994 CQ Amateur Radio Almanac." You can order it by calling 800/853-9797. All the facts and figures about AR just as you see in the almanacs on other subjects. It obviously took a gargantuan effort to research and produce this book and *CQ* is to be highly commended.

One benefit of this book may be that it may show those who seem to drift into and out of Amateur Radio that there is far more to it than they realize.

While there are many who view it as a pleasant enough "hobby" or a "nice way to pass the time" I think they miss the enjoyment that those who really "attack" it with ferocity realize.

Certainly those DXpeditioners who brave the extremes of heat or cold are not looking for pleasant diversions. Amateurs who spend an entire Saturday providing communications in a public service manner are not doing so to "kill time."

Also in that light, in a few months ***Worldradio*** will publish a book by the late Lenore Jensen, W6NAZ (through the efforts of Cynthia Wall, KA7ITT, Bob Jensen's daughter). Lenore put together a collection of touching stories about the good people and good occurrences in Amateur Radio.

•

When you call our 800 number to subscribe to ***Worldradio*** or to renew your subscription, you may talk to Marianne, Alfred, Kathi or Russ. That's at a company called System Design which does subscription handling for a number of magazines.

Well, Russ Ellis (the boss), a WWII naval officer in the Pacific, has been so impressed with the "nice people" he talks to on behalf of ***Worldradio*** that he is now studying for his license. We had lunch together the other day and Russ showed me (and played) the CW cassette he listens to in his car.

•

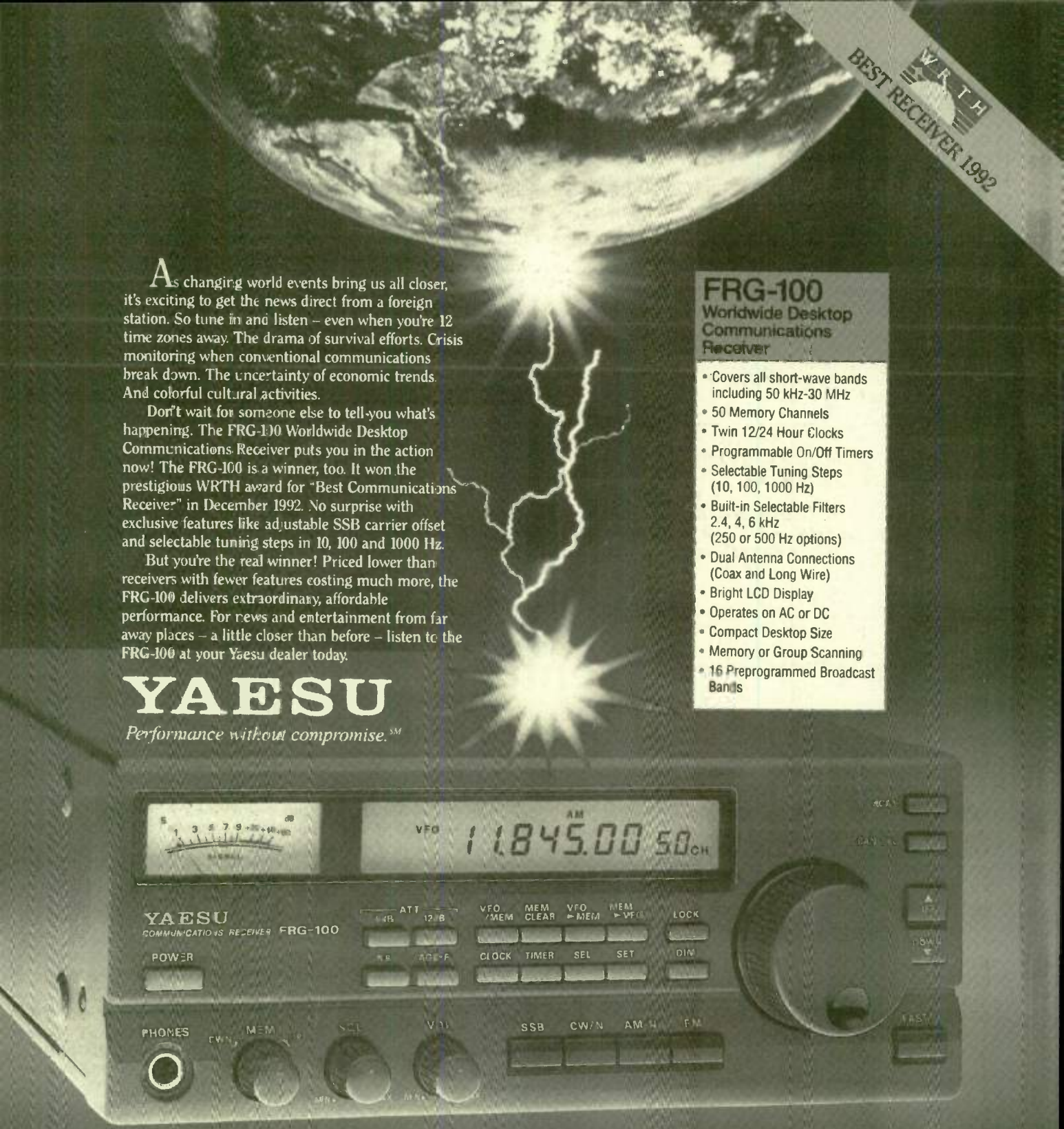
A bulletin was talking up the idea of the five wpm CW test for General Class. Mentioned was a five-to-one vote in favor in a poll on one of the computer services. I wonder what the ratio would be if the vote were on: Would you like a weekly paycheck without having to show up for work?

Some proponents have gone a bit off the deep end, saying that such would "stimulate the nation's economy." One industry person calculated that $100,000,000 in sales would happen instantly. Thousands of new jobs have been mentioned.

Personally, I am against such a move to lower our standards.

Would I benefit financially from double the number of hams (and subscribers) and more advertising revenue? Of course! But, when I am on that Caribbean cruise in the largest suite on the ship, I would still have to shave in the morning and I wouldn't want to look in the mirror and see Judas. — *Armond, N6WR*

Please turn to page 9 for details.



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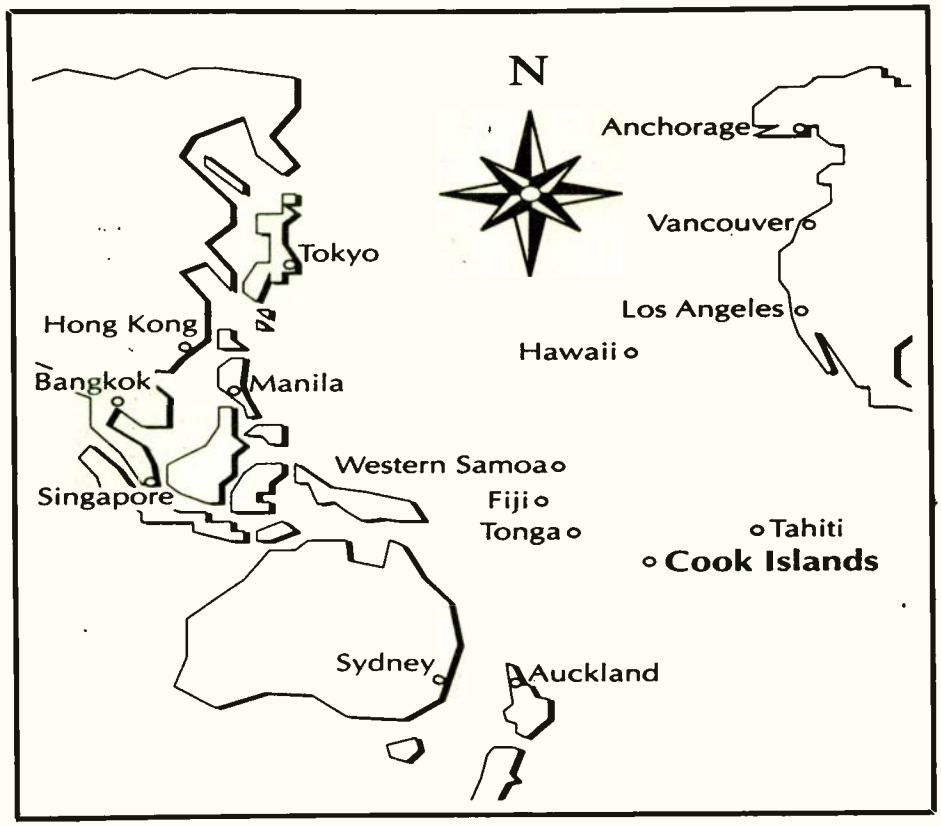


South Pacific adventure

ALLEN SHERWOOD, KN6AH/ ZK1AAH

Like many urban hams, I live in an area that seriously restricts radio antennas and towers. I am a DXer, but countries come slowly with a modest four band trap vertical at rooftop height. I have long envied the local hams who had the advantages of location and the room for a real antenna farm!

So, if I could not work a lot of DX, the next best thing was to be DX for somebody else. The criteria I set for this effort was that it should be someplace semi-rare, or at least in the top 125 needed countries; it should be somewhat easy to get to and not too expensive (like Tahiti). Lastly, it should have a simple licensing arrangement and easy customs clearance. I've read too many horror stories of rigs impounded (or worse) for huge customs deposits!

In 1992 I selected Truk (V63) in the Eastern Caroline Islands for a DXpedition. I took a mobile rig and rented a car and did a lot of operating on the beach under the curious stares of seemingly thousands of native children. When the kids went home, the rats came out, and I described their bold antics to listeners around the world. I kept a regular sked with Jon, KN6EL, at home in Chico to let the XYL know I was still alive (I omitted the rat descriptions for obvious reasons).

This past fall I took another trip — Rarotonga in the South Cook Islands — midway between New Zealand and Tahiti. In addition to the ZK1 call sign, the beaches offered an unspoiled attraction, and the local hotel had a pre-existing 40 foot pole (with rusty antenna wire) left from a European team the previous year.

Air New Zealand has some off-peak rates that are attractive, and I learned of the hotel through an on-the-air contact with a fellow Rotarian who had recently been to Rarotonga on a humanitarian service project. The flights are tricky, I was warned — twice a week to Los Angeles. I had visions of the little man running down to the lagoon shouting "Zee plane, zee plane" just like on Fantasy Island!

Rarotonga is a 13-hour flight from Los Angeles, via Tahiti. It's the tropics, and a minimum of clothing is needed. My requirements for ham gear were learned from the earlier trip to Truk and Saipan — an all band HF radio (Kenwood TS-50), a 220V power supply (Icom PS45) — a lightweight switching power supply is really an advantage. I traded the reduced output (30W) for the reduced weight of the little Icom supply. Somehow lugging a 30 pound power supply for a six pound radio was not in the spirit of my adventure. I also took a 20M "J" antenna from Antennas West, and a small MFJ mobile tuner with 100 feet of copper wire. A microphone and Vibroplex Brass Racer key rounded out the equipment — all of which fit nicely into a small briefcase and weighed less than 20 pounds!

The trip was uneventful, and I arrived to a fantastic Rarotongan sunrise on an island set in a cobalt blue sea with a reef that let one wade out a quarter mile and still be only waist deep in the lagoon. Customs was a breeze — five minutes! The hotel was nice - right on the beach, like the brochure promised — but my room had been switched to a downstairs back unit! All the rest were full, and there was no chance of a swap despite all my wailings about my radio. I became "that crazy wireless operator" to the hotel staff, and decided that since the nearest Motel 6 was about 5,000 wet miles away, I'd better accept the situation. The "situation" included fluctuating 220V, power (off daily for a prescribed number of hours that exactly matched the grayline DX window to Europe); no ground (all plastic pipe into sand); surrounded on three sides by a two-story concrete building. The biggest shock came when I discovered that the keyer battery (purchased and tested weeks earlier) was dead. An odd-ball 7.1V lithium type, the chances of finding a replacement in downtown Avarua (the only settlement) were slim to none, and Slim had gone QRT!

The solar conditions were rapidly slipping away also — far down from my 1992 DXpedition when a 42-inch Larson mag mount worked the world on 10 Meters. The best solar flux was 94 and the A index hung persistently around 19 for the five days I operated. Enough to make a DXer cry, right? Not at all... the beaches were outstanding, and the island people delightful. I rented a moped and found the Cook Island Office of Telecommunications by the satellite dish on the roof. Getting my license was a 10 minute effort, as the local Minister of Communications (also a ham) wrote my name in a loose leaf binder and made a copy of my stateside license. I even got to pick my

own call, ZK1AAH. With my "designer call" safely in my pocket, I returned to the hotel to attempt to get something up and radiating.

A pocket slingshot got a messenger line over a 30' palm, and the "long wire" followed. Long wire is a misnomer, as it was just possible to get 35 feet of wire snaked through the palms and down to my window. Forget the ground in the sand! See if it plays... Did it ever! The thrill of firing up a ham rig under these conditions on a lush tropical island 5,000 miles out in the South Pacific brings out the Walter Mitty in all hams. I sacrificed the keyer by doing a lobotomy on its innards with a Swiss Army knife, and made a passable straight key which I balanced on a split coconut husk for a sturdy — if sticky — base. The bands, 10,15, 20, 40 were so-so, but it felt like the call added 40 dB to my peanut whistle signal.

Did I have fun? You bet! In an all too brief 15 hours of intermittent operation I managed to work nearly 30 DXCC countries on five continents with my 30 watts. CW was, as expected, the best for DXing — with many Europeans worked on 20 CW. For SSB, I found that calling CQ was largely unproductive. People just don't listen carefully for that S2 signal in the noise. I spent a lot of time on the 14.247 net, and Dick, KL7H, the net control in Los Molinos did a great job of stirring up contacts for me. Funny how they can give me a "Q-5, S-1" on the net, but never hear me when I am off on my own. So, for low power operations, DX net check-ins are a good idea, as is CW. Not surprisingly, the South Pacific is crawling with great DX who try to avoid the USA window. They don't need our QSLs, but prefer to DX to Europe or talking to each other. I worked Tarawa on 10 FM and found that there is quite a bit of inter-island 10M FM work. I'd suggest listening around the bands after they appear to have closed to the Pacific to see what might be up and about. You'd be surprised. Security check on departure was the same fellow I'd seen when I arrived. (This is a very small place, remember?) He suddenly took some interest in my MFJ wire tuner, and asked me to "turn it on" (after all, I said it was a radio, didn't I?) Several anxious moments later I was on board my Air New Zealand 747 which had stuck its nose into the outdoor terminal area for loading.

In the past two years I've operated KH6, KH2, KHØ, V63 and ZK1 and hopefully I will be back island hopping again soon. I figure a never-to-be-forgotten DXpedition cost me about the same as a small tribander on a 30-foot tower and what the heck, someday I'll get the beam when I'm too old to travel!

Editor's note: Allen, KN6AH/ZK1AAH is a retired naval officer and is an administrator at Chico State University. He holds an Extra Class license and has been a ham since 1958.

WR

User friendly

JEFF LIEBERMANN, WB6SSY

Sometimes I wonder if the current crop of ham radios were designed to be operated by humans. I constantly hear complaints about how difficult the radios are to operate from beginners. They are told to read the manual and practice. They leave wondering if they will ever learn the intricacies of programming an HT. I consider myself well versed and experienced in the art of radio design and human factors. I consider the user interface on the current crop of radios a disgusting disgrace to the engineering profession. There's nothing wrong with the user; it's the radio user interface.

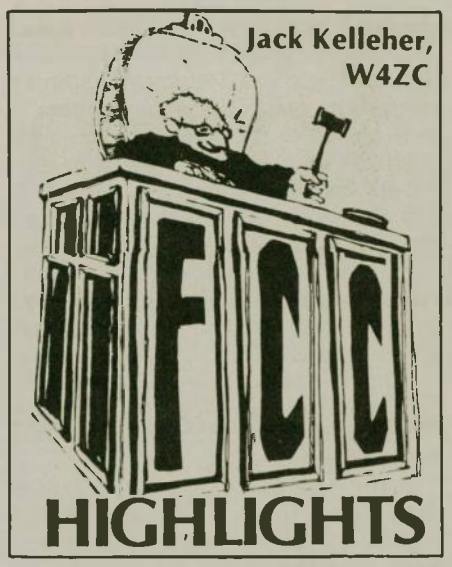
What we are fighting is a good idea dragged to its illogical extreme. At first, the radio could be programmed with thumb wheel switches and slide switches. These lacked any memory channels, so a "memory store" button was added. Then scanner features were added, and more of the 16 standard touch tone buttons were borrowed to control the radio. No problem, because each button did only ONE thing in receive, and only belched touch tones in transmit.

As more and more features (PL, selective call, band scan, dual bands, power control, modes, etc.) were added for every item.

I'm always amazed at how few commercial radio features appear in ham radios. Commercial radios are not allowed to display the frequency. They display a channel number or some text. They also should not be "easily" front panel programmable. Wouldn't it be nice to display K6BJ or SCZ RPTR, instead of 146.790? To accommodate the assortment of modes, paging, and large number of channels, commercial radios use computers to load the radio. (A 200 channel handheld is no fun to load).

Your telephone complains if you leave it off hook. Wouldn't it be nice if your radio complained if you sat on the transmitter for three minutes? Everyone says to use only as much power as necessary. So why not store the power setting with the memory channel?

While I'm complaining, how about speakers that can be heard, adjustable microphone gain(s), a display that's readable, non- rub-off legends, larger buttons, brass instead of zinc BNC connectors, indestructible battery rails, knobs with pointers, standardized power/speaker/mic connectors, ad nauseam. — *Short Skip*, Santa Clara County ARC



The FCC Forum at Dayton

Your reporter did not make Dayton this year. The FCC Forum offers a unique opportunity for information from the Commission, and so we are giving it the space we think it deserves via WR's Norm Brooks, K6FO — W4ZC.

Here they are again. John Johnston, W3BE, and Bill Cross, AA3DI, of the FCC's Private Radio Bureau (PRB) Special Services Division in Washington, DC. As in previous years they brought the PRB to the Dayton Hamvention®, Dayton, OH on Sunday, 1 May, 1994.

Johnston started off by sizing up the audience. He asked "Have you ever filed a petition for proposed rule making (PRM) with the FCC?" Four people had. "Have you ever filed comments on a PRM submitted by someone else?" Eleven had. "Have you ever filed comments on a Notice for Proposed Rule Making (NPRM)?" Sixteen had. "I see we have a rather involved audience here today," he commented.

The FCC gets from 25 to 50 petitions a year to change the Amateur Radio rules. Most often they are from individual operators. However, most of the petitions are frivolous, repetitious, based on false information, or otherwise don't deserve to occupy the Commission's time.

Here is the way the procedure works. When it appears that a received petition has merit, Johnson's group asks the Secretary of the FCC to put it in a folder and assign it a rule making (RM) number. This is put into public notice and there are 30 days to file comments with the FCC. Any comments received are placed in the same folder. When the time for processing arrives, the petition is carefully reviewed along with any comments that are in the folder. Often it is necessary for the PRB to obtain additional information, such as estimates of how the proposal will affect licensing and enforcement activities, for example. One of the questions they must always answer is the matter of cost. If they still think it is a good idea, a NPRM is drafted and presented to the Commissioners for their consideration. If they adopt it, it is given a docket number and put out as a news release. The text of the new proposal is also released so you can see exactly what the change is.

When you first hear that the FCC is planning to change the rules, get a copy of the NPRM and read it carefully. Determine the issues that are important to you. Read what your columnists have to say. Discuss it at your radio club or on the air, or with whomever you can have a productive dialog. Note that there are two dates specified. The first one is for your comments. This is w here you put into the official record your statement of support for or opposition to the proposal. There is an unusually long comment period — at least 60 days and some have run for over six months. The second date is for reply comments. This is your opportunity to put into the official record your reaction to other comments that have been filed.

File your comments with the Secretary of the FCC. Do not send them to the FCC's local field office. Do not send them to the licensing division at Gettysburg and do not send them to W3BE's *Callbook* address.

After the comment date is closed, the record is carefully reviewed and a Report and Order is prepared. If the Commissioners adopt that, a date is given for the new rule to become effective.

Johnson said that in the 20 plus years he had been in the rule making business, he has seen a marked improvement in the quality and quantity of information available to the amateur operator. Copies of the Amateur

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 the first of June 1994.

For more information about the callsign 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
Ø	AAØRB	KGØNH		KBØMXY
1	AA1JE	KD1VA	N1RYS	KB1BIA
2	AA2SH	KF2VK	N2YTZ	KB2QZD
3	AA3HV	KE3NE	N3SBK	KB3BCD
4	AD4SJ	KR4SZ		KE4MHX
5	AB5UH	KJ5XX		KC5GWN
6	AC6CM	KO6CP		KE6HQM
7	AB7CN	KI7YS		KC7CQR
8	AA8OX	KG8JB		KB8STD
9	AA9KX	KF9VT	N9XAD	KB9IYE
North Mariana Is.	KHØD	AHØAS	KHØCR	WHØAAY
Guam	WH2E	AH2CU	KH2JL	WH2ANK
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AB	KH4AG	WH4AAH
Hawaii		AH6NG	WH6UQ	WH6CRG
Kure Is.			KH7AA	
American Samoa	AH8J	AH8AG	KH8BF	WH8ABB
Wake Wilkes Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska		AL7PQ	WL7SN	WL7CHQ
Virgin Is.	WP2N	KP2CC	NP2HM	WP2AHU
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Thank you!

Subscriptions received by the 20th of the month will begin with the issue dated two months from the month of receipt, i.e., if we receive the subscription by April 20, your first issue will be June, and will be mailed to you in early May.

Worldradio is a two-way communication. Send in Amateur Radio information and news. Share your knowledge with your fellow amateur and Worldradio reader. We are most interested in your comments and suggestions. We would appreciate being placed on the mailing lists of amateur club bulletins.

Rules are available from several sources. The Amateur Radio news media has done an excellent job of getting the facts out. Electronic bulletin boards provide thoughtful comments. Conventions like the Dayton Hamvention® provide the FCC the opportunity to come and tell about rule making.

Johnson each year reminds us that he and Mr. Cross are one third of the Personal Radio Branch. In addition to them, there is a secretary, two attorneys and a communications specialist. They are responsible not only for the rules of Part 97, which covers the amateur radio service, amateur satellite service and RACES, but are also concerned with the commercial operators' license examination system and the interactive video data service.

In December, 1983, the FCC began issuing Amateur Radio licenses with 10 year terms. At that time there were about 412 thousand Amateur Radio licensees. Today there are over 630 thousand. We don't know how many of those 412 thousand are still with us. We know that immediately prior to 1983 we were losing between ten and 20 thousand hams a year. The number of hams who have never had to renew their licenses must be about 50 to 60 percent. This is not a problem for many because they rarely complete a ten year term without changing, say, license class or mailing address. When you come in for any type of modification, you get a new ten year term. If you're one of the few who haven't modified your license in the last ten years, reach in your pocket and check the expiration date of your license. If it expires in the next 90 days, get that new Form 610 into the mail. If you can get it into the mail before it expires, you can continue to operate until your application is acted upon. If it expired yesterday or before, you are no longer a licensed amateur operator, and you should not operate until you receive a renewed license. You have a renewal grace period of two years. If you are a Volunteer Examiner, Johnson urgently asked that you do not participate in the examination process until you get your license renewed.

The FCC Forum continued with Bill Cross moderating. He said this has been a highly productive year for the Amateur Radio service. The Novice exams have been placed under the VEC system. We got the protection we asked for against the state and local police when using our transceivers. The "no business" rule was revised. The Novices got the entire 1 ¼ Meter band and we got our weak signal subband. The impediment to the VHF high speed packet systems was removed.

Cross gave the amateurs credit for making all this possible. As the FCC has said before, they do not have a master plan for the amateur service. It is the amateur community that determines what it wants and needs. To illustrate this premise, Cross gave these examples of recent Rule Making.

The ARRL requested that the FCC preempt certain local ordinances and state statutes which were affecting our having our transceivers. The so-called "scanner laws" prohibited the possession of transceivers if they were capable of reception on frequencies other than amateur frequencies. The request was for a declaratory ruling, not for a change in the rules. The FCC released a notice of inquiry soliciting comments. They received 115 responses. Shortly after the motion was filed, New Jersey repealed its statute, and Kentucky amended its statute. The FCC's decision held that state or local laws that preclude the possession of amateur transceivers by licensed amateur operators merely on the basis that they can receive other frequencies are inconsistent with the federal objective of facilitating and promoting the amateur service. The FCC required therefore that such state and local laws are preempted by federal law.

The "no-business" rule making proceeding was very interesting. This RM was based on petitions filed by the League, *ATV Quarterly* magazine and one amateur operator. Eighty comments were filed on this docket. The most convincing argument was that modern mobile communications systems have all but eliminated any incentive to use amateur frequencies as an alternative to other services. We amateurs also showed we were prepared to accept greater responsibility for self-regulation and cooperation in the use of our frequencies. One request that the FCC decided against was that it provide a list of examples of permitted and prohibited communications. Just based on the hundreds of telephone calls already received, the commission knew there would be thousands of examples. Instead, they decided to leave it up to the amateurs to decide for themselves whether certain communications were permitted. The commission did, however, place into the rules the standards that should be used when we try to decide whether or not to use amateur frequencies for a particular communication. Any amateur to amateur communication can go ahead unless it is expressly prohibited by the rules, transmitted for compensation, done for the pecuniary benefit of the station control operator or done for the pecuniary benefit of the station control operator's employer. Now, everyone in the branch has a copy of these standards near the telephone. If you call with a question on this subject, they will read them to you!

The 1 ¼ Meter rule making procedure was based on a petition filed by only one individual. Eighty comments were filed. We proved that experimental communications and repeaters were incompatible because of the long period of time of channel occupancy by a repeater. Although the FCC prefers voluntary coordination of band plans, we were convincing that the only solution in this case was through regulation. 150 kHz, therefore, was set aside for weak signal work.

Moving the Novice examinations to the VEC system was initiated by the FCC after it had observed over several years that the VEC system was far superior to the old Novice examination system. Paperwork errors in the old system were ten times greater than in the VEC system. Cross then showed a bar graph, which he said was self-explanatory. So, he added, "I will explain it to you." (laughter) The graph showed the number of new Tech licenses issued each month in the past year. They ranged from 2000 in Nov. 1992 to almost 6000 in Sept. and June 1993. Shorter bars showed the number of new Novices for the same period. They ranged from about 100 in December 1992 to over 1000 in January and June 1993. The pattern is the interesting part. It seems that the interest in the Novice exam dropped dramatically right after the Novice exam was moved to the VEC system.

Some people are still worried about the impact of the codeless Tech license on telegraphy. They can rest easy. There are more hams moving up the ladder to those license classes with telegraphy skills that there were before the codeless tech. Five to ten years ago, there were about 5000 persons moving up to amateur Extra each year. In the last three years that has gone up to 17 to 18 thousand per year.

The automatic forwarding proceeding was based on six petitions filed by amateur operators. 44 comments were

filed. They wanted the VHF high speed packet forwarding system to operate with only the minimum safeguards necessary to prevent misuse. The solution was that only the originating station and first forwarding station, if they could not authenticate the identity of the originator, would be accountable for violative communications. The new rules became effective June 1, 1994. We will be given the opportunity to comment on this matter for HF in a future proceeding.

Items coming are vanity call signs, operating authority for visiting foreign operators, sharing frequencies to give us access to the 219-220 MHz band, wind profiling radars in our 70 centimeter band. There is also the accommodation to digital forwarding systems on HF.

Many would-be Amateurs took their first examination at the Dayton Hamvention® weekend. Cross predicted that some of them, on Monday, will call the Gettysburg FCC office to ask when they will receive their license. Current reality is that the new ham faces a two to three month wait for a new license. A campaign running on bulletin boards and newsletters has resulted in RM-8288. The complaint was the four to eight weeks it takes Gettysburg to process a license application. There is also about a four week period for the Form 610 to arrive at Gettysburg from the VEC. This proceeding seeks to give new amateurs a temporary operating authority by giving the new ham a temporary call sign by the VEC. The most resource-consuming process is key stroking the Form 610 data into the data base. Getting corrections to the Form 610 errors is also time consuming. The most frequent error is applicants being born in the year 1994! The FCC has been studying and discussing electronic filing of applications for the past two years. The law has now been changed to allow the acceptance of electronic signatures. Applications in other services are already being filed electronically. Fortunately, our VECs have the know-how for the institution of electronic filing. You can be sure that electronic filing will be initiated, thus cutting off a big delay in the license issuing process.

Johnson then said he believes that in spite of all this rule making activity, Part 97 of the FCC Rules was basically meeting our needs. As new methods of communication emerge, they will challenge existing rules. After all, many of the present rules are associated with concepts of yesterday.

The Commission tries very hard to avoid writing "how to" rules. These are rules that specify how we are to do something. We amateurs ask for a lot of "how to" rules. "How to" rules are usually made to solve a problem with a particular system. In time, the system becomes passé and the rule becomes obsolete.

The FCC sometimes hears the complaint that Part 97 changes too often. Perhaps so, but the changes reflect proof that we amateurs are carrying out our obligations, we are experimenting with the very latest technology, our numbers are growing and we are testing novel ideas.

This year we can look forward to several Rule Making procedures

RM-8218 and RM-8280. Automatic station control on the HF bands - currently there are some 50 stations automatically transmitting on the 20 Meter band, operating under a special temporary authority. Because of possible interference with non-amateurs, automatic control cannot be allowed on shared HF bands.

Three RMs were denied recently that had to do with changing our amateur license class structure. Our present structure came from six major rule makings over the past 45 years. In view of the very ambitious FCC agenda it will take a very convincing argument to show the Commissioners that another rule making is needed the Amateur Radio class structure.

RM-8418 proposes to encourage former amateurs to return to licensed status without retesting.

RM-8301 would create a supervisory position on each AML VEC team.

RM-8462 would raise the eligibility for a club station license to at least four members.

The ARRL is asking for a policy statement or ruling interpreting PRB- 1.

Johnston praised the VEC system. It has been operating since 1984 — eleven years. Last summer they administered their one millionth examination. In 1993 alone, VEs administered 194 thousand elements to 113 thousand examinees at eleven thousand sessions. What a wonderful system! — especially when compared to what the FCC once offered! — *de K6FO*

UHF Reallocations

In our May and July columns we reported on a preliminary plan by the National Telecommunications and Information Administration (NTIA) to begin implementing the Congressional mandate to transfer 200 MHz from Government to the private sector. The proposed Plan covered 25 MHz of the 2300 - 2450 MHz band

The FCC has now issued a Notice of Inquiry on proposed reallocation (ET Docket 94-32) of the Ultra High frequencies mentioned above, plus 25 MHz in the SHF band, 4660 - 4685 MHz.

The FCC requested comment on two specific areas of concern to amateurs:

- "Will the recommended reallocation avoid excessive disruption of existing use of Federal Government frequencies by amateur service licensees? Is the 2 MHz segment at 2400 - 2402 MHz that the Department of Commerce excluded from consideration for reallocation sufficient to avoid disrupting existing amateur-satellite operations?
- Will new non-Federal services in these bands be able to share the spectrum with existing services, specially with amateur operations in the 2390 - 2400 MHz and 2402 - 2417 MHz bands, and with the fixed-satellite service in the 4660 - 4685 MHz band? If yes, what are the appropriate technical sharing criteria? What should be the relative status of users? What effect will existing users have on competition and on access to new services?"

Petitions denied

The FCC has denied two petitions for further changes in Part 97.113 (Permitted and prohibited communications; PR Docket 92-136). Both petitioners, David Popkin, W2CC, and Rolland D. Cummings, WAØEDA, sought permission for amateurs to retransmit certain U.S. Government broadcasts, such as time signals. Popkin also proposed changing the language (permitting paid teachers to use Amateur Radio in their classrooms) from "classroom instruction" to "instructional activity." The Commission said that the ideas expressed had been considered during the public comment period for PR Docket 92-136.

Another petition, from the Cass County (Indiana) Amateur Radio Club (CCARC), would have eliminated the Advanced and Extra Class amateur licenses. The CCARC stated that the majority of amateur operators are dis-

satisfied with the current operator license class structure, and that most other countries have a three class license structure. CCARC proposed to combine the present General, Advanced, and Extra Class operators with Technicians who have passed a 5 wpm Morse code exam, granting them all full privileges.

The FCC replied that "We believe — that the views previously expressed by members of the amateur service community through thousands of comments in numerous rule making proceedings continue to be valid — Hence, in our view, the amateur community, by and large, is satisfied with the current structure, the fundamental purpose of which is the encouragement of the amateur service in the United States through rules that provide for advancing skills in the communication and technical phases of the art."

ITU conferences

The FCC has begun to prepare for future World Radiocommunication Conferences (WRCs). The Commission is seeking information to assist it in developing proposals concerning the Agenda of WRC-1995, and in developing and refining proposals for the agendas of WRC-97 and WRC-99.

R. B. (Bob) Vernall, ZL2CA, a frequency planning engineer at New Zealand Telecom, told W5YI at Dayton that he believes a resolution impacting ham radio could be adopted at WRC-95. It would permit administrations to decide whether or not they wished to retain the Morse code requirement as a prerequisite for HF Amateur Radio operation. He said that his country was in favor of such a position. WR

Listen up

PAUL WILKINS, AB4CY

If you will take a close look, the front panel of every receiver and transceiver has a phone jack to allow you to plug in a separate pair of headphones and disable the built-in speaker. Earphones do several things; 1) they reduce the noise level for those who don't want to hear, and 2) reduce the extraneous room noise for the one who does want to listen only to the output of the radio. For some of us, using headphones when we operate might be a courtesy to those in the vicinity who don't care for CW, ham chatter, QRM or static.

Earphones have gone through a lot of variations over the years. At first there were "magnetic" phones (today's telephone receivers are still magnetic designs). These were designed with several thousand ohms resistance to be inserted into the plate circuit of a vacuum tube audio amplifier, which could mean touching an exposed wire and ground put you in touch with the tubes plate voltage. An exotic variation was "crystal" phones that used piezoelectric crystals to produce sound, the reverse of the crystal microphone which changes sound waves into electrical signals. These phones had an impedance of half a megohm or more and could be capacity coupled to the audio circuit eliminating the potential plate voltage exposure. They also had good high frequency response, much better than magnetic phones which didn't generate much sound above 3500 Hz.

Today's earphones are all of the "dynamic" I variety, in fact they are all just miniature permanent magnet loudspeakers. They have a low impedance of twenty ohms or less and are direct or capacity coupled to a driving circuit or through a stepdown output transformer. They operate at a low voltage and present no electrical hazard. However, they can produce enough sound energy to damage your hearing if used that way over a period of time. They say that the hearing of a lot of teenagers has been severely impaired by listening for years to very loud rock music using earphones or extra powerful loudspeakers, so don't abuse your ears.

In today's miniaturized commercial ham gear, the built-in loudspeaker is often a little more than an oversized earphone. If you buy or liberate a 6 or 7 inch diameter permanent magnet (PM) speaker with 4 or 8 ohm impedance, and mount it in a 7 inch cube plywood box (with an open back) and plug it in to the remote speaker jack on the back of your rig, your rig will sound entirely different and much better. It will develop a reasonable amount of sound power with considerably better quality than the built-in speaker. In the days when Hallicrafters and National were the receiver kings, units came with ten inch diameter speakers in cubic foot enclosures that were advertised as broadcast quality sound. I'm suggesting something in between, it will make an astonishing difference.

Headphones and loudspeakers convert electrical energy into sound (audio) power. They do this very much like a transmission line and an antenna which work best when the drive and load impedances are matched. The loudspeaker enclosure provides the matching function which can greatly increase the efficiency of converting electrical energy into sound power as well as improving the quality of sound reproduction. In the commercial hi-fi business they often compensate for poor loudspeaker performance (small size) with increased power, like 100 watts or more per channel. For comparison, a full symphony orchestra produces about one and a half acoustic watts of power at full blast, and that's a lot of sound power.

In portable gear, like handhelds, a large part of the battery capacity goes into driving an inefficient speaker. Using a set of earphones will give you at least 25 percent more battery life.

— *AUTOCALL*, Foundation for Amateur Radio, Inc.

YOU MEAN THIS IS THE GUY THAT'S BEEN BEATING ME AT RADIO CHESS ON CW ?

Hams across the water

MARILYN BAGSHAW, N6VAW

In 1990 — when I learned DX was a necessary part of life — I answered a CW CQ from 9V1XR in a World Wide DX Contest, as I did not then have a QSL from Singapore. When N6VAW was acknowledged, I returned with "RST 5NN BK."

That didn't work! This guy wanted to rag chew! He called back with "I'm not in the contest, my name is Alex. . . my name is. . . my antenna is. . . WX is. . . temp is. . . I work for. . . " I was horrified! I was new at DX and slow on CW, and even worse. I was using Rich's (WB6UDS) station and he wasn't even home to bail me out!

After an intense 20 minute QSO, Alex suggested QSYing to SSB. I knew I would surely perish! Rich's shack has two stations: one for CW and one for SSB. Alex's request meant switching rigs, tuners, amplifiers and switching the antenna! I would rather have been handed the stick of a Boeing 707 and been asked to land it!

I asked Alex to stand by while I found a clear frequency, always a good excuse to buy time to figure things out. I accomplished the necessary technical adjustments without blowing up the station, or at least well enough that Rich did not detect any damage! When I heard Alex's voice for the first time, I shed tears of joy.

QSL cards and letters were exchanged for three years: I had found a pen pal in a State/City/Island I had visited in 1987. We compared notes on changes to the cleannest most beautiful city in Malaysia. In early October, I received a letter from Alex: he and his XYL, Jane would arrive in San Diego on 15 October (staying with another ham), and would be in our country for almost four weeks!

I posted a letter of welcome to Singapore hoping he would receive it before his departure, which he did. When I returned home from work one evening I heard Alex's voice on my answering machine. "'Marilyn, this is your Singaporean friend, Alex. We will be arriving in your city on 3 November and will call you again." Rich and I met Alex and Jane at their hotel and shared our local wonders with them. Alex contacted Frank, K6OVV, from San Francisco on 2 Meters exciting for Alex since Amateurs cannot use 2 Meter HTs in Singapore. We learned there are only 100 hams in Singapore. Radio communication is not encouraged and equipment is strictly regulated. Regular auto inspections are mandatory, and special attention is paid to radio equipment. Alex pays $180 a year to have an antenna on the building of his apartment!

Alex operated from my station and made two contacts using my call; his US contacts were surprised to learn they were in QSO with 9V1XR!

— *DXer* NCDXC

Take a new ham to your club meeting!

Silent Keys

Thomas D. Gohlike, KB2KSI

Thomas D. Gohlike, KB2KSI, of Tonawanda, NY, became a Silent Key on 10 June 1994 after a short illness. He was 75 years of age.

Mr. Gohlike retired from the Chevrolet Motor Plant in Tonawanda, NY in 1975.

He was a member of the Amateur Radio Association of the Tonawanda's, Inc.

He is survived by his wife, Vera, and many nieces and nephews. — *information submitted by James E. Keller, N2LQQ*

Oregon's Silent Keys

Recently, Southern Oregon Amateurs lost a dedicated ham, Derald Lehman, KD7MN, of Grants Pass.

Oregon's Silent Keys memorial.
— photo submitted by N7XNR

He was the kind of ham who was always there, especially when the repeater had a problem, or when antenna projects needed to be done.

We have decided to encourage others the world over to plant trees in memory of their silent keys as well.

Should your club or group decide to establish a similar memorial, the Southern Oregon Amateur Association would be pleased to hear from you.

KD7MN would have been pleased that such a project originated with his friends. — *submitted by Fred Schotte, N7XNH*

MFJ *super* DSP *filter*

. . . Tunable "brick wall" bandpass, lowpass, highpass, notch filters . . . programmable pre-set filters . . . automatic multiple notch filter eliminates heterodynes . . . adaptive noise reduction reduces noise and QRN . . . for Voice, CW, Data . . .

MFJ-784

$219.95

MFJ's *super* DSP filter automatically eliminates heterodynes, reduces noise and interference *simultaneously* on SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, SSTV, WeFAX, FAX, weak signal VHF, EME, satellite -- nearly any mode you'll ever encounter.

You get MFJ's *tunable* FIR linear phase filters that minimize ringing, prevent data errors and have "brick wall" filter response with up to 60 dB attenuation just 75 Hz away.

Only MFJ gives you *tunable* DSP filters. You can tune each lowpass, highpass, notch and bandpass filters and *vary* bandwidth to pinpoint and eliminate interference. The last tunable filter setting is saved -- it's ready to use when you switch back to it again.

Only MFJ gives you 6 *factory pre-set* filters and 10 *programmable pre-set* filters that you can customize. Instantly remove QRM with a turn of a switch!

You get MFJ's *automatic notch filter* that searches for and eliminates *multiple* heterodynes.

You also get MFJ's advanced *adaptive noise reduction*. It silences background noise and QRN so much SSB signals sound like a local FM repeater.

The *automatic* notch filter and *adaptive* noise reduction can be used with *all* tunable and pre-set filters.

Automatic notch filter

MFJ's *automatic* notch filter searches for and eliminates *multiple* heterodynes in *all* filter modes -- it's so fast interfering CW and RTTY signals are also eliminated.

If you leave the *automatic* notch filter on during a phone contest, you'll never be worn down by the heterodynes of tuner-uppers.

Voice signals aren't degraded. The *narrow* automatic notch is silently working in the background destroying unwanted tones when they appear.

With up to 50 dB attenuation, you'll copy stations that would otherwise be masked by heterodynes. You'll miss fewer calls and be less exhausted when the contest is over.

When you need to *selectively* remove tones -- like when you're enjoying a CW ragchew and a couple of annoying CW stations appear nearby -- you can use the *two* MFJ *tunable* notch filters to completely knock them out.

Adaptive noise reduction

Pressing the "ON" button silences background noise. Some SSB signals sound like a local repeater! It makes noisy FM and AM signals readable and works with CW, Data and other signals.

It works in all filter modes and on all types of random noise including -- white noise, impulse noise, static, ignition noise, power line noise, hiss and atmospheric noise.

The LMS algorithm gives you up to 20 dB of noise reduction depending on the type of noise. You can adjust the amount of noise reduction to prevent distorting some signals.

Reducing random noise reduces fatigue and makes QSOs more fun -- especially, when the band is full of tiring noise.

Tunable highpass/lowpass filters

For Voice and Data nothing beats MFJ's exclusive *tunable* highpass/lowpass FIR linear phase "brick wall" filters.

You can *tune* the lower cutoff frequency 200 to 2200 HZ and the upper cutoff frequency 1600 to 3400 Hz.

Signals *just 75 Hz* away literally disappear -- they are reduced a *thousand* times, 60 dB!

Unlike other filters, speech clarity is not reduced by envelope distortion caused by unequal time delay.

By adjusting the highpass and lowpass filters you can create *custom* filters for Voice, Data and other modes.

When signals are weak, you can improve copy by removing high and low speech frequencies. They contain little information but are full of noise that reduce readability.

On crowded HF bands, overlapping SSB signals make copying difficult. You can improve copy by slicing off some overlap with razor sharp "brick wall" responses.

You can also highpass filter out hum, pulses, rasp and other irritating low frequency noise.

Tunable bandpass filters

Narrow band signals like CW and RTTY jump out of QRM when you switch in one of MFJ's three *tunable* FIR bandpass filters.

You can *tune* the center frequency from 300 to 3400 Hz. And *vary* the bandwidth from 50 Hz to 680 Hz -- from super tight CW filters to wide razor-sharp Data filters.

As you narrow the bandwidth, interfering signals just drop out because, just 60 Hz away, they're down by over 50 dB.

You can use *narrower* bandwidths to fight tough QRM because these linear phase filters don't distort signals with unequal time delays.

Even with the narrowest 50 Hz bandwidth, you'll never have a problem with ringing.

One position gives you *two* tunable filters you can use together on one signal. For example, on RTTY, tune one filter to mark, the other to space and set each bandwidth tight for an incredibly sharp RTTY filter.

16 *pre-set* filters -- use factory set or program your own

With a turn of a switch you can select from *sixteen* convenient *pre-set* filters. You can use them for SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, SSTV, WeFAX, FAX or any other mode you can think of.

If you don't like our *pre-set* filters, you can define your own filter by programming bandpass center frequency and bandwidth, lowpass and highpass cutoffs. *An MFJ exclusive*!

Only MFJ gives you the best of both worlds -- *tunable* filters to eliminate nearly any QRM and fast convenient *pre-set* filters customized for any mode.

Plus more . . .

A push-button quickly bypasses your filter so you can hear the *entire* unfiltered signal and see if anyone is calling you.

Built-in two watt amplifier. Has volume control, input level control, speaker jack, headphone jack, accessory jack, PTT line and PTT sense and line level output. 9x2½x6 in.

It plugs between your transceiver or receiver and external speaker or headphones. Use 12 VDC or 110 VAC with MFJ-1315, $14.95.

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Why? Because the world's leading tuner has *earned* a worldwide reputation for being able to match just about anything.

MFJ-949's have been highly refined and have years of *proven* reliability.

Every MFJ-949E comes with . . . MFJ's famous one year *No Matter What*™ unconditional guarantee . . . first-rate performance . . . unbeatable quality . . . the best tuner value in ham radio -- *all from the world's most trusted name in antenna tuners.*

Now the latest MFJ-949E gives you even more features and more value than ever at a new lower price.

Why take chances with an imitation when you can have the *real thing* from the world's most trusted name in antenna tuners.

More reasons why more hams use MFJ-949's than any other antenna tuner in the world . . .

Full 1.8-30 MHz Operation

1000 volt tuning capacitors, extra heavy duty inductor switch, Teflon® insulating washers and proper L/C ratio gives you arc-free no worries operation with up to 300 watts from 1.8 to 30 MHz.

Lighted Cross-Needle Meter

MFJ's lighted Cross-Needle Meter shows you SWR, forward and reflected power *simultaneously.* It reads both *peak* and average power on 300 or 30 watt ranges.

The meter is illuminated for easy reading in dim light and has an ON/OFF lamp switch. The meter lamp uses 12 VDC or 110 VAC. A *free* AC adapter is included at no extra cost.

Tunes *any* Antenna

The MFJ-949E tunes out SWR on dipoles, verticals, inverted vees, random wires, beams, mobile whips, shortwave receiving antennas . . . nearly anything!

Use coax feed, random wire or balanced lines. Has oversized *heavy duty* 4:1 balun.

Super Antenna Switch

MFJ's 8 position *super* antenna switch lets you select two coax fed antennas, random wire/balanced line or built-in dummy load for use through your MFJ-949E or direct to your transceiver.

MFJ's Cross-Needle SWR/Wattmeter is always active for monitoring forward and reflected power and SWR.

QRM-Free PreTune™

MFJ's *QRM-Free PreTune*™ lets you pre-tune your MFJ-949E off-the-air into a built-in dummy load without causing QRM.

Pre-tuning into a dummy load makes tuning your actual antenna faster and easier.

Why take chances?

Why take chances with an imitation when you can have the* real thing *from the most trusted name in antenna tuners?

Full Size Dummy Load

The MFJ-949E has a *full size* non-inductive 50 ohm dummy load measuring 3/4 inch diameter by 5 inches. It *easily* handles 300 watts of abusive tune-up power.

You'll find it handy for tuning, testing and repairing your rig, setting power level, adjusting your mic gain and more.

Watchout for cheap midget size dummy loads that changes resistance as it heats up -- marginal ones could burn up your transceiver.

Custom Inductor Switch

The inductor switch is the most likely component to burn up in *any* antenna tuner.

The inductor switch in the MFJ-949E was *custom* designed to withstand the extremely high RF voltages and currents that are developed in your tuner -- it's not a flimsy *plastic* switch made for small signals and wired with *tiny* gauge wire.

Superior Cabinet

Each MFJ-949E cabinet is chemically treated and has a new tough scratch-proof *vinyl* cladding -- not paint that can scratch or chip off. You won't find a tougher, longer lasting finish anywhere.

Detailed logging scales and legends are *permanently* silk screened on a *real* aluminum front panel and back panel -- it's not merely a plastic decal or glued-on paper strip that can peel off.

Superior Materials . . . *Superior* Construction

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Book Reviews

Radio Amateurs' Guide to the Ionosphere

by Leo F. McNamara

The publication of the *Radio Amateurs Guide to the Ionosphere* will be most welcome to serious radio amateurs. It fills a yawning gap between the accumulated lore on HF propagation found in the *ARRL Handbook* and technical tracts like Davies' "Ionospheric Radio," meant primarily for scientists and engineers working on problems which involve the physics of the ionosphere.

Dr. McNamara writes clearly, concisely and with authority, having more than 20 years of experience in both practical and theoretical ionospheric problems. The book is organized in ten chapters, starting with the ionosphere in historical perspective and finally ending with propagation prediction programs. Between the first and last chapters, the reader is first given thorough discussions of the quiet sun, the formation and properties of the quiet ionosphere and then the basic aspects of HF propagation. After that, the reader is taken through the physical limits of propagation predictions, communications problems under both normal and disturbed conditions and finally, unusual HF propagation modes.

Those chapters contain no less than 148 figures, complete with detailed captions. The use of mathematics is held to a minimum, making the text quite readable. What mathematical development there is in the book is found in Appendix A where the various formulas for the signal-to-noise (S/N) ratio are derived. While the book comes only in soft cover, it is printed on heavy, glossy paper and is an example of excellence in publication.

All of the above represent the formalities of a book review, so you won't think you're being asked to "buy a pig in a poke." Now let me get down to some personal impressions. First, I like the book because it is thorough and factual. If there's a term or an idea in HF propagation that you're curious about, I'm confident you'll find it listed in the index and be guided to a clear discussion of the matter.

To give an example, as I write this review, we are in the throes of an ionospheric storm related to high, enduring geomagnetic activity. Chapter 8 provides a thorough discussion of the matter, describing the solar origin of the disturbance and how it affects the properties of the F-region that we rely on for communication. As solar activity declines toward solar minimum in Cycle 22, DX propagation will be on the wane and disturbances take on greater and greater significance for us. On that basis, Chapter 8 warrants careful reading and thought so as to make your experience in the coming years more understandable and less mysterious. It's all there; all you have to do is read about it.

The other thing I like about the *Radio Amateurs Guide* is that it is organized in a logical fashion, carefully taking the reader through an orderly, knowledge-building experience. "Knowledge-building" is used here as that's how understanding is developed, in an orderly fashion and not just by reading a collection of isolated, seemingly unrelated statements. The former amounts to an education while the latter is what some people call a "learning experience."

The first nine chapters of the *Radio Amateurs Guide* are taken from an earlier, larger book by Dr. McNamara and are truly seasoned and tested. The last chapter, Propagation Prediction Programs, is new and if I were to find a fault with the book, it would be with that chapter. The problem is not with the "road" but the "vehicle" used to explain the material. Having served with the Australian Government IPS Radio and Space Services, he makes extensive use of a program developed by that group, the Advanced Stand Alone Prediction System (ASAPS), in discussing examples of propagation predictions.

Unfortunately, that program, while competitive with the American program IONCAP, was only recently introduced in the USA and does not enjoy the same wide-spread use that IONCAP does. Thus, while quite informative, the examples in the chapter lose some of their value because the reader, in all probability, does not have the means to expand and develop them further. In short, the use of both IONCAP and ASAPS would have been a better choice. Perhaps that will be done in the next edition.

All in all, on a scale of 1 to 10, I'd rate the *Radio Amateurs Guide to the Ionosphere* as a 9. I know of several publications on the same topic that I'd rate down around 3 and only one, Davies' volume, a 10. Beyond that, the only other thing I can touch on in reviewing the book is the price, which seemed a bit steep at first thought. But then think of what you pay for a book explaining the latest computer program you're struggling with; Dr. McNamara's book has lasting value while the others are good until the next upgrade comes out. So there you are!

Published by Krieger Publishing Company P.O. Box 9542, Melbourne, FL 32902-9542 Soft Cover, 8-1/2 x 11 inches, 176 pp, $39.50, plus $5 s/h.

— Reviewed by Bob Brown, NM7M

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Sam and Erin Go to a Hamfest

by Connie Dunn, KB5LES

At last, there's a story for young children that introduces the REAL world of Amateur Radio. *Sam and Erin Go to a Hamfest* chronicles the adventures of six year old Erin and her ten year old brother, Sam, who go to a hamfest with Aunt Elmira and Uncle Elmer.

As Erin and Sam wander from exhibit to exhibit, they learn about SKYWARN, code oscillators, and SAREX. And then. . . Erin becomes separated from Sam and her uncle.

"She saw lots of people. There were tall people and short people. But she didn't see anyone that she knew."

Finally she runs into Professor Gordo who locates her uncle via two Meters. Erin happily practices code until he arrives.

Delightfully illustrated in a "color-me," 8½" by 11" format, *Sam and Erin Go to a Hamfest* is the perfect book to give to young children of "radio-active"

hams. It even comes with its own box of crayons. Without being overly technical, the book gives a good overview of the hobby through an entertaining story.

Author Connie Dunn KB5LES, is frequently published in ***Worldradio***, *QST*, and several computer magazines. She's also the author of YL Emergency Handbook; Candle Stories; Tales for Families; and Old Texas Family Recipes.

When her own daughter, Erin, age six, become interested in ham radio, Connie found a lack of materials for this age group. *Sam and Erin Go to a Hamfest* is the first of a series. It's a delightful introduction to a wonderful hobby — a hobby that can be enjoyed by all ages.

—reviewed by Cynthia Wall, KA7ITT

Awards

1994 ARRL Atlantic Division "Amateur of the Year"

The 1994 ARRL Atlantic Division "Amateur of the Year' is Bob Bennett W3WCQ, of Towson, MD. This award is presented to an outstanding all-round Amateur from the Atlantic Division with a strong record of service to the Amateur community.

An active member of the Baltimore Radio Amateur TV Society (BRATS), Bob co-anchors the popular "Answer Man Net" on the club repeater to help hams with technical questions. He has taught licensing courses and served as an Elmer to new hams.

Bob's particular technical specialty is Amateur TV, and he has operated the W3WCQ ATV repeater for twenty years. It was only the second ATV repeater in the world.

Bob also takes part in public service communications; he serves on the planning committees for several local events served by hams, so that Amateur communications (sometimes including ATV) are effectively integrated into management of the events.

For nearly ten years, Bob served as the Atlantic Division representative on the ARRL VHF/UHF Advisory Committee and served as the committee's last chairman. In 1993, VUAC was replace by a new ARRL Spectrum Committe. In addition to being the Atlantic Division delegation's spokesperson, Bob was named chairman of the new committee by ARRL President George Wilson W4ØYI. More than just an honor, this position represents a commitment to hard work on behalf of all users of the Amateur spectrum above 30 MHz.

During more than 40 years as a ham, Bob has combined personal enjoyment of the hobby with service to others in a way that has earned the respect and admiration of others, in the Baltimore, MD area and nationwide.

"Technical Achievement"

The 1994 Atlantic Division "Technical Achievement" award has been presented jointly to Bill Ferguson WA3BCW, of Bristol, PA, and Charles "Jim" Smith K3ATI, of Newportville, PA. This award recognizes outstanding technical accomplishments in any field of Amateur Radio.

Together, Bill and Jim operate and maintain the system of voice repeaters and packet nodes "BEARS," the Bristol Emergency Amateur Radio Service. The BEARS voice repeater system links northern Delaware, the New Jersey shore, the Philadelphia area, and New York City. The packet nodes are constantly updated with the latest software and also provide TCP/IP service.

Bill also produces Eastlink, an Amateur Radio news service heard on the BEARS repeaters and other repeaters as well.

Both Bill and Jim are known for their willingness to share their technical expertise with other hams and with clubs experiencing repeater problems.

1994 "Grand Ole Ham"

Recognizing lifetime service to Amateur Radio, the "Grand Ole Ham" award may be conferred upon Atlantic Division OMs and YLs who have been licensed at least 30 years or are at least 50 years of age. The 1994 "Grand Ole Ham" is Dean Wallace K2ANM, of Herkimer, NY.

Dean is almost 95 years of age and has been licensed for 75 years. His first callsign, issued in 1919, was 8MF.

Although nearly blind and confined to a wheelchair, Dean continues to operate on 80 Meters and 2 Meters quite regularly. He is known for his help and kindness to others.

Dean was recently honored by the Fort Herkimer A Radio Club and local civic leaders for his lifetime of providing an outstanding example of the Amateur Radio spirit. — *submitted by Kay Craigie, WT3P.*

Field Day —
Comments from around the country

...A great effort!!...A big success in many ways...We had a great deal of fun and walked away from the exercise secure in the knowledge that our club CAN provide necessary services in an emergency...This year's Field Day outing was great fun!...See you all next year at Field Day!...Well, we braved the heat, bugs, early morning storms, learned a lot and had a lot of fun....What a Field Day it was!...Another Field Day has come and gone, and already things are stirring for next year...

A truly significant amount of fun, camaraderie and excitement about ham radio...As we always do, we learned a lot...I admit it. I am a Field Day freak. I really enjoy it. No, I actually love it!...We did it, a great Field Day...Our CW station beat the pants off the SSB guys...The memories of another fun Field Day are still fresh!...A great job, another awesome event...

I haven't missed a single one going all the way back to 1948...You all did a super job...Everyone commented that this year was a fun effort. Can't ask for anything more than that!...Another good-time assembly...Wow, what a Field Day...My favorite event...It was nice to see some moms and dads bring their children with them to get acquainted with our hobby...

A smashing success...Wow! That was a great Field Day! All of the fun, food, camaraderie and cooperation was there...A super Field Day with a lot of great memories...It was great to see all the new hams, old hams and hams to be!...It was fun, educational and a challenge...The team came through with flying colors...

Had a great time!...And a good time was had by all...Wow! Now that's what I call a Field Day...If you weren't there you missed a great time...We're looking forward to planning for next year...It has been a long time since I have had that much fun...

Beefburgers, hot dogs and linguiça were abundant, as well as corn puffs, pretzels, corn on the cob and other goodies...A really enjoyable time... Enthusiasm Factor: 100%...Everyone had a fine time during the event and we are already looking forward to next year...

The raccoons visited us once again and probably always will. I should say, we visit them every year, since they live there full time and we don't...It was quite a weekend, everyone worked together, helping each other and assisting when needed...I definitely plan on being part of this great event next year...I hope everyone enjoyed Field Day as much as I did...The neat part of this Field Day was seeing so many new faces showing so much enthusiasm... Personal thanks to you-know-who! His world class snoring kept me awake during my late/early shift...

A blend of seasoned operators, and new amateurs, together in an atmosphere of harmony and sharing...We agreed that we had just experienced one of the best ever...At this writing, there are only 358 days available for preparing for FD 1995...Months in the planning, days in action...It is sort of a scout camp, church supper, hamfest, party, ham olympics, sleepover and family reunion all rolled into one...

This one was really fantastic, a great weekend...What a Blast!...Fellowship, food, camping and all around good time...Really a kick...We can probably use the same site again next year to repeat this annual insanity...We had super cooperation between all stations, even the voice and CW guys worked together this year....If I could say two words about Field Day, those words would be "ABSOLUTELY GREAT"...

By everyone's account it was a rousing success!"...On the first day, a sumptuous lunch, followed by an even greater dinner banquet...This year our intrepid Field Day fanatics were again out in full force...

Our best operators come to Field Day to pass on their skills to our new operators, not out just for a love of operating while being eaten by bugs and roasted in the sun...We more than doubled members' participation over last Field Day... And so it went in '94. How about FD 1995? Start planning now! **WR**

If your club is involved in any emergency situations, send the story and pictures to ***Worldradio***.

See your group in print and help your fellow amateurs with shared experiences. Your story may help others be better prepared.

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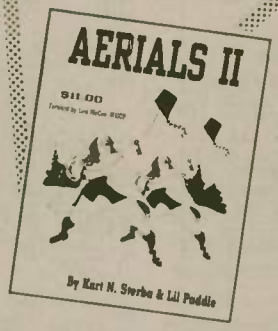

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Dayton '94

A full weekend of heavy overcast and rain did not discourage the 35,000 Radio Amateurs and friends who made the annual pilgrimage to the Dayton Hamvention® at Dayton, OH on 29, 30 April and 1 May, 1994. The Hamvention® Committee of the Dayton ARC put on their usually successful annual bash. Early on, the committee released word that there would be no free buses from the hotels. Apparently adequate accommodation was made, because we did not hear any complaints.

Worldradio has been an exhibitor and prize donor at the Hamvention® for ten years now. We enjoy meeting our subscribers and advertisers "eyeball to eyeball" and listening to their comments (usually good). We also attend the various forums and report them to you so that you might get the flavor of what you missed by not coming to Dayton this year.

DX forum

The DX forum was moderated by Steve Bolia, N8BJQ, early Saturday morning, 30 April.

Steve introduced Bob Beatty, W4VQ, of the ARRL DX Advisory Committee. The DXAC has 15 representatives, one from each ARRL division and a representative from Canada.

Bob discussed the recent votes of the DXAC, which included the recommended deletion of Walvis Bay and the Penguin Islands from the DXCC Countries List. Bob stated the Turkish Republic of Northern Cypress (TRNC) petition has been resubmitted to the DXAC.

Bill Kennamer, K5FUV, of the ARRL DX Desk, then spoke on DXCC. Bill stated that fewer of the new people coming into Amateur Radio are getting into DX. He suggested that we go back to the local clubs and recruit into the DX program.

Holger Hannemann, DL7VTM, discussed his travels around the Pacific. With him was YL Birgit, formerly Y58AO, wearing a shirt with the call T25AO from Tuvalu, which was one of the spots they visited.

Richard Grantham, VE1AI, followed with a presentation of his 1993 DXpedition to Gambia as C51A in 1993. He had been involved with the Nova Scotia — Gambia Association that promoted education and included Amateur Radio. The team of DXers who went to Gambia included Scott Wood, VE1QD, Ken VE1RU, Don Roland, VE1AOE, and Dick, VE1AI.

While in the Gambia they made contact via Oscar 13 which was the *first* 440 MHz contact ever from Gambia. The sponsor of the DXpedition was the Halifax ARC, and various manufacturers, including Yaesu and Cushcraft. The equipment was left for use by the college station, C53GCA.

Igor Zdorov, KUØJ, was an additional speaker. Igor spoke regarding Turkish Republic of Northern Cyprus.

The final presentation was that of the DXpedition to Peter I Island by Terry Dubson, W6MKB, and included the entire DXpedition team.

QRP radio construction

Rob Mannion, G3FXD, editor of *Practical Wireless* magazine introduced Rev. George Dobbs, G3RJV, at the Dayton Hamvention® 29 April, 1994. He gave us a "Cook's Tour" of what equipment and/or kits are currently available, that you might want to use in setting up a QRP station.

The hobby seems to have changed from a building hobby to a "user" hobby. It used to be that people knew what went on inside that box because they built it.

What do we need for a basic station? Everybody should have a receiver. George likes to have two receivers available. One should be an "old reliable" receiver that was the top-of-the-line in its day. The other, of course would be the receiver or transceiver you are currently experimenting with.

G3RJV

Then you need something with which to transmit, and something with which to change over. He means to changeover from receive to transmit and vice versa. The changeover device can be a simple switch. George prefers a small changeover board that does it automatically.

If you have not built a transmitter before, he recommends you start with a "Oner" (pronounced "wunner"). This is a transmitter circuit built on a one-inch-square piece of printed circuit board. This can be built for any band from 160 to 20 Meters. He uses his on 80 Meters. It puts out about three watts.

Building a QRP transmitter is the easy way to go. Sooner or later you will want to build a receiver. George described a TRF (tuned radio frequency) receiver that is easy to build. Old timers will remember the one or two tube receivers having a lot of interaction. If you adjusted one control, you had to reset the other controls. Modern solid state TRF receivers are not so touchy. One uses a field effect transistor (FET) with a ten turn potentiometer controlling frequency. The circuit is exceedingly stable and predictable. It can be used on any band, 10 to 160 Meters. Kits or separate boards are available.

Another kind of simple receiver is direct conversion. There are a lot of circuits available for these. George feels the one called the "Sutton" using the ME-602 is ideal.

What about a home-built transceiver? It is possible to build them, and build them simply. G3DOT designed one called the JU6. It is a direct conversion transceiver and is simple to build.

Don't be concerned if you are not a constructor. Ugly construction is certainly an acceptable way to build. There is an advantage to building something which looks home-made.

There is no reason why you shouldn't use kits. A kit is more likely to work successfully than complete construction on your part. Some kits offer the circuit board and circuit board parts only. You can then add your own cabinet, panel, knobs and controls.

George made it clear he was not trying to sell things. He is simply trying to encourage people to build. So, where do you get more information? Where can you buy these circuits and kits?

The G QRP Club publishes *SPRAT* the club organ. It also publishes a circuit handbook and an antenna handbook.

County hunters

One of the yearly forums during the annual Hamvention® at Dayton is that of the County Hunters and their mobile awards program.

Harry Brundridge, NFØX, under the direction of Norm Van Raay, WA3RTY, the *CQ* Magazine — Awards Custodian, made a special recognition to Jack Slocum, WB2FXK, for working 1000 counties, all on 40 Meters CW.

Norm awarded Doc Mason, W5FHL, certificate #838 for working all counties in the United States.

Harry Brundridge, NFØX, spoke on county hunting — CW style. Harry, formerly WDØEWO, is mainly a CW operator and claims CW county hunting is more fun than on sideband.

The CW net meets on 14.065 MHz. If more that one mobile is running, they just move up or down in frequency as there isn't that much activity on the band near that frequency. Harry's final comment was, "We have more fun."

Herb Morgan, WD9GBH, said he got started in county hunting in 1979 and occasionally works CW (to satisfy Harry) and received worked all counties #413 in 1983, which was his first time around. The next time around was endorsed all 20 Meters, all mobiles and no relays, which took him eight years to complete.

Gene Tyree, N4ANV, who is the Southwest Director of MARAC, spoke up for the SSB types. Many county hunters are DXCC members, and Gene says he has 320 to his credit. According to Gene: "County hunters are operators. County hunting is a way of life."

Contest forum

The Contest forum was moderated by Doug Grant, K1DG, and was assisted by Charlie Morrison, WZ1R.

First on the program was Rush Drake, W7RM, who presented several slides of the installation of his towers and antennas.

The next presentation was by Jeff Steinmann, KRØY, and Ralph Bowen, N5RZ, who recently operated in the 1993 *CQ* — Worldwide Contest from Aruba signing with P4ØL.

WB9TBU

The record had been set by PJ1B in 1991. As they would be operating in Zone 9 there were already two other fine contestors there to contend with: PJ1B and P49T. They had to work out answers to potential problems they might have and establish an operating strategy. For their efforts the two contesters wound up with 9,661 contacts, with 157 zones and 636 countries for a total score of 22,692,488 points.

QRP expeditions

Moderator WB9TBU, Paula Franke's idea of a QRP expedition is that one can just pack up into a backpack and go. She says she only takes bug spray! The speaker at the forum was Randy Rand, AA2U. Randy's subject was QRP DXpeditioning. He operated as P4ØC in Aruba for the *CQ* Worldwide SSB contest in October 1993.

He operated from the Holiday Inn where his entry in the contest was

WA5HSI

QRP single-operator. For antennas he used dipoles on 75 and 40 Meters and a trapped vertical on the other bands. His rig was an Argonaut 535. Randy planned ahead by contacting the manager of the hotel for permission to install antennas on the room.

Randy then spoke on milliwatting. Milliwatting is another form of QRP operating, except the object is run less than one watt.

Randy has acquired DXCC running 90 milliwatts or less with 106 DXCC countries to his credit. Running 1 watt or less, he has 225 countries.

The Banquet

Amateur of the Year Award

Perry Williams, W1UED has retired after serving Amateur Radio for 40 years. He was the Washington Area Coordinator for the ARRL. This job involved lobbying the FCC, other federal agencies, and our Representatives and Senators in the nation's capital. Those he lobbied saw him as a resource, as his work was always constructive. His most recent efforts included the legislation to allow the FCC to issue vanity call signs, and a successful heading off of license fees for the Amateur Radio Service.

Special Achievement Award

The Dayton Amateur Radio Association awarded the Special Achievement Award to Russ Kroeker, N7HGE, for his efforts in producing the Evergreen Repeater Tie, linking 29 repeaters from southern Oregon to Vancouver Island.

Russ was also responsible for the installation of the first repeater system in China which extended from Beijing to the Great Wall, and the implementation of the "Bamboo Intertie" from China to the United States.

Russ also described how amazed the Chinese officials were when he demonstrated raising the repeater link, accessing the intertie, and dialing a local phone patch in Washington state.

Technical Excellence Award

The Technical Excellence Award was awarded during the Hamvention® Banquet to Dick Newell, AK1A, for the creation of the PacketCluster concept and software in 1986. This idea has

W1UED

changed the way contests are operated, provides DX spotting, and the retransmission of various bulletins. What had begun with a single node and a few users on the east coast has grown over 1000 users at one time. In accepting the award Dick said that the award also belongs to the hundreds of SysOps and the thousands of users. Dick also reported that a commercial version of PacketCluster will be available for public safety.

Featured speaker

The Hamvention® then presented Joseph M. Costello,III, WA5HSI, as its Banquet speaker. Joe received his Amateur Radio license at age 16. By age 20, he held a First Class Radio Telephone operator's license with radar endorsement. Joe told us of the experience of designing and building an HF commercial short-wave station with an effective radiated power of 3.2 megawatts.

Finally...

If you have never been to the Dayton Hamvention®, we have this advice: You must come to the Dayton Hamvention® at least once in your lifetime! **Make plans well in advance of April.** If you come to Dayton on the Hamvention® weekend without a hotel/motel reservation, you will have to commute to the convention from 40 miles away.

Preceeding reports by Norm Brooks, K6FO and John Minke, N6JM. Photos by Armond Noble, N6WR. **WR**

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Special Events

Northwest Antique Aircraft Club fly-in

The Clark County Amateur Radio Club will operate a special event station at the annual fly-in at Evergreen flying field, just East of Vancouver on 20-21 August. The event is sponsored by the Northwest Antique Aircraft Club of Vancouver, WA. Operation will be in the lower portion of the General phone bands on 75, 40, 20, 15 Meters. For locals, listen on 2 meters, 146.52 MHz (W7AIA). A nice certificate will be available for your QSL and SASE to CCARC, P.O. Box 1424, Vancouver, WA 98668.

National lighthouse day

The Old Barney Amateur Radio Club will operate W2OB from "Old Barney," The Barnegat Lighthouse in Barnegat Light, NJ (Long Beach Island IOTA NA-111) on 6-7 August from 1300-0000 UTC each day. Frequencies will be in the lower 25 kHz of General phone bands; 40, 20, 15 and 10 meters and 146.52 simplex and 146.835(-) repeater. For a special QSL, send an SASE via NU2F. For a special certificate, send a 9x12 SASE with two units of postage. For more information, contact Old Barney ARC, P.O. Box 117, Manahawkin, NJ 08050.

Schuylkill County Fair

The Schuylkill Amateur Repeater Association will operate N3ILC on 7-13 August to celebrate the Schuylkill County Fair. Several activities are planned around the events of the fair. The weekly emergency services net will be conducted with the net control on site. This will allow non-hams the opportunity to see Amateurs in action. Operation will be both CW and phone in the General and Novice subbands. For a certificate, send QSL and an SASE to Ed Brennan, N3ILC, 520 Spring Garden St., Pottsville, PA 17901-1651.

Midwest Old Threshers Reunion

The Mt. Pleasant, Iowa Amateur Radio Club will be operating WØMME during the Midwest Old Threshers reunion 29 August to 5 September. Operation on voice and CW will be in the General portion of 80-10 Meters, plus local repeaters on 147.39(+) and 444.95 (+5). For QSL send an SASE to Dave Schneider, WDØENR, RR3 Box 307A, Mt. Pleasant, IA 52641.

National Hot Air Balloon Championships

The Dial Amateur Radio Club will be operating club station, W8BLV, from the National Hot Air Balloon Championships in Middletown, Ohio. Operation will be 29 July through 7 August, evenings and weekends. SSB operation will be on or near 3.965, 7.265, 14.265, 28.365 and 147.315(+) MHz. CW operation 10 kHz from bottom of Novice bands. For a special balloon QSL, send an SASE and your QSL to Ernest Howard, AG8Y, 4003 Lewis St., Middletown, OH 45044.

Tyler County Fair

The Tyler County ARO will operate KA8GOH on 12-13 August from 1500Z to 2200Z to celebrate the 32nd annual Tyler County Fair. Operation will be in the lower portion of the General 40 and 20 Meter phone bands, and 146.985(-) repeater. For certificate, send QSL and 9x12 SASE to TCARO, P.O. Box 287, Middlebourne, WV 26149.

M/S Mt. Washington

The Central New Hampshire ARC will operate W1JY from the deck of the 235' M/S Mt. Washington as she makes her way on a 50 mile cruise trip around New Hamphire's largest lake, Lake Winnipesaukee. Operation will be on 13 August from 1200Z-1900Z on 28.333, 21.333 and 14.333(+/-) 3MHz. Listen on 10 Meters on the hour, 15 Meters at 20 minutes after the hour and 20 Meters at 40 minutes after the hour. For a certificate, send 9x12 SASE and QSL to CNHARC, P.O. Box 1112, Laconia, NH 03247-1112.

Trainfest

The Northeastern South Dakota hams will operate a special events station on 13-14 August from 1400Z to 0200Z to commemorate the 10th annual Trainfest in Milbank, SD. Operation will be in the General phone bands of 20, 40 and 80 Meters, and in the Novice 10 Meter band. For a certificate, send QSL and 9x12 SASE to NØJUO, P.O. Box 189, Wilmot, SD 57279-0189.

Highest point

The University ARC will operate AA7BP from 0000Z 20 August to 2400Z 22 August to commemorate the highest point on the Lincoln Highway. Operation will be phone in the General portion of the 80 to 15 Meter subbands and the Novice 10 Meter subband. For QSL, send QSL and SASE to University ARC, P.O. Box 3625, Laramie, WY 82071.

Mt. Davis

The Sumerset County ARC is going to operate station NI3Z, from the highest point in Pennsylvania at Mt. Davis on 7-8 August. Operations will be on the lower 50 kHz of the General phone bands of 10-80 Meters as conditions allow. For a certificate, send QSL and SASE to Lee Day, NI3Z, 311 S. Rosina Ave., Somerset, PA 15501.

Barnesboro's centennial

The Dividing Ridge ARC will operate KE3DR on 13 August, 1500Z-2300Z to commemorate Barnesboro's 100th year. Operation will be in the lower General 40 and 20 Meter phone subbands and the Novice phone portion on 10 Meters. For certicate, send QSL and SASE to Dividing Ridge ARC, RD#1 Box 503-A, Barnesboro, PA 15714.

Monument centennial

The Dividing Ridge ARC will operate KE3DR on 27 August, 1500Z-2300Z to celebrate the 100 anniversary of the monument that was erected to mark Canoe Place, the corner of the properties purchased from Native Americans by the Treaty at Fort Stanwix, NY in 1768. Operations will be in the lower General 40 and 20 Meter phone subbands and the Novice phone portion on 10 Meters. For certificate, send QSL and SASE to Dividing Ridge ARC, RD#1 Box 503-A, Barnesboro, PA 15714.

Fulton's annual Riverfest

The Oswego County Amateur Radio Emergency Service, OCARES, will operate KC2QV, 14 August 1200Z-2100Z to celebrate Fulton's annual Riverfest. Operation will be in the middle of the General 80, 40, 20, 15 and 10 Meter phone bands and in the Novice portion of 10 Meters and 147.75(-) MHz. For a certificate, send your QSL card and a large SASE to KC2QV, 366 South Fifth St., Fulton, NY 13069.

The 'White Whale Award — 1994'

The annual Festival of Whales, in "Whale City" Hervey Bay, is fast approaching us, and the HBARC Inc., once again, is at its very keenest, to show the world their expertise in promoting their city, their radio club, and all aspects of Amateur Radio.

Each year, these gentle giants of the oceans, commonly named the humpback whale, stop for approximately three months to rest and raise their young in the quiet waters of Hervey Bay. Whilst doing this, they like to observe the tourists who make themselves very available by utilizing every type of floating vessel that can be imagined. The whales seem to have a ball.

The callsign will be VI4WWA (White Whale Award), and the award itself, a magnificent 10" x 8" glossy photograph of this very rare, gentle giant of the deep at play with the other members of the pod, was a great achievement for the patient photographer. This rare, white whale has been seen on various occasions while at rest in our glorious, sheltered bay, but over the last three to four years, only very limited photographs have been successful, but we have one of the best, and it can be on your shack wall!

The special event call will be available to all amateurs and listeners worldwide, for a contact between the dates 1 August 1994 and 31 October 1994, the usual 5 "green stamps" will apply, to help with the printing and mailing costs. Please note the extended time of three months instead of one month; this is simply because of any low propagation that may make it hard for a contact.

The frequencies to be used will be as close to those printed as possible, 3.794; 7.100; 14.235; 21.250; 28.495 MHz, also Australian Novice frequencies will be used as much as possible, bands permitting.

Application for the award and/or QSL cards, must be addressed to QSL Manager, HBARC Inc., P.O. Box 829, Hervey Bay 4655, Queensland, Australia. Please rest assured, all inquiries are answered. **WR**

When you are on the air, if you want to make a long story short, don't tell it.

MMARC Sparks

Louis A. Bellock, N2JPR

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, W8JBU.

My interest in Amateur Radio was thoughtfully coaxed by my good friends Don, WW2N, and Joel, W3ZI, in early 1986. I received my Novice ticket by June, 1986, with callsign KB2BIZ while residing in Syracuse, NY. At the 1989 Rochester, NY hamfest I got my technician ticket with call sign change N2JPR.

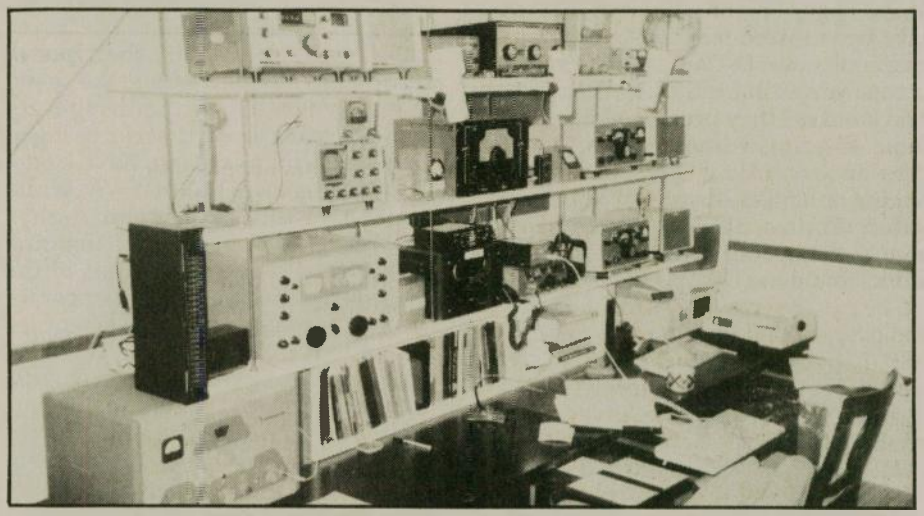
In 1991, I moved to Long Island, NY and began my effort to upgrade. By October, 1992, I received my Extra ticket without a call change. The shack picture is located in East Norwich, NY on the second floor of an expanded Cape Cod style home.

The bulk of my equipment was obtained at hamfests and from W3ZT, being of the commercial, tube-type from the 40s to the 60s.

The exception to this are my packet station using a homebrew IBM 286-16 compatible, an Okidata printer, AEA's PCB-88 and an Alinco DJ-160T. Also, a Yaesu FT-7 transceiver, a Startek 15-BG and a CW68HC05 kit keyer are the extent of solid state devices.

Pictured from left to right on the top shelf is a National NCX-5, a Transcon 10 transmitting converter, a Heathkit SA-2040 3KW tuner, a Heathkit AM-2 SWR bridge, a Heathkit QP-1 Q-multiplier, and a Heathkit HW-QRP transceiver.

On the far left is my "Ancient Modulation" station employing a Hammarlund HQ-160, a Heathkit DX-1AO, an Astatic D-104 microphone



running into a modified Marantz equalizer, a Heathkit HM-102 SWR bridge, and Heathkit SB-610 monitor scope.

When I work CW, I pair up the HQ-160 with the 1946 Electro-Mechanical MFG. Corp. VX-101 Delux, running 18 watts. Next to the VX-101 is a homebrew transmatch modified so many times I can't remember, and above that an MFJ-945C 300 watt tuner. Last, but not least, is my Collins S-Line with 75S-1/ 32S-1 round emblem pair with the matching power supply and speaker.

To accommodate periodic repair, I have installed a small laboratory bench equipped with mostly tube type test equipment. The shelving unit is equipped with a full 3x8" steel ground plane with all equipment securely strapped. A homebrew 12V and a 5V DC power bus is accessible at the shelf across the back fully switched, fused, and metered. The grounding is accomplished by an 8 ft. ground rod fed with 10 AWG wire and soldered. Just below the shelf is a bookshelf installed for quick access to reference material.

The desks are a pair of five foot solid oak teacher's desks acquired at house sales. Lastly, a very cushioned, extensively easy chair has been raised, tilted and equipped with rollers so that I may relax, roll around and occasionally fall asleep.

I am more of a ragchewer than a DX hunter. I belong to ARRL, Antique Wireless Association, OMISS and 10-10. I have applied for my ARRL Ragchewers Award, working on my WAS with 27 states confirmed and DXCC with five countries confirmed. I am also a member of our local Amateur Radio Club, LIMARC (Long Island Mobile Amateur Radio Club).

Amateur Radio is more than a hobby to me, it is a fulfilling activity I truly love. **WR**

Product Review

DSP review

STUART LANDAU, K6YAZ

I've been looking at the available DSPs (Digital signal processors) that have been introduced to the amateur community over the last couple of years. In case you're not familiar with these "black boxes" they provide very sharp audio filtering without some of the vices of conventional filters, such as ringing and phase distortion. The cost of the units has, until now, stopped me from getting one, until last week. I think I found the DSP for the rest of us.

I heard the news, on the air that Radio Shack had introduced a low cost DSP. The next day I drove to a store and looked over the unit. I bought one, without being able to test it, with the understanding that if I wasn't happy with it, I could return it. That's hard to beat.

When I opened the carton I found a small attractive black box along with two cables and a mounting kit. On the front of the processor are three controls labeled "bandwidth," "filter mode" and "volume," as well as a bypass switch. In addition, a ¼ inch earphone jack is provided. A red LED shows when the unit is active and a green LED is used to adjust the input audio level (more about the controls later). On the rear panel there are jacks for power, audio input and an external speaker.

After reading over the short instruction manual, I realized that the Radio Shack DSP-40 is actually a 6 watt amplified speaker as well as a signal processor. I connected the supplied power cable to a 12V supply, attached the audio cable from the receiver speaker output to the processor and adjusted the receiver audio control for a flickering of the green DSP indicator when the receiver has an incoming signal. The volume control on the DSP is now used to set the loudness. With the unit acting only as an amplified speaker, the frequency response is flat from 140 Hz to 8 kHz. At normal listening levels, the distortion was acceptably low (1.5 %).

I put my receiver on 20 Meters, and tuned in some single sideband signals mixed with heterodynes and noises from adjacent stations, and was amazed at how well it reduced the undesired noises. I then tuned in a CW signal buried in white noise, and was impressed with how well the narrow CW filter sounded; it really brought the weak signal out of the noise. Since one of my main interests is weak-signal VHF and UHF communications, this was very important.

Specifications

Frequency Response:	
DSP Out Mode	300 to 3000 Hz
NR mode	
WIDE Position Bandwidth	200 - 2950 Hz
MED Position Bandwidth	200 - 2500 Hz
NARROW Position Bandwidth	200 - 2000 Hz
CW mode	
WIDE Position Bandwidth	269 - 1231 Hz
MED Position Bandwidth	469 - 1031 Hz
NARROW Position Bandwidth	597 - 903 Hz
SSB mode	
WIDE Position Bandwidth	300 - 3000 Hz
MED Position Bandwidth	500 - 2600 Hz
NARROW Position Bandwidth	800 - 2000 Hz
Total harmonic distortion	1.0% (typical)
Signal-to-Noise Ratio	55 dB (typical)
Audio input level	3.0 volt peak-peak (max.)
DC 12V input	11-15VDC,1.0A (max.)
EXT SP (external speaker output)	8 ohms, 8 watts
Audio output power (to EXT SP)	6.0 watts (typical, 10% THD)
Heterodyne rejection (SSB/NR Mode)	40 dB (max.)
Noise reduction (NR Mode)	20 dB (typical)
Dimensions	$1\ ^{15}/_{16}$ x $4\ ^{9}/_{16}$ x $7\ ^{1}/_{16}$ inches
Weight	1 lb., 4 ounces

On the short-wave broadcast bands, only 5 kHz spacing between stations is used. This results in a lot of noise, unless a narrow IF filter is used. Most narrow filters however muffle the sound of the received audio. By using the DSP in the wide SSB or NR modes, you can leave the receiver bandwidth in the wide position, while the heterodynes and chatter from adjacent stations all but disappear.

On the technical side of things, the unit operates from 11 to 15 VDC requiring up to ½ amp on voice peaks. It is able, in the SSB and NR modes to reduce single or multiple tones by 40 dB, automatically within 5 milliseconds. It is claimed that in the noise reduction mode, noise is reduced by 20 dB. Three bandwidth positions are provided for each mode. In CW narrow bandwidth, for instance the response was flat from 620 to 882 Hz, dropping off very sharply above and below these frequencies. In SSB medium bandwidth, response is claimed to be flat from 500 Hz to 2600 Hz. One complaint I've heard about other units, it that when used in CW transmit, the inherent delay of the filter delays the sidetone enough to confuse your sending. This isn't the case with the DSP-40. It only takes 7 milliseconds for the tone to make it through the unit.

The DSP-40 doesn't have much of an affect on impulse noises such as ignition and power line QRN. White noise seems to be reduced only because of the reduced bandwidth. There doesn't seem to be any benefit to using this DSP on FM. Other units use more sophisticated techniques to reduce white and impulse noises without restricting the frequency response too much. The CW center frequency is fixed at about 750 Hz, but I didn't have any problem with that, also the speaker is on the small size for that much power. For the best sound try an external speaker.

While this unit doesn't contain all the "bells and whistles" of many competing units, it is inexpensive, effective, easy to use and available in your neighborhood. I would recommend trying one out in your home or car.

The catalog number is 21-543 and sells for $79.99. WR

OFF THE AIR

Confusing? Yes.

In our May 1994 issue I wrote about "Is UTC Confusing?" It must be, because I got things mixed up. Thanks to those who wrote to tell me about it. Anyhow, I'm not confused in my radio shack, because my little clock alternately flashes the UTC time and date, which was the whole point in the article. 73.

NORM BROOKS, K6FO
Sacramento, CA

Hurrah for 6M

I read the 6M book and it was very thorough and inspired me to put up my 5 element beam on 6M and start listening.

I hear a W7 talking to another. I call him, and he recognizes my call and knew my name from previous antenna articles. I assumed he was a local ham. He was 10 over. So I start asking about sporadic E, and if it has occurred yet in June as the book suggested.

I said, "I'm new on 6, and I'd like to see what I could work." He said: "You don't have to wonder any longer about E — I'm in Arizona."

I about fell over. I worked a guy in Nevada, and a couple of 6s. Then two days later it's really open for over three hours. I worked 6s, New Mexico, Colorado several times, and also Nebraska using 10W, and a 5 element beam. Awesome! I'm going mobile grid square DXing in the hills. Fantastic.

How is that for a 6M success story? I'm going to stack two 6M beams and I'll have a Johnson 6N2 final on this weekend (100W), later a final with a pair of 4CX250s.

Please send Quad book by W6SUN. I'm switching over to Quads from Yagis. I have all the antenna software.

Years ago I used an inverted Vee as an SWL (I had first article on inverted Vee in *QST* in August, 1960).

KEN GLANZER, K6GCO
Seattle, WA

Radio battery pouch

Recently, I came across a handy item that conveniently holds and protects an extra HT radio battery. I found this black nylon, Velcro closure pouch, which has a belt loop, at the local Boy Scout "Trading Post" supply store. The pouch can hold the large 12 volt Yaesu battery (3¼" high, 2 ⅛" wide and 1¼" thick) and because it is soft-sided, I am sure the pouch could accommodate other brands/sizes of radio batteries. The pouch information is as follows:

Item #: Black Compass Pouch #01069
Cost: $5.95 each plus tax.

Since this is a popular item in the Scouting program, I recommend a phone call be placed to see if the item is in stock before visiting your local Boy Scout Trading Post store. Also, the item can be ordered directly from the national Boy Scout item catalog.

WM. E. HERTWIG, JR.
Yonkers, NY

To Kurt N. Sterba

Who ever approved the first item in April's Aerial column should be put on the carpet and told a thing or two about life. You don't blast the innocent and mislead others! Get the facts before you blast off at the mouth.

Recently, when I went on the air, I noted my SWR was out of limits. An hour and 15 minutes later, with equipment such as Bird Power Analyzer ($1000 plus), two Bird 43s, Bird dummy load, Fluke 8060A, Palomar noise bridge, etc., I was still bewildered by what was happening. Luckily, I swiveled in my judge's chair towards the illuminated rig. Suddenly I realized I was feeding a 15 Meter signal into a 20 Meter antenna. I pushed one button on the Icom 765 and, voilá, no problem.

Here's where Mr. Sterba goofed. Like any 74-year-old ham, my arteries are partially clogged (I actually saw which ones). This naturally occurring medical condition impairs efficiency. Secondly, until the previous week, I had been on 15 for several years; force of habit did its bit.

The moral of the story is when we have served nature's purpose, reproduction, we are cast on the rubbish heap, so to speak. Now I know Mr. Sterba belongs there too. As I indicate no amount or quality of equipment is a substitute for a naturally impaired brain.

Mr. Sterba should apologize to the two-letter-call ham. All others, take future note of his interpretations. Maybe just a figment of his imagination. Lastly, writers are known not for what they have written, but what they have erased.

CHET OSIECKI, W1KNT
New York, NY

The 2-letter-call amateur referred to by KNS is a well-known contester, and much closer in age to 24 than 74. However, to W1KNT, Kurt sez "TNX for writing, kid."

Not here too!?!

I have to get this off my chest. I have always heard "lids" on SSB when attempting to work a DX station, but in the last few years, I have noticed a change. Now there are lids on CW! If a DX station answers a partial callsign, I hear dozens of stations answer him even if he ends with the prosign "KN." To me, if he gives the last two letters as "AB" and mine are "BC," I shouldn't transmit! Is that so hard, or are these guys just not copying anything until he sends their callsign?

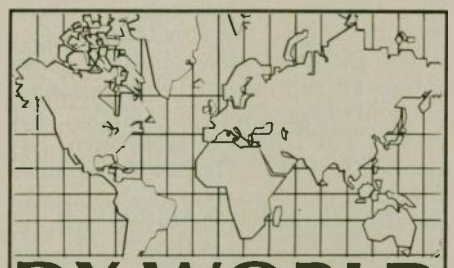
I always used to enjoy the fact that the DXers on CW were more polite, but in the past five years, even that seems to have changed. I didn't think I was old enough to be an old curmudgeon at 34, but maybe I am. This applies to phone and CW — if the station isn't calling you, don't transmit. If we all stand by, he will hear the station he is calling and our chance will come much sooner. 73.

KERRY MILLER, WD5ABC
Royse City, TX

What is your opinion?

Write to *Worldradio*,
2120 28th Street,
Sacramento, CA 95818

Please mark your envelope
"Off the Air"



DX WORLD

John F.W. Minke III, N6JM

P.O. Box 310 Carmichael, CA 95609-0310

W-100-N

The following DXer completed the requirements for ***Worldradio's*** Worked 100 Nations Award.

474. N1OAZ Lloyd S. Smith 06 May 1994

Togo (5V)

Only one report has been made for activity from Togo and that was on RTTY. Look for 5V7BB near 14.087 MHz after 2315 UTC as that is where he was worked by a Florida DXer on 21 April.

Malta (9H)

A group of Dutch DXers were to have operated from Malta during the period 24 June through 4 July, all bands 10 through 80 Meters. These calls were to have been (with the operator's home call): 9H3IB (PAØPRT), 9H3IE (PAØBEA), 9H3KD (PA3ETB), 9H3KE (PAØPAN), 9H3KF (PA3DNW), 9H3ON (PA3BIZ), 9H3QD (PAØJWK) and 9H3QH (PE1KNL). This operation should clear up the need for Malta.

The following other calls were reported from Malta recently:

9H1AZ	14.011 MHz	2015 UTC
9H1ET	21.088 MHz	1945 UTC
9H1EU	14.247 MHz	2030 UTC
9H1HZ	14.247 MHz	2100 UTC
9H4B	14.208 MHz	2030 UTC

Estonia (ES)

Very active from Estonia is ES1WN who can be found on 40 Meters between 7.009 and 7.021 MHz from 0330 UTC, and on 20 Meters between 14.013 and 14.019 MHz after 1400 UTC.

The following other calls have also been reported:

ES1WR	7.004 MHz	2315 UTC
ES1WW	14.269 MHz	0500 UTC
ES4AA	14.021 MHz	1745 UTC
ES4DX	14.019 MHz	1600 UTC
ES4MM	14.038 MHz	0540 UTC
ES4RO	14.015 MHz	1500 UTC
ES5QA	7.007 MHz	0245 UTC
ES6PZ	10.101 MHz	0245 UTC

Papua New Guinea (P2)

A few calls this month have graced the bands hopefully enabling a new DXer work a new one. Such activity includes the following calls:

P29BW	14.226 MHz	1330 UTC
P29DK	14.025 MHz	1145 UTC
P29KH	21.031 MHz	1000 UTC
P29NB	14.226 MHz	1445 UTC
P29SC	14.243 MHz	0600 UTC
P29VH	21.286 MHz	1200 UTC
P29VR	21.285 MHz	1200 UTC
P29WK	14.256 MHz	0430 UTC

Franz Josef Land (R1F)

Over 20 years ago Franz Josef Land was near the top of the list. It was Russian territory and basically was off limits to DXpeditions. The Soviets just didn't go on DXpeditions. Back in 1972, the UK1ZFI, (UK1 Zemlya Franza Iosepha) DXpedition had DXers full attention. Actually, it was the Estonian Radio Sports Federation that made the trip. UK1ZFI made some 13,000 contacts in 175 countries during the two-man, two-week DXpedition. The two were Enn, UR2AR, and Tom, UR2DW. The DXpedition equipment was nothing like what is used today. They had to settle for a homebrew transceiver and power amplifier, inverted V antennas for 40 and 80 Meters and a portable cubical quad for the other bands.

A few years ago, prior to the Soviet collapse, Franz Josef Land, received the unique prefix of 4K2. New DXers might confuse this prefix with that of the 4K1 prefixes of Antarctica as one of our readers did. Anyway, both prefixes are being phased out as they no longer are assigned to Russia.

Two of the remaining 4K2 calls reported included:

4K2BY	14.237 MHz	0200 UTC
4K2MAL	10.102 MHz	0215 UTC

At least two of the new prefixes were reported during April and May, which included:

R1FJC	18.070 MHz	1900 UTC
R1FJL	14.010 MHz	0200 UTC

Ivory Coast (TU)

Markku Nyyssonen, OH8SR, was active recently through June signing TU4SR. Since November 1991 he made about 43,000 contacts, with 99 percent of that on CW. *DX News Sheet* reports that he pays all his own expenses without support from DX foundations. Direct QSL requests are answered regularly; cards received via the bureau will be answered when he has time. Markku was very active on several bands including the WARC bands.

Also busy from Ivory Coast were several other calls. TU2JL concentrated on 20 Meters and was found between 14.205 and 14.260 MHz after 2200 UTC. TU4EI was worked on CW near 14.030 MHz around 2130 UTC, on RTTY between 14.082 and 14.087 MHz at 2200 UTC, and on 20 Meters SSB between 14.205 and 14.247 MHz from 2130 UTC. He was also reported on 18.070 MHz CW at 0700 UTC.

Other calls reported from Ivory Coast included:

TU2ER	18.120 MHz	1600 UTC
TU2MA	10.110 MHz	0000 UTC
TU2XP	14.032 MHz	2130 UTC
TU2YU	14.190 MHz	2215 UTC
TU2ZR	18.141 MHz	1345 UTC
TU5CE	14.192 MHz	2030 UTC
TU5DX	18.162 MHz	1200 UTC

IOTA

The Old Barney Amateur Radio Club will again operate as W2OB at the Barnegat Lighthouse on Long Beach Island (NA-111). They plan operation on 6-7 August, from 1300 to 0000 UTC each day.

If everything goes as planned we will be on signing N6JM/KL7 from Fox Island in Resurrection Bay, August 20 to 22. The area is included in Gulf of Alaska West and has no reference number as of this writing. This Fox Island is not the Fox Island (NA-059) which is part of the Aleutians.

John Reisenauer, NL7TB, reports that their July DXpedition to Herschel Island is canceled. They now plan to activate Elizabeth Island, which is off the southwest coast of the Kenai Peninsula and is part of the Gulf of Alaska West group, the same group that we are planning in August.

Here is a sampling of the IOTA activity that was on the bands in March:

AS-042 Severnaya Zemlya		
RW3TT/0	14.196 MHz	0800 UTC
NA-039 Adak Island		
WA1C/KL7	14.260 MHz	0530 UTC
NA-046 Nantucket Island		
W1UF	14.260 MHz	0345 UTC
NA-055 Vinyl Haven Island		
AK1L	14.260 MHz	0115 UTC
NA-067 Ocracoke Island		
WB4SRH	14.260 MHz	1830 UTC
NA-069 Long Key		
K2OLG/4	14.260 MHz	2100 UTC
OC-195 Flinders Island		
VK4ANU/7	14.260 MHz	0330 UTC
OC-197 Bawean Island		
YE3I	14.260 MHz	1700 UTC
SA-026 Santa Catarina Island		
PRØR	14.236 MHz	1730 UTC

Don't forget the IOTA contest the last weekend in July. The contest provides an excellent opportunity to pick up some IOTA countries, especially to those DXers who have just begun with the IOTA program. If you hear N6JM/VE7, I'll be on an island, but not an IOTA island.

Geoff Watts

The DX world's most famous SWL has become a Silent Key. Geoff Watts, BRS3129, died 9 May, 1994, at age 75 from a heart attack. *DX News Sheet*, of which Geoff was the founder and editor from 1962 to 1982, writes the following: "For some 20 years Geoff edited, printed and mailed DXNS weekly to thousands of readers world-wide. Geoff was a mine of DX information and up until the day he died he was still producing his Prefix Lists with the same meticulous care which he lavished upon DXNS in those early days. The worldclass Islands On The Air Award, simple in concept, was very close to Geoff's heart and many senior IOTA Honour Roll members will have had personal contact with Geoff in the early formative days of the programme.

"Geoff, quiet, unassuming and always a gentleman, was the first British SWL with 40 zones confirmed and the first to have 300 DXCC countries confirmed. An SWL through-and-through Geoff would be the first to ring DXNS Office for news on DXpeditions to new DXCC countries and eventually he had every DXCC country confirmed. Inducted into the *CQ* DX Hall of Fame in 1977 for his services to DXing through *DX News Sheet*, Geoff remained the only SWL to have been so honoured.

"The world of HF DXing has lost a truly incredible member. God Bless you Geoff; thank you for your guidance over the years and please continue to watch over us. *Geoff Watts' DX News Sheet*, as it is still referred to by many, will continue to be a fitting tribute to a remarkable person and a True-Blue DXer."

Prior to the RSGB assuming control of *DX News Sheet* we were on an exchange basis with Geoff; we received his publication for ***Worldradio***. Geoff made sure we continued to receive *DX News Sheet* after RSGB took over, until we were able to get the publication to exchange with us.

DXAC matters

The ARRL Awards Committee voted unanimously to accept the DX Advisory Committee recommendation to delete Walvis Bay and Penguin Islands from the DXCC Countries List. The effective date is 1 March, 1994, the date that the areas were turned over to Namibia. As a result, the current countries in the DXCC Countries List is now 326.

DXCC Desk

The DXCC Desk has received documentation for the following operations and has approved the following with the effective beginning dates:

3D2KR	25 Feb 1994
3D2LA	25 Feb 1994
3Y0PI	29 Jan 1994
5R8KH	21 Oct 1993
9N1BD	25 Aug 1993
9U5DX	08 Oct 1993
A25/WD8NMV	15 Mar 1993
ET3RA	22 Nov 1992
S21ZW	26 Oct 1993
TU4EI	22 Sep 1993
VP2EDK	23 Sep 1993
XF4CI	15 Dec 1994
XU9M	03 Mar 1993
XU9R	03 Mar 1993
ZF2CF	01 Mar 1994
ZF2QA	21 Jan 1991

Nothing has yet been received regarding the operations of 3V8AS. We have heard a rumor that this station may be operating from Italy. He even has a QSL manager.

Further documentation has been received from the P5RS7 operation at the DXCC Desk. It is in the process of being translated from the original Korean. After it has been translated they will begin investigation into other aspects of this operation. The DXCC Desk requests that P5RS7 cards not be sent in for credit at this time.

The DX Desk also reports that the number of unprocessed applications at the end of April was 541 (63,665 QSL cards). The DXCC Desk received 644 applications (53,843 cards) for endorsements and new awards during the month. Approximately one-third of these were field checked in Visalia and Dayton.

Applications being sent out at month's end were received four weeks earlier. Some applications received prior to that time were waiting for paper records to be converted, and so had not yet been completed.

Applications and QSL cards received at the DXCC Desk continue to run ahead of last year's rate. For the first four months of 1994, applications were up by 16 percent and QSL cards received were up by 38 percent. Long-term trends show QSL cards received continuing to rise, and applications received beginning to hold steady. In 1991 the DXCC Desk received about 9,000 QSL cards per week for processing. That number has now risen to 14,000 QSL cards per week.

Strange DXers

A few months ago Bob Winn, W5KNE, went on another DXpedition to Christmas Island, signing with VI9XN. In his *QRZ DX* Bob relates some interesting observations, saying "One operator, who worked me on the first day of the operation, sent two follow-up QSLs even before I left the Island! One DXer chastised me for using an invalid callsign. There are no VK9 calls in the *Callbook*, therefore he is convinced VI9XN is an invalid call. But he wanted a QSL anyway."

CHC

We received a letter from Richard Kovich, KD4YOT, wondering if we have heard of CHC, apparently a county hunter's organization once headed by the late K6BX. Clif Evans, K6BX, now a Silent Key, and once associated with *CQ*, created the USA-CA program for county hunters and the CHC program for paper chasers. CHC, the Certificate Hunters Club, as far as we know, no longer exists. We were a member at one time, number 2245 if we remember correctly. If the CHC still exists, perhaps a reader can supply the details.

Miscellaneous

We received an interesting letter from Bill Schuchman, W7YS, of the Northern Arizona DX Association, regarding Katashi Nose, KH6IJ. You may recall that Nose recently became a Silent Key. Bill has another story

that he would like to pass on that perhaps only a few people may have heard. In March 1974 Bill was in contact with Nose on 40 Meters CW. Bill sent him a QSL card and received one in return. On back of the card were these words: "Dear OM: I was surprised to hear W7YS on the air again until I realized that this was reissued. I used to work Father Sebastian Ruth a lot on 14 MHz before the war. My call used to be K6CGK. He must have been on the air since World War I continuously."

Since Bill was interested in researching the history of his W7YS call, he wrote to Nose and asked if he might have an original QSL card that he would part with. Imagine his surprise when he replied: "I did have a W7YS card, but unfortunately, on Sunday, 7 December, 1941, when the bombs were dropping on Pearl Harbor I was away, and my parents were so frightened about what the Americans would do if they found my radio equipment, that they chopped everything up and threw it all down the sewer."

When Bill was at one of the annual Visalia DX gatherings, (he thinks it was 1986), a fellow DXer spotted his name tag and commented, "I have a QSL card at home with that call on it from the original owner, and if you would like it, I'll send it to you!" About a week later, Allen Robbins, W7AM, sent Bill the card that is posted on his wall in a place of honor.

Bill says that Father Ruth was many things besides an Amateur. He was a printer and had many variations of his QSL, and has since collected quite a few. If there are any more out there that an OT (that's Old Timer to you youngsters) would part with, they would find a nice spot on the wall of Bill's hamshack.

Mike Gauthier, K6ICS, is looking for the whereabouts of Earl L. Eggers, who was with the Civil Aviation Mission at the U.S. Embassy in Honduras during the 1950s. Earl signed HR1EZ in Tegucigalpa and Dick had worked him in 1957.

Actually what has inspired this search is while Dick was recovering from surgery he would dream that he was in Honduras helping Earl build his station and would awake remembering in detail of his dream. When Dick got home from the hospital he checked his QSL files, and sure enough there was a card from Earl, HR1EZ. If you can help Dick please contact him. His phone is 310/923-0131 at home or 310/923-1837 at his office.

FOC

I knew when I was to dare question the operating techniques of the Firstclass Operators Club I would draw complaints. FOC member Bill Bithell, K1JKS, FOC #1591, takes me to task by writing: "In response to your comments about FOC, I would like to point out a few facts. The 'Marathon' is the major yearly contest for the FOC (First Class CW Operators Club). It is a 48-hour contest where each member tries to contact the most members on six bands. There is a big bonus for working the 5th and 6th bands. It is quite a challenge to get five and six bands with distance, and DX stations, and a lot of quick QSYing from each band to band is utilized. There may be 100-200,000 QSOs over the weekend.

"Your criticism of the FOC club in general, for a few stray instances for QRM to the Peter I expedition is unwarranted. It is a credit to the FOC members that so little conflict occured.

"Why don't you attack the people that deserve it: the ones making 100 kHz pileups, or the obnoxious operators that NEVER stand by for someone else to get their call straight with the DX. . . always calling out of turn."

Unfortunately, Bill, you missed my point. You FOC types are supposed to be what you claim to be — First Class Operators. I had commented that these FOC types would not move off the 3Y0PI frequency.

We also received a letter from a DXer agreeing with our comments against FOC.

In all fairness, we feel that true-blue FOC members are somewhat embarrassed by the 3Y0PI QRM incident and wouldn't be writing letters justifying the actions of their inconsiderate members.

Russian mail theft

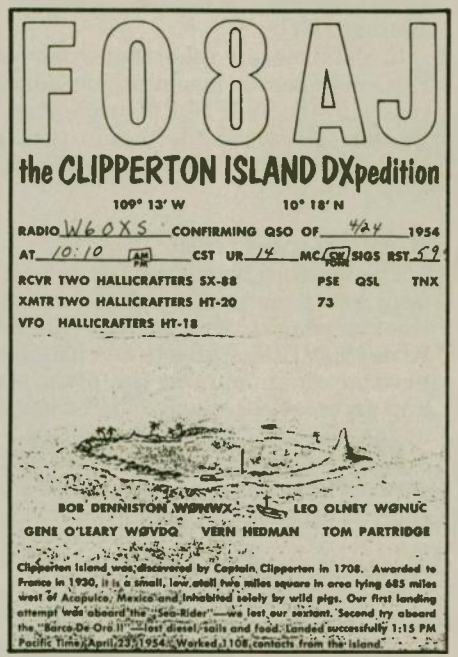
The Western New York DX Association newsletter reports on Russian mail thieves caught. The article, via Ed Kritsky, NT2X, states that a Russian newspaper announced the discovery and arrest of the elusive mail thieves at the Moscow Central Post Office.

Those of you who sent direct QSL cards to Russia and never received any reply this could be the reason.

Antique QSL department

The following QSL cards were submitted by Bob Goldman, K6BD, formerly W6OXS. The first was one of those fold-over cards that many of the DXpeditions use. This was the FO8AJ Clipperton Island DXpedition back in 1954. The text indicates that they landed successfully on the island on 23

April. Notice that Bob had worked them within the first 24 hours. A total of 1,108 contacts was made by FO8AJ.



If we are correct this was the first DXpedition to Clipperton Island. Bob Denniston, WØNWX, would later become president of the ARRL. Bob's later call was WØDX. That was 40 years ago. No packet radio! No spotting nets! No lists! That was working DX.

The second QSL card is that of JZØKF of the Netherlands Nieuw Guinea who Bob worked in July 1954. At that time your DX editor had been licensed only one month. The operator was Henry Schrier, PAØGF. He is listed in our 1991 *Callbook*. This country was put on to the deleted list in 1963.

Dayton DX dinner

The 9th Annual DX Dinner, sponsored by the Southwest Ohio DX Association, was well attended this year. They had the usual DX countdown. Everyone with an established minimum stands and sits down when his individual total is reached. This year Ted Gillett, W6HX, of the Southern California DX Club, was the last to remain standing with an all-time total of 380 DXCC countries worked and confirmed. Now this tells you something. Ted has been working DX for a very long time. The 380 count includes deleted countries. There is one east coast DXer named Howie (can't remember his call) who has one or two more than Ted. However, he wasn't in attendance this year. There was also a 10-year-old YL there with 175 DXCC countries to her credit.

Prior to the invocation by Frank Schwab, W8OK, there was a moment of silence in memory of the following DXers who are no longer with us: Jim Rafferty, N6RJ, Katashi Nose, KH6IJ, and Lloyd Colvin, W6KG.

Ralph Fedor, KØIR, was the guest speaker and talked about the famous 3YØPI DXpedition to Peter I Island. Most DXers are aware that the DXpedition came close to being canceled as the ship that was to take them off the island couldn't guarantee being there. Anyway, within 72 hours they were able to convince them otherwise. Ralph said that the total cost of the DXpedition was around $200,000.

The team had made about 18,000 contacts on 20 Meters, and of the total contacts, some 39,000 were on SSB and 21,000 on CW.

It took them four days to load up everything when leaving the island due to the weather. The Russians had wanted them to get everyone off and leave the equipment behind.

At the conclusion of the dinner, the SWODXA offered two awards. One went to the 3YØPI team for DXpedition of the Year and the other went to Randy Martin, KØEU, for DXpeditioner of the Year for his operation in Ghana as 9G1XA. Fellow SWODXA member Scott Lehman, N9AG, receive a plaque of appreciation for the work he had done for the club.

Alan Dorhoffer, K2EEK, announced the *CQ* DX Hall of Fame recipient number 29 has gone to Charlie Mellen, W1FH. As Charlie was not in attendance the award was accepted by a fellow New Englander.

QSL Information

The DX Bulletin reports that due to the problems with mail theft in Costa Rica the new mail route for TI9JJP Cocos Island operation may now be sent via Jose Artinano de Pastora, Office Box Acct 321 CR, 3900 NW 79th Avenue, Ste. 564, Miami, FL 33166. Please include a mailing label and one green stamp.

QSL routes

The following QSL routes come from many sources, including *QRZ DX, The DX Bulletin, DX News Sheet*, club bulletins, and our readers. At times errors occur. We would appreciate being informed if that happens. Routes given as Bureau suggests that the DX station prefers to receive his cards via the bureau rather than direct. Thanks.

Some routes are via OKDXA: Oklahoma DX Association, P.O. Box 88, Wellston, OK 74881.

QSL routes

1B1AB	--GØITX	D68TM	--AD6W
3D2RW	--ZL1AMO	D73DX	--HL1IE
3XØYU	--YU1FW	D73DX	--HL1IE
4J3M	--UD6DJ	DL8YR/ST2	--DL8YR
4K3OLL	--JA3AFR	E28DX	--JA1UT
4K5D	--UD6DF	EA5URW	--EA5JC
4K6CP	--UD6DCP	EA7BR/P	--EA7CWA
4K8DX	--DL7ABL	EA9TQ/P	--EA5OL
4K9W	--DL6KVA	EA9UG	--EC9KU
4L1AA	--CT1CJJ	ED1RCR	--EA1QF
4NØR	--YU1LA	EG1ITU	--EA1KK
4N7ØDX	--YU1DX	EG1ITU	--EA1KK
4N7DW	--YU7BJ	EG2ITU	--EA2BFM
4N7M	--YU7KMN	EG3BMG	--EA3AAY
4S7/ON4IPA	--ON4IPA	EG3ITU	--EA3CWK
4U9ITU	--I1YRL	EG4ITU	--EA4BUE
	(See Note 3)	EG5ITU	--EA5OL
4X25DIG	--DJ8VC	EG6ITU	--EA6YX
5H3JR	--NK2T	EG7ITU	--EA7GFG
5K3L	--HK3JND	EG8ITU	--EA8BGY
5R8AL	--WA4VDE	EG9ITU	--EA9TQ
5R8DM	--7K1EHK	EO5ØF	--UR4FWF
5U7Y	--JG3UPM	EO5ØJH	--LY1DS
5V7BB	--N5YVF	EO5ØJS	--LY1DS
5X/F5FHI	--F5FHI	ER5AL	--YO4BII
5X1C	--WB1DQC	EU7SA	--RC2SA
7Z1AB	--KN4F	EV3TK/200	--UC2LR
8A7ITU	--YC7BVY	EW1WZ	--DL1OY
8J3KIX	--JA3RL	EY4AA	--UA9AB
9A2PM	--KA9WON	EZ5AA	--W5BWA
9G1CW	--WB2YQH	F/ON6UN/P	--ON6SI
9H3HR	--G4ZAW	F/DL2RBY	--DL9NCW
9H3IB	--PAØPRT	F/DL9NCW	--DL9NCW
9H3IE	--PAØBEA	F51WE/P	--F5TKA
9H3KD	--PA3ETB	FG/DK7PE	--DK7PE
9H3KE	--PAØPAN	FG5FR	--F6FNU
9H3KF	--PA3DNW	FK8GJ	--F6CXJ
9H3ON	--PA3BIZ	FM/DK7PE	--DK7PE
9H3QD	--PAØJWK	FM5GS	--F6GNG
9H3QH	--PE1KNL	FOØAKI/M	--NX1L
9H4X	--G4ZAW	FOØMIZ/A	--JA1HGY
9K2/DL1BDF	--DL1BDF	FOØMIZ/M	--JA1HGY
9M6LS	--N5FTR	FOØRYD	--N1MFW
9M6RO	--JH1ROJ	FO5IO	--F2SJ
9M8FH	--N5FTR	FO5VO	--N6VO
9M8YL	--N5FTR	FP/KA1NCN	--AA1AS/
9N1AV	--AA4AV		KD1FE
9N1DB	--JG1GDB	FP5EK	--K1RH
	(See Note 2)	GØ/K5MK/P	--K5MK
9Q5EXV	--F2VX	GØOWE/P	--GØKJW
9Q5FHI	--F5FHI	GB2IWM	--G4HXH
A22DX	--N1FBW	GB4OCR	--G4NXN
A35RK	--KK6H	GB5HCR	--GØFSP
A41KJ	--N5FTR	GB8SH	--GM3ITN
AHØT	--JA6BSM	GMØ/K5MK/P	--K5MK
AH6IO/KH3	--AA6IO	GSØSTB	--GM3YOR
AH8J	--KH8AM	GU/DL6ET	--DL6ET
AX2ITU	--VK2WI		(See Note 2)
BOØK	--BV2KI	GU/DL9YAJ	--DL9YAJ
C21/ZL1AMO	--ZL1AMO		(See Note 2)
C4YY	--5B4YY	GX3YRG/P	--G3OEP
C53HG	--W3HCW	GX4ARE	--G4ARE
C56/DK2OC	--DK2OC	HC8/DK5VP	--DK5VP
C56/GØUCT	--G1GMZ	HG8RJ	--HA8RJ
C6AHK	--WB4FLB	HKØHFU/Ø	--HKØTCN
C6AHY	--WA4WTG	HL9DC	--N7RO
C91J	--N5FTR	HP1XXZ	--KD5JZ
CG1B	--VE1AL	HR3/KD5M	--KD5M
	(See Note 1)	IA5/IK3MAW	--IK3MAW
CO1HJ	--KA2YEG	II9R	--IT9HLR
CP94USA	--CP1AA	IOØC	--IØNZK
CQ5EKD	--CT1EKD	IO2A	--IK2RZP

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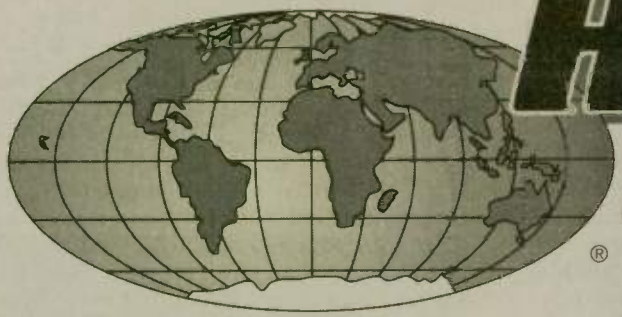

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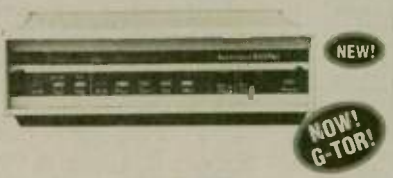

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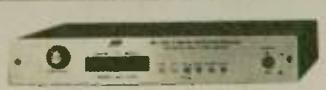

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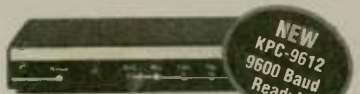

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J79ROJ	--JH1ROJ	TM5OSO	--F8WA
J79W	--IK2GNW	TM5OVR	--F6AXX
J79W	--IK2GNW	TM5OVS	--F5LBG
J8/AHØG	--DK7PE	TM5OYO	--F3NV
JD1BIE	--JA8FCG	TM6SOA	--F6KHK
JG1OUT/V2	--JH1ROJ	TO5ORC	--FM5CW
JS6BLS/9M6	--JS6BLS	TP6CE	--F6FQK
	(See Note 2)	TT8PS	--F1OIJ
JT7FAA	--SP4BY	TU4SR	--OH8SR
JY8ED	--G3SED	UAØZCJ/A	--UB5EOB
JY8IC	--GJ4ICD	UA1ZO	--LA8PF
JY8JH	--GØJHC	UU2JQ	--KZ1L
JY8OX	--G3KOX	UU6J	--LZ3DB
JY8VA	--DL7AV	UU5JYL	--LZ3DB
JY8ZC	--G4CCZ	UY2I/DL4YEL	--DL4YEL
JY9/KA5ZMK	--KA5ZMK	UY6I/DL5DCA	--DL5DCA
KG4DD	--N5FTR	V31BR	--N5FTR
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LØA	--LU4AA	V31PA	--G6MDM
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LW1BA	--UC2BA	V44KJ	--WB2TSL
NH6UY/KH3	--AH6IO	V47BJI	--W2BJI
OHØAAQ	--OH2NRV	V47RS	--KO8O
OHØJS	--LY1DS	V63AB	--OKDXA
OHØKAG	--OH3NE	V63BC	--OKDXA
OHØKDY	--OH2KDY	V63FC	--OKDXA
OH1MDR/P	--OH1MDR	V63KW	--OKDXA
OH3LIU/OHØ	--OH3LIU	V63SB	--OKDXA
OJØ/AC6T	--OH3NE	V63VA	--OKDXA
OK1KZJ	--OK1EP	VA2TA	--VE2BQB
OK8ECX	--K8AAI	VE8/VE2BQB	--VE2BQB
ON4WAR	--ON7YO	VI4WGC	--VK4WIN
ORØTT	--ON7TK	VK4ANU	--DL8NU
OT5DAM	--ON4VT	VP2E/JA1CMD	--JA1CMD
P29BT	--N5FTR	VP2EJA	--JA1VPO
P29VH	--VK4CRR	VP2MBO	--W9PTO
PJ7/AHØG	--DK7PE	VP2MCO	--AA6MV
PS7ZIN	--JH1ROJ	VP5P	--WB3DNA
PT5W	--PY5LY	VQ9TP	--N5TP
PX1MD	--PY1JE	VR2IH	--G4RGK
R1/I8IYW	--I8IYW	VS6GA	--KG6ZQ
R2/DH1SAJ	--DH1SAJ	VX7A	--VE7SV
R2/DL2SEU	--DL2SEU	W3WKP/VP9	--W3WKP
RP3MWA	--RK3MWA	XU1MF	--JA1ZTU
RP3TMZ	--RZ3TYC	YE3I	--YB3FNL
RP4P	--RA4PO	YJØAVH	--VK4CRR
RP6HWF	--RW6HS	YM1KA	--TA1KA
RP6YPC	--RK6YWA	YM5C/75	--TA5C
RZ3AZO/I	--I1HYW	YS1VV	--WD4DCY
RZ9OO	--UA9OOA	YS1XS	--WD4PDZ
S21AM	--N4VA	YT7ØX	--YU7KMN
S79CK/C	--I4LCK	YU7ØAU	--YU7AU
SM1CNS	--SMØCNS	Z21BA	--N5FTR
SO1NVC	--DL6NVC	Z3ØM	--Z37GBC
SO5LI	--DD1LI	Z31PK	--YU5XVD
SU1STAR	--SU1ER	Z31VP	--DJØLZ
SV8/SM7DAY	--SM7DAY	ZA1AJ	--OK2PSZ
T28RW	--ZL1AMO	ZB2GW	--G4LLQ
T3ØRT	--VK4CRR	ZC4SW	--GØDVF
T32WP	--JA1WPX	ZD8Z	--VE3HO
T91ENS	--DKØJV	ZF2VZ/ZF8	--M1MFW
T92X	--KA9WON	ZF2WQ	--WB6SFA
T94MV	--F6HIZ	ZK1AGQ	--AG9Q
T94ON	--DL8OBC	ZK1AYR	--WB4CYR
TH5OLR	--F6DTU	ZK1BUO	--AA6UO
TK7I	--F5JYD	ZL3KG	--WB6EQX
TL8LD	--SM4DDS	ZS94A	--WA3HUP
TM5CD	--F2FX	ZS94E	--ZS6SA
TM5H	--F5JCG	ZS94F	--ZS6YA
TM5OAM	--F6SNR	ZYØFZI	--JH1ROJ
TM5OBR	--F5MYW	ZYØSK	--PS7KM
TM5OCA	--F6HPX	ZYØSP	--PT7AA
TM5OCO	--F2TA	ZYØZFM	--SM4LL
TM5OCR	--F5OZX	ZY2TN	--PY2TN
TM5OHA	--F5IDA	ZZ5AM	--PP5LL
TM5OHG	--F5HJM	ZZ5FO	--PP5FO
TM5OLF	--F5MXH	ZZ5LL	--PP5LL

3G4ØC --P.O. Box 381, Coquimbo, CHILE

5N9ZRC --P.O. Box 9721, Kaduna, NIGERIA

8P9GU --Gerd Uhlig, DL7VOG, P.O. Box 0332, D-10323 Berlin, GERMANY

9Y4TSB --Trueman Braithwaite, Bon Accord, Tobago, WEST INDIES

A71A --Qatar Amateur Radio Society, P.O. Box 22122, Doha, QATAR

A71CW --Chris Dabrowski, P.O. Box 22101, Doha, QATAR

A71EA --Khalid, P.O. Box 20606, Doha, QATAR

FK8CR --Jose Bueno, F6EWK, 15 Rue de la Haute Borne, F-60530 Dieudonne, FRANCE

FR5ZN --P.O. Box 65, St. Denis, REUNION via FRANCE

HH2JFO --Bud, P.O. Box 1095, Port au Prince, HAITI

HS8AS --P.O. Box 66, 84000 Surat, THAILAND

KH8BB --Soni Que, P.O. Box 5247, Pago Pago, AS 96799

JWØC --P.O. Box 9178, Barentsburg, Svalbard, NORWAY

Out of the past we come with a gathering of DXers. From left to right: W6TSQ, W6KYA (now N6JM), W7PSQ, W6JPU, W6YO, W6KOE and W6GRV. The event was the Fresno International DX Convention Banquet on 7 April, 1973. ***— photo by Charlie Bird, K6HTM***

A71EY --Mohammed, P.O. Box 2260, Doha, QATAR

BVØSAT --P.O. Box 39, Chenghua 500, TAIWAN

BV5EV --CTARL Bureau, P.O. Box 73, Taipei 100, TAIWAN

BZ1QL --Rick Niu, Room 316, Building 25, Tsinghua University, Beijing 100084, CHINA

CEØZAM --John Torres Frex, P.O. Box 2025, Valpariso, CHILE

CH3X --CH3X, P.O. Box 251, LeFairve, ON KØB 1JØ, CANADA

CM8VR --Jaime, P.O. Box 9032, Santiago de Cuba, CUBA

CM8ZZ -- P.O. Box 136, Tunas, CUBA

CP5TB --Teresa Burke, U.S. Embassy, LaPaz Consular Agency, Cochabamba, BAPO AA 34032

D68LC --Jacques, P.O. Box 85, Moroni, COMOROS

EJ2SI --P.O. Box 55, Grantham, Lincs, ENGLAND

EO5ØJA --P.O. Box 10, Kerch 334500, Crimea, UKRAINE

EO6J --P.O. Box 10, Kerch 334500, Crimea, UKRAINE

OD5WS --P.O. Box 3220, Tripoli, LEBANON

OY1CT --Carsten Thomson, P.O. Box 25, FR-340 Kvivik, FAROE ISLANDS

PYØTUP --Joao B. Guimaraes Mendonca, P.O. Box 108674, Alcantara, CEP 24621-970, São Goncalo, RJ, BRAZIL

T3ØDW --David Olley, P.O. Box 60, Bairiki, Tarawa, KIRIBATI

T3ØJH --Jack Haden, P.O. Box 630, Elsternwick 3185, AUSTRALIA

TJ1AG --P.O. Box 1612, Yaonunde, CAMEROON

US7ZL --Alex, P.O. Box 51, 327001 Nicolrv, UKRAINE

V73OR --Brian Grdosic, P.O. Box 1005, Majuro, MH 96960

WA1C/KL7 --Gary, 1208 Jackson St, Peekskill, NY 10566

YB8AUA --Ed Casteel, P.O. Box 1074, Palu Sul-Teng 94001, INDONESIA

Z21HS --Ralph Karhammar, P.O. Box 4110, Harare, ZIMBABWE

ZA/OK2ZW --P.O. Box 66, Blansko 67811, CZECH REPUBLIC

NOTES:

1. This manager requests direct cards only. In certain situations cards via the bureau cost QSL managers unreasonable expenses which may result in your QSL request going unanswered. Be sure to include SASE or SAE plus return postage funds.

2. Please QSL this manager via the Bureau.

3. This route applies for May 20-22 only.

Many thanks to the following contributors: UU2JQ, K1JKS, N1MFW, N2OO, KD4YOT, KK6EK, K6ICS, W6TUR, N7NZ, NL7TB, W7YS, Western Washington DX Club (WAØRJY), Western New York DX Association (KB2NMV), Salt City DX Association (KB2G), Northern Arizona DX Association W7YS), The American Radio Relay League (K5FUV), *The Low Band Monitor*, *Long Skip* (VA3JS), *Inside DX* (N2AU), *DX News Sheet* (G4DYO), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

If you have been listening on the bands you'll agree there isn't much activity. Of my 40 years of Amateur Radio I don't recall any period as bad as this cycle has been. Now is the time to catch up on those awards applications, or sending out those long overdue QSL cards. The bands will improve. 73 es gl DX de John N6JM. **WR**

My Dayton debut

DAVID POWERS, KB8RVS

I am a new ham, having just received my ticket in early April. This was going to be my first Dayton Hamvention, the granddaddy of them all. A good ham friend told me, "You've gotta go, you won't believe it!" I sent in my reservation, anticipating the "World's Fair of Amateur Radio."

I made excellent time to Dayton from Cleveland, OH, on Friday, 29 April, arriving in the area by 10 a.m. It was easy to find the repeater carrying the talk-in information and I listened for directions that would be helpful.

The appropriate directions came quickly. Make a left turn at the car dealership. I did. Soon, there was a sign that said "Hamvention Parking." How easy! I couldn't believe my good fortune.

I parked about 50 feet from a waiting bus that also had "Hamvention" scrawled on a large piece of paper and taped to the windshield. After locking the car and grabbing my "stuff," I got on the bus.

Now, I didn't want to seem like some inexperienced lid, so my HT was hidden in the fanny pack I had attached to my waist. I shouldn't have worried. I watched with great amusement as hams of all shapes and sizes poured into the bus with radios, antennas, speaker-mikes, battery packs, etc., hanging from their hats, glasses, belts, bags, wrists, fingers, legs, and what-have-you! This sure WAS ham country! It made me want to dig out my Kenwood TH-78A and yell, "Here's KB8RVS making his Hamvention debut!" Don't worry; I didn't.

Upon arrival at Hara Arena, I noted which bus I had taken, then proceeded to spend the day enjoying the prerainstorm flea market, the multitudinous exhibits inside, and tried to enjoy the food and what I understood to be coffee.

After my last official business transaction (signing up for a ***Worldradio*** subscription), I headed for the parking lot to catch my bus to Salem Mall. The trip didn't take long, and I had a pleasant conversation with an elderly gentleman about hamming.

I was confused when the bus arrived at the Mall because it didn't drop us off at the same place it picked us up. Undaunted, I made a sweep of the likely area, looking for my car.

Over an hour later, two walks completely around the huge parking lot, a cruise with both Mall Security and the local police made it clear that my vehicle wasn't there. After making out a stolen vehicle report at the police department, I was on my way to the Dayton-Vandalia airport via Burger King courtesy of Officer Cantrell of the Trotwood police department to rent a car and drive home.

The next morning I was up early mulling over the situation: how to get the rental car back, how to replace my recently-paid-for vehicle, etc., when for some reason it occurred to me to consult my Hamvention program map. Two phone calls later my hunch was confirmed, and I quickly prepared for a return trip to soggy Dayton.

I was on a mission by this time, and even though southern Ohio received its entire allotment of spring rain that weekend, I sat for over an hour and a half on I-70 because of a monstrous, multi-vehicle accident, and was detoured to parts of Montgomery county I never knew existed. I was eventually able to drop off the rental car at the airport, stride over to a waiting cab and confidently tell the driver, "Take me to Forest Park Plaza." Yup, I had taken the return bus to the wrong parking lot the day before.

Less than twenty minutes later, I was standing beside my little blue Plymouth Colt, thinking; I've got to be more careful when I listen to those repeater talk-ins. Some debut for KB8RVS! The Hamvention? I loved it anyway! **WR**

DX Prediction — August 1994

Maximum usable frequency from West Coast, Central US and East Coast *(courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22183)*.

The numbers listed in each section are the average maximum usable 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.

WEST COAST

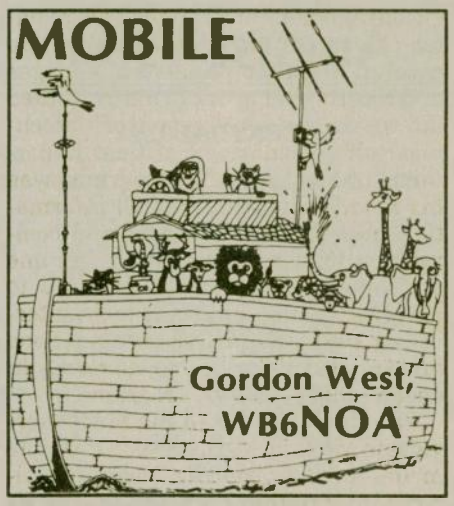
UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(13)*	*16	*19	*(11)*	*16
12	*(17)*	*14	*17	*(11)*	*(15)*
14	*(21)*	*16	*15	16	21
16	*(24)*	15	*(14)*	19	26
18	25	*(12)*	*(13)*	18	28
20	24	18	*(19)*	17	30
22	20	22	27	*(14)*	29
24	*(17)*	*25	31	*(11)*	*27
2	*(15)*	*26	31	*(13)*	*23
4	*16	*24	30	*16	*19
6	18	*23	*29	16	*17
8	15	*19	*23	13	*15

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	17	*(12)*	*20	*(11)*	*14
10	*(19)*	11	*17	*(11)*	*16
12	25	*14	*15	16	18
14	29	17	*(14)*	19	23
16	30	15	*(13)*	20	*27
18	*30	*(12)*	*(13)*	19	*29
20	24	19	25	17	*31
22	20	21	29	*(13)*	*31
24	*17	21	31	*(11)*	*25
2	*15	19	30	*11	*21
4	*16	18	29	*16	*18
6	19	15	24	13	*16

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	17	*(12)*	*20	11	*15
9	*(18)*	11	17	14	*16
11	24	*15	16	18	18
13	28	15	*(14)*	*20	23
15	30	*(13)*	*(13)*	*20	*26
17	29	*(11)*	*(13)*	*20	*29
19	*27	*(14)*	*(19)*	18	*30
21	22	*(17)*	27	15	*30
23	*19	20	30	*13	*28
1	*16	*(19)*	30	13	*23
3	*13	17	29	*12	*19
5	19	14	24	*12	*17



Drive into VHF/UHF DX

August is your best month for mobile 6M (and up) VHF/UHF DX. You won't need a General class ticket for long-range mobile contacts from your 6M, 2M, 440, or 1270 MHz mobile rig. Since no-code Technicians get every frequency above 50 MHz, the month of August will bring them unbelievable thrills, too.

In August the ionospheric E-layer is at its best during mid-morning, and early evening hours. Patches of Sporadic-E "clouds" drift across our skies from west to east, many times refracting 6M signals back to earth up to 1500 miles away.

"Last year I worked 28 states on 6M with my little Azden 6M mobile transceiver," comments Bill Alber, WA6CAX. "I hang out on 52.525 MHz FM simplex, as well as 50.3 FM simplex for skywave contacts," adds Alber. Just a little base-loaded whip, or a 54-inch unloaded quarterwave whip works dandy on 6 for some real DX.

If you run 6M SSB mobile, the "squoops" from M² Antennas (Fresno, California; 209/432 8873) are what most VHF sideband operators prefer for the ultimate in horizontal DX. While multi-mode (in other words, capabilities for SSB in addition to FM) equipment is twice as expensive as FM gear, it is the ultimate for Sporadic-E skywave band openings. And yes, Sporadic-E band openings can also go as high as the 2M band, but SSB capabilities on 2M is about the only way you would snag some DX when out mobile.

Tropo peaks

Tropospheric ducting peaks every August. This is a weather phenomenon, independent of the ionosphere. Tropo ducting DX contacts may actually exceed the possible range of Sporadic-E.

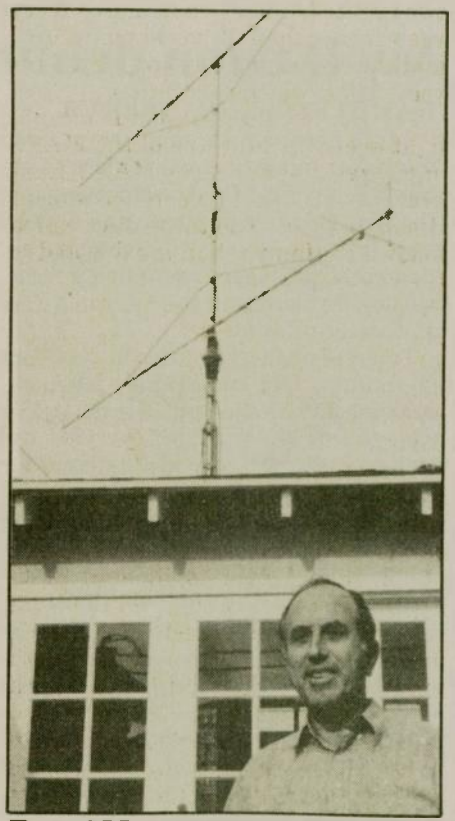
Tropospheric ducting occurs as a direct result of a widespread temperature inversion. When a massive high pressure cell stalls over the oceans, or over the United States, this air begins to slowly sink, and develops a 10+ degree temperature inversion at about the 1,000 foot level above local terrain or sea water. You can actually see this as a band of brown air just hanging on the horizon, going nowhere fast. Local weather conditions will be hot, windless, and plenty of air pollution.

That's the time to jump on your 2M FM transceiver. Try tuning in distant repeaters hundreds, if not a thousand, miles away. Listen up at 162.550 MHz and 162.400 MHz for distant weather stations coming in louder than local weather stations.

If you can drive up to a local mountain range, do it! Try to position your vehicle so you're right in the middle of the temperature inversion. If you have an outside thermometer, watch it as you drive up the road. When you enter that warm air mass, your eyes will probably begin to water from the trapped air pollutants. It's in this tropospheric duct where 2M (and higher) frequencies are carried within this inversion boundary for up to 1,000 miles away.

Here in Southern California where I live, tropospheric ducting always occurs between California and Hawaii in August. In the Midwest, the path spans from Chicago to Texas. On the East Coast, the path may extend between Maine and Florida, and down in the Gulf, Florida over to Texas. The key is a stable high pressure system between the two stations.

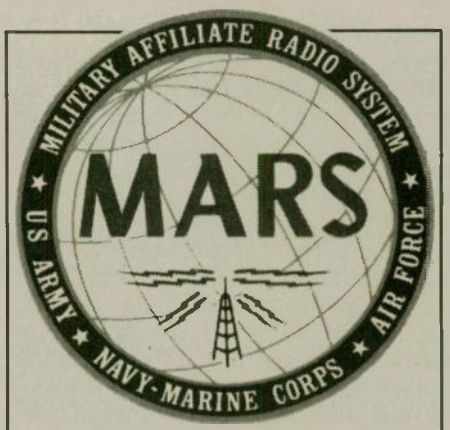
And can you work tropospheric bending with just a little mobile FM transceiver or handheld? Sure can! My personal best is between California and Hawaii on a handheld FM transceiver hooked up to a directional beam antenna.



Rare 2 Meter DX to California — Paul Lieb, KH6HME on 144.200 SSB from Hawaii.

So check out your local weather forecast, and take a drive to that stable high pressure system. Get up into the duct, and get ready for some fantastic VHF and UHF DXing over hundreds, if not a thousand, miles! WR

Two 50Ω loads and a coax tee will check your SWR indicator for accuracy at 2:1 —Richard West, KF6KE; *North Shores ARC, San Diego, CA*



Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

Army MARS and DAYTON... These two names become synonymous every year during the last weekend in April and the beginning days of May. This year, 1994, was no exception.

The Dayton Hamvention is a highlight event for all three of the MARS organizations. For Army MARS, however, it is a particularly important time and place. The three days which follow the Hamvention are devoted to the worldwide Army MARS I.P.R. (In Progress Review) conference. Both the Hamvention and the I.P.R. cannot be adequately reported in the space of one column. Therefore, the I.P.R. will be the major topic in next month's column.

The joint services MARS booth was well located and easy to find. It was manned by the Chiefs of the three services MARS organizations, their staffs, their Directors, several State MARS Directors, and several volunteer members. Hundreds of members and non-members visited the booth and met the fine leadership with which MARS is blessed. One hundred thirty-nine Army MARS members signed in at the booth, which is a large increase over past years. I don't have the counts from the other services, but I saw, personally, that they, too, were busy. Interest in MARS is growing markedly.

Mr. Robert Sutton, Chief Army MARS, made this observation concerning working the MARS booth for three days:

"This gave us a golden opportunity to meet face-to-face with our volunteer membership and it was both a welcome and exciting experience. I might add that the vast majority of visitors expressed favorable comments concerning Army MARS and the direction we are going.

"Equally impressive were the comments made by non-MARS members who expressed a sincere desire to join our winning team. We welcomed them with open arms."

Three days of talking to people at the booth may have cost Chief Sutton his voice but he expressed the fact that the exhilaration and the "charge" that he felt from meeting with and talking to all those interested people made this temporary inconvenience well worth the effort.

Those members and visitors meeting the MARS Chiefs and their associates could and did make the same remarks about the quality of personnel involved.

The keynote speaker at this year's MARS Forum was Admiral Lewis Felton representing the United States Navy. The Admiral's speech, in full, was reported in last month's (July) issue on page 11 by Norm Brooks, K6FO, ***Worldradio*** associate editor who also attended the meeting. His speech highlighted the need for the encouragement of young people to enter the ranks of Amateur Radio. He entered Amateur Radio as a teenager and credits that event to his continued interest in and development of his technical skills today. Of critical importance to all the MARS programs was his noted emphasis that all information management systems and communications systems must become multimode operations if they are to survive. This emphasis is most interesting since the MARS organizations have made this emphasis a priority in developing their own programs.

The challenge for all the MARS services is the same — to develop multiple modes of operation to include real-time information transfer as well as traffic handling using radio frequencies. The three MARS services need to adapt to new technologies in order to support the mainstay radio resources. The new modes of operation are not intended to replace radio. In many ways they cannot replace radio. Indeed, it has been my experience that the newer modes have added traffic and information to be relayed by radio. The Navy is calling for development of HF systems with more automatic controls, and looks at HF as being needed for mobile throughput, inter-group coordination, and direct contact with elements in a crisis situation as well as a tactical or non-strategic situation. Real-time communications and the normal traffic system on HF and VHF frequencies are most compatible. This unbeatable combination of technologies should be welcomed by all MARS members.

There is no way to measure the professional skill that the Army MARS member brings to the program. It is my observation that MARS enjoys the dedication and the fine work of the best radio operators in the world. Army MARS members are meeting the challenges rising from the needs for use of new technologies and the polishing and refinement of the old ones as well. This blend of technologies is what keeps Army MARS in the forefront of capability in emergency response and support.

Army MARS remains... proud... professional... ready. **WR**

NO ACCIDENT

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Search And Rescue Communications

Jerry Wellman, WB7ULH
P.O. Box 11445
Salt Lake City, UT 84147

You've heard it said in days past, the object of an antenna is to radiate your signal. You want to be heard! You want the command post to get your message. You've probably listened to the repeater "mail" while merits of various walkie-talkie antennas were discussed.

Yes, antennas are important. But what about NOT wanting to be heard? Say what?

I saw advertised the Comet CH-32, Miracle Baby antenna. The ad indicated that at 1.75 inches, it just might be the smallest 146/446 MHz available. It only handles 10 watts and the claim is zero gain.

What the heck, I always need a new toy for the shack so I ordered one. It was mostly out of curiosity. ("Sure," says the XYL.) Shortly after its arrival and subsequent testing, I surmised the plastic encased antenna might only be a 50 ohm resister.

Thinking I might have to sacrifice it for the sake of a column, I called the folks at NCG Companies (the distributors) and just asked. They were super helpful and far from being secretive, explained how the antenna worked and that it was indeed a quarter-wave coil antenna. I didn't need to break it open to see how it worked! They were even honest enough to admit it might be less than zero gain, but I suspected that anyway.

Why would you want a tiny antenna with really lousy propagation potential? Think for a minute if you only wanted your signal to carry a short distance — say from the incident command post to the radio center.

Or, maybe you're in a high RF environment at a fire scene and don't want to get intermod or interfere with other signals. You simply want to reach your cross-band repeater located a hundred yards away, or just talk to the command post a few feet away.

One is not enough!

This whole thread of thought started when someone asked about the various antennas in my grab-and-go bag. From the tiny "Miracle Baby" to the copper J-pole, I have about six various types of two-meter antennas. One is the basic rubber duck, another is a rubber duck but with a little more gain. Another is an extendable 5/8-wave and also there's the portable 1/2-wave.

The concept of communications is understanding how your signal gets where you intend it to go. We often lecture about higher gain and higher power while ignoring the need for lower power and limited (or negative?) gain.

This new zero gain antenna is just another resource to create effective communications. It's not the antenna I would use for repeater traffic (unless I'm in the repeater building) but it has a specific application — once you understand its characteristics.

As we prepare our own resource inventory and teach others effective communications, let's expand our view and consider many solutions to possible scenarios. Keep an open mind and think of effective ways to meet possible challenges!

Another thought while I'm talking about antennas — the duplexer. We once needed to pump a public safety signal through a quickly disconnected Amateur Radio coax. And it didn't work at all. The antenna was a broad-band VHF and the coax was new. After we scratched our heads for a minute, we realized there was a duplexer in the circuit. Once it was removed, we were able to communicate quite well.

After we got back to the base, we looked up the specifications for the duplexer. The instruction sheet included a graph showing what frequencies the duplexer would pass. It is significant to note a sharp cutoff just at the edge of the Amateur Radio band. Tuck this away in your information bank just in case you encounter a similar scenario. As dual frequency systems become common, you might see more and more duplexers tucked out of sight!

A spring exercise

I had the pleasure of participating in a Spring ARES exercise recently and was impressed by the creativity in design and the learning that took place. The event was titled the "Grab and Go Roundup."

As the net was called, participants were simply told to meet at the State Capitol as soon as possible for a briefing and assignments. We were told to bring our ARES grab and go kits (if we had them), some water and our ID badges. We were also told to prepare to set up operations outside of buildings and plan accordingly.

The exercise planners had reserved a parking lot and we were given assignments to set up our stations there. Each team represented a link to a specific agency and was assigned to a simplex frequency. Tactical calls were also issued: Wobbly Hertz, Tough Resistor, Short Circuit, Hot Amp and Happy Camper to name a few. These creative identifiers put us in a curious frame of mind — what was to come next?

Then we were given various tasks. First was to call each team on their simplex frequency (where are those briefing notes). We then handled some traffic and did some creative things such as determining what type of hazardous material was leaking from a tanker truck. (In case you wonder, you use the hazardous material guide number and reference book in your grab and go kit.)

We were asked to use our county map and locate the fire station nearest our home and then the nearest hospital. During the briefing we were told to throw away envelope number four. If we missed that and opened the envelope, the paper inside chastised us for not paying attention to instructions.

Other envelopes simulated media contacts and reminded us of our local ARES policy concerning the press representa-

tives. We also refreshed our techniques on how to report traffic accidents and how to post and deliver messages.

Antennas and batteries

Some of the creative tasks had us change power sources several times to see if we had enough resources to remain on the air should our batteries fail. We also erected antennas on our portable masts and checked to see that we had 150-feet of coax in case we needed to operate inside, leaving the antenna outside.

We also checked our first aid supplies with simulated injuries and then had a snack from our ready-to-go food supplies. Portable light sources were checked (our ARES group requires several independent sources) and moved our operations under cover when a "simulated" rain shower occurred.

One very creative task was to repair a sliced extension cord. One of the task envelopes contained a foot-long cord, cut in the middle. We used our portable soldering iron to repair the damage. As team members scrambled to compete the tasks, equipment was shared. A final task was to check that each of us had marked our personal gear and could identify ownership.

Planning credit goes to Susan Boman, AA7HD, Mel Frost, KB7ESL, and Gene Russon, KB7HPY. Several features made this a great learning experience. First, many teams were gathered where we could observe and learn from each other. It was great to see the innovations that others included in their response gear.

The exercise also included a "technical assist" team. Their function was to solve problems. This is something you might want to consider for the real thing! We know something always seems to go wrong or we have new people that need some guidance. Consider taking a technically savvy operator and assigning him/her to a special channel. Teams with technical questions have a resource and a way to explore options to solve problems. This is a great learning outlet for the field teams as well as for the tech assist operator.

Altogether, this exercise was designed to meet 29 objectives. It was creative and caused us to use (and test) equipment the ARES group requires for certification. It was different because we were not just passing simulated traffic, we were testing equipment and sharing ideas. I would recommend this exercise as one to copy, adapt and try within your own group.

An errant FAX machine

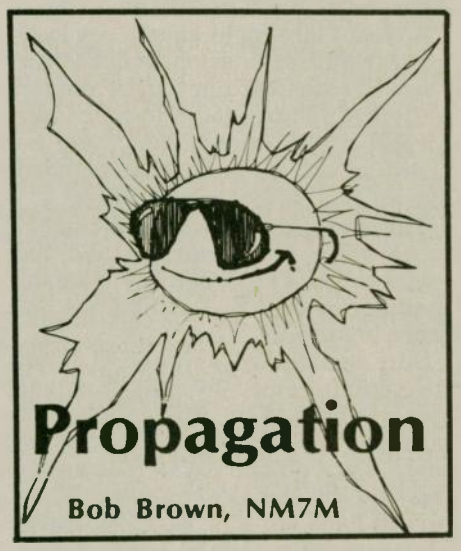
A recent late-night emergency locator transmitter mission from the Air Force Rescue Coordination Center led a Civil Air Patrol team to Salt Lake Airport #2. A faint signal could be heard as well as audio that sounded like an ELT with weak batteries.

The team quickly isolated the signal to an office at the airport and the owner called. The owner was adamant that there was no ELT in his office, but drove in anyway.

Sure enough, there was no ELT, but the signal seemed to come from one corner where there was only a FAX machine. Joking, one CAP member said, "Turn off the FAX." The owner did, and the signal went away. When turned back on, the "ELT" returned. The team noticed the signal peaked on the ELT frequency but also occurred on several other aviation frequencies.

The best guess was the evening's lighting storm and various power bumps caused the internal workings to misbehave. The phone line radiated the signal over a pretty fair distance. Had I not been there, I would never believe it. A FAX machine at an airport on the ELT frequency and sounding like an ELT? Go figure. . .

Best wishes from Salt Lake City! WR



Remember Rodney Dangerfield? He was the guy on TV who always complained "I get no respect!" Well I thought of him recently, not in connection with myself but the ionosphere; it gets no respect.

How did I come to that conclusion, you ask. Simple, I was shuffling through some papers on my desk and I came across the listing of forums at the recent Dayton Hamvention. In three days, I counted 41 forums, that's right F-O-R-T-Y O-N-E forums devoted to everything under the sun but not a single one dealt with the ionosphere, HF propagation or solar-terrestrial conditions.

True, there were topics listed that came right up to the brink, as it were: transmatches, antennas. There was even something that was beyond the brink, over the horizon: DX. But nary a word about those things that I hold near and dear. See what I mean? No respect!

However, there was a cryptic one, simply listed as "UHF/VHF." As you well know, that has to do with the neutral atmosphere, more influenced by climate than ionizing radiation from the sun. I suppose someone could have sneaked in something brief about auroral propagation under that rubric but I have my doubts as that topic is interesting enough in its own right and would deserve a separate discussion.

So where does that leave me? Upset? Yes! Discouraged? No! I won't say that I have a missionary zeal about the ionosphere but it is something that should not be ignored by the people who use it and I operate under that principle. So I have to look deeper to find how we got into this situation, something akin to a "technical neglect" when it comes to HF radio.

I could have turned a more timely phrase, "technical deficit," complete with a buzz-word that everyone is thinking about these days. But a deficit is like a debt, something that you have to repay. A "neglect" is something that can be turned around by greater levels of sensitivity, essentially repaired by greater attention and efforts toward understanding. More often than not, it only costs you time, not money. And that's the way I'd like to think about it. But who am I talking about? Who do I direct my remarks to?

The Organizing Committee of the Dayton Hamvention would be a place to start. After all, they pride themselves as putting on "the country's greatest Amateur Radio gathering," even saying "If you can't find it at Dayton, you'll never find it!" Well, their list of forums seemed pretty complete, except for one major exception. But that glaring omission may be more symptomatic of the hobby as a whole, not just "the greatest Amateur Radio gathering."

If that's true, and it sort of looks that way to me at the moment, there's a history, perhaps even a "paper trail," that shows how we got there. Not being a historian of radio, I can't say that I have all the facts at my fingertips but there are enough clues out there that tell me this particular wound was self-inflicted. Put another way, it happened over the course of time because of our curiosity, even success. So let me tell you what I know about the matter; undoubtedly you can add to my discussion and have a better picture of the whole matter.

I mentioned curiosity; that means poking around, looking for new ideas or trying new things. Back in the early days of radio, say before WWII, HF radio was flourishing. Just to put my finger on a benchmark, the Golden Jubilee of DXCC was celebrated in '87. That tells you something about the development of DXing and propagation to places near and far. So as that sort of activity became more commonplace, it's natural to think that some went on to other pastures, higher in frequency. I know my first ticket was in '37 and then all the amateur magazines had articles about the higher bands, 5 Meters and above. It was a time of experimentation, developing new transmitters and receivers as well as probing newer mysteries of propagation.

Actually propagation, as a problem, was on the back-burner, there being more problems just getting RF generated on those bands. Back in the days of vacumn tubes, the inter-electrode capacities were working against them and more attention was paid to new tubes, new circuits, different ways to overcome losses right at the rig. But there was some experimentation with propagation, even a recognition that propagation of signals on those higher frequencies was affected by weather fronts and conditions.

While amateurs were working on communicating on frequencies around 60 MHz and above, the military were exploring other aspects, namely the development of radar for defense purposes. They began at frequencies just about the 10 Meter band but moved up rapidly during WWII and when the war was over, there was a boom to all aspects of communication with the vast amount of surplus military equipment. The amateurs rushed in, took advantage of the opportunities and pushed onward and upward in the VHF spectrum.

At this point, I could say "the rest is history" but it isn't. True, there was a rapid expansion into the higher bands, the "handy- talkie explosion" and now digital radio. But other forces are closing in, sure to change the shape of "history." The first one was the fact that even the neutral atmosphere absorbs UHF signals; that puts an upper limit on frequencies and the reach of communication.

But now the commercial interests are moving into that part of the spectrum and even challenging "our right" to be there. And a crunch is in the making as various stimulations have been applied to enlarge the amateur population and even get it to occupy that part of the spectrum. Through all this, HF radio has been "bumbling along," people still chasing DX, traffic being passed and rag-chewing endlessly.

But there are stirrings even in the HF part of the spectrum, various forms of digital radio showing up there and banging right into some fundamental limitations that were not evident in the VHF/UHF part of the spectrum. What am I talking about? It has a big and fancy name: Intersymbol Interference or ISI. So let's spend a bit of time on that, seeing what it means and just where it becomes important.

Intersymbol interference is another term for the adverse effects of multi-pathing on HF digital communication. But it is not something beyond our experience, even as CW operators. That sort of thing, two signals from the same transmitter arriving at slightly different times via different paths is something we've all heard.

It can happen when listening to a local station, echos from back-scatter or the ionosphere overhead, making even a CW signal harder to copy. And the multi-path effects on signals from distant stations are well-known, long-path stations often having an echo to them. The one that I like the best is when both long- and short-path propagation are open and you can hear the short-path signal sneaking in the back lobe of ones beam before the long-path signal comes in the front lobe. I know it well but never decorate or dignify it with a term like ISI.

That's not just because I'm resisting modern jargon; it's more that as a CW operator I don't have my ability to copy signals affected by it very often, on short- or long-path. For one thing, those two signals are not always of comparble intensity but more to the point, I'm operating down around 20-25 WPM and there's ample time between dots and dashes. To see what I mean, get out your ARRL Handbook and look at the chapter on Digital Communication. There, they show how CW should be sent, expressed in units of time: a dot one unit long, a dash three units, one unit between dots or dashes in a letter, three units between letters and seven units between words.

On that basis the word PARIS would require 50 units of time and if PARIS were sent twenty times in a minute, that would be 1,000 units in 60 seconds or 60 milliseconds per unit. Now if you look into what I'll call the "time of flight" (TOF) for a HF path, say 6,000 km in length, you find it takes about 20 milliseconds to go from the transmitter to the receiver. That would be for a mode with 2F hops; if the 3F mode were open, one can show that the TOF would be about 1 msec longer and if the 4F mode were open also, its TOF would be about 2 msec longer than that for the 2F mode.

On that basis, there could be three signals arriving within a few milliseconds of each other. For CW at 20 WPM, that wouldn't be much of a problem. But let's think about digital radio, say AMTOR or HF PACKET; now we're talking about 100 and 300 BAUD with 10 and 3.3 msec between switchings from MARK to SPACE, respectively. For a 6,000 km path, you can see that intersymbol interference (ISI) could become important, the other modes of propagation possibly confusing the digital controller that processes the signals from the receiver.

Is there anything that can be done? Perhaps. So consider the difference between the various modes of propagation on that 6,000 km path. If you just picture the hops in your mind's eye, you immediately see that elevation angles are different, the angles being greater for the 3F and 4F hops. But if you send RF up at higher and higher angles, the maximum useable frequency (MUF) for the various hops decreases with increasing radiation angle, finally reaching the critical frequency foF2 for vertical incidence.

On that basis, you could escape the ISI from higher modes by choosing an operating frequency just below the MUF for the lowest mode; the MUFs for the higher modes would then be lower than the operating frequency and the RF would pass through the F-region on those modes rather than be refracted back to complete the path and give rise to multi-path signals. Given those ideas, you can see the merit of digital radio operators knowing something about HF propagation and the MUFs for paths of interest to them.

Of course, there are various types of activities on the digitial portions of the bands, folks who like to rag-chew or chase DX and others who handle traffic. The former look for contacts when and where they can be found and they move up and down the bands according to conditions as they perceive them. The traffic handlers, however, require a station at the other end of the link at a specified time and if it's troubled by ISI, then the question becomes whether the ISI can be avoided by moving up one band. And that's where the WARC bands fit in so nicely, not always involving twice the original frequency and making it possible to QSY and still have a link open.

The DXers and rag-chewers on RTTY are right there, behind the keyboard and can make the necessary decisions in real-time. When it comes to the more automated forms of digital radio, say AMTOR and PACKET, then the details of their error-correcting codes becomes important. With AMTOR, so-called "retries" are carried out after every three characters. So until the receiving station has the correct content of a transmission, those three letters are sent again and again. Of course, under poor conditions, that serves to protract any exchange of information, traffic or whatever.

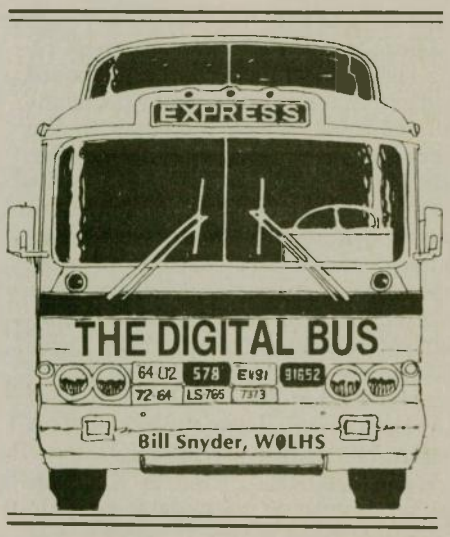
With PACKET, the PACLEN or packet length is the key factor. On VHF PACKET where propagation is less of a problem, the PACLEN can be as long as 80 characters and not cause any problems. But on HF, where QRM, QRN and QSB as well as ISI are the order of the day, PACLEN's have to be decreased considerably, even down to as short as 16 characters, and problems with retries may still be there and make the exchange of information a very slow process.

My interest in all these questions, aside from my own personal operation on RTTY and AMTOR, has to do with the scientific and technical sides. Thus, I know that Solar Min is coming and it doesn't take much of a crystal ball to know that more people are going to be crowded into the lower bands for the next five years or so. And my interest in HF propagation gives me a basis for understanding the details of the technical problems that will seem more ominous and forbidding in the times to come.

As for the social and political sides of these matters, I'm really "out of the loop" and can only stand on the outside, my nose pressed to the window, watching with detached interest all the discussions and wrangling that goes on. But whatever comes out of all this, I hope the scientific limitations will not be forgotten.

But to go back to the beginning of all this, maybe the Dayton Hamvention should include a discussion of propagation matters in their next year's forums. I'm not available myself but I have to think that others could be found to put on a lively presentation. Enough said. **WR**

One of the most difficult things to give away is kindness — it is usually returned. — *Cort R. Flint.*



If you read the article in the December, 1993 *QST* about the Gatti-Hallicrafters African DXpedition, you'll know that I was one of the two ham operators (and cinematographer) on the 1948 trip to the British East Africa countries of Kenya, Tanganyika and Uganda. We were six Americans under the leadership of Attilio Gatti "exploring" the so-called "Dark Continent" during 1948. Bob Leo, W7LR of Bozeman, Montana, and I raised the DX ruckus on the phone and CW bands during the six month period the expedition was in the field.

After I left the Gatti-Hallicrafters group, I joined the University of California scientific expedition; and still later, I worked with radio playwright Arch Oboler in doing some radio and TV shows. After the G-H station shut down, Bob traveled to Saudi Arabia and was on the air from there for a year as HZ1AB; and later, as MP4BAL on nearby Bahrein Island. During the years 1963-65, Bob took a job in Bankok, Thailand and from there gave the Amateur Radio world call sign HS1L to work. Bob has also confirmed all the ARRL countries on CW, so I would say Bob qualifies as a genuine DXer of the first grade.

After 46 years since the stint in Africa, there are only three survivors of the Gatti-Hallicrafters trip. Because I have been involved with high school and college reunions for the past 12 years and enjoy that activity very much, every time Bob Leo and I would talk we'd bring up the subject of holding a reunion of the G-H survivors. However, we kept putting off actually doing it "until next year." This has been going on for about 12 years, so when Bob said "We've got to do it now," we did it!

The three of us met in Springfield, Missouri at the home of Weldon King, one of the still photographers who accompanied the expedition. Weldon, now 83 years old, was in the U.S. Army on the Philippine island of Corregidor at the start of WWII. He was captured by the Japanese when the island surrendered and spent three years as a prisoner of war in Manchuria.

Weldon made a career out of still photography and traveled the world making Sawyer View Master three dimension photo disks that were so popular a few years ago. Weldon's pictures have also appeared in all kinds of magazines from the front cover of *Life* to back cover ads for Canadian Club Whiskey.

My post-Africa career was spent doing six years of television news and then thirty years of industrial film production for national accounts. Bob spent his later years teaching electrical engineering at Montana State University at Bozeman.

With our varied career backgrounds we three had a lot to talk about during our reunion. And it was fun! We ran industrial motion pictures that were taken on our trip and now out of circulation. Weldon also accompanied Gatti, our safari leader, on other trips to Africa; so Bob and I enjoyed seeing movies of Weldon being chased by a rhinoceros, threatened by a cobra, and scared by a lion on one of Gatti's later trips. In all, Weldon has been to Africa on eight photo assignments, so we swapped remembrances of our ham experiences for his tales of shooting pictures. And in between all this chatter, we were serenaded by a mighty theater pipe organ that Weldon has installed in a party room addition to his home. He plays the big wind organ very well, and with the full power of the blower going, he plays it very loud, too. The whole trip was great fun — and we vowed to "do it again — soon"!

One of the regrets Bob and I have is that the logs of the Gatti-Hallicrafter's DXpedition were lost after the trip. The Hallicrafters company took over the mailing of QSL cards and thereby hangs the question: where are the log books today? Nobody seems to know their whereabouts. One side bar of our reunion: Bob said he worked all the states from Africa except the one where now lives, Montana. I never did tally my DX contacts, so I don't know how I did. I do know, however, that I did work North Dakota!

When Bob and I first got on the air from Kenya, we transmitted outside of the 10 Meter American phone band. We put our Hallicrafters BC-610 transmitter (the same as the Signal Corps rig of WWII) with all its power into a portable rhombic antenna and aimed it at Chicago. I'm sure everyone on 10 Meters knew we were on the air! Every time we opened up with a CQ on 10 Meter AM, we got hundreds of calls from all over the world, and it seemed like everyone person who wanted our QSL tried to call us on 28.500 MHz plus about two kcs. Our Panadaptor had a bunch of signals all piled up on the very lower limit of the 10 Meter phone band and nowhere else.

So, one night I attempted to spread out the mob of stations calling us by announcing, "VQ4EHG calling CQ and tuning from the high end of the band at 30 megacycles." You can imagine what happened. Everyone abandoned 28.5 MHz and tried tuning their transmitters up towards the high end of the band. When the antenna loading fell off, they quit trying to go higher in frequency. When I stood by for a call I would put the receiver dial above 30

MHz and give it a spin down the band — receiver roulette you might call it — and wherever it would stop there was someone calling us on AM radio. Keep in mind that SSB operations had not been promulgated at that point in time, so it was absolute bedlam from one end of the phone band to the other. It was a split operation at its very best, I will say! And it was fun!

Sometime ago I started to write a book about our adventures in Africa and so far have 28,000 words in the manuscript. At the point where I quit, we were just arriving in Kenya and setting up our station. Now that I have had my memory refreshed about Africa, I'm going to continue to pound out the real story of the Gatti-Hallicrafters DXpedition to the "Mountains of the Moon." And Bob Leo is fired up also, so one day we may have a book of our experiences in Africa. Maybe ***Worldradio*** might even publish it!

One of the other highlights of our reunion was visiting Mike O'Brien, NØNLQ, the author of the *QST* story about our African DXpedition. We were invited into his Springfield ham shack and what a surprise: Mike has a great collection of antique ham radio gear. Beautifully displayed are Hallicrafters receivers of all kinds, Collins stuff that would make a Japanese collector go ga-ga, and even a real RME relic from back in the 1930s. Mike's collection rivals any I have seen in my travels!

Another ham, Warren Hall, KØZQD of Ash Grove, Missouri, appeared at the gathering at Mike's house and told us one of the best DX stories I've heard for a long, long time.

Warren was in need of one last country to complete his phone DXCC conquest of the ARRL list. The country was one of those that Romeo, the Russian bus tripper, was giving to the eagerly waiting world of QSL collectors. Warren listened for the station, but he didn't find him anywhere. The days went by and Warren kept up his vigil. Finally he found a weak signal from Romeo and Warren's blood pressure shot up and buckets of adrenaline flowed into his nervous system. The moment of truth was here!

Warren flipped on the power switch for his Ten-Tec Titan power amplifier. The Titan takes about five minutes to get up to operating temperature, but Warren couldn't wait, so he pumped his transceiver up to 120 watts and let Romeo have a shout! Back came the Russian with a 59 report and then silence. No more Romeo was heard anywhere — he had vanished.

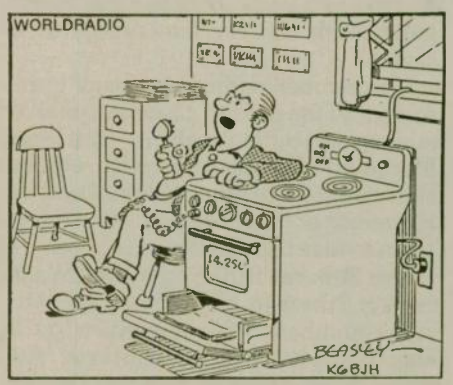
Now for the kicker: when the QSL for the contact came it said simply, "You were the last contact from the country." Warren filled his DXCC country list with that QSO, and probably, if he had waited for the Titan to go green, he'd missed the last chance to be the last contact before Romeo went QRT and jumped on the bus for a new one.

Marlowe Parries, WØML of Moorhead, Minnesota and I both have Titan amplifiers in our systems. When I told Marlowe about Warren's experience, he said, "Many times I've done the same thing. I get too excited to wait for the green light to go on when a rare one is out there waiting!" I agree with Marlowe, I've done it also.

EAVESDROPPINGS

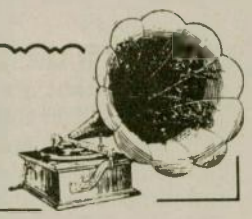
I HAVE RETIRED TO SWIMMING, BOATING, FISHING AND CRABBING WHILE MY XYL KEEPS CRABBING AT ME . . . THEY TELL ME I'M TOO OLD FOR THE GERITOL NET BUT I THINK I'M TOO YOUNG FOR THOSE OLD GEEZERS. . . . I HAVE A SHACK FULL OF RF BUT I WOULD LIKE TO GET IT IN THE ANTENNA. . . . THERE ARE TOO MANY GAMBLING JOINTS IN THE AREA TO LET ME GO TO THE HAM SUPPLY STORES FOR NEW GEAR. . . . LET ME KNOW IF YOU DON'T GET THIS PACKET MESSAGE RIGHT AWAY. . . . I SAW AN OLD TRANSMITTER AT A FLEA MARKET THAT WOULD MAKE A GOOD BOAT ANCHOR FOR THE QUEEN MARY. . . . THE SNOW MOVING BUSINESS IS PRETTY DEAD THIS TIME OF YEAR . . . . MY WIFE IS A COMPUTER/HAM RADIO WIDOW MOST OF THE WEEK, BUT SATURDAY IS HER DAY TO TAKE ME TO THE STORE FOR MILK AND BREAD. . . I HAD BETTER GO QRT BEFORE SOMEONE COMES AND KICKS THE SOAP BOX OUT FROM UNDER ME. . . THE KILOCYCLE KOPS ARE NOT TOO BUSY WHEN THE BANDS ARE SO POOR LIKE NOW. . . . I REMEMBER THOSE DAYS WHEN A C-64 WAS A SPEEDY COMPUTER TO PLAY AROUND WITH — I'M THAT OLD. . . MY FAVORITE COUNTRY WESTERN SONG IS 'IF THE PHONE DOESN'T RING IT'S ME'. . . KEEPING UP FORWARDING TABLES ARE A NEVER-ENDING PACKET BBS HORROR STORY.

Thanks to W2QAE, KAØCHX, and bunch of others on whom I eavesdropped. My address is 1514 South 12th Street, Fargo, ND 58103 and my packet address is WØLHS @WØLHS.# SEND. ND.USA.NA. 73 DE BILL. DIT DIT. **WR**



BOY, IT REALLY BUGS ME WHEN SOMEONE CALLS ME "JUST AN APPLIANCE OPERATOR!"

OLD-TIME RADIO



On the air again

DAVE MALLERY, AB5PF (EX K2RCC)

Life truly does run in big circles.

I was licensed in about 1956 as K2RCC. I remember the incredible moment as my father passed the coax in the window; making the connection and making that first contact. . . the excitement was life-altering.

I worked that entire summer at the rate of $1 per hour to buy a Hammarlund HQ-150. I built and ran a succession of home-brew and Heathkit rigs from AT-1 through DX-100, including a wonderful 6146 oscillator (right out of the *Handbook*) which had the added feature of slowly cruising the Novice band, as it did terrible things to its crystal. . . .

I remember endless hours of cramming CW for the big 13 wpm test with a surplus code machine that read Morse off of paper tape with a photo cell. And the ultimate terror and excitement of the subway trip downtown to face the examiner in room 748 of the Federal Building at 641 Washington Street in New York City.

I remember the sweepstakes. . . CW was really meant for contests. And even fonder memories of the old Fordham Radio Club. . . walking with my friends to the meetings across the Bronx, on streets which today require an armored personnel carrier.

I remember Bob Gunderson, W2JIO, and Lou Hefele, W2IVG, two of the finest gentlemen a young man could ever have the good fortune to meet. . . both blind, but both true seers. And the Reverend Ralph Lynch, S.J., K2MIR, who did untold good for hundreds of kids like me. I remember how the old FRC struggled to cope with the huge influx of kids (a problem we should have today)!

I fondly remember the summer of '58 in New York. It started with Field Day on Hart Island and ended in the hush of Grand Central Station on 30 July as I left home to follow my instincts into the Jesuits.

Another time, another world, but one from which many of us started.

In 1993, at a meeting in Albuquerque of DECUS (Digital Equipment User Society), I noticed a rubber duck protruding from a friend's pocket. . . guess what? They are all hams! Said I: "now there's a reason to get my ticket back." I am 52, having had marriage, children, divorce, re-marriage and a publishing business. Now on the eve of selling that business to live "happily ever after," Amateur Radio slipped back into my life.

When you learn CW the way I did as a kid, and work a few sweepstakes and Field Days, you never lose it.

As I looked for an Elmer, I found a wonderful group of people in Los Alamos, NM. I spoke to Jim Griffiths, KB3EI, about taking the test. The conversation went like this: "which test elements would you like to take?". . . "all of them". . . (pause) . . . "well," said Jim, "I think we can set up a VE session in my kitchen to accommodate you." A full week of 14 hour days with my HP calculator alternating CW with capacitive reactance and I was ready. Again the terror and excitement as I drove up the hill. In 93 minutes, with breaks, I floated back to my truck clutching a CSSC that said I had passed Amateur Extra!

Thirteen weeks of limbo followed while the folks in Gettysburg managed to key my name and address into their computer. I spent the time assembling a station and practicing my fist on a keyer I had built from a kit. Sadly, no more Heathkits, but wonderful QRP kits from a variety of vendors. . . some of them as fine as anything that ever came out of Benton Harbor. After listening to a few of the boxes from the Orient, I decided to find a good old receiver. After all, I planned to build my transmitter, so why get a transceiver? Jim, KB3EI, my Elmer, passed an old Collins 51-J4 on to me which really whetted my appetite, so I found and bought an R390-A. That's a receiver you can really be comfortable with, the absolute high water mark of pre-digital design. Needless to say, I have a dual band HT. The old local nets have moved up there, and that's where you can find your neighbors.

The personal computer had really made its mark. People are designing circuits with PSPICE today, doing the impossible with filters that were "undesignable" in the '50s. My natural inclination to build equipment will certainly be satisfied in the '90s.

Then on the Monday of the 14th week, the magic day — AB5PF! Two quick HT contacts on my way home from the post office, then a mad scramble to get on HF. I guess I believe you are not really on the air until you make a contact with a rig that you have built. . . . First attempts to load a random wire without a tuner, with expected null results. . . then propping the Butternut up against the porch and stringing a few radials on the ground. . . and a CONTACT! WØRFN! Then the Butternut fell over. . . .

A day or two later, with the Butternut "properly" strapped to a fence post, and enough radials in place, I was in business. I fabricated an antenna relay and the Oak Hills QRP power meter. AB5PF, El Morro, NM, was back on the air on 30 Meters with an amazing 150mW measured output from my Ramsey QRP transmitter, (and amazingly small SWR to boot)!

My first real contact was AB5X. I was 569 and clear in Deer Park, TX near Houston. I told him about getting my ticket back after 30 years and that my old call had been K2RCC.

Bob came back and told me that he had kept one of my K2RCC QSL cards on the wall next to his Rag Chewers Club certificate "till they both turned yellow. . ."

Welcome home. **WR**

Activities?

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Visit Your Local RADIO CLUB

For information on how to get your club listed in "Visit Your Local 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- & Thurs. 8:15 p.m. 147.18+. Info: Fred, K8AJX, (205) 270-0909.

ALASKA

North Pole Hamsters ARC. Meets 1st Mon./monthly, 7 p.m., VFW Bldg., Old Rich Hwy. & VFW St., P.O. Box 56424, North Pole, AK 99705.

South Central Radio Club. 8023 E. 11th Ct., Anchorage, AK. Meets 2nd Fri./monthly, 7 p.m., UAA Business Ed. Bldg., Rm. 220. KL7CC, (907) 338-0662 for info. Club rptr: KL7CC/R 146.37/146.97 PL 103.5 Hz.

ARIZONA

Central Arizona DX Assoc., (CADXA). Meets 1st Thurs./monthly, 7 p.m., Salt River Project Pera Club, 1/2 mi. West of 68th & Continental Dr., Scottsdale, AZ. Rptr. K5VT 147.32/92. Packet Cluster nodes (S): 145.09, 144.93, 145.03. Info: (800) 283-4319 or (602) 876-2718.

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, 7:00 p.m., Scottsdale Sr. Cntr., 7375 E. 2nd St., Scottsdale, AZ. Net Tues., 7 p.m., 147.18 rptr. Info: Barbara Myers, KB7UKD, (602) 837-6492.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 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).

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Thurs./monthly, 7:30 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(-), 224.08-. PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info: (619) 697-2700.

Calveras Amateur Radio Society, (CARS), WA6YGA. P.O. Box 391, Angels Camp, CA 95222. Meets 3rd Thurs./monthly, 7:30 p.m., Fire Dept., 1404 Hwy 4, Angels Camp, CA. Net each Mon., 7:30 p.m., WB6MFV/R, 145.170(-), PL 100 Hz. Contact N6EL, Lloyd, (209) 754-3714.

Contra Costa Communications Club, Inc., WD6EZC/R. P.O. Box 20661, El Sobrante, CA 94803-0661. Meets 2nd Sun./monthly (except May & Dec.), 7 a.m., Baker's Square Restaurant in Richmond, CA. Info: Ed Caine, KA6OFR, (707) 996-0962.

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 8 p.m.-10 p.m., West Co Times Bldg., 4301 Lakeside Dr., Richmond, CA 94806. Info: Rachel Lewellen KB6LHR, (510) 233-5034.

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

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

Golden Triangle ARC, (GTARC). Meets 4th Mon./monthly, 7:30 p.m., Sharp Health Care Activities Rm., 25500 Med. Ctr. Dr., Murrieta, CA 92562.

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly, 4 p.m. with potluck supper following. Talk-in on 144.450 Simplex.

Lake County Amateur Radio Society, (LCARS). Meets last Thurs./monthly at either Red Cross HQ, Clearlake, or the Nice Community Clubhouse, Nice, CA, 7 p.m. Net Mon., 7 p.m. 146.775(-) for info.

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: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 447-3815.

Manteca Amateur Radio Club (MARC). P.O. Box 545, Manteca, CA 95336. Meets 1st Thurs./monthly, #1 Firehouse, 7 p.m. Talk-in on club rptr. 146.985- PL 100Hz. Info: (209) 823-3611.

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.

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Denny's Restaurant, 2314 17th St., Santa Ana, CA, (100 yds. west of the 55 Fwy.) Info: Ray Davis, KD6FHN, (714) 551-2010 or (714) 551-1036.

Mount Diablo Amateur Radio Club. P.O. Box 23222, Pleasant Hill, CA 94523. Meets 3rd Fri./monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Ln., Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+) 100Hz PL. Info: George, KI6YK, (510) 837-9316.

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 p.m. 145.190. 220 Net, Tue. 8 p.m. 224.40(-).

River City A.R.C.S. Meets 1st Tues./monthly, 7 p.m., SMUD Bldg., Don Julio at Elkhorn, Sacramento, CA. License classes offered. For info contact Lyle, AA6DJ, (916) 483-3293.

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. + Stockton Blvd., Sacramento, CA. Info net every noon on rptr. W6AK/R 146.910. Jim L. White, N6UGO, (916) 773-5890.

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.

Santa Clara County Amateur Radio Assoc., (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets 2nd Mon./monthly, 7:30 p.m., 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(-), 224.26(-), 444.60(+). 2 meter/220 net Mon. 9 p.m. Mtgs./3rd Fri.

Shasta Cascade Amateur Radio Society, (SCARS). 2955 Shasta St., Redding, CA 96001. 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.

Sierra Foothills ARC. P.O. 3262, Auburn, CA 95604. Meets 2nd Fri./monthly, 7:30 p.m., Firehouse, 226 Sacramento St. Auburn. 10m, Wed. 7:30 p.m., 28.415, 2/220m, Thurs. 7:30 p.m., 145.430(-) (PL 94.8) & 223.86(-).

South Bay ARC. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Memorial Hosp., 3330 Lomita Blvd., Torrance, CA. Talk-in on WB6MYD rpt. 244.38(-). Info: (310) 328-0817.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150. FM Rpt. Net Thurs., 8 p.m., 52.86/52.36 tx. FM Smpbx, call freq. 50.300.

Stanislaus Amateur Radio Assoc., Inc. (SARA). Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus County Admin. Bldg. (lower level conf. rm.), 11th & H St., Modesto, CA.

Stockton-Delta ARC. Meets 2nd Thurs./monthy, 7:30 p.m., Red Cross Bldg., 747 N. Pershing Ave., Stockton, CA Rptr. 147.165(+). Net Wed., 8 p.m. 146.655.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, 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.), 7:00 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. Rptr.: WD6BUS 145.470- PL 127.3. Dan Bissell (707) 446-7411.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tues./monthly, 7:30 p.m., Victor Valley Museum, 11873 Apple Valley Rd., Apple Valley, CA. Talk-in 146.94(-), info net Sun. 7 p.m. 146.94(-).

Westside Amateur Radio Club. P.O. Box 11092, Marina del Rey, CA 90295. Meets 3rd Thurs./monthly, 7:30 p.m., Red Cross Bldg., 1450 11th St., Santa Monica, CA. Net every Tues., 8 p.m., 146.67(-). Voice mail: (310) 917-1100.

West Valley Amateur Radio Assoc. P.O. Box 6544, San Jose, CA 95150-6544. Meets: 3rd Wed./monthly, 7:30 p.m. (except Dec.) Cambrian Sch. Dist. Office, 4115 Jacksol Dr., San Jose, CA. W6PIY/R. Net Tue., 8:30 p.m. 147.39(+), 223.96(-).

Willits Amateur Radio Society, (WARS). P.O. Box 73, Willits, CA 95490. Meets 4th Mon./monthly, 7 p.m., Brooktrails Fire Dept. (northwest of Willits). Talk-in: 145.13(-), PL 103.5.

Yuba-Sutter Amateur Radio Club, (YSARC). P.O. Box 1169, Yuba City, CA 95991. Meets 2nd Tue./monthly, 7:30 p.m., Yuba City Police Bldg., 1545 Poole Blvd., Yuba City.

CONNECTICUT

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

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(-) & 145.33(-), serving Pasco Cnty.

Indian River ARC, Inc., (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931-3011. Meets 1st Thurs./monthly, 7:30 p.m., Community Church of the Nazarene, 400 Crockett Blvd., Merritt Island, FL.

Orlando Amateur Radio Club. P.O. Box 3262, Orlando, FL 32802. Meets 1st Wed./monthly, Beardall Center, Gore St. & Orange Ave., Orlando. 146.76(-), 145.11(-), 146.82(-), 147.015(+), 443.275. CTCSS 103.5 Hz on all except 146.76.

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tue./monthly, 7 p.m., Public Library, 540 Fee Ave., Melbourne, FL.

Suncoast Amateur Radio Club. P.O. Box 1992, New Port Richey, FL 34656-1992. Meets 2nd Mon./monthly, 7:30 p.m., First Lutheran Church, corner of Polk & Delaware, New Port Richey, FL. Sponsor of WC2G/rptr. on 145.35, serving west Pasco County.

GEORGIA

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

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7 p.m., HELCO Auditorium, 1200 Kilauea Ave., Hilo. Talk-in on 146.68(-), 146.76(-), 146.88(-), 147.02(+) & 147.04(+).

Emergency Amateur Radio Club, (EARC). P.O. Box 30315, Honolulu, HI 96820-0315. Meets 4th Thurs./monthly, 7 p.m., Lincoln Elem. Sch., 615 Auwaiolimu, Honolulu. Nets: nightly 7:30 p.m., 146.88 & 146.80. Rptrs: 146.76(-), 146.80(-), 146.88(-), 146.96(-) 146.94(-). Info: (808) 595-6245.

IDAHO

Idaho Society Radio Amateurs. Boise Chapter 146.94. Meets 3rd Tues./monthly, Borah H.S., 7 p.m. Rptr. at 8000. Membership welcome.

Kootenai Amateur Radio Society, (KARS). P.O. Box 5222, Coeur d' Alene, ID 83814. Meets 2nd Mon./monthly, 7:30 p.m., Sheprock Bldg., Coeur d'Alene Airport.

ILLINOIS

Chicago FM Club Inc., (CFMC). 146.76 (PL 107.2)/224.10/224.18/443.75 (PL 114.8). P.O. Box 1532, Evanston, IL 60204. Ham help line: (312) 262-6773. Info net Tues., 9 p.m. on 146.76. Meets 3rd Wed./monthly, 8 p.m.

Chicago Suburban Radio Assn., (CSRA). P.O. Box 88, Lyons, IL 60534. Meets 3rd Tues./monthly, 7 p.m., Mid City Nat'l Bank, 7222 W. Cermak Rd., N. Riverside, IL.

Dupage Amateur Radio Club. (DARC). P.O. Box 71, Clarendon Hills, IL 60514. Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Church, SE corner of Cass & Richmond, Westmont, IL. Net Sun., 9 p.m. on 145.250. W9DUP repeaters 145.250(-) (107.2PL), 442.550(+) (114.8PL), 224.680(-).

Fox River Radio League. P.O. Box 673, Batavia, IL 60510-0673. Meets 2nd Tue./monthly, 7:30 p.m., Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL.

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, 28.41 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.07. Info: (312) 974-3291.

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. Info: (309) 685-6698. Rptrs: 146.25(-) & 147.675(+).

Schaumburg ARC, (SARC). Meets: 3rd Thurs./monthly, 7:30 p.m., Schaumburg Park Dist. Community Rec. Ctr. at Bode & Springinsguth Rds. Schaumburg, IL. Net 145.23, 9 p.m. Thurs. Info: (708) 213-0910.

Six Meter Club of Chicago, Inc., K9ONA. Meets 2nd Fri./monthly, 7:30 p.m., St. John's Lutheran Church, 47th St. & Brainard Ave., La Grange Pk., IL. Info net every Tue., 9 p.m. K9ONA/R 146.970(-), 443.300(+), 107.2 Hz PL.

The Starved Rock Radio Club, W9MKS. P.O. Box 22, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7:30 p.m. Rptr. net 7 p.m. Wed./wkly., 147.72/.12.

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 p.m., 145.39 MHz. 440 MHz net on Tues., 8:30 p.m. on 444.475 MHz. RTTY Net Sun. 9:30 p.m. 145.31.

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.

MICHIGAN

Chelsea Amateur Radio Club, Inc. Meets 4th Tue./monthly, 7 p.m., Society Bank, 1478 Chelsea-Manchester Rd., Chelsea, MI 48118.

Oak Park Amateur Radio Club. Oak Park Comm. Ctr., 14300 Oak Park Blvd., (same as 9 1/2 Mile Rd., west of Coolidge) Oak Park, MI 48237. Meets 2nd Mon./monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

Utica Shelby Emergency Communications Assoc., (USECA). P.O. Box 1222, Sterling Hgts., MI 48311-1222. Meets 2nd Tue./monthly, (Sept.-June), Donald Bemis Jr. High Sch., 12500 Nineteen Mile Rd., Sterling Hgts, MI (between Schoennher & Clinton River Rds.) Talk-in on 147.18(+) 100Hz PL. 24-hr. hot line: (313) 268-6730.

MISSISSIPPI

Jackson Amateur Radio Club, Inc. Meets 3rd Thurs./monthly, 7 p.m., Am. Red Cross Bldg., Riverside Dr., Jackson, MS 39202.

MISSOURI

Central Missouri Radio Assoc. P.O. Box 283, Columbia, MO 65202. Meets 2nd Tues./monthly, 7 p.m., Boone Electric Coop, 1413 Rangeline Rd., Columbia, MO. Talk-in 146.76.

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./monthly, 7:30 p.m., Omaha Red Cross near 38th & Dewey St. 146.94(-). Contact Jim Miller (NØORV), (402) 253-8272.

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.

Wide Area Data Group, Inc. P.O. Box 3132, Sparks, NV 89432. Meets 1st Sat./monthly, 9 a.m., Bailey's Cafe, 4124 Kietzke Ln., Reno. Info: (702) 356-8200. Call in on 147.30 MHz.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover, NH 03820. (603) 755-2600/335-6643. Meets 2nd Sun./monthly, 7 p.m., Rochester Fire Dept. Training Rm.. Talk-in: 147.57.

NEW JERSEY

10-70 Repeater Assn., Inc. 235 Van Emburgh Ave., Ridgewood, NJ 07450. Meets 1st Wed./monthly (except July & Aug.), 8 p.m., VFW, Valley Rd., Clifton, NJ. Rptrs.: 146.10(-), 224.84(-), 444.15(+).

Bergen Amateur Radio Assoc., (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, New Milford Elks Lodge, Patrolman Ray Woods Dr., New Milford, NJ 07646. Nets: 28.350 Mon. 9 p.m., 144.40 9 p.m. Wed.

South Jersey Radio Assoc., (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remmington Ave., Pennsauken, NJ 08109. Meets Jan.-Oct., 4th Wed./monthly, 7:30 p.m. (Nov.-Dec. 3rd Wed.). Talk-in: 145.29 rptr. Club call K2AA.

NEW YORK

Amateur Radio Assoc. of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Co., 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955(-) rptr. W2PVL.

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, 7:30 p.m. Info: Charlie, WA2JUJ, (518) 420-0046.

Orleans County Amateur Radio Club, (WA2DQL). Meets at Emergency Management Office, West County House Rd., Albion, NY 14411, 2nd Mon./monthly, 7:30 p.m. 145.27 — WA2DQL.

PROS, Pioneer Radio Operators Society. Meets 1st Wed./monthly (except July/Aug.), 7 p.m., Sardinia Town Hall, Savage Rd., Sardinia, NY. Net 9 a.m. Thurs. 3853 kHz.

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, (SCRC). Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Way, Bohemia, NY. Talk-in: 145.21 rpt. Morten Eriksen, KA2UIU, (516) 929-6911.

Westchester Amateur Radio Assoc., (WARA). Meets 1st Thurs./monthly, 7:30 p.m., Scarsdale Town Hall, Scarsdale, NY 10583. All invited. Info: Dan Grabel, N2FLR, Pres. (914) 723-8625.

Westchester Emergency Comm. Assoc., (WECA). Meets 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains. Contact WB2VUK or call WECA INFORLINE (914) 962-9666 or WECA landline BBS (914)738-6857 for details. Talk-in WB2ZII/R 147.06(+) MHz.

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. 146.865(-), 440.15(+).

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets Mondays, 28.35 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 Thurs./monthly, 7 p.m. at Stanly Community College, Albemarle, N.C.

OHIO

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

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35 and 442.625 MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS.

Firelands Area Rptr. Assn., (FARA). Meets 4th Tue./monthly, 7 p.m., Ohio Veterans Home, Sandusky, OH. WB8LLY rptr. 146.805(-). Net Sundays, 8 p.m. Info: Rob Harshbarger, N5XRB.

Greater Cincinnati Amateur Radio Assn., (GCARA). Meets 4th Wed./monthly, 7:45 p.m., Cincinnati Museum of Nat. History, 1720 Gilbert Ave. Amateur Radio Station W8DZ. Info: WA8STX or (613) 563-7373.

Lancaster & Fairfield County ARC. Meets 1st Thurs./monthly, 7:30 p.m., American Red Cross, 121 W. Mulberry St., Lancaster, OH 43130. Info net Mondays, 8 p.m., K8QIK/R 147.63(-) rptr.

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.

Sandusky Valley Amateur Radio Club. Meets 1st Sat./monthly, 9 a.m., Sheriffs Bldg. in the D.S.A. office, 2323 Country Side Dr., Fremont, OH.

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. Contact: Brian, WD8MXR, 385-5624.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.48 at 8:30 p.m., 7260 at 9 p.m. Rptrs. 146.91(-), 146.715(-). P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

Van Wert Amateur Radio Club, Inc. 1220 E. Ridge Rd., Van Wert, OH 45891. Call-in: 146.85(-). Meets 1st & 3rd Sat./monthly, 8 p.m.

OREGON

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thurs./monthly, 7 p.m., Bend Sr. Ctr., 1036 NE 5th, Bend, OR. Net Sun. 7:30 p.m. 147.06(+) MHz. Info: (503) 385-1156.

Keno Amateur Radio Club. P.O. Box 653, Keno, OR 97627. Meets 3rd Thurs./monthly, 7 p.m., Keno Fire Stn. Rptr. 147.32(+) W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736.

Oregon Coast Emergency Rptr., Inc. P.O. Box 254, Florence, OR 97439. Meets 3rd Sat./monthly, 9 a.m. for brkfst. Net, Wed. 7 p.m., 146.80. Info: 997-2323 or 997-3081.

Salem Amateur Radio Club, (SARC). Meets 4th Tues./monthly, after school, McKay High School Auditorium, 2440 Lancaster Dr., NE, Salem, OR. Talk-in 146.86. Info: (503) 393-9604.

Umpqua Valley Amateur Radio Club, Inc. P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Courthouse, Rm. 311, Douglas St., Roseburg, OR. Info: W5PII/R 146.90(-) or (503) 673-1310.

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16001-1787. Meets 1st Tues./monthly, 7:30 p.m., Boy Scout Cntr., 830 Morton Rd., Butler, PA. Call-in W3UDX/R 147.36(+). Net 10:10 p.m. nightly.

Mercer County Amateur Radio Club, W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly, 7:30 p.m., Shenango Valley Med. Ctr, Farrell, PA. Net, Thurs. 9 p.m. on 145.35 W3LIF, Digi. 145.01.

TEXAS

Brazos Valley Amateur Radio Club, (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thurs./monthly, 7:30 p.m., Sugar Land Community Ctr., 226 Matlage Way., 3 blks SW of Imperial Sugar Co. at HWY US-9OA & Brooks St. (HWY 58) in Sugar Land, TX. Talk-in: 145.47, 442.5 rptrs.

VIRGINIA

Southern Peninsula Amateur Radio Klub, (SPARK). Meets 1st & 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Repeaters 146.73(-), 449.55(-). VE Exam Info: (804) 898-8031, W4RTZ

Virginia Beach ARC. Meets 1st Thurs./monthly (except July), 7:30 p.m., St. Andrews United Methodist Church, Tucson & Princess Anne Rds., Virginia Beach, VA 23462.

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m., Salvation Army Renton HQ., 720 Tobin St., Renton, WA. Talk-in on 146.82 rptr. Doors open at 9:30 a.m.

WEST VIRGINIA

Jackson County Amateur Radio Club. Clark Stewart, W8TN, Pres., 104 Henrietta St. Ravenswood, WV 26164. Meets 1st Thurs./monthly, 7:30 p.m., United Nat'l Bank of Ripley. Net Mon. 9 p.m. on 146.67(-) WD8JNU/R.

Tri-State Amateur Radio Assn. Meets 3rd Tues./monthly, 7 p.m., Green Valley Fire Dept., 16th & Norwood Rd., Huntington, WV. Monthly breakfast 1st Sat., 9:15 a.m., Bonanza.

WYOMING

Sheridan Radio Amateur League, 146.82. 926 La Clede, Sheridan, WY 82801. Meets 4th Thurs./monthly, 7 p.m., location varies; Saturdays, 8 a.m. at J.B.'s. Info: (307) 674-6666, WA7B.

MEXICO

Lake Chipala Amateur Radio Group. Meets Fri./weekly, 10 a.m., St. Andrew's Episcopal Church, Chipala, Jalisco, Mexico (30 mi. so. of Guadalajara). Simplex 146.49. Info: W4AFW/XE1. Charles C. Leonard, APDO 381 Ajijic, Jalisco, Mexico.

PATRICK TICE, WAØTDA

The first time I met Jerry Kloss, he introduced himself to me as "the guy who installs the potholes in the roads." It turned out that Jerry worked just a mile down the road from HANDI-HAM headquarters, at the Golden Valley office of the Minnesota Department of Transportation. He wasn't serious about making potholes, but he was serious about getting his Amateur Radio ticket, something he had been wanting for years. Now, he reasoned, was the time to get started, and HANDI-HAMS could help by providing study materials on cassette tape.

Jerry is legally blind, having a condition that causes degeneration of the optic nerve. While some people who know that they are going blind might be tempted to just give up hope of a normal life, that didn't happen to a guy like Jerry! Craig Wilkins, who wrote about Jerry in the *MN/DOT Express* put it, "In spite of failing vision, Kloss feels no loss of enthusiasm for his job or life. He enjoys being an Amateur Radio operator, and outdoors his activities include skiing, sailing and canoeing with his spouse and children at their cabin near Hackensack."

He has been working with the DOT since 1963, and didn't ask any special favors. In fact, he started as anyone else might, by doing patching, setting road cones, and spreading sand with a shovel. His eyesight got worse over the years, and he became a highway technician and started working in traffic engineering. He monitors construction and traffic radios, answers phones, and does data entry. Adapted equipment allows him to perform his job duties independently, something that sure suits Jerry, who wants to do things for himself.

When he set out to gain his Amateur Radio license, we knew it wouldn't be long before we had another ham in the community, and sure enough, Jerry soon came through with his Novice, Technician, and General elements. This fall he plans to attend HANDI-HAMs Radio Camp in northern Minnesota and study for his Advanced. Good luck, Jerry. . . we know you can accomplish anything, once you set your mind to it! **WR**

Clip & Post

9 August - 3 September

Contact radio camp and get a QSL! The Courage HANDI-HAM camp station will be on the air during the week of Monday, 9 August through Saturday, 3 September, 1994. The station will call for the first 10 minutes of each hour from 1600 UTC to 2200 UTC. Frequencies are 14.265 MHz on even hours and 7.272 on odd hours. Check in as often as you like. All QSLs will be acknowledged, and a special certificate will be awarded to the HANDI-HAM member making the most contacts with this special camp station. At the end of the 10 minute calling period, you may make contacts with each other. These are the same frequencies that the HANDI-HAM nets meet on each Monday. Results will be posted in ***Worldradio*** and *HANDI-HAM World*.

YOUR WIFE HIRED ME TO HELP YOU CLEAN UP YOUR SHACK

YLs on the Air

Kay Eyman, WAØWOF
Route 2, Box 366
Garnett, KS 66032

YL-OM contest winners

Band conditions weren't too favorable for the YL-OM Contest this year, and the OMs who participated deserve special credit. Although I couldn't hear very many YLs in the contest, everyone I did hear seemed to be having a very good time.

Congratulations to these winners: In the SSB portion, held 12-14 February, Gold Cup winners were Cindy Barnes, KD4RRF, and Frank Glass, K6RQ; in second place were Robin LaByer, KR4DI, and Jerry Skaife, W7ULC, and in third place were Milli Wadler, AB4KL, and Ken Graf, NA8G. In the CW portion, held February 26-28, Gold Cup winners were Elizabeth Anderson, VE7YL, and Ken Graf, NA8G; second place winners were Rosel Dach, DL2FCA, and Frank Glass, K6RQ, and third place winners were Ruth Wardell, WA8YPY, and Jerry Skaife, W7ULC.

The next YLRL contest will be Howdy Days in September, and complete rules and the dates will appear in the September Contests column.

Dayton Hamvention

As always, there were YLs participating in all the Dayton activities. Nancy Kott, WZ8C, was kept busy at the FISTS CW Club booth. This is an international organization devoted to the preservation and advancement of CW, with about 800 members currently. A love for Morse code and a concern for its perpetuation are the only requisites for membership, and the three aims of the club are: (1) To further the use of Morse code on the bands (2) To encourage the newcomer to the mode (3) To engender friendships within the membership.

FISTS sponsors a Straight Key Week each September, which is open to members and non-members. A full week is set aside for this event to encourage participants to re-create the atmosphere of earlier days with leisurely, enjoyable and meaningful contacts on the hand key. Nominations are invited from participants for the best operator heard, and a plaque is awarded to the "Fist of the Year." If you'd like more info, send an SASE to Nancy at P. O. Box 47, Hadley, MI 48440-0047.

Terri Berchak, WD8LQH, the only YL reporter for the "Amateur News Weekly Regional Report," was also busy gathering news. This report is aired 26 times a week, including on the FARA 145.91 repeater in Dayton, during the Buckeye Belle Net, and on 75 meters during the Ohio SSB Net. Terri also serves as Net Control for the Central Ohio Severe Weather Net.

YLRL President Christine Haycock, WB2YBA, was at Dayton this year, doing double-duty for YLRL and MARCO. Chris was moderator of the YLRL forum on Saturday and presented a slide show, entitled "The Perils of Christine and Her Antennas." YLRL's distinguished founder Ethel Smith, K4LMB, also spoke at the forum about YLRL's early days.

We always look forward to seeing Nellie de Lazard, XE1CI, at Dayton, and this year, she brought along some beautiful QSLs from her recent XF4CI operation from Socorro Island. Nellie was the first YL to operate from Socorro, which is part of the Revilla–gigedo Archipelago, and she planned and organized the DXpedition. She was accompanied by six other XE1s.

Some of the other DX YLs were Genoveva de Bonilla, HI3ADJ; Jody Millspaugh, VP5JM; Raija Ulin, SMØHNV, and Nobuko "Ton" Uchiyama, JR6XIX. This was the first Hamvention for Ton and her OM Dom, JR6XIW, from Okinawa, and they did an admirable check of the flea market, weather notwithstanding. Like all of us though, they're hoping for better weather next time.

YL meetings

Raija Ulin, SMØHNV, and Ruth Geering, IT9ESZ, are two of the more than 300 YLS who were planning to attend the big YL meeting at Friedrichshafen, Germany, the last weekend in June. YLs from different countries set up booths with information about local YL groups and activities, and there is a general YL meeting on the schedule. I hope to have a report and photos for the October column.

Gertrud Szyza, DK8LQ, and Christa Elksnat, DJ1TE, are working on plans for the special YL meeting in Berlin in 1996, which will be held just before the 1996 meeting in Friedrichshafen so that everyone can attend both meetings. Several Japanese YLs will be there, and, of course, there will be YLs from almost every European country. This meeting isn't sponsored by any club or group, but like YL World '91 in Stockholm and the Asian YL Meeting '93 in Osaka, it is held just to promote international friendships. All YLs are welcome.

YLRL's conventions are usually spaced four years apart. The next one will be in 1997 and will be sponsored by the SAYLARCs, the Second Area YL Amateur Radio Club. They've selected Albany, New York, as the site and have already started working on the plans. Start making your plans to attend now also!

Dom, JR6XIW, and "Ton" Uchiyama, JR6XIX, at Dayton Hamvention '94. *— photo by WAØWOF*

Finnish YL activities

The first YL in Finland was Marjatta Kirsi, OH5YL, who was licensed in 1934. (She later became Marjatta Klemola, OH2OW.) By 1948, the callbook listed six YLs, and the number today stands at 236. A YL column was started in the SRAL (Finnish Radio Amateur League) publication in the late 1950s, and in 1962, the YLs offered their first certificate, the Finnmaid Award. Three of the certificates available now are the Finnmaid, OH-YL-22, and OH-YL-33. Requirements vary, according to your geographic location, but for non-European stations, you need three confirmed contacts with OH YLs to earn the

Finnmaid, seven contacts for the OH-YL-22, and eleven for the OH-YL-33. Any band or mode can be used, and you should send a list of the contacts, with the usual data from the log, the name of the operators, and a statement verifying that the QSLs have been received. The fee is 10 IRCs or $4.00, and applications go to SRAL Award Manager, Box 44, 00441 Helsinki, Finland.

The OH YLs sponsor two contests each year. The first is the International Women's Day Contest on 8 March, and the next one is the Black Cat Contest on 8 August. Both contests are for HF only, each runs 12 hours, and they are always on the same day every year. Their fourth certificate, the Black Cat Award, can be earned only during the Black Cat Contest, if you score at least 88 points. OMs work only YLs, and YLs work both OMs and YLs.

In 1990, the club station callsign OH(1-9)YLS was assigned and is available for Finnish YLs to use during special events from any area in the country, such as OH1YLS or OH2YLS. This has proven to be very popular. The Finnish YL Net meets on Sunday, at 1030 UTC. The primary SSB frequency is 3.710 MHz, with a back-up frequency of 3.688 MHz. The primary CW frequency is 3.533 MHz, and the back-up is 3.522 MHz.

One other certificate is only available during leap year. Drop me a note if you'd like more detailed info on the contests and certificates.

YL Updates

Helen Archibald, VE2YAK, and her daughter Margaret, VE2ZOO, will join seven other members of the West Island Amateur Radio Club of Montreal in a DXpedition to St. Paul Island. The callsign will be CY9CWI, and operations will begin at 0000 UTC, on 12 August, and close on 16 August, 1994. Helen and Margaret will be looking for operators who are working toward YL DXCC.

Jennifer, BY5QFB, has been on 15 meters. Her QSL address is P. O. Box 711, Fuzhou, China.

Arline Berry, N1OMA, is a volunteer coordinator between the Girl Scouts and Amateur Radio. Her new brochure "From Signaling to Ham Radio" details the requirements for Girl Scout badges, dating from Signaling, in 1913, to Communication Arts, in 1990. Since 1958, if a troop's interests are not covered by a current badge, the girls may write their own requirements for Our Own Troop's Badge. If you'd like a brochure, send an SASE to Arline Berry, N1OMA, 6 Causeway Lane, Medfield, MA 02052. WR

Language notes

A while back I was working a station in the Azores. He spoke impeccable English and identified himself as "John" from St. Michael. After the QSO I checked the *Callbook*. It listed him as "João" from San Miguel. Also, the proper Portuguese name for St. Michael is "São Miguel."

A couple of nights later I heard the same station on the air and I managed to get his attention. I told him that many of us in the United States feel self-conscious because so many people can talk to us in our language while few of us can reciprocate.

He said that we should not feel bad — English was a "universal" language. Anybody wishing to do business with Japan, Europe, the United States or just about anywhere else had to know English to succeed.

True. But I still insisted that I found it strange that he used the name "John" — while sometimes giving his QTH as St. Michael and other times as San Miguel. And I asked him what the correct pronunciation of his first name was in Portuguese.

He responded "Joo-áh-oo." (Well, I'm glad I asked! I'd have guessed "Yoh-ah-oh.")

A week or so later I worked a new licensee in Peru. He spoke very little English — and was disappointed that I spoke no Spanish or French. Nonetheless we persevered. He could not understand my signal report of "five-eight." So I dredged up some long forgotten Spanish and said "Cinco-Ocho."

Somehow we both got the calls, signal reports, names and locations established. It was a good contact on both ends. (The "Q" signals and international phonetic alphabet sure helped — as usual.)

These QSOs (among others) have convinced me that — with just a little effort — we can improve our ability to work DX stations — as well as their enjoyment in working us.

Knowing the numbers (0 thru 9) along with a few basic phrases, can help both the DX stations and ourselves.

Besides the numbers, how about:

My name is	Please repeat
Your name	My signal report
QTH	Many thanks
Seventy-three	Very well

Goodbye for now

After English the six most prevalent native tongues among the Amateur population are: Spanish, German, Portuguese, Russian, French and Italian.

Caution: Don't pretend to be fluent in any language if you are not!

— *Schaumberg ARC Inc.*, Schaumberg, IL WR

QUARTER CENTURY WIRELESS ASSOCIATION INC.

John G. Troster, W6ISQ

Welcome

We are pleased to say the word is getting 'round that QCWA is the place to be — if one wishes to be a member of the Amateur Radio Honor Society. And most of us eligible fellas do. Letters and cards have come in to Old Jim (OJ) Walsh, W7LVN, hard-working, Genial, General Manager of QCWA, away up in Eugene, Oregon, mentioning the QCWA ad in this tabloid. We're happy for that and wish to commend LCDR William Calderwood, K1CT; "Old Jim" Eakin, W6SBY of San Lorenzo, CA; Don Nolde, K4QV of Lehigh Acres, FL; Ed Moriarty, WØWWZ from Powers Lake, ND; Lee Reisenweber, VP2VE: Arnold Finch, KC5APX, from Old San Antonio, TX and Bob Wise, K7QYN, from down in warm Tucson, Azironi. These gentlemen all made inquiry about QCWA, wished to join or asked for information from "OJ" W7LVN, Honcho at QCWA HQ at 159 E. 16th Avenue, Eugene, OR, 97401-4017 (Sorry, I had to work in that QTH). If you haven't already signed up with the Honor Society, the Wave Of The Future, the QCWA, the Proud, the Many, you might want to make OJ's day, and send him a card!

Stuart Meyers, W2GHK

We were saddened to read about Stuart Meyers' passing. He was a Past President of QCWA, as well as many other radio organizations, amateur and commercial. There's a fine tribute to him and his many accomplishments in the Summer issue of the QCWA Journal. Recommended reading.

How I saved San Francisco from an earthquake

I might re-title this episode "How I got active in QCWA" with sub-title, "Thank you, Harry." I was reminded of this incident during the April QCWA Board meeting in Tysons Corners, VA as I sat, quaking, under the hard scrutiny of our then leader, Harry Daniels, W2HD. One thing Harry always said was that he didn't care what people called him, just so they spelled his name properly.

But back to the story about how I saved SFO from another earthquake. Back in June 1989, the ARRL national convention was in Arlington, Texas. At the Dallas airport, YF Marguerite and I popped into a courtesy limo for the hotel, and who jumped in right after us but Harry and Kay Danniells. It had been a long time since I'd seen Harry so he brought me up to date fast: "I'm running for President of QCWA." "Hey, congrats Harry."

So, I go back to my QRP rig and garden and keep slugging it out with life. Then one day — I just happen to remember the time and day and year — at five minutes to five on the warm afternoon of 17 October, 1989. I was sitting up in my office, feet on the desk, reading a seed catalog. Phone rings: "Hi, Jack (don't say that at an airport, Harry), this is Harry Danals. How are you? How ya been doing? Been to any more conventions? Ahhh, say, the folks at QCWA are looking for some volunteers to be on the QCWA nominating committee for next year. . ."

At that moment, my house began to rattle. My chair rocked. Some books went crashing. Yes, folks it was one of our friendly, common variety California earthquakes. I looked up and my overhead barber-shop fan was still whirring and I realized that if that thing came unhinged, I would be guillotined. Time to beat a very hasty retreat under the desk or downstairs, or somewhere.

Retiring from QCWA Board, W6ZM, W2HD, K4LMB and K8CFU.
— photo by W7LVN

"Say, Harry OM, we got a little shaking going on here, could you call me tomorrow?"

"Well, all I wanted to know is will you be on the nominating committee?"

"I say, Harry, this is developing into a full-blown San Francisco earthquake. Call me tomorrow."

"Well, how about the nominating committee."

"Harry, this is a major quake."

"Nominating Committee?"

"Yes, yes, yes, ok, ok." Bang.

So, that is how I got on the nominating committee.

Skip to late October, 1990. I am back in the upstairs office reading my seed catalog. Phone call. "Hi Jack (remember, not in the airport) this is John Huntoon, you remember, W1RW."

How could I forget John? "Yeeaah John, what's up?"

"Well, I'm on the nominating committee for QCWA and . . ."

Oh, oh, he got my old job. Get ready to duck.

"We were just wondering if you would

be willing to run for Director of. . ."

Flash back one year! I look up and that overhead fan is spinning; and here is a phone call about QCWA. Remember what happened on your last QCWA call. Disaster, that's what. Only one conclusion. . . if this is a QCWA call, can a major 7.1 Richter earthquake be far behind? Hang up quick and stop the quake.

"Yes, John. Of course. I'll run. Anything you want, John. Whatever you say, John. No problem. Gotta hang up." Slam, bang. Another minute or so and that fan would be sailing through the air and my tower leveled and no telling what might happen to SFO!

I was not very nice to John, but under the circumstances, which I explained to him later in person (surely not over the phone), I had to save SFO from an earthquake. I don't think he ever really believed that I would save SFO by hanging up on him. But we haven't had a quake since!

Board meeting

No doubt you will read about the Board Meeting in the Journal. As usual, President Harry Dannuls ran the meeting with the precision of a military parade, everyone in step, no frivolity, no talking out of turn, with the result that we got a lot accomplished. This is a hard working group, but they are all good campaign talkers, and given a moment's break, any one of 'em will talk for an hour on subjects ranging from New Guinea sea-going reptiles to the commerce between Minoans and Ancient Egyptians. So, you understand the need for President Danalz snake whip approach.

Four of your Directors plus our President will retire from the Board this year. They are: President Dunals, W2HD; Ethel Smith, K4LMB; Arch Doty, K8CFU; Bill Stevens, W6ZM, and, not present, Art Miligan, W8KW. A robust, resounding ovation to these excellent, well-informed members of the Board whose service forwarded the purposes of QCWA appreciably.

One thing more deserves special mention. The QCWA Scholarship Fund, managed by President Emeritus Leland (tench hut) Smith. We can all be very proud of this Fund which uses its interest income to help sponsor young Amateur Radio operators to go to college. We have almost $116,000 in the Fund and anyone may send in a donation for it to QCWA HQ any time. When you see the pictures of the young students we support in the Journal you will be glad you were able to help them.

Fan mail

We received a glowing fan letter directed to Chef Lewigi McCoy from Jane Fields, N3HKT. "We enjoyed (Chef Lewigi's) Pollo Con Verde recipe. . . and also the Pork Surprise. . ." published in June ***Worldradio***." She then enclosed an SASE addressed to Lewigi requesting a recipe for a "smooth enchilada sauce." We forwarded the request to the Chef, with the priviso that he'll let us publish it as soon as it's ready.

Note to Walt Brink, W3WPY. I've read five books; so, now I can read the next chapter of "Chesapeake." As I recall, it's getting pretty exciting.

Vote

All QCWA members are urged to vote for officers and directors of the organization. You have already received your ballots; so mark your Xs and mail.

Finally

To President Harry Dannals, W2HD, thanks for your leadership the past several years. You have done a praiseworthy job at the helm of QCWA and in advancing the ideals of our organization.

73 + 25 Jack, W6ISQ. **WR**

Richard Fisher, KI6SN

1940 Wetherly St.
Riverside, CA 92506

"Low Power Communications, Vol. 2"

Longtime QRPer and former ***Worldradio*** QRP columnist Rich Arland, K7YHA, leaned on some of the most knowledgeable low power operators in the United States to compile "Low Power Communications, Volume 2, Advanced QRP Operating" — the second of his how-to books for QRP operators.

As its title says, this 137-page book is aimed at operators who have already found their way around the bands using QRP, but even newer operators will find its pages useful and interesting.

Eight chapters take readers through a range of QRP operating practices and techniques:

For example, internationally known QRP DXer and contester Randy Rand, AA2U, contributes a chapter of advice on "Low Power DXing."

Also featured are Bob Patten, N4BP, on "QRP Contesting;" Paula Franke, WB9TBU, "QRP DXpeditioning on a QRP Budget," Bill Smith, WA6YPE and Bob Moody, K7IRK, "Milli/Microwatting;" Jim Thompson, W4THU, "Antennas and the QRP Operator," and Michael Bryce, WB8VGE, "Solar Power."

Red Reynolds, K5VOL, and Fred Turpin, K6MDJ, with Cam Hartford, N6GA, and the late Bob Spidell, W6SKQ, chronicle QRP "Field Day."

Arland, himself, joins Rich Rinehimer, KA3QKI, for a chapter titled "QRP Satcomm," with tips on working the satellites with low power.

Obviously, Arland wanted readers to get some top notch advice, and he went to the best sources to get it. Photographs and diagrams help tell the experts' stories.

The writers' portfolios are featured in the back of the book, showing the depth of experience these QRPers have amassed.

"Low Power Communications Volume 2, Advanced QRP Operating" is published by Tiare Publications, P.O. Box 493, Lake Geneva, WI, 53147. It is bound in an 8 1/2 inch by 11 inch format and is priced $19.95. Add $2 for shipping and handling if ordering in the U.S. or Canada; $3 DX. Order either through the publisher, or look for the book at dealers.

Arland's new book would be a fine addition to every avid QRPer's library.

Revisiting the Argonaut 515

Periodically in these pages, we've been climbing around the family tree of one of the most popular series of full-featured QRP transceivers ever — Ten-Tec's Argonauts.

Still in wide use by QRPers today, these SSB/CW rigs have been wildly popular in their various incarnations since first introduced to the wireless community in 1972.

The October 1993 ***Worldradio*** QRP column detailed the Argonaut 505, the first in the series and granddaddy of them all.

In March, the column featured the Argonaut 509 which hit the market in 1975 touted as an improved version of the 505.

This month, we look at the Argonaut 515, introduced by Ten-Tec in 1980.

According to Ten-Tec's Paul Clinton, WD4EBR, the 515 is essentially the company's higher-powered Triton IV without the final amplifier. It has a more sensitive receiver than its older cousins, and incorporates a four-pole 9 MHz crystal filter, with 2.4 kHz bandwidth. The PTO is more stable.

On the 515, the 10 Meter band is covered in four 500 kHz segments.

Some of the standard features included a no-tune, broadbanded final amplifier, full CW break-in, SWR bridge, TVI filter, adjustable CW sidetone pitch, and two watts output.

Receiver sensitivity was rated at 0.35 microvolts for 10 dB S/N/N ratio, "thanks to its MOSFET RF amplifier and new double-balanced first mixer circuit." AGC is fast attack, slow decay. The speaker is built-in.

The rig weighs in at six pounds, and was designed to go into the wild. "It will even operate on a 12-volt lantern battery for hours of QRP fun," Ten-Tec's promotional literature said.

The cabinet is dark black, and the 515 honorably held its place at the top of the Argonaut line for 11 years. Many are still in use today, and the rig — in good condition — can fetch a nice price from collectors of classic QRP gear.

The 515 served well as the third generation in the Argonaut's thoroughbred bloodline. But there's more.

Up next: the Argonaut II 535.

Watch for NorCal's 'Sierra'

Riding on a wave of unqualified success with its "NorCal 40" single band QRP transceiver project, the Northern California QRP Club is expected this month to begin shipping the first run of its newest kit: The NorCal Sierra.

This multiband backpacking rig, designed by Wayne Burdick, N6KR, takes the "NorCal 40" to new frontiers of versatility.

Early club literature reveals that this CW transceiver is being built to cover about 150 kHz of each band using an air variable capacitor for tuning and featuring a calibrated dial.

While the receiver will draw about twice as much current as the "NorCal 40," (about 30 milliamperes), the "Sierra" is still being developed to be well

Ten-Tec's Argonaut 515, in promotional pictures, circa 1980.

within the parameters of a smartly put together backpacking rig.

Bandswitching will be accomplished with plug-in modules. Bands offered will include 80, 40, 30, 20 and 15 Meters.

Burdick has included an IF amplifier in the receiver chain, "providing greater sensitivity and a much wider AGC range" than the "NorCal 40," early "Sierra" fact sheets promise. "And there's plenty of audio, now, to drive a speaker directly. The 'Sierra' also has lots of interior and (front- and back-panel) space available for additions of your own."

The club says that the "Sierra" is "a bit larger than the 'NorCal 40' and has the same one-board construction, but adds band modules that plug into the main board."

Output power on the test models has ranged from 2 to 4 watts. Front panel controls include AF gain, RF gain, RIT and VFO tuning.

Early literature issues a caution that while some builders may have found the "NorCal 40" well within their construction abilities, the "Sierra" may be another story.

For example, "there are eight you-wind-them toroids per band module. First-time builders and those without good test equipment may have difficulty getting the rig running correctly."

Given the Northern California QRP Club's track record with the "NorCal 40," however, it is reasonable to expect that this rig is being very well designed both physically and electronically, and that first rate components will be used throughout.

The price of the "Sierra" transceiver kit only (without band modules) is expected to be about $160. Modules will be about $25 per band.

For information about the availability of the "Sierra," and for inquiries about the Northern California QRP Club, write: Jim Cates, WA6GER, 3241 Eastwood Rd., Sacramento, CA 95821.

"QRP Master" from New Jersey

Don Younger, W2JEK, of River Edge, NJ, was recently the focus of an article in the Bergen (NJ) Amateur Radio Association bulletin for achieving the QRP Club of Great Britain's coveted "QRP Master" award.

G-QRP presents the plaque to any member who certifies contact with 60 club members, 75 DXCC countries and 20 countries with two-way QRP.

According to the Rev. George Dobbs, G3RJV, writing in the April 1994 issue of *Radio Communication*, the journal of the Radio Society of Great Britain, "less than 80 (plaques) have been presented so far. The good news is that many of those achieving Master status have done so using average equipment, sometimes from poor locations."

Younger was awarded trophy No. 75. In the BARA bulletin story, written by QRPer Randy Smith, N2JOC, Younger said that "finding foreign stations to work QRP was hard." Contacts were made with "most of western Europe, including the Isle of Man, as well as Israel, Brazil, Kwajelein Atoll, and Panama."

Younger offers this sage advice to other QRPers who would like to seriously pursue DX: "You've got to listen a lot and listen hard. It's not usually a good idea to call CQ unless you are on one of the QRP frequencies. Most of all, you have to be patient and work the available propagation." WR

Change of address?

If you are moving, we need to know your new address six to eight weeks before the address becomes effective.

Computers & BASIC STUFF

C.H. Stewart, KD5DL
P.O. Box 181
Duncan, OK 73435

More short dipoles

When I first got interested in Amateur Radio one of the first things I learned about was the concept of an electrical ground. The idea behind it was that a good ground system somehow made antennas work better.

When I studied the matter further it seemed that some of the information I found conflicted with other information, or at least with common sense. I remember that at one time I perceived the electrical ground as being a reflective surface beneath a radio-transparent layer of grass and soil. In fact, I thought that if I could find the right depth for this reflective layer, then my antenna troubles would be half solved.

Now I know that unless the electrical ground is really not as reflective as I thought, unless it is improved upon by screens or radials. And I know that the layer of dirt above the electrical ground is more opaque than transparent. In fact, we often call this combination a "lossy" ground.

One of my first articles for *Worldradio* included a 10-line BASIC program for designing short dipoles (*Aerials column, Worldradio, April 1991*). The program provided the length of a full-sized dipole based on a resonant frequency, then asked for a shortened length, wire size, and distance from midpoint to each of two loading coils. Using that information the program calculated the reactance of the shortened antenna and the coil inductance necessary to make the shortened antenna resonant. The program even estimated the antenna's VSWR.

Fifteen years before my original article, Robert Dome, W2WAM, presented his way to compute radiation resistances and reactances for physically short dipole antennas. His method was to interpolate graph data for length and height factors, and then use basic math to derive reactance and resistance information. (See "Impedance of Short Horizontal Dipoles" by Dome in the January 1976 *QST*).

```
10  CLS: PRINT "SHORT DIPOLES, BY KD5DL, 6/1/94": PRINT
20  DATA .095,.0246,.127,.045,.159,.0705,.191,.103,.223,.142,.254,.189,.287,.248
30  DATA .318,.318,.35,.389,.382,.481,.412,.591,.446,.72,.5,1
40  DATA 0,1,.025,.873,.05,.723,.075,.687,.1,.684,.125,.737,.15,.941,.175,1.04,.2,
    1.09,.225,1.13
50  DATA .25,1.146,.275,1.16,.3,1.162,.4, 1.12,.5,1,.6,
60  DATA .78,.7,.921,.85,1.146,1.1,.84
70  DATA 0,0,.07,.136,.25,1.06,.3,1.21,.38,1.296,.6,.78, .85,1.146,1.1,.84
80  INPUT "FREQUENCY (MHZ) ";A: INPUT "LENGTH (FT) ";B
90  INPUT "HEIGHT (FT) ";C: INPUT "WIRE SIZE (AWG) ";D
100 E=984/A: T=B*1.05: F=T/E: G=C/E: PI=3.141592654
110 H=(.46/(1.122322^(D+3)))/12
120 J=119.865277*LOG(T/(H*SQR(1+(T/(4*C))^2)))
130 K=J*1/TAN(F*PI): RESTORE: GOSUB 230: L=U
140 RESTORE 40: F=G: GOSUB 230: V=U
150 RESTORE 70: GOSUB 230
160 PRINT: Y=INT(773*L*V)/10: Z=INT(733*L*U)/10
170 PRINT "RADIATION RESISTANCE (PERFECT)=";Z;" OHMS"
180 PRINT "RADIATION RESISTANCE (LOSSY)=";Y;" OHMS"
190 PRINT "REACTANCE =";INT(-10*K)/10;" OHMS"
200 PRINT " (CANCEL WITH ";INT(10*K/(2*PI*A))/10;" uH)"
210 PRINT: INPUT "DO ANOTHER ";A$: PRINT
220 IF A$="y" OR A$="Y" THEN 80 ELSE END
230 READ M,N,P,Q
240 IF F<=P THEN 260
250 M=P: N=Q: READ P,Q: GOTO 240
260 IF N>Q THEN R=N-Q: S=-1
270 IF N<Q THEN R=Q-N: S=1
280 U=R*((F-M)/(P-M))*S+N: RETURN
```

Not bad for a such a short program. But the article added that the antenna impedance was, at best, a guess, and the reason given was that the "normal" antenna impedance could only be assumed (at least within a 10-line program). The program was basically an educated shot in the dark, but it did help those who didn't have the real estate for a full-length dipole to get a short one started using ballpark figures.

This month we'll investigate another short dipole program, only this time we'll treat ourselves to a better understanding of the antenna's reactance and radiation resistance based on its height above ground. We'll even use a lossy ground to boot.

Fifteen years before my original article, Robert Dome, W2WAM, presented his way to compute radiation resistances and reactances for physi-

The one thing about Dome's graph was that his antenna height data was taken from the theoretical impedance of antennas over the so-called "perfect ground." My ground, I know, isn't perfect, and I reckon that most amateurs share the same predicament.

As you know, charts in most radio books are based on "free space" and "perfect ground" theories. A dipole antenna in free space, we are told, is sufficiently removed from all other influences that it can act in and of itself. However, over a perfect ground, an antenna will have a predictable (mathematically solvable) mutual reactance with its reflected image. In the real world we put our antennas somewhere between these two theoretical states (although, with some effort, we can sometimes approach the "perfect ground" ideal).

Robert Sandell, W9RXC, knows the problem. In Volume 1 of the "ARRL Antenna Compendium" he talks about less-than-ideal grounds in his article "The Horizontal Dipole over Lossy Ground." Since lossy ground is my kind of dirt, I got to thinking about combining Dome's ideas with Sandell's findings. Maybe the result would be somewhat closer to reality. At least close enough to give us an idea of what we can expect in our own installations.

In this month's program the graphical data is reduced to DATA statements in lines 20 through 70. Lines 20 and 30 contain data about shorter-than-half-wavelength factors and lines 40 through 70 contain data relating to heights above ground.

Lines 80 and 90 are INPUT lines for frequency, length, height and wire diameter. It is important to remember that antenna lengths greater than a half wavelength will not work, and that heights must be less than 1.1 wavelength.

Lines 100 to 130 compute Dome's surge impedance and feedpoint reactance information.

Line 130 also sends the program to the routine beginning at line 230 to READ data for the two radiation resistance factors contained in the DATA statements. Finally, lines 160 through 200 print the results. Line 210, of course, lets us "try again."

You'll notice that the program calculates two radiation resistances—one for the "perfect" condition and one for the lossy situation. Your actual radiation resistance should be somewhere between the two. That may not mean a lot, but, again, it puts you somewhere in the ballpark. (Radiation resistance, for those who don't know, is the equivalent to an actual resistance that would otherwise consume the power an antenna radiates).

The program also provides a value for the antenna's reactance and a suggested inductance to cancel the reactance. Dome suggests putting the inductance across the dipole's feed points. In actuality the inductance may need to be a little larger or a little smaller than the calculated value to get the antenna's overall impedance to match the feedline and transmitter. Other methods to cancel the reactance can be used just as easily.

A final thought: If you think that this, or any other, program is going to provide the definitive solution to your antenna problems, you have to realize that there are still other factors to consider. But if you don't have the real estate to erect a full-blown antenna yet still want to work some DX, then this month's program should be of some help. I would only suggest that you look up the proper height for the optimum takeoff angle for the selected band and plug that into the program.

Then let me know what you think. WR

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!

This "Look ma, no wires" story is from Pete Peterson, WY7Z.

Is it a commentary on the scientific knowledge of the average person — or perhaps the quality of our science education?

Being a frugal person (my kids use the word cheap) I save scraps of wire and solder them together to make antenna wire. As a result, my antennas are made of different lengths of insulated wire of various colors and bare wire as well. One day a neighbor was looking at my 160M antenna which he could see attached at one end of a supporting post and consisting of wires of many colors extending out about 50 feet. The next piece of wire was rather long and black and extended to another support out of view behind a tree. Because of the light conditions the black wire was invisible: the antenna looked like it ended in midair.

The neighbor wanted to know how the antenna could be supported only at one end and extend out as it appeared to do. Adopting what I hoped was a serious technical demeanor, I explained that hams used their transmitters to pump large numbers of electrons into wires, sort of like blowing up long narrow balloons, making them very rigid and therefore able to be supported at only one end. He bought the story 100% and since then has commented several times upon the amazing technical abilities of hams. WR

FM & REPEATERS REPEATERS REPEATERS REPEATERS

BILL PASTERNAK, WA6ITF

FCC passes rule for de-regulating responsiblity for repeater communications

Back in the mid 1970s repeater license holders began to wonder what would happen to them if one of their users got out of line. After all, when a repeater is in use there are actually two ham licenses on the line with each transmission. That of the system license holder as well as that of the individual initiating a transmission. "What if someone without a license decided to use some banned language over my repeater?"

"Could I be held responsible for what someone else says over my radio?" "Might I lose my license because a person without a ticket used my repeater for illegal purposes?" These were the thoughts of many Southern California hams in the early '80s. And it was bothering repeater owners and licensees in other parts of the country as well. So when my longtime friend Robert Thornburg, WB6JPI, filed to the FCC asking that the then existing Part 97 rules be amended to place the legal responsibility for all repeater transmissions on the originating station, all eyes were on Washington waiting for an answer. When the response did come, it was not a rules change but a regulatory interpretation that clouded the issue even further by creating the concept of "shared legal responsibility" for all communications made through a voice repeating device. And while the FCC never took a system owner to task for the actions of his or her users, that threat was very real for well over a decade. It all came to a head about two and a half years ago when an irate ham citizen, angered over a packet radio message protesting United States involvement in the Iraq-Kuwait situation which listed a 900 number got circulated nationwide. As a result, about a dozen packet BBS SySops were dinged with hefty fines and the political leaders of the packet radio community retaliated by threatening to '. . .pull the plug' on the entire national packet network unless they were relieved of the legal responsibility for the activities of those using and posting to packet systems.

The FCC finally backtracked and dismissed the Notices of Apparent Liability for Monetary Forfeiture, but that was not enough to satisfy the nation's packet SySops. They wanted two things. The firing of the FCC engineer who issued the fines and changes in the regulations that would protect them from legal liability in case a ham — or even a non-ham — went berserk and used a PBBS to post something irrational and illegal. The packet people never got the former, but thanks to a cooperative effort between SySops nationwide working with the ARRL the legal relief that they were seeking did come to pass late last year. As this is written, a legal compromise has been written into Part 97 that holds only the originating station and first forwarding station responsible for the content of packet messages. All other stations down the line are exempt. While the packet controversy was raging, hams involved in FM and repeater communications were once again becoming alarmed. "What if the same thing happened over my repeater? Would I be fined because there is no way to censor instantaneous retransmission? Might I be sued by some irate user for violating his right to free speech if I did cut him off?"

These were serious questions being asked by repeater licensees and coordination councils nationwide. The action against the packet community was having a definite negative affect on voice operations. There were two options seen. Either obtain regulatory relief or go to selective usership; i.e.: "Private Out." Enter Tom Blackwell, N5GAR, and Joe Jarrett, K5FOG. Both have been involved in voluntary Amateur Radio frequency coordination efforts in Texas for many years. Jarrett is former president of the Texas VHF-FM Society which is the repeater frequency coordinator for the "Lone Star State." Instead of seeing the negative, Blackwell and Jarrett viewed this as an opportunity to redefine the word "repeater" and to place the legal responsibility for any repeated transmission directly on the originating station. How this was accomplished is best told by this month's special guest columnist Tom Blackwell, N5GAR.

PR Docket 93-85 re-defines "repeater"

The Federal Communications Commission has released a long awaited Report and Order, addressing issues raised in a Petition for Rule Making to deregulate responsibility for amateur repeater communications. The new rules are effective 1 June, 1994. They are being published in the Federal Register.

The new rule on repeater communications, part 97.205(g), was combined in the proceeding with new rules on high speed digital message forwarding systems, i.e. packet.

In January, 1991, I asked Joe Jarrett, K5FOG, to join me in filing the Petition for Rule Making on the matter of voice repeaters, after the ARRL asked that its petition on a related issue be withdrawn. We asked for a new section, 97.205(g), to provide relief from responsibility for repeater owners who experienced improper transmissions originated by others. The FCC assigned it number RM-7649. In March, 1993, this was included in PR Docket 93-85, along with the other issues.

I developed the proposed language because of various repeater problems I had observed in the Dallas area over a period of years, on my study of the Communications Act, and the amateur repeater rules.

Repeater owners found themselves in a position of having to constantly interpret the Commission's rules, and judge the communications originated by others. This responsibility proved, at times, to be complex and burdensome, and clouded by personal politics. Long term controversies developed where individual repeater owners and control operators turned off their systems on users.

The answer was deregulation for the repeater operators, to put all the legal responsibility for the communication on the person originating a transmission. With the new rule, the repeater owner no longer has to worry about being accountable for communications he retransmits inadvertently. Clearly, a control operator does not have the opportunity to know the content of someone else's communication until it is completed.

The rule states: 97.205(g)

The control operator of a repeater that retransmits inadvertently communications that violate the rules in this Part is not accountable for the violative communications.

The definition of a repeater, in Part 97.3, is changed to read:

(36) Repeater. An amateur station that simultaneously retransmits the transmission of another amateur station on a different channel or channels. The Notice, FCC 94-76, was unanimously approved by the Commissioners. It followed over three years of process under the Federal Administrative Procedure Act, which included a comment period and reply comment period. RM-7649 was endorsed by a number of clubs, organizations, news services and individuals, representing many constituencies of the hobby.

Also in the Report and Order are changes in rules regarding high speed digital message forwarding systems, brought on by petitions from others. In these networks, a message is later retransmitted from system to system. The Commission decided to require control operators of the first forwarding station to either authenticate the identity of the station from which it accepts communications, or accept responsibility for the content of the message. The decision is not without explanation. The Commission believes the vulnerability of an unsupervised system would make it an easy target for misuse by "uncooperative operators" and non-licensees. It says it would be difficult to establish after the fact that a particular station originated a high speed digital transmission, so there must be on-going oversight of the system. With this, the Commission adopted the following:

97.219 Message forwarding system.

a) Any amateur station may participate in a message forwarding system, subject to the privileges of the class of operator license held.

b) For stations participating in a message forwarding system, the control operator of the station originating a message is primarily accountable for any violation of the rules in this Part contained in the message.

c) Except as noted in paragraph (d) of this section, for stations participating in a message forwarding system, the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this Part are not accountable for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence.

d) For stations participating in a message forwarding system, the control operator of the first forwarding station must:

1) Authenticate the identity of the station from which it accepts communications on behalf of the system; or

2) Accept accountability for any violation of the rules in this Part contained in messages it retransmits to the system.

It has adopted the following definitions: 97.3 Definitions.

28) Message forwarding system. A group of amateur stations participating in a voluntary, cooperative, interactive arrangement where communications are sent from the control operator of an originating station to the control operator of one or more destination stations by one or more forwarding stations.

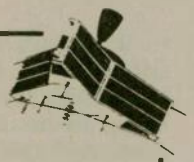
7) Auxiliary station. An amateur station, other than in a message forwarding system, that is transmitting communications point-to-point within a system of cooperating amateur stations.

It is hoped that this deregulation of the responsibility for the owners of voice repeaters will not only be fair, it will reduce the need for control operators to constantly "police" their repeaters, on perceiving a need to protect their licenses. It is also hoped that the situation that developed where operators of linked packet systems received forfeiture notices from the FCC is now precluded and resolved."

Author's note: For further information on how this regulatory change benefiting repeater licensees came about, please contact: Tom Blackwell, N5GAR, P.O. Box 25403, Dallas, TX 75225.

Our thanks to Tom Blackwell N5GAR for bringing our readers this first hand account of how the new repeater rule was won. 'Till next month, 73 and happy FMing.

(FM and Repeater column author Bill Pasternak WA6ITF receives mail at 28197 Robin Ave., Saugus Ca. 91350. His 24 hour/day voice and fax line is 805/296-7180. He can also be reached by electronic mail on the following services to the mailboxes: (GEnie) B.Pasternak; (Internet) b.pasternak @genie.geis.com; (America Online) BILLWA6ITF; (MCI Electronic Mail) 324-1437.) WR



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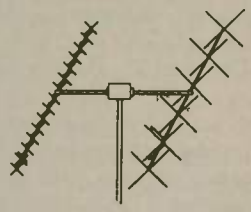


K7YHA
Rich Arland
Box 1691 • Wilkes-Barre, PA • 18703-1691

Several readers have written asking me my opinion on specific pieces of transmitting and receiving equipment. While I am quite opinionated regarding certain manufacturers' products, I always hesitate to voice these opinions less they be mistaken for "gospel." After answering these letters I began thinking in terms of a bare-bones SATCOM station. What would be the absolute minimum gear needed to "get ones feet wet" in satellite communications?

First we need to set some parameters. Define the playing field, if you will. Obviously, the definition of what constitutes a bare-bones SATCOM station will vary with individuals and the goals they want to pursue. So, lets start with the very basics.

On which satellite do we wish to start our adventure into SATCOM? I will arbitrarily chose RS-12 because RS-12 is a very easy bird upon which to cut your teeth. Currently it is in Mode-K (15 Meters uplink and 10 Meters downlink), so common HF gear is all that is needed to access this orbiting transponder. HF gear is very common in the majority of amateur shacks and used HF equipment is quite reasonable, price-wise.

OK, it's settled. RS-12 is our intended satellite. Mode-K is the operational mode. We now need a way to generate a 21.210 MHz signal and an antenna to radiate this signal. If you are currently active on the HF bands, your present transceiver (or transmitter) will be the signal source and a simple wire dipole will work well as your uplink antenna.

While it is not absolutely necessary to monitor your downlink signal while simultaneously transmitting on the uplink to the bird, it is highly recommended. This will necessitate a separate receiver be used to listen on the downlink from RS-12. If you have a spare HF receiver then you are in good shape. If not, you need to borrow (notice I didn't say "buy") an HF receiver to initially give SATCOM a try before spending any money.

This receiver will have to have its own 10 Meter antenna for downlink reception. Again, the common quarter wave dipole will suffice. Another alternative is to use that old CB vertical antenna that has been kicking around the garage for the last 10 years. Using one of the new antenna analyzers by Autek, AEA or MFJ, to readjust the antenna radiator length to resonate at 29.5 MHz will yield a very low cost solution to the downlink antenna problem.

This is about as simple as it gets. Your normal HF rig coupled to a 15 Meter dipole for the uplink, a spare or borrowed HF receiver coupled to a converted CB antenna or 10 Meter dipole for the downlink. DO NOT hook up any receiver muting circuitry as the receiver must remain on while transmitting (this is called full duplex or FULDUX). Plug in a key or mic to the transceiver (or transmitter) and your on your way to enjoying some serious SATCOM via RS-12. Another reason for choosing RS-12 is that its sensitive uplink receiver responds very well to QRP power levels.

This entire scenario got me thinking about my own SATCOM station. Currently I use a Yaesu FT-726R V/UHF multi-mode transceiver outfitted with HF, 2 Meter and 70 cm modules and the satellite board which enables FULDUX operation between bands. In order to operate via RS-12, I must use an external receiver for the downlink because the FT-726R will not allow FULDUX operation between bands on the HF module (15-12-10 Meters).

What if I was just starting out in ham radio and wanted to get on the air with some HF gear and also work the satellites? What would I do? What kind of gear would I buy? An interesting thought which I shall peruse.

Heathkit manufactured and marketed several nice receivers over the years. Their HR-1680 ham bands only (80-10 Meters) receiver was their last attempt at targeting the Novice class operators. The companion HX-1681 CW transmitter provided 90 to 100 watts of output on 80-15 Meters (10 Meter output was only 75 watts). This nice little combo was offered in kit form from the mid-1970s until the early 1980s. I had always wanted a set of "Heath Twins" as a back up HF CW station.

My good friend, Norm Brien, KA1NBW, sent me his set of Heath Twins (he built them when he was a Novice) on extended loan. Norm and his wife, Wanda, were moving into an apartment in Manchester, NH and would not have room to store the combo. So, the "dude in the little brown truck" brought them by the house one afternoon, and shortly thereafter, I was on the air in grand style using the HR-1680/HX-1681 twins.

Having never owned this set of Heathkits, I was amazed at the full break-in keying (QSK). There is virtually no popping or snapping when switching between transmit and receive on these Heath Twins. Keying along at 25-30 WPM, I was able to hear between characters and dots! The QSK circuitry on the pair was every bit as good (if not better) than on the Ten-Tec Argonaut or Argosy transceivers (and that's saying something!). Separate tuning of the transmitter and receiver meant that no split was too wide.

After several months of schlepping around on the HF CW bands using the new rig, I set about trying to use it on the satellite bands. The HX-1681 transmitter was no problem. The VFO would cover 21.210 to 21.250 (RS-12 uplink) with no difficultly. However, the HR-1680 receiver only covered the bottom of the first MHz of 10 Meters. In order to bring the receiver above 29.0 and into the RS-12 downlink (29.410 to 29.460 MHz) the HFO crystal (Y401 - 37.395 MHz) would have to be changed to 37.895 MHz and the "10-B" band alignment redone to peak up the receiver to cover the 29.0 to 29.5 portion of 10 Meters.

A quick call to Jan Crystal (2341 Crystal Drive, Ft. Myers, FL 60017) had a replacement crystal on the way.

After installation and retuning, the HR-1680 was ready for a test on the satellite sub-band of 10 Meters. Sensitivity on this "new" band segment was .5 microvolts, sensitive enough for capturing the downlink transponder signals of RS-12.

After consulting Realtrak™ satellite tracking program, I lay in ambush for RS-12. Several seconds after the appointed AOS, I could start hearing the downlink beacon on 29.408 MHz starting to come up out of the noise. After about one minute of solid copy of the beacon, I moved the receiver up into the lower 10 kHz of transponder segment and quickly adjusted the transmitter VFO (after applying the 8.2 MHz translation constant) to the uplink frequency and started a string of "dits" on the keyer.

Eureka! On the downlink I heard my dit-string coming back through RS-12's transponder! Two quick QSOs were had on that first pass, confirming that this set of Heath Twins would perform quite well in the SATCOM role.

With the initial success under my belt, I started thinking about other birds and modes using the Heath Twins as the basis for the SATCOM equipment. By adding an inexpensive 2 Meter transmitting converter to the output of the HX-1681 transmitter, Mode-A (2 Meters uplink and 10 Meters downlink) would be a possibility. Adding a 70 cm receiving down-converter to the HR-1680 receiver Mode-VU (the old Mode-JA) could be realized. Reversing the process and adding a 2 Meter down converter to the receiver and a 70 cm transmitting up converter to the transmitter would get the frugal SATOP on MODE-UV (the old Mode-B). The possibilities are almost unlimited. Quality up/down transmitting and receiving converters (as well as transverters and preamps) are available from SSB Electronics USA, 124 Cherrywood Dr., Mountaintop, PA 18707 (send six stamps for 40 page catalog).

So there you have it. The world of satellite communications need not cost an arm and a leg. With simple, low cost, used gear, you can start enjoying the world of SATCOM quickly with little out of pocket expense. Sometimes I get worried that with the emphasis currently being placed on Phase 3D and the microsats, the newcomer to the SATCOM arena gets the feeling that he/she can't participate unless the family farm is mortgaged. As we have demonstrated in this column, that is far from true.

How about a portable, QRP Field Day SATCOM station? Sure, why not. Take a couple of Tejas Backpacker-II transceivers (one for 10 Meters and the other for 15 Meters), replace the HFO crystals with ones offering the proper coverage on each band, and you have a very small, highly portable SATCOM station that is perfect for Field Day and camping trips. Add a set of dipoles for 15 and 10 Meters and a small gell electrolyte battery, and you are ready for some fun!

InstantTrack

The good folks at AMSAT sent me a couple of disks in the mail the other day. On these disks was a copy of their top-of- the-line satellite tracking program, InstantTrack. "IT" (as knowledgeable SATOPS call the program) is a full featured satellite tracking program that is very fast and provides lots of information to the user.

IT is quick. Very quick. It runs well on the 12MHz 286 machine that I use for class room instruction. IT also runs very well (but lacks the maps due to the CGA monitor) on my lap top (a NEC V-20 running at 10 MHz) at home. On my new 486 SX-33 it positively screams!

IT offers both standard mercator and polar projections and also includes a look at where the satellite is in the orbital plane and the position of the satellite against the nighttime sky (complete with constellations). Not bad.

The entire documentation for IT is on the disk. Word to the wise: print off the entire manual, read it thoroughly and then start enjoying your new satellite tracking program from AMSAT. IT does have some unique features and methods of entering QTH data. A thorough reading of the manual will preclude some frustration when using this program. This isn't just for IT, it applies to any kind of sophisticated software you intend on using.

Having used Mike Owen's (W9IP) RealTrak™ for the last 18 months, AMSAT's InstantTrack took some getting use to. To use IT, you must first set your QTH information. This is done by selecting the QTH submenu from the main menu. Once this is done, next stop is the main menu to select a satellite to track and the display you want to see. Providing your Kep data is current (with in 30 days) go to the satellite tracking submenu (either tabular information or map display) and select the bird you want to track. Then IT either draws the map or starts a tabular display on the screen.

My one complaint about IT is the unnecessary three place decimal displays. While some of this information is necessary, I find the screaming digits (out to three decimal places) a bit distracting. Constantly paging through menus in place of using hot keys (F1, F2. . . ect.) is also a bit tedious, but IT is a big program and lots of SATOPS use it, so this must not be a major factor to the majority of users.

IT will point antennas too, as long as the necessary hardware drivers are installed. The constant updating of the map display with the present position of the satellite being tracked in relation to points on the earth's surface is a nice touch.

In all, I like InstantTrack. It is a big, fast program that offers the neophyte and experienced SATOP a lot of useful features and information. Price: $60 from AMSAT, P.O. Box 27, Washington DC 20044; 301/589-6062. While you're at it, why not join AMSAT or extend your membership, when you call. AMSAT offers all sorts of books, information guides, software and neat stuff for the amateur satellite communicator. Check them out.

73 till next time. Rich, K7YHA. WR

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

10-10 Election

The ballots for the 1994 10-10 election were mailed to each ACTIVE (paid-up) 10-10 member during the first week of June. Ballots were mailed first class mail to members with a US ZIP code and DX ballots were mailed via Air Mail. Members are voting for the Secretary, and five Directors. Those who are elected will serve a four year term beginning 1 January, 1995. The office of President and Vice President were also up for election, however only one candidate for each office was nominated, so that candidate will be declared "elected."

The candidates for Secretary are:

Dave Prichard, KA5OVO, #37297

Mel Sojka, KD5DE, #33513

The candidates for Director are:

Linda Barnes, KJ4FM, #43299
Bill Howe, VK4WBH, #22187
Pete Matson, KC1CP, #37190
Dave McCardell, WD4EWB, #18760
Ed Redwine, K5ERJ, #11843
Robert (Bob) Ryan, K6YVG, #18022

The candidate for President is Tom Henderson, K4CIH, #33233, and the candidate for Vice President is Chuck Imsande, W6YLJ, #19636. Both the President and Vice President are considered "elected" as there was only one candidate for each office.

It is important for each ACTIVE member to vote. Please mark your ballot and return in the pre-addressed envelope enclosed with your ballot. DX members should return their ballots via Air Mail so as to not miss the ballot deadline of 31 August, 1994.

We need your help!

For some unexplained reason, we have "lost" the calls that were issued to a series of 13 10-10 numbers. It is believed that these 13 numbers were issued between November, 1993, and March, 1994, and perhaps to those with a ZERO in their call. The calls we are looking for are assigned to the following 10-10 numbers:

65225, 65226, 65227, 65228, 65229, 65230, 65232, 65233, 65234, 65235, 65236, 65237 and 65238.

You will note that 65231 is not listed above. We have located the owner of 65231 and he is NØWLZ. If you know someone that has one of these numbers, or you work the owner of one of these numbers, please send the number and call to 10-10's Data Manager, Gerry Gross, WA6POZ at 543 N. 98th Street #142, Omaha, NE 68114-2332. Your help will be appreciated by both 10-10 and the owner of the "lost call."

Pete Matson, KC1CP, #37190 appointed to the board

The Board of Directors has appointed Pete Matson, KC1CP, #37190, to fill the one vacant place on the Board. Pete will serve until 31 December, 1994, at which time the newly elected Directors will take office (on 1 January, 1995). Pete previously served as a Director, being elected in 1990 to serve a two year term beginning in 1991.

New ZERO district manager

Debbie Peterson, KFØNV, #43402, has found it necessary to resign from her duties as the ZERO District Manager for personal reasons. We thank Debbie for her many hours of volunteer service she has given to 10-10.

The ZERO District duties have been assigned to the 10-10 Data Manager, Gerry Gross, WA6POZ. Gerry will now handle both new applications and renewals for the tenth district. Any one with a ZERO in their call should send new application and/or renewals to Gerry at the same address noted above in the "Lost calls" article.

Reflections on Dayton. . .

Dayton 94 was about the best Dayton has ever been! There were more exhibitors, selling more things, than I could get around to see. And of course computers, computer accessories and computer programs were everywhere. The flea market had a rough time due the traditional rains. Why does it always have to rain on Hamvention weekend? I stayed over in the Dayton area until Wednesday, and of course the weather turned beautiful on Monday with clear skies and sunshine through Wednesday when I left. It was still a "zoo" but great fun to see all the 10-10 members who meet in the cafeteria area. Lists were being exchanged and good fellowship prevailed everywhere. If you have never attended the Dayton Hamfest, consider next year. But one suggestion, make motel reversions soon. With approximately 37,000 attending, rooms become scarce anywhere around the Dayton area.

Hugh Sullivan, WA4QZU, #23166, 10-10 Vice President, conducted a 10-10 Forum on Saturday. Approximately 100 attended to hear the latest about 10-10 or learn how to join the 10-10 organization. A number of 10-10 DX members attended the Forum including David, GI4SNA, #61543 from

Northern Ireland, Hans, DL7ATR, Kathy, DL7ANL, #40952 and Teddy, DL7AN, #39980 from Germany. Also attending was Arie, 4X6UO, # 45820, from Israel, and Helen, VE3PUA, #47465, from Canada.

A 10-10 net was held on Saturday evening with John, N8FU, #16154 acting as Net Control. Checkins were coming from everywhere. Motel rooms, mobiles and some stations outside the Dayton area as far away as North Carolina and Massachusetts. I counted 55 checkins that kept John, N8FU going as net control for about two hours.

Dates are required

A review of the requirements for BAR Awards revealed that somehow the requirement for listing the date of the contact when submitting BAR Awards has accidentally been removed from the requirement. Effective 1 November, 1994, BAR Award Managers will no longer accept BAR Award Applications that do not have the date of each contact listed. The reason for requiring the date of the contact is to permit checking for evidence of cheating by claimants for awards.

Information about 10-10?

If you are not now a 10-10 member and would like to learn more about the 10-10 organization, send a "green stamp" ($1.00) and two first class stamps to help cover printing and postage, along with a address label for the return of your information package to: Mike Elliott, KF7ZQ, #54625, 10-10 Information Manager, 9832 W. Gurdon Court, Boise, ID 83704. Please no SASE as the info package requires a 9 x 12 envelope. You will receive a copy of the 36 page 10-10 Information Manual along with a copy of the latest issue of the *10-10 International News*.

If you have let your 10-10 membership dues expire, or have lost your 10-10 number, the same as above ($1.00 + 2 first class stamps + address label) will get you the info package along with your lost 10-10 number. WR

10M Sailfish Net

Hello there, recent licensee! If you have a ham license with at least 5wpm code, there is a wonderful opportunity waiting for you Sunday nights at 7 p.m. That is when the West Palm Beach Amateur Radio Club sponsored Sailfish Net comes on the air. This net is on the 10 Meter band at 28.425 MHz, and is specifically put on to encourage new or recent licensees to experience the world of HF communication around the world in a fashion that is not intimidating, can be enjoyed the very first time without fear of embarrassment, without wondering or worrying that you will somehow mess it up. Net Control WD4IUD, Walt, will welcome all new calls, and if you let him know that you've not done much of this before, he will help guide you through. It is easy, it is fun, it is informative.

The nature of 10 Meters at this point in the solar flare cycle is, at most, unpredictable. Some nets have no DX at all, other literally talk around the world. Give it a try.

— *West Palm Beach ARC Propagator*

Worldwide DX CONTESTING

John Attaway K4IIF/ZF2JI

P.O. Box 205 • Winter Haven, FL 33882

DX contest calendar for August

6, 7 August:
Romanian (YO) Contest 2000 UTC Saturday - 1600 UTC Sunday.

13, 14 August:
40th European DX Contest, CW Weekend 0000 UTC Saturday - 2400 UTC Sunday.

20, 21 August:
Keyman's Club of Japan (KCJ) Contest 1200 UTC Saturday - 1200 UTC Sunday.

20, 21 August:
SEANET Contest, Phone Weekend 0000 UTC Saturday - 2400 UTC Sunday.

Contest mini rules

DXers and Award Hunters may wish to participate in an overseas contest to work a rare prefix or qualify for a new certificate. For this purpose we present sets of abbreviated or mini-rules so that you will be acquainted with basic information such as contest exchanges.

Romanian (YO) Contest: A worldwide contest using both CW and SSB Send RS(T) plus ITU zone. YO stations will send RS(T) and country abbreviation.

European DX Contests, CW: Will be back to a 48 hour format this year. Europeans work non-Europeans only. European countries are determined by the WAE country list. Bands are 80 through 10 Meters, but contest operation is not allowed on 3550-3800 or 14075-14350 kHz. Point credit is allowed for QTC traffic which is too complex to outline in this column.

Keyman's Club of Japan Contest: CW, single operator stations only. Work JAs only. JA stations will send RST plus prefecture or district code, others send RST plus continent code. Continent codes are Africa-AF, Asia-AS, Europe-EU, North America-NA, Oceania-OC and South America-SA.

SEANET Contest, SSB: SEANET area stations will contact all areas of the world, using the 160-10 Meter bands. No WARC bands. Stations outside SEANET area will contact only SEANET area stations, i.e. A4, A3, A7, A9, AP, BV, BY, DU, EP, HL, HS, JA, JD1, JY, KH2, P29, S21, S79, VK, VO9, VS6. VU, V85, XU, SV/3W, XW, XX9, YB/YC, YD 7 YE, ZK, ZL/ZM, 3B6,7,8 and 9, 4S7, 4X/4Z, 8Q7, 9K2, 9M2, 9M6, 9M8, 9N1 and 9V1. Call CQ SEATEST.

Results of the 1993 Colombian Contest

Top stations in each category were:

Single operator, single band SSB: YV5NCJ

Single operator, single band CW: VK2APK

Single operator, multiband SSB: HK7MQC

Single operator, multiband CW: YU7SF

Multioperator, multiband single transmitter SSB: 5K1S

Multioperator, multiband multi-transmitter SSB: 5K6I

5K1S compiled the highest score in the contest with 392,400 points.

The best score from the U.S. was made by K3ZO in the single operator, multi-band category.

Contesting from the other end

Azores: Joe, NØFHL, reported from the Azores that a CU3 prefix, even portable, adds 3 dB or 1 S unit to a station's signal strength. The Azores are a group of 9 islands belonging to Portugal and located about 800 miles west of the Portuguese mainland, ideal for contest QSOs with both Europe and North America. Each island has its own CU prefix, CU1-CU9. In a short period last year Joe indicates that he worked all continents on 80, 20, 15 and 10 Meters, All U.S. call areas on 20, 17, 15, 12 and 10, 166 countries on 20 and 153 on 15 Meters.

The licensing agency for the Azores in the Instituto das Comunicaçoes de Portugal, Av. Jose Malhoa, Lote 1683, 1000 Lisboa, Portugal. The license fee is approximately 1400 Escudos or about $11.00 U.S. Unfortunately, the licensing procedure is lengthy and it helps to know someone either in Portugal or the Azores who can translate the necessary letters. Applicants should send two copies of their U.S. license and it would help to have the FCC send a verification. The fax number of the Instituto is 351 1 726 3743 or phone to 351 1 726 9223. Then be patient, even locals must wait 8-10 months for a hard copy of the license, but the license is valid for 5 years and being on the DX end of a contest pileup is rewarding.

QSL Joe's CU3/NOFHL operation to WA1ECA.

Tonga: Bob, W7TSQ, has sent up-to-date info on contesting from A35, Tonga.

"For a license, get an application from ARRL and send it to the General Manager, Tonga Telecommunication Commission, Box 46, Nuku' Alofa, Kingdom of Tonga. A $20.00 annual fee is required and a photocopy of your home license must accompany the application. A lead time of two months or more is suggested if you want the license mailed to your home.

"I did not have any problem at customs with gear in my suitcase, but antennas shipped in a crate attracted attention and required payment of duty since they were left behind with A35CT and A35RK.

"The International Dateline Hotel and the Friendly Islander were air conditioned (many hotels are not) but there wasn't a good place to mount an antenna. In the ARRL CW DX Contest I operated from the Royal Sunset Island Resort, Box 960, Nuku' Alofa, telephone 21-254, FAX 21-254. It has individual units all on the beach and all powered by a 24-hour generator which was adequate for 100 watts, the power limit in Tonga. I set the R-7 on the edge of the beach and it worked very well. I had 40 Meter pileups that I could not believe, over 1,300 QSOs without 80 Meters.

"Currently, Craig Thompson, A35CT is about the most active resident amateur in Tonga. He can often be found around 14.240 after 0430 GMT."

Bahamas: The Bahamas are a favorite contest QTH as they are semirare and only a short flight is required. Dick, C6A/N4RP, writes that applica-

tions for a C6A license should be directed to BATELCO, Attention Mr. T. M. Deveaux, P. O. Box N-3048, Nassau, Bahamas. Include a copy of your home license and a copy of the information and picture pages of your passport. They may accept a driver's license with picture I.D. and voter registration card in lieu of passport I.D. Phone 809/323-4911, extension 7553 if there is a problem. The license fee is $6.00/year.

Dick indicates that customs and immigration in the Bahamas are friendly with only a $50.00 deposit required on rigs, even an expensive one.

Some hotel possibilities include the Chub Cay Club, phone 800/662-8555; the Bimini Big Game Fishing Club 800/327-4149 or the Lucayan Hotel and Marina 809/373-8881. **WR**

People reach people through Worldradio

IT'S A WIND-DRIVEN GENERATOR-- IF I RUN 5 MILES, IT WILL RECHARGE MY BATTERY PACK.

CONSTRUCTION

Look Ma, No Holes!

DON RADUZINER, W6BDD

Recently I purchased a brand new 1994 Ford Ranger truck, and like most hams, I was anxious to get my mobile equipment installed. To most, this means getting out the drill and punching holes with the emphasis on ease of operation, rather than what the installation looks like. When I told the XYL of my plans to install the equipment, she naturally thought I was on the verge of messing up another nice car. I must admit, my last car looked like a piece of Swiss cheese when I was finished. Well, after she vocalized her concerns (*!$&#$!), I began thinking of a way to mount everything without drilling any holes in my new car. What evolved from this was something that surprised both of us. The installation not only looked neat and was functional, but the XYL is still talking to me.

My challenge was to mount a TS-440 HF transceiver, a 2 Meter/220 MHz dual band transceiver, speakers, microphones and miscellaneous other equipment in my vehicle without drilling holes in the usual manner, i.e., in the floor, in the center console, or in the dashboard.

I began with a piece of particle board from a wooden shelf. Since the floor in the pickup was flat (no hump), I cut the board to sit on the floor between the dashboard and the seats. I then used the board to serve as a baseplate to mount all the equipment.

I found a flexible mobile mount typically used for mounting small VHF/UHF radios in my junk box. I attached this mobile mount to the middle of the mounting baseplate using four wood screws. I attached a TS-430 mobile mounting bracket upside down to this mobile mount. I mounted the HF transceiver to the TS-430 mobile mounting bracket and adjusted the mount angle so I could easily view and control the transceiver while in the driver's seat. The idea was working great so far.

The weight of the HF transceiver was far too great for the small mobile mount to hold by itself. I fixed that by making up two angle brackets from aluminum scraps. The brackets attach to either side of the transceiver. Several screw holes on the bottom of the transceiver made it easy to attach the brackets. The angle brackets were then attached to the wood mounting plate using ½-inch wood screws. This allowed the transceiver to be supported at a steep angle at three points, one in the front using the mobile mount and two at the rear, using the angle brackets (see figure).

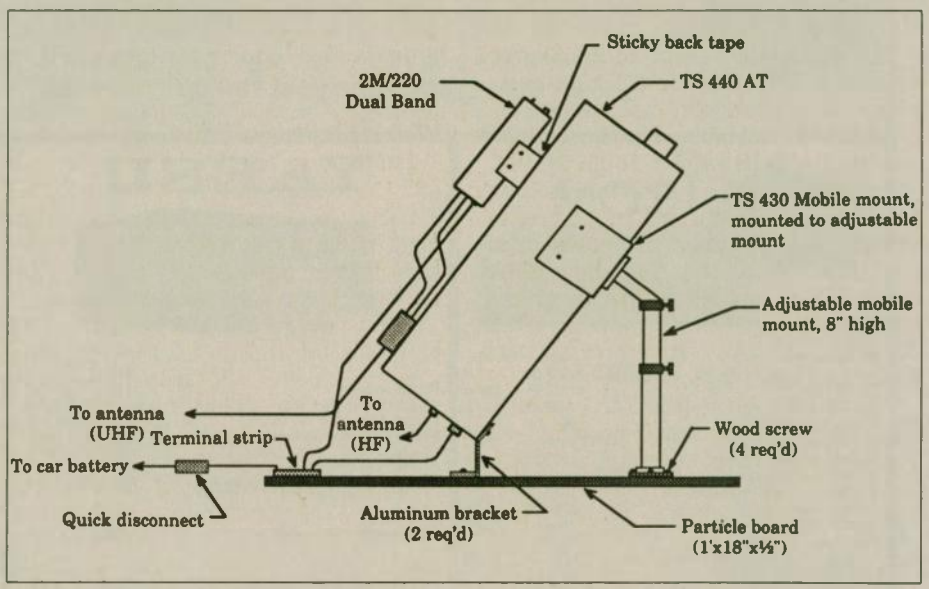
The top of the TS-440 served as a perfect mounting platform for the dual band transceiver and associated equipment. I used sticky-back tape available from Radio Shack to attach the mobile mounting bracket of the dual band to the TS-440. Then the dual band radio was slid into the bracket and secured. I attached the duplexer and external speakers atop the TS-440 with stick-back tape. Quick disconnects in the power leads permitted this entire package to be removed in less than 30 seconds.

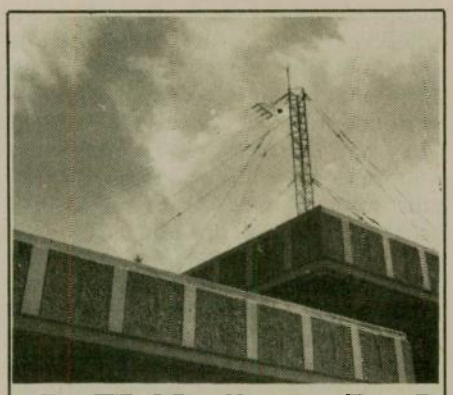
As for wiring, the vehicle had rubber grommets mounted in the firewall for various cables, etc. I made a small hole in a grommet to pass the DC power and antenna cables into the engine compartment. I mounted a terminal strip on the particle board to serve as a distribution point for the 12V DC in case I add other gear later.

As far as the antennas are concerned, I modified a magnet mount on the top of the cab to accept both VHF and HF antennas. Both the HF and VHF radios were free of engine noise and/or alternator whine.

By using a small mobile mount underneath the front of the transceiver, you can choose the right height and operating angle to accommodate various size equipment and mounting locations. In my installation, instead of being slung under the dash or mounted at different angles where it may be hard to see, all the equipment is within easy reach and looking straight at me. I had the opportunity to drive out of state recently. It was like sitting at home with my base station. Everything was right at my fingertips and in plain view. An extra benefit was realized when I thought of those who have had their radios stolen. It's now a simple matter of unplugging the entire station and taking it inside as one complete package.

While this mounting scheme is not for everyone, in certain vehicles it's very practical and works quite well. Additional measures may need to be taken to prevent the equipment package from tipping or sliding during vehicle maneuvers. I suggest making the mounting baseplate as large as possible. The larger the footprint, the better. WR





AERIALS

KURT N. STERBA

The June, 1994 issue of *23 Skidoo* carried an advertisement for antenna plans (complete diagrams and instructions, $6.95), can be used indoors, which would give 30 dB gain on 160M to 10M.

For the benefit of newcomers who have memorized that a 10 dB increase comes from 10 times the power and have figured out that the above thus gives 30X power, allow me to correct your thinking. Thirty dB is ONE THOUSAND times the power (it's ten times ten times ten).

Thirty dB gain is possible; it would only take a 513 element Yagi which on the 10M band would have a boom length of 2,052 feet.

I'm sure that all the TV and FM broadcasters will be sending $6.95 (for this great improvement) so they can drastically reduce the power of their transmitters and make it up in antenna gain. Channel 2 will only need a 316 watt transmitter. Won't they be happy to save on their electric bill? I'm sure they will be eternally grateful to *23 Skidoo* for bringing it to their attention.

Oh boy! I just don't know how this next guy is going to make it. Maybe he won the lottery. Or, maybe he has an oil well in his back yard. I'm talking about this Swiech antenna guy in Poway, California. Can you imagine that he has a ground plane antenna for 144 & 440 and right in his catalog it says "No gain over a dipole." No gain over a dipole? Was this guy an altar boy or something? Is he bucking for heaven? Usually it's the old guys who, with the prospect of St. Peter just around the corner, hit the straight and narrow. I understand that this guy is fairly young. No gain over a dipole? Sadly, many hammys will instead shell out their sheckels for devices that promise gargantuan gain instead. Let's hope that Ed McMahon visits his house or something. On his UHF antennas there is an "N" connector. Decency. On his 7L antennas the claimed gain is 10dB. On his 3L Yagi he promises 6.1 dB.

On the other hand, there is a company, let's call them Confederate Cavalryman who led Raiders, that promises 8.3 dB with a 3L Yagi. And it's a trapped Yagi at that!

The same company is able to squeeze out of a 2M, 5L Yagi, 10dB over a reference dipole. I sure wish they would write an article for the *New England Journal of Electromagnetic Radiation* about how they were able to surpass all others with their Yagis. Would make inspirational reading, I'm sure.

Then we come to Joe Reisert, W1JR, of Antennaco in Milford, NH. His 3L Yagi? I quote, "5 min." How about his 5L Yagi you ask? "8 min." Hmmmm, must be the Yankee Puritan spirit at work. He must want to be able to look people in the face when he goes to the Wednesday night prayer meeting.

I'm looking at a flyer from, oh, let's call them "Top Hat and White Tails." Their antenna is $600 plus shipping. Yep, I always give my credit card numbers to a company that lists a telephone number and not an address.

Then, there is another company, lets call it "Einstein," that is run by a true straight arrow. But there is just one thing that really puzzles me. "Einstein" has a 4L, 20M Yagi for which 8.7 dBd is claimed. Then they have a 6L, 20M Yagi for which 9.0 dBd is claimed. Hmmm, the F/B ratio for both is the same, 25 dB. The 6L has a boom 15 feet longer, it weighs 36 pounds more, there is 6.3 sq. ft. of wind load more and the turning radius is 10.5 ft. more and the price is $350 higher. All this for "point three" of a dB more? That is 0.3, as in three-tenths of one. If I'm missing something here I'll sure grant equal space (and a little more) for an explanation.

As has been mentioned here, a dipole low to the ground sends its signal upwards. Not a great situation for the DX oriented. For one reason or another many operators can not get an antenna up very high. Let's look at the situation where the height of the 20M dipole is restricted to, say, 17 feet or so. This a quarter-wave high. Bad news. Really bad news.

But, there is a solution. It's Kurt to the rescue! Put up your half-wave dipole. Instead of breaking it in two and feeding it in the middle, just make it one solid piece of wire. Run a quarter-wave wire to the center of that dipole and solder it. Now, at the bottom part of the wire, attach an antenna tuner that can accommodate an end fed wire. From the tuner run the coax to your transceiver. The need for the massive ground system is far lessened, although do what you can. The top (horizontal) wire, for 20M is 33 feet long.

Now, let's experiment. Do I guarantee this to you? If I did, it would no longer be called an experiment. Let's make the top wire 66 feet long. Right in the middle, again, bring down the quarter-wave wire. No tuner this time. Run the center of the coax to the quarter-wave wire. Run the shield side to whatever ground system you can muster.

So the 66 foot flattop is a problem?

Don't worry about it. Bend it sidewise, up, down, it won't lose too much.

Another interesting experiment is to run the coax up in the air; that is 17 feet up, horizontally. Put the shield side to the flattop and the center conductor to the vertical quarter-wave wire. You can do this with the 33 foot flattop. By now some highly brilliant person reading this will realize that this description greatly resembles the configuration of a vertical (Marconi) antenna... upside down. Bravo. Go to the head of the class.

I was looking at a JA hammag. A company over there making a 3L Yagi claims 6.3 dB gain over a dipole. Another JA company making a 3L Yagi claims 8 dB over isotropic, which works out to be about 5.8 dB over a dipole. So far, so good. Then in the same issue of the magazine is an advertisement from an American company, let's call them "Granite Antennas." Their claim for their trapped tribander is 8 dBd. Another American company, Hy-Gain, in their advertisement, in the same issue, for their trapped tribander will give you 8 dBi (5.8 dBd). I'm sure the JAs are amused by all this.

I see that some industrious amateurs are working with half-wave, base-fed verticals for 20M. The difference between the quarter-wave, and the half-wave (resultswise) that you are working so diligently for, behooves you to add a bit more and go for five-eighths wave. You will see the same ratio of improvement going from ¼ to ½ in going from ½ to ⅝. You are only adding a bit over eight feet (for a total of about 41).

We will leave the wobbly and move to the even less majestic. More and more amateurs, it seems, are having to do with less and less space for antennas. This is not only a square footage problem but a visual one as the antenna police seem to be more in force these days. (Using the term antenna "police" means no disrespect to the real "police" who are about the best friends we've got.)

Many will put up a vertical and maybe one radial. Here's another idea. Make the vertical of wire, leave the feedpoint on the ground (oh, well) and run each of the wires up like a "V." Tack one end on a tree, the other on the garage, etc. Yes, it looks like a dipole with the center drooping down. Works better than you would think, and better than nothing at all. Not much "visual pollution" as the suck-on-a-lemon types would call it. Probably work better than one vertical element and one radial laying on the ground.

To get even smaller, you could put traps in the two wires. Not as efficient; bandwidth suffers and you'll need a matching unit, but you will be on the air and make contacts.

For the really hide-away antennas, I've heard that some have had fair success with horizontal loops in the attic. The Bilal Company (Florissant, CO) makes some really tiny things. I've never worked with the units so would appreciate any input from those who have.

Speaking of input: Regarding tuners. . . the roller inductor is by far the best system because you really get down to the last millimeter of coil and get "right on." But alas, roller inductor systems are a bit pricey. The coil with taps every so many turns is much less expensive but you don't get the final finesse. Somewhere once, way back, I saw a schematic where the main coil was tapped every so many turns and there was another coil (smaller) tapped every turn. By working with both tapped coils you could essentially dial up any combination such as: 11, 22, 34, 42, turns, etc. Then you tweaked it up with the capacitors. Anyone have that diagram so that we could print it here?

And now something for the newcomers. I feel that many are a bit unsure as to what these "meters" as in 20 Meters, 40 Meters, really mean. Just about the whole world is on the metric system except for Liberia, Burma and the USA. As you can see we are really in some good company. A meter (or metre, in the UK) is the same as 39.37 inches, or a smidge over what we call a yard. The metric system doesn't use a lot of words like pint, quart, gallon, inches, feet, yards, words that don't mean a whole lot. You have say, 250 millimeters, 200 kilometers, 10 milliliters or 150 milliliters and on.

Before we could measure frequencies as well as we do today, and rigs were not as stable as they are today, transmitters would just plop down somewhere in a "Meter band."

So let's look at that. If you divide 50.000 MHz into 300 the answer is 6. And "Six Meters" is the wavelength of a 50 MHz signal, wavelength meaning one full cycle. That could be from zero up to maximum on the positive side, down to zero again and down to maximum on the negative side and back up to zero again. Or, as it is called, 360 degrees.

Let's say with your "meter stick" you measure from crest to crest of this signal. It would be a length of Six Meters and there would be 50 million of them in one second

Let's take 4 MHz and divide it into 300. The answer is 75 Meters. (2,952.75 inches or 246 feet). Four million (mega) times a second a wave is generated with the positive (or negative) peaks measured 75 Meters apart.

As you can see then, Two Meters is really 150 MHz, but who wants to say "I'll see you on 2.054794520 Meters tonight?"

(ATTN: OLD COOTS. Don't write in, blue in the face, and tell me that it is really 299.7925. I wanted to keep it simple for the neophytes.)

(Kurt was so appreciative of the mention of him on page 11 of the July issue of QST *that he is going to write an original article just for them. Also, he WARNS all against the antenna book being sold by Lathrop Publishing.)* WR

CONTESTS

35th Annual New Jersey QSO party

20-21 August: The Englewood Amateur Radio Association, Inc. invites all amateurs the world over to take part in the 35th Annual New Jersey QSO Party.

RULES: (1) The time of the contest is from 2000 UTC Saturday August 20 to 0700 UTC Sunday August 21 and from 1300 UTC Sunday August 21 to 0200 UTC Monday August 22. (2) Phone and CW are considered the same contest. A station may be contacted once on each band — phone and CW are considered separate bands — CW contacts may not be made in phone band segments. New Jersey stations may work other New Jersey stations. (3) General call is "CQ New Jersey" or "CQ NJ." New Jersey stations are requested to identify themselves by signing "DE NJ" on CW and "New Jersey calling" on phone. Suggested frequencies are 1810, 3535, 3950, 7035, 7135, 7235, 14035, 14285, 21100, 21355, 28100, 28400, 50-50.5, and 144-146. Suggest phone activity on the even hours; 15/10 meters on the odd hours (1500 to 2100 UTC); 160 Meters at 0500 UTC. (4) Exchange consists of QSO Number, RST, and QTH (state/province or country). New Jersey stations will send county for their QTH. (5) Scoring: Out-of-state stations multiply number of complete contacts with New Jersey stations times 3 points per QSO times the number of New Jersey counties worked (maximum of 21). New Jersey stations multiply number of complete contacts times 3 points per QSO times the multiplier. The multiplier is the sum of the number of states (other than NJ), provinces, and NJ counties worked — maximum is 49 + 12 + 21 = 82. (6) Certificates will be awarded to the first place station in each New Jersey county, state/province, and country. In addition, a second place certificate will be awarded when four or more logs are received. Novice, Technician, and mobile operator certificates will also be given. A total of four plaques have been donated by the ARRL Section Managers for NNJ and SNJ to the highest scoring single operator station residing in each of their sections (separate for Novice/Technician and all other classes). (7) Logs must also show the UTC date and time, band, and emission, and be received not later than September 17, 1994. The first contact for each claimed multiplier must be indicated and numbered and a checklist of contacts and multipliers should be included. Multi-operator stations should be noted and calls of participating operators listed. Logs and comments should be sent to: Englewood Amateur Radio Association, Inc., P.O. Box 528, Englewood, NJ 07631-0528. A #10 size SASE should be included for results. (8) Stations planning active participation in New Jersey are requested to advise EARA by August 1st of your intentions so that we may plan for full coverage from all counties. Portable and mobile operation is encouraged.

YLRL Howdy Days

1400 UTC Wednesday September 7, 1994 TO 0200 UTC Friday, 9 September, 1994 operating breaks must be indicated in your log eligibility: All licensed women operators worldwide are invited to participate.

Procedure: Call "CQ YL"

Operation: All amateur bands may be used. — Any type of emission (SSB, CW, etc.) may be used. A station may be worked only once on each band for contact points. — No crossband, net or repeater contacts. — Maximum output power: 750 watts on CW; 1500 watts PEP on SSB.

Exchange: YLRL member or NON-YLRL member.

Logs: Contest logs must show for each QSO: Date; Time; Band; Call sign of contacted station; QSO number sent and received; RS(T) sent and received; YLRL status (member or non-member); and your claimed Iscore for the QSO

Please print or type submitted logs. No carbon copies, but photo copies are acceptable. List your name; call; address; YLRL status (member or non-member); and your claimed score. No logs will be returned. Sign your log.

Scoring: Score two points for each YLRL member contacted. Score one point for each non-YLRL member contacted. NO MULTIPLIERS.

Duplicates: For each duplicate contact the penalty will be the loss of that contact plus three equal contacts.

Send logs to: Carla Watson, WO6X, 473 Palo Verde Dr., Sunnyvale, CA 94086.

Logs must be post marked no later than: 10 October, 1994.

Awards: Top scoring YLRL member will receive her choice of YLRL pin, charm or stationery.

Top scoring non-YLRL member will receive a one-year YLRL membership certificate.

Suggested frequencies: CW — 80 Meters: 3.540-3.725 MHz; 40 Meters: 7.040-7.070 MHz; 20 Meters 14.040-14.070 MHz; 15 Meters: 21.120-21.150 MHz; 10 Meters: 28..150-28.200 MHz.

SSB — 80 Meters: 3.940-3.970 MHz; 40 Meters: 7.240-7.270 MHz; 20 Meters: 14.250-14.280 MHz; 15 Meters: 21.380-21.410 MHz; 10 Meters: 28.300-28.610 MHz.

Note: Band allocations in other countries are often different than the USA NA-YLs should look for DX-YLs in other parts of the bands, especially on 80 and 40 Meters. **WR**

hamfests August

California

THE LIVERMORE ARK is sponsoring an Amateur Radio/Electronic/Computer swap meet on 7 August from 7 a.m. to 12 noon at Los Positas College. Features include refreshments, free parking and covered spaces in the event of rain. Admission is free. Sellers pay $10 space fee. Talk-in on 147.045(+) from the west and 145.350(-) PL 100Hz from the east. Contact Noel Anklam, KC6QAK, at 510/447-3857 eves. or leave message days at 510/783-2803.

Delaware

THE SUSSEX AMATEUR RADIO ASSOCIATION'S Delmarva hamfest will be on 21 August from 8 a.m. to 2 p.m. at the Del Tech Community College in Georgetown, Delaware. Admission is $4 at the gate. Inside tables are $8 each, tailgating is $5. Talk-in is on 7.075 or 224.84. For information, write Delmarva Hamfest, RT2, Box 244G, Georgetown, DE 19947.

Florida

The GREATER JACKSONVILLE AMATEUR RADIO & COMPUTER show is 6-7 August at the Osborn Convention Center near the junction of I-10 and I-95 in downtown Jacksonville. It has been designated the ARRL Northern Florida Section Convention. Features include a large indoor electronic flea market along with over 50 exhibitor and new equipment dealer booths. All functions are indoors with air conditioning. There will be programs, forums and YL activities. Parking is free. VE exams for all grades of license are offered Sunday at 9 a.m. Walk-ins are acceptable. Registration is $6 per person. Swap tables are $18 for the weekend. Tableholders must have registration tickets to enter. To reserve tables, contact David, KD4RQF, P.O. Box 9726, Jacksonville, FL 32208. For more information, contact Greater Jacksonville Hamfest Assn., P.O. Box 27033, Jacksonville, FL 32205; 904/350-9193.

Illinois

The MACOUPIN COUNTY ARC, Inc. will hold Hamfest '94 on 6 August beginning at 8 a.m. at the Macoupin County Fairgrounds, located one mile north of Carlinville, IL on Route 4. Features include commercial vendors, flea market and handicapped accessibilty. VE exams will be given, pre-registration is required, call 217/854-8261. Admission is $1. Commercial vendors may set up 5 August (evening). Other vendors may set up at 6 a.m. For vendor inquires call Doug, KA9HDZ, at 618/488-7249. Talk-in will be on 146.82 and 443.400 (PL 103.5). For more information, contact Aaron, N9UJH, at 217/854-3698.

THE HAMFESTERS RADIO CLUB will sponsor their 60th annual hamfest on 7 August from 8 a.m. to 3 p.m. at the Will County Fairgrounds in Peotone, IL. Features include fully air conditioned exhibit building, handicapped accessible, food and beverages available, convenient loading and parking, manufacturer displays, swappers row and six covered pavilions for flea market. Admission is $4 in advance or $5 at the gate. Children under are free. (For advance tickets, send check or money order and a #10 SASE to David F. Brasel, NF9N, Hamfesters Radio Club, 6933 W. 110th St., Worth, IL 60482; 708/448-0580. Reservations close 20 July.) For general information, contact David, NF9N, 708/448-0580.

THE WESTERN ILLINOIS ARC will sponsor a ham radio and computer swapfest on 13 August from 8 a.m. to 2 p.m. at the Eagles Alps Lodge, 3737 N. 5th St., 1 mile north of the intersection of US 24 and N. 5th St. Features include outdoor tailgate area (free), indoor vendor tables ($5 per table), ARRL VEC testing (NA9Q reservations 217/224-8526), an ARRL table and XYL activities. Admission is $2.50 in advance or $3 at the door. Talk-in on 146.63(-). For information, contact Rod, N9MCX, c/o WIARC, P.O. Box 3132, Quincy, IL 62305-3132; 217/223-8739.

Kansas

The CHANUTE AREA AMATEUR RADIO CLUB will sponsor a hamfest on 27 August from 9 a.m. to 2 p.m. at the National Guard Armory. Lunch will be available on site. VE exams pre-registration at 9:30 a.m. Admission is $5. Flea market tables are $5. Vendor set-up is 7-9 a.m. Talk-in is on 146.745(-). For more information, contact Paul, NØNBD, and Susan, KØTKO, Smith, Rt. 1, Box 208, Humboldt, KS 66748; 316/473-2873.

Louisiana

The SHREVEPORT AMATEUR RADIO ASSOCIATION will sponsor a hamfest on 13-14 August at the Bossier City Civic Center. Times will be Saturday, 8:30 a.m. to 4:30 p.m. and Sunday, 8:30 a.m. to 1:00 p.m. Features include dealers, flea market, forums, banquet, QCWA breakfast. Food will be available. VE exams will be held. Admission will be $3. Talk-in will be on 147.03(+). For more information, contact Alice Prudhomme, KG5ZZ, Rt. 1 Box 410, Mansfield, LA 71052; 318/872-5988 after 6 p.m.

Maryland

The SOUTHERN PATUXENT ARC will sponsor a hamfest on 7 August from 7 a.m. to 2 p.m. at the Show Place Arena in Upper Marlboro. Features include commercial vendors, outdoor tailgating and refreshments. Admission is $5, tailgate space is $5 and indoor tables are $25. Indoor vendor set-up time is will be from noon to 8 p.m. on Saturday, 6 August. Talk-in is on 147.150(+). Contact SPARC Hamfest, P.O. Box 399, St. Leonard, MD 20685; 410/586-2177.

Massachusetts

The WELLESLEY AMATEUR RADIO SOCIETY and BABSON WIRELESS CLUB will sponsor a ham flea market on 7 August from 9 a.m. to 2 p.m. at Trim Hall, Babson College in Wellesley. Features include air conditioned flea market, tailgate area and VE exams. Indoor admission is $2, the tailgate area is free. Vendor cost is $10 in advance or $14 at the door for an indoor table. Vendor cost for the tailgate area is $7 in advance or $10 at the door. For more information about tables, contact Barbara, N1ICQ, 617/329-2628 or VE exams, contact Gerry, NV1T, 617/444-2686. For general information, write to WARS, 107 Church St., Westwood, MA 02090.

Minnesota

The LAKE OF THE WOODS REPEATER ASSOCIATION, INC. will sponsor a hamfest on 27 August beginning at 10 a.m. at Roseau High School Gym. Features include seminars, demonstrations, dealers, flea market, auction, banquet with program and refreshments will be available. Admission is $6 for the hamfest only, $12 includes the buffet banquet. Talk-in on 147.(+)/09 and 147.00(-). For reservations and information, contact David, KBØHAP, Rte. 3, Box 10, Warroad, MN 56763; 218/386-1092.

Missouri

The ST. CHARLES ARC will hold Hamfest94 on 28 August from 6:30 a.m. to 2:30 p.m. in an air-conditioned hall at the Blanchette Park in St. Charles. Admission is free, outdoor flea market spaces $2 and up, (vendor area open at 9 a.m.). Free parking with handicapped access. Features include vendors, forums, food, bingo and cake walk. Talk-in is on 146.(-)/67. For VE exam pre-registration, call 314/524-3254. For more information, contact

Scott, NØUVM, 241 Burning Leaf Dr., St. Peters, MO 63376; 314/928-7267.

Nevada

The SIERRA NEVADA AMATEUR RADIO SOCIETY will sponsor a hamfest on 13 August at the Stead facility, located 10 miles north of Reno on Highway 395 North. Features include vendors, flea market, food and drink available at site. Admission is $3. Swap tables are $10 each. VE exams will be given at noon. To pre-register for VE exams, reserve tables or general information, contact Bob, KG7IY, 3775 Sleepy Hollow Dr., Reno, NV 89502; 702/856-2826 or 702/392-2833.

New Jersey

The SOMERSET COUNTY AMATEUR RADIO SOCIETY, INC. will host its annual hamfest on 27 August from 8 a.m. to 1 p.m. at the Somerset County 4H Center. Features include radios, electronics, computers, software, accessories, refreshments available. Admission is $4 (XYL and children under 12 are free). Indoor tables are $20 with power (resevations required), $15 without power. Outdoor tailgating is $10 per painted space. Vendor set-up time is 6 a.m. Talk-in on 448.175(-) (PL 141.3) and 146.52 . Contact SCARS, P.O. Box 742, Manville, NJ 08835; 908/369-4533.

New York

The WESTCHESTER EMERGENCY COMMUNICATIONS ASSOCIATION, INC. will sponsor a hamfest on 7 August from 9 a.m. to 2 p.m. at the Westchester County Center in White Plains, New York. Features include new and used electronic equipment and parts, air conditioning, free unlimited parking, handicap parking, full food service, forums and radio tech clinic. Walk-in VE exams 9 a.m. to noon. Admission is $5. Vendor cost is $20 per $6 foot table (two free admission with first table, one additional admission with each added table). Vendor set-up time is 6 a.m. Talk-in on 147.06/(+). Contact Jeanne, N2NQY, 544 Manhattan Ave., Thornwood, NY 10594; 914/962-9666.

The YONKERS AMATEUR RADIO CLUB is sponsoring a hamfest on 28 August from 9 a.m. to 3 p.m. at the Yonkers Municipal Parking Garage, Main St. Features include radios, computers, accessories, commercial dealers, ARRL information, tune-up clinic, unlimited free coffee, food and refreshments available. Admission is $5, XYL, YL and kids under 12 free. Vendor cost is $10 per space in advance (AC power available with pre-registration) or $14 at the door. Talk-in on 146.865(-), 440.150(+) or 146.52(+). For more information, contact YARC, P.O. Box 378 Centuck Station, Yonkers, NY 10710-0378; 914/969-5182 or 914/963-1021.

Ohio

The PAULDING COUNTY AMATEUR RADIO GROUP, INC. will sponsor a hamfest on 14 August beginning at 8 a.m. at the Paulding County Fairgrounds. VE exams will be given with pre-registration. Call or send an SASE to Bob High, 12838 Tomlimson Rd., Rockford, OH 45882; 419/795-5763. Admission is $3, under 12 free with one adult. Vendor cost is $10 per 8 foot table (includes one admission). 20'x30' outside space is $4 plus admission. Talk-in on 147.285(+), 444.225(+). For more information, contact PCARG Inc./KB8MAF, 14043 CR 111, Paulding, OH 45879; 419/399-3641.

The WARREN AMATEUR RADIO ASSOCIATION will hold a hamfest on 21 August from 6 a.m. to 3 p.m. at the Trumbull Branch Campus of Kent State University. Features include air conditioned indoor exhibit area, 5-acre flea market, meeting rooms, forums, free parking, VE exams at 10 a.m., food and refreshments will be available. Admission is $4, under 12 free. Vendor cost is $8 per 8 ft. table, $3 per 10 ft. flea market space. Talk-in on 146.97(-), 443.00(+). For more information, contact Al VanSlyke, N8IKX, Warren Amateur Radio Association Hamfest, P.O. Box 809, Warren, OH 44482; 216/889-3378.

Pennsylvania

The MID-ATLANTIC AMATEUR RADIO CLUB will hold a hamfest on 7 August beginning at 8 a.m. at the Bucks County Drive-In, Rt. 611, Warrington, PA. Free parking. Due to theater policy, no food or drink may be brought in. Admission is $5 per person. Vendor cost is $3 per space. Vendor set up time is 7 a.m. Talk-in on repeaters:147.06(+) and 145.13(-); WB3JOE packet BBS: 145.090. For more information, contact MARC, P.O. Box 352, Villanova, PA 19085; 215/624-4034.

The DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC. will sponsor a hamfest on 14 August beginning at 8 a.m. at the Career Institute of Technology in Easton, PA. Features include forums, contesting, computers, packet, introduction to ham radio, high power electricity demonstation, electronics test bench, DXCC field checking, VE exams, full breakfast and lunch available. Site is handicapped accessible.Admission is $4, unlicensed spouse and children under 12 free. Vendor cost for indoors is $25 (includes one admission and table); for outdoor tailgating is $7. Talk-in on 146.70(-). For more information, contact Delaware-Lehigh ARC, Inc., RR 4 Greystone Bld., Nazareth, PA 18064-9211; 610/820-9110 or call Bill, K3ANS at 610/253-2745 (work); 610/258-5063 (home).

Tennessee

The SHORT MOUNTAIN REPEATER CLUB will sponsor a hamfest on 28 August from 7 a.m. to 3 p.m. at the Cedars of Lebanon State Park. Features include outside facilities only, exhibitors bring your own tables, space available on a first come, first served basis. Food and drinks available. Admission is free. Talk-in on 146.91(-). For more information, contact Mary Alice Fanning, KA4GSB, 4936 Danby Dr., Nashville, TN 37211; 615/832-3215.

Washington

The RADIO CLUB OF TACOMA will have its annual fleamarket on 13 August from 9 a.m. to 3 p.m. at Charles Wright Academy, 7723 Chambers Creek Rd. W. Features include commercial tables, non-commercial tables, free parking, VE exams at 10 a.m., food will be available. Overnight RV parking is $2 Friday night only. Admission is $4, children under 12 free. Vendor cost is $40 for a commercial table and $15 for a non-commercial table. Talk-in on 147.28(+). For more information, contact Alan Allen, N7EAY, Radio Club of Tacoma, P.O. Box 11188 Tacoma, WA 98411; 206/475-7413

The LOWER COLUMBIA AMATEUR RADIO ASSOCIATION, W7DG, will sponsor a hamfest on 20 August from 9 a.m. to 3 p.m. at the Cowlitz County Fairgrounds, Longview, WA. See the impressive, multi-million dollar Multiple Radio Vehicle from the Federal Emergency Management Agency, FEMA (may be called for emergency response elsewhere in the U.S.) Admission is $3. Vendor cost for a table is $12 in advance (before 6 August) or $15 after 6 August. Commercial tables are $15. Tailgate space is $5. Vendor set up times are Friday, 19 August from 5 to 9 p.m. and Saturday, 20 August from 6 to 8:45 a.m. Talk-in on 147.26(+). For more information, contact LCARA, P.O. Box 906, Longview, WA 98632; 206/425-6076, 206/425-9184 or 206/425-1866.

Wisconsin

The NORTHWOODS ARC, ARES, RHINELANDER and TOMAHAWK REPEATER ASSOCIATIONS are sponsoring a hamfest on 27 August from 8 a.m. to 2 p.m. at Sugar Camp Town Hall, 13 miles north of Rhinelander on Hwy. 17. Food and beverages will be served throughout the day. VE exam registration at 10:30 a.m., exams at 11 a.m. Admission is $2. Vendor cost is $5 per table, there is no charge for tailgating. Vendor set-up time is Friday, 26 August from 6 to 10 p.m. and Saturday, 27 August, 6 a.m. Talk-in on 146.94(-), 145.43(-) and 145.37(-). For more information, contact Mary, NS9Q, 367 Lois St., Rhinelander, WI 54501; 715/362-9296. WR

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Crystal Set Handbook

The Xtal Society announces the availability of the *Crystal Set Handbook* by Philip N. Anderson. This paperback book includes an introduction to the crystal set with a simple oat box project, formulas for coil inductance and coil Q, a procedure for measuring coil capacitance, introductory and advanced chapters on L-C circuit matching, and Volume III of the Xtal Set Society Newsletter (issues 13- 15).

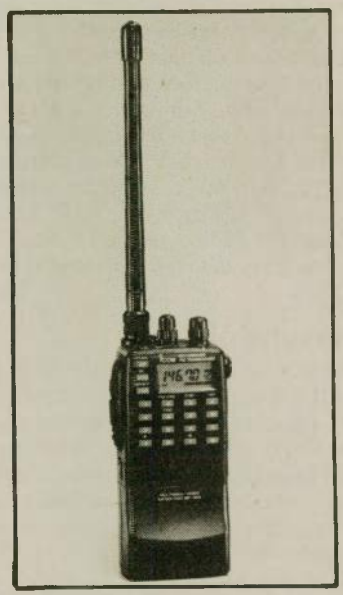
The *Crystal Set Handbook* is $10.95 plus $2.00 shipping from the Xtal Set Society, P.O. Box 3026, St. Louis, MO 63130. The Xtal Set Society, now in its forth year, is dedicated to once again building and experimenting with radio electronics. To join the Society and receive 6 bi-monthly newsletters remit $9.95. Back issues of the newsletter are still available, including Volume I and II for $9.95 each. For more information, please write to the society.

Icom IC-2GXAT

Simple operation and maximum power output enhance the performance of Icom's new IC-2GXAT (DTMF) two-meter handheld.

Offering a powerful seven watts of output power with a 13.5 V DC power source or optional BP-132A battery pack, you'll be able to reach fringe areas. One watt low power will provide longer operating time. A power saver function reduces current drain during standby.

The 2GXAT is constructed to withstand the rigors of outdoor operation,



including dust and moisture. The rear case is made of rugged die-cast aluminum and the body is splash resistant.

Repeater information can be stored in the call channel or 40 memory channels. Tone scan is available to detect the subaudible tone frequencies. Subaudible tone encoder, tone squelch and pocket beep are included. A monitor function is included to receive a repeater input frequency. The IC-2GXAT also includes five DTMF memory channels and a DTMF redial function for autopatching.

The IC-2GXAT also includes a memory transfer function for quick QSYing, programmable scan and memory scan with a skip function. A set mode can further customize handheld operation.

The display can be set to display the memory channel numbers only, and the number of available memory channels can be limited. Display lighting with a five-second timer provides excellent visibility.

A battery pack, charger, belt clip and handstrap are included. Options for the IC-2GXAT include a pager and code squelch.

The suggested retail price for the IC-2GXAT is $359. For further information, please contact your local Icom amateur radio dealer or Icom America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004; 206/454-8155.

General Class course on video

"Everything beginning ham radio operators need to explore exciting new operating privileges on the shortwave ham bands — Guaranteed!"

In response to customer demand and the success of its Technician Class video training course, the American Radio Relay League — the nationwide

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(800) 444-9476

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New Castle, DE 19720
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(800) 644-4476

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Fort Lauderdale, FL 33309
(305) 491-7110
(800) 427-3066 (FL WATS)

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Atlanta, GA 30340
(404) 263-0700
(800) 444-7927

INDIANA
R&L Electronics
8524 E. Washington St.
Indianapolis, IN 46219
(317) 897-7362
(800) 524-4889

NEW HAMPSHIRE
Ham Radio Outlet
224 N. Broadway
Salem, NH 03079
(603) 898-3750
(800) 444-0047

OHIO
R&L Electronics
1315 Maple Ave.
Hamilton, OH 45011
(513) 868-6399
(800) 221-7735

OREGON
Ham Radio Outlet
11705 S.W. Pacific Hwy.
Portland, OR 97223
(503) 598-0555
(800) 854-6046

VIRGINIA
Electronic Equipment Bank
323 Mill Street, N.E.
Vienna, VA 22180
(703) 938-3350
(800) 368-3270

Ham Radio Outlet
14803 Build America Dr.
Woodbridge, VA 22191
(703) 643-1063
(800) 444-4799

organization of Amateur Radio operators — announces the availability of a new video training course for beginning Amateur Radio operators.

The ARRL's General Class video course is a complete training package for hams taking the FCC's General Class Amateur Radio exams — written and Morse code.

The course covers every exam topic in detail on three videocassettes, a companion course book, Morse code training software (for IBM-compatible PCs) and optional exam-review software (for Mac and IBM-compatible PCs).

Produced in association with King Schools Inc., a recognized leader in exam preparation video education, the General Class course is easy to use. "Simply pop in a tape, press play, and King School's 3-D animation and 'monster graphics' do the rest," says ARRL Publications Manager Mark Wilson, AA2Z.

The League backs its video course with a full guarantee: Customers have one year from the date of purchase to pass their FCC General Class tests or their money will be fully refunded.

According to Wilson, the ARRL has sold thousands of copies of its Technician Class video course. "The comments from Tech course customers were quite clear — they wanted a follow-up course for the General Class license, so we gave them one."

The course costs $119 with optional exam-review software, or $99 by itself. It's available at local Amateur Radio equipment and book dealers or directly from ARRL Headquarters in Newington, Connecticut.

Contact: Rosalie White, WA1STO, Educational Activities Manager, 800/32-NEW-HAM

Icom IC-820H

Icom announces the IC-820H high performance all-mode dual band base station transceiver. The IC-820H is compact and light weight, making it an ideal rig for mobile, fixed or field operation. Yet the IC-820H is packed with top performance features unmatched by other base station transceivers including a newly designed DDS (Digital Direct Synthesizer) capable of resolving 1 Hz tuning steps for fine tuning.

Built-in satellite functions include normal and reverse tracking, independent uplink/downlink control for doppler shift compensation and separate satellite VFO. Ten satellite memories allow you to quickly switch from normal to satellite operation, plus easily recall satellite uplink and downlink frequencies.

Independent controls and indicators for each band make the IC-820H easy to operate. To change from the main band to the sub-band, simply push a button. You can even receive simultaneous signals on each band and monitor the signal strength of both signals on separate S-meters.

Tune automatically at variable tuning speeds by using the sub-tuning function and RIT or SHIFT control. This eliminates the need to rotate the main tuning dial frequently when trying to find a signal over a wide frequency range.

The IC-820H covers from 144 to 148 MHz VHF and 430 to 450 MHz UHF. Both bands have two VFOs.

Additional features include IF shift that electronically adjusts the center frequency of the receiver pass-band for effective interference reduction and a

noise blanker to eliminate pulse-type noise. A memory allocation function divides memories between bands. The IC-820H also has an AF speech compressor, auto repeater and one-touch repeater functions, built-in high stability crystal unit, RIT, CW semi break-in and side tone.

Programmed scan, memory scan and mode select scan are also included in the IC-820H. Packet operation (9600 bps) is possible with the modulation limiter circuit.

Options include a UT-50 tone squelch unit, UT-36 voice synthesizer and FL-T32 CW narrow filter.

The suggested retail price for the IC-820H is $1,999. For further information, please contact your local Icom Amateur Radio dealer or Icom America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004; 206/454-8155. WR

If you are involved in any emergency communications incident, send story and photos to *Worldradio*, 2120 28th St., Sacramento, CA 95818.

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.

p/r = pre-register

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.

w/i = walk-in

Date	City	Contact	Notes
Alaska			
9/10/94	Anchorage	Jim, KL7CC 907/338-0662	p/r; w/i
Arizona			
9/10/94	Tucson	Joe, K7OPX 602/886-7217	w/i
9/17/94	Tucson	Micki, AA7RR 602/883-8305	p/r
California			
9/7/94	Lake Isabella	Tom, KN6TS 619/379-2947	w/i
9/7/94	Sacramento	Jim, AB6OP 393-8839 or Earl, AB6CN 331-1115	p/r pref.; w/i OK
9/10/94	Adelanto	619/244-1396 or 619/247-5433	w/i only
9/10/94	Modesto	W6XK 209/883-2968	w/i
9/10/94	Novato	415/883-9789	w/i OK
9/10/94	San Pedro	N6DYZ 310/325-2965	p/r pref.; w/i ltd.
9/10/94	Santa Barbara	Darryl, KF6DI 805/969-2326	w/i
9/10/94	Willits	Don, WA6ACX 707/459-3980	w/i OK
9/15/94	Fountain Valley	Tom, N6XKY 714/778-1542	p/r
9/17/94	Long Beach	Don, NN6Q 310/420-9480	p/r pref.
9/17/94	Sacramento	Lyle, AA6DJ 916/483-3293	
9/17/94	Sebastopol	Dave, 707/527-0961	p/r pref.
9/17/94	Stockton	Mark, W6DKI 209/465-7496	w/i
9/24/94	Culver City	Scott, K6PYP 310/459-0337 or Dave, N3BKV 818/559-2572	w/i
9/24/94	Fairfield	Jerry, AA6NO 916/662-0801	w/i OK
9/24/94	Vacaville/Elmira	Barbara, KM6AC 707/429-4878	w/i only
9/29/94	Long Beach	W6LRF 714/847-6370; N6LUH 310/592-1713	w/i OK
Colorado			
9/1/94	All	Exam hot-line, 24-hour recording gives info on all VE exams in Colorado, 303/360-7293	
9/10/94	Denver	Glenn, WØIJR 303/360-7293, 24-hr. message	w/i OK
9/17/94	Westminster	Phil, NP2X 303/421-2795	p/r or w/i
Connecticut			
9/11/94	Milford	NB1M 203/933-5125; WA1YQE 203/874-1014	w/i
9/13/94	Thomaston	WJ1T 203/283-1044	w/i pref.
Florida			
9/3/94	Orlando	Lou, AC4GB 407/898-0429	p/r pref.
9/17/94	Melbourne	WB9IVR 407/724-6183	w/i OK
Georgia			
9/23/94	Lilburn	Howie, W4NVF 404/921-8363	w/i OK
Hawaii			
9/15/94	Hilo	AH6P 808/935-8893	w/i
Idaho			
9/10/94	Boise	W7JMH 208/343-9153	w/i
Illinois			
9/4/94	Paris	WO8X 217/463-2213	p/r; w/i
9/10/94	Belleville	John, KN9G 618/235-2475	p/r only
9/10/94	Oak Forest	David, NF9N 708/448-0580	w/i
9/11/94	Joliet	Ralph, WB9RGZ 708/964-3417	w/i
9/17/94	Loves Park	Dennis, W9SS 815/877-6768	p/r; w/i
Iowa			
9/9/94	Sioux City	WYØV, 712/258-7262	w/i OK
Maryland			
9/14/94	Glen Burnie	Jerry, NU3D 410/761-1423	p/r pref.; w/i ltd.
9/17/94	Laurel	WB3GXW 301/572-5124 after 6 p.m.	p/r pref.; w/i OK
Massachusetts			
9/30/94	Braintree	Phil, K1UPY 617/326-6446	
9/21/94	Cambridge	Bob, N1KDA 617/593-1955	
Michigan			
9/10/94	Harvey	Richard, N8GBA 906/249-3837	
9/10/94	Mt.Clemens	Bill, N8CVC 810/468-8345, 4-9p.m	w/i OK
Missouri			
9/3/94	Kimberling City	NQØG 417/739-2888	w/i OK
9/8/94	Deaconess Hospital West	Gregg, KAØVWC, 314/567-8777	p/r only
9/10/94	Belleville	Ken Davis, KF9IA	p/r
9/10/94	Deaconess Hospital West	Gregg, KAØVWC, 314/567-8777	p/r only
9/10/94	Sullivan	NØGLN 314/764-2777	p/r only
9/17/94	Godfrey	Richard, KF9F 618/466-2306	
9/24/94	Creve Coeur	Ron, KBØDIY 314/647-3223	p/r
9/24/94	HighRidge	James, WAØFQK 314/942-2268	p/r
New Jersey			
9/10/94	Cranford	24-hr. hotline: 201/377-4790	
9/14/94	Fort Monmouth	MARS 908/532-5354	w/i
9/15/94	Bellmawr	WA2VQG 609/933-1500	w/i
9/17/94	Bayonne	Bob, N2IYY 201/435-5953	w/i OK
9/17/94	Pennington	AA2F 609/737-1723	p/r pref.; w/i OK
9/28/94	Manahawkin	Dave, WA2TVS 609/698-2872	w/i OK
New York			
9/4/94	Yonkers	AC2V 914/237-5589	w/i OK
9/13/94	Hicksville	Bob, W2ILP 516/499-2214	w/i
9/17/94	Long Island	Les, AA2FJ 516/364-0030	w/i OK
North Carolina			
9/11/94	Hendersonville	W2YTO 704/891-4359	p/r pref.; w/i OK
9/29/94	Jacksonville	Dick, KD4YOT 910/455-8834	w/i
Ohio			
9/3/94	Cincinnati	Herb, WA8PBW 513/ 891-7556	w/i OK
9/6/94	Bellevue	John, N8RFK 419/684-7822	w/i OK
9/15/94	Youngstown	James, N8IRL 216/534-1394	p/r only
Oklahoma			
9/3/94	Vinita	Jimmie, KA5DVT 918/256-2716	w/i OK
Oregon			
9/14/94	Roseburg	KB7CMB 503/672-5997 or AA7GD 503/672-7564	w/i OK
9/21/94	Florence	Hal, N7NNA 503/997-2323 or Bob, AA7MG 503/997-6448	p/r pref.; w/i ltd.

THE MART

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VE exam schedules *(continued)*

Date	City	Contact	Notes
Pennsylvania			
9/2/94	Nazareth	Robin, WA3T 610/820-9110	w/i
9/3/94	Erie	W3CG 814/665-9124	w/i OK
Rhode Island			
9/8/94	Providence	Judy, KC1RI 401/231-9156 or Al, NN1W 401/454-6848	w/i OK
9/24/94	Slatersville	Bob, W1YRC 401/333-2129	w/i OK
South Carolina			
9/17/94	N. Charleston	Ed, KC4OOZ 803/871-4368	
South Dakota			
9/10/94	Rapid City	NUØF 605/348-6564 p/r 30 days prior;	w/i OK
Texas			
9/10/94	Houston	Jim, KB5AWM 713/488-4426	w/i only
9/10/94	McGregor	AB5BA 817/859-5374	w/i OK
9/13/94	Houston	Harold, ND5F 713/464-9044	p/r pref.
9/17/94	Austin	Jim, AB5EK, 512/327-6184	w/i
Vermont			
9/10/94	Berlin	WB1AJG 802/433-6172	p/r pref.; w/i OK
Virginia			
9/10/94	Culpeper	Bill, AC4KP 703/547-3089	p/r; w/i
9/18/94	S.Peninsula	Ed, W4RTZ 804/898-8031	w/i only
9/24/94	Gloucester	Fran, KD4UEY 804/693-2117	w/i OK
Wisconsin			
9/17/94	Appleton	KD9IA 414/788-3823	w/i

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The MART (cont.)

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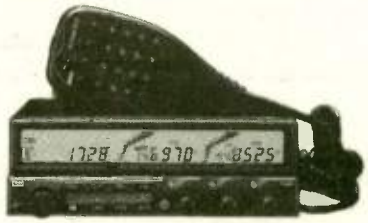

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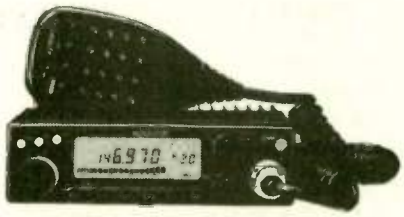

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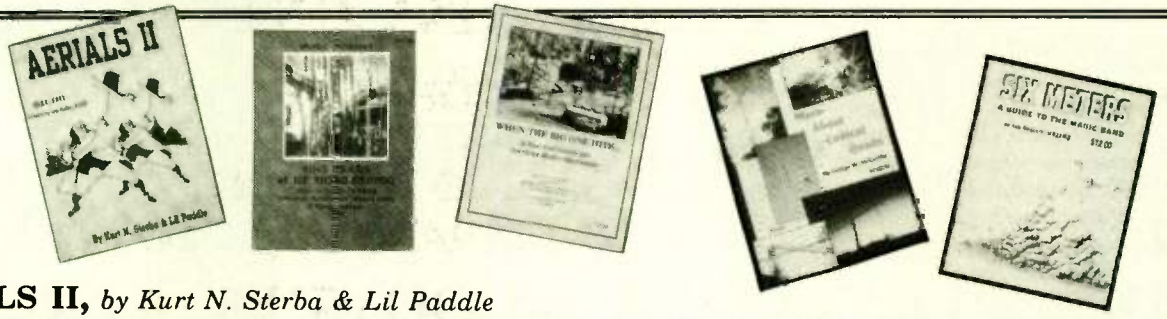

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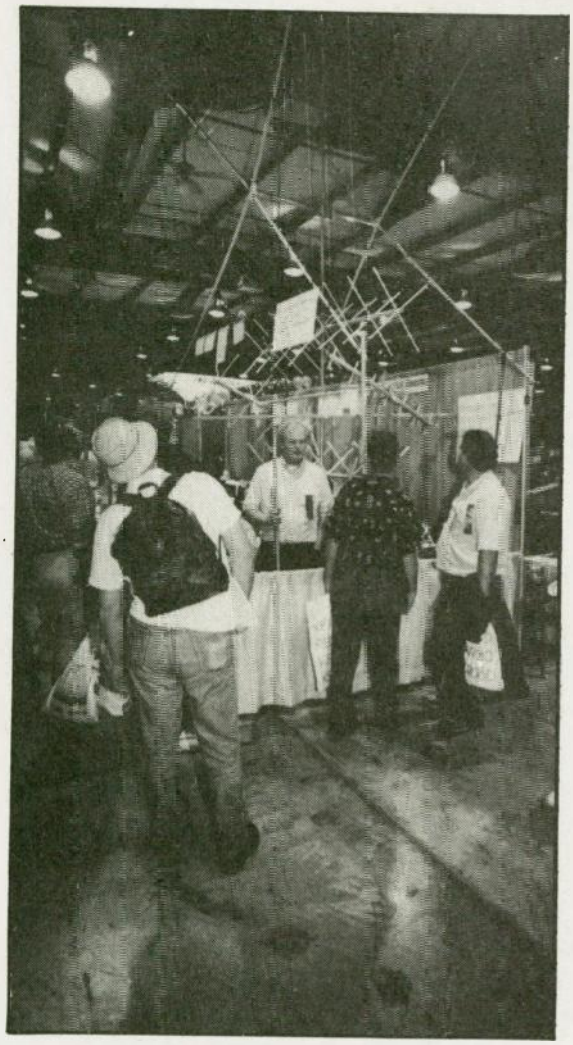

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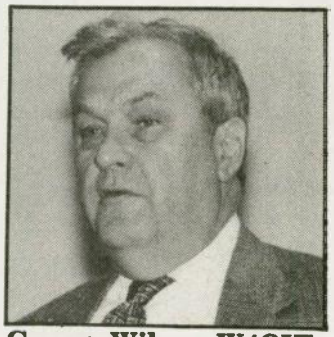

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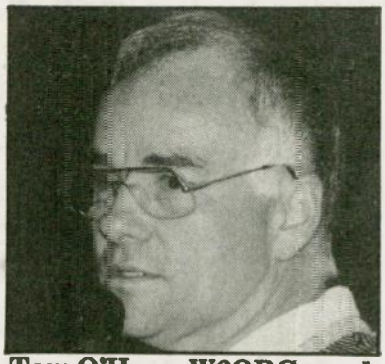

Tom O'Hara, W6ORG, moderated the ATV forum, which we will report next month.

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