Worldradio

Year 22, Issue 5 November 1992 • $1.25

FEATURES

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Amateur storm spotter gives tornado warning

ED MORRISON, KB9LT

Wildfire response

JUDY SHRADER, KA7OFM

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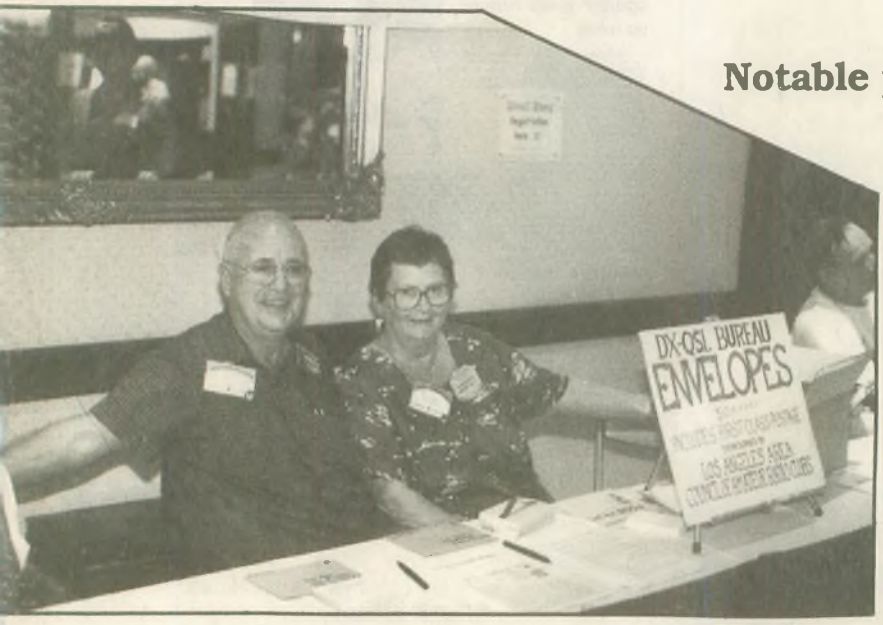
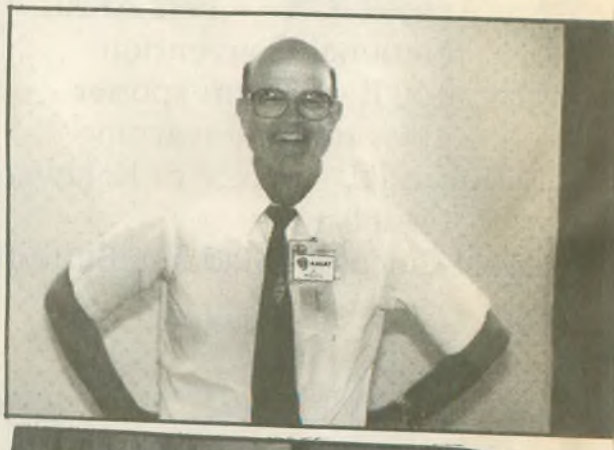
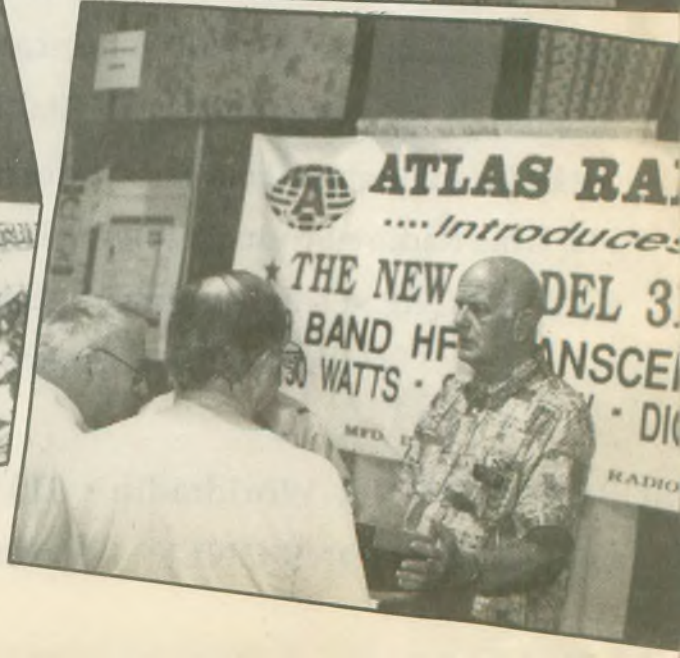
Notable personages photographed at the
ARRL National in Los Angeles,
21-23 August 1992







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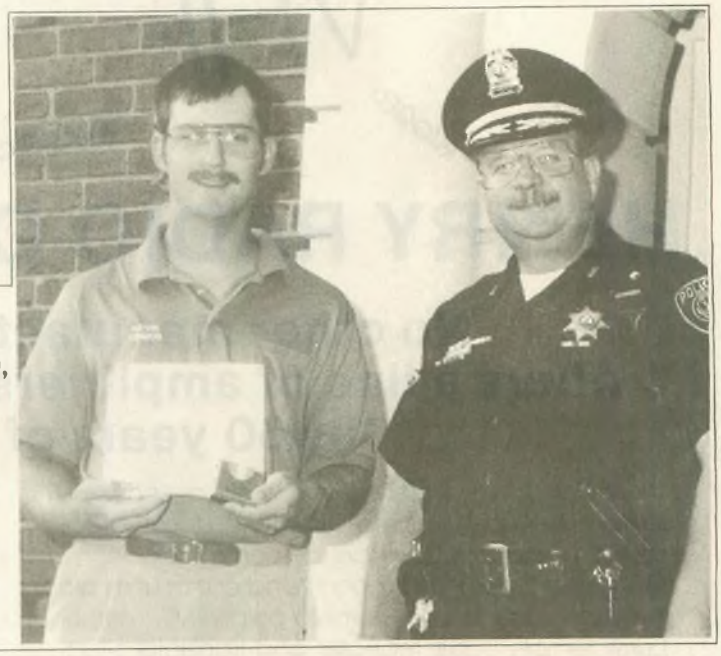

Kevin, N9MKO, and Macomb Police Lt. Bill Hedeen, KB9AKD

ED MORRISON, K9HLT

At about 4:45 p.m. on Saturday, 25 July 1992 a tornado touched down 1½ miles southwest of Blandinsville in West Central Illinois. Two members of the Blandinsville Fire Department reported the touchdown, and it was confirmed by Kevin Kleinkopf, N9MKQ, a volunteer storm spotter and a member of the Lamoine Emergency Amateur Radio Club.

The tornado was moving toward Macomb, the county seat of McDonough County, about 15 miles southeast of the touchdown. Based on Kevin's report, the National Weather Service at Peoria issued a tornado warning for Macomb that was broadcast on three Macomb radio stations. The storm warning sirens in Macomb were also sounded.

As the tornado approached Macomb several rural buildings were damaged or destroyed before it hit the northwest part of Macomb, causing severe damage to several homes, including the destruction of two mobile homes. Fortunately, no one was injured.

The fact that Kevin's warning gave Macomb residents 15 minutes to take cover was given as the reason no one was injured. At the August meeting of the Lamoine Emergency ARC, Kevin was given a certificate by Rich Sample, N9EWQ, Macomb ESDA director. At the 17 August meeting of the Macomb City Council Kevin was given the Civilian Service Award certificate and medal by Macomb Mayor Tom Carper. This is the highest award given by the city to a citizen.

Almost all members of the Lamoine Emergency ARC are trained storm spotters and attend a training class each spring, prior to the start of the tornado season. □

Wildfire response

JUDY SHRADER, KA7OFM

Wildfire! Evacuation! These words were the ones we had expected yet dreaded to hear from the beginning of the drought-plagued 1992 fire season. On 3 August a fast-moving wildfire was threatening a number of residents in rural Jackson County. The search and rescue unit of which I am a member was ordered to leave the dive team at the scene of a drowning and report to Search and Rescue Base Station 7 in White City, Oregon, for further instructions.

At 7:30 p.m. Frieda Lorton, N7LTR, and I were en route from the search scene to Station 7 when my OM, Bill, W7QMU, received the call from the sheriff's department to activate ARES. Bill quickly activated the ARES phone tree and told everyone to check into the 146.94 King Mountain repeater and stand by on frequency for further instructions. Bill established a net on that frequency and was operating the net when Frieda and I were finally within range of the repeater to make contact with him.

As emergency coordinator (EC) of ARES for Jackson County in Oregon, I work closely with the Jackson County Sheriff's Department of Emergency Management. Search and rescue is the cohesive unit of emergency management in our county and for that reason a number of our ARES personnel are SAR certified. Search and rescue functions under the Incident Command System and we take our orders from the incident commander at the fire camp. Our present instructions were to deploy to Station 7 for further information. I notified all stations monitoring on the repeater frequency to stand by for possible deployment to either Station 7 or to the location of the intended fire camp.

Upon our arrival there was a great deal of hustle and bustle as cots and blankets were being pulled out of

(please turn to page 12)

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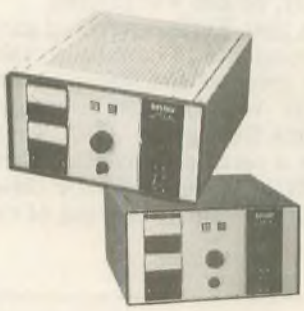

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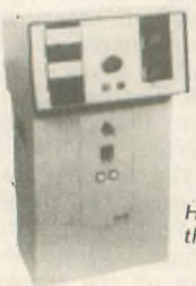

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YL's shuttle QSO

JEAN STONER, WH6DZ

The OM, W3FO, and I live on the Big Island of Hawaii, on the southeast flank of Kilauea Volcano. Kilauea is the world's most active volcano, erupting continuously since 1983. We are caretakers in Royal Gardens, a 2,600-acre devastated and isolated subdivision where only four people remain. We have no public utilities; 100 percent solar power provides all of our energy needs. Road access into this subdivision has been cut off by numerous lava flows, and everything must be backpacked into the QTH across a two-mile lava field. We have no telephone service. Therefore, we rely on Amateur Radio as our only means of communication. But who needs a telephone when HF and VHF ham radio provides all the communications we need, even to talk to an astronaut?

On 2 July 1992 the OM and I had our first visual contact with the space shuttle *Columbia* as it passed over Royal Gardens at 0511 Hawaiian time. What a thrill! We heard KB5SIW, Commander Richards, describe his "peaceful, beautiful view" on 144.45 MHz simplex, and we knew it must be an understatement of what he was seeing from his window. During the next two days, we were able to hear seven more passes, including the two transmissions to *Hokule'a*, an outrigger canoe making its way from Hawaii to Tahiti. How interesting to hear the skippers of two very different exploration ships, one ancient and one modern, wish each other safe journeys.

And then, on 4 July at 1015 local time, it happened—my big moment in Amateur Radio! KB5SIW put out a CQ and I, along with many other hopefuls, threw my call out over the airwaves. To my surprise, I heard,

(please turn to page 7)

Jean Stoner, WH6DZ, makes a 2M contact from beneath Pu'u O'o cone of Kilawea Volcano.

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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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PUBLISHER'S MICROPHONE

As always, we start off by recognizing true intellectual giants. Here are the latest to join the brilliant ranks of the *Worldradio* Super-Boosters (lifetime subscribers):

Gary Carroll, WB2YKL, S. Ozone Park, NY
Joseph Bell, NØSTH, Ames, IA
William Jolly, DDS, NØRTI, Mexico, MO
Normann Timmons, WAØJYD, Omaha, NE
Vern Gallinger, W7JAT, Kingman, AZ
Steven Rainey, N6MVX, Ridgecrest, CA

As always, Amateur Radio operators perform their duties well during times of disaster. The latest two, of a fury seldom experienced, are no exception. We'll have articles from those who were actually involved, but right now they have more pressing matters at hand.

•

While it almost sounds impossible, it is sadly true that many public service agency personnel (just like the general public) have absolutely no idea what Amateur Radio is or how it can be useful to them.

So it was good to see in *Police Times* recently an article about the role of Amateur Radio in the San Francisco East Bay fire. Thanks to Ken Johnson, W6NKE, for sending it in.

There are amateurs within six blocks of other amateurs and they have never met. That is a sad state of affairs. Not only are they missing out on friendships, but emergency capability as well.

I've just talked to Jack Speer, N1BIC, of Buckmaster Publishing (Rt. 4, Box 1630, Mineral, VA 23117; 800/282-5628), and we may put an end to neighborhood anonymity. Jack says that for a $5 shipping and handling fee and 2.5¢ per name, he will send you a mailing label for each amateur in your individual ZIP code.

The idea is that a motivated amateur would send to all those in his ZIP code invitations to a Saturday coffee get-acquainted gathering. This will not only result in new sources for antenna raising, but it will heighten the emergency networking power of the community; in an emergency, it's better we should depend on those whose houses we can easily walk to than our pals who live miles away.

On the average there should be about 20 amateurs in each individual (five number) ZIP code. Some, however, will have far, far less and some will have many more.

Jack Speer sure isn't going to make any money at this (2.5¢ a name) but said he will do it as a public service. He also can furnish wider area selections for clubs trying to recruit members or do hamfest mailouts.

While clubs, as a group, do perform yeoman service in emergencies, the smaller the cell involved the higher the efficiency.

Hopefully, *Worldradio* subscribers (already the most motivated) will assume the leadership necessary to bring about greater neighborhood Amateur Radio cohesion.

•

You may have seen articles spelling out just how life-threatening it is to be near RF fields. Proving that "it ain't necessarily so," we just got a letter from 86-year-old Stanley Hines, K6KN, of Barlosville, West Virginia, written with a steady hand. We think Stan spent a lot of time around unshielded transmitters with the feedline (non-coax) going right by his head without any harm.

At the other end of the age spectrum a nice letter just came in from 15-year-old Paul Lloyd, KB5MUD, of Midland, Texas, who has his *Extra* Class license!

•

DXers in the paper chase may wish to avail themselves of the excellent *World Annual of QSL Managers* (with midyear supplement). It's published by Y24HO at Oberwasserstrasse 12, 0-1080 Berlin, Germany; FAX (49) + 30-207-1258. After frustrating moments of not being able to find a foreign station in the *Callbook*, or supplement, I would turn to this listing of 52,000 stations and 6,000 managers and . . . there it would be — over and over again, amazing! One DXpedition station I was chasing turned out to be John Attaway, K4IIF, himself. Great, I know I'll get a card from him.

•

Speaking of awards, if you've been intending to apply for the **Worldradio** Worked 100 Nations Award, I suggest that you get to it, because soon the requirements will be stiffened considerably. The award will be much harder to obtain, which will also add to its prestige. Apply while it's still easy.

—Armond, N6WR

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YH-77ST	Lightweight Headphones
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ARRL National, Los Angeles

JOHN MINKE, N6JM

This summer's Los Angeles ARRL National was entitled "The Art of DX-ing—DX in the Future."

The forum members included Pete Meyer, N0AFW, one of the recent Clipperton Island DXpedition members and presently president of the Southern California DX Club; Jerry Hagen, N6AV, a long-time southern California DXer; Bill Mauzey, W6RT, the Southwest Division representative to the DX Advisory Committee; and Rick Samoian, WB6OKK.

Several prepared questions were directed at the panel. The first was what is the most wanted DXCC Country. The panel felt that Peter I Island, Heard Island, Libya, Bhutan, Laccadive Islands, Yemen and North Korea were the top of the list for the most wanted.

There was the question of whether Jim Smith, VK9NS, should do his Heard Island DXpedition alone. It was felt that this Heard Island DXpedition should be a group effort. The panel was concerned if Jim could handle the pileups.

Another topic for discussion was donations for DXpeditions. Although Pete, N0AFW, claimed that he had out-of-pocket expenses totaling $14,000, he felt that one should contribute what one feels is right, and everyone should at least send enough to cover return postage. It was agreed that the minimal contribution, if it's one that you really need, should be $5.

The mail difficulties with the former Soviet Union was not well-addressed, unfortunately.

What is the proper pileup behavior? The panel had several suggestions on this one. Obviously, the DX station should operate split, and if the pileups get too bad, just move to another frequency and start over again. Suggestions to the calling stations were to call only two times and not keep on calling. Many DXers would benefit if experienced DXers set an example. Use common courtesy and listen. Bill, W6RT, felt that the low sunspot activity will reduce this problem, as those with dipole antennas will not be hearing what is being worked. Finally, DXpeditio groups should announce the other band they are on to help reduce the pileup o calling stations.

Steve Locks, N6FRZ, one of the DX big guns, spoke at the DX Forum.

Does packet radio make it too easy? Although there are many who feel DX should be worked by tuning the bands, it was felt that packet is an asset to DXing. It was better than the old method of calling fellow DXers on the telephone.

Will the ARRL recognize ex-Soviet countries and the Yugoslav breakup? Bill, W6RT, says that the DXAC is working on it and feels that they will, with Yugoslavia still remaining on the list. (We don't know why there was a question concerning the ex-Soviet countries, as the republics were always recognized as such for DXCC purposes).

The panel was asked what they considered to be the minimum for a station to be competitive. They seemed to feel that a triband beam at 50 feet and a kilowatt was the way to go. However, Jerry, N6AV, stated he has been using wire antennas for years. Bill, W6RT, added that a rig that is capable of operating split frequency is also helpful. N6JM runs barefoot into a 20-year-old plus TH6 at 50 feet. I have 310 confirmed and I consider myself to be competitive.

Finally, what is the future in the art of DXing? Bill, W6RT, hopes it keeps on going. Jerry, N6AV, sees in the future computerized DXing with remote digital links. Rick, WB6OKK, also hopes it keeps on going.

ıe DX breakfast

Many of the deserving DXers gath-ed in the Imperial Ballroom at 8 a.m. Saturday morning for a very fine eakfast. The big drawing card was e story about the recent South Sand-ch Islands DXpedition, presented by rry Dubson, W6MKB.

The leading paragraph in the pro-am stated: "The most awful place in e world," which was quoted by Cap-in James Cook in the year 1775, when passed by the islands, noting the treme winds, snow, cold, and cloudi-ss with rare moments of sunshine. erry said that the South Sandwich lands DXpedition was the most out-anding one that he had ever been on nd reported that Martti Laine, H2BH, had told him that the DXpedi-on had been the most difficult that he ad ever been on.

After over three years in the plan-ng the DXpedition became a reality. s the team was to consist of six Amer-ans, one Japanese and one European, ıe team rendezvoused in London, here they were hosted by the Chiltern X Club. The team's eight members ıcluded Martti Laine, OH2BH, the nly European and who signed on at the ıst minute; Mas, JE3MAS; David chmocker, KJ9I; Al Hernandez, VA3YVN; Tony Deprato, WA4JQS; ohn Vugteveen, W7KNT; Ralph Fe-or, K0IR; and Terry, W6MKB. From ondon the team was flown on a mili-ary flight to the Falkland Islands with stopover on Ascension Island.

There the team and all the necessary quipment, which included a supply of resh water and 600 gallons of gasoline ontained in five-gallon plastic buck-ts, were loaded on the *Abel-J*, out of nchorage, Alaska. Terry said that the essel was their "home away from ıome." Immediately after sailing from he islands the seas became very rough. Enroute to the South Sandwich Islands, hey passed close to the South Georgia slands, where they would go ashore for a short period on their return trip.

Upon reaching the South Sandwich slands, they landed at Thule Island, he most southern of the group. As they pproached the shore their Zodiac over-urned, dumping everyone in the 32°F water. They then selected a more suit-able landing site, and it took one and a half days to unload all the equipment.

Terry reported that there were about one million penguins and many ele-phant seals on the island. Some of the penguins were dubbed as "building in-spectors" as their curiosity brought them right up to the tents.

The antennas were installed as low as possible as the island was constantly swept with 70 to 80 mph winds; the *(please turn to page 15)*

Shuttle QSO

(continued from page 3)

"WH6DZ, go ahead." The microphone was clutched tightly in my hand, but I was so excited that, for what seemed like an eternity, I had no clue as to what I was supposed to do with it! Somehow, I must have managed to send two coherent transmissions because I heard the commander say I was his first Big Island contact.

Two days later, after listening to eight more passes, we heard KB5SIW again send out a CQ. We cheered as Cdr. Richards came back to NH6LH, Paul Sears, another Big Island ham. I think we were almost as thrilled to hear NH6LH on simplex as we were to discover he had contacted the shuttle. (We've tried to have a simplex QSO with NH6LH several times before from Royal Gardens, but have always had to go through a local repeater because of the volcano in our back yard.)

As soon as NH6LH and KB5SIW's QSO was over, Cdr. Richards sent another CQ and this time, W3FO was the lucky recipient! When Paul transmitted that his QTH was beneath Kilauea Volcano, KB5SIW said he had talked to a YL in the same area two days ago. He remembered me! After the shuttle was out of range and we calmed down a bit, we wondered if there were other OM/XYL teams who had contacted space shuttle *Columbia's* mission STS-50.

NH6LH was running only 5W mobile with a Kenwood HT and a mobile antenna. W3FO and I used an Icom HT and a vertical wire dipole, hanging from the corner of the house. We had constructed our "shuttle antenna" only hours before my contact on 4 July—proof that it doesn't take mega-watts and a monster antenna to work the space shuttle!

We actually heard 23 of *Columbia*'s passes, including voice and packet. We were ready and listening for them, thanks to orbit information from local hams. Mahalo to KJ9U, NH6LH and WH6DT for generously sharing the SAREX information. Anyone interested in making a unique QSO with an astronaut can see from our experience that it *does* happen. So, listen for the next SAREX mission and try it! It's a great feeling! □

FCC Forum, ARRL National Convention

The forum featured Private Radio Bureau Chief Ralph Haller and Personal Radio Branch Chief John B. Johnston.

Haller said that the new codeless Technician license is an unqualified triumph and one of the biggest success stories in the history of Amateur Radio. Among other things, the number of new licensees is up 100 percent. The ratio of Novice and Technician Class entrants has been essentially reversed, with most newcomers now entering via the Technician Class.

Haller spoke about constantly-increasing requirements for spectrum space, due in large part to the fact that "our society is on the move." We want to communicate while we are driving, walking, and doing things at places where there is no wireline.

The required spectrum can only come from advances in technology, which will make it possible to make better use of the SHF and EHF bands, and we look to the amateur community for new technology in these bands. And technology can help us to use the VHF and UHF bands more effectively.

One big problem is meeting the demand for land mobile systems at VHF and UHF. The competition for new licenses is so great that the Commission uses a lottery to pick the winners.

Haller credited amateurs and the Amateur Radio Service with being the vanguard of technology. He said, "Virtually every communication system now being designed or contemplated is a digital system. Here is one area where the amateurs are in the lead. You have wholeheartedly taken to digital computers. The amateur community senses, as we do, that digital-based communication technology promises to bring to the public innovative systems having capabilities that even now stretch our imagination."

Haller gave credit to the extensive volunteer activities within the amateur ranks, particularly in the VEC area, and noted that the Commission proposed that Novice exams be moved into the VEC system, based on proposals from the ARRL and W5YI.

He mentioned proposed rule-making for temporary licensing of visiting foreign amateurs from countries whose governments have *not* signed reciprocal agreements with the US.

He called attention to proposed rule-making to revise Section 97.113 on prohibited communications (the comment deadline is 1 Oct., and the reply comment deadline is 1 Dec.).

Finally, Haller mentioned "personalized call signs," noting that the Commission has this matter under activ consideration.

On the subject of amateur-submitte petitions for rule-making, Johnsto asked the ham community to "do better job of researching your hot ide before shooting off a petition. We ca better serve you by using our time t work on good petitions rather than dis missing bad ones."

Johnston also asked that petition include information on the affect pro posed changes would have upon th amateur license structure, operato privileges and question pools. Ama teurs should check with VEC questio pool committee members for informa tion on how many questions would b affected by proposed changes.

Johnston also mentioned handi capped code credit, noting that neithe the Commission nor the volunteer ex aminer is qualified to make medica judgement on the inability of a handi capped person to pass the 13 or 20 wpm code test. This can only be certified b a doctor, based on certain guideline which Johnston cited and which are being incorporated in the doctor's certi fication on Form 610.

Johnston cited dockets presently open for comment and invited amateurs to file comments for the official record (*W5YI Report*, 9/1/92)

"Instant" tickets for foreigners

The FCC has proposed a streamlined method of licensing foreigners who hold amateur licenses that would put them

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 September 1, 1992.

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

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0JZ	KG0AN	N0UAK	KB0KRB
1	AA1DW	KD1KG	N1NKE	KB1AJI
2	AA2KW	KF2KH	N2SIT	KB2PKB
3	AA3BY	KE3EP	N3NHH	KB3AHZ
4	AC4UW	KQ4FC		KD4SNJ
5	AB5HU	KJ5EI		KB5VAR
6	AB6OB	KN6AA		KD6NDD
7	AA7RE	KI7GK		KB7PVX
8	AA8IO	KF8WZ	N8VNZ	KB8OGQ
9	AA9EZ	KF9LJ	N9QXR	KB9IDJ
North Mariana Is.	AH0P	AH0AK	KH0AW	WH0AAT
Guam	NH2E	AH2CP	KH2GK	WH2ANA
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6MC	WH6IV	WH6CPX
Kure Is.			KH7AA	
American Samoa	AH8E	AH8AE	KH8AI	WH8ABA
Wake Wilkes Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska		AL7OK	WL7GC	WL7CGD
Virgin Is.	NP2U	KP2CA	NP2FY	WP2AHS
Puerto Rico		KP4UG		WP4LKR

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on the air in the US for 60 days quickly and with a minimum of paperwork.

On 6 Aug. the Commission formalized the proposal by issuing a Notice of Proposed Rule Making in docket 92-167. The plan would include amateurs from countries with which the US has no reciprocal operating agreement, as well as amateurs from countries who have reciprocal agreements but who do not want to wait for a reciprocal license to be processed or who come to the US on short notice. VEs would handle the mechanics of the applications.

The FCC proposes to have VEs examine each foreign operator's amateur license and identification credentials, determine the applicant's home operating privileges, then administer a 20-question examination "on those aspects of our (US) rules that are most applicable to the type of operation in which the visitor plans to engage while in the United States."

The FCC suggests that the VEs could compile the 20-question examination from existing question pools maintained by VECs.

Upon passing the examination, the foreign applicant would receive a Certificate of Successful Completion of Examination (CSCE) which would serve as operating authority in the United States, according to the FCC.

The Foreign operator would be allowed one 60-consecutive-day operating period in the US at any time within 365 days of the issuance of the CSCE.

Comments on this NPRM are due by 26 October 1992; the deadline for Reply Comments is 30 November 1992. (*ARRL Letter* 8/10/92)

STA for spread spectrum

After almost a year of study, the FCC has licensed an innovative spread spectrum wide-area network (WAN) project called the Packet Radio Internet Extension (PRIE). Participating in the experiment are several engineers prominent in digital communications, including: Dewayne Hendricks, WA8DZP; Robert Buaas, K6KGS; Gwyn Reedy, W1BEL, of PacComm; congressional candidate Glenn Tenney, AA6ER; and Mike Chepponis, K3MC.

The licensees hope, through a later rulemaking petition, to persuade the FCC to expand the kinds of spread spectrum operations permitted in the Amateur Radio Service and to develop hardware designs that could be licensed to manufacturers in the amateur market. They will also develop applications for commercial and institutional customers under FCC Rules Part 5 (Experimental Radio Service) and Rule 15.247, which authorizes low power spread-spectrum operation on a nonlicensed basis.

The STA granted by the FCC permits the licensees to use spread spectrum codes and techniques that are not currently allowed under Part 97, and on frequencies not normally available for spread-spectrum use. The STA allows operation on 50-54, 144-148, 222-225, 420-450, 902-928, 1240-1300 and 2390-2450 MHz. (*W5YI Report* 8/15/92)

No-theory proposal

A proposal to establish a no-theory amateur license for operating privileges on all frequencies assigned to the Amateur Radio Service, leading to a no-code, no-theory license, was filed with the FCC on 2 June.

According to the FCCs Private Radio Bureau, the filing by Scott Leyshon, WA2EQF, of Chester, New Jersey, requests that the Commission establish a new class of Amateur Radio license that requires only a knowledge of Morse code at five words per minute as a parallel entry license to the now-popular no-code Technician Class. Such a license would have limited operating privileges on all amateur bands.

In addition, Leyshon is requesting an entire restructuring of the overall Amateur Radio Service that would eventually lead to the establishment of permit-type Amateur Radio operation through a code-free/theory-free amateur licensing scheme, and to "reassess and redefine the goals of the Amateur Radio Service."

At the annual VEC Conference in June, FCC staffers pointed out that a "no-code/no-theory" license would authorize "no privileges," to be consistent with the Communications Act.

Leyshon's request was denied by the Commission on 27 July 1992. A request for reconsideration is not expected.

Digital device RFI

In response to two petitions, the FCC has proposed to permit manufacturers of digital devices to demonstrate compliance with FCC or international RF emission standards. At present only FCC Part 15 standards apply. The Commission noted that many other countries (most notably the European Community countries) are in the process of requiring digital devices (such as computers) to comply with international radio interference standards. The objective is to ensure that US manufacturers have reasonable opportunities to compete fairly and effectively in the international marketplace. (*W5YI Report* 8/15/92)

SSB Signal Processing Link Plus Corp. of Columbia, Maryland, recently unveiled an Amateur Radio version of its powerful Link-Plus digital signal processing technology that eliminates most noise and interference from SSB

ice communications, thereby producg a significant boost in effective sigal strength. LPC calls its new amaur product the MULE (Multi-Use Link nhancer).

In 18 separate tests carried out over ree days over an 1,800-mile path nder a variety of transmission condions, Link-Plus processing produced n average 22dB improvement in HFSB signal-to-noise ratio. In layman's rms the unprocessed signal had, on verage, 160 times more noise content han the Link-Plus signal.

Its $2,995 price tag probably places he MULE beyond the immediate reach f most hams. It connects by external ables to any HF radio. (*W5YI Report*, /15/92)

HF packet

The following, excerpted from an arcle in *W5YI Report* for 1 Sept., is pparently the latest happening in this ngoing controversy.

We (*W5YI*) understand that a spontaeous meeting was called by the League uring the recent ARRL National Conention to address the ARRL HF Packt Special Temporary Authority (STA) ontroversy. The ARRL's STA, which as been in place for 5½ years, allowed a ertain number of amateurs to particiate in an experimental system of fully utomated stations.

The stations in the ARRL experiment settled on a 300 bps packet radio etwork linking packet bulletin board ystems and, over the years, have moved undreds of thousands of pieces of traffic. The ARRL STA participants have demonstrated that HF is a viable medium through which data can be successfully moved by fully automatic stations.

Backers of HF packet say they have proven that fully-automatic forwarding on HF can provide the packet community with a workable network for the delivery of messages and information throughout the entire world as well as providing connectivity between the various VHF/UHF networks across the country.

At the July 1992 ARRL board meeting, League directors voted to petition the FCC for semi-automatic forwarding. The League had told the FCC in January 1992 that the STA could not be renewed. All HF packet operation after 13 January 1993 will require local or remote control. Many—especially the hundred-plus packeteers the ARRL authorized under its STA—view the ARRL's plans regarding HF packet operations as a step backward for amateur packet radio. They say the change to semi-automatic forwarding will severely cripple the packet radio network. They believe participants in the STA should have been given a chance to present their findings and knowledge gained from operation under the STA to the ARRL and their digital committee.

The unscheduled meeting included several members of the ARRL digital committee, several key members of the ARRL HQ staff, and several HF packet STA members from the Southwestern Division. The purpose of the meeting was to seek, if possible, a solution more acceptable to the packet community than the current ARRL proposal for rule-making.

It was decided that the ARRL will sponsor a meeting between its digital committee and representatives of stations operating under the ARRL STA to hammer out an alternative. This meeting is to be held 26 September 1992 and will allow representation of HF packet STA members on a national level to present alternative solutions to those proposed by the digital committee. □

If a foreign amateur visits your area, do a picture story for WORLDRADIO.

Wildfire

(continued from page 1)

storage lockers and loaded on SAR vehicles. Also, the determination was being made as to which SAR vehicles would be deployed to the fire camp that was being set up at Valley of the Rogue Park along the Rogue River.

Wayne Clymer, W7TAH, was instructed to go with the SAR communications van, which would be our mobile EOC (emergency operations center), and set up 2M communica-

Frank McCrackin, WB6LMA, operates packet at fire camp net control station.

tions when it reached the fire camp. He volunteered to monitor through the night at that location. Bob Land, KG7KG, would meet him there to assist with antenna installation. Wayne monitored through many nights as net control. The job of net control would have been extremely difficult without him.

Since the only county-owned Amateur Radio equipment was the packet station in the mobile EOC and the antennas on top of the courthouse, ARES members supplied their own equipment. It was arranged that the next morning Jack Morse, WB7SZM, would set up packet communications in the EOC in the Medford Courthouse. Carl Robbins, WA7IHS, would establish HF at that location and Ray Hill, W6JMV, would handle the 2M link with the mobile EOC. It soon became apparent that the packet communications had been dismantled from the mobile EOC in preparation for an upgrade, so we would have to find compatible packet equipment for the mobile EOC.

Bob Peck, KA7DEF, the EC for Josephine County, offered his assistance. We determined that Frank McCrackin, WB6LMA, would be available with a complete portable packet setup. He would be at the fire camp first thing in the morning. He brought his YL, Sheilah, KB7NFY, who put in many hours keeping an accurate log.

On Tuesday morning ARES was requested to set up roadblocks and maintain communications at the entrance to the evacuated areas and was asked to man them on a 24-hour basis. ARES was also asked to have communications at the evacuation sites, Rogue River High School and Patrick Elementary School in Gold Hill, also to be manned 'round the clock. Schedules were hastily set up and volunteers were more than anxious to help.

Because of the layout of the communications console in the county communications van, it was found that we were disrupting the SAR communications. Their operator was unable to hear because of the amount of radio activity we were generating. It was determined that we would be more functional if we were able to utilize the ROARS (Rotary Amateur Radio) trailer that had been set up for use by ARES. Don McKay, WB7BPI, and Bob Butler, WB7RQG, quickly arranged to pick up the trailer and bring it to the fire camp. We were reestablished in the ROARS trailer at 11 a.m. with an Isopole antenna installed for the 2M operation. Packe was operating well on a J-pole.

Establishing a path for packet radi was not easy. The fire camp at Valle of the Rogue Park is situated in a lo

EC Judy Schrader, KA7OFM, with net control Wayne Clymer, W7TAH.

elevation and surrounded by 2-3,000 ft. hills. With determination Frank at the mobile EOC and Jack at the EOC in Medford worked it out. But it took four steps to get from one location to the other. We had been talking about establishing a node on Elk Mountain, and this seemed like a good time to test it.

The first priority after establishing communications appeared to be a functional scheduling system to handle all the many offers of assistance. As offers came in we noted the times the amateurs were available and asked them to check back. At 3 a.m. I was on my own personal computer setting up a schedule of four-hour shifts at all of the field stations; using *Word Perfect*'s tables function, it was a snap.

Knowing that we were going to be there for the "long haul," we were now able to schedule personnel days in advance and know exactly by looking at the schedule where there was a need. Everything ran a lot smoother in the mobile EOC after that.

On Tuesday we were also asked to handle security at the fire camp gate 'round the clock. This meant a need for considerable more manpower. I was concerned we could not handle it locally. I consulted with Lt. Van Sants, the incident commander, as to whether he would object to the use of non-ARES amateurs. He left the final decision to me, but stated that as long as I knew the amateur he was comfortable with that. Bob, KA7DEF, came to the rescue and offered to schedule both the evacuation site at Rogue River High School and the security at the

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fire camp gate. KA7MUY, Gary, volunteered assistance from Navy MARS and Ray Neves, WA6ZEL, the Douglas County EC, said they had people ready to move if we needed assistance. It was reassuring to know that there was backup.

Frank, WB6LMA, at the mobile EOC and Jack, WB7SZM, at the EOC handled many packet messages between Lt. Van Sants and Lt. Michaelson, Jackson County's emergency management officer. Both packet stations were manned from 8 a.m. until 8 p.m. for the duration of the emergency. As we had a shortage of available packet operators, Frank and Jack put in many long hours.

Wednesday was the day that every media person attempted to gain access into the restricted areas. Our instructions were that *no one* other than property owners with identification were allowed in without a forest service or police escort. At one point it was necessary to use my authority as EC and very firmly inform a media person, over the air, that there would be no exceptions. He had arranged for a homeowner to meet him at the roadblock with the expectation that the homeowner would escort him in. He consented to allow us to arrange for an escort for him.

The same type of restrictions applied for entry to the fire camp. All drivers and passengers of private vehicles were required to have identification and a specific purpose for being there. Our security people were exhausted after four hours on the fire camp gate in 100+ degree heat. A number of incidents at both the roadblocks and the fire camp gate were handled with professionalism and finesse.

Incident commander Van Sants (far right) stands with crew in front o communications trailer.

On Thursday, when things were falling into place and our activities were slowing down just a bit we decided to try to put the packet node on Elk Mountain. However, the node equipment taken from what Frank was using in the mobile EOC severely limited the function of the packet system there. Since we had already made arrangements with Bill, W7QMU, and Ted McNeal, KB7FMB, to transport the equipment to Elk Mountain, we had to come up with something else for the test. A quick phone call to my OM, Bill, and he was on his way home to pick up our portable digipeter. It is a laptop computer, a Baycom modem and a hand-held 2M radio. It is a nice neat package in a briefcase. Along with a collapsible J-pole antenna it works very well.

Within an hour they were on-site on Elk Mountain and proceeded with the test. It worked flawlessly. Messages on packet were now going between the EOC and the mobile EOC with a direct link to Elk Mountain. On a previous exercise between these two locations 45K of data had been transmitted the long route and had taken far too long.

Somehow we made it through the next two days and knew that when they closed down one and then the other of the evacuation sites we would soon be relieved of our duties. We shut down the fire camp net control station on Saturday morning at 11:23. All told, 58 amateurs had volunteered 948 hours of their time to assist the emergency management agencies of Jackson County. And once again, I was extremely proud to be associated with a group of unsung heroes. □

ARRL National, DX Forum

(continued from page 7)

eather was absolutely treacherous. erry said the best two days of the hole operation were the landing and ne departure. The antennas were do- ated by Cushcraft, with the equip- nent by Kenwood.

Over 40,000 contacts were made dur- ng this March/April 1992 DXpedition, vith Mas, JE3MAS, making some 2,000 of that number, including over ,000 contacts with the deserving Jap- nese DXers.

Terry's presentation was supported vith numerous slides. We could see vhere the vertical antenna more or less vas transformed into a "horizontal" an- enna due to those winds. The team nade use of some of the leftover lumber rom the past Argentine occupation, us- ng them to brace the tents from the winds. The materials literally saved the DXpedition. There is also a video cover- ng the DXpedition which will be edited and made available for purchase soon.

The weather required the team to operate with gloves, and to get around on the island one had to walk leaning into the wind. They eventually set up a station in the rescue hut that was built in the 1950s. The team was alone on the island for two weeks as the ship did not stay. The tents were not salvageable so they were burned along with the left- over gasoline. No Americans of record had ever landed on the island according to the British Admiralty.

ARRL Contest Forum

Bill Lunt, KR1R, contest manager for the past six years at Newington, explained the League's checking pro- gram, called *Cross—Version 4.3*, is used for checking entries for the various ARRL sponsored contests. Billy said that one of the most common entry errors is typing the letter "O" for "zero" and typing the letter "L" for "one." The present system in checking entries is that invalid calls and errors in exchange will mean a deletion of the contact.

On the submission of logs, Billy stat- ed that they prefer to receive the entry on disk rather than paper logs. Pres- ently, there are two people involved in contest log checking. Usually only the first 20 logs in each grouping are checked. They would really like to check them all. Billy reported some 16,000 logs for 16 contests are submitted each year.

Very few bad disks have been re- ceived. If the Contest Branch receives a disk that cannot be read they will ei- ther call on the telephone or write for a resubmission of another disk. Those who use the "post mode" in such pro- grams as *CT* should not delete dupli- cate contacts, as the duplicate con- tacts will so be indicated with zero points; the station duplicated may have copied the call wrong initially, result- ing in an invalid call.

Rick Samoian, WB6OKK, served on the DX panel.

Billy again stressed the submission of all entries on disk — even small logs of 100 contacts. However, it is not required. Of all the logs checked, most of the time is spent on those of the DX contests.

The Contest Branch will again offer "clean sweep coffee mugs" for the Sweep- stakes this season as they did last year. For the VHF contests they plan to issue pins to all entries who show a mini- mum of 25 contacts, an incentive for more to enter the VHF contests.

The Contest Branch will accept con- test entries via telephone modem and have been doing so for the past three years. The system is a 9600-baud mo- dem and is on 24 hours a day, seven days a week. The number is 203/665-0090.

The ARRL Forum

Saturday's many sessions were con- cluded with the ARRL Forum. Fried Heyn, WA6WZO, ARRL division direc- tor of the hosting Southwest Division, was introduced by Hugh Stegman, NV6H, who in turn recognized visiting ARRL officials that included officers, directors and vice-directors, section managers, and lessor officials.

Herb Berlier, K6PQ, was awarded a plaque for 60 years continuous mem-

bership in the ARRL, (Herb even joined the League prior to becoming a licensed radio amateur). Herb was offered the floor to outline the early days in how he was introduced to Amateur Radio.

Norm Lefcourt, W6IRT, president of 10-10 International, presented to Fried a plaque of recognition for all the work done by the ARRL/IARU during the past WARC.

Fried introduced George Wilson, W4OYI, the new president of the ARRL, who spoke to the group particularly about cleaning up the bands. George said, "The radio police are out of the station and on the street!" He also reported that unattended digital communications on HF will no longer be permitted. Special permission had been granted to 134 amateurs in 1986 creating a class of "super hams," a special privilege that was contrary to our government and the ARRL. The ARRL is for packet radio, but not the exclusion of other amateurs.

Roy Tucker, N6TK, suggested the ARRL make available a reprint of early issues of *QST* as earlier issues often sold for upwards of $100 each. This will seriously be considered.

Tom Geiger, W2KVA, and SM of the Santa Barbara Section, was concerned with electronic interference and increasing RFI problems. The head of the task force claimed they were not receiving any complaints. Regarding telephone interference, it was stated that the industry is aware of it and Amateur Radio is not the only cause; The FCC recommends repairing the telephones or requesting a refund.

Irma Weber, K6KCI, said that she was pleased to see the YL column reinstated into *QST*. It was noted that the YL contest is back by request.

Larry Crewell, KU9Q, said we need to get objective about the use of frequencies and Carl Service, WB6UNK, wished to know what plans Amateur Radio had for the Seismic Alarm System. There are no plans for the next five years.

Another amateur was concerned with the problems that amateurs have putting up beams. Jay Hollada W6EJJ, spoke on a Los Angeles ruli that anything over 45 feet in height w require a site plan and a hearing (u less signatures from immediate neig bors are collected). The ruling still nee to be signed by the mayor.

Ken Shaw, WA6EWY, wanted know why *QEX* material isn't includ in *QST*. The response was that not a ARRL members are concerned wi material of an extended technical n ture, and *QST* is intended to meet t interests of all ARRL members.

Dick Norton, N6AA, wanted to kno what television set to recommend neighbors that is less respondent TVI. It was suggested that *Consum Reports* be checked.

Fried Heyn, WA6WZO, closed t forum with the statement: "We a making progress—you are the Leagu We want to hear from you. You own it yourself to join the ARRL. You own it Amateur Radio."

Amateur Ambassador Award

Fred Prehn, WX9W, 1992 Amateur Ambassador

As communications coordinator for Dream Flight Wausau, Fred Prehn, WX9W, was instrumental in providing hundreds of students with a positive introduction to Amateur Radio. Because of Mr. Prehn's efforts, AEA presented him with the 1992 Amateur Ambassador Award at the August ARRL National convention in Los Angeles.

Dream Flight Wausau was an educational project centered around a simulated space shuttle mission. Approximately 750 students from all around Wausau, Wisconsin, schoool district participated in the project, and Amateur Radio was used extensively. Packet and amateur telecision (ATV) were integral in keeping everyone involved. ATV was also linked to a local cable TV station, and the six-day event was broadcast over the entire central Wisconsin area. An estimated 20,000 viewer watched the Dream Flight and had a ver positive exposure to Amateur Radio.

The Amateur Ambassador Award i presented each year to the person wh best meets the following three criteria dedication to Amateur Radio, positiv influence on those outside the Amateu Service, and initiation of special project or programs to promote Amateur Ra dio. The award includes a check fo $1,000 and a trip to the ARRL Nationa Convention. If you know of a ham wh meets these criteria, contact AEA fo more information.

YLs on their own

Women in Amateur Radio have continued to network with each other, spreading YL enthusiasm across the nation and around the world. In synch with this momentum is a new YL newsletter, *YL World*, published bimonthly by Maureen McClain, N5FFB, author of ***Worldradio***'s September Feature, "Field Day For the Gals"; Connie Dunn, KB5LES, *QST* YL News columnist; and Vikki Gigante-Hueber, KA3PVS, vice president of Goddard Space Center ARC, in charge of shuttle communications retransmissions. Contributing writers include Bob, NM7M, and Mary Lou, NM7N, Brown; Pat Gossard, N3KGY; and Carolyn Keydash, N3DON.

Articles cover everything from personal experiences, to YL news, to contesting information, to technical explanation. A perfect compliment to the YL news you enjoy in ***Worldradio***! For further information on this neat little newsletter write to YL World, P.O. Box 254, Sanger, TX 76266. □

PUBLIC SERVICE

Serving the Eye Net

The call goes out over the Amateur Radio band: "The victim of an accident in San Francisco has lost an eye and requires a transplant." Within a few minutes the airwaves will crackle again: "Providence, Rhode Island, has two corneas available."

The Eye Emergency Amateur Radio Network, a volunteer group of more than 100 amateurs covering the United States and other countries, is on the air determining the need for and the availability of human eyes for cornea transplants.

Organized on 20 December 1962 by Dr. Alson Braley of the University of Iowa in Iowa City, the net has been the ears for making over 12,000 connections between donors and corneal transplant patients. Its success is attributed to the Amateur Radio operators who judiciously meet at 4:30 p.m. PST/PDT each day on 7.294 MHz to exchange information on where eyes are needed for corneal transplants and where eyes, if any, are available.

"We connect this eye bank with that eye bank," Braley said. "We make the contact and the various eye banks work out the details. The eye bank contacts its local volunteer if it needs or has an available eye or eyes. Several SARA members provide the vital link for northern California and southern Oregon. In Modesto, Larry Niema, N6FMW; Lynn Windus, KB6DXX and Bill Peitz, W6AFS are members of the net. In Roseburg, Oregon, Dick, N6MOK, provides the vital link to that part of the state.

It was the frustration of Braley, an ophthalmologist and dedicated ham radio operator, at not being able to locate corneas for patients who needed transplants that led to the creation of the net. Braley was named to head the University's eye department in 1950, a position he held for 17 years. "When I first started, we didn't have an eye bank. We got one started with the help of the Lions Club, but one of the problems was that when you had an emergency, you didn't always have an e available. "I thought of setting up teletype operation between eye bank but that looked like it was going to an expensive thing," said Braley.

So Braley, a ham operator since t age of 15, decided to put together a n work of fellow hams in cities where e banks were located. Just before Chris mas 25 years ago, 15 operators fro seven cities checked in on the net f the first time. The first contact w made a short time later when a Chica eye bank shipped an eye to Oklahon City. "A child had received a ve severe burn to the cornea," Brale recalled. "And a blind amateur ope ator in Oklahoma City decided to che in because he had heard us on the net

Neima, a 21-year veteran of the ai waves, said the network handles onl emergency cases, some of which are th result of burns or accidents. "The mo common cause is when an ulcer of th cornea breaks," said Braley. The viru that causes cold sores can cause infe tions and ruptures of the corne "Then, it's a matter of minutes o hours before a patient's sight is lost, he said. Larry works closely with th Modesto Lions Club in California an coordinates the local relationship be tween the hams and their eye program —*Stanislaus ARA* □

Blue plate special

MIKE FLAHERTY, WA6UBW

While leaving the Bayshore Freeway at my usual offramp, I noticed a California highway patrolman pull in behind my late model car. My driving had been careful and legal so I figured he was either after someone else or planning to have dinner at a popular coffee shop adjacent to the freeway.

He followed me off the freeway and immediately hit the red light. Moments later the officer stood at the right-side door. "That old (black and yellow) license plate doesn't belong to this car! May I see your registration and driver's license, please?"

When handing the officer the requested documents I stated that the plate was issued to me years ago as an Amateur Radio operator and it moved from car to car like a personalized plate. "You'll find that out if you run a '28 and 29' (registration check and wants-and-warrants)." In fact, that plate was issued about three weeks before the California DMV changed from black and yellow to blue and gold license plates.

Some five minutes later the patrolman returned from his cruiser following an extensive conversation with his dispatcher. "Well, we learn something new every day!" was his reply as he handed back my paperwork. A relatively new officer, he was unaware that amateur call plates existed, or why.

Amateur Radio operators must be easily recognized by law enforcement personnel when responding to an emergency callout. The number of recent disasters makes this a good time to contact police, fire, sheriff, and similar agencies to ensure they will both recognize and honor the identification your group uses.

For some, attempting to reach the disaster scene may turn out to be a futile experience. Regardless of how many kilowatt rigs or portables a ham may have in the mobile, a lack of identification recognized by the law enforcement person at the roadblock can and will sideline the response. An old adage says that on a cold night the only way to get through roadblocks is t pass out hot coffee to the officers!

Don't count on an officer recognizing your emblem or ham license plate unless he or she saw it during a briefing or read a notice posted in the ready room. With so many variations in cal signs, officers no longer recognize ham call plates as easily as when they began with prefixes like W6, K6, WA6, o WB6 (California).

Time spent before the onset of a disaster is time that will never be available during a disaster. Becoming part of disaster plans for law enforcement agencies, medical response agencies, American Red Cross, Salvation Army, and other agencies means a recognized place in a disaster operation rather than one on the sideline.

Check with the emergency coordinator of your club now to find out what arrangements exist between it and local agencies responsible for coordinating disaster responses. If none exist, bring up the issue to the club's board of directors. Recommend that the club take action to affiliate with the appropriate agencies.

It's too late to plan ahead when the earth shakes or water rises or flames spread; by then you've lost the race against the unknown of disasters. □

Computer hangup syndrome

ALTER BARTLETT, A1WSX

Here is a question for all those who ve been thinking about getting in- lved in packet but have not yet taken e plunge. What has made you sitate about operating this mode? xpense and lack of room in the shack r additional equipment are, of course, couple legitimate answers. However, r and away my rather unscientific rvey indicates that the real reason is e computer hangup sydrome.

What is it about the computer that me amateurs find so intimidating? I ink the largest single obstacle is the ental one. It is the effort required to hange the unfamiliar into the familiar. his is upsetting to a comfortable men- l status quo. So what should one do help overcome this mental barrier? ere are some simple suggestions that hould stimulate your interest and otivate you to action.

First, talk to someone already involved. Your club likely has many members who use computers. Club members are a good resource for your initial questioning. Second, plan to visit a shack where you know the computer has been integrated into the station operation. These two initial steps should help take some of the mystery out of computer operation and demonstrate how useful a computer can be in the shack.

Don't worry if what you have heard and observed so far seems somewhat cryptic and complex. After a visit or two you will be aware of just what it takes in hardware, software and reference material to start your involvement. You will also get a good idea of the cost. If you stick with only the need-to-have items then the cost can be modest. However, when you begin to get into the would-be-nice-to-have category then the cost will increase accordingly.

Let's say that you have made the commitment. What are the rewards? If your shack is fairly typical then you have both HF and VHF capability and your operations have been mostly on voice. However, with the addition of the computer and associated hardware, your amateur horizons will suddenly broaden. In addition to VHF packet you will have capabilities on HF packet, AMTOR, RTTY and CW, all from your computer keyboard. And there's more!

The computer should not become a piece of hardware dedicated only to the shack. It is also a fine asset for the home. You will have available for your use the three primary functions of the home computer: database, spreadsheet and word processing, plus an almost unlimited number of specialty items.

So to all you fence sitters suffering from the computer hangup sydrome, give it a try! It won't cost a dime to look and ask questions.

—*Sierra Nevada ARS*

GERATOL Net

BETTY COLLINS, KC9V

The group operating on the GERATOL Net is often mistaken to e a group of older amateurs. This is ot the case. Net participants include mateurs of all ages, both OMs and YLs from all states and the Canadian rovinces. The name "GERATOL" is, ctually, an acronym: Greetings Extra Radio Amateurs Tired of Operating Lately.

The purpose of the GERATOL Net s to assist the US Extra Class amateurs, and other operators whose privileges allow them the use of the Extra Class portion of the 75M American phone band, in obtaining the ARRL, two-letter Extra Class SSB, WAS Award. Every US amateur who participates in the net must hold a valid Extra Class license. The number on the ARRL certificate will be known as the GERATOL number.

It is also the purpose of the net to aid those operators on the completion of the Canadian 2/80 Award, which is offered by the Metro Amateur Radio Club. The GERATOL Net is not a DX net; for the purpose of the net, Canada is not considered DX.

The GERATOL Net meets every night at 0100Z on or about 3.767MHz, depending on QRM, and continues to operate until all hours before closing. Closing time depends on the band conditions and check-ins.

We are inviting all Extra Class amateurs and our Canadian friends to join us and enjoy the net, along with the endorsements offered, if you wish to obtain them.

If anyone wishes to obtain all of the information on the net, awards, and endorsements, send a #10 SASE with two units of postage to W0YTZ, and he will be glad to put everything in the mail to you. The starting date for this fall is 1 October 1992.

Here's hoping to meet many old and new friends on the GERATOL Net this fall! □

Ham radio and more

Ham Radio and More is an Arizona area radio show dedicated to Amateur Radio topics. Hosted weekly by Len Winkler, KB7LPW, on KFNN AM1510, the two-hour show features listener call-ins, a ham trivia contest each week for prizes, local and national QSTs, and a weekly special guest.

The show has covered almost every topic in Amateur Radio including lasers, EME, 2M/440, packet, AMTOR, RFI problems, antenna restriction problems, how to make your own antenna, and transmitter hunting. A swap segment is also featured weekly.

Tune in on Sundays from 12 to 2 p.m., Phoenix time. Calls may be made to the show, toll free: 800/293-KFNN.

Madame Butterfly
(conclusion)

We paused in this story with the Madame Butterfly *stranded on Molasses Reef, steadily rocking against a large coral head.*

Leo looked haggard and frightened as he entered the wheelhouse.

"I recognized your boat as you approached. You are a mighty welcome sight," he began. He told us all, as we gathered in the wheelhouse, how he had decided to visit us at West Caicos this trip after all. It had been so awfully rough during the night while crossing from Haiti, which tired him out completely. His friend was not a sailor and provided him with no relief. At the point in time when he could no longer remain awake to struggle with the wheel, he chose to lower the main and under jib alone, with the wheel lashed down, ease slowly northward as he slept.

"It was the breakers that woke me," he said. He described the next minutes of being pounded across that reef in gruesome detail. Under my breath I said, "There is something about this reef . . ." I then asked him about the condition of his vessel.

"I think she is gone, Sonny. Her rudder has been snapped off, and that coral head has smashed a hole in her port side, just below the water line at the galley bulkhead. I can't get to the spot from the inside to patch it. When the tide returns, she will probably break apart," Leo sadly related the facts. He continued, "I have no insurance, no money and the only thing in the world I have is the *Madame Butterfly.*"

I looked at Leo. I looked at his wreck. The tide would begin to flood in about an hour.

Before I could answer, Leo added, "I know that you can salvage her and take her. What can I do to save my boat? I have sailed completely around the world only to wreck 600 miles from my home." Leo looked like he would sacrifice himself to save his sailboat.

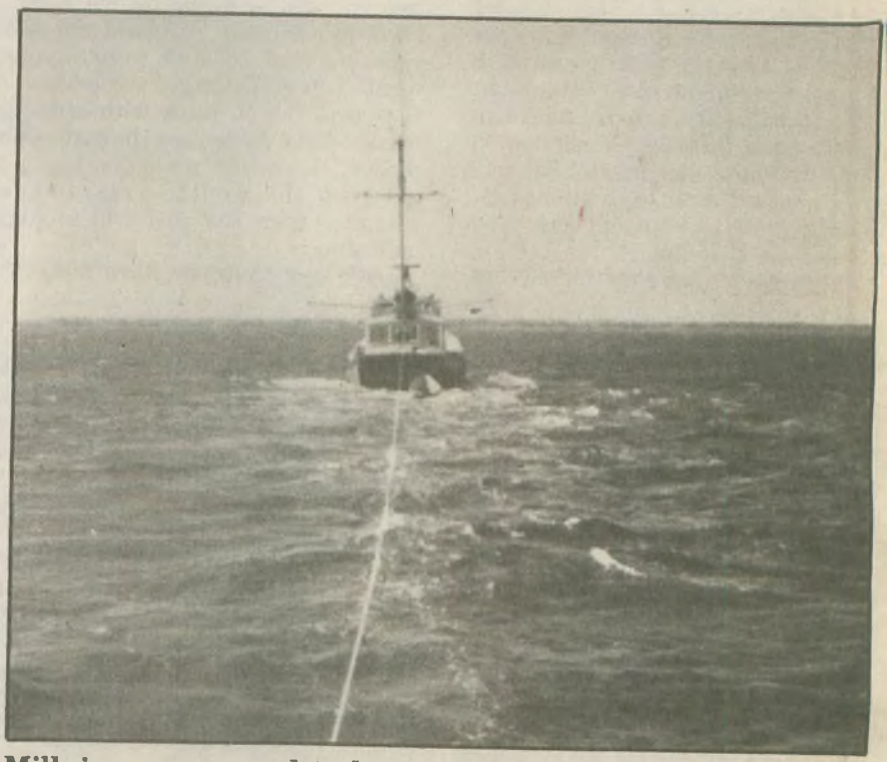
"I think we can save her, Leo. If we do, there will be no charge." What else could we do?

The wheelhouse of the *Final Victory* now became a war room—war against the sea. The sea usually wins, I knew, but somehow I had to defeat Molasses Reef. I explained to Leo how normally we would try to pull her off the reef the same way she came on. However, with the denseness of the coral heads and large size of the breakers, she would probably only survive long enough to come off the reef and sink in deep water. She would certainly take a tremendous beating penetrating the surf line. Leo could visualize that.

My plan was to pull her forward the rest of the way across the reef and into the reef lagoon. Leo pointed to the profusion of coral heads along the 600 o feet to deep water, and stated that if boat was dragged into one of them, would be further holed.

"True," I answered. I then explain that there are two very importa things a rescue tug must carry: inn tubes for lifting and floating, a gallon milk jugs for buoying and ma ing. This was a job for milk jugs.

We completed our plan for w against Molasses Reef, gathered all the milk jugs we had, along with le weights and string. We made two tri



Milk jugs were used to buoy a zig-zag channel through the coral heads, and *Final Victory* was able to tow the *Madame Butterfly* through the reef opening.

in the dory with supplies, Leo, Scot and myself to the wreck. She was lying still now at nearly low tide. Leo's friend was still waiting for his cab. Upon close inspection, I found the hole to be more crushed than ripped open. If no more damage was done, one gasoline powered pump should stay ahead of the flow of water. The rudder was definitely gone. Our job now was to buoy a zig-zag channel through the forest of coral heads to the deep water in the lagoon. We used all of our jugs and completed the job.

That was when the Coast Guard helicopter arrived and lowered the drum containing their pump, gas and hoses. The 'copter crew was excellent, completing a safe drop in only minutes. We waved as they left to return to Puerto Rico minus one pump—"Pump-Dewatering" it said on the drum. It

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started right up and "de-water" it did. Next we rowed back 1,000 feet of 2½ in. Dacron towline and attached it to *Madame Butterfly's* windlass (Armstrong) with chafing gear.

While we waited for the returning tide to begin to lift the wreck, I went inside and down below. The only electronic gadget I could find onboard was the ham radio, located in the main cabin. It looked lonely all by itself. Leo said that he knew lots of sailors voyaging with only ham radios onboard. That was when I decided I had better become an Amateur Radio operator.

The boat began to lift and bounce. The tide was coming. I instructed Leo, his friend and Scott how to push the bow around, while standing on a coral head, towards the next set of milk-jug buoys. Once they had her aimed, I would then pull with the tug and drag her to the point where our crews would push her bow to the new heading. Over and over we pulled until she came free of the reef.

I left them there and returned alone with the dory to *Final Victory*. Judy and I started the main engine and lifted our anchor. We had no radio communications (even with a wheelhouse full of radios), so simple hand signals would have to suffice. *Final Victory* worked her way around to line up with *Madame Butterfly's* bow, and then the Rolls Royce main engine gradually increased its power. The wreck was moving easily. I had no way to determine how far she was moving. When the crew waved their arms, I brought the engine to idle and eased into neutral gear. As *Madame Butterfly's* bow swung around, *Final Victory* came around to the new heading until she slipped smoothly into the lagoon.

Judy and I shortened the towline until we were within hailing distance. Leo hollered that she never touched another coral head, and that the pump was keeping up with the inflow of water from the crushed hull. Our crews were safely aboard Leo's boat, so with 200 feet of towline payed out, *Final Victory* towed *Madame Butterfly* faster than she had ever gone before—through the narrow cut in Molasses Reef, up Clear Sand R and back to Sapodilla Bay on Provi ciales. Judy had not wasted her tim the tug while we were at the wreck. arranged for a bulldozer to meet u the bay to drag *Madame Butterfly* onto the soft sand beach for repair

That is exactly what we did. O high and dry, Leo patched his dama hull with Marine-Tex epoxy and t fabricated a crude facsimile of a rud out of wire mesh and epoxy. It wa week later when the bulldozer ge pushed her into Sapodilla Bay. T Leo and his friend sailed her success ly back to Fort Lauderdale.

I remember that it was about weeks later, upon returning to P videnciales from West Caicos Haiti, that we had two pieces of m waiting for us. The first letter c tained my very first Amateur Ra license, VP5SI. The second letter w from Leo. it contained some pictures the *Madame Butterfly's* rescue tak by Leo's friend and a note that sa "Long live the crew of the *Final V tory*, gentlemen of the sea."

Health effects of RF radiation

KAREN BLISARD, M.D.,
N5IMW

There has been a lot of talk recently about the health effects of radio frequency radiation and whether amateurs are susceptible to increased rates of cancer. Our understanding of this area is somewhat scanty, but I will try to briefly summarize the current knowledge and make some recommendations.

There are two kinds of radiation: ionizing radiation and non-ionizing radiation. Ionizing radiation includes high energy electro-magnetic waves (x-rays, gamma rays) and particles. These can interact with tissues of the body and cause severe cellular damage. Their interactions can result in the generation of highly reactive chemical species. These effects are well-described. Whole body radiation causes acute damage to blood forming tissues, the gastrointestinal tract, and the nervous system. Chronic (long-term) exposure can result in carcinogenesis.

Non-ionizing radiation includes RF radiation (300 kHz - 300 MHz), microwaves (300 MHz - 300 GHz), infrared, visible, and ultraviolet light. The biological effects of this form of energy are not very clear. Most available information concerns microwaves, where most of the biological effects result from the production of heat.

At this point let me stress the importance of animal studies in developing experimental model systems in which hypotheses can be tested. Although animal model systems may not be perfect, they often allow us to make predictions about possible effects in humans. The experimental literature on effects of RF radiation in experimental systems is vast. However, many of the results are difficult to interpret for several reasons. These include differences in experimental design (including dosage used), method of application, and differences in species used. Also, just because a biologic effect is observed it does not mean the effect is a toxic one.

Most of the effects of RF radiation on whole animals are due to heatin These effects can include increas rate of birth defects and fetal loss, co vulsions and changes in the brain, i mune system effects, and a variety neuro-endocrine changes. Most these effects occur at high doses of R radiation, based on specific absorpti rates (SAR), and are probably due heating or stress resulting from rap heating. One study showed that mi treated with RF radiation develope leukemia, but most people now co sider this study invalid. The only a parent real change not due to heatin is cataract formation, which is no specific.

Effects that have been described i humans include functional symptom (fatigue, headache, difficulty sleeping these results have come from studie conducted in Eastern Europe. Such e fects, even if real, are difficult t quantitate.

In American studies, functiona symptoms are rare. There has been a increased incidence of cataracts i

ung male radar workers, which is obably a real symptom. However, ere is a difficulty in determining use and effect because of dosage and stance considerations (it is important to remember that RF energy falls f rapidly with distance). The current ceptable exposure standards are as llows: United States 10mW/cm² (10 Hz - 100GHz) unlimited time; oland 1mW/cm²; Bell Labs 1mW/ m²; USSR .01mW/cm².

What do these numbers mean? The merican value comes out to 10W per quare meter. For a normal-sized man, he surface area is about three square eters; so this comes out to 30W pecific absorption rate. By comarison, a broadcast tower putting out 05kW of radiated power with an ntenna 24 meters off the ground is stimated to have a power density of .8W per square meter. Therefore, hese standards indicate an enormous mount of energy.

Amateur transmissions are intermittent and more time is spent listening than transmitting. *The ARRL Handbook* makes the following suggestions:

1. Make sure your equipment is well grounded.
2. Keep the transmitting portion of your antenna where people cannot get to it.
3. Keep your HT antenna away from your face when transmitting.
4. Never look directly down a VHF or UHF waveguide when it is energized.

The Handbook concludes that an antenna on a tower poses no significant problems.

Some studies published in medical journals have purported to demonstrate a relationship between RF radiation and disease. One study showed a higher rate of "heart disease" in physical therapists who use microwave diathermy. This study is suspect for several reasons: "Heart disease" is not defined, and the study was based on answers to a mail survey.

Another study tried to show an increased risk of leukemia in radio amateurs. The two articles were written by Samuel Milham, using the Washington state data base. He compared deaths in Washington and California radio amateurs to the normal population using FCC records and death certificate data. He examined data for males only and calculated the standardized mortality ratio (SMR) for a number of causes of death. He claimed to show an increased number of deaths due to cancer of lymph glands in radio amateurs (SMR of 160). However, his data showed a significantly decreased number of deaths from pancreatic cancer (SMR of 64), circulatory disease (SMR of 70), respiratory disease (SMR of 50), and accidents (SMR of 64).

If interpreted literally, Amateur Radio protects you from death due to these causes (except those of you who fall off your towers). There are many problems with this study. The choice of population studied was biased (males only). Factors such as occupational exposure and operating habits were not controlled. The numbers were very small. And finally, data based only on death certificates is highly unreliable.

The biggest problem with this study is that the standard mortality rates are very low. By comparison, the SMR for cigarette smoking is 1,000 to 2,500. Cigarette smoking increases the overall risk of death by 10 to 25-fold!

In conclusion, although more research needs to be done, the biologic effects of RF radiation are likely to be small. More importantly, if you want to increase your total lifespan (and therefore your time as a radio amateur) and improve the lives of others around you, stop *smoking*, don't stop transmitting!—*Allen County Amateur Radio Technical Society, Ft. Wayne, IN* □

The voice of Kalawao County

ANN SHAVER, AH6KY

"To tell you the truth, I'm not even a county hunter," laughed Richard LaChance, AH6IO. "I just made a commitment to operate from Kalawao County at least twice a year. I know this means a lot to some people, and I'm glad to be able to help them out. Besides, we always have a lot of fun when we go over there." With characteristic understatement, LaChance glossed over the difficulties, logistics, and expenses involved in activating Kalawao County and, instead, concentrated on the fun parts.

"It's great going over there. When we get set up, we have terrific operating conditions—no buildings or powerlines to obstruct us and lots of salt water to help carry our signals," he continued.

LaChance, a Honolulu resident, has made about 10 trips to Kalawao County in six years. Sometimes others go with him; occasionally he's the solo operator. This year's fall trip, scheduled for 13-15 November promises to be a very special special event station as well as another great opportunity for county hunters.

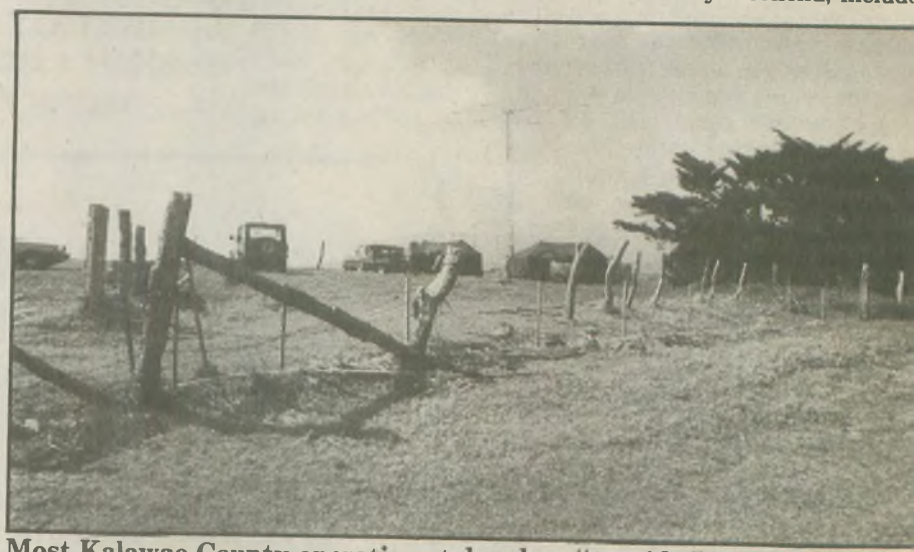
To understand what will be so special and to appreciate more fully what "going over there" entails, one needs to know a little about the rugged geography and the inspiring history of Kalawao County.

Kalawao County

Kalawao County is located on the northern edge of Molokai, one of the smallest and least populated of the six major Hawaiian Islands. The county consists of the "topside," a narrow strip of land just above a sheer pali (Hawaiian for "cliff"), and a sea-level peninsula. This pali, a 2,000 ft. vertical wall of lava, is the site of the well-known Molokai mule ride.

At the foot of the trail is Kalapapa, a tiny community located on the dramatically beautiful Makanalua Peninsula. It was here Father Damien came in 1873 to work with Hansen's Disease (formerly known as leprosy) patients and to establish organization, justice and compassion within their community. Eventually Father D mien himself contracted the the incurable disease. With a populati today of less than 100, all of whom a either patients or staff at the hospit there are no licensed hams in Kalaw County. (The rest of the island Molokai lies in Maui County, ar there are several amateurs livi there.)

The July 1991 trip, conducted ov the Fourth of July weekend, include



Most Kalawao County operations take place "topside," on a sheep ranch overlooking Makanalua Peninsula.

about a dozen hams from Oahu a well as several Molokai residents. A it turned out, almost everyone in volved in this particular operatio happened to be an Army MARS member, though this was not a MARS function.

LaChance and Chuck Burch AH6IN, brought most of the radio gear with them when they flew over from Honolulu. "Sometimes it's a real hassle," Burch remarked. "When we checked in at the airline counter, they suddenly decided our antennas were too long for the aircraft. We had to change our flight plans and fork over more money in a hurry!"

Field Day plus

Up until now, the site used has been on a sheep ranch, at the top of the cliff, overlooking the Kalapapa settlement. The area is accessible only by four-wheel drive vehicle; needless to say, no commercial power—or anything else other than sheep by-products—is readily available. This makes activating Kalawao County like a Field Day extraordinaire.

The antenna farm erected in July 1991 included a Mosley tribander, a Cushcraft R5, a G5RV dipole, and a VHF array for satellite work. "It always takes some doing to get the antennas set up and properly tuned, but when we do we're rewarded im-

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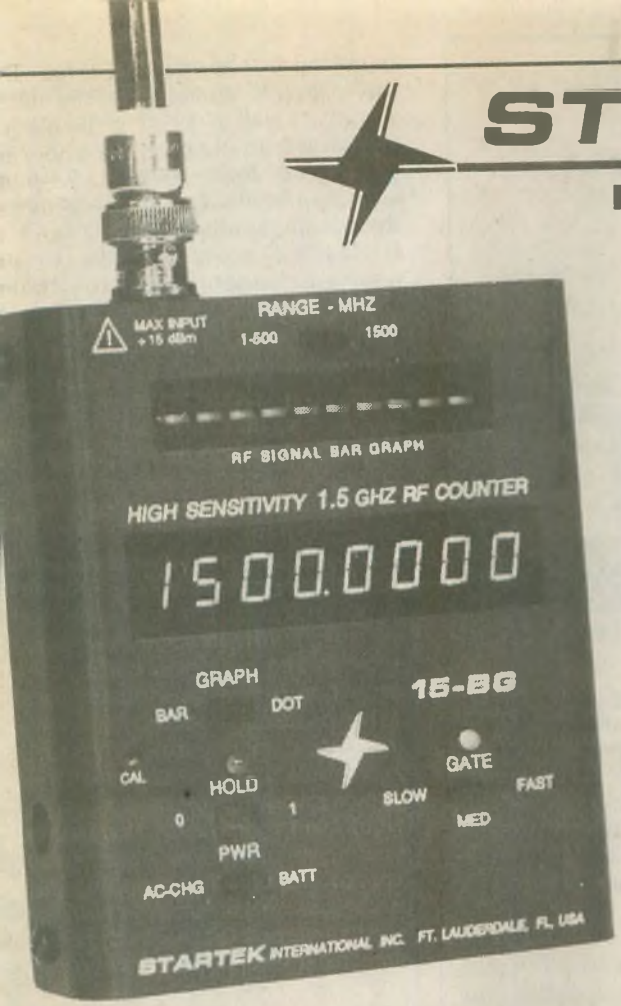

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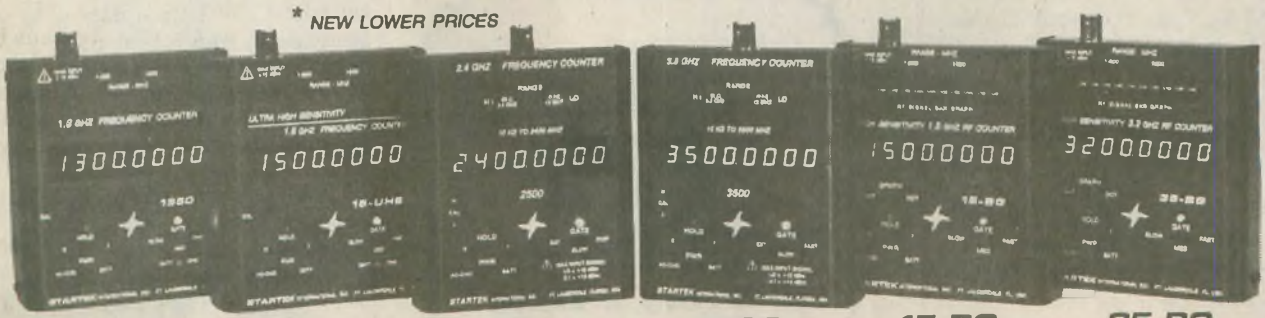

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The July '91 antenna farm included a VHF satellite array and a Cushcraft R5.

mediately. County hunters are out there waiting for us and they're always ready to respond when we put out our first CQs," elaborated Burch. "One guy even tried the old fly-your-antenna-on-a-kite trick. The theory's great," Burch chuckled, "but the results weren't impressive."

Like Field Day, it takes a lot of planning to be sure that most of the essential "incidentals" such as food, beverages, fuel, bedding, paper, pencils and the like are available. Sonny Gaspar, KH6CHL, served as chief cook and bottle-washer (literally) in the July 1991 outing. Gaspar, a long-time Molokai resident, laughed when he said, "I didn't plan it this way. It's just that they like the way I fix Spam." Sherman Napoleon, WH6CBP, and Jim Koch, NH6YH, made countless trips between the site and their homes, ferrying supplies and people. Subsequently they have organized the Kalawao County Amateur Radio Club to support future activities.

Nonetheless, LaChance has operated solo twice recently. "When it turned out that others were unable to go to Kalawao County, I figured there was no reason I shouldn't take my rig, go on over, rent a heavy-duty vehicle, and operate mobile," he explained. Just remember, AH6IO is given to gross understatement!

Kalapapa Operations

The November 1992 Kalawao County outing will be different from any the others. Planned as a special ev station as well as a rare-county acti tion, Koch and Gaspar have obtain permission from various state a federal officials for a group to oper from Kalapapa itself, home to the Hansen's Disease patients. In ad tion to the usual logistical conside tions, they had to convince t authorities to allow the visitors to main overnight. Although the disea has been arrested since the 1940s a is no longer considered contagiou Health Department officials rarely visitors spend more than a few hou at Kalapapa. This is partly because

Pat Guerin, NH6UY, worked SS after successfully connecting wit OSCAR.

the difficulty of bringing supplies t the peninsula.

The peninsula was selected in 1866 because of its inaccessibility, as th place to isolate those suffering fro the dreaded disease. As mentioned the land-side of the peninsula is sheer wall of lava. The waters sur rounding the four-square-mile spit o land are so rough that barges can ca only during the summer months Major infusions of every imaginabl supply arrive twice a year by water Everything else, especially perish

les such as fruit and vegetables, ıst be flown in on small aircraft, lan- ıg on an undulating runway.

r. Kalawao County

"I'm sure looking forward to going ›wn there. Recently on a flight to olokai I sat next to a patient," ex- ained LaChance. "I told him why I as making the trip, and he got really terested. I'm hoping while we're ere we can interest some of the sidents in Amateur Radio. It would e a wonderful hobby for them." That eam is not unrealistic; the Kalawao ounty ARC has organized a W5YI E testing team and has indicated its ıgerness to hold a testing session at alapapa.

"No doubt about it," agreed Al haver, AH6KX, who participated in ıe July 1991 group. "This will be a istoric weekend for Amateur Radio

nd a very meaningful one for those of s lucky enough to go to Kalapapa. ll the members of the Kalawao Coun- y Club deserve a lot of credit for all ıey have done, but I'd have to say ichard deserves the title, 'Mr. Kalawao County.' "

The Makanalua Peninsula, 2,000 feet below the operation site.

Listen for the station in both the CW and voice bands. After you work it, be sure to send for a commemorative QSL card. QSL via Richard LaChance, AH6IO, 263 Kaiulani Ave., 10-A, Honolulu, HI 96815. □

Dear Professor Sterba . . .

OAK STOCKTON, KØROL

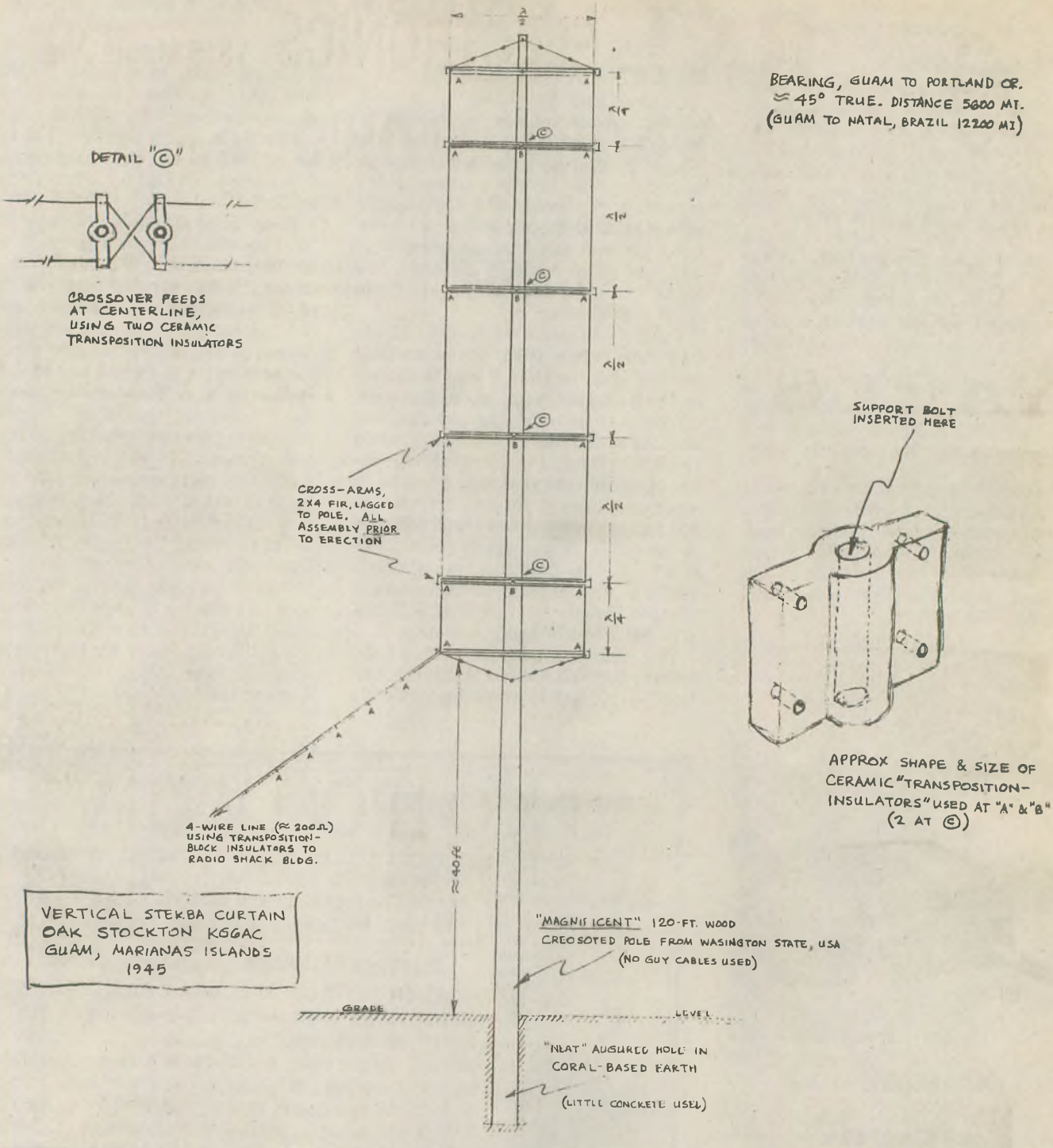
Having just purchased (and read cover-to-cover) your book, *Aerials*, I feel I know you better than before. You have stirred in me a desire to relate to yours and Lil Paddle's philosophies regarding skyhooks. The nostalgia is almost overwhelming at times. I have been continuously licensed since 1936 and have held some 18 different call signs, but who hasn't? At least the QCWA paid attention!

I will try to relate my favorite "Sterba" story, circa 1945, if you are still reading this. In 1944, I was stationed on the island of Guam, in the Marianas. Of course, ham radio was curtailed, but not the ambitions of the many hams there. The final surrender of the Japanese occurred that year, and many of us were scrounging to get airborne as soon as the official word was released to transmit. I was ready with "tandem" BC-610 transmitters at about 900W on 28.520 MHz, amplitude-modulated! Receivers included SX-28s, AR-88s, FM-27s and panadaptors.

The antenna concept was pretty bizarre for those days. A Sterba curtain for 10M that would be vertically polarized, fixed *in azimuth* for Portland, Oregon, where my new (of two years) wife lived, awaiting her port call to join me in Guam. She finally did join me in 1946 on the first ship carrying dependents and had her 21st birthday on Guam!

Back to the antenna, Professor Sterba! The entire array was prefabricated on the ground, using a magnificent 120 ft. wood pole imported from the state of Washington! I used prime-grade fir "toobafours" for the crossarms, lagged to that marvelous pole. Painted the crossarms GI white and installed several of the "four-wire transposed-line" ceramic insulators. Threaded #14-Ga copperclad wire thru them for the "curtain." It was an exciting day when the earth auger and the crane came to install the finished antenna. It was rotated in its 12 ft. hole to aim its beam to Portland, Oregon, then backfilled with some concrete.

When the hams were given permission to transmit (I have forgotten the exact date) this station was ready! The sunspots cooperated for many months of third-party traffic and this station became famous . . . first on the air dai-



ly, last to leave!

The launch angle was close to ideal for stateside contacts northwest and southeast of the US. During off-hours, the antenna would enable us to work Natal, Brazil almost on a daily basis, 12,200 statute miles! A few QSOs with Florida the long way around, also! The station was first put on the air as W9WUG/KB6, then I received my modification (the first issued on Guam) as KG6AC. XYL arrived and operated the station for many months as "always cheerful."

I have taken the liberty of enclosing a sketch of this antenna array, which bears your esteemed name. Where can a private party get a 120 ft. wood pole to be installed within a mobile home park? No need to detail the theory or the success of this array, since you wrote the book! I had to abandon the antenna about a year later when transferred to Japan for "occupation duty." My first son was born in Nagoya, Japan in early 1948. Several tours later, my daughter was also born in Japan. Four kids and six grandkids later, I'm still an avid ham and experimenter! HF, VHF, UHF, ATV and packet, each needing antennas of some sort, but nothing will be as dear as my Sterba curtain! □

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Anticosti Island activated

RODGER PHILLIPS, KJ8M

This is an account of a mini-DXpedition to Anticosti Island, Quebec (IOTA NA-77), taken the first week in April, 1991.

Joe, K8JP, and I have been chasing DX for quite a few years and had always wanted to be on the other end of the pileup. But, like most DXers, money was always the great stumbling block. We discovered a way to fulfill that wish, on a smaller scale, with the IOTA (Islands on the Air) program.

I wondered about the curious look on my wife's face as Joe, K8JP, and I drove away from my QTH. Then I realized how strange this whole trip sounded. We were going to drive 24 hours to catch a small plane for a 35-minute ride to an island in the Gulf of St. Lawrence. We would set up our rigs and operate our socks off for a week, then hop back on that same plane for the ride back to the same car, and drive 24 hours straight over the same route. Who says hams don't know how to have a good time?!

At the risk of alienating the already small group of friends I have, I must take the full responsibility for hatching this scheme. Unfortunately, I expressed my wishes to Joe, who saw immediately that this was a project that we *must* undertake. Joe and I have been friends for about 25 years, and I should have known better.

The reason for the trip was to activate Anticosti Island, number two on the list of most wanted islands worldwide. Who, you ask, does the "wanting"? A dedicated group of guys chasing the Islands on the Air Award. This award has been very popular in Europe for years and is gaining here in the States.

The purpose of the award is to work and confirm as many islands and island groups in the world as possible. If you have been DXing for any length of time, you probably already have the required minimum of 100 islands. The islands are listed in the IOTA directory by continent, along with the IOTA number assigned to each. Anticosti is NA-77.

Anticosti Island is located in t Gulf of St. Lawrence and is populat by about 275 people living in t village of Port Menier. The island about 140 miles long and 35 miles wid Port Menier is at the north end of t island, with the rest a wilderness su porting vast deer herds. During hun ing season, the island's populatio swells to around 3,000. This is wh supports most of the islanders. The are several outfitters based on th island, and it is one of the premier dee hunting areas in North America.

Originally we had planned on fou operators. K5MK and another loca WA8SAE, had to drop out because o work conflicts. That left "Mutt an Jeff" to ham it up from the island.

After a few months of planning (thi is the period when both our wives wer seen shaking their heads slowly), Jo showed up at my door with his Blaze fully equipped with HF/VHF mobil gear, ready for *the big trip*. The follow ing morning we left, happily mobiling our way to Montreal, where we hel down VE2DWH's family room floo for the night. By the end of the nex day, we had arrived at Sept Isle (VE2 from which we would fly to Anticost the next morning.

Arriving at the airport, the lady a the baggage check took one look at the scales piled with our luggage and broke out in laughter. "This is only a smal plane, sir," were the words that came between chuckles. We had been told by phone that we would each be allowed two pieces of luggage, plus one carry-on, and each piece of luggage could weigh up to 70 pounds. With about 20 minutes before departure, she informed us that it was 70 pounds *per person*. My apologies to the innocent folks at the Sept Isle airport who were exposed to the sight of two grown men on the floor flinging socks and underwear about to try to reorganize the luggage.

Fortunately, the pilot (who evidently loves a challenge) got them to put all our stuff on the plane, and away we went. Joe does not particularly care to fly, so of course they put him in the co-pilot's seat. Joe did control himself admirably and didn't touch any of the dials or switches, not a small feat for any seasoned ham.

Upon our arrival at Port Menier on the island, we were taken by pickup truck to the only hotel, where we were the only guests. We were asked what time we would like breakfast, lunch,

l dinner. Seems the cook had to ne in to work just to fix our meals. e only person who spoke English at hotel was Anne, and we waited with ed breath every morning until she owed up!

We decided to set up the stations st, so we proceeded to reorganize the niture in the room to make it look e a ham shack. As we were setting , we stuck a piece of wire in the tenna terminal of one of the trans- vers and listened on 14.260 to some alians. One of them had called the air- rt at Sept Isle to see if we had left on hedule! It sounded like we would be ry popular once we got going.

We finally got on the air as K8JP/ A2 and KJ8M/VA2, starting up on M SSB. After two days of solar ares, things started to pick up. We orked over 3,100 stations in 101 coun- ies by the time we shut down. We ied to hit most of the popular nets on M and just plain worked hard at it. fter a couple of days, we rented a 22 . piece of pipe from one of the locals to et the low end of our G5RV up to a espectable height. I've got to admit, ne folks at the hotel were very patient ith all our outside projects, even nough they didn't quite understand ur motives.

During the week we were on the sland, I'm sure I saw many of the local olks (there are only 275) shaking their eads in much the same manner as our ives. I guess bewilderment knows no nternational boundaries. By the time ve left, we had been interviewed on the ocal (10W) FM station, visited the ther bar converted from a chicken oop, watched an underwater video aken of a shipwreck off the island, and n general had a great time both on and ff the air.

We packed up all our stuff on Mon- day morning, trying to remember just ow everything had fit into the suit- cases back home. One of the offshoots of this trip is that we evidently dis- covered a new law of physics, some- thing about compressing matter into a Samsonite container. We (or I should say "*I*") were concerned about being allowed to take all the gear back, what with the weight restrictions, etc. But that proved to be no problem, as there was only one other passenger going back to the mainland. She was an elder- ly lady who seemed to shake her head slowly. Hmmm.

Being the alert fellows that we are, we noticed our pilot and co-pilot didn't look a day over 14 years old. This didn't concern us too much, until we also noticed the sky, or lack of it. It was a low, solid overcast. Once airborne for the 35-minute flight to the mainland, we began to wonder what was going on after 50 minutes had past, especially since the pilot kept tapping the fuel gauges and both of them were looking out the windows in all directions, pretending to enjoy the view of the top of the overcast.

When they did find the airport, they turned around in their seats to see what all the cheering was about. Joe and I quickly regained our composure and enjoyed the last few minutes of the flight.

At the airport we set up the HF mobile again and worked an A22 sta- tion on 10M SSB. We started home, me driving and Joe giving out Zone 2 until we passed out of Zone 2. Ask Joe about trying to operate mobile CW while Barney "KJ8M" Oldfield drove through the mountains. He'll assume the same head shaking mannerism of our wives.

There are many, many islands that are within range and very accessible to US amateurs. Many guys go to places that count for IOTA without even realizing it. For example, the islands off the coast of North and South Carolina, Massachusettes, etc. One doesn't have to sell the kids to finance such trips, just take the rig along on vacation. □

Paddles and toys

JOHN MARTINSON, WB2WXN

It seems we keep coming back to this same issue. Is Morse code dead? I now have the answer for certain. Morse code is not dead. How do I know? Well, it can't be. It can't be dead or no one would dare try to sell a paddle for $394.95. Now that doesn't include the keyer. Just the paddle. That does include your call engraved in ⅜ in. lettering. And of course that includes contacts made of sterling silver, gold and rhodium; a base made of brass; four R2HHRA1P25LY48 pivot bearings; all plated with chrome; and shipping! It is called the Mercury Paddle and is available from Steve S. Nurkiewicz in Port Charlotte, Florida. I wonder if NASA knows about this. They could get a few of them for the hams on the space shuttle.

A few years ago I saw the Kent paddle at the Dayton Hamvention and thought it was too much money. Well made and very expensive. I kept going back to the Kent booth to admire it. I kept thinking, what would the XYL think if I plunked down a wad on this extravagance? I just couldn't bring myself to spend the money. I looked long and hard at it again this year. Still couldn't part with the money but came away thinking maybe it wasn't so expensive! (I think the Kent keys have come down in price. I believe the Kent paddle sold for just over $70 this year at Dayton . . . and they have also sold out!)

Then there is the Iambic Lite. This is a paddle and electronic keyer in one unit. No moving parts; the paddles are touch sensitive using capacitive coupling. I spent a few moments at the QSO Software booth trying this one out. It's only $149.95 which is not bad for an all-you-need-for-code gizmo. It looks like some kind of bathroom fixture, however—sort of like one of those expensive tub faucets. This keyer weighs in at three pounds and is made of solid brass. It does 3 to 50+ wpm and includes the Curtis 8044-ABM Morse integrated circuit. Well worth a look.

Anyone who is serious about Morse code knows about the Grand Master Keyer from MFJ, a nice keyer, to be sure. If you buy your equipment in dollars per knob, you won't go wrong with this one. There are a whole bunch of knobs . . . and buttons too. But it bothered me that the buttons are on the front panel rather than on top. Imagine being in a contest or Field Day and pushing one of these buttons in earnest, only to have the keyer go sliding off the back of the table! It's not a heavy box and though I've never used one in a contest, it seems to me that this would happen unless of course you used both hands, and who has an extra hand when you're in the middle of a pileup? I think I just heard my friend Larry say, "What does he know about pileups?"

All right, so I can just barely squeak by at 20 wpm . . . but I've found my dream keyer. The Memory Keyer f AEA. There are two knobs: one volume, and one for speed. What you do with only two knobs? Well, much. There is also a keypad (o bunch of buttons in a matrix, y choice) which does everything e And they are all on top! So when y push a button, the unit won't go flyi Let's not go into the spec sheet deta Suffice it to say that this keyer d everything a keyer should, and v well. But it does more. You can c verse with it. Yes, you can sit ri down and have a QSO with this thi And it is spooky!

My wife was driving the other d whilst I was riding shotgun, playi with my new gadget. It requires a 1 supply to make it work, and the v provided me with my first availal source. Now here I am reading the structions while conversing with r wife as she drives, trying to ignc Rock 102 blasting on the radio whil balance the key, keyer and instructio on my lap. I read that there is "trainer" mode. I needed training s set the box to said mode. It says in t manual that if you call CQ the key will respond. This sounded like fun. S CQ DE WB2WXN WB2WXN K.

As I was in the middle of explainin to my wife that I was just experimen ing with the trainer mode and turnin the radio down a bit I heard . . WB2WXN WB2WXN WB2WXN D N4ZZO N4ZZO N4ZZO (calls ar selected randomly) K. . . Now liste Don't get me wrong. I've backed up few when it comes to computers and knew that this was nothing more tha a rather simple device and all that. M brain was telling me, "It's just game." But my gut (the same one tha tightens up every time I sit down wit a key in my hand) was telling me "HEY! YOU! There is a guy respond ing to your CQ! Don't just sit there Answer him! What? Are you some kin of a lid or something?"

I started crashing through the glov box looking for a pencil. Patty though I'd lost it altogether as I yelled out "Turn down the radio! I've got to ge his call!" Getting a grip I finally re sponded to the caller with only a few mistakes and managed to do a few Rs and a few dahdidididah's and then finally my name and QTH, and signed it over to him. Gee, I should have sent his RST. So now what?

(please turn to page 39)

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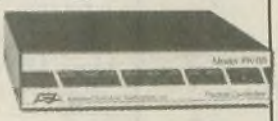

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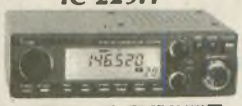

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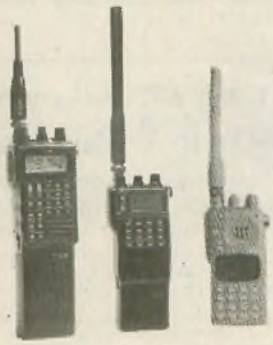

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The chickenbander

ROBERT SLACK W9DLN

The problem of supporting the ends of a wire antenna has plagued hams from the Marconi era to the present. Many ways of getting the support over a tree limb have been tried, including slingshots, a weight tied to a rope and slung cowboy style, bow and arrows, etc. The most popular seems to be a combination of a bow and special arrows of some kind. A common complaint is that although the arrows go up okay, dragging a monofilament fishing line with them, they have a distressing tendency to remain out of reach in the tree instead of threading their way down to the ground. After the leaves fall, many a ham has found his support trees festooned with arrows swinging in the breeze.

In contemplating this problem recently, the thought came to me—why not use something that would climb the tree for me? Using a squirrel, at first glance, seemed to be a possibility, but trapping proved to be difficult, and squirrels seem to get panicky when turned loose with lines tied to their tails. I then tried the family cat, but he did not want to go to the top, and subsequently refused to come down. The local volunteer fire department had to be called to rescue him. I considered asking them to string up my antenna since they had ladders at hand, but they seemed rather surly for some reason so I did not broach the subject.

I then got a flash of inspriation and began to work with chickens—Leghorns, to be exact. For you city folks, chickens come in brands, like Leghorns, Rhode Island Reds, etc., something similar to automobiles—Buick, Chevy, Plymouth, etc. I chose Leghorns because they are the racehorses of the chicken world, you might say. Compared to other birds chickens are lousy flyers— in fact, most of them can't fly at all, but compared to other chickens Leghorns are the creme de la creme. I have seen Leghorns fly to the top of a 75 ft. tree and roost for the night, descending only when they sighted the feed being put out.

So, in true scientific fashion, I set out to train a Leghorn to carry a line up and over a tree, and then come home to papa on the ground. With Pavlov's dog as an example, using a shotgun lightly loaded with rock salt, I soon had a gun-shy chicken. Chickens are not very smart—stupid as a matter of fact—but it doesn't take much intelligence to associate the sight of a shotgun, plus the loud noise it makes when shot, with a burning sensation in the tail feathers. Before long, the sight and sound of the shotgun being fired were enough to inspire in him an urgent desire to be elsewhere. With a great deal of squawking and commotion, he took flight.

Since I had him tethered with a monofilament fishing line and rod I could more or less steer him in his flig up. He soon learned which way he cou go, and I had a trained chicken. I learned so well, as a matter of fact, th I calibrated him according to t height I wanted him to go. A .410, f instance, is good for a 35 ft. tree heigh A 20 guage for 50 feet, 12 guage for feet, and with a double barrel 12 gua fired simultaneously you have a brok collar bone and the chicken is out sight.

If you have aimed the chicken co rectly, he will fly up and over the lim you have selected. Most chickens a right-winged (no political pun inten ed), so you tie the line to his right foo Taking the wind into account, aim hi a little to the left side. As he ascends, h will drift to the right and go over th selected limb. You then uncover a pa of chicken feed. Since chickens hav very poor memories, he has forgotte the shotgun and realizes he is hungry Down he comes and there you are wit your line nicely strung where you wan it. Be careful that you stay out fro under the line of flight. The traum often causes some intestinal distress i the chicken, and you will soon be awar that Mother Nature has provided hi with her version of a jet assiste takeoff. Remember, the line of flight i also the line of fire.

A word of caution: If you by som chance get a *left* winged chicken, h may fly up the wrong side of the limb twisting the antenna and triggering inverse reactive current. This will ad versely affect your unilateral phas detractor, resulting in an exaggerate Lake Erie swing in your CW signal The only cure is to reverse the wires i your keyer paddle, bug, or straight key, and learn to send with your left foot. You will find plenty of hams with this particular skill on the 40 and 20M bands. For SSB, simply switch to reverse sideband, turn your head-phones around and conduct your QSOs in Pig Latin.

This project has possibilities that boggle the mind. I am currently toying with the idea of the use of massive doses of steroids, and teaming up several chickens to raise a triband beam. And how about a quad, or a loop, or a Sterba curtain, etc. Can't you just see that curtain 200 feet in the air for Field Day? It gives me the willies just thinking about it! □

Which way did they go?
How many of them were there?
How fast were they going?
I MUST find them!
I am their LEADER
—GARS

pecial——Events...

mfest Minnesota

ne Southwest Metro Amateur Radio Trans-ing Society will operate W0AA on 31 Oct. the St. Paul Civic Center during Hamfest nesota and Computer Expo.

peration will be in the lower 25 MHz of the eral Class portion of 20 and 15M bands and 10M Novice band from 7:30 a.m. to 3 p.m. or a special event station Hamfest Minneso-SL, mail a #10 SASE to W0AA, P.O. Box 53, kins, MN 55343.

elaware DXpedition

The Warminster ARC will operate WA3DFU/ 1 Nov. for their fourth annual DXpedition Delaware.

Operation will be on 7.275, 14.275, 21.375 28.375 MHz. CW contacts will be made on uest.

QSL with SASE to Warminster ARC, Box 3, Warminster, PA 18974.

oyal Gorge

The Royal Gorge ARC will operate NC0A on Nov. from Royal Gorge Bridge, the world's ghest suspension bridge.

Operation will be in the lower 30 kHz of the neral 20 and 15M subbands and the Novice rtion of the 10M band.

For certificate, send QSL and 9 X 12 SASE to NC0A, Chuck Ward, 1011 Harrison Ave., Canon City, CO 81212.

Rickenbacker rescue

Hawaii Army MARS will operate WH6R on 7 Nov. from the Army MARS station at Schofield Barracks and selected other sites on Oahu and the neighbor islands to commemorate the 50th anniversary of the rescue of WWI ace Capt. Eddie Rickenbacker.

Operation will be in the lower portion of the General and Novice subbands for 24 hours starting at 1900 UTC.

For a commemorative QSL, send your card and an SASE to Joe Hao, WH6F, 3251 Pakanu St., Honolulu, HI 96822.

UDT-Seal Museam

The Fort Pierce ARC will operate KN4RY on 14 Nov. to commemorate the 7th anniversary of the UDT-Seal Museum.

Operation will be in the General portion of 40, 20 and 15M, and the Novice portion of the 10M band from 1400Z to 2100Z.

For a certificate, send QSL and #10 SASE to Fort Pierce ARC, P.O. Box 4, Fort Pierce, FL 34954.

Colony of British Columbia

The Fraser Valley ARA will operate VF7L 19-22 Nov. from Fort Langley, British Columbia, to commemorate the 134th anniversary of the proclamation read by James Douglas, creating the colony of British Columbia.

Operation will be in the General portions of the 20, 15 and 10M bands from 1700Z to 2300Z over the four days.

For special 8 1/2 X 11 certificate mailed from Fort Langley and cancelled with a special Douglas Day postmark, send US$1 to Fraser Valley ARA, Box 50, Fort Langley, BC V0X 1J0. QSL cards will be issued through the various QSL bureaus.

Thanksgiving Commemoration

The Whitman ARC will operate WA1NPO 28-29 Nov. from Plimoth Plantation, Plymouth, MA.

Operation will be on 3.970, 7.270, 14.270, 18.140, 21.370, 24.970 and 28.370 from 1400Z to 2100Z each day.

For special QSL, send an SASE to Whitman ARC, Box 48, Whitman, MA 02382. An 8 1/2 X 11 certificate is also available from the club.

YOU WOULDN'T HAPPEN TO HAVE A FEW EXTRA AA DRY CELLS ON YOU?

Toy battery packs

I recently discovered in my local WalMart store a solution to a battery problem. I have a Santec ST-144. The battery pack consists of eight NiCds held together with shrink-wrap. The first time the battery pack went out I broke the pack and replaced individual NiCds. This worked for a while but I found myself going back every few months and replacing another battery. I grew tired of this piecemeal approach and broke down and soldered eight new NiCds, and this solution worked for years.

Last month my old battery pack started to give me problems again. I was on the verge of the piecemeal solution again when I passed the toy section of my local WalMart. There on the shelf was a 9.6V rechargeable NiCd battery pack identical to the one that came with my Santec. The cost was a little more than the individual NiCds but about half the cost of the factory replacement version. I didn't mind paying for the fact that I didn't have to wrap those NiCds and make them fit into the small space provided by Santec in the back of the radio.

The pack is item #1296 made by Nikko America, Inc. (3801 Summit, Plano, TX 75074). It is designed to be used with toy remote controlled cars. The only modification I had to make was to cut the connector on the pack and replace it with the Santec connector from my old pack.

The pack is guaranteed for a year, but I bet cutting the connector will void that warranty. The package states it can be used for up to 1,000 recharges.

DENNIS E. WYMAN, KB4DCE
Highland Springs, VA □

Understanding the history

Using Q-signals on phone isn't what makes a guy a lid—poor operating is. Q-signals on phone come from the old days when there was lots of homebrew, and not much store-bought "appliances," especially phone rigs. Hams served long apprenticeships on C before graduating to phone, a techn step up. Naturally they continued use CW Q-signals from force of ha Time passes and this custom contin and is copied by newcomers. You f very proficient operators on phone ing Q-signals.

Here are some lids I've heard CW, I don't use phone because of vo problems): An operator tunes up several minutes, sends Vs, tunes so more, then sends "QRL?" I won what he was expecting. Another sends "QRL?" and I answer, "C T (meaning yes, thank you); he con back with "??" and I have to spel out; the dumb cluck doesn't und stand that any kind of response mea the frequency is busy! Another one new on a keyer and sends "QRL?" o and over, making mistakes, until finally gets it all right! My QSOs shot by these QRLers.

In the old days we used to test t frequency with a short, snappy dididi If the frequency was occupied we hea a "C," and that was that. The wh thing would take only a second or tw When I came back on the air after very long absence and heard a lo drawn out "QRL?" on CW I thought was a lid, but found it had become co mon practice! I tried using that o dididit, and on a few occasions I g back "?," so I knew it was busy, b other times I got no response a QRMed a QSO, so I gave it up. Now days hams would say *I* was the lid f sending dididit instead of "QRL?".

If we knew more of the history ham radio and how we got where we a now, there would be more understan ing and less criticism.

TED CHERNIN, KH6GI
Honolulu, HI

Patty's back

Well, Patty's back, poison pen or no Seems like it's been a long time. I' ready to put in my two cent's wort again. All my good, bad and ugl thoughts are piling up; my head hurt

I hate to be repetitious, but the Me ico thing is really bugging me again. is easier to find the Secretaria de Co municaciones in Mexicali or Tijuan but the price has gone up. A license t operate is now over $60. It's good fo six months, but that's a pretty stee price for a two-week vacation. I need t know the meaning of reciprocal. Do w charge Mexican amateurs to operate i this country?

On to another subject. I find myse categorizing amateurs; it sure takes a kinds. We have our regular old fellow who sit and call CQ and exchang

veather, antenna, signal reports and ig information. They sometimes get nto a meaningful conversation and ind many things in common.

We have contesters and county unters whom I sort of lump together, ut if it makes them happy, so be it. Come to think of it, I haven't heard nuch in the way of contests lately. Hurray! Not many DX pileups either. Could be I'm not listening as much as I used to.

The list of nets is inexhaustible. Everything from traffic, swaps, campers, old war buddies, missionaries, oldtimers, youngsters and on, and on.

We have our technical hams. Some are really interested and helpful when I have a problem, but with some I don't have the foggiest notion what they are talking about. That's probably my problem.

Then there are the "personalities." These are the frustrated commentators, disc jockeys, talk show hosts and those who just *have* to be heard. Most probably couldn't talk without a mike in hand. Some are good and funny. Some are obnoxious. They have their own ideas of right and wrong and are likely responsible for much of the jamming. Don't even try to disagree with them.

Now down to the nitty gritty; those are the low-lifes on 40M and some on 20. The first batch has little or no intelligence. Their comments consist of four letter words, disgusting noises, and they usually identify with someone else's call. Then there are the deviates with explicit language who get their jollies by intimidating others.

I wish I could offer a solution to these problems, but I can't. Our court system is so antiquated, I'm sure the FCC is trying, but the end results take a long time—too long.

These offenders have freedom of speech, but what about my freedom? No one should be subjected to this garbage on amateur or commercial radio or TV. Yes, I could turn it off, but it is still out there dirtying up the airwaves. Go ahead and write to your politicians or the FCC but don't expect any fast action. I would gladly pay a license fee every year if we could clean up Amateur Radio.

For those of you who might recognize yourselves in the last few paragraphs, I would like to say, "Get some help." There are so many good things to be doing. Try counseling or AA, but quit blowing your minds on Amateur Radio, or it will be taken away from all of us.

Next on my headache list: manufacturers of Amateur Radio equipment. You're crazy if you think I'm going to pay three, four, five or six thousand dollars for a new transceiver. I could, but I won't. There are too many other things in life for me to indulge that much in my hobby. No one needs that many bells, whistles, switches and buttons. I'm sure the quality is compromised with all that stuffed into one box. What is all this about speech processors? All I hear is "turn off the processor!"

The only one I've seen or would consider buying is the ICOM 725. The OM and I are mobile a lot. When we are home I have the SB 220 to plug in when I need it. The manufacturers should remember that the majority of hams are over 50. Some are on a limited income and others are saving for doctor bills or helping the kids out. In the meantime, I'll baby my TR7 until there is not a whimper left.

Our city of Torrance is doing well with disaster preparedness. All three high schools and five libraries are equipped with 2M antennas with coax and volunteers with radios for each location. The police department has a complete station for all bands and packet and can communicate with surrounding cities. Several commercial businesses, including Hughes Aircraft, Honda and Allied Signal have stations at the ready.

We have a net that meets regularly. All the high schools have plans in the works for shelter, child care, and communications for damage reports and critical situations. Hopefully we won't have to make use of it, but if we do we'll be ready.

My very best to *Worldradio*. This publication is the only one with a correspondence section that puts in some controversy. I'm sure the others wouldn't print one of my letters. Thanks for reading. My headache is better already!

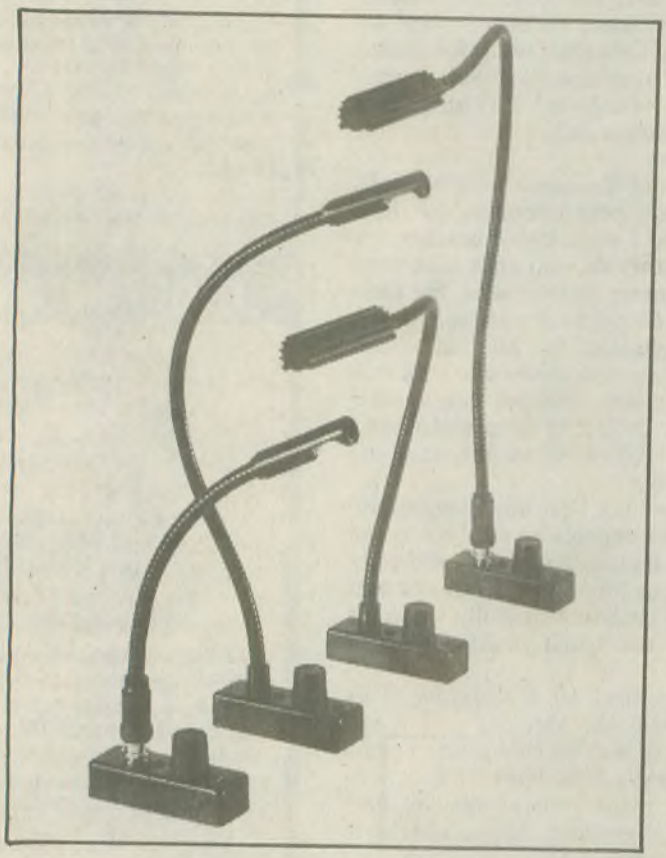
PATTY SMITH, WB6DRG
Torrance, CA □

Product Review

Great little light

RICHARD ARLAND, K7YHA

Every so often a product comes along that *really* fills a need for the Amateur Radio operator. Such is the case with the Littlite product line. Thousands of police, fire, ambulance/EMS and public safety personnel are intimately familiar with the Littlite series of portable high and low-intensity lights. However, few radio amateurs have encountered their products.



The Littlite/CAE company makes a wide range of portable lighting components that are at home in the shack, in the mobile or at the emergency operating location. Their lighting products work on 110VAC as well as 12VDC, making them tremendously flexible. For emergency portable applications their meager 250mA to 380mA current consumption offers variable lighting at reasonable power demands. These portable lighting units come in a wide variety of configurations featuring both high intensity (Q-5, 12V, 380mA, 5W tungsten-halogen) and low intensity (1815, 12V 230mA, 2.4W incandescent) bulb assemblies. A multitude of mounting hardware ensures that the Littlite can be attached to almost anything.

The basic unit consists of a small base unit (about 3 × 1 inches) that has a built-in dimmer/on/off switch that controls the intensity of the lamp. Attached to this is a flexible "goo neck" (available in various lengt from six to 18 inches) with either a hi or low-intensity bulb and hood asse bly on the opposite end. The bulb is pa tially encased in a rotatable hood th keeps the light concentrated wherev you want it. Various accessory filte are available to assure good night v sion (red or blue) or produce whatev lighting effect you desire.

The lamp assembly can be secure permanently to any surface usin double-sided tape, wood screws #4-40 machine screws. There is an o tional weighted base unit that affix to the lamp to provide portable stabi ty. I made my own using a piece machined aluminum stock about fou inches square and 3/8 inch thick. Th aluminum base was machined down t eliminate rough edges and drilled to a cept two #4-40 machine screws. Rub ber feet (from Radio Shack) were ap plied to the aluminum base. My mode L-3/12 (high-intensity) Littlite now ha a nice looking, skid-proof, weighte stand that will support the light in th van, at a Field Day or emergency site or in the shack.

I routinely use my Littlite on th nightstand when I want to read an not disturb my wife late at night. Th intensity control on the base allows m to precisely control the amount of ligh while the rotatable hood allows me t direct the light exactly where I need it Adding the red filter keeps the ligh pollution down to a bare minimun while allowing me to read.

The Littlite made it out on severa camping trips this year and provided much needed illumination during the night watch. In addition, my unit ac companies me when we take long trips in the van or car, providing a con venient map-reading light for the navigator.

Since the cord terminates in a pair of spade lugs, which, in turn, are screwed onto a wall-block transformer for use on 110VAC, it was a simple matter to cut the cord and affix a set of ARES connectors. This allows me to use the 110VAC adaptor in the shack or on business trips while offering the flexibility of interconnecting the Littlite to any of my 12VDC power sources during an emergency or Field Day. The addition of a cigarette lighter plug with the proper ARES connector on the opposite end offers the convenience of plugging the Littlite into any vehicle that has a cigarette lighter. This greatly enhances the flexibility of the unit.

The Littlite/CAE, Inc. products are quality, made-in-America units that will really enhance the radio amateur's emergency kit. In addition, the lighting units can be depended upon to pro-

le the necessary illumination in a riety of applications outside the ılm of emergency communications. ttlite/CAE offers a host of optional cessories for their products that will eatly enhance their usefulness. The company also offers many different variants of their lights for a wide variety of applications. If you are an active radio amateur, especially if you are involved with ARES or RACES, you ought to investigate the Littlite product line and see these versatile lights in action. For further information, availability and pricing contact Ms. Sharon Suffolk, Littlite/CAE, Inc., P.O. Box 430, Hamburg, MI 48139; 313/231-9373. □

nnova DC Power Pack

OBERT GODLEWSKI, A4SBE

The Innova DC Power Pack is one of ose things that catches your eye hile you're walking through the autootive section of your local departent or discount store. I was looking r something that I could use to power ıe portable TV and VCR for the kids the backseat and help shorten those vo-hour drives to Portland.

That ham operator gene makes you ink. The most obvious use of the DC ower pack is to keep that HT on the r longer for less than a "normal" iCd pack. It will also keep your obile rig on the air from nowhere for while. Powering a TNC, radio and ortable computer with this battery is lso possible, so it has plenty of Field)ay applications.

Specifications:

- Maintenance free, sealed lead-acid attery, 12VDC, 6.5A/hr.
- Output is negative ground cigaette lighter receptacle with a 10 amp lade fuse
- Recharging time one to three ours in the car with engine running; ight to 10 hours with optional AC charger (12VDC, 1A); eight to 10 hours with optional solar panel.
- The battery is overcharge circuit protected, weighs 6.8 lbs., with dimensions 7.25 × 3.24 × 10 inches.

Bells, whistles and things that go bump

- There are three LEDs on this uncomplicated piece of equipment: green—the battery is charged to at least 60 percent and it's ready; yellow—battery recharging, LED goes off when charged; red—constant on means "Charge me!" while flashing on indicates, "You blew the fuse."
- The battery can stay on the charger at all times without damaging the circuits so that extra power supply you have can be used to charge the system. Just go to your local parts store, get a cigarette lighter plug receptacle, observe polarity and you're in business.

This battery pack is a great work horse. HT carrying cases can be easily attached and since the battery comes with a shoulder strap, an extension mike is all that's needed to get you on the air for a long time. The application guide with the battery pack says a VHF 2W radio will last 36 hours in the stand-by mode. My IC-2A was well over 48 hours and still going after transmitting about an hour of the time on high power (approximately 2W with the DC-1 adaptor).

The price of the DC Power Pack is around $50. It is made by Innova Electronics Corporation, 17291 Mount Herrmann St., Fountain Valley, CA 92708. It comes with a one-year warranty. □

Paddles

(continued from page 32)

He. came back, FB JOHN SOLID COPY . . . NAME IS CARL. RST 589 589.

I just was not ready for this . . . my call, my name and even a good signal report. I was actually sweating! The minutes passed with me doing the best I could at copying 25 wpm (that's where I had it set from the last experiment). He told me what kind of rig he had, what kind of antenna, his QTH, the weather, and his job! And while this was going on, my wife parked the car and brought me to reality with, "Are you coming John?"

What was I going to do now? I just couldn't leave the guy hanging! I'll shut it off, I thought. No. I can't do that to another ham. I'll just let the box sit here on my seat. Maybe he will think my antenna blew down. I'll try to explain the next time I hear him on the air, I told myself. I suppose I could send him a QSL card . . . —*Northern Chautauqua ARC Static Sheet* □

Ronnie S. Vician, K9OCE

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.

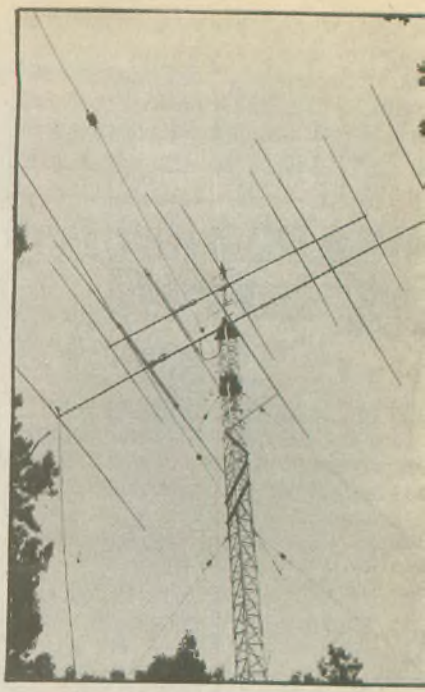
Station WØYVA, Bob Sullivan, is showcased this month.

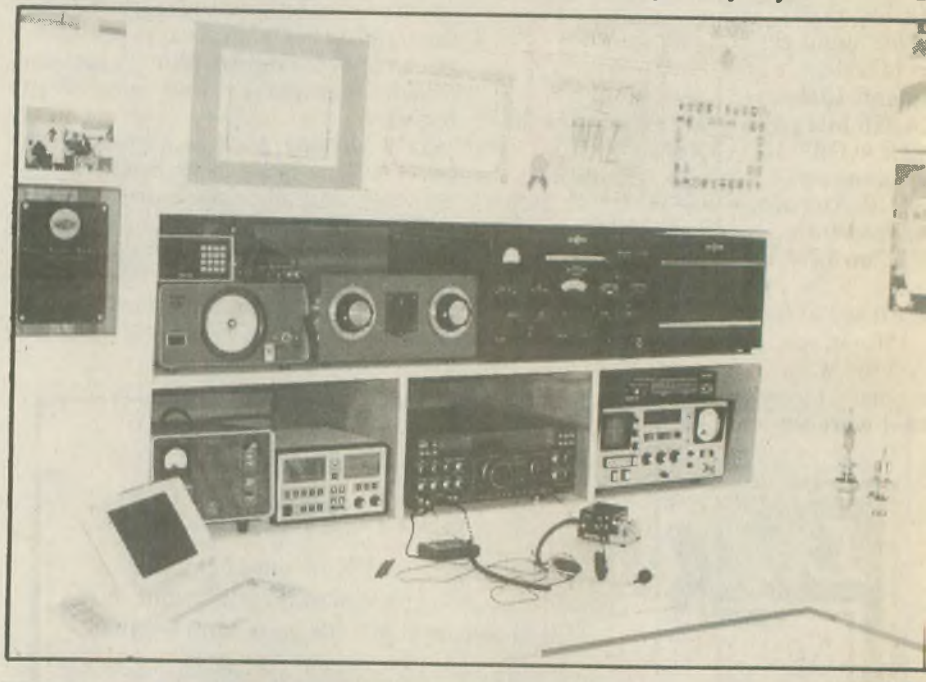
My station is built into one wall of my library which allows full access from the back (through a door not shown) for maintenance. Equipment on bottom shelf (left to right) is a Collins 312B4, control head for Advanced Radio Devices legal-limit computer controlled, full auto-tune linear amplifier (the amplifier deck is located behind the wall), Yaesu FT-1000 transceiver, homebuilt station control center for power control, antenna switching, wattmeter, phonepatch, clock, monitorscope, and miscellaneous control functions. On top of this control center is an AEA packet controller.

On the top row, left to right, is the 2M transceiver, antenna rotator controls (two), homebuilt antenna tuner, my beloved Collins 75A4 and its speaker.

The antenna system consists of a 100 ft. AB-105 tower with five-element wide-spaced Telrex 20M Yagi, five-element Telrex 15M Yagi, 432-MHz Yagi for my packet node backbone, 2M vertical at top also for packet operations. Hanging off the tower are sloping dipoles for 160, 80, and 40M. Rotator is a *very* heavy-duty military unit by Hygain. At the bottom of the tower is a remote controllable high-power coax switch.

Most of my operating these days consists of keeping a watch for the last four countries I need and maintaining a packet node for the local DX spotting cluster which operates 24 hours a day, every day.





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**!

James Thurston, W4PPB, sent in this one.

A friend of mine, K8SWW, was at an Amateur Radio meeting and was wearing his name tag with his name, Art, and below it his call letters, K8SWW.

At a restaurant near the ham meeting he noticed that the waitress was staring at him. When he asked what the problem was, she said, "Sir, could you please tell me how to pronounce your last name?"

DX WORLD

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

Activities Calendar

0-11 Oct. DXPO 92 Washington, DC
7-18 Oct. DARC Worked All Germany Contest
8-29 Oct. *CQ* Worldwide DX Contest (SSB)
4-15 Nov. DARC European DX Contest (RTTY)
8-29 Nov. *CQ* Worldwide DX Contest (CW)

W-100-N

The following DXer was awarded *Worldradio*'s Worked 100 Nations Award during this past period:
35) Jim Moody Jr., NL7D; 3 Sept. 1992

Senegal (6W1)

We found reports for only two calls from Senegal recently. Working CW on 20 and 15M, 6W1AE was reported on 14.013 MHz at 2145 UTC and 21.011 MHz at 0900 UTC around the middle of the summer.

Mid-August 6W1/5N0MRD was worked from the East Coast at 2000 UTC on 12M SSB near 24.954 MHz.

Malawi (7Q7)

Fifteen meters SSB is the place to look for Malawi, with at least five calls reported recently. Check the following that were reported during August:

7Q7BW	21.268 MHz	1700 UTC
7Q7JL	21.268 MHz	1745 UTC
7Q7LA	21.268 MHz	1700 UTC
7Q7RM	21.268 MHz	1700 UTC
7Q7XX	21.230 MHz	1730 UTC

Evidently, most of these stations settle about 21.268 MHz. However, if you prefer CW on this band try 7Q7LA near 21.005 MHz at 2130 UTC or 7Q7XX on 21.005 MHz at 1730 UTC.

On our new bands (WARC), 7Q7XX has been busy on 30M, usually after 2300 UTC. Listen near 10.103 MHz. This station has also been reported on the other two bands near 18.069 and 18.142 MHz around 1500 UTC and on 24.895 MHz at 1500 UTC working Europe. 7Q7RM was the only other call reported on 12M and that was 22 August at 1915 UTC on 18.145 MHz.

With the cooler months approaching 40M will be a good band to check. Malawi was represented by 7Q7LA on 7.005 MHz at 2345 UTC and 7Q7XX on 7.002 MHz at 0200 UTC.

French Guiana (FY)

The greatest number of reports from French Guiana was that of FY5FP, with most of his activity on 17M between 18.070 and 18.081 MHz from 2000 UTC. This was the CW portion of the band, the mode this station seems to favor.

Twenty meters CW is a good band to check for the following:

FY4FA	14.027 MHz	1145 UTC
FY5BO	14.026 MHz	0100 UTC
FY5FO	14.012 MHz	2000 UTC
FY5FP	14.017 MHz	1215 UTC
FY5FX	14.016 MHz	0315 UTC
FY5RX	14.012 MHz	0030 UTC
FY5YE	14.004 MHz	0600 UTC

Fifteen meters is another band to look for French Guiana:

FY5EM	21.245 MHz	1800 UTC
FY5FJ	21.235 MHz	1900 UTC
FY5FO	21.018 MHz	2000 UTC
FY5FP	21.329 MHz	1800 UTC
FY5FX	21.016 MHz	1900 UTC
FY5YE	21.005 MHz	1800 UTC

If you need an RTTY contact with this one try FY5AN, who was reported on 14.091 MHz at 2115 UTC on 26 August working into Florida.

On the lower bands we had FY5EW on 3.502 MHz at 0300 UTC and 7.008 MHz at 0130 UTC, and FY5YA on 7.005 MHz at 1030 UTC.

Our only 30M contact reported in August was FY5FP on 10.105 MHz at 2100 UTC working into Europe one Friday evening.

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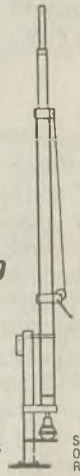

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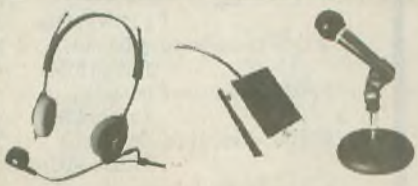

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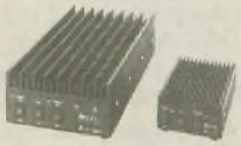

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Svalbard (JW)

Very active on 20M CW has been JW1CCA. Look for this one between 14.008 and 14.020 MHz after 1500 UTC. Also reported on this mode were the following:

JW5E	14.029 MHz	2200 UTC
JW5PGW	14.022 MHz	1230 UTC
JW6VW	14.033 MHz	1700 UTC
JW0F	14.007 MHz	2145 UTC

JW6VM has been reported on 20M SSB between 14.173 and 14.202 MHz from 1600 to 2330 UTC, and JW0F between 14.158 and 14.243 MHz from 1600 to 1900 UTC.

RTTY types might want to check out JW2IJ who was busy 14 August working the deserving near 14.089 MHz around 0030 UTC.

Only two 40M CW contacts were reported in August, with JW0F on 7.002 MHz at 1800 UTC and JW0U on 7.004 MHz at 2200 UTC, both working Europe.

Jan Mayen (JX)

From the pages of *DX News Sheet* we found a report of JX9EHA working Europe on 14.262 MHz around 1100 UTC one Friday morning in August. No other activity was reported from this rare island in the North Atlantic.

Jordan (JY)

Only three calls were reported from Jordan, and all on 20M SSB. It would sure be nice to see some CW activity from this one. JY5IN was the call reported the most active and he was found between 14.191 and 14.236 MHz from 2245 to 0545 UTC.

JY9ZK seemed to frequent the net on 14.222 MHz around 0030 UTC and was also reported on 14.226 MHz at 2145 UTC.

The third call, JY5EC, was reported only once, on 15 August on 14.250 MHz at 0445 UTC.

Faroe Islands (OY)

From the Faroe Islands we have a very active station signing OY1CT, who has been reported on at least three bands. Look for OY1CT on 30M near 10.105 MHz from 2300 UTC or near 14.017 MHz from about 0200 UTC. He also was found on 80M near 3.506 MHz at 2330 UTC working into Texas.

On 20M SSB OH1HJ gave out a new one for many of the deserving. Try looking for this one near 14.226 MHz at 0001 UTC.

Three additional calls were also reported from the Faroe Islands which included OY1R on 14.020 MHz at 1230 UTC, OY2VO on 21.234 MHz at 0900 UTC and OY/DK8FD on 7.008 MHz at 1900 UTC.

Fernando de Noronha (PY0F)

PY0FF made many DXers happy in August, as we could see from the various reports which included several bands such as 1.831 MHz at 0330 UTC, 3.792 MHz at 0330 UTC, 7.002 MHz at 0400 UTC, 10.105 MHz at 0330 UTC and 14.021 MHz at 0315 UTC.

Trindad (PY0T)

Forty meters appeared to be the favorite band for PY0TUP. He was very active at the low end near 7.005 MHz, usually after 0100 UTC. He also made a few visits on the other bands which included 21.018 MHz at 2100 UTC and 28.025 MHz at 1200 UTC working into Europe.

DX News Sheet reports that the operator of this station is Mendonca, who speaks no English. He will answer requests for his CW contacts when he returns from Trindad after 15 October. Requests for SSB contacts should be sent via PT7BI with cards for CW contacts routed via PY1RO.

Cocos Island (TI9)

Malcolm Swan, AB4PW, recently was discussing with Jose de Pastora, TI2JJD, Jose's upcoming DXpedition to Cocos Island. He will be signing TI9JJD SSB only from 1-11 November. Jose listed his operating frequencies of 14.195, 21.295 and 28.495 MHz, listening up 14.200 to 14.215, 21.300 to 21.315 and 28.500 to 28.515 MHz, respectively. The 10M frequency of 14.495 MHz is rather strange, as it is in the Novice portion of the band, and he will be listening outside the Novice band.

Benin (TY)

The Long Island DX Bulletin reports that TY1IJ is often on 21.250 MHz from 2100 UTC and will make schedules for the asking on 10 and 20M. Sigi has also operated as S92IJ from Sao Tome.

However, it doesn't seem to be often, as Sigi was reported only once and that was at around 2115 UTC, 27 August on 21.250 MHz. Hopefully the activity will pick up soon as many of the deserving DXers still need this one.

IOTA

Many of the deserving DXers were able to grab Jose, D2EL, reported to be on Isla de Cabo (no-ref), on the 40M DX net. We tried, but Jose couldn't copy us. Too bad, as it would have also been nice to have Angola on 40M. Yes, we were in a net! Horrors!

Bob Schmieder, KK6EK, activated the Farallon Islands on 1 September. Unfortunately, there was no advance warning and Bob was only there for a few hours. He will return to the Farallons next August. The Farallon Islands have been assigned the reference number of NA-178.

Peter showed on schedule 13 August operating from Lifuka Island. And the deserving IOTA types were there waiting for him. Doc, KD7SO, was the first one in the log. And the same for Larry, signing K5MK/KL7 from the Plover Islands in the Arctic Sea near Point Barrow.

The following is some of the activity reported in *DX News Sheet* plus some of the activity we found during August and September.

AF-019	Pelagie Island		IG9/I5WVI
		14.259 MHz	1815 UTC
AS-039	Bering Island		4K4NN
		14.260 MHz	0330 UTC
AS-063	Laptev Sea Coast East		4K4/UA6WCG
		14.021 MHz	0400 UTC
AS-082	Dunay Island		UA0QFC/A
		14.009 MHz	1700 UTC
AS-093	Huksan Island		HL0BDU/4
		14.260 MHz	1600 UTC
EU-060	Euboea Island		SV7BAY/1
		14.160 MHz	2215 UTC
EU-075	Hydra Island		SV7BAY/8
		14.262 MHz	0445 UTC
EU-144	Dino Island		ID8/I8INW
		14.260 MHz	2100 UTC
EU-144	Cirella Island		IK8GGQ/ID8
		14.153 MHz	0830 UTC
EU-158	Pelopponisos West		SV7BAY/SV3
		14.160 MHz	2115 UTC
NA-036	Vancouver Island		VE7GFS
		14.260 MHz	2330 UTC
NA-047	Baffin Island		NU2L/VE8
		14.260 MHz	2100 UTC
NA-067	North Carolina East		KS4Q/1H7
		21.258 MHz	1815 UTC
NA-075	Saltspring Island		VE7FEI
		21.270 MHz	1830 UTC
NA-112	Topsail Island		N4VRR/P
		14.260 MHz	0500 UTC
NA-172	Plover Islands		K5MK/KL7
		14.020 MHz	0100 UTC
NA-175	Cooper Island		WT2O/VE8
		14.260 MHz	1730 UTC
NA-176	Mingan Archipelago		WT2O/VE2
		14.260 MHz	1315 UTC
NA-177	Bonaventure Island		NU2L/VE2
		14.260 MHz	1645 UTC
OC-027	Marquesas Islands		FO5BI/P
		14.002 MHz	0415 UTC
OC-130	Mindanao Island		DX9O
		21.330 MHz	1600 UTC
OC-137	Bribie Island		VK4SC
		14.131 MHz	0600 UTC
OC-169	Lifuka Island		A35NP
		14.260 MHz	0540 UTC
SA-056	La Isla Island		HD4/HC2FU
		14.260 MHz	0115 UTC

DX News Sheet lists the recent IOTA award recipients which are issued in steps of 100 islands confirmed. There has been a tremendous increase in the interest in the program in North America. One call, that of W9NZM, received on his first application up through 400 islands confirmed.

If you have not already obtained a copy of the IOTA Directory contact W4BAA. The cost is $8, and you should have a copy if you are following the IOTA activities.

Carl Bethel, K4OD, inquired about my QSL from 3X0HNU for Los Islands (AF-051). Carl said he received a QSL for a contact on 20 October 1991 that reads "3X0HNU/p" with the "p" crossed out. The card also has 3X0A Los Islands (AF-051). Carl's interpretation is that 3X0HNU was operating from the mainland. However, our QSL card from 3X0HNU (via F6FNU) never had any "p" appended to the call. The card listed both 3X0HNU and 3X0A (contest call) with Los Islands IOTA AF-51 printed across the top. The date of my contact was 25 March 1992. Apparently, Carl had older cards and he had relocated to Los Islands and was no longer portable.

DXCC credits

The American Radio Relay League now accepts the following for DXCC credit:

XU1NU: operation from 6 July 1992 through 6 January 1993 on 14, 21 and 28 MHz only.

XU0NU: operation from 6 July 1992 through 6 January 1993 on 14, 21 and 28 MHz only.

FE6BLQ/D2: operation from 23 June 1992 through 23 July 1992 on 14, 18 and 21 MHz only.

CR9RJJ: operation commencing 20 July 1992.

7Q7CE: operation commencing 4 June 1992.

ZA/KA6ZYF: operation from 13 June 1992 through 13 July 1992.

ZA/G3MHV: operation from 13 June 1992 through 13 July 1992.

Slide shows and videos

The Northern California DX Foundation has a number of slide shows and videos available for loan to organizations wishing to show them at meetings. The present list includes 41 slide shows and 67 videos. Clubs borrowing materials are responsible for postage in both directions; the amount to be reimbursed should be on the package when it comes to you and is usually about $2.90.

Please give the name of your club, the day of the month you meet and more than one choice of program in case there is a great demand for a particular item. Correspondence should be addressed to Josephine Clarke, WB6ZUC, Box 788, Kentfield, CA 94904. Your organization may want to consider making a contribution to, or joining NCDXF.

Caribbean licensing guide

Craig Maxey, WB7RFA, has prepared a helpful publication full of useful information for those deserving DXers who may choose to combine DXing with vacationing in the Caribbean. This little spiral-bound booklet, *DXpeditioner's Caribbean Licensing Guide* contains licensing information for 33 countries in the Caribbean. In addition, it includes information on selected hotels favorable to Amateur Radio operators.

Other information includes maximum power and authorized frequencies. A sample license application for each country is included. The booklet is 8½ X 11 and contains 58 pages.

Information on Cuba is also included. The US does not hold a reciprocal operating agreement with this country. Maxey does, however, list the licensing administration. If any of you has ever operated from Cuba (not Guantanamo Bay) Craig would appreciate you writing to him and sharing this information.

This book is recommended to all who

are considering operating from the Caribbean in the future. The price is $23 and is available from Craig M. Maxey, 9820 SW Dapplegrey Loop, Beaverton, OR 97005.

Craig has spent considerable time recently in St. Kitts, signing V47ITU and V40ITU. Perhaps you have worked him.

Miscellaneous

David Van Der Weele, WA3L, says he is upset with DXCC as errors have appeared in his records since they went to the computer, and his appeals for corrections have been ignored. In such a case it's best to make a list of the contacts in question and include all information. If all else fails, resubmit the cards. I have found the DXCC desk very cooperative.

Dave also has some suggestions for QSL managers:

1) Make sure the log info is copied correctly (CW vs. SSB, etc).

2) When return air mail is covered, do not return via the bureau.

3) Include *all* contact data on QSL (band, etc. omitted).

4) If QSL and SASE were missent, return card with a brief note so recipient knows an error was made.

5) DX QSLs should have exact location, especially for IOTA.

Del Rykert, KB2JOI, sends us an interesting note regarding list operations: "I believe you have missed the whole reason list-takers and DX nets came about, which is the horrendeous way some hams conduct themselves while chasing DX." Del went on to say that these DX stations come on to work DX only if someone is a "buffer" for them—thus the origin of the list-takers.

I have made mention of this subject many times. DX nets have been around for a long time and did not come about due to ill-mannered DXers. Though I am not necessarily in favor of lists, I have used them on occasion.

Most likely, these DX stations working from a list is what causes the problems in the first place. A good operator can control the pileups. It's also important to note which band or bands one hears such poor operating conduct.

Those DXers whose only approach is the lists are missing out on a lot of the fun, especially if, as is frequently the case, they have to wait hours for the list-taker to get around to their call areas. We never waited that long to work VP8SSI (the South Sandwich Islands DXpedition); we worked him on 40M, both CW and SSB, running only 100W to a dipole. If the phone bands get too unruly then switch to CW for a while. A real DXer will operate both modes.

Antique QSLs

This month's selection of QSL cards comes from Earl Van Vorst, W6MSW, of Paso Robles, California; the cards date back prior to World War II.

On 10 May 1936, Earl worked J3EM of Kobe, Japan, on 40M CW. This station was operated by Dr. Susumu Mori who was running 40W. J3EM was Earl's first Japanese contact. The card is buff with green call letters and the text is printed in black.

On the same day, but a couple of hours earlier, Earl worked XU8RR of Shanghai, also on 40M. This too was another first for Earl. XU8RR was that of Roy P. Roberts. His XYL was also listed on the card as one of the operators. The card was printed in black except for the call letters, the logos and the word "RADIO" which were in red.

The latter card was mailed from Oakland with a one-cent stamp affixed to it and the notation at the upper left "QSP via W6KRM." QSL managers in those days? Notice that Earl was using the same call as he has today. Earl resided in Ventura at that time. The QSL is complete with thumbtack holes on the sides; it was normal practice in the old days to cover the walls of the shack with cards received.

Earl says his rig was a single 45TNT with a power supply from an old Majestic Radio. Power at the time was thought to be 8W input and the antenna was an end-fed Zepp.

QSL Information

We do not recommend sending "greenstamps" to the CIS countries. According to *QRZ DX*, one DXer sent a follow-up QSL request to UA9MA for a contact made with XV9MA. This time two IRCs and an address label were sent, which brought a response in 34 days. The original request with two greenstamps never arrived. To you new DXers the term "greenstamp" is one US dollar bill.

It seems that Uruguay is another country where the postal employees help themselves to the incoming mails. Ken Indart, WA4RPH, writes us concerning my recent comments covering the CXCW award that CX1JM doesn't respond to QSL requests. Ken, who was formerly CX2BP from 1940 to 1957 was in contact with CX1JM recently and mentioned my remarks. It seems that he never received the cards and the post office has not functioned since November 1991.

We received a nice note from David Caywood, W9NNK, regarding the pirates and profiteers that Joseph Cira, KB6AXK, had commented on. David feels that some of the DXers are being given a bum rap on this, but he has to agree with several of the points. David mentions one well-known DXer that he has worked often and can't get a card from. I won't mention his call as I never had that problem with this DXer; many of the cards received from him were unsolicited in the first place.

Rich Wagner, K4MZE, is looking for QSL routes for the following: 5Z4CS (1982), FS6FL (1981), JT1BS, OD5AW, T30AT (1982), XZ1B, and YB2UDH. *The W6GO/K6HHD List* shows nothing for the above. We checked with *QSL Routes* (Y24HO) lists for 5Z4CS via JI1VLV and 5Z4CS, now JE1JKL, and T30AT via G4GED and T30AT, now VK6ABP. We didn't check the *Callbook*.

QSL Routes

3A/G3XJS	—G3XJS	4L1FII	—UF6FII
3D2EF	—JR7OEF	4L1FJ	—OZ1HPS
3D2NP	—DK6NP	4L20A	—K1MZB
3Z0EMC	—SP6FER	4L21A	—K1MZB
3Z25PAZ	—SP6DVP	4L22A	—K1MZB
4G2BAG	—DU3DO	4L23A	—K1MZB
4K4/UA6WCG	—I8YRK	4N3AA	—YU3VM
4K4LC	—UA6LU	4N5PK	—YU5XVD
4K4NN	—KC4UG	4N7DW	—YU7GMN
	(see note 1)	4V4H	—KA9RLJ
4K4QQ/UN0	—RA1QQ	5H3JD	—DK9MA
4L0FWW	—UF6FFF	5H3NU	—I1HAG
4L19A	—K1MZB	5J129P	—HK6LRP
4L1FDR	—UF6FFF	5W1KH	—I4ALU

5W1VJ	—G4ZVJ
5X5AA	—5H3AA
5Z4FO	—KB4EKY
7Q7CE	—IN3VZE
7Q7LA	—G0IAS
7Q7XX	—JH3RRA
7Z1AB	—WB2QMP
9A1CRU	—YT2IX
9A/DL9JH	—DL9JH
9A2TW	—YU2TW
9A2VC	—YU2VC
9A3ER	—YU2LLL
9K2EC	—LA8RFA
9L1JC	—WD5HFK
9M2ER	—AB4MD
A35NP	—DK6NP
CI2M	—VE2CUA
CN2MB	—I3JTE
CO2MA	—JH1GIC
CO5GV	—W3HNK
CP6/PP5QN	—PY1AJK
CR6END	—CT1CUM
D2EL	—EA7EL
D2FGC	—OK1AJN
DL1MDH/TF3	—DL1MDH
EA5ZR/P	—EA4KK
ED1ILT	—EA1JP
ED6EIA	—EA6VC
ED8IDF	—EA8BGY
EF8VBV	—EC8AWP
EH0JOB	—EA3MM
EK1SK	—UA1QM
EU1O	—F6AML
EZ9MA	—DK8FS
F6BLQ/D2	—F6ELE
FK8GJ	—F6CXJ
FM5FE	—F1NCZ
FM5GI	—FE1OII
FO5BI/P	—F6HSL
FP/K1RH	—K1RH
FR5ZU/E	—FR5ZU
FR5ZU/G	—FR5ZU
FR5ZU/J	—FR5ZU
GB4WXM	—GW1MVL
GB400CU	—GM0LLJ
HD4/HC2FU	—HC2FU
HD4/HC2HVE	—DL8NU
HH2Z	—KA9RLJ
HL9OO	—N6PIC
IB0Z	—I0CHF
IK8GGQ/ID8	—I8NSK
J8/N2HNQ	—JH4IFF
J80X	—JH4IFF
J85X	—JH4IFF
JF4FUF/JA6	—JO3LDN
JU830C	—JT1KAA
JW1CCA	—LA1CCA
KH0/JA1HGY	—JA1HGY
KH2/JA1HGY	—JA1HGY
KH2Y	—JA8RUZ
KH6/JA1HGY	—JA1HGY
KH8/DF6MS	—DJ3QG
LZ1KDZ	—LZ1YE
LZ1NG	—LZ1BV
NU2L/VE2	—G3ZAY
OH0MEP	—OH3MEP
OH0MRR	—OH1MRR
OH0NLP	—OH3NLP
OH1AF/OJ0	—OH1EH(SSB)
OH1AF/OJ0	—OH1NOA(CW)
OZ1DYI/P	—OZ1DYI
P29JA	—LH7MSB
P40P	—NX1L
PA6PAM	—PA3ACT
PA6PUS	—PA3ACT
PA/FD1SSM	—FD1SSM
PY0FF	—W9VA
PY0TUP	—PT7BI (SSB)
PY0TUP	—PY1RO (CW)
R19A	—K1MZB
R20A	—K1MZB
R21A	—K1MZB
R22A	—K1MZB
R23A	—K1MZB
R600SR	—UZ1QWX
R7BG/UL0Y	—UL8PC
RB8X/RB5UE	—RB5UE
RC0WWF	—UC1WWF
RC2CB	—DL1ZBB
RI1UMD	—UI9BWO
RN9A	—OH7MMY
RO4OA	—SP9HWN
RU9SWU	—UZ9SWU
RY9DI	—RB5HT
RZ1OA/A	—RA1OA
S2/G3NOM	—G0CMM
S21U	—JA1UT
S21ZA	—VK9NS
S21ZC	—DK7PE
S92IJ	—DJ5IO
SN80HW	—SP3ZAC
SO3JE	—SP3GVX
SO6MHR	—DH5EAI
SO9NEL	—OE5NEL
SP0IC	—SP6TPM
SP0TPM	—SP6TPM
SP1KYB/1	—SP6TPM
SR5PAR	—SP5TAW
T30IL	—JA3OIN
T32CW	—NI6T
T32GG	—KE6GG
T32GV	—W6OTC
T32MV	—AA6MV
T32RA	—KN6J
T32RS	—N6OXR
T32SS	—KE6FV
T32WS	—WU6A
TA4/OH3MIG	—OH3GZ
TI7AA	—TI4WAM
TL8DF	—FE1LBM
TL8IM	—AC3D
TM3IF	—FD1OZF
TM5JBL	—F6IUI
TM9WPX	—FF1NZH
TU4SR	—OH8SR
TZ6VV	—N0BLD
UA0B/UA9CDE	—UA9MA
UA9MA	—DK8FS
UB3JX	—W2FXA
UC2AAA	—F6AML
UF8FWW	—UF6FWW
UL4I/UZ9AWD	—UA9AQN
UL7JC	—K8BTH
US76BL	—UB4BYU
UW1OG/A	—RA1OA
UZ2FWA	—DK4VW
V29SW	—DL1HH
V5/DJ6SI	—DJ6SI
V63AK	—JG1EGG
V63HN	—JG1EGG
V63HS	—JG1EGG
V63HY	—JG1EGG
V63KM	—JG1EGG
V63MI	—JG1EGG
V63MO	—JG1EGG
V63SM	—JQ3EEL
V63TI	—JG1EGG
VA3200M	—VE3XN
VI150SYD	—VK2WI
VI2RC	—VK3DEJ
VI4RUM	—VK4VGT
VK9CW	—VK6XW
VK9LS	—JA2NQG
VK9LT	—JA0GZ
VP5O	—N2VW
VP5P	—WN5A
VP8GAV	—GM0LVI
VP9BBQ	—WB2YQH
VP9SWS	—WB2YQH
VR6GL	—K2QBV
VR6YL	—WD6GUD
VS6FN	—AB4MD
VU2DYA	—DL5DAB
VY6QST	—K1ZZ
XE1/JA1HGY	—JA1HGY
XF1IA	—XE2EAA
XO5CUS	—K1RH
XT2BW	—WB2YQH
XT2DK	—OE3DKS
XU0NU	—F6FNU
XU1NU	—F6FNU
XU2NU	—F6FNU
XU4OF	—DJ4OF
XU8CW	—FD1GTR
XV7TH	—HA0HW
XV9MA	—DK8FS
YB0ARM	—N4AA
YE8P	—YB8NA
YL92QM	—YL1WW
YN0TI	—TI2MCL
YV500RCV	—YV5AJ
ZA1Z	—HB9BGN
ZD8HYI	—N0HYI
ZD8UOI	—WB5UOI
ZD8VDC	—WB5VDC
ZF1WD	—G4RWD
ZF2SO	—WA0JTB
ZF2SP	—KB0JBX
ZK1AL	—I4ALU
ZK1HJ	—G3MCN
ZK1JR	—AA5WY
ZK1XBM	—DJ8FW
ZK1XM	—DJ3QG
ZK2VJ	—G4ZVJ
ZK2XS	—DJ3QG
ZY0RW	—PT7WA

3D2SL	— Steve Telenius-Lowe, P.O. Box 1783, Port Moresby, PAPUA NEW GUINEA
4K3/RA3YG	— Mike Sochinski, P.O. Box 5, 241000 Bryansk, RUSSIA
4L6HMC	— P.O. Box 62, 82501 Kitee, FINLAND
5J129P	— LCRA, Seccion Pereira, P.O. Box 1995, Pereira, COLOMBIA
6W1AE	— P.O. Box 3024, Dakar, SENEGAL
6W1QP	— John, P.O. Box 971, Dakar, SENEGAL
8Q7AA	— N. Kikuchi, Box 2007, Male, MALDIVES
9D0RR	— Romeo Stepanenko, P.O. Box 766, Brooklyn, NY 11230
9L1JC	— Jerry Cooper, 211 Meadowlake Drive, Sequin, TX 78155
A35JM	— Akio Shimizu, 6-22, 3-Chrome, Kasugaoka, Fujidere-city, Osaka 583, JAPAN
A71BV	— P.O. Box 2260, Doha, QATAR
DL0HRO	— P.O. Box 2073, O-2500 Rostock, GERMANY
FM5GL	— Michel, P.O. Box 954, F-97246 Fort de France, via FRANCE
FP9SPM	— Andy Okulicz, P.O. Box 133, 02-670 Warsaw 13, POLAND
GU/PA0ERA	— Enno Korma, P.O. Box 6687, 6503 GD Nijmegen, NETHERLANDS
HC3AP	— Cesar Palacios M, P. O. Box 918, Machala, ECUADOR
HL0BDU/4	— Box 599, Pusan 20605, SOUTH KOREA
KK4DK/KH9	— OKDXA, P.O. Box 88, Wellston, OK 74881
RL3I/RA9ABK	— Igor Finogenov, P.O. Box 49, Magnitogorsk 455044, RUSSIA
RO0Q	— Slawa Lysy, P.O. Box 112, Kishinev 277012, MOLDOVA
T32LI	— Marti Selman, 761 Chestnut Street, Santa Cruz, CA 95060
T32MV	— Larry Selman, 761 Chestnut Street, Santa Cruz, CA 95060
T53UN	— Kent Phillips, P.O. Box 1642, Nicosia, CYPRUS
TM5JBL	— Dieppe Radio Club, P.O. Box 2005, 76070 Le Havre Cedex, FRANCE
UC2SKF	— P.O. Box 88, Mogilvev 212029, BELARUS
UF6FL	— P.O. Box 1, Tbilisi 380002, GEORGIA
UL4I/UZ9AWD	— Igor Finogenov, P.O. Box 49, Magnitogorsk 455044, RUSSIA
UL7I/UW9AH	— Igor Finogenov, P.O. Box 49, Magnitogorsk 455044, RUSSIA
UL7I/UW9AT	— Igor Finogenov, P.O. Box 49, Magnitogorsk 455044, RUSSIA
V40ITU	— Craig Maxey, P.O. Box 608, Basseterre, ST KITTS
V47ITU	— Craig Maxey, P.O. Box 608, Basseterre, ST KITTS

DX Prediction — November 1992

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

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

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(12)*	*13	*17	*(10)*	16
12	*(12)*	*13	*16	*(10)*	15
14	*(21)*	*13	*15	18	30
16	*(26)*	*13	*22	*(17)*	*36
18	28	*(13)*	*(19)*	*(12)*	*37
20	28	*(16)*	27	*(11)*	*38
22	24	26	31	*(11)*	*37
24	*21	*28	35	10	*31
2	16	24	32	10	*22
4	*14	17	22	10	*19
6	*(13)*	15	20	10	*18
8	*(13)*	*14	*18	*(11)*	*16

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(16)*	11	*16	*(10)*	*16
10	*(15)*	10	*16	*(10)*	16
12	28	10	*15	18	*30
14	34	*14	*26	20	*33
16	36	*(13)*	22	18	*36
18	*36	*(13)*	*(20)*	*(13)*	*37
20	29	*(16)*	27	*(12)*	*37
22	*25	22	32	11	*32
24	*20	*(18)*	31	11	*23
2	*18	*(13)*	21	10	*20
4	*17	*(12)*	19	10	*18
6	*(16)*	*(11)*	*(17)*	10	*17

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	16	11	*(16)*	*10	*16
9	15	10	*16	*(10)*	*16
11	28	10	15	18	*27
13	34	11	*28	*21	*32
15	*37	*(11)*	24	20	*35
17	*37	*(10)*	*(19)*	17	*37
19	*32	*(10)*	*(24)*	12	*37
21	*27	*(18)*	30	11	*33
23	*20	*(18)*	31	11	*24
1	*18	*(13)*	21	10	*21
3	*17	*(12)*	*(19)*	10	*19
5	*16	*(11)*	*(17)*	10	*17

V5100SWP	— P.O. Box 53, Swakopmund, NAMIBIA
V73DC	— Kevin Costello, P.O. Box 5070-SDA, Ebeye, MARSHALL ISLANDS 96970
VI4FOW	— P.O. Box 829, Hervey Bay, QLD 4655, AUSTRALIA
VP9/G4JVG	— Steve Telenius-Lowe, P.O. Box 1783, Port Moresby, PAPUA NEW GUINEA
VR6RF	— Box 24, Pitcairn Island, via NEW ZEALAND
YL1XX	— P.O. Box 3, Valmiera, LATVIA
ZA1BM	— Bujar, P.O. Box 5, Elbosan, ALBANIA
ZA/G3MHV	— P.O. Box 1489, Santa Monica, CA 90406
ZA/KA6ZYF	— P.O. Box 1489, Santa Monica, CA 90406
ZD7SM	— P.O. Box 86, ST HELENA ISLAND
ZF1IQ	— Dave Robinson, 324 Birch Parkway, Wyckoff, NJ 07481

Notes:

1. Do not send SASE with US postage. Include green stamp or IRCs for return postage, as cards will be mailed from Russia.

Many thanks to the following contributors: Y24HO, WB2JGD, KB2JOI, W3EYF, WA3L, K4MZE, K4OD, AB4PW, WA4RPH, W6MSW, W6TUR, WB7RFA, KA8RAM, W9NNK, WA0JTB, American Radio Relay League (K5FUV), Northern Arizona DX Association (W7YS), Western Washington DX Club (WA0RJY), *Long Skip* (VE3IPR), *The W6GO/K6HHD List*, *DX News Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

New Orleans was not meant to be for us. We were scheduled to leave out of Los Angeles via Amtrak Tuesday night prior to the DX Convention weekend. Mother Nature and Andrew had other plans, which resulted in the train scheduled to go only as far as San Antonio. The end result is I will be attending DXPO 92 in the Washington, DC, area instead. This time we are flying. I'll take the train another time. Don't forget the big DX contest the end of the month. 73 de John, N6JM. □

Packet Kids

LUCK HIRDER, KY1T

In spite of a few raised eyebrow from my fellow Amateurs, I decided t establish an Amateur Radio station a my local elementary school.

Why? For one, I was getting a littl tired of going to club meetings an realizing that most of the people ther were at least 20 years older than I – and I'm getting up toward (cringe! middle age. Hey, don't get me wrong I've got nothing against older folks Shucks, I expect to be one someda myself, if I can only learn to keep m mitts out of what few high voltage sup plies still lurk about in the shack.

Aside from the obvious fact that a the present rate, there won't be any body to even hold club meetings in tw decades, there's the ulterior motiv that it's downright fun to introduc youngsters to Amateur Radio. Yes they still enjoy the initial thrill of hear ing CW signals from distant shores (a do their geography and social studies minded teachers), but now they're also discovering this marvelous thing call ed packet radio.

Packet for 9-year-olds? You bet Their older siblings, and not just a few of their parents, often won't let them near the home computers, especially when blissfully entranced with the joys of telephone BBSing.

With packet, they can call "long distance" and incur neither the wrath of other family members, nor Ma Bell And lo! What's this? Egads — not only do the teachers approve, but even the principal smirks slyly at the prospect of telling the PTA that he (?) has finally found a use for those little computers they paid so dearly for several years back . . .

Funding for the station itself proved to be something less of a problem than I originally feared. Three sources, the ARRL Foundation, the PTA and word-of-mouth on 2M FM netted me over $1,000 in grants and outright equipment donations. Bingo, we're off and running.

Step number one in actually setting up the station involved the same things that most of us are already familiar with — plugging in the HF transceiver and designing and building dipoles.

With that out of the way, I was only a quarter rotation of the gain control away from seeing a great many youthful grins — and a few older ones to boot — from students, teachers and the inevitable newspaper reporters who have an uncanny way of sniffing out unusual public interest stories like this. — *The Networks* □

The Youth Forum

Travis A. Wise
KB8FOU

1421 Grace Avenue, San Jose, CA 95125
Home: (408) 267-8849; BBS: (408) 267-6396

Most people become involved with Amateur Radio because it is a hobby that provides relaxation and enjoyment through talking over the airwaves with people who have common interests. Amateur Radio interests other folks because it is a medium of community service and can be used to provide assistance to others. No matter how we use Amateur Radio, we have to use frequency space, and it is no secret that we've had to defend what space we have been given since day one.

That defense of frequency space is especially important now, with the wonderful advances of modern technology and the increasing need for additional commercial spectrum. These advances are vital to all of us, especially young people whose future (life style, employment, education, etc.) will be greatly affected by the new technological changes. I have a few suggestions as to how we can co-exist.

For those readers who may not be aware of how we acquired our frequencies, in the beginning we were given access to just about all of the frequencies except for sound and light. We pioneered that "land" and showed all of our friends what we could do with those frequencies. The industries and government saw what we were accomplishing with our frequencies, and they wanted to do the same. It wasn't long before we were told which frequencies we could use, and we've become less and less important in terms of the FCC and available spectrum space as time has passed. At the same time, we have had to increase our defense of why we should have the valuable spectrum that we operate on. That defense has and is being accomplished in several ways through public relations and bills in the House and Senate.

It's interesting to compare Amateur Radio to other hobbies. I used to be a model train fan, and I had a large setup in my basement. Imagine what the hobby of model trains would be like if hobbyists had to defend their use of train track. It may sound ridiculous, but that's basically what we have had to do for our frequencies. Sometimes that defense has been successful, sometimes not. Indeed, this hobby is the only one that allows us to speak to others worldwide just by flipping on a switch, but it is also the only hobby that infiltrates the community and promotes the justification of its importance and the rationale for why the Amateur spectrum should be preserved for our use.

I think most people would agree that it's a real shame that the FCC took two megahertz of our 220 MHz band away from us last year and reallocated it to another service. It is my understanding that the other service hasn't even started using it yet and has no plans to do so any time in the near future. That's a perfect example of wasted spectrum. In an ideal world, all the frequencies assigned would be actively used, and there wouldn't be any unused spectrum. Maybe when I'm old enough to vote, spectrum management will be an issue of every presidential election. (We can all dream, can't we?)

The House and the Senate have corresponding bills supporting the Amateur Radio frequencies. The Amateur Radio Spectrum Protection Act of 1991 (listed as House bill HR73 and Senate bill S1372) is gaining support among many representatives and senators, but we're still in need of more help.

The Spectrum Protection Act bills are designed to protect our frequencies, which have continued to serve as a testing ground for new technological ideas. Our frequencies have, and still do, provide the means for us to serve the public in emergency situations. This act won't cost the government anything, and it won't lock out the other users with whom we currently share much of our spectrum. Another important fact about these bills is that, so far, no private-sector commercial industries have stepped forward and opposed these bills, so co-sponsors don't have to choose sides between two groups of constituents.

So just how popular are these bills on Capitol Hill? Well, looking at a list of co-sponsors, almost 40 percent of the combined Capitol Hill population has supported these bills being sponsored by Senator Al Gore (D-TN) and Representative Jim Cooper (D-TN).

Now that you have some of the basic facts, what can you do to help? If you're registered to vote, you can fire off a letter to your local senators and representatives with the following included in the body of your letter: "As a concerned voter in (your state/your constituency), I strongly urge you to go on record as a co-sponsor of (S1372/HR73), the Amateur Radio Spectrum Protection Act of 1991. Please help us get this bill through Committee and the (Senate/House)."

When I was typing letters to my senators and representatives, I came across a problem which all the other young amateurs will have: the first line. We aren't of age to vote. This hitch has stopped many young amateurs from writing letters to government officials. I decided that, rather than to just sit back and see what happened, I would re-word my letter, substituting "citizen" for "voter." The first line read, "As a concerned citizen in San Jose, CA, I strongly urge you to go on record as a co-sponsor of . . ."

I encourage you, regardless of your age, to contact your local government or public library, find out who your local representatives and senators are, and write to them regarding the Spectrum Protection Act of 1991. Just because teens are not of voting age doesn't mean that we can't help our hobby by showing support for this act.

Rent-a-car temporary HF mobile

It's fun to travel around the country and operate HF mobile from your rental car. I have never experienced any rental vehicle being sensitive to my 100W transceiver, nor has any type of rental car ever given me a problem in the simple power connection and HF antenna setup.

You may be wondering how you can get on the air in less than three minutes, so tune in to some of my secrets!

HF rig: Icom IC-728; antenna: Outbacker two-piece; coax: RG8X; antenna mount: Comet hatch mount; power: 6A hour gel cell and cigarette lighter plug; ground: 36 in. silver-tinned flexible ground strap or copperfoil.

Let's start with the antenna, and work our way into the mobile installation.

I choose the Outbacker antenna because it gives me all ham bands, and it breaks down into two pieces that I can squeeze into one big suitcase. I have also replaced the tuneable stubby stainless steel whip with a yard-long whip that really makes my Outbacker a three-piece antenna. When I use the extra long whip tip, I tap into the band units one band higher for less inductance. In other words, with the extra long stainless steel whip in place, I operate 15M with my tap in the 10M port. It really gives my signal a boost.

Lip mounts and gutter mounts attach quickly to the trunk of almost any type of rental vehicle. The little Allen screws make contact with the trunk on the inside, so we don't damage the paint. I carry both Comet and Diamond trunk-lip and hatchback antenna mounts, and I have always found that one of these will work well on any rental vehicle. I route the RG8X coax in through an open window or in through a door without squashing it.

Temporary Icom mobile installation with sealed rechargeable battery.

I travel with an Icom 728 because of its LCD "easy-see" screen. In the direct sunlight, it can be seen where other types of displays wash out. It also has an adjustable RF output control so I can turn down the power for QRP operation. While the 728 does not have an SWR meter built in, its power output meter gives an excellent indication of SWR. If your SWR is higher than 2:1, power output won't exceed about 70W. At 3:1, power output barely makes it to center scale on the relative output meter. With the Outbacker, power output goes full scale, indicating a great match.

The rig is grounded with flexible braid or foil to the metal door jamb. The kick plate is usually screwed into the metal chassis of the vehicle, so grounding is a cinch.

I use the vehicle's cigarette lighter receptacle to float my sealed brick-sized gel cell battery. These rechargeable batteries are available just about anywhere, and they will handle the current requirements of any HF transceiver. If you weren't charging this gel cell, you could listen for several hours and still have enough juice for a quick call. Once you start transmitting, the gel cell might only give you about five minutes of talk time, so what I do is plug into the cigarette lighter and "float" the gel cell when the rig is in use. This puts the gel cell in between my rig and the small amount of current I can pull out of the cigarette lighter receptacle. Yes, I have a diode in line so I don't spark things up when I am probing in the dark for the cigarette lighter receptacle in the vehicle. I also have fuses in line so as not to overcharge the gel cell or over-burden the cigarette lighter circuit.

Most cigarette lighter circuits are also fused, and they usually remain on when the vehicle is off. When operating your transceiver with some transmitting, and normal listening time, about the maximum amount of current that gets pulled out of the cigarette lighter circuit from the gel cell is three or four amps. That's a lot less than the cigarette lighter plug filament when you would normally push it in to get it red hot.

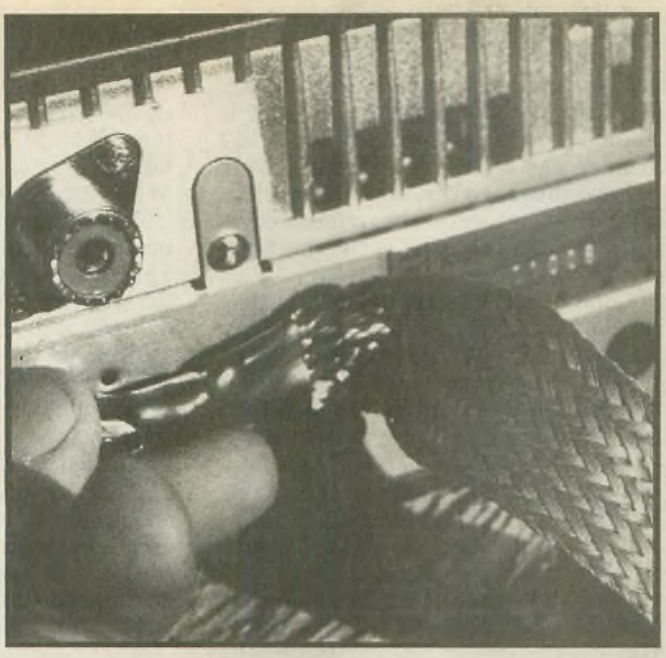
It's the gel cell that handles the SSB peaks at 15 to 18 amps. If you were to plug directly into the cigarette lighter receptacle, you would quickly blow a fuse in your rental car's electrical system, and you'd have a rotten signal on the air. The wires going to the cigarette lighter receptacle are not nearly large

enough to handle the peak current requirements of the modern SSB transceiver. The gel cell as a "floater" does the trick nicely.

I never leave the gel cell plugged in when I'm not using the equipment. I also keep the gel cell within reach so I can make sure it's not getting overcharged. In all my operation, my fresh gel cell doesn't even get warm — but does accept a couple amps of charge when I do a lot of transmitting.

Be sure to fuse both the red as well as the black power leads going to the cigarette lighter plug. This, along with the reverse protection diode, will insure that your gel cell doesn't get overcharged. If the fuse blows, the worst that can happen is your little buffer battery goes dead.

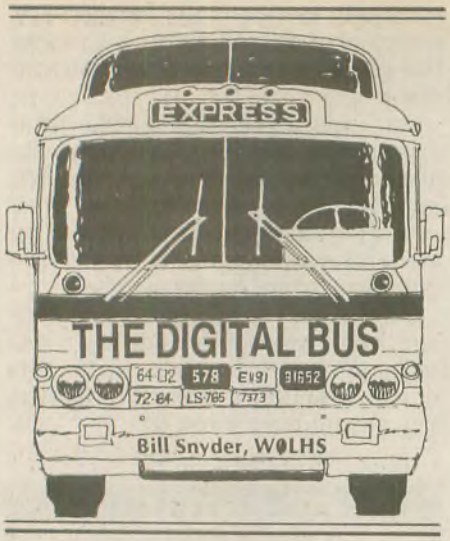
There are commercially available battery supplies that plug into your cigarette lighter receptacle for charging. However, these won't give you the output current you need to power a 100W transceiver. You could also wire directly to the battery, but this substantially increases the danger of an electrical short-out or fire where your two leads go into the engine compartment.



Icom 728 ground connection for temporary mobile installation.

And before you head out down the expressway, test your system to make absolutely sure it is electrically safe, and that RF is not getting into your rental car engine electronics. I've operated this way for many years and it's a great way to get on the air, fast.

Just be sure to monitor, feel, meter, and watch your buffer battery power setup--and with low current fuses in line, you shouldn't have any problems. You should have great DX! ▢



Over the last year I have been urging newcomers to packet to try overseas DXing. One of my overseas packet friends is a Yank from Nebraska stationed in jolly old England. His name is Marty Mullican and his British call sign is G0NJN. Marty has given hundreds of US amateurs their first taste of DX packeting.

Marty has been on vacation and off the air for a few months. He is now back on packet and ready for all comers. If you send him a packet message and he gets it, Marty will send you an answer. I received the message from Marty telling me he was operating in only two days. That's very good time for traffic to be relayed from England to North Dakota.

How do you send Marty a message? Well, it's very simple: Put it in your local BBS and let the automatic forwarding system work. Simply type SP G0NJN @ GB7ZPU.#21.GBR.EU and then do what the BBS asks you to do. Tell Marty I said to try an overseas message.

Here are a few hints to help you frame a message: 1) keep your line length less than 60 characters; 2) put blank lines in between paragraphs—it helps make a message easy to read; 3) put your full packet address in the body of the message after your name and QTH, and 4) tell Marty you're a Big Red Nebraska football fan because he is a dyed-in-the-wool Cornhusker!

Give DXing a try. If the high frequency packet stations in the US are stopped from unattended operation, DXing may be a thing of the past. So have at it!

Clock stuff

When you type the "RH" command instead of plain "R" to read messages from a BBS, you will see the full header (an audit trail) displayed on your screen. One of the elements of line in the header is a date/time group. It tells exactly when the message departed a BBS and is usually in UTC.

Now and then you will see a date/time that is hours or days off what it should be. The dates and times in the header should be in sequence. This error is caused by the computer clock in the forwarding station being incorrect—either ahead or behind of the real time it was sent.

Computer clocks are not as accurate as they could be. At least that is my observation. My 386 machine loses about 30 seconds a day. I set it by signals over the land line from WWV. In the AMSAT program "Instatrack," there is an option that will set your computer clock by using your modem. It takes about 30 seconds of long-distance time and costs me about 12 cents a reset. Push one key and bingo, it's done! Just before I started this column I set the computer clock with the WWV time service phone. The computer told me that it was 308.42 seconds slow. I've been out of town for a few days and the computer clock had lost that much.

With this in mind, check the date and time of your computer daily. After you get an idea of the gain/loss rate, you can do it weekly. If you run a BBS like I do, then the date/time function should be checked daily. I have one station that regularly forwards traffic to me whose clock jumps one day ahead every now and then. Looks funny on the heading when it is displayed.

DX problems

Chasing new countries on RTTY is fun, however, it can sometimes be frustrating. Here's a recent example:

A station from Angola, a D2, was working split frequency RTTY on 20M. My friend Bob Stanek, W0HAH, phoned me that the D2 was active so I immediately went to the shack and fired up the rig. There was the D2 coming in S9 and perfect copy. I set the transmitting frequency on the transceiver up 5 kHz and gave him a call. No answer. I tried again and ditto. Another call and this time I did raise someone, but it was not the D2. It was an anonymous RTTY signal with a viscous snarl in his typing. " You dumb jerk," the anonymous lid manager said, "since when is a zero in a callsign a one?"

The lid manager disappeared. He must mean poor old "zero" me, I thought. I probably was the "dumb jerk" calling the D2. So I didn't call until I had listened to the D2 for a while. He finally said he was working "USA area one." That's why the lid manager had turned his fangs at me.

Every now and then the busybody LM would lay it on someone else, particularly anyone who would call the D2 on his own frequency. Instead of "dumb jerk" the language deteriorated to the sewer. Foul language may be the norm on the so-called "citizen bands" but not on the ham bands. This guy was particularly obnoxious. There is no place for foul-language on our bands.

The D2 worked only "area one" stations until there were no longer any returns. Then he announced "area two." The same sequence happened again. And so he went, working up the numerical scale. His good signal started to drop when he got to the sixes, but he was still readable. The clock hands slowly plugged on around the dial. Two hours went by, and then finally he hit "area zero." After he worked a few zeros, he suddenly went QRT with a good night message. And I felt like the lid manager; I had stuck with him all evening and was left in the lurch.

Now I am not against DX using the call areas as a winnowing process, but I would like to have them distribute the call area listening on a more equitable basis. The area-one hams have a good shot at African stations in the pileup mode, but when the DX station stays listening for an area until there are no more people to work, that's not good. Work two or three and then move to the next area. Go round and round on the areas, rather than staying on one so long.

As a result of his technique I missed a new one. And to complicate the problem, he must have been using his RIT for tuning, as he didn't work stations very far from his transmitting frequency. As a result he was creating a horrendous pileup on the few kilohertz above his own frequency.

If you are involved in any emergency communications incident, send story and photos to *Worldradio*, 2120-28th St., Sacramento, CA 95818.

When working split, every US DX chaser has a tendency to plunk his signal exactly on or quite close to the station the DX is working. This causes pileups in the DX station's receiver. And on RTTY it is hard to decode a call sign in a heap of signals. I thought that might be the case with the D2, because he took such a long time to come back to anybody, even with the area calling system in operation.

All during the evening wait for the zero district's turn, I watched the battle of the vitriolic lid manager and various intruders. For a while it created so much QRM I couldn't decode the DX signal. The language used by the combatants was appalling. It varied from "Lid!" to describing the posterior end of the human alimentary canal. Who said ham radio is a friendly hobby?

County hunting

Roy, KE0UQ, the packeteer who enjoys collecting counties, sends this message: "I am finding that hunting counties on packet has its own frustrations. Since most packet operators are clustered around local BBS stations, the amount of available counties to be hunted is much smaller than in pure HF, SSB or CW operations. I have been successful, however, in collecting all 50 states, with printout including header, and have bound all the replies into a plastic sheet folder. I have not had any return word from the county hunters convention concerning the proposals to recognize packet as a mode for county hunting awards. One major reason is that the awards chairman who was presenting the idea of packet awards was forced to resign due to overwhelming personal and family obligations."

If you wish to contact Roy, his packet address is KE0UQ @ WBOAEX. KS.USA.NA.

Eavesdropping

"MY BUG IS RUNNING AROUND THE TABLE. I SHOULD GET A GUN AND SHOOT OR WOUND IT . . . TRY A LITTLE SPIT ON THE FEET OF THE KEY TO CALM IT DOWN . . . YOU SAY NOTHING BEATS YOUR 75A4—WANNA BET—TRY MY NATIONAL HRO-500 . . . HE IS NOW WORKING AREA FOUR . . . YOUR SIGNALS HAVE A HOLLOW RINK TO THEM . . . TODAY THE "K" INDEX REACHED 7 AFTER THE "A" INDEX HIT 43 . . . IT IS RAINING HERE WHICH IS BETTER THAN SNOW SOMETIMES . . . I'M MUCH TOO LAZY TO CONTEST ON THE BANDS, AND TOO MANY HAMS NEED MY STATE FOR WAS . . . IT WAS A PLEASURE TO CONTACT YOUR STATION ONCE AGAIN FOR THE FIRST TIME . . . HE LIKES TO PLAY `ONE-URPSMANSHIP' ON THE DX BANDS . . . YOU IDIOTS QUIT CALLING AND WAIT YOUR TURN . . . HE IS NOW WORKING AREA SIX . . . MY QSL IS 200/100 BY BURO . . . I WON'T TELL ANYONE YOU ARE NEW TO RTTY . . . IF I CRANK UP THE POWER ANY HIGHER YOU'D BE ABLE TO DECODE MY RTTY WITHOUT A RADIO . . . I ALWAYS ENJOY WORKING QRP STATIONS WITH MY BIG BERTHA . . . FOR QSL PLEASE SEND ME A GREEN GREEN GREEN STAMP . . . I'D BRAG ABOUT MY STATION BUT THE BRAG TAPE WON'T BRAG . . . I COLLECT QSL CARDS AND SALT AND PEPPER SHAKERS . . . I NEVER HEARD OF THE NAME KARLKARL . . . 46 46 46 46 OOPS RY RY RY RY . . .

Thanks to the following for help with this column: N3BZI, W5SYT, W7VFR, KA0JRQ, KU6Y, AA7AJ, KI5XP, WB7DLM and W0HAH, My mail address is 1514 South 12th St., Fargo, ND 58103 and my packet is W0LHS @ W0LHS.#FARGO.ND.USA.NA if you wish to try one to me. 73 de Bill Snyder. DIT DIT.

QUARTER CENTURY WIRELESS ASSOCIATION INC.

Ethel Smith, K4LMB

Scholarship Awards

The QCWA has awarded $7,200 in scholarship grants for the 1992-93 academic year. The recipients were nine young college students selected on the basis of scholastic achievement, contributions to Amateur Radio, extra-curricular activities and community involvement. Each winner received an award in the amount of $800. The recipients were: Rebecca Schoenberg, N2ILW, S.Toms River, NJ; Martin H. Gruen, WA2VLD, Margate, FL; Melissa L. Benish, N3FAC, Pittston, PA; Lesly Goh, KD4IPS, Gainesville, FL; Dustin W. Howell, N4ZVY, Minden, LA; Diane R. Magen, KG5CS, Grand Forks, ND; Elena Doerrie, KB5DAK, Booker, TX; Shelly L. Jones, KE5DX, Harrison, AR; and Andrew M. Ross, KC6OHS, San Diego, CA.

Our congratulations to these very deserving students. QCWA scholarships are open each year to any licensed Amateur Radio operator who is pursuing a full-time course of studies leading to at least an Associate degree at an accredited university, college or technical school. There is no restriction on the courses of study. Applicants must be recommended by a member of QCWA.

The QCWA scholarships are administered as a part of the extensive scholarship program of the Washington, DC Foundation for Amateur Radio (FAR). There were 187 applications received by FAR this year and a total of 43 awards were made. All applications received are considered for all FAR administered scholarships for which the person qualifies. Announcements of the 1993 scholarship program will be published early next spring. Help us search out deserving candidates.

Hope springs eternal

Members of the QCWA board have been (for several years) quietly exploring avenues that might make it possible to get old call signs restored to the original licensees. So far the answers have not been encouraging. "The present computer systems at the FCC never activated the module designed to recycle old call signs. Also, the mid-1970s call sign scandal (which sent one FCC official to jail) has left little interest in administering a program of this sort. But now newer computer equipment is being contemplated and, once it is in operation, there should be a chance—for a fee—of recovering those call signs that have been dropped since 1978, as well as those that were not issued at the time the current call sign assignment system came into use."

Many of our old-timers lost long-treasured call signs for a variety of reasons. In the "good old days" you had to give up your old call sign when you moved to a different call area. Some people became preoccupied with the pressures of family and/or earning a living and the next thing they knew their amateur license was beyond expiration! That meant their call was deleted from the Amateur Service database for eternity. People with prized one-by-two call signs suddenly found themselves relegated to two-by-three calls. That hurt!

It will take time to get money budgeted, equipment purchased and new programs developed to meet even current needs, and then get a special call sign system established. Congressional approval of the fees would be needed. The effort would certainly cost some extra money which the FCC budget can i afford. But we believe a good man amateurs would be willing to pay reasonable fee to get a specific ca assigned to their station. (Ralph Halle mentioned $250 at the ARRL Nationa in August.) Rest assured your QCW board is keeping a watchful eye on th possibilities.

Today's pioneers

Some of the secrets of success of on of our most active chapters is reporte by Ken Johnson, W6NKE.

Central Coast Chapter #75 (Califo nia) President Dave Medley, KI6QE, i one of the major figures in the develop ment and operation of the AMSAT Sat ellite Gateway System. He is also a expert on packet and has inspired man members to join the packet game. Mem ber Bob McNair, W6XS, devotes mos of his operating time to AMTOR. Bi Sizemore, W6ADO, runs computer au tomated code practice on 40M on 24-hour basis. He has received than you notes from all over the world.

Ken says, this is only the "tip of th iceberg" with respect to what QCW members in one single chapter are do ing. We would like to hear more fro other chapters. Perhaps we can ru some vignettes here telling about th modern day pioneering that is bein done by QCWA members. Let us hea from you.

If you are eligible for membership i QCWA, and no one has yet tracked yo down with an application blank, drop note to QCWA headquarters, 159 E 16th Ave., Eugene, OR 97401-4017; 503 683-0987, or FAX/BBS 503/683-4181.

Visit Your Local
RADIO CLUB

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

ALABAMA

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

ALASKA

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

ARIZONA

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

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

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

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(-), 224.080(-). PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info (619) 697-2700.

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

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

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

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

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

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

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

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

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

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

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

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

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(+). 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., 8:00 p.m. 145.190. 220 Net, Tue. 8:00 p.m. 224.40(-).

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at 907 E. Vermont, Anaheim, CA. (Between Anaheim Blvd. & State College) Call in on 146.550 simplex. Contact Ken Koehechy W6HHC at (714) 541-6249.

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

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

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

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

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

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

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

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

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

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

Tehama County ARC. Meets 1st Fri./monthly, 7 p.m., Sept.-June, CA Div. Forestry Training Rm., Antelope Blvd., Red Bluff, CA. For info: 144.850/145.450 W6SYY/R.

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

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

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

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7 p.m., Vaca Fire Dist. Stn. on Vine St. in Vacaville, CA. Repeater: K6HIH 147.475 (-1 Meg) PL 127.3. Ph: (707) 448-4633.

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

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

COLORADO

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

CONNECTICUT

Middlesex Amateur Radio Society, (MARS). 5 North Rd., Cromwell, CT 06416. Meets Tues./weekly 7 p.m., Portland Methodist Church, Main St., Portland, CT. Novice classes, VE sessions monthly. Contact Jack, WA1K, (203) 347-8745. Rptr. 147.090+.

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

FLORIDA

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

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

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

Sarasota Amateur Radio Assn. (SARA). P.O. Box 3182, Sarasota, FL 34230. Meets 3rd Thurs./monthly, 7:30 p.m., Sarasota Memorial Hosp. Auditorium.

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

Suncoast Amateur Radio Club. P.O. Box 7373, Hudson, FL 34676. 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., Old City Park Sch. Bldg., corner of Waugh St. and Thornton Ave., Dalton, GA. Info, Bill Jourdain, N4XOG, (404) 226-3793.

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

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., HELCO Auditorium, 1200 Kilauea Ave., Hilo. Talk-in on 146.760(-), 146.880(-), 147.020(+) and 147.040(+).

ILLINOIS

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

DuPage Amateur Radio Club, (DARC). P.O. Box 71, Clarendon Hills, IL 60514. Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Catholic Church, 110 Cass Ave., Westmont, IL. Sun. net on 145.25 MHz PL 107.2 at 2100 hrs. local time. Rptrs. 145.25 MHz PL 107.2, 224.68 MHz, 442.55 PL 114.8. Info. (708) 985-9256.

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

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

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. For *info: (309)* 685-6698. Rptrs: 146.25/85 & 147.675/075.

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

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

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

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

IOWA

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

LOUISIANA

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

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

MICHIGAN

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

MINNESOTA

Minneapolis Radio Club. P.O. Box 583281, Minneapolis, MN 55458-3281. Meets 3rd Fri. (exc. June, July, Aug.), Mpls. Red Cross, 11 Dell Place, Mpls, 7:30 p.m. Making waves since 1916. Net 147.03(+), 7 p.m. Mon.

MISSISSIPPI

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

MISSOURI

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

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

NEBRASKA

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

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

NEVADA

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

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

NEW HAMPSHIRE

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

NEW JERSEY

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.: 146.10/70, 223.24/224.84, 449.15/444.15.

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

Delaware Valley Radio Assoc. (DVRA). Meets monthly, alternating 2nd Tues./Wed., 8 p.m., Our Lady of Good Counsel Church, West Upper Ferry Rd. at Wilburtha Rd. in W. Trenton, NJ. W2ZQ/R 146.07/67. DVRA Ham Hotline (609) 882-2240.

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

NEW YORK

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/.355 rptr. W2PVL.

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

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

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

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

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

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

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

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

NORTH CAROLINA

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

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

OHIO

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

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

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

Firelands Area Repeater Assoc. Inc. Meets 4th Tue./monthly, 7 p.m., First Federal Savings of Lorain, Huron, OH. Freq. of Rptr. 146.805/205. Info: Eugene Hutchins, AA8DL, 45 Welton Ave., Norwalk, OH 44857.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., American Red Cross, 121 W. Mulberry St., Lancaster, OH 43130. Info Net every Mon., 8 p.m. K8QIK/R 147.63/03 Rptr.

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

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

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

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

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

OREGON

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

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

Umpqua Valley Amateur Radio Club, Inc. 450 S.E. Leland St., Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Courthouse, Rm. 311, Douglas St., Roseburg, OR. Info: W5PII/R 146.90/30.

PENNSYLVANIA

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

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

TENNESSEE

Nashville Amateur Radio Club. Meets 3rd Thurs./monthly at Lock 2 Metro Park, located off Pennington Bend Rd. Grilled hamburgers at 6 p.m., mtg. at 7. Info: Jim Lynn, 1621 Jackson Valley Pl., Hermitage, TN 37076.

TEXAS

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

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

VIRGINIA

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

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

WASHINGTON

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

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

WEST VIRGINIA

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

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

WYOMING

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

PUERTO RICO

Puerto Rico Amateur Radio Club. P.O. Box 360693, San Juan, Puerto Rico, 00936-0693. Meets every Thurs., 7 p.m., Civil Defence, Rio Piedras (next to AMA & San Francisco Shopping Cntr.). Nets Sun. 9 a.m. on 147.090, 28.450 & 7.250 MHz. Info: Raul Escobar, KP4QL, (809) 765-2745 (daytime).

Rich Arland, K7YHA

"A satellite, a satellite, my kingdom for a satellite" (with apologies to Bill Shakespeare). How often have you wanted to try something completely different? Satellite communications, or SATCOM, is one mode of operation that is well within the means of even the most modest HF QRP station. How can an HF CW QRP station be used for SATCOM, you ask? Simple, by utilizing the Radio Sputnik #12/13 (better known as RS-12), that's how. RS-12/13 are a set of redundant transponders that were launched in 1991 as a secondary payload to a Russian weather satellite. There are two completely separate satellite transponders on board RS-12/13. Normally RS-12 is active and RS-13 sits idle unless needed due to a problem on the primary transponder.

The nice thing about RS-12/13 is that it is an LEO (low earth orbit) "bird" that, in its present configuration, is using 15M as an uplink frequency and 10M as a downlink frequency. This is called mode K. Anyone who can generate a 15M signal and can simultaneously listen on 10M can access this satellite. That's what makes RS-12/13 so attractive to the active QRPer. I regularly work RS-12 in mode K using nothing more elaborate than a Ten-Tec Argonaut 509 at 2W output (on CW) and a Carolina Windom antenna for the 15M uplink, and a Drake 2-B communications receiver and two-element beam for the 10M downlink.

This is about as simple as it gets. I have talked to other SATCOM operators who are using converted CB sets (found at hamfests and flea markets). This idea is extremely attractive to the homebrew crowd and those of us who can't run right out and plunk down a cool three to five-grand for the latest state-of-the-art SATCOM ground station gear.

This month's QRP column is going to consist of a guest editorial by Mike Herr, WA6ARA, about the RS-series satellites and QRP SATCOM. Mike is an experienced SATCOM operator and has authored several articles on QRP and satellite communications for the QRP ARCI's quarterly newsletter. Mike's guest editorial is a primer on how low power communicators can use the RS-10 and RS-12 satellites to expand their QRP horizons.

RS-10 MODE A		RS-12 MODE K	
UP	DOWN	UP	DOWN
145.860	= 29.360	21.210	= 29.410
145.870	= 29.370	21.220	= 29.420
145.880	= 29.380	21.230	= 29.430
145.890	= 29.390	21.240	= 29.440
145.900	= 29.400	21.250	= 29.450

BEACONS

RS-10 29.357, 29.403
RS-12 29.408, 29.454

ROBOTS

RS-10 UPLINK 145.820, DOWNLINK @ 29.357
RS-12 UPLINK 21.129, DOWNLINK @ 29.454

NOTE — ALL FREQUENCIES IN MHz

Figure 1

Imagine a new Amateur Radio band. It's only 40 kHz wide, shared with both SSB and CW. This band offers coverage out about 3,000 miles. But this band is strange. It's closed most of the time, and when it does open, it does so only for about 15 minutes. However, that opening and closing is predictable, down to the minute. What I have described is the operation on a low orbit, Phase 2 satellite, or "bird." Most hams, including QRPers, already have the equipment to start working these satellites.

There are two satellites that are of interest to QRP operators. These are RS-10/11 and RS-12/13. Both were launched by the then Soviet Union as parasite satellites attached to host navigational satellites, deriving their power and stability from them. On board each satellite are two separate sets of linear transponders, each covering mode A, mode K and mode T, as well as robots (more about them later). On RS-10/11, one set of transponders is known as RS-10, the other is RS-11. RS-11 is a backup to RS-10 and thus is silent until needed. The same is true for RS-12/13, with RS-12 the primary and RS-13 the backup. As RS-10 and RS-12 are the presently active transponders, I'll be referring to them for the remainder of the article.

Each set of transponders has various modes of operation. Mode A takes a portion of the 2M band, amplifies and heterodynes it down to the 10M band; mode K takes a portion of the 15M band and converts it to the 10M band. Mode T takes a portion of the 15M band and translates it to the 2M band. On RS-10 mode A has been on for the last few years while on RS-12, after a few false starts, mode K predominates. See Figure 1 for actual frequency assignments of the satellites. While each of these satellites have mode A, K and T transponders, I have only included the modes which are active at this time.

Two design features make the RS-10 and RS-12 birds attractive to QRP operation. First, these birds are very, very sensitive, making low power operation a snap. On RS-10, mode A, I typically operate 5W at 145 MHz into a J-pole vertical, with excellent results. On quiet nights I have heard a 2W hand-held and a 5/8 wave antenna! On RS-12 I use 2-5W on 15M into a dipole. When the satellite is empty, I've cranked it down to 1W or less and still have an S-3 signal. Because of this sensitivity, omnidirectional antennas are used, eliminating the need for tracking.

The second feature is that the transponder's 40 kHz passbands are split up into 10 4 kHz-wide subpass bands, each with its own AGC. Earlier mode A satellites had a single AGC for the en-

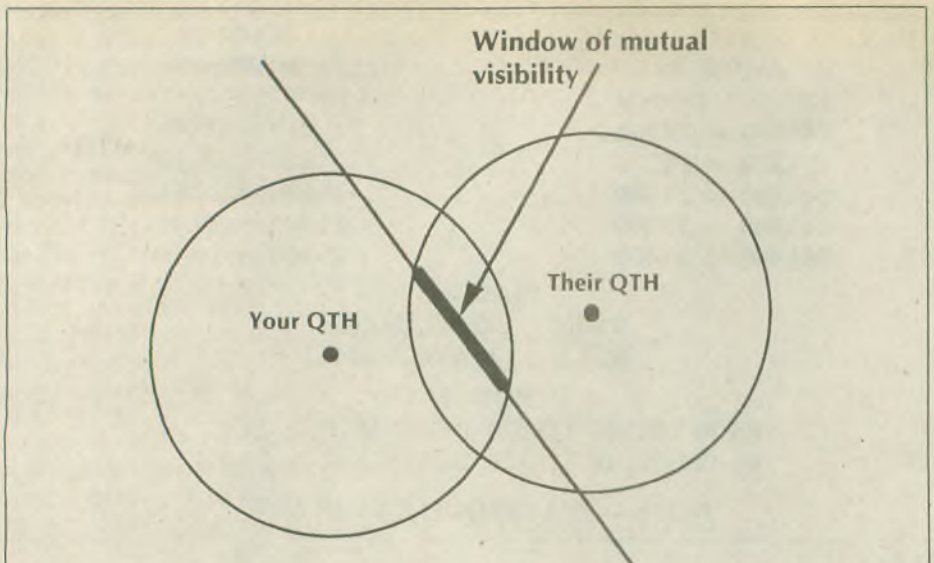


Figure 2

tire transponder band. With a single transponder AGC, an inconsiderate QRO operator at one end of the passband would cause all the signals to drop in strength as the AGC would clamp down. Some of the earlier RS series satellites would shut down altogether! With the smaller subpass bands the same effect occurs, but only in a small, 4 Hz-wide region. Thus the considerate QRP operator is not penalized. Here the true aspect of QRP rules: Use only as much power as is necessary for communication—excessive use of power ruins it for all.

Satellite operation with the RS-10 is simple. For receive one needs a 10M receiver capable of 29.30 to 29.50 MHz and a dipole. For transmit, a 2M CW or SSB (no FM!) rig with about 5W CW or 15W SSB, and a simple vertical antenna, such as a J-pole is all that's needed. Even lower power can be used if tracking is employed; however, this requires constant movement of the antennas and unless automatic tracking is employed, the work load on the operator is excessive.

Omnidirectional antennas, such as verticals and dipoles, are the way to go. At my home station I use a Ten-Tec Argonaut 509 and dipole for receive. For transmit I use a much modified Hamtronics 28 MHz to 2M transmitting converter driven by my trusty HW-9. A simple class C amplifier brings the power level to the 5W range. Antenna is a J-pole, up about 15 feet. So far with this set-up I've confirmed 42 states and two countries. Many other approaches are possible, including the CW conversion of older crystal-controlled FM 2M rigs, firing up old tube AM rigs and the like.

Operation on RS-12 is even simpler. All that is needed is a 10M receiver, a 15M transmitter (5W CW or 15W SSB) and dipole antennas. It is necessary to use two separate antennas and rigs, one receive and one transmit, as this is full duplex. I use my HW-9 barefoot to a dipole for uplink on 15M and an Argonaut 509 with a Zepp for receive. One QRPer, KI6SN, uses a TR-4 on 21 MHz turned down to 5W into a 40M dipole for transmit and an old HRO 50 and 30M dipole for receive.

The actual operation is simple. First, you have to know when to look for the birds. While they are orbiting once every 120 minutes, they're in a polar orbit, passing more or less directly over the North and South Poles. As the earth rotates under them, the typically mid-latitude operator gets about four to six windows a day of use per satellite, each one about 12 to 15 minutes long. The best way to track a satellite is with a computer program. AMSAT maintains a software exchange of the various programs for just about every computer built. Any satellite nut would be more than willing to run off a month's worth of predictions for your location so you can get your feet wet.

Another way is the graphical method, using a polar map and tracking line. The OSCARLOCATOR by the ARRL is excellent and works well. Whether or not you can talk to a particular region or station depends upon your mutual windows. If your window and the other station's window overlap during a pass, then communication is possible (see Figure 2). This can be used to the operator's advantage. If communication is desirable to the East Coast, then the West Coast operator looks for moderate elevation easterly passes. Likewise, if communciation is desired with Alaska, concentration is on the times and passes favoring that area.

Once a suitable pass is identified, set up your station. Turn the rigs on about five minutes prior to the pass. This ensures everything is up and running, because once the pass starts you are going to be busy. At the start of the expected pass, start looking for the beacon; usually the beacon at the bottom end of the passband is easier to find. It will not be exactly at the assigned frequency, due to the Doppler shift (more about that later).

The beacon transmits telemetry information in CW, about 20 wpm, as a series of letters and numbers. Once the beacon is found, start moving up frequency. If it's a weekend and at a decent hour, the region should explode with signals, sometimes sounding like 20M on a Saturday night! CW signals concentrate at the bottom while SSB signals are toward the top. If you're listening to RS-12, there may be many SSB signals on that don't seem to be working the bird. They're stateside and DX operators working regular HF; they're on the bird and don't even know it! Likewise, on RS-10 mode A you may hear badly distorted voices or plane garbage. This is 2M FM operation going on in the satellite subband.

On weekdays you may be all alone. This is a good time to practice and get your feet wet. The frequency charts estimate the approximate transmit or uplink frequency or a clear receive or downlink frequency. Transmit a series of dits while tuning the receiver across the frequency. At this point you should

hear your signal. I turn off my transmitter sidetone and use the receive signal as the sidetone. As you transmit you will notice a drift in frequency. No, this isn't VFO drift, it's Doppler shift. Because the satellite is moving fast with respect to you (18,000 mph) the frequency slightly changes, much like a horn on a passing train changes pitch. The higher the frequency used and the higher the relative velocity, the greater the frequency change. This is most pronounced on mode A, while on mode K it's quite low and can be ignored.

To compensate for Doppler adjust the transmit frequency only. If everyone does this, the tendency to walk across the band is reduced. If you're calling "CQ," call "CQ RS." Keep the call short, about three times and then your call sign. If someone is going to answer you will hear them come to your frequency with a series of dits. If you're answering a call, tune the receiver to the calling station, estimate the transmit frequency, then send a series of dits while tuning the transmit frequency until you hear it. The exchange is short and to the point, much like a contest, i.e. RST, state or city, and name. The other station will do the same. Longer QSOs are possible but usually take place over several orbits. Typical RST is 559, 569, and 449. A 599 report is actually a bad report, as it is saying the station is using too much power, so give honest reports. During high solar activity, there will be considerable QSB as the signals on 10M alternately pass through and bounce off the ionosphere. Usually one to three QSOs can be had during a pass, if the operator is fast. Once the pass is over, it's over.

Both satellites also have a robot function which allows the ham operator to talk to the satellite itself. While listening to the beacon, you may notice that once in a while it stops the telemetry format and starts calling CQ. Tune the transmit frequency to the robot input frequency and call "RS-10 de (your call) AR" for RS-10 and "RS-12 de (your call) AR" for RS-12. If your sending is good (memory keyers help) and up-link frequency is set correctly, then the robot will respond with your call and a serial number. Save that number and send it to the famous Box 88 Moscow hole. After a while you get a QSL card from the satellite. The RS-10 robot is fairly easy to get into; however, the RS-12 robot has either not been on or the receiver attenuators have been in, requiring 100W+ to access (boo, hiss). Listen for them anyway, you just might get lucky.

Another fun thing to try on RS-12 is to listen about an hour before a daylight pass. Sometimes the satellite magically appears for a brief time. The bird is actually on the other side, and the signal is getting down and bouncing around until it gets to you. No telling what you will hear. Europeans have been heard on the downlink working the US. This is on a combination of satellite and ionosphere propagation.

Or, on a slow night try copying the beacons. It's usually running at 20 wpm. RS-10 is a two-letter code and a two-digit number, while RS-12 is a three-letter code followed by a two-digit number. This will tell you about the health and welfare of the bird. Information on decoding the telemetry is available from AMSAT and has been printed in several amateur publications. The beacon from time to time will switch to plain English CW (more or less) text, usually information about orbit, QSLing, etc. During the recent Soviet coup the beacon contained news of what was happening and requests for support.

I hope all you QRPers will give these birds a try. They're simple to use and under-populated. It is amazing that many times I'm the only signal I hear. This also opens up all sorts of portable, Field Day and demonstration possibilities. How about a twofer on 15M and a Neophyte on 10? Some enjoy the snappy QSO, others chase states. Give satellites a try—you might just get hooked, like me!

As I am sure you can see, there is no excuse for not expanding your low power communications horizons. The RS-12 LEO bird provides easy access for almost every QRPer who is currently engaged in HF operation. SATCOM is only one avenue open to the enlightened QRPer. Other topics we will cover in the future include AMTOR, terrestrial V/UHF operation, packet radio and RTTY. To answer the question I asked in my September QRP column: "Will QRP ever grow up?" the answer is definitely "Yes!". All it will take is for some of you out there to get interested in other modes of operation, become active using these modes, and report back to me so I can detail your efforts in this column.

That last sentence leads me into my next topic—a call for papers regarding your QRP efforts using modes *other* than HF, CW and SSB. Topics that are fair game include HF/V/UHF RTTY, AMTOR, ATV, balloon flights, milli/microwatting, natural power, V/UHF terrestrial DXing, and HF/VHF packet radio. Send an outline of your proposed input to my attention at ***Worldradio.*** I, in turn, will analyze your outline and get back with you to firm things up. I am anxious to find out what non-traditional operations are going on out there in low-power land.

Autographed copies of *Low Power Communications — Vol. I, Basic QRP* are available. Check out the classified ads at the back of ***Worldradio.*** Look for the release of Vol. II, *Advanced QRP Techniques*, coming in December. 72 and 73 Rich, K7YHA. □

TRAFFIC

Geri Sweeney, N4GHI

Controversy is good as long as the people involved can keep a dialogue going and remain allies in a common cause. Complacency often stifles growth and ennui ensues. Thus, it was good to see an article in *QST* ("NTS: An Anachronism?" in the June issue, p. 65) which actually agitated readers enough to sit down and write letters to the editor (Rick Palm, K1CE, field services manager).

People replied to different aspects of the article. In his response to the published letters the following month, page 56, Rick stated that his main objective was to express his belief that "the present system isn't working as well as it could in moving long-haul traffic." His answer was to revise the relationship between NTS modes (SSB, CW and packet).

The new relationship, as Rick sees it, would use section and local nets and/or PBBS to originate, deliver and distribute traffic in the area. Any traffic leaving the section and/or local area would be passed on some data mode.

The push is for APLINK. APLINK stations import messages from local VHF packet and then export it on HF using AMTOR—to another APLINK station elsewhere. Here the process is reversed. APLINK means Amtor-PacketLink. Rick's NTS future would eliminate region and area nets as well as all TCC (Transcontinental skeds). Thus, all modes could be used locally and sectionally. Data would replace SSB and CW (all region and area nets would be eliminated) to move traffic out of and into sections. We then read in the August *QST* about the move to eliminate automated forwarding by packet stations. But that's another controversy.

My guess is that just about every traffic handler who is active in nets and packet has initiated the experiment where two messages are sent at the same time, one on packet and one on a net. The letters-of-reply to Rick's article quoted how in their experiment one message arrived hours, days and weeks ahead of the other, or sometimes not at all. Some gave the advantage to nets and others to packet. Indeed, I have also done the experiment. My experiments have given neither side an advantage. It varies. It probably varies by just who ends up in the routing.

Whether traffic is passed on nets or packet, individual people make the difference. Some PBBS are better than others. Some traffic handlers are better than others. Sometimes it's only a matter of chance. Things happen, like the message being garbled. The message can start off garbled or get garbled by all modes, including data. All people and machines have occasional problems. I don't think that we have established that one mode can consistently outperform the others or is the more reliable at this time.

Present structure

Who presently directs the NTS? Who can make decisions to make it better? Who has been in charge of integrating our newest mode of packet and helping to work out the bumps? The US and Canada are divided into three areas: Eastern, Central, and Pacific. While my experience is with the Eastern staff, I believe the other two are mostly replicas. Each area has regions. Each region has section nets (a state or part of a state). Sections have local 2M nets. Region net managers, area net managers, TCC (traffic from one area to another) directors, and some members-at-large make up an area staff.

These three staffs (PAN, CAN, EAN), used to meet each year to work out problems. When packet arrived, we on the EAN spent most of each yearly meeting (for two years), listening to discussion on how to help it merge as a mode on the NTS. We voted to install a packet manager in each region to work out any problems.

But now it becomes a bit cloudy to me. If the staff decided on something, did it have to go to the ARRL board for approval? Did our staff at ARRL headquarters, Rick Palm, just implement it? Or, did he have veto power? Where do all the ARRL committees who are supposed to be advising on issues fit in?

In the late 80s, it was decided by *our* staff at headquarters that the three area staffs no longer needed to meet. We were told it was too expensive. It seems HQ staff was, at least, in charge of the budget. It was then decided that the three area chairmen could meet once a year and work everything out. The EAN staff chairman did try to hold on-the-air radio meetings but this proved impossible due to propagation.

Presently, there is no continuing discussion between us and our chair. As Atlantic Region net manager, I am a member of the Eastern Area staff. It appears dead as a decision making body. I assume the other two (PAN/CAN) are also. Our only function now seems to be to send in a monthly report of traffic activity. Some might even consider this report obsolete. Does anyone really care how fast (total time divided by total traffic rounded to three places) we pass our traffic?

All in all, it presently seems to me that traffic handlers are allowed to exist, if we don't cost much and stay out of the way. Unless an international disaster (such as an earthquake) occurs, and the media puts pressure on headquarters in Newington to tell them what's happening, traffic handlers seem to be out of sight and out of mind. Big emergencies which capture the limelight don't happen very often, and many times it is the case that phones provided sufficient communications. Traffic handlers get much less PR than their efforts deserve.

But traffic handling is more than a community service. It's fun. It's a game we enjoy so we do it anyway. It's a social activity. Traffic handlers have been known to travel for thousands of miles to meet someone they have known for years on a net. Long lasting friendships are built.

Future

The NTS has become stagnate. It was once a star—an R in ARRL. I don't know why so many fine traffic handlers used to be produced. I do know that few new fists are heard. We out in the field who are still active love handling traffic. We know the joys that come when everything works well: a nice conversation on the phone delivering a message; a splendid net with an outstanding NCS; a good sked with another TCC operator and some chit chat afterwards; meeting new friends; looking at the route a packet message took and seeing how quickly it moved; designing new techology to make it even better. We are proud of what we do.

Perhaps to gain more traffic

andlers, we need ARRL's board of irectors to recognize that we do an nportant job and request that HQ urnish some PR among fellow hams. Iow about requesting an anstronaut o send a few pieces of traffic? Or elcome new ARRL members with a etter mentioning where to find their ocal nets and/or packet BBSs. erhaps a handout on what great ork we do and how to do it, or a video f having fun handling traffic for radio lubs and hamfests.

Rick mentioned a poll taken where raffic handling came in last behind rite-ins from a group of 17-year-olds. wonder if any of them had ever andled traffic or had any idea what raffic handling was all about. What as the number-one activity this roup enjoyed most? Talking on 2M.

There is a need to re-evaluate what ne NTS is and what it could be. But, stead of radically changing the ature of the NTS structure, based on nebulous poll, a real study should be one by those who enjoy it so much. A ommittee could be formed of traffic andlers to evaluate every facet of raffic handling—not just whether it hould be abandoned or changed adically, but also how we can en- ourage new licensees to give it a try.

How is the game being played? Are ur modes intermingling in the most ffective manner? Should we change, dd or delete ARL messagegrams? hould we make changes in the way e run nets, ask for fills? What sort of ata do we want to see in our reports? re there other approaches for traffic hich could be assimilated with the resent system?

For instance, this year six sixth rade classes in six cities piloted a pro- ram to hold a joint sports activity ay. Their scores were relayed from ci- y to city via Amateur Radio. If even 00 schools throughout the US and anada decided to implement such a rogram, traffic handlers might be nergized and marvelous PR gained. raffic handlers and education form a artnership which hasn't been tapped.

Why not send all ORS (official relay tations) a request to nominate traffic andlers whom they would like to see n this committee.? ORS are reliable nough to take the time to send in a eport each month on the traffic they andled. In Virginia, that's about 50 eople. If our 50 states averaged even 0 per, the poll would include 2,000 perators. Virginia's 50 people include very mode: SSB, CW and data on HF, HF, packet and APLINK. RRL could then select a committee rom those who are nominated (main- aining that each area and mode are ell represented), and sponsor a two or three-day meeting where they would work out a five or even ten-year future for the NTS.

MARS operation

Holiday II is a public relations campaign originated by the Eastern Area Army MARS public relations officer, designed to promote the sending of radiograms by the public using both the NTS and NARS networks. The ultimate purpose is to bring all hams together in a united effort to make the general public aware of the services offered to them by Amateur Radio. MARS hopes to approach this public awareness via 2M packet and by informing Amateur Radio clubs. Lorraine Matthew, AAM3PR/N4ZCF, Eastern Area Army MARS public relations officer, has a complete club presentation available: P.O. Box 1439, Santa Rosa Beach, FL 32459.

All traffic handlers, whether NTS or part of an independent net, should know how to exchange traffic with the MARS system. I think it makes sense for NTS section traffic managers to accept monthly traffic reports from all traffic handlers in their section, including MARS. With these reports, each section can examine more accurately: 1) how much traffic is flowing; 2) which modes are being utilized; and 3) who the dependable ops are for times of call-up in an emergency. Traffic handlers are too few to be broken into separate divisions (MARS, NTS, etc.); we do need to work together. While individual agency reports may be necessary (a MARS ops report to MARS, etc.), why not have one organization (I suggest NTS), collect reports from all traffic handlers so that we could maintain one database from which each organization could draw?

Favorite message relayed:
"All is well x Glad to hear from you x Happy holidays x Will call if we have any more children." □

Directory for the blind

Any sight impaired Amateur Radio operator desiring to have his or her name and call sign appear in an international directory of blind Amateur Radio operators is invited to forward his information to Philip Oliver, WA1DWS, 109 Nelson St., Leominster, MA 01453. You can call him at 508/537-3099, or reach him on CompuServe at mailbox number 70346,166. —*Westlink Report*, 7/31/92.

Paul A. Scipione, AA2AV
MARS call AAA9PR

The history of Mars, part III: post WWII, Korea and into Vietnam

This is the third part of my series on the history of the MARS systems. Part one in the May '92 issue discussed the birth of MARS in 1925 through the start of WWII. Part two in July '92 covered MARS and related radio developments during WWII. This third part covers MARS from the late 1940s through entry into Vietnam service in 1965. In some past columns as well as future ones, I cover various aspects of MARS operations and personnel during Vietnam and post-Vietnam, including Operations Desert Shield and Desert Storm. In addition to being fascinating, this MARS history also illustrates one important way that we Amateur Radio operators can use our "hobby" to serve our country.

Although tens of thousands of hams served in the uniformed and maritime services during WWII, MARS, which had been the AARS (Army Amateur Radio Service), was officially curtailed during the war, replaced by WERS, the War Emergency Radio System. After the end of WWII, the Pentagon resumed the AARS service but restricted membership to only active-duty military and civilian employees of the military.

MARS by that name was first announced by the secretary of defense on 26 November 1948. It grew rapidly, attracting more than 1,500 stations worldwide during 1949. Its growth was a direct reflection of the far-flung assignment of US military personnel around the world, which was itself a reflection of both the Cold War and our Marshall Plan activities following WWII.

The Korean War and phone patches

It wasn't until January 1951 when the Pentagon finally opened the MARS system to civilian operators. And no wonder we were needed—by then tens of thousands of American troops had been called to Korea to help stop the sudden invasion by North Korean and Red Chinese troops. An interesting editorial appeared in the August 1950 issue of *CQ*, stirring amateurs to action:

> Just as the crossing of the 38th parallel by the North Korean forces demonstrated to the country the need for a strong army of fighting men, so has it demonstrated to us the need for a great system of Amateur Radio operators. Whether as trained operators used to working under QRM and QRN conditions unthinkable to the military communicators, or as technicians ready and able to furnish emergency repairs to electronic gear, we hams are an invaluable resource in the continuing battle for peace. In peacetime or in wartime the radio amateur has been and will continue to be of prime importance to the country at large.

The same editorial also urged establishment of a new Novice license class in order to bring more Americans into ham radio.

One of the first emergencies handled by the new MARS system was much closer to home. In 1950, four barges loaded with gunpowder exploded in Raritan Bay in New Jersey, demolishing a large section of South Amboy and raining deadly flying glass down on the local population. Local and regional power and communications lines were also destroyed. Middlesex County was declared an official disaster area. The first emergency personnel to arrive at the scene, besides the Red Cross and ROTC students from nearby Rutgers University, were MARS operators from nearby Fort Monmouth who set up four mobile 500W stations and provided both civilian and official communication on a clear channel of 4.020 MHz for the duration of the clean-up. Their impromptu mobile crisis center and net at South Amboy became the model for MARS operations for decades to follow.

But Korea was the main focus of MARS then. We did not realize it at the time, but the Korean War was a haunting precursor to the Vietnam War that would follow 15 years later. Between 25 June 1950 and 27 July 1953 more than 5.5 million Americans served in the active duty military, including 1.5 million in the war itself. More than 54,000 Americans died in Korea and nearly 260,000 were wounded. There was a desperate need to find a way for the wounded troops and their families to be able to communicate in a way that would be more personal than letters.

Keep in mind that the distance between Korea and the American Midwest is more than 7,000 miles. This communications vacuum of enormous proportion was filled by an innovative service that would quickly become the quintessential MARS service, the phone patch. The idea was to carry a phone call one direction at a time from Korea to the US via HF radio, where the transmission would then be linked to the regular long-distance phone system via a device called a phone patch. The first ones were strictly homebrew—even Collins hadn't started to make commercial patches yet. The earliest reference in the ham magazines that I could find to MARS phone patches was an article in the January 1952 issue of *CQ* in which Richard Littler, W8JRG, of Springfield, Ohio, described how homebrew patches could be constructed and operated:

> "Okinawa calling Ohio with traffic," a golden opportunity to be of service to a brother ham, but just as we got set to give him a call we just as often heard him stipulating, "phone patch." Life seemed so futile while you listened to some smart operator with a patch reap the satisfying rewards not once, but repeatedly. The need of a patch fast became an obsession and could only be satiated by building one. All of the textbooks, manuals and handbooks, including Terman, Henney and even Alexander B. himself were culled but to no avail, nary a patch, only the realization that such gadgets are not "common knowledge."

The *CQ* article then presented information on how hams could construct their own phone patches. The article appears to have been a ploy to get phone patches into the shacks of enough hams so that the FCC would not institute a potential ban on patches. The ploy really worked when MARS decided to adopt the service itself and offer it free to American servicemen and women stationed around the world. While the more traditional MARSgram, sent via RTTY over HF radio, continued to be popular, being able to make a free phone call home seemed even more like magic.

Although the Korean War ended in an armistice in 1953, tens of thousands of American troops stayed behind to help the South Koreans defend their tiny nation against any further invasions from the North. More than

100,000 American troops also remained on duty in post-WWII Europe, to honor NATO commitments to defend the free world against possible Soviet Communist aggression. Thousands of other American sailors patrolled the seas for months on end and hundreds of American airmen spent lonely months manning isolated radar intercept stations along the DEW line above the Arctic Circle. But no matter where these young Americans were stationed, they were never so far away that the men and women of MARS could not magically give them a five-minute touch of home via a phone patch.

Unknown to many Americans, in 1950, the same year that the Korean War started, the Pentagon sent 35 American military advisors to Vietnam to help advise French colonialists and their Vietnamese military allies on how best to defeat a band of Vietnamese guerrillas that was led by an intellectual named Ho Chi Minh and a military man named Vo Nguyen Giap. Little did we realize that this tiny military commitment in the midst of the Korean War would lead to an even longer, more painful war 15 years later, one in which MARS would face its greatest challenge and make its greatest contribution to date.

The Vietnam War

According to Major General Thomas Rienzi, former assistant Army chief of staff for communications and electronics, and previously commander of all signal troops in Vietnam, the official entry of MARS into the Vietnam War started on a very small scale. On 13 December 1965 two enlisted men and HF equipment were airlifted to Vietnam. At that time there were already more than 180,000 US troops stationed in South Vietnam. By 22 December they had three MARS stations on the air running phone patches and MARSgrams for servicemen and women who would have otherwise had a very bleak and lonely Christmas in the war zone.

From those humble beginnings—small stations at Saigon, Long Binh and Cam Ranh Bay—the MARS systems experienced spectacular growth in Vietnam, rising to a peak of 84 stations four years later: 49 Army MARS stations, 22 Navy/Marine MARS stations, and 13 Air Force MARS stations. By my estimate (MG Rienzi's figures were smaller), the MARS stations in Vietnam ran more than three million phone patches and passed more than 500,000 MARSgrams during the eight years that they operated.

That works out to approximately 1.1 phone patches and .2 MARSgrams for every American serviceman and woman who served in-country in South Vietnam. The service was free, manned by MARS volunteers on both sides of the Pacific. All a GI had to do was call or stop by his local MARS station in RVN and get on the waiting list. When his turn came up, the GI was given from three to five minutes to talk on the phone with a friend or loved one back home.

Since a phone patch was really a series of one-way conversations, both the GI and his loved one needed to say "over" to let the two MARS operators know when to alternate their send and receive switches. The calls went via HF radio from RVN to the MARS station in CONUS, where the MARS operator then patched through to the regular long-distance telephone network. In most cases, the only charge was the one the family paid for the cost of the call from the CONUS station to their home.

A few MARS stations, like Senator Barry Goldwater's famous AFA7UGA near Phoenix, held a variety of fund-raisers so that they could also pay for the domestic long-distance call. Other than the eventual trip back to "the world" at the end of their year-long tour in Vietnam, a phone patch home was the biggest boost to a GI's morale.

Phone patch traffic between RVN and CONUS became so intense, especially during the peak of the Vietnam War from 1968 through 1970, that Army MARS had to institute seven nets, each consisting of from five to seven MARS stations and controlled by an NCS station and ANCS station.

Each station's chief operator had to monitor an in-country control net on a window (approximate) frequency of 7.704 MHz 24 hours a day. Often five or more Nam stations would have to rotate on one stateside station, getting in only two or three calls per hour before passing the frequency on to the next station in the net. The MARS stations and personnel were really burning up the ether across the Pacific with nearly 50,000 phone patches a month at the peak of activity.

What has never been recognized before now is that we had a secret ally in our phone patches during most of the Vietnam War. It was called Sunspot Cycle 20. Although sunspots have been noticed, counted and recorded on a monthly basis as far back as 1749, it has only been during the past 50 years that scientists have fully appreciated the impact that the sunspot level has on HF propagation—the higher the sunspot number the better the propagation. It is also known that each sunspot cycle lasts 11 years.

In an almost miraculous coincidence of phenomena, Cycle 20 began its rise within months of the start of the build-up of American and Allied troops in Vietnam, it reached its peak count of 111 within months of the high point of American troops stationed there, and by the time this cycle descended to its low point, the peace agreement with North Vietnam had been signed in early 1973, removing all but a handful of troops who stayed to guard the American embassy in Saigon. You couldn't even have intentionally drawn the two cycles closer together!

A table of the monthly sunspot count for Cycle 20 (included with sunspot cycle numbers from 1949 to 1981) is presented in *The Shortwave Propagation Handbook,* George Jacobs and Theodore Cohen, CQ Publishing. Current cycle information is presented in Jacobs' propagation column in *CQ*, as well as Bob Brown's, NM7M, Propagation in ***Worldradio.***

As a matter of added interest, our current (now on the down swing) Cycle 22 reached its high point of 161 the fall of 1989, about one year before Operations Desert Shield and Desert Storm. WWII caught the downward spiral out of Cycle 17 (not a particularly strong zenith) and the Korean War caught Cycle 18 about halfway down to its low point. Those of us in Nam and our families back home were both lucky that most of us could have the wonder of a phone patch home, not only because of high sunspot numbers, but because of the wonderful hams who volunteered their time as MARS members. □

Jenning's corollary — The chance of the bread falling with the buttered side down is directly proportional to the cost of the carpet.

Search And Rescue Communications

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When Hurricane Andrew hit Florida I was teaching some newspaper seminars in St. Louis. Being a media-type person, reading a newspaper or watching TV news is a daily must. I was sure proud to be an Amateur Radio operator as several St. Louis TV stations showed health and welfare traffic being passed by local amateurs.

From my hotel room packet station I watched lots of traffic flow through some super St. Louis area BBSs headed to and from the Gulf Coast. Pretty neat system!

Sometimes I feel guilty living in Salt Lake City — we get some forest fires or searches for missing persons or aircraft, but we've escaped the tornados, floods, hurricanes and major fires many of you have experienced. A lot of packet traffic flows through here and it's a real learning experience to listen to all the HF disaster nets.

One thing I've observed is the expertise of the "new" Amateur Radio operators and some pretty clumsy operating by some "experienced" operators. I think this must be the curse of any volunteer group (especially Civil Air Patrol) where the "experienced" members feel they've paid their dues for many years and don't need to keep their training current.

No clear vision

When I was a CAP communicaition officer it was particularly frustrating to invite members to a communication class or exercise and hear them say they were qualified and saw no reason to attend. Nine times out of 10, these "experienced" members were pretty embarrassing to listen to during a search mission.

Some of our less active ARES members have been invited to attend exercises and training sessions, yet they'll often say there is no need to participate. One member told me that in a disaster ARES would be begging local Amateur Radio operators, trained or not, to help. I presume that's why I've heard some poor operators on HF emergency nets: People will get on the air and participate, whether or not they know what they're doing.

It's sad this attitude gets in the way of providing better service. A bright spot is listening to the operators who really have a clue as to what emergency communications is all about. Some of these enthusiastic operators are newl licensed and their excitement not onl keeps me interested, they're getting lot of new people encouraged as well.

It wouldn't surprise me if some da the "experienced" operator isn't aske to help in an emergency because ther are enough *trained* people ready to re spond.

As you train your volunteers, it's crit ical they catch the vision of our pur pose. Your training should allow mem bers to "buy into" the purpose and mov up in the group. Training should allo members to follow a "reward path."

Leading a volunteer group mean you need to find what rewards are need ed to motivate each person. Some wil aspire to leadership positions, other will want to be called out on mor events and have increasingly impor tant roles. Still others will develop spe cialities in planning and support areas

Keep members informed

Good leaders will find ways to in volve their group members that wil keep them motivated and active. Bein a long-time armchair quarterback, see that good football teams communi cate well, allow each team member t shine in a particular role, and spread the load. Poor teams always seem t have one or two glory hounds that try t do it all—and it works for a while— until they wear out or are unable to pla when injured.

Your emergency team depends o the leader (or coach). Being a qualit response group means your coach ha communicated to you what needs t happen for a "win." This is the missio statement I wrote about some month ago. This defines for everyone why th group exists and what they're expecte to accomplish.

When an ARES member (or a CA member) works to become a qualifie (and skilled) emergency responder suc as a communications director or a incident commander, it is a poor sys tem that ignores the training in favor o the "good old boys." If the group's mis sion is to save lives, you want your bes people doing their thing. It's alway been frustrating to watch CAP mem bers seek and earn an SAR qualificatio only to discover that without a pilot' license, they're not going to get called.

If, for example, your group has si training levels, you need to have a pur pose for becoming trained. The firs levels are usually entry points or hav an orientation focus. The higher level often address higher readiness statu and leadership experience.

You need a lot of experienced peopl at a high level of readiness! Let's sa you need a new operations team chie If you pick someone relatively new with

ut the documented training, the message you send is that training is not important. I see this, by the way, as the largest flaw in CAP training. Commanders are often chosen because of their flying status and not because they've completed leadership training. Often this training is even described as necessary for group leadership!

Discover motivations

I do agree that some highly trained people do not want to be leaders. That's okay because their motivation (the reward) is found in other areas. As the leader, however, you should at least offer these people the opportunity to lead. Nothing will demolish group morale faster than having high profile or expert members tell others that training is not a leadership requirement.

If you're going to have a training program, if you're going to have a mission statement and purpose, if you're going to have a quality SAR group—follow your written plan! New members who read your materials and feel they can move into responsible positions by meeting certain requirements need to see it happen. When you act contrary to your own rules and guidelines, you're really telling members those rules and guidelines are not important. In essence, that quality is only a motto.

We don't talk here

This summer we drove through several states and National Parks. I was really impressed with Rapid City. As we went through many areas, we'd trip the local Amateur Radio repeater or CAP repeater. It was discouraging to put out a call and have no response—often over the course of a day or two!

Rapid City was delightful. Their amateur and CAP repeaters were monitored, we had some fun conversations, we got directions from some pretty neat communicators and felt welcome. In many other areas I wondered if they knew about repeater control operators or trustees! I can't imagine someone going to the expense and effort to put up a repeater and then ignore it!

Are we ready yet?

Several weeks ago I sent out a packet message asking about net control functions. I'll share many of my responses in a future column, but one reply is worth mentioning now.

Paul, KK6H, said the NCS must have a good signal and have well trained and capable operators or there is no hope of "control." I also agree with Paul when he said packet/RTTY/AMTOR are good modes for support traffic. A point not often addressed is when to accept health and welfare traffic.

Most emergencies begin in a controlled state of panic. After a couple of hours the emergency structure is in place and things smooth out. Paul said he fully supports a complete blackout of incoming health and welfare or inquiry traffic unless you're set up to handle it. "Taking that traffic when you have no local outlet for it is simply ridiculous!" I appreciate Paul's observations.

In a recent training session, Susan, AA7HD, explained that calm operators are those who have practiced and trained and know the proper procedures. "Knowing our procedures and gaining proficiency through participation in training opportunities and the continued practice of good communications skills helps reduce stress in emergency situations." Susan also echoed the Boy Scout motto: "Be prepared." Knowing what to do, being ready to respond and spending a little effort in advance is critical to the volunteer.

Use your people, stick to your published mission and regulations, provide reasons to become trained, help your group "win" as a team, and you'll be effective as an emergency group.

Until next month, 73. □

County Hunter

Ace Jansen, N3AHA

51 Kenbrook Circle, San Jose, CA 95111

HamBase

When I started county hunting in 1978, I entered every state QSO party and contacted stations in counties I needed. Then I looked up the addresses in the *Callbook* and sent them QSL cards. This worked well for state QSO contests where the county was part of the contest exchange. Unfortunately, when I entered the ARRL Sweepstakes, the county was not part of the exchange. If I wanted to know the county of the station I contacted, I had to ask (which wasn't well received) during the contest or look up the address after the contest and find the city and county in an atlas. Fortunately, there now exists a better way of looking up an amateur's county—*HamBase*.

HamBase 1992, a J-Com product, is a data retrieval program that is similar to the *Callbook*—it has address information for all 540,000 licensed amateurs—however, looking up addresses is easier with *HamBase,* plus it includes the amateur's birthdate and county. The program gives a prompt to enter the call sign desired. After entering the call sign, *HamBase* almost instantaneously retrieves the name, address, class of license, birthdate and county for that station. It's that easy!

HamBase has lots of features besides its quick database, including: 1) editing and printing address labels; 2) editing and printing QSL labels (with contact information); 3) multiple call sign access (using batch files); and 4) exportation to a database program. Now, one at a time . . .

1) The old way was to look in a book and try to transfer the address to a card or envelope without losing your place on the page. The *HamBase* way is to push two buttons and print an address label. Sweet!

2) With labels running through your printer for addresses, you might as well print a label for QSO information. *HamBase* allows you to edit and print a QSL label. The first two lines of the label include the QSO information, and the last line is available for personalized comments.

3) *HamBase* allows multiple call sign access. If you made 25 contacts in a contest, *HamBase* is capable of looking up all the call signs and writing what it finds to a file. Then you can use a text editor to look through the list and see the counties you contacted.

4) If you wanted to use your favorite database program to sort the data, you could export the entire *HamBase* database. (Be prepared to use at least 34 Megabytes of hard disk space; *HamBase* allows for filtered exports.) You could search for a first and last name. For example, if you lost touch with an amateur who has changed calls, you could use *HamBase* to search and find the name. What would be really nice is to search for a specific county you needed. I wasn't able to make this work for some reason. Either the program doesn't do it or I couldn't figure it out. Anyway this would be a valuable county hunter feature and I'll contact J-Com to make sure it's available, either now or in the future.

HamBase can be used with a floppy drive or a hard disk. If you have 21 Megabytes of hard disk space available, by all means load it on the disk. If you don't have a hard disk or not enough space, *HamBase* will tell you which floppy disk to insert to find a specific callsign. Using floppy disks and a PC-XT, it will take 10-15 seconds to find the data. But still, that beats looking it up in a book.

The basic program and database cost $49.95 for PC (1.5 MB disks) and $59.95 for PC (1.44 MB disks) and Macintosh (800K disks). There are four *HamBase* optional programs available, all $19.95 each: *WHamBase, HamBase* for Microsoft *Windows; HB-PopUp,* a TSR version pops up using a hotkey combination; *HamBase Canada,* a 1991 database of Canadian amateurs; and the *HamBase* supplement 1992, a semi-annual update of FCC database changes. For more information, write J-Com, Box 194, Ben Lomond, CA 95005; 408/335-9120, or FAX 408/335-9121.

Fifth Time Around

The B&B shop is sponsoring two new awards this year. The first is the Fifth Time Around Award. You guessed it, work all counties five times. That's not necessarily five contacts with all counties; rather, contact all counties once, receive an award, then start on the second time around, etc. That may mean more than just five contacts with one county. Therefore, don't worry about this award until you've finished contacting all the counties four times. Currently, there are 18 holders of the Fourth Time Around Award. Since contacts must be made after the date of the Fourth Time Award, someone may already have qualified but didn't have an award available to apply for. This award is an 8 X 10½ walnut plaque with five stars in a row across the top.

Five Star Award

Like other county awards, the goal is to contact all counties. However, for the Five Star Award you can't just contact anyone—you have to contact holders of *CQ*'s USA-CA All Counties Award or MARAC's US Counties Award.

Each US county must be contacted on or after April 1, 1992, with five different USA-CA or US Counties holders. The award start date cleans the slate, it doesn't matter who you've contacted and how many times you've worked all the counties. Now, everyone is starting from scratch. Alternatively, contacts with a holder of the Second Time Award may count for two contacts from one county. The same is true for holders of the Third, Fourth and Fifth Time awards. If you listen to the county hunter nets, you'll hear mobiles say they're in such-and-such county and worth two stars. This means they've worked all the counties twice and are good for two contacts toward the Five Star Award.

This award is similar to the Fifth Time Around plaque except the five stars are arranged in a pentagon shape at the top. A Five Star Award Log Book is available to list all contacts and provide a method of tracking Five Star progress.

North Dakota

Have you ever had trouble contacting North Dakota? Well, how about trying to contact all counties in North Dakota. You might have to work a few mobiles. The Theodore Roosevelt Amateur Radio Club sponsors the Worked All North Dakota Counties Award. It is available to all licensed amateurs and SWLs. All contacts must be confirmed by QSL, and QSLs must be in one's possession.

The fee for the award is $2. A self addressed, stamped #10 envelope to Steve Allar, 1701 6th Ave. NE, Beulah ND 58523, will get you an official application form and complete rules.

Maps

Recently, I received a letter from N9DRU asking how to get a US county map. The Mobile QSL Bureau has 17½

X 22½ maps with all counties identified available for $5 and laminated maps for $7.50. They also print a county hunter coloring book for $10. This book provides a page for adding contact information and a state map for coloring worked counties. For more information write to the Mobile QSL Bureau, Rt. 3, Box 400, Timmonsville, SC 29161.

Mini-convention

Each year in July, MARAC holds its annual convention. This year it was held in Virginia and in 1993 it will be held in Seattle, WA. Additionally, there are mini-conventions held throughout the year. One of these mini-conventions, pardon me, THE mini-convention is the South East Mini held in Murfreesboro, Tennessee, 5-7 November. The Murfreesboro mini-convention rivals the national convention for attendance and some say is consistently more fun. If you are in the Tennessee area and would like to meet some well-traveled county hunters, stop by the convention. For more information contact Bill, KM4W at 615/728-7379.

An information packet is available from the Mobile Amateur Radio Awards Club. The packet includes information about MARAC, QSLing, Net Operation, County Hunting supplies, etc. Send your request with a business-size envelope and 29 cents postage to: MARAC, P.O. Box 9112, Mesa, AZ 85214.

Monitor the County Hunter's Nets on 14.336 MHz and 14.0565 MHz for mobile expeditions.

Until January, happy hunting!

It is my bounden duty to tell you that we have to lower our expectations. That's right, solar minimum is just around the corner. And if you don't believe me, look at what the experts have to say: NOAA's Space Environmental Services Center (SESC) is talking about a sunspot count of about 80 around the start of '93, and even the stodgy astronomers are saying the same thing. If you monitor the solar data broadcasts on WWV, you know that the 10.7cm solar flux dropped below 100 for the first time in over four years.

It's a good time to start thinking of how we can adapt to changing times. To do that, we should first think where we've been and now where we're heading; let's look at how the scene will change. And just to show you that there's more than changes in the ionizing UV-radiation from the sun, I'll throw out a few ideas about magnetic storms and even contesting at the end of this essay.

Turning to propagation first, as you know we've enjoyed fine times in Cycle 22, the 10 and 15M bands giving some great openings for DXing. And the same is true of the 20M band. But there is something there that we should dwell on for a moment or two, the idea of a "DX opening." If that is a part of your personal vocabulary, then you should also have another phrase to match it, a "DX closing." Indeed, the term exists but nobody likes to talk about it.

Those two-word phrases suggest that the ionosphere is switched on or off, at least as far as the high bands are concerned. Well, that's true in a sense but as you know, we're really talking about MUFs on paths rising above our operating frequency. When that happens, the band is "switched on" and when it falls below our operating frequency, the band is "switched off." Nothing complicated about that, right?

Wrong! The ionosphere is not like a tiny diode; it's a large, extended affair and we use only parts of it at any one time. If it's "turned on" or "turned off," as the case may be, the parts that we're using are what's involved.

Take the region where our RF hits first on its way to DX. We get the full benefit of it if *all* of it is ionized to the extent that it will refract our signals. Failing that, we get the benefit of only part of it. So signals are not always robust; instead, they grow and decay gradually as the degree of ionization changes across the breadth of that region, not discontinuously like a square wave, and some time is involved in completing the process.

As long as you operated up around 21 to 28 MHz during Cycle 22, you were winning or losing according to how MUFs changed. True, it took time for the band to develop or drop out and there was absorption in the D-region along the paths you followed, but th big story was the critical frequencies

If you've read any of my previou remarks in this column, you know tha I've been a real nag about the impor tance of signal strength in compute programs and the importance of the D region when one moves down to th 20M band. Put another way, MUF diagrams can be high enough to giv you the idea that the band should b open, but the actual duration of a opening turns out to be shorter be cause of ionospheric absorption on th sunlit parts of paths.

Why am I saying all this? Well, eve the 20M band is going to become spot ty in the times ahead as we go into sola minimum. Put another way, the drop i solar flux that can ionize our atmos phere will lower the MUFs and make u start chasing DX on lower frequencies say 10, 7 or even 3.5 MHz.

That's not all bad but the rules of th game will be different as D-region ab sorption will become even more impor tant and the E-layer will start to play role too. Indeed, the E-layer is the rea factor that ultimately will control ou DXing on those bands. As you already know, it limits what we can do on 40 and 80M during daylight hours, short ening the skip and keeping our signals close to home. If we try DXing on those bands, we'll be looking over our shoulder, watching what the E-layer is doing.

So just what can it "do"? In simple terms, it can grow and it can decay, al with the rising and setting of the sun But the D and E-layers are not only closely related in space, from 70 to 110 km altitude, but also similar in how they respond to the arrival of sunlight. Thus, being located deep in the ionosphere, all the processes there go rapidly because of the high collision rate of electrons, atoms and molecules. In a sense, they grow and decay right with the sun as it rises and falls on them but they exert less control on propagation once they're in darkness. That's not the case for the F-region, where electrons recombine more slowly.

Now let's think about the E and F-regions at a point along the path to a DX station. There are critical frequencies for RF there, probed by pulses sent vertically upward, and if one's RF exceeds three or five times the local frequencies for the F and E-regions, respectively, it will pass through the region(s) and proceed upward. If you stop and think about it, the "Rule of Three" is important; if it is violated, say with one's frequency being too great, the RF goes right through the F-region and to infinity, not to the DX.

If breaking the Rule of Three is bad, the good news is that if you break the

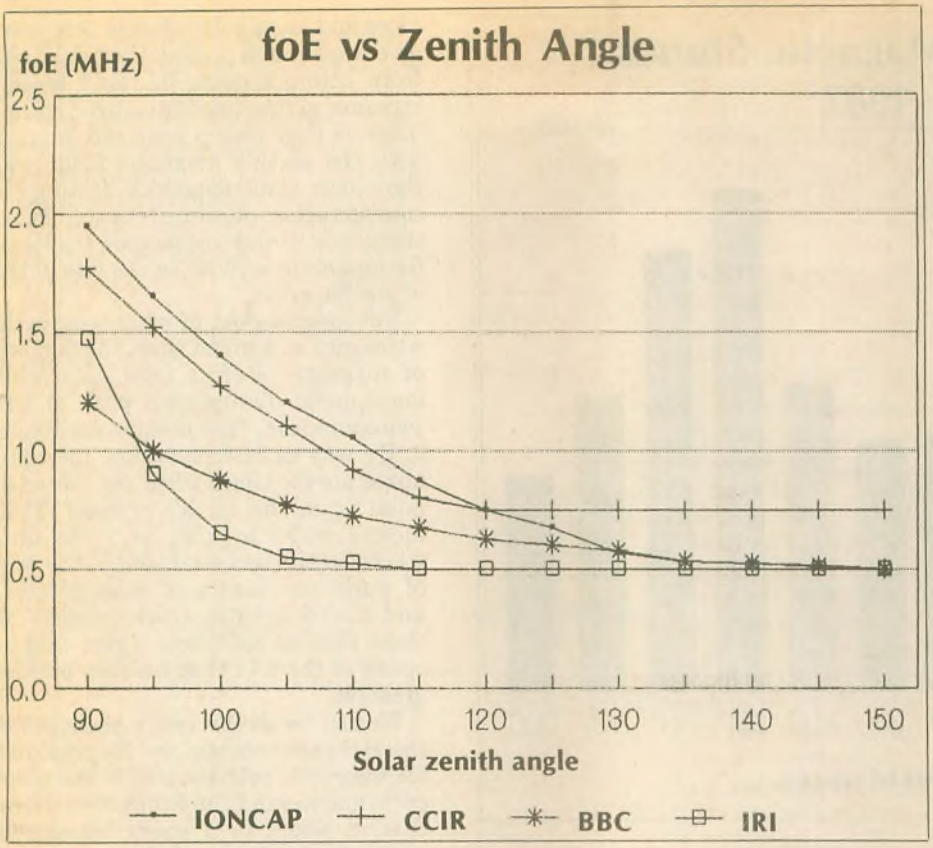


Figure 1

"Rule of Five," your RF is in good shape. In essence, that means that the RF is not shunted downward from a nice, long F-hop to a short, lossy E-hop. Now that we're going toward solar minimum, it really means that we'll be lowering our frequency to avoid breaking the Rule of Three. That being the case, we're thrust right in the path of the Rule of Five. The only way out of that dilemma is to operate in the dark of night when the E-region is not there; then you'll get the greatest results in DX per watt of ERP.

So what do we know about the E-region and its critical frequency? In the daytime, it is well-known and documented in the ionospheric or propagation literature. True, there are various formulas or recipes for how the critical frequency varies with solar zenith angle or sunspot number, but if you plot them, they pretty well say the same thing.

Not so at night, however, not even as one goes through a dawn or dusk transition. To see what I mean, look at Figure 1 which shows how the critical frequency of the E-layer varies in the dawn or dusk transition. There are four different curves in that figure from four different, reputable sources, and they differ significantly, at least for our purposes or what follows from the Rule of Five. So what's the problem?

It's easy to see from that set of curves: the low value of the critical frequency at night. If you look at the numbers, you see the critical frequencies are in the AM broadcast band! Thus, if one wants to do some radio science and explore the E-layer in the dark of night, the ionosonde needed for that purpose should start its upward sweep in frequency around 250 kHz. When you think that an ionosonde is like a radar, sending out and receiving reflected pulses, your own experience with AM radio at night and the size of antennas in general would tell you the magnitude of the problems.

Everything considered, the practical answer for you is simple: Go for DX when the paths are in darkness. That will involve a change in life style, different from the days around solar maximum when one could do very well in the face of sunlight up in the 21-28 MHz range. But now it won't be long

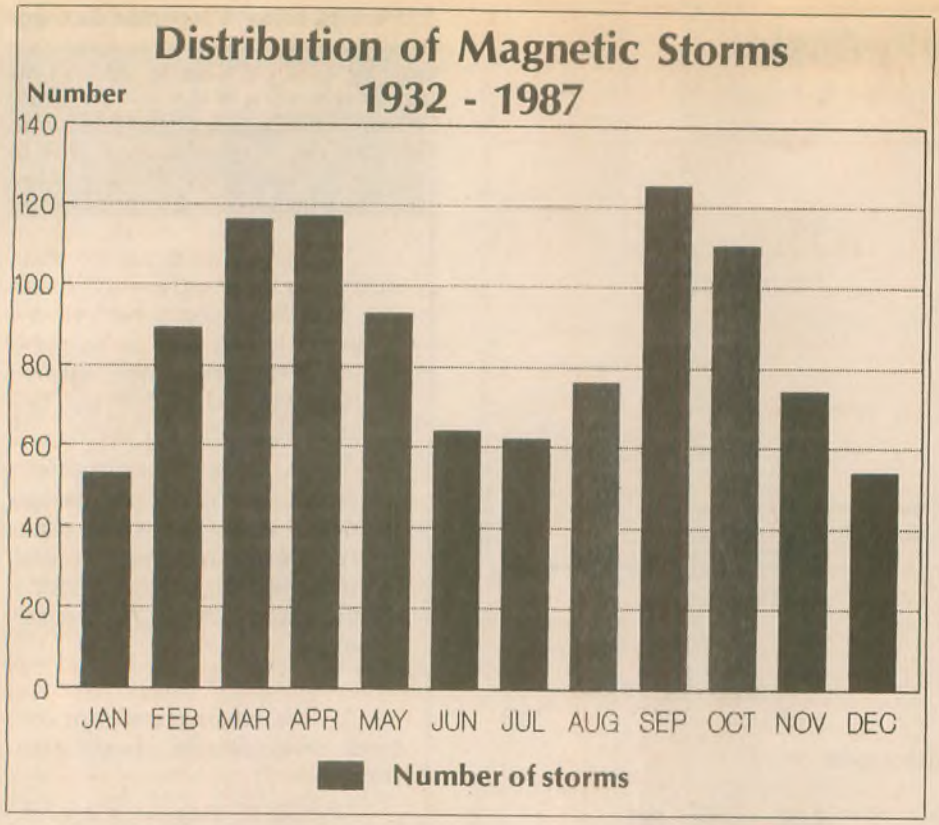


Figure 2

until those bands are silent again. So start thinking about 30 and 40M antennas and be ready to make the transition.

With that let's leave the quiet, gradual side of life on the HF bands and turn to more active or dynamic occasions, magnetic storms during solar cycles. For that aspect of HF radio, let me tell you about a recent review I made of 55 years of geomagnetic data and some of the interesting results it revealed.

First, by covering five solar cycles with a database that included more than 1,000 magnetic storms, it showed that magnetic storminess is more frequent *after* solar maximum than before. Thus, on the average, 75 percent of the storms occurred after solar maximum, the upper and lower limits being 88 percent and 66 percent over the 55 years. The cycle with the most (34 percent) storms *before* solar maximum was Cycle 19, one noted for its high level of flare activity. But in general, we now know that the lagging magnetic activity is related to the growing importance of coronal holes on the sun and the declining number of energetic events and flares after solar maximum.

With the growth in the number of coronal holes after a solar maximum, more and more solar plasma (low energy electrons and protons) is spewed out from active regions in fairly steady streams, giving rise to magnetic storminess as they sweep past and interact with the earth's magnetic field. And they have some longevity, lasting for rotation after rotation of the sun. Thus, there is a 27-day recurrence tendency for magnetic activity in the late phase of a solar cycle.

But independent of what solar cycle we're into at a given time, the number of magnetic storms (and associated ionospheric disruptions) peak at the two equinoxes. That is shown in Figure 2. By way of interpretation, the equinoxes are the times when the sub-solar point is on the earth's equator. That means we're looking straight into whatever the sun sends out in the way of puffs and blasts of solar plasma, and the magnetic consequences of those head-on collisions, if you want to speak of them in that fashion, are the greatest.

We can tie all this into a package for the HF radio contestors: Be prepared for magnetic activity late in the solar cycle and around the equinoxes. Given that, it would be a good strategy to make timely checks of the predictions of magnetic activity that are given on the NOAA BBS. That same advice would apply for DXers, but they're the more steady, more patient types and less tied to specific date and times. But I say to both groups, don't grumble when the storms start to rage. I warned you! □

Keep it up! Send your news, features, construction projects and commentaries to 2120 28th St., Sacramento, CA 95818. Share your experiences in Amateur Radio with hams around the world.

CONSTRUCTION

A quick lesson in how to solder for the absolute rookie

Soldering is accomplished by heating metal parts to be joined and applying a flux and solder. The finished solder joint metallurgically bonds the parts, forming an excellent electrical connection between wires and a strong mechanical joint between metal parts.

Heat is applied with a soldering iron or gun. A soldering iron is the best all-around tool; 100W size for electrical work and most home jobs, 200W size for heavier work. The tiny "pencil" type soldering irons are suitable for electronic or jewelry work. A soldering gun heats up very quickly and is ideal for small electrical work. Size the soldering iron or gun to the job—big enough to heat surfaces to above the melting point of the solder, but not melt or damage plastics or components in electrical equipment.

If surfaces to be joined are corroded or greasy, they must be cleaned to the bare metal using steel wool, emery cloth, wire brush, or grease remover. For most electrical wire soldering the flux used will be sufficient to remove the oxides and tarnishes present, making preliminary cleaning unnecessary. Flux is a chemical cleaner which prepares hot surfaces for molten solder.

Most soldering jobs can be done with flux-cored solder when the surfaces to be joined are clean. When using solid wire solder, it is necessary to apply a separate paste flux. The purpose of flux is to clean surfaces of tarnishes and oxides. This allows solder to flow into a thin layer and make a good contact with metal surfaces. These surface films are present on all metals you work with, even if you can't see them. Without flux the molten solder would sit on top of the metal like raindrops on a freshly waxed car. Flux removes the "wax" and allows "wetting" to take place; without flux a solder joint cannot be made. There are several kinds of flux (acid and rosin), but rosin flux should always be used for electrical work because residues which remain are non-corrosive and non-conductive.

Solder is a low melting point alloy of tin and lead. Alloy content is stated in percent of tin and lead, with tin listed first: 50/50 solder is more popular for copper and brass applications; 60/40 is used for electronics, as a low melting point is desirable. The diameter of wire solder varies but flux-cored and solid range from 0.032 inches to 0.125 inches. Selection of diameter should be based on the size of the solder joint. For ordinary electrical work 0.050 to 0.062 in. diameter is ideal.

An alternative to wire solder is available: solder cream. Flux is premixed with solder alloy powder in the tube. Solder cream is squeezed onto the joint before heat is applied, eliminating the need to "feed" the solder wire into the joint and freeing one hand to hold parts together. Solder cream makes many tough soldering jobs simple. For small electrical jobs you can even solder with a match!

Before soldering you must make the joint "mechanically" strong so solder will lock or seal surfaces together (i.e. twist wires together). Clean surfaces if necessary. Avoid touching cleaned surfaces with your fingertips as oil from your fingers can prevent solder from sticking. Plug in soldering iron or gun and allow it to heat up. It is necessary to "tin" a new tip by applying flux-cored solder to tip; the tip will turn silver. An incompletely tinned iron will not produce a good solder joint. Wipe tip of iron on a damp sponge or cloth to expose fresh, clean solder just before soldering.

If you're using a separate flux, apply it liberally to surfaces. Heat surfaces by holding soldering iron at an angle so the face of the tip rests comfortably on the joint and maximum heat transfer can occur from iron to joint. It is important to understand that you apply the solder when work surfaces (not the iron) are hot enough to melt the solder and make it flow. Feed solder wire into the joint (not onto iron tip). When possible, heat the joint from underneath and apply solder from the top. If joint area isn't hot enough to melt the solder, remove solder wire and continue to heat joint. When joint area is hot enough, solder will become molten immediately and collapse into a thin layer. If necessary, shape molten solder with tip of iron so joint is completely filled and covered.

If solder doesn't adhere to surfaces, the joint has not been properly cleaned and fluxed. Wait for joint to cool and clean again thoroughly. Reheat and resolder, applying plenty of flux. When joint is completely filled and covered, stop feeding solder wire. Remove iron from joint area. Don't disturb joint until area has cooled (generally 20 to 30 seconds) to "freeze" the solder. Don't apply water to speed up chilling of the joint. — *Antelope Valley ARC, Lancaster, CA.*

AERIALS

KURT N. STERBA

In one of my columns I disagreed with the dB claims of a manufactured 2M antenna.

The company responded. In order to spare them any embarrassment I'm not mentioning their name. Here, though, is part of their answer:

While there is no gain on a quarter-wave antenna, there is always gain when an antenna is raised. There is a 3dB gain every time the height of an antenna is doubled; thereby, the quarter-wave element increased the system installation gain by 1.5dB. Let's add them up:

6.0dB	Two 5/8 waves
1.5dB	System gain increased by height
2.7dB	Gain of reference source
10.2dBi	

Okay, since so many accuse me of being a grumpy old grouch, this time I'll let *you* write a response to the above, which will be printed here.

As an incentive, for the best letter received regarding the above claims I will award to the writer an MFJ noise bridge, brand new, never used. That's a great reward.

Speaking of MFJ, they have a new product which the serious antenna experimenter will find most useful. It is an antenna bridge. With this unit, at a given frequency, you tune out the reactance existing at your antenna and read pure resistance. Spectacular! And a tip of the Kurt chapeau to MFJ.

For you open-wire fans who want to really find out what's going on with that antenna and feedline, but all your instruments are 50-ohm (useless for looking at 450 or 600-ohm line), here's the answer.

Get one of those Palomar Engineers 12-to-1 baluns; for 450 get a 9-to-1 balun. Look into the balun with your 50-ohm test equipment and you'll be a lot closer to seeing the real story.

New subject: An advertisement for a vertical from the BFAC (big famous antenna company) quotes an amateur as saying: "I have worked more DX in the last two weeks than in the last five years."

Holy Toledo! That should all make us run right out and get that one, shouldn't it? But then I pondered that. Does the antenna company expect me to believe that such would be the case for me (or you) also?

Just how gullible do they think we are? Five years versus two weeks. Five years of what effort and two weeks of what effort? Two weeks is 14 days and five years is 1,825 days, or a ratio of 130 to one.

Could I really work more DX in one day than I had in 130 days with whatever other antenna I had been using? Or, could I work more DX in one hour with this antenna than I had in 130 hours with my previous antenna? Are we all expected to believe this?

Hey, that guy can go in the CQ WW DX contest for an hour with his ne antenna and I'll go in the next thre contests full time, less 18 minutes (4 hours × 2.7 equals 129.6 hours) wit my shopping carts or ladder or pati umbrella, etc., and let's see who make the most contacts.

It is claimed that this vertical anten na does not need any radials. Now who knows more about verticals tha Captain Paul Lee, USN (Ret.), N6PL He is truly the mavin of vertical What does *he* say?

"Low effective earth resistance pro vided by a good ground system is a absolute necessity for vertical anten nas of any height if good radiation eff ciency is desired.

"The half-wave vertical antenna i not dependent on a groundplane, how ever lossy or efficient, for the condi tion of resonance, since it is resonan in itself because of the half-wav length. However, it is dependent on groundplane for its efficiency of radia tion, as is any vertical antenna."

In answering a query, Capt. Le wrote: "The correspondent's clain that one does not need a ground system under a half-wave vertical i true only if he is content to throw away from 40 to 80 percent of his radiated power in the form of earth losses."

The above three paragraphs are from *The Amateur Radio Vertical Antenna Handbook*, published by CQ magazine.

The same BFAC advertises a half wave vertical for 50 MHz and claims "Gain, dB3.75." Hmmm. Is that dB or dBd? Most likely dBwf (gain over a wire fence.)

The gain of a half-wave dipole over the imaginary isotropic antenna is 2.15dB. So, where did they dig up the other 1.6dB for their half-wave dipole?

Just because something comes out of a box from a manufacturer doesn't mean that it is a grand marvel.

I quote from an article by John Dorr, K1AR, and Bill Myers, K1GQ in the *National Contest Journal* Jan./Feb. '92. In describing the antennas at the spectacular contest station W2PV: "The commercially designed three-element 40M Yagis required drastic adjustments of the element lengths to achieve proper operation."

Next month, something interesting and useful from railroad buff Hank Scharfe, W6SKC/7 and Dr. Robert Kurth, W5IRP.

(Kurt, who counseled Billy Batson and taught him to say "Shazam," sits in a damp cave searching for the truth. He is perplexed by short antennas that are claimed to be half-wave antennas and longer antennas that are touted as quarter-wave antennas.) □

A new ham's confusion

BARBARA LEVINE, KA3ZVQ

My name is Barbara, though I'm known more and more as KA3ZVQ. I just got my Amateur Radio license two months ago and boy oh boy am I confused! It took me a good two weeks to stop tripping over my call letters. For all my life I've been accustomed to introducing myself by name, not a series of tongue twister letters. I think the number three is thrown in there just to make it harder.

It's a challenge to remember my call but impossible to remember everyone else's. I feel like I've had to memorize alien phone numbers. I marvel at how other hams throw around two, three, four people's call letters during a conversation. People keep telling me I'll get the hang of it and ham radio will become second nature to me. When, *when?*

I'm trying to make sense of the Amateur Radio system. Studying basic principle for the test is one thing, understanding what everyone is talking about is something else. Antennas, coaxial cable, input frequency, repeaters, hand-helds, mag mounts, high-band, 2M, squelch, my head is spinning. I never was any good at foreign languages.

I sat with WB3JVX, Russ, for a half hour one afternoon while he was building a Ramsey radio. I figured it would be a good opportunity to become more knowledgeable. After 30 minutes I think WB3JVX was about ready to jump out the window if I asked "What's this part do?" one more time. The only thing I learned was that a man has only so much patience and that I plan to buy a radio already built.

Once the radio is purchased it has to be installed in my car. Now there's a challenge. Is it possible to install a ham radio in a car so that it doesn't stick out like a big ugly box with huge dials and ruin my interior design? Do they make a radio in medium sky blue?

The antenna installation wasn't too bad. I just didn't watch as the hole was being drilled into the trunk. Actually, not only did I not watch, I clamped my hands over my ears so I wouldn't hear and locked myself in a closet. The procedure was fairly painless.

Two weeks after receiving my license I performed my first public service at the MS Super Cities Walk. Talk about confusion, I was awash in it. Who do I call? What should I do? Where should I be? When is it over? How did I ever get involved? All panic aside, I did pretty well. No one died.

Despite my confusion there is something I'm very clear on. Amateurs are very special people. I knew this the first time I heard several hams helping a stranded motorist. And when I hear hams welcoming mobile passersby onto the system or giving directions when someone is lost, I know these people have big hearts.

The incredible number of people who are helped when amateurs volunteer for public service is also proof positive that I have become a member of a very caring, warm and special group. It might take some time for my confusion to go away but I couldn't be any prouder to be called KA3ZVQ, Amateur Radio operator. □

Alabama

THE MONTGOMERY ARC is hosting the 15th annual Montgomery Hamfest on 14 Nov. from 8 a.m. to 3 p.m. at the Garrett Coliseum at the South Alabama State Fairgrounds in Montgomery. Features inlcude free parking, all indoor set-up including flea market and VE exams beginning at 8 a.m. Admission is free. Flea market reservations not required. Flea market set-up times 3-8 p.m. 13 Nov. and 6 a.m. 14 Nov. Talk-in on 146.24/84; call W4AP. Ragchew 146.32/92, 147.78/18, 449.50/444.50. Contact Hamfest Committee, c/o 111 Diane Dr., Prattville, AL 36066; phone Jiggs at 205/365-0380 or Fred at 205/270-0909.

Connecticut

THE SOUTHCENTRAL CONNECTICUT ARA will hold its 13th annual flea market on 15 Nov. from 9 a.m. at the Branford Intermediate School in Branford. Features include handicap accessibility and VE exams. Admission is $4. Tables $15 in advance and $20 at the door. Vendor set-up time is 7 a.m. Talk-in on 146.01/.61. Contact SCARA, Box 705, Branford, CT 06405-9998; phone Brad 203/265-9983.

Florida

THE PELICAN CHAPTER #123 OF QCWA is holding their 1992 catered picnic on 18 Nov. beginning at 10 a.m. at Lake Seminole Park in Pinellas Park. Features include a sit-down, catered fried chicken dinner and prizes. Tickets are $7.50. Talk-in on 145.29-. Contact Jay, K9BSL, 233 34th Ave. N, St. Petersburg, FL 33704; 813/822-9107.

THE LAKE ARA will hold its annual hamfest and Electronics Expo on 7 Nov. from 9 a.m. to 5 p.m. at the Lake County Fairgrounds in Eustis. Features include a large tailgate area and VE exams at 1 p.m. Admission is $4 in advance and $5 at the door. Tables are $12.50 with one free ticket per table. Contact Cole A. Ruck, KC4UIG, at 407/273-1624.

Illinois

GMRS OF ILLINOIS, Inc. will sponsor their annual Winter Fest '92 on 22 Nov. from 8 a.m. to 1 p.m. at the DuPage County Fairgrounds. Admission is $4 in advance and $5 at the door. Tables are $10 in advance and $12 at the door. Vendor set-up time is 6 a.m. Talk-in on 146.52 direct, 462.600, PL 173.8. Contact GMRS of Illinois, Inc. 2077 W. Roosevelt Rd., Wheaton, IL 60187; 708/690-1492.

THE CENTRAL ILLINOIS/ST. LOUIS AREA ATV CLUB is holding its 6th annual Amateur Television dinner on 28 Nov. in Litchfield. The dinner will feature a prize drawing in which lucky winners will receive full-year subscriptions to ***Worldradio***. Further information may be obtained from Scott Millick, K9SM, at 217/532-3837.

Indiana

THE BOONE COUNTY ARC is holding a hamfest on 1 Nov. from 8 a.m. to 4 p.m. at the Boon County 4-H fairgrounds' Warm and Dry Community Building. Features include dealers, flea market, free parking and tailgating, refreshments and VE testing. Admission is $3. Table and space $2. Vendor set-up time 7 a.m. Talk-in on 147.105 and 443.150. Contact Don Jackman, N9ILX, at 317/482-5211, or Don Lecklitner, N9GBO, at 317/654-6580 or P.O. Box 186, Lebanon, IN 46052.

Massachusetts

THE MAYFLOWER ARC will host a flea market on 14 Nov. from 9 a.m. to 3 p.m. at the Plymouth Memorial Hall Building in Plymouth Center. Features include refreshments and VE exams. Admission is $2, children under 12 free. Tables are $12 in advance and $14 at the door if available. Vendor set-up time is 8 a.m. Talk-in on 446.625 and 146.55 simplex. Mail payments for tables with SASE to MARC, Box 766, Dept. FM, Plymouth, MA 02361. For flea market info, call Jon, WS1K, at 508/746-0162, or Jim, NM1F, at 508/747-2224 (evenings). For exam info, call Dave, KA1TXO, at 617/585-1351.

Michigan

THE HOLLAND ARC is holding a hamfest on 21 Nov. from 8 a.m. at the Civic Center i Holland. Features include refreshments an VE exams. Admission is $3.50. Tables are $4 Vendor set-up time is 6 a.m. Talk-in on 147.66 06. Contact Jack Tiggleman, KA8FQS, 278 Floral Dr., Zeeland, MI 49464; 616/772-1846 No Sunday calls.

New Mexico

THE SOCORRO ARA is sponsoring the an nual Socorro Hamfest on 21 Nov. from 9 a.m. to 5 p.m. at Finley Gymnasium in Socorro in conjunction with the Festival of the Cranes Talk-in on 146.68. Contact Lou Baudoin KB5OPN, Star Rt. 2, Box 59, Socorro, NM 87801.

New York

THE RADIO CENTRAL ARC is sponsorin Hamexpo on 8 Nov. from 9 a.m. to 4 p.m. at the Suffolk Community College on Long Island Features include all-indoor flea market, deal ers, computer show, cafeteria service, DX, sem inars, forums, free parking and VE exams Admission is $5 at the door. Tables are $20 in advance. Vendor set-up time is 7 a.m. Talk-in on 145.15-4Z or 449.525-2A. Contact John Mark KB2QQ, at 516/689-6336, or Jo Ann Colletti N2IME, at 516/399-1877.

North Carolina

THE JOHNSTON ARS is sponsoring the fourth annual JARSFEST on 15 Nov. from 8 a.m. to 4 p.m. at the American Legion Complex in Benson. Admission is $4 in advance and $5 at the door, children free when accompanied by an adult. Tables are $6, Tailgating spaces $3. Table set-up at 6:30 a.m. Talk-in on 147/87-27 Contact Bill Lambert, AK4H, Rt. 3, Box 315 Benson, NC 27504; 919/894-3352, 7-10 p.m.

Oklahoma

A swapmeet will be held 7 Nov. in Enid Admission is $1 at the door, and tables will b available for free. Features include walk-in tes sessions, technical programs throughout the day, dealers and door prizes. For further infor mation contact Fred Selfridge, N5QJX, at 405 242-3551 or Tom Worth, N5LWT, at 405/233 8473.

Pennsylvania

THE CENTRAL PENNSYLVANIA RE PEATER ASSOCIATION is sponsoring a ham fest on 15 Nov. from 8 a.m. to 3 p.m. at th Hershey 28th Infantry Armory. Features in clude VE exams. Admission is $3, XYLs and kid under 12 free. Tables $10 in advance, tailgatin $5. Talk-in on 145.47-. Contact Harold Baer N3LZH, 619 W 2nd St., Hummelstown, PA 17036; 717/566-8895.

Wisconsin

THE FOX CITIES ARC is sponsoring Fo Cities Hamfest '92 on 8 Nov. from 8 a.m. at th Starlite Club. Features include vendors, re freshments, lunch and VE exams at 8 a.m Admission is $3; 8 ft. tables $5. Vendor set-u time is 6 a.m. Talk-in on 146.76. For VE exams contact Larry Siebers, KD9IA, N2781 Weyer Rd., Kaukauna, WI 54130; 414/788-3823. Fo table reservations, contact Don Baker, NB9J 217 Grant St., Little Chute, WI 54140; 414/687 0572.

ALARA Contest

The Australian Ladies' ARA Contest will be held Saturday, 14 November from 0001 to 2359 UTC. All licensed operators are invited to participate. This contest is also open to SWLs.

Object: *Participation:* YLs work everyone, OMs work YLs only. The single contest (combined phone and CW) will run over 24 hours.

Suggested frequencies: Bands to be used are 3.5, 7, 14, 21 and 28 MHz only. The following are suggested frequencies for easier location of contacts: 28.380 to 28.410, 21.190 to 21.200, 21.380 to 21.410, 14.250 to 14.280, 7.070 to 7.100, and 3.560 to 3.590.

Operation: Phone and CW. Each station may be counted twice for credit—once on phone and once on CW. All contacts must be made in accordance with operator and station license regulations. No net or list operation, no cross-mode.

Procedure: *Phone*—call "CQ ALARA CONTEST." *CW*—YLs call "CQ TEST ALARA." OMs call "CQ YL."

Exchanges: *ALARA Member*—RS or RST, serial no. starting at 001, ALARA member, name. *YL non-member or OM*—RS or RST, serial no, starting at 001, name.

Scoring: *Phone*—five points for ALARA member contacted; four points for YL non-member contacted; three points for OM contacted. *CW*— count double points for contacts where at least one operator is Novice Class, otherwise same as phone. *SWL*—five points for ALARA member logged, four points for YL non-member logged.

Logs: Single log entry (Australian YL Novices entering for the Mrs. Florence McKenzie CW trophy should indicate their CW score separately also). Logs must show date/time UTC, band, mode, call sign worked, report and serial number received, name of station operator worked, and points claimed.

Logs must be signed: Logs are also to show full name, call sign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned. Decision of the contest manager will be final. Logs must be received by the contest manager by 31 December 1992. Contest manager: Mrs. Marilyn Syme, VK3DMS, P.O. Box 91, Irymple, 3498, Vic., Australia.

Awards: *Mrs. Florence McKenzie CW Trophy (certificate)* will be awarded to the Australian YL Novice operator with the highest CW score (not necessarily an ALARA member). Minimum score 50 points. Additional awards will be given for the following: Top scoring Australian YL, top scoring DX YL, top score overall, top score phone only, top score ALARA member in each country and VK call area, top score YL non-member in each continent, top score SWL in each continent, top score VK Novice and top score overseas YL Novice CW.

Telephone Pioneer QSO Party

The George S. Ladd and John I. Sabin Chapters invite all Telephone Pioneer Radio Amateurs to participate in the 28th Annual Telephone Pioneer QSO Party. The contest will take place from 1900 UTC, Saturday, 5 December until 0500 UTC, Monday, 7 December 1992.

Rules: Fifteen bands are defined for use in the QSO party. They are:

1.8: 1.800-2.00014.0: 14.000-14.150
28.3: 28.3-29.7
3.5: 3.500-3.75014.2: 14.150-14.350
50.0: 50.0-54.0
3.9: 3.750-4.00021.0: 21.000-21.200
144.0: 144.0-148.0
7.0: 7.000-7.15021.2: 21.200-21.450
220.0: 220.0-225.0
7.2: 7.150-7.30028.0: 28.000-28.300
UHF above 420 MHz

Any station representing a chapter other than the contestant's may be contacted on any or all of the 15 bands for a maximum of 15 QSOs per station, with no more than one QSO per band. Any station in the same chapter may be counted only once. Club stations may have multiple operators.

Procedure: *Phone:* call "CQ Telephone Pioneers." *CW and RTTY:* call "CQ TP." Contacts via simplex or repeater are valid.

Frequencies: *phone* (MHz)—1.855-1.930; 3.905-3.950; 7.228-7.260; 14.260-14.305; 21.360-21.405; 28.305-28.350; 50.1-50.5; 144.1-148.0; 222.1-225.0. *CW* (MHz)—1.855-1.930; 3.540-3.560; 7.040-7.060; 14.040-14.060; 21.040-21.060; 28.040-28.060; 50.0-50.1; 144.0-144.1; 222.0-225.0. *Novice/Technician CW*—3.705; 7.125; 21.125; 28.125. *RTTY*—3.630; 7.085; 14.085; 21.085.

Scoring: Each phone QSO is worth one contact point. Each CW, AMTOR, RTTY and packet QSO is worth two contact points. Total score equals contact points multiplied by chapters worked. The maximum multiplier is 120 (all TPA chapters plus a maximum of 15 USTPA groups).

Exchange: The last two digits of the year you became a Telephone Pioneer and chapter number (USTPA: club or chapter name/number). Example: If you became a Telephone Pioneer in 1988 and belonged to Chapter No. 27, then the exchange would be 88 27.

Reporting: If possible, return log sheets via your Pioneer Amateur Radio coordinator. *Please use the summary sheet.* Send logs showing date, time station worked, band, mode, signal reports, chapter number, and summary sheet, postmarked no later than 17 January 1993, to George S. Besley c/o John I. Sabin, Rm. 3200, 2700 Watt Ave., P.O. Box 15038, Sacramento, CA 95851.

Barth's distinction - there are two types of people: those who divide people into two types, and those who don't.

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Hi-Res peak detector circuit

Hi-Res Communications, Inc. has just introduced the PDC-1 Peak Detector Circuit. This universal peak-hold circuit converts any averaging type wattmeter to a peak reading wattmeter with an adjustable hangtime for the needle. Meter calibration and accuracy remain unchanged after the insertion of this circuit inside the wattmeter. The circuit has two simple adjustments, the first is the calibration and the second is the time constant (hangtime). The needle's hangtime can be adjusted from 1/10 sec. to 10 sec. Installation is a breeze, all that is required is a DPDT switch to switch the circuit in and out of the line from the wattmeter's circuitry to the meter itself and a power connection (6.3VAC for the Collins 312B-4/5 or 6-12VDC for other meters).

The PDC-1 was designed by C.J. Hawley, KE9UW, for use in the Collins 312B-4/5 station consoles, but can be matched to any conventional averaging wattmeter. Even expensive, highly accurate meters can be fitted with this circuitry without any loss of accuracy! The PDC-1 measures 2 × 1.5 inches and fits neatly inside most wattmeters without any modification.

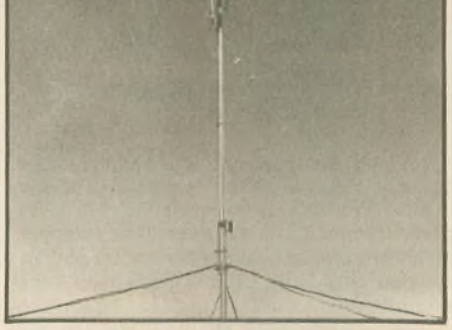
The PDC-1 is available directly from Hi-Res Communications, Inc., for $23.95 completely assembled or $14.95 in ready-to-assemble kit form (add $3 shipping). Dealer inquiries are welcome. For more information contact Floyd Soo, KF8AT, Hi-Res Communications, Inc., 18464 Ash Creek Dr., Mt. Clemens, MI 48044; 313/228-1600. □

Cushcraft eight-band

Cushcraft introduces the next-generation of our eight-band quarter-wave vertical antenna. The 26 ft. AP8A covers 10, 12, 15, 17, 20, 30, 40 and 80M and weighs only 9.5 pounds.

Constructed with double and triple-wall tubing, the AP8A provides uncompromising strength for high wind survivability. Low-loss design and high efficiency traps add up to maximum output.

Today's active amateur will get superior eight-band operation with automatic band-switching in one compact package. With quick assembly and a clean profile, the rugged AP8A will provide years of pleasure for amateurs and SWLs alike. And, Cushcraft APR18A radial kit is the perfect companion for the new quarter-wave AP8A or any amateur bands quarter-wave HF vertical.



This economical kit provides maximum performance from your quarter-wave vertical and consists of only nine multiple and single-conductor radials with a maximum length of only 31 feet—far less than the 75 feet length required with handmade radials.

The APR18A kit is convenient to use for permanent or portable operation and it comes complete, ready for quick installation at either ground level or rooftop applications with no measuring or cutting.

For further information on the AP8A quarter-wave vertical or the APR18A radial kit, contact Cushcraft Corporation, P.O. Box 4680, 48 Perimeter Rd., Manchester, NH 03108; 603/627-7877; FAX 603/627-1764. □

Cable X-Perts RG-8X

Introducing an old favorite with a new twist: clear jacketed RG Mini 8 (X). This new product has a very soft, extra flexible, ultra violet resistant clear PVC jacket. Clear Mini 8X can blend into any surroundings, is aesthetically more appealing, and still has the same electrical characteristics as our standard 95 percent braid coverage black jacketed material.

For more information, contact Cable X-Perts, Inc., 113 McHenry Rd., Suite 240, Buffalo Grove, IL 60089 708/506-1886. □

Just Antennas multiband

Just Antennas, a manufacturer of high performance, low profile wire antennas, introduces the model HF-DX 8010-8 DX antenna.

Through advanced antenna design the best characteristics of the broadband multiband off-center fed dipole and the low-angle radiation of the Bob Tail Curtain are combined to produce a DX antenna with these superb features: 100 ft. maximum installation space; 80 through 10M band coverage, including the WARC bands; Typically less than 2.5:1 VSWR without a tuner, 1:1 with transceiver auto tuner or external tuner; power rating—1000W CW, 1500W SSB; both horizontal and vertical poliarization; dedicated matching plus a heavy-duty *current* balun; 50-ohm coaxial cable feedline; no ground radials required; no lossy traps or resistors; excellent antenna for SWL, QRP, or just barefoot running; preassembled, no soldering required; 30-day money-back gaurantee.

This DX antenna is priced at $119.95 plus $8 shipping and handling. For a data info pack on the HF-DX 8010-8 plus full line of high performance long wire antennas send $3 (will be deducted from order) to: Just Antennas, 4 Deer Tract Drive, Little Mountain, SC 29075. □

Startek frequency counters

Two new Pocket Counters from Startek are actually "ultra high sensitivity RF detector - counters" with a 2 in. 10-segment LED signal strength bar graph. The bar graph functions independently from the digital frequency counter and will indicate the relative strength of an input signal at any frequency from 500 kHz to 3.5 GHz. "Dot graph" or "bar graph" operation is switch selectable and the sensitivity is adjustable. The bar graph is ideal for locating or adjusting an RF signal.

The digital frequency counter function has a range of 1 MHz to 1.5 GHz on the model 15-BG and 1 MHz to 3.2 GHz on the model 35-BG. The only performance differences between the two models are frequency bandwidth and the 35-BG is more sensitive above 500 MHz. The bar graph Pocket Counters have a display hold switch with indicator, and three switch selectable "gate times." Resolution is 1 kHz at .25 second, 100 Hz at 2.5 seconds and 10 Hz at 25 seconds, over the entire range. The display consists of eight red LED digits typically readable over 15 feet away.

A 1 PPM TCXO time base is standard with provisions for an optional, ultra high stability, TCXO. A factory installed internal NiCd battery pack and 110VAC adaptor/charger

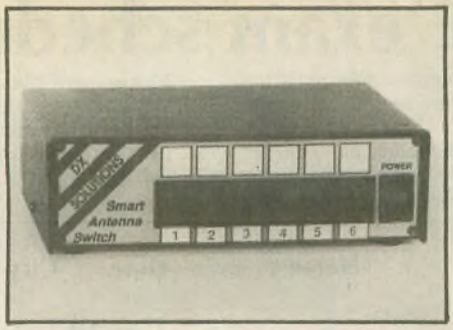
are standard equipment. The counters will operate three to five hours from fully charged batteries. Power required is 9-12VDC, autopolarity, which will operate the counter and charge the internal batteries. The counters may be used or switched off while the batteries are being charged.

Although small enough to fit in a shirt pocket, these bar graph counters outperform many larger, much more expensive models. Utilizing LSI and surface mount construction, the size was minimized and the performance maximized. The excellent sensitivity of these units (HF, VHF, UHF = .2 to 1 mV RMS type) makes them ideal for measuring, identifying, locating, adjusting, monitoring and testing RF signals of many types.

The 35-BG is believed to be the smallest instrument of its kind to offer bar graph operation, ultra high sensitivity and operation over 3.2 GHz. Startek currently makes six different pocket-size frequency counters and numerous accessories. The Startek Pocket Counters are designed and assembled in Ft. Lauderdale, FL, and sold factory direct. Delivery from stock. For more information call 305/561-2211; or order from 800/638-8050. □

DX Solutions antenna switch

The Smart Antenna Switch-6 (SAS-6) is an antenna switching control unit that automatically selects one of up to six predesignated antennas based on the radio frequency band of operation. Antenna selections are



easily programmed and edited from the front panel and stored in nonvolatile memory. The SAS-6 features monoband or multiple bandstacking per switch, convenient operator manual override modes, a Lexan® front panel for antenna labeling, and built-in self test capabilities.

Design of the SAS-6 provides for compatibility with most Kenwood, Icom, and TenTec transceivers which have a serial port interface, while Yaesu control is via the "band data" port. Installation of the SAS-6 requires no software or extra COM port. A relay unit (sold separately) is necessary for operation; however, the SAS-6 is also compatible with most remote coax switches as a direct replacement for the manual switching unit. A computer-control interface, such as DX Solutions' CT-232, is required for operation with Kenwood and Icom transceivers.

Retail price is $229.95 (custom SAS configurations quoted on request). Contact DX Solutions, 147 South View Dr., Huntsville, AL 35806; 205/922-1724. □

ADVERTISER'S INDEX

VE exam schedules

As a service to our readers, Worldradio presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid June.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r=pre-register w/i=walk-in

Date	City	Contact	Notes
Alabama			
Dec. 19	Tuscaloosa	Kelly, WD4DAT 205/339-7882	w/i OK
Arizona			
Dec. 5	Tucson	K7OPX 602/886-7217	w/i only
Dec. 19	Tucson	Robert, WV7P 602/577-1050	w/i OK
Arkansas			
Dec. 19	Little Rock	Chuck, KI5HA 501/888-7517	w/i OK
Dec. 12	West Memphis	Gene, AB5BL 501/739-4029	w/i OK
California			
Dec. 12	Camarillo	Tom, KC6JLW 805/486-7619	p/r pref.; w/i OK
Dec. 6	Chico	W6YKU 916/342-1180	p/r pref.
Dec. 5	Concord	Gene, WW6H 510/254-5090	w/i
Dec. 5	Cupertino	408/243-8349	w/i OK
Dec. 19	Downey	KA3DSE 213/923-5598	w/i
Dec. 26	Fairfield	Jerry 916/662-0801	w/i only
Dec. 1	Fremont	KJ6EP 510/791-6818	w/i only
Dec. 5	Hemet	714/925-3502	
Dec. 5	Lancaster	805/948-1865	p/r
Dec. 13	Loma Linda	714/825-5341	
Dec. 17	Long Beach	KA6HOQ 714/897-6331	w/i OK
Dec. 5	Los Angeles	Ali, AA6WC 213/778-6226	w/i OK
Dec. 12	Modesto	W6XK 209/883-2968	w/i
Dec. 19	Monterey	408/243-8349	w/i OK
Dec. 5	Northridge	818/348-4457	w/i OK
Dec. 5	Novato	Mike, W6FCQ 415/472-0460	w/i OK
		415/883-9789	w/i OK
Dec. 12	Oakhurst	209/683-8772	w/i OK
Dec. 5	Ontario	Harry, KM6LO 818/810-0442	w/i OK
Dec. 19	Redwood City	408/255-9000	w/i OK
Dec. 5	Riverside	714/780-2680	p/r 7 days prior; w/i space permitting
Dec. 12	Santa Maria	KI6XG 805/922-8509	w/i OK
Dec. 19	Santa Monica	310/398-8538	w/i OK
Dec. 19	Stockton	Ed, N6XMA 209/952-5996	w/i only
Dec. 12	Sunnyvale	AA6IY 408/255-9000	w/i only
Dec. 19	Vacaville	Irene, KK6XB 707/446-8376	w/i only
Dec. 26	Vacaville	707/447-2680	
Dec. 5	Visalia	209/734-9516	w/i OK
Dec. 19	Westminster	Walt, KM6MQ 714/373-6077	w/i only
Dec. 12	Willits	Don, WA6ACX 707/459-3980	w/i only
Colorado			
Dec. 14	Boulder	Barbara, N0BWS 303/530-2903	p/r pref.; w/i OK
Dec. 12	Denver	Glenn, W0IJR 303/360-7293, 24-hr. voicemail	w/i OK
Dec. 26	Pueblo	719/948-2291	w/i OK
Dec. 5	Sterling	Blaine, WA0JTB 303/522-5787	w/i OK
Dec. 19	Westminster	N0BLU 303/650-6826; N0HNR 303/278-4280	p/r or w/i
Connecticut			
Dec. 20	Milford	NB1M 203/933-5125; WA1YQE 203/874-1014	w/i
Dec. 16	Shelton	WJ1T 203/736-0488	w/i pref.
Florida			
Dec. 7	Dunedin	Marv, WC2G 813/938-7810	p/r or w/i
Dec. 19	Fort Pierce	Fred Newmann, W2EUX 407/340-1069	w/i OK
Dec. 17	Hallandale	Norm, K4RBR 305/823-5437; Howard, N4EBT 305/935-5214	w/i only
Dec. 19	Melbourne	WB9IVR 407/724-6183	w/i OK
Dec. 22	New Port Richey	Marv, WC2G 813/938-7810	p/r or w/i
Georgia			
Dec. 27	Atlanta	Dale, N4REE 404/396-1332	w/i OK
Dec. 12	Augusta	Ace, NA4I 404/798-5060	w/i
Dec. 26	Dalton	Bert, N4BZJ 404/673-2214	p/r only
Hawaii			
Dec. 9	Kailua-Kona	NH6N, 808/325-5475	w/i
Idaho			
Dec. 12	Boise	W7JMH 208/343-9153	w/i
Illinois			
Dec. 15	Aurora	N9AKE 708/892-1252	w/i pref.
Dec. 19	Chicago	312/929-8500, ext. 2221	w/i
Dec. 4	Elgin	K9WMP 708/888-8333	w/i
Dec. 18	Elmhurst	WK9U 708/833-7371	p/r
Dec. 10	Granite City	Larry, NZ0P 314/524-3254	p/r pref.; w/i OK
Dec. 5	Hoffman Estates	NO9A 708/593-8658	w/i
Dec. 19	Loves Park	Paul, WB9HGZ 815/987-6754	p/r; w/i
Dec. 12	Mt. Prospect	WA9DLI 708/437-1464	w/i
Dec. 3	Mundelein	K9IW 708/367-6303	w/i
Dec. 12	Oak Forest	KA9HDN 312/247-0650	w/i OK
Indiana			
Dec. 12	Hammond	WO9H 219/738-2728	w/i
Dec. 8	New Carlisle	219/654-3007; or KK9T 219/654-8084	p/r
Dec. 5	Portage	KE9I 219/762-0580	w/i
Dec. 5	South Bend	NI9Y 219/259-9445	w/i OK
Dec. 6	Terra Haute	K9EBK 812/466-2122	w/i OK
Iowa			
Dec. 12	Council Bluffs	Lorraine, AA0BS 712/322-1454	w/i OK
Dec. 11	Sioux City	NF0N 402/494-6070	w/i OK
Kansas			
Dec. 15	Emporia	K0JDB 913/343-2158	w/i OK
Dec. 2	Great Bend	WA0PSF 316/792-5363	p/r pref.; w/i ltd.
Dec. 18	Leavenworth	Martha Auchard, WB0ERI 913/651-7350	w/i OK
Dec. 12	Olathe	Joe Scalet, WK0G 913/764-2822	w/i OK
Maine			
Dec. 18	Auburn	WM1C 207/583-6187	w/i OK
Dec. 6	Yarmouth	W3EZ 207/846-7734	w/i OK
Maryland			
Dec. 12	Davidsonville	NT3Z or NS3V 410/761-7115; or WC3I 301/262-5083	w/i OK
Dec. 12	Salisbury	KB3MT 302/436-8360	w/i
Dec. 17	Towson	Robert, WB3HNV 410/HAM-TALK ID 923468	w/i
Massachusetts			
Dec. 18	Springfield/ Holyoke	WA1ZUH 413/245-3228	w/i OK
Michigan			
Dec. 10	Trenton	313/676-6248	
Minnesota			
Dec. 12	Alexandria	WD0FET 612/763-4479	w/i
Dec. 15	Eden Prairie	Tom, AA0GP 612/448-2074	w/i
Mississippi			
Dec. 12	Grenada	Paul, N5UHW 601/565-7286	w/i OK
Missouri			
Dec. 10	Big Bend	314/567-8777	w/i ltd.
Dec. 12	Dutzow	Ed, WD0ELL 314/459-6581	w/i ltd.
Dec. 5	Hillsboro	WD0GDY 314/671-4243	p/r only
Dec. 5	Kimberling City	NQ0G 417/739-2888	w/i OK
Dec. 12	Valley Park	Dave, N0DN 314/225-1952	p/r only
Nevada			
Dec. 19	Reno	K7HRW 702/827-8450 day, or 702/972-3933 night	p/r 30 days prior, w/i O

New Jersey

Dec. 19	Bayonne	WA2QYX 201/451-9471	w/i OK
Dec. 17	Bellmawr	WA2VQG 609/546-7710	w/i
Dec. 12	Cranford	24-hr hotline: 201/377-4790	
Dec. 9	Fort Monmouth	WB2GYS 908/532-5354	w/i

New Mexico

Dec. 5	Alamogordo	WA5IPS 505/437-5896	w/i

New York

Dec. 12	Greenvale	WA2BGE 516/921-0085	w/i OK
Dec. 16	Lancaster	Chuck, WD2AIK 937-3592	p/r only
Dec. 17	Lower Westchester Co.	WK6R 914/834-2322	w/i OK
Dec. 5	North Tonawanda	Vern, AA2AC 716/634-5276	p/r only
Dec. 16	Ogdensburg	Ted, N4TW 315/322-4133	w/i OK
Dec. 6	Yonkers	AC2V 914/237-5589	w/i OK

North Carolina

Dec. 6	Hendersonville	W2YTO 704/891-4359	p/r pref.; w/i OK
Dec. 12	Leicester	Larry, WB4PLA 704/683-1400	w/i OK
Dec. 13	Salisbury	Isabelle, AB4UX 704/284-2414	w/i OK

Ohio

Dec. 5	Cincinnati	Herb, WA8PBW 513/891-7556	p/r pref.; w/i OK
Dec. 5	Columbus	Jim, K8KJ 614/866-5531	w/i
Dec. 20	Elyria	Ola, WD8MOU 216/647-5116	
Dec. 12	Maumee (Toledo)	Ross, NS8C 419/693-3023	
Dec. 5	Mentor	Scott, KO8O 216/256-0320	
Dec. 12	North Olmstead	Dan, KB8A 216/267-5083	
Dec. 12	Ravenna	Joanne, KJ3O 216/274-8240	
Dec. 19	Springfield	Ralph, WA8KSS 513/325-1456	
Dec. 12	Van Wert	KA8IAF 419/795-5763	

Oregon

Dec. 3	Medford	503/488-2691	
Dec. 17	North Bend	503/756-5693	w/i OK
Dec. 14	Portland	503/777-0132	w/i OK

Pennsylvania

Dec. 5	Erie	W3CG 814/665-9124	w/i
Dec. 19	Erie	K3ED 814/825-8703	w/i only
Dec. 19	Hermitage	WM3H 412/347-5960	w/i OK
Dec. 19	McKeesport	KQ3W 412/466-5204	p/r two days prior
Dec. 3	Philadelphia	ND3Q 215/482-0386 or 215/879-0505	w/i

Rhode Island

Dec. 10	Providence	NN1U 401/231-9156 or 401/454-6848	w/i OK

South Carolina

Dec. 19	Charleston	Pat, AC4IH 803/553-3871	w/i
Dec. 19	Columbia	Ray, N4WR 803/345-3373	w/i OK
Dec. 19	Sumter	Dan, WB5SGH 803/775-9106	w/i

South Dakota

Dec. 12	Rapid City	NU0F 605/348-6564	p/r 30 days prior; w/i OK

Tennessee

Dec. 14	Blount County	Carroll, W4PCA 615/982-5839	w/i OK
Dec. 13	Jasper	Charles, KD4XX 615/942-5116	p/r pref.
Dec. 19	Knoxville	Ray, N4BAQ 615/688-7771	w/i OK
Dec. 26	Loudon County	Bob Gray, KE4SK 615/458-6115	
Dec. 19	Memphis	Win Guin, W2GLJ 901/754-4552	w/i OK
Dec. 12	Roane County	Richard, AA4KS 615/354-4281	w/i OK

Texas

Dec. 5	Austin	Mark 512/335-4327	w/i
Dec. 8	Houston	ND5F 713/464-9044	p/r pref.; w/i OK
Dec. 12	Houston	Jim, KB5WAM 713/486-2032	
Dec. 19	Irving	Hall, K5ZSB 214/255-1077	w/i OK
Dec. 12	McGregor	AB5BA 817/859-5374	w/i OK
Dec. 12	Midland	KT5G 915/694-9450	w/i OK
Dec. 26	San Antonio	K5JWK 512/657-1549	w/i
Dec. 12	San Benito	WA2VJL 512/399-0806	w/i only

Virginia

Dec. 5	Virginia Beach	Ed, WD4GOY 804/468-0866	w/i OK

Washington

Dec. 26	Bremerton	Dave, AA7IA 206/698-9205	w/i

West Virginia

Dec. 12	Huntington	K8KVX 304/736-6542	w/i OK

Wisconsin

Dec. 5	Racine	NW9P 414/658-8390	w/i

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

Those just starting out in the world of OSCAR communications would like to know when they can hear a satellite. The following charts are produced to give you a rough idea as to when OSCAR-13 will be within range of your location. The three charts as printed are centered on the following geographic locations: East = New York City; Mid = St. Louis, MO; West = Reno, NV.

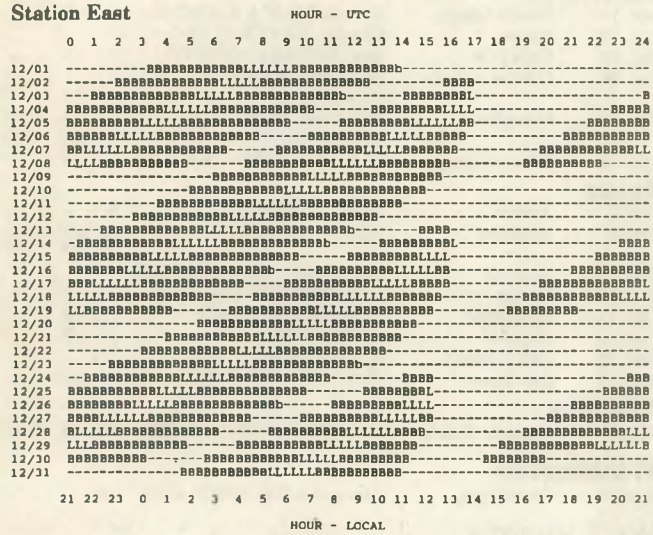
As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 145.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will hear is the telemetry beacon on 145.810 MHz. The letter "L" indicates the satellite is audible but you will hear signals between 435.650 and 436.000 MHz (SSB and CW).

Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

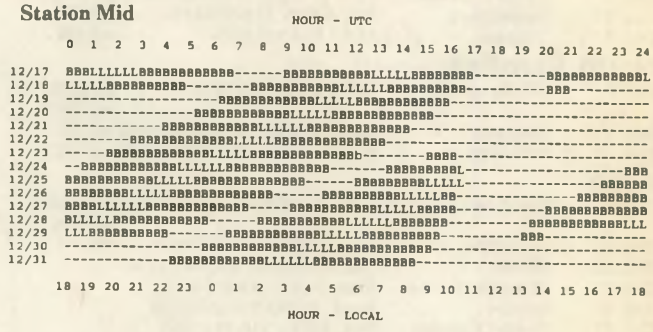
For more information about OSCAR, please send a SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. □

Station East

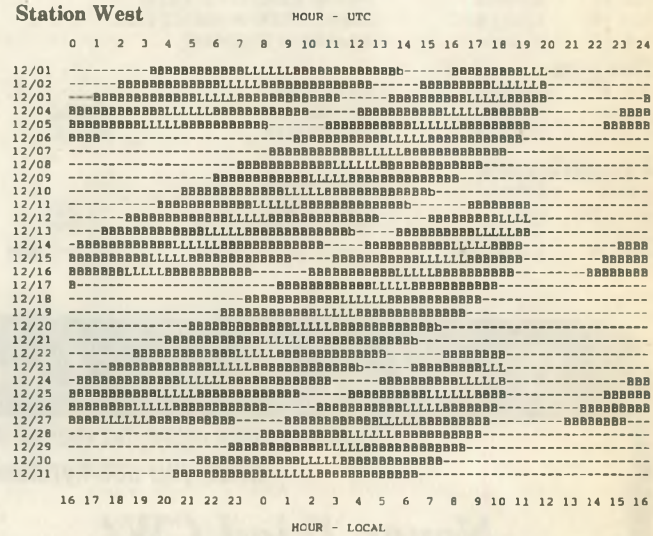


Station Mid

Station Mid



Station West



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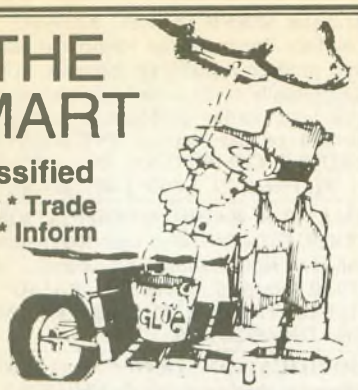

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VE EXAMS WITH SWAP MEETS: VE exams only: Dec 19, 1993; Jan 30, Feb 27, Mar 27, Apr 24, 1993. Held at Epiphany Episcopal Church, 300 West St. in Vacaville. 9 to 11 am. Bring photo ID, one other ID, and photocopy of license or CSCE. Take Alamo/Merchant St. off ramp North, right turn on Buck Ave., corner of Buck and West St. Fee $5.40. ARRL VEC Multiple choice code test given continually. Multiple testing available. Exams with Swap meets: Aug 29, Sept 26, Oct 31, Nov 28. Elmira Fire Station in Elmira. Swapping 7 am to 1 pm. Space $5.00. Take Leisure Town Rd. South from I80. Left turn on Elmira Rd. left turn on A St. Sponsored by the Vaca Valley Radio Club. Contact IRENE McCLURE, KK6XB, 707/446-8376.

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CODE PROFICIENCY DRILLS are transmitted from WB3IVO Brass Pounders ARC, each Saturday, Sunday, Monday and Thursday on 7040 kHz, starting 2000Z. Each Tuesday and Friday on 14060 kHz, starting 2000Z. Speeds range from 20 to 60 wpm.

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PEAK READING CONVERTER! Transforms averaging wattmeters into peak-reading with flip of switch. Peak hold adjustable to 10 seconds. $14.95 kit, $23.95 assembled, $3.00 shipping. HI-RES, 18464 Ashcreek, Mt. Clemens, MI 48044. 313/228-1600.

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MFJ *halfwave vertical* Antenna

6 bands: 40, 20, 15, 10, 6, 2 Meters . . . No radials or ground needed!

Operate 40, 20, 15, 10, 6, 2 Meters with this MFJ-1796 *ground independent halfwave* vertical antenna -- no radials or ground ever needed!

It's only 10 feet high and has a tiny 24 inch footprint! You can mount it anywhere from ground level to the top of a tower -- on apartments, condos, small lots, even on a motorhome. You can take it anywhere -- vacations, field day, DX-pedition, camping, nearly anywhere you go.

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It's so easy to put together that you can have it on the air in less than an hour.

How does MFJ achieve maximum efficiency in such a compact multiband antenna?

The key is *end loading* -- the most efficient form of loading known. The *entire length* of the antenna is always radiating power. There are no lossy traps to reduce effective length.

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Efficient high-Q loading coils are wound on low loss *ceramic* forms. Large diameter -- 1¼ and ¾ inch -- aluminum radiators are used to keep losses to a minimum.

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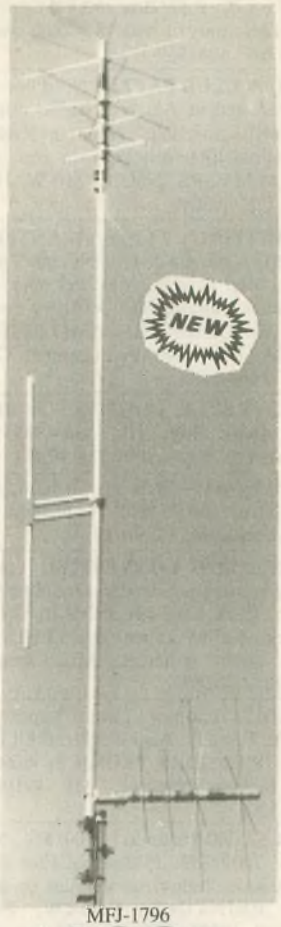

MFJ-1796

$169.95

No Feedline Radiation

There is no feedline radiation that causes pattern distortion and wastes power. The 50 ohm teflon coax feedline exits through the bottom radiator from a low impedance point -- the loading unit is mounted at right angles to decouple the feedline and to provide a low impedance point.

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You get an antenna built with heavy duty, extra thick wall aluminum radiators, machined aluminum parts and stainless steel hardware.

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. . . full halfwave on 6 Meters

On 2 Meters, MFJ's unique stub decoupling and full halfwave element gives you gain -- it really gets you out.

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The *most* for your Money

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You get MFJ's famous one year *No Matter What*™ *unconditional* guarantee. That means we will repair or replace your MFJ-1796 *halfwave vertical* antenna (at our option) *no matter what* for a full year.

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Shortwave *Regenerative* Receiver *Kit*

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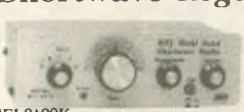

MFJ-8100K

$59.95

Remember hunching over your regenerative receiver for hours with a pair of phones pressing uncomfortably against your ears? **You** could hear just about anything that fancy superhets could hear. Sure, you had to play around with the regeneration control just right and have a steady hand to tune but you could hear'em.

Don't you wish you could relive some of this fun and excitement of your youth — share some of it with your kids and grandkids?

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Spend a fun evening with your child or grandchild and help him put this simple kit together. When you two finish, watch him glow with excitement as he tunes the world bands -- just like you did -- and remember for life.

This baby performs. It has an RF stage to really pick up the weak ones and it goes into regeneration smoothly without pops or dead spots. Stations all over the world will come in loud and clear with just a 10 foot wire antenna.

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It has vernier reduction drive, bandswitch, volume and RF gain controls, uses a 9 volt battery and is built into a rugged aluminum cabinet.

Two earphone jacks let you and your child or grandchild listen together with your Walkman style earphones or plug-in speakers. 7x6x2½ inches.

Order one as a gift for your child or grandchild . . .or for yourself.

MFJ-8100K, $59.95 kit; MFJ-8100W, $79.95 wired and tested.

300 KHz-200 MHz Active Antenna

MFJ-1022

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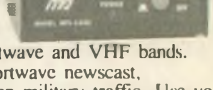

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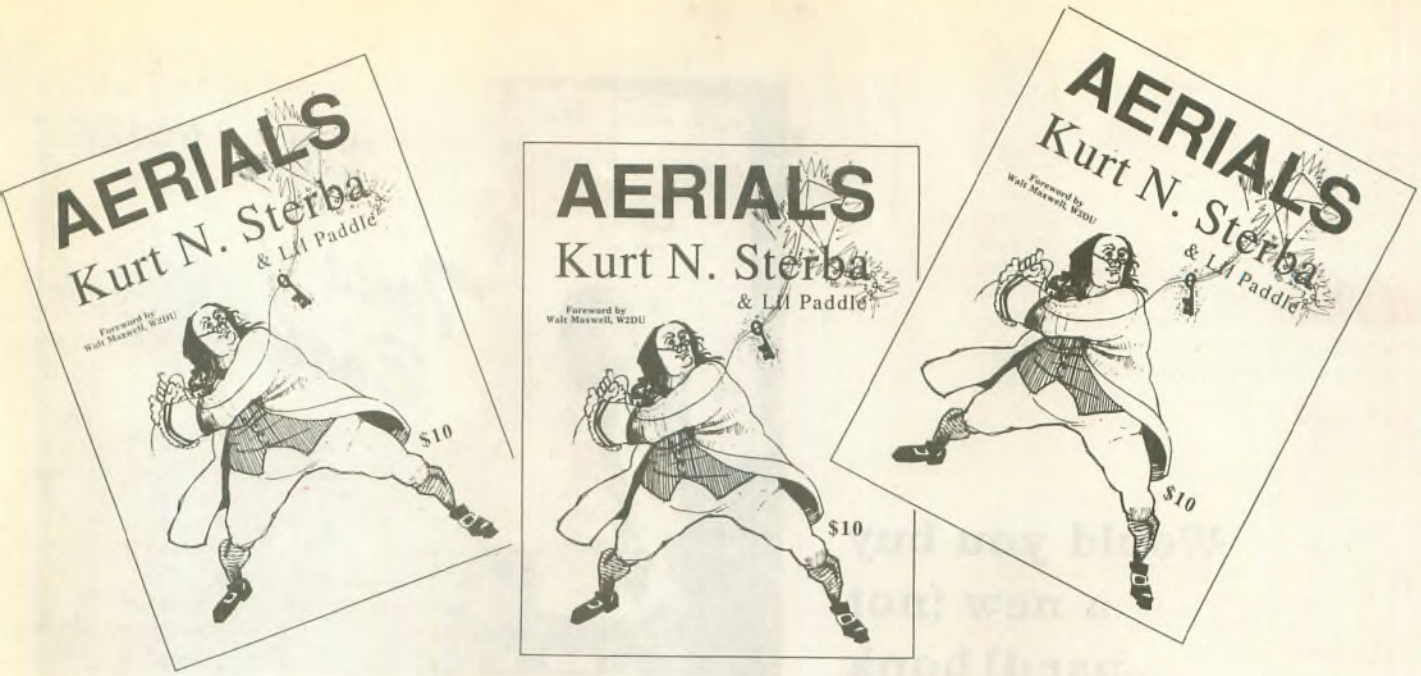

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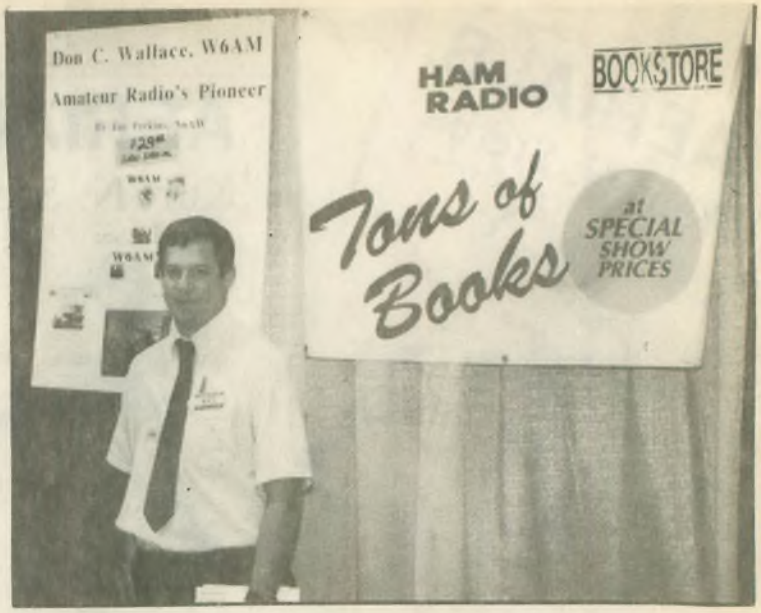

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