Worldradio

Year 23, Issue 6 December 1993 • $1.25

FEATURED IN THIS ISSUE

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Big Island, HI — Arctic Circle Ham Rally
Boulder, CO — Off on a Foxhunt
Grand Prairie, TX — Connectors
Green Mountain Falls, CA — Noisy QTH
Latur, India — Earthquake aid
Melbourne, FL — That's ham radio
Orange, CA — Hospital disaster communications
Portland, OR — Soldering for electronics
Staten Island, NY — Staten Island ops
Tulsa, OK — Old timers and the new breed
Ventura, CA — ARRL SW Division Convention


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Arctic Circle Ham Rally

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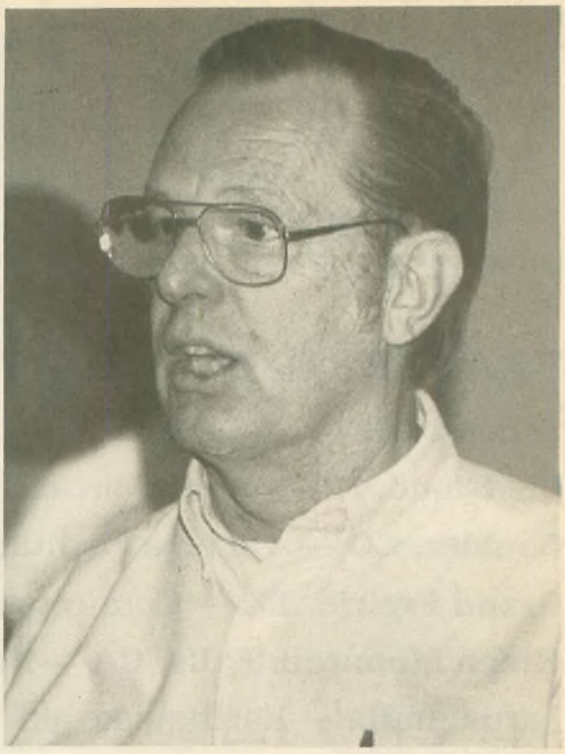

HAMVENTURE 93

ARRL SW Division convention, Ventura, CA

Sept. 17-19,1993

Related stories on pages 17 and 24.

Pictures by Armond Noble, N6WR

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Arctic Circle Ham Rally

JEANNIE STONER, WH6DZ

Travel brochures are written to stir your imagination or to lure you to visit a unique part of the universe. As much as I love to travel, I still read such enticements with one eyebrow raised in skepticism. There was one phrase in an Alaska visitors' guide, however, that stuck in my mind. It vowed that "Once you've gone to Alaska, you never quite come all the way back." There are now a group of ham radio operators/RV travelers that can vouch for the authenticity of that powerful statement.When Patti and Fred Sanders, WK1E and WK1F, quit their jobs last December, they did not agonize extensively over what to do with their new-found freedom. Within two weeks, their home in Florida had changed from the traditional stationary one to a 35-foot motorhome. Patti and Fred were off on the retirement trip of a lifetime — to Alaska and the Arctic Circle!

With the HF rig installed on the wide, flat dashboard of their motorhome and their two meter rig just as accessible, they began meeting new friends. Word spread quickly throughout the ham radio community that a couple of hams were heading for the Arctic Circle. As Patti and Fred traveled across the country, Patti's enthusiastic voice could be heard on several nets. She frequented the Good Sam RV Service Net, the Rocky Mountain RV Service Net, the Kadiddlehoppers, and Alaska's Motley Group.

Paul, W3FO, and I were already on our own dream adventure in Alaska when we first heard about this planned rally to the Arctic Circle. We were in Haines, southeast Alaska, at the time and could hear Roy, WA6GGB, passing the word on the Kadiddlehoppers. We were out of range to make contact on 40 meters with anyone involved, but we listened avidly to the plans. A few weeks later, we were in a campground in Tok, Alaska. A vehicle drove by our motorhome, turned around, and stopped. Four friendly hams had recognized the OM's 'W3FO' license plates as those belonging to a ham. Patti, Fred, Pete, W6JFO, and Estella, KD6TXY, introduced themselves. After getting acquainted, we all agreed that ham radio and RV traveling was a winning combination for making new and lasting friendships. The foursome invited Paul and me to become part of the growing "First Annual Arctic Circle RV/Ham Rally."

The event was still a month away, though, and there were hundreds of miles of KL7 terrain to explore before meeting in Fairbanks for our adventure to the Arctic Circle. The participants went in different directions across the vastness of the Last Great Frontier. To keep track of each other, we met daily on Alaska's Motley Group at 0500Z on 3.933.

World-wide, ham radio operators are a friendly bunch. In Alaska, affability seems to be a prerequisite for operating. Every ham we've talked to has gone out of their way to ensure our enjoyment of Alaska. There are several Alaska nets, and after checking in only once, you become part of the group. The Motley Group welcomes all mobiles, portables, and fixed stations. Some nights there were over 80 checkins, with everyone — remote bush hams, CW, fixed, mobile, low power, and battery powered stations — receiving the same warm welcome. Mobile checkins have

(Please turn to page 6)

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2002-A desk top. 1200 W SSB, 400W continuous operation, 220 to 225 MHz.

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Hams assist in India

A number of readers have forwarded copies of a Reuter story to ***Worldradio*** *in which Amateur Radio played an important part in relief efforts in the aftermath of India's tragic earthquake. We quote in part:*

Raju Gopalakrishnan

LATUR, India, Oct 7 (Reuter) — A small band of Amateur Radio operators has set up vital communication links for relief agencies following India's massive earthquake last week, an official said on Thursday.

"They have given us the best communications system I have had in all my professional career," said Praveen Pardeshi, chief administrator of Latur.

The powerful pre-dawn quake flattened at least 50 villages in the western state of Maharashtra, killed about 22,000 people.

Local authorities, assisted by Indian troops, have launched a massive relief operation to resettle the victims, as food and material aid flood the remote area.

"Their (the ham radio operators') contribution has been absolutely vital," said Pardeshi.

About 50 ham operators set up 30 radio centres after the tremors shook the area, destroying telephone lines and snapping links with remote villages that, even in normal times, would be hard to contact. Telephone communication in India is often difficult.

"We have set up links wherever normal communications lines have broken down," said Balamurali Krishnan, an Amateur Radio enthusiast.

"At least six transmitting sets have been set up in the cars of senior officials so they are never out of touch," said Krishnan. "We reached here within a day of the earthquake and have been working 24 hours a day since," Krishnan said, adding, "We will stay until the (telephone) lines are restored."

Krishnan is a member of the National Institute of Amateur Radio in the southern city of Hyderabad. WR

That's ham radio!

BERNIE PEAKE, N4CR

There is quite a bit of the out-of-the-ordinary about the following.

I was tooling around on 10.1 MHz a few days ago and heard W8FEC calling CQ and, being an old ex-8-lander, I called to see where he was.

I was pleased to find that he was an OT, ex-W2FEC, and was indeed from near my original home in Ohio. I told him that I was licensed in 1932 and my old call was W8HAR.

He said, "Wait a minute," and he punched my old call into his computer. Sure enough we had a QSO before when he was living in Roselle, New Jersey, he informed me, on *9 September 1933!* And, he said, "You never sent me a return QSL."

Darn . . . how the past will catch up with you. I have sent him one now, though. I too had my original log from 1933, so I could confirm the contact.

The headings on the log are somewhat different from those of later years: date; time, a.m./p.m.; called; calling; QRI; input; frequency; and finally, QRA used for location instead of QTH. The input is logged as "120mA, 700V." Frequency in those days was in kilocycles.

From the entries I must have been using my "TNT" rig (tuned-untuned) which had a pair of UX-210s self-excited oscillator circuit. The tubes had a plate dissipation capacity of 7½W each, so with 84W input, quick and accurate tuning for resonance was a necessity.

That's ham radio! WR

Season's greetings from the Worldradio staff

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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

Thousands of years from now, as an archaeologist finds the December 1993 issue of this magazine, he will look at the names below and say, "Yes, there was intelligent life back then. They grouped together in something called Superboosters and took out Lifetime Subscriptions to ***Worldradio***."

- Frank Fabozzi, WB2BTJ, Bronx, NY
- Jeff Stafford, AC4YN, Winston Salem, NC
- Dave Parker, WB9WHG, Ironridge, WI
- Richard Schwenke, N8GBA, Marquette, MI
- Charles Young, WBØYIU, Republic, MO
- Del Denney, KFØGZ, Cortez, CO
- Ronald Oberloh, WAØKDS, Phoenix, AZ
- Greg Pallack, KB7WGF, Yuma, AZ
- James Bakeman, W6WAZ, Burbank, CA
- William Brewer, Jr., KJ6UL, Hemet, CA
- Michael Widener, KE6BFQ, Oxnard, CA (a gift from John Widener, KD7SK)
- E. Butterfield, KC7PS, Aloha, OR
- Pat Shinners, W7VIH, Seattle, WA

•

A sterling group indeed. Of interest, above is that the fourth listed, N8GBA, is 10 years old. Old timers, look closely at second listed, AC4YN, one of the famous calls of yesteryear, Reg Fox, while being chased across Tibet could still get on the air at night.

And we wonder if ninth listed, W6WAZ, does have the Worked All Zones award issued by *CQ* magazine.

•

Speaking of awards, we're working on the new nations list for the prestigious award issued by this magazine, The Worked 100 Nations Award. We held off as there seemed to be a new nation being created every weekend for awhile. Also, we'll be tightening up the criteria for "Nations." Just an entity issuing stamps or so will no longer qualify them. Thus, when you tell someone that you have "Worked 100 Nations" you won't get some odd looks when you recount the names of locales that no one on the face of this earth considers to be a "nation."

•

Interesting — Romania, which used to be one of the real "heavy" countries, has signed up with the pact in Europe where amateurs from other countries don't have to go through all the paperwork to get on the air when visiting for short periods of time. Visitors can just sign YO/ their own callsign. Romanians have the reciprocal privilege when visiting other countries. Nice if that would spread over the rest of the world.

•

A somewhat neglected band is getting more activity. 160 Meters — a land of leisurely conversations, lots of wide open spaces, where you will be made to feel most welcome. Yes, there is a bit more noise than you'll find on other bands but the lack of QRM is a nice trade.

Another band that doesn't get its fair share of activity is Six Meters. Fear of TVI (no longer the dragon it once was) and lack of commercial gear has kept activity down. But, as with 160 equipment, the problem is no longer.

Worldradio will soon be coming out with a book about 6M titled "Six Meters — A Guide to The Magic Band" by Ken Neubeck, WB2AMU. I've just read it all the way through (doing the editing) and it got me really excited about getting on 6M. (I've just got on 160.) I was on 6 back in the late '50s and it was amazing what could be worked with a couple of watts output.

There are just so many interesting activities in Amateur Radio. If you ever attend one of the TV talks given at a convention by Tom O'Hara, W6ORG, you will see just how enthusiastic those with that special interest can be.

QRPers have a lot of fun. I was just reading the October issue of The NWQ Newsletter. It's from the Northwest QRP Club. There is an announcement of their Winter NW QRP Sprint. That's four hours on 15 January. You must run under five Watts. If you use one Watt or less, you get a multiplier of three.

There is a blueprint for building a five-element quad for 2M , a schematic for a five-Watt transmitter for 10M and (are you ready for this?) information about a transceiver (one band, 80,40 or 30) superhet receiver and 3 Watt transmitter all on a board 3½" by 3".

All for about $80 and you get a crystal of your choice. Single signal reception, NOT direct conversion or any of that. Info on that from MXM Industries, Rte. 1, Box 156C, Smithville, TX 78957; Ph. 512/237-3609.

There's a lot packed into ten pages of the NWQ Newsletter. Membership, and six bulletins a year is $10 ($12 Canada, $15 DX) to The NorthWest QRP Club, 4153 49th Ave. SW, Seattle, WA 98116.

•

Worldradio DX Editor John Minke, N6JM, went to rare Sierra County during the California QSO Party. Norm Brooks, K6FO, and I at our separate QTHs gave out semi-rare Sacramento County. We all used the CT program from K1EA. Highly pleased! We had used it on Field Day also. Anyone still fighting paper logging and duping is throwing away one-third of their contest time. Thanks to all who recognized our calls and stopped to say hello.

— Armond, N6WR

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Arctic Rally:

(Continued from page 1)

included those driving Alaska's highways, tandem bicyclists, and even a bush pilot who was relaying for a KA1 rafting a rough section of the Yukon River. There is always someone on the net willing to relay, make phone patches, give WX reports, or invite you by for a cup of coffee. The Motley Group proved to be the perfect way for all the Arctic Circle ralliers to keep in contact.

By July 25th, 10 enthusiastic travelers had congregated in Fairbanks to begin our trek north to the Arctic Circle. By now, the group also included Gene, W4PVI, and Dottie; Bob, VK1RW, and Ruthie. Five RV rigs started the 300 mile dusty, bumpy, rugged excursion up the Dalton "Highway," paralleling the trans-Alaska pipeline, to our destination. Bringing up the rear of the caravan, Paul and I arrived to see the state's beautifully designed Arctic Circle sign. Next to it, were WK1E's artistic cardboard signs pointing the way to the group's campsite. Shortly after we arrived, Bob, WA6MRZ, and Evelyn, spotted Patti's inviting signs and joined the rally.

There were others who wanted to make the trip to the Arctic Circle with us, but could not. Robbie, W2EMA, and Jean, W2EMB, had vehicle trouble and were stuck in Ft. Nelson for weeks waiting for parts. Vince, KB3ØM, and Diane, KA3VZX, both teachers from Pennsylvania, had to leave Alaska in time to welcome their students back to school. KD6TXY's son, an attorney at Lake Tahoe, furnished a bottle of his "private label" vintage 1992 wine for the Arctic Circle toast. Considering the toast was made at 0800, it went down quite smoothly, thank you very much! Orville Redenbacher, W6JFO's cousin, provided the now unofficial "breakfast popcorn of the Arctic Circle." Many hams also followed us via the airwaves. The contacts we made from the Circle would NOT fill a big-gun DXer's log book, by any stretch of the imagination. WK1E made a few contacts on 20 meters; WK1F and W3FO made a few on packet; WH6DZ kept skeds with W6JSB, W6ROY, N6UUG, and KF8UV. And W4PVI and W6JFO informed the nets of our adventures. The QSOs were few in number, but as big as Alaska in quality! Mahalo to all those who accompanied us in spirit.

On July 28th, there was a group of 15 at that imaginary line at latitude 66 degrees, 33 minutes, toasting our trip, ham radio, and new friendships. We even had a couple from Germany join us. They spoke little English and the group's German was nil. Still, the old adage of a smile being the universal language was well proven during our three days together at the Arctic Circle. Who knows — someday, we may hear Helga and Gernot as DL1s.

Around our nightly campfires, we fried fish caught in Alaska's many lakes and streams, modeled Aussie hats, and stuffed ourselves silly with WK1E's blueberry crunch. The canine members of our group, Trixie and MayTwo, looked on hopefully for leftovers. VK1RW and Ruthie rode their bicycles over the "bump" at the Circle, proving that the line was not so imaginary after all. WK1F repeatedly volunteered to take the XYLs blueberry picking, hoping for more blueberry crunch, no doubt. W3FO taught me, Patti, and Estella how to spell a-r-C-t-i-c.

The 'newspaper boy' (a friendly Aleyska pipeline employee) even delivered the latest newspaper. Helga's son, Thomas, joined us after hiking off alone into the wilderness. The seat of his pants, torn in shreds, was an item of concern to all of us. His harrowing, though totally fabricated, tale of an encounter with a grizzly bear had us all in stitches. The laughter continued as Dottie tried to convince our European friends that those charred, gooey, white balls of sugar (marshmallows) really were an American camping tradition.

On our last night together at the First Annual Arctic Circle RV/Ham Rally, we were all sitting around the campfire joking and exchanging eyeball QSL cards. Suddenly, a hush fell over the entire group. It was 11:55 PM, and Alaska's late July sky looked like an artist's palette, streaked with pinks and reds. An immense, perfectly round, brilliant red-orange ball hovered on the horizon. We watched in awe as the sun slowly — ever so slowly — disappeared. It was as if the Land of the Midnight Sun was saying Aloha. 88, Alaska. We'll miss you! **WR**

Staten Island OTW Ops

A. F. PERCY PERSICHETTY, W2NHB

Every few years the Staten Island Old Timers Wireless Operators get together for a reunion with an outdoor lunch and gabfest. This year, the group was hosted by Amil "Percy" Persichetty, W2NHB, at his Staten Island home.

Five of the group are still Staten Island residents while the others now live in Florida and New Jersey.

We keep in touch with each other by radio with a daily schedule on 20 meters. We call it "The Staten Island, Florida Refugee Net." Many other Island residents join in to keep abreast of the news and activities.

When two or more hams visit the Island, we plan a reunion. We have had several in the past years at one of our homes, where we spend a few hours relaxing and talking over our past and present experiences. WR

Shown left to right (including the number of years licensed) top row — Frank Gunther, W2ALS, 73 years; Paul Roeder, K2PR, 60 years; Art Carstensen, K2BSJ, 42 years; Ken Koch, W2GOY, 60 years. Kneeling, left to right — Amil "Percy" Persichetty, W2NHB, 53 years; Larry Houseman, W2GIS, 60 years; Walter Emrich, W2ELM, 43 years.

Let ***Worldradio*** know what you do in Amateur Radio; many others will be interested in your experiences. Please be sure to get Amateurs' names and callsigns for photos.

More on Preemption

Last month we gave a barebones report on FCC's action to preempt state and local laws prohibiting possession of mobile transceivers capable of receiving communications on other than amateur frequencies. Here's a little more information about the FCC position in PR Docket 391-36, released 3 September 1993.

Strictly speaking, the laws referred to speak of receivers rather than transceivers, but their interpretation could extend to the receiving portion of amateur transceivers. The FCC Ruling addressed this point clearly, stating: "We conclude that certain state and local laws conflict with the Commission's regulatory scheme designed to promote a strong amateur radio service. Scanner laws that prohibit the use of transceivers that transmit and receive amateur frequencies because they also receive public safety, special emergency or other radio service frequencies frustrate most legitimate amateur service mobile operations through the threat of penalties such as fines and the confiscation of equipment.

The Commission continues: "As noted by ARRL, virtually all modern amateur service equipment in use today can receive transmissions on the public safety and special emergency frequencies at issue, and the majority of amateur stations are operated in a mobile fashion. Consequently, the mobile operations of the vast majority of amateurs are affected by such laws.

"In addition, the record statements of amateurs of the costs [that] would be substantiated to modify existing transceivers is unchallenged. The scanner laws, then, essentially place the amateur operator in the position of either foregoing mobile operations by simply avoiding all use of the equipment in vehicles or other locations specified in the laws, or risking fines or equipment confiscation.

"This very significant limitation on amateurs' operating rights runs counter to the express policies of both Congress and the Commission to encourage and support amateur service operations, including mobile operations, and impermissively encroaches on federal authority over amateur operators. It conflicts directly with the federal interest in amateur operators being able to transmit and receive on authorized amateur service frequencies."

(Ed. We hope that this action by the Commission will forestall enactment and enforcement of other ill-conceived legislation limiting the scope of amateur radio activities.)

Retransmission of Time Signals

The revisions to Part 97.113 of the Commission's Rules (Report and Order in Docket 92-136) became effective on 13 September. As already reported, communications permitted therein include certain retransmissions, on an occasional basis, of government-provided space shuttle (with NASA permission), propagation and weather forecast broadcasts that originate from U.S. Government stations and are intended for use by the general public; but not time signals.

R.D. Cummings, WA0EDA, has requested that the FCC reconsider this portion of the new Rule. During August, before the reconsideration period expired, Cummings repeated a request he first made in September 1992, saying, "I believe that WWV time signal retransmission could be a very usful service to the amateur community. The ability of a VHF/UHF repeater providing a rebroadcast of WWV, upon demand, would be valuable. Many repeaters now have a time transmission of one kind or another, but WWV time could provide synchronization of events at remote points that would be much more difficult if not impossible by usual means." (Ed. Note in particular the words *upon demand.*)

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of the first of October 1993.

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	AA0PB	KG0IU	N0YZG	KB0LMJ
1	AA1HM	KD1RL	N1QJK	KB1BEA
2	AA2PV	KF2RN	N2WRJ	KB2QPD
3	AA3FY	KE3KE	N3QKZ	KB3AZA
4	AD4LB	KR4EU		KE4GPS
5	AB5PX	KJ5QV		KC5DMN
6	AB6XG	KN6TA		KE6CGD
7	AA7ZE	KI7SG		KB7YZF
8	AA8MP	KG8EM		KB8PZH
9	AA9IN	KF9RR	N9VDL	KB9IVM
North Mariana Is.	AH0V	AH0AO	KH0CF	WH0AAY
Guam	NH2V	AH2CT	KH2HM	WH2ANH
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6NE	WH6PS	WH6CQY
Kure Is.			KH7AA	
American Samoa	AH8H	AH8AF	KH8AX	WH8ABB
Wake Wilkes Peale	AH9C	AH9AD	KH9AE	WH9AAI
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Thank you!

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

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

How many are we?

FCC statistics for the month of July show a total of more than 616,000 of us; 10.3% Extra class, 18.1% Advanced, 20.5% General, 34.7% Technician, and 16.4% Novice.

FCC lauds amateurs for interference resolution

Interference complaints are down significantly in southern California, according to the FCC's Los Angeles office of the Field Operations Bureau, and amateur volunteers are cited as the prevailing reason for the decline.

The FCC said that it has noted a significant decrease in the number of complaints involving amateur radio operators causing interference to consumer electronic equipment. A July survey of interference case data sureyed by the Commission's L.A. office showed a 42% decrease in TVI/phone complaints. The survey compared complaints from January 1989 to June 1993.

The FCC said, "This significant decrease is primarily due to the exemplary work of the local volunteer amateur auxiliaries (of the ARRL; see ARRL Letter, issue of 27 September) which intervene when TVI or telephone interference occurs. The auxiliary members volunteer their time and expertise to inspect amateur radio installations and offer technical advice as well as helping troubleshoot the problem with methods of shielding, filtering, grounding, etc.

"The effort of the auxiliary is significant because of the recent change in FCC policy where field offices no longer routinely investigate individual TVI or telephone interference complaints on a one-to-one basis. The auxiliary is commended for continuing to work on these complaints even though the FCC no longer requires them to work on these interference cases.

"This voluntary work of the auxiliary should be applauded by amateur operators everywhere. They continue to make the Amateur Radio Service more self-sufficient and promote good will between amateurs and all parties involved."

No-theory petitions denied

In the September column we reported on the status of a petition to eliminate written exams for amateur licenses, first filed in June 1992. On 24 August 1993 the FCC denied the petition by Scott Leyshon, WA2EQF, to eliminate written examinations for amateur operator licenses. At the same time the Commission denied a petition by Vincent Biancomano, WB2EZG which, although it did not advocate a no-written-test license, did, according to the FCC, concur in all other respects with Leyshon's proposal. Leyshon's most recent petition, filed 19 April of this year, argued that current written examinations place a premium on FCC rules over technical content. No comments were received on his petition.

Biancomano's petition, like Leyshon's, was characterized by the FCC as proposing that the Commission state a goal of the Amateur Service as being either a technical or a non-technical service. The FCC said that, of the 170 questions that appear on examinations for amateur operator licenses, only 46 concern rules and operating procedures, while 124 concern contemporary technical matters. The Commission said it did not believe that present examinations place an unjustified premium on rules.

The FCC said that amateurs have over the years expressed the view that they agree with the current statement of the purposes of amateur radio as found in the FCC rules, and the FCC concurs.

VEC Novice license examination fees

Apropro of our articles on this subject in September and November, the disagreement continues: See *W5YI Report* for 1 September and the *ARRL Letter* for 14 September. (Ed: Sort of a tempest in a teapot; less than 500 Novice licenses were issued in August 1993.)

No more 20 WPM?

W5YI reports (15 September) that Edwin R. Dahl, KI7FB of Spokane, Washington, has petitioned the FCC to eliminate the 20 WPM telegraphy examination, Element 1(C). Dahl believes that the 5 and 13 WPM Elements 1(A and 1(B) ". . . should be a continued requirement in order to retain not only the heritage of amateur radio, but as an application in the performance of volunteer duties during disasters or emergencies."

To support his petition, Dahl attached a newspaper article which appeared in the 30 August *Spokane Spokesman-Review* entitled, "Dots, dashes die away as technology takes over." A subtitle maintains, "Morse code has become a quill pen in a world of modems and megabytes. Probably not even Morse himself would flash out an SOS to save the code." The newspaper story tells how the Coast Guard, railroads, Boy Scouts and branches of the military no longer depend on the language of dots and dashes. Here is a quote from the article.

"The Coast Guard is phasing out teaching Morse code to radio personnel this month and will begin removing Morse equipment from its ships, said a spokesman at the Guard's Washingtn, D.C., headquarters. The Navy stopped teaching Morse code on surface ships in 1988 and will likely phase out use of the code on submarines, a Navy spokesman at the Pentagon said. Morse code was once the railroad lexicon. But the last known use of it was on wires between Milwaukee and the Twin Cities in the mid-1960s. The use ended when the last employees who knew Morse code retired, said Bill Dunbar (AD9E), the Normal, Illinois, man who is president of the Morse telegraph club. Several years ago the Boy Scouts stopped requiring young men to learn Morse code to earn First Class rank and Morse code is no longer a necessary part of the radio merit badge." **WR**

Old timers and the new breed

PAUL KOSBAB, NF4E

The long awaited influx of "new blood" (both young and old) has been a vital, persistent issue to Amateur Radio for several decades and it's finally come about. Recent developments and the substantial increase in our numbers should therefore be a cause for satisfaction, gratefully acknowledged and appreciated by all.

Yet, some of us are heard "grumbling," both on and off the air. It's mostly "old timers:" seasoned, experienced, competent ham operators, accustomed and geared toward high standards of ham radio operations for many years; the kind you're proud to call your friends.

New company

After the no code license concept was officially adopted by the FCC in February of 1991, such experienced, longtime operators find themselves now increasingly in the company of newly licensed technician and novice class operators populating in ever growing numbers local repeaters and the novice portions of the 10 meter band.

Many members of this "new breed" are young adults or in their lively teens: the kind of fresh, new blood the "aging" amateur radio community had been trying to attract for decades.

Most seasoned amateur radio operators welcome these much needed, new additions to our fraternity graciously; they, in fact, go out of their way to be especially friendly and helpful to such newcomers on the air. Some members of a relative minority, however, don't seem to be all that happy with such newly found friends on local repeaters and elsewhere. They apparently can't help comparing current VEC testing conditions and FCC licensing policies to what they themselves had to go through to get their tickets many years ago. "Are these 'real hams'?" some may ask, picking on real (or imagined) shortcomings or beginners' problems new licensees may demonstrate when first getting on the air. "Content with their limited phone privileges, they don't even want to discuss — much less consider — learning the Morse code, and will remain 'no coders' forever," they say. "What will become of our beloved Amateur Radio Service as an institution?"

Some background

Some undue and perhaps excusable generalizations aside, how valid is such argument? Obviously, nobody can say for sure. Only time will tell. But in order to better understand such sentiments, a brief, historical look and small reminder of what testing and licensing was like in those all but forgotten, harsher, bygone days may be useful.

There were no volunteer examiners, except for the Novice license — which expired after a year if the holder hadn't upgraded by that time. All other license applicants had to travel, sometimes hundreds of miles, to the nearest regional FCC office to take their examinations, conducted about once a month exclusively by FCC personnel.

All or nothing

Some of these FCC examiners were friendly, others were not; most, I think, were "sternly indifferent." At any rate: at the beginning of the testing session and before being allowed to go any further, the applicant (often pale and jittery after a sleepless night of last minute cramming) had to pass the crucial 13 or 20 WPM code test first, with "pencil down" at the sound of the last dit or dah — and no subsequent corrections! If the applicant failed to master that first, crucial hurdle, that was the end of the whole, glorious event.

If the code test was passed, there came the theory — and it was quite tough by any standards. Complicated essay questions, schematics, complex

circuitry (mostly designed by FCC electrical engineers — some say for other engineers) were anything but easy to digest and comprehend. If that part was failed, often by one single item incorrectly answered, that too was the end. No partial credits. No "certificate of completion" for the passed code test— no nothing ! Failure rates for such unlucky applicants approached or exceeded 50 per cent in some areas.

Thus, with burning ambitions sadly turned to ashes, many a hopeful applicant drove back home — dejected, disappointed, discouraged — only to endure the mandatory waiting period of 30 days after which time the grueling procedure could be repeated once again. Needless to say, not just a few never went back.

Yes, many an old timer remembers it well. The only fair statement one can, perhaps, apply to those past proceedings is that, though they inflicted a great deal of mental pain to many, they ultimately did produce a goodly number of well prepared, competent operators with near professional capabilities, or better.

Considering the strenuous efforts some of our seasoned brethren had to go through in their own times — can we really blame them for wanting to preserve (if not exactly "cherish") those "precious" memories, and the tremendous sense of achievement, satisfaction, and pride they felt when, all obstacles successfully overcome, the hard-earned ticket finally confirmed them as "true blue hams," committed to high operational standards they want to see kept intact?

State of the art

I think not. But times have changed. While many may still enjoy their old, straight Navy keys on certain occasions, most seasoned ham radio operators have by now accepted and fully adapted to technological progress. They have all but made the inevitable switch to automated electronic hardware and whatever new operating modes and breathtaking programs modern, state of the art computer chips have to offer today's serious, dedicated amateur radio operator.

Memories are what they are: reflections of things past that seemed important at the time. But Amateur radio is rapidly moving on, to newer, presumably higher, grounds, its ranks swelling mightily again. Nobody wants to be left behind.

If old timers had their unique problems, today's generation of no coders have theirs. If they really want to become knowledgeable and not just memorize known test questions and answers in predigested manuals, they still have to study as hard as anyone before them. Though today's code and written tests are highly flexible and much more accessible than ever before,they still have to be passed. Even when licensed, their no code technician's privileges — nice as they are for a beginning — are still quite limited; and for any further upgrading to the higher classes, there still keeps lurking the ever-present, mandatory and perennial code requirement as the final, crucial hurdle in the obstacle course for potential upgrades.

At the risk of repeating what has been said and repeated so many times in recent years, I shall nevertheless say it once again: All old-timers had to learn and be familiar with the code. There simply was no way around it. For some it was, and maybe still is, fun and a sporting challenge; for others, it was (and probably still is) a mixed blessing at best. But most, I think, agreed on one (romantic?) point: What made them "real hams" was the telegrapher's key and their ability to copy the Morse code — that "secret language" — by ear. It has been part and parcel of the Rites of Passage for ham operators all over the world ever since amateur radio came into existence.

Today, the International Morse code is considered by many newcomers to Amateur Radio and even government agencies as an obsolete relic of the past. The Navy and Coast Guard no longer teach it to their personnel. Yet, it is one of the oldest "binary digital" systems of communications we know of, requiring very little, if any, sophisticated electronic equipment — which has been known to fail at the most crucial moments (e.g., in a half-swamped sailboat, with nearly dead batteries, needing some desperate help in stormy weather conditions; or, as not so long ago happened, on a transcontinental hot-air balloon venture. . .).

At the most modest speed of 5 WPM, any reasonably gifted youngster can learn and acquire basic code skills in a matter of weeks, as many have demonstrated. Highly motivated adults have done it in a weekend or two. "Average" people — which means most of us with other things to do and think about during regular working hours—can usually manage in two weeks to four, with, say, two 15 minute practice sessions thrown in each day. It's really no big deal. But I guess it's like any other hobby skills; skiing, riding a bicycle, going fishing, playing golf or the pipe organ, or even — God forbid! — learning a second language just for the fun of it: Some folks like it, and some just don't.

Yes, it takes some effort, I readily admit, especially when it comes to the intermediate and somewhat higher speeds of 13 and 20 WPM. But, as any "old timer" will tell us, with perhaps a

little smile, thousands have done it before, and thousands will do so again. Local radio clubs offer practice sessions in abundance, as does the ARRL. Code testing formats have also been vastly liberalized and made more flexible to give plenty of leeway to volunteer examiners who mostly choose text formats that follow typical, predictable QSO lines. Finally, since there is no longer any waiting period, a nervous examinee who may have flunked the test the first time around, may even be allowed to try a second time, with a different text, in the same session.

Patience and friendliness

To avoid a potentially divisive dichotomy between the "New" and the "Old" within the present day Amateur Radio community, we have, I think, to be patient and friendly with each other. The time honored principle of mutual respect should still apply. Both, newcomers and old timers alike, have their own particular interests, assets and liabilities; and certain allowances and concessions will obviously have to made by either sides.

Personally (belonging to the older set) when talking and listening to the younger generation of new ham radio operators on the air, I find their enthusiasm quite contagious. What a shame it would be to "turn them off" for trivial reasons! Most of those I have encountered seem to be eager and willing to engage in some serious, friendly rag chewing and to accept as well as appreciate occasional technical pointers — and even to endure sporadic "sage remarks" some crusty old timers may have to offer. This, to my thinking, seems to be the way it ought to be and a fair enough exchange between the parties involved, with equitably favorable returns on both sides of the aisle.

Mutual respect

In respecting and being tolerant of mutual as well as divergent interests and inclinations, such friendly interchanges might even go a long way in smoothening out certain inevitable aggravations and misunderstandings— real or imagined — that may have crept into Amateur Radio's "battle of the generations." WR

What about that noisy QTH?

Scenario: Hilltop located QTH with a 100 ft. tower, directional beams, modern solid state equipment, super low-noise GaAsFET preamps and all with a good ground and lightning protection system.

Problem: Joe Ham down the hill with smaller antennas and older tube type equipment was consistently outperforming the above station due to the noise being generated in and around the QTH.

Solution(s): First the obvious things were checked: Electrical connections, impedance matching, receiver sensitivity, grounding, condition of transmission lines, etc. were all checked out and found to be fine.

Then a very simple but effective antenna was made by putting a PL-259 on the end of about 50 feet (or whatever is needed) of small coax. At the other end, the braid was cut off a small amount and 18" to 24" of stiff wire was attached to the center conductor. The coax was hooked to a good HF receiver which was tuned to the frequency range that most of the noise was being heard (usually in the 24 — 28MHz range works well). Of course a handheld receiver that receives in the frequency range works well also. Then the operator simply moved around the location with the sensing antenna and listened for the noise change intensity.

Here are some of the things that were found (not all at this one QTH).

a) Two computers in the shack (and one upstairs) were spewing out wideband hash. Installation of EMF filters on the AC lines and some ferrite beads on the keyboard leads solved the trouble.

b) Fluorescent lights in 3 different locations in the house and garage were found to be generating hash. One required a bulb change and the other two required EMI filters near the point of bulb contact.

c) An intermittent arcing circuit breaker was found and replaced in the AC panel.

d) The console T.V. in the den of the house was generating all kind of birdies — again the EMI filter solved the problem.

e) Problems that have been found in other locations have been aquarium heaters, electronic clocks, touch sensitive lamps, and one of the worst and most annoying was a faulty thermocouple in a furnace that wiped out 40-10 meters with a 20 over 9 intermittent (on 3 seconds, off for 4 seconds) buzz saw sound.

A very amateur approach to this problem. It does work and helps clean up that noisy QTH.

73, Larry WA5LGO

— *MARC Communicator*

BNCUHFNSMATNC...

KENT BRITAIN, WA5VJB

Have you ever been bewildered by that alphabet soup of letters used to identify your coax connectors? Well, there are some interesting stories behind those letters.

Up until the 1930s, binding posts and parallel lines were used for feed lines. When the first RF coaxial cables were marketed, the first connectors, dubbed UHF (PL-259/SO-239), were introduced for them.

During WW II, the requirements for a better connector for RADAR prompted two new designs. The first was developed at Bell Labs by Paul Neill, and became the type "N" (for Neill) connector. At the same time, another connector was being developed by Carl Concellman, which became the type "C" connector.

The "C" connector was the first type designed as a true 50 ohm device. By using the concept of "reactive cancellation," the inductance of the connector was balanced by changing the dielectric material used to fill the connector. Reactive cancellation allows the connector to have a low SWR well into the GHz region.

Shortly thereafter, Neill and Concellman collaborated on the design of a miniature bayonet locking connector, which they later dubbed the Bayonet Neill Concellman, or BNC. Later, for certain airborne uses, an improved threaded version, the Threaded Neill Concellman or TNC, was developed.

For precision microwave use, a series of subminiature connectors were developed, the A, B and C. Of these the A, or Sub-Miniature A (SMA), is the most popular.

Now you can really show off by calling your local Amateur store and asking: "Do you have a 220 MHz handheld antenna with a Bayonet Neill Concellman connector?" WR

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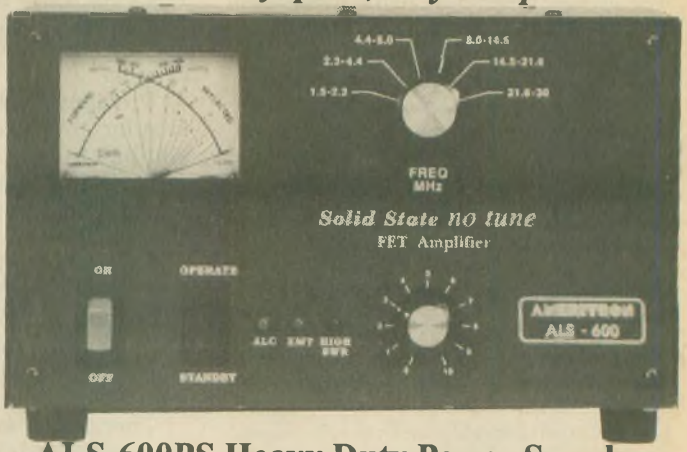

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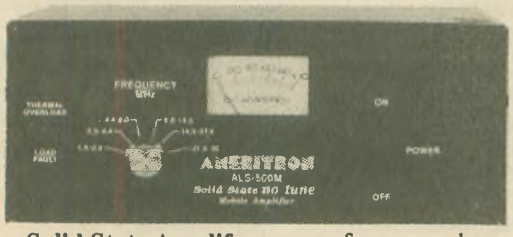

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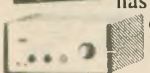

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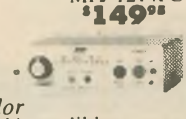

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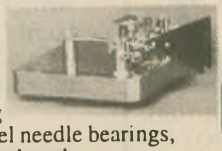

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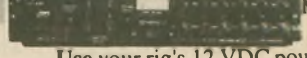

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Off on a foxhunt!

PHYLLIS J. PERRY, NØOUV

"Ta-ta-ta-ta-ta! Tally-ho!"

Well... not quite. No horses ridden by folks in scarlet coats appeared, and there were no hounds involved, but the 52 ham radio enthusiasts thought it was a great foxhunt anyway on a sunny August day in the mountains of Boulder County in Colorado.

Members of the youth auxiliary of the Boulder Amateur Radio Club (BARC JR), sponsored by Rip, NVØM, and Ellie, NØQCX, Van Winkle, were "sniffing" or foxhunting on foot at close range. This transmitter hunt was the culminating summer event for the young club members and their families.

The fox (actually two foxes, Galen Koepke, WAØSCS, and his six-year-old daughter, Heidi) went into hiding on National Forest land at about 1:45 p.m. The fox transmitted on a handheld with a 40 DB step attenuator operating on 2 meters. The seventeen hunters, accompanied by friends and adult sponsors, set out to find their quarry at 2:30 p.m.

The starting point of the "hunters" was three miles from where the fox had hidden behind a rock and between two rock outcroppings. Although the time varied from 60 minutes to 90 minutes, all hunters sniffed out the fox. On finally reaching their quarry, each successful hunter was rewarded with home-made granola cookies provided by Doris Koepke, NØUJE.

Club members used purchased and homemade equipment to sniff out the fox. Among these were many handhelds (Yaesu, ICOM, Alinco) with accessories such as digital S meters, rubber ducks, loops, dipoles, 3 and 4-element Yagis, and 2 arrow antennas.

To get a fix on the fox, Hoyt, NØUJD, and his team rotated a beam and used an S meter to home in. They took a variety of readings from different locations and used a topographic map to triangulate and locate the fox.

Eric, KBØKQF, used a handheld equipped with a rubber duck and a digital S meter. Matt Haden, NØWUM, and his partner used only a hand-held throughout, listening to white noise, and admitted that his best clue was seeing other kids climbing up from the foxes' hiding area with cookie crumbs on their faces!

One major problem team members reported was that signals bounced off the rocks and seemed to come from all directions, making tracking difficult.

BARC JR began in May of 1992 as an after school club at Louisville Middle School. About 25 kids, aged five to 15 make up the club membership. Members come from Boulder, Lafayette, Louisville, Nederland, Longmont, Fort Collins, and Westminster, Colorado. During summer they meet mid-week, and during the school year, on Saturday afternoons at the Van Winkle home.

The enthusiastic BARC JR club members have developed a logo, and added a page, "Yap Yap," to the regular BARC newsletter. They participate in a variety of radio-related activities including BARC's Field Day and the BARCFEST at the Boulder County Fairgrounds. The hams who operate the 146.67 MHz Castle Rock repeater have provided time for BARC JR club members to run a Junior Hams' Net which is very successful.

In addition to the foxhunt, recent outings for club members, have included: a visit to the radio shack of Dick Kiefer, KØDK, to study the resonance of antennas; a visit with Steve London, N2IC, to take part in an international ARRL contest; trips to several local companies; and a visit to the 146.94 Squaw Mountain Repeater near Idaho Springs with the repeater trustee, Bob Kreutzer, KEØSJ, as guide.

Officers of the BARC JR club are: President, Hoyt Koepke, NØUJD; Vice-President, Eric Permut, KBØKQF; and Secretary, Stacia Henderson, unlicensed. There are currently 25 club members. Of these, nine are studying for their first license, three hold Novice Class licenses, seven have Technician or Tech Plus licenses, five have a General Class license, and one has an Advanced class license. The youngest club member is six, and the youngest licensed club member is nine years old.

"Sniffing," the name commonly given to this type of foxhunt done on foot within a relatively small area, is a great introduction to more complicated transceiver hunting. For long distance foxhunting, antennas are mounted on cars and the hunt goes mobile. Although the members of BARC Jr aren't yet old enough to drive cars to participate in a mobile foxhunt, some look forward to that time. Meanwhile, they are honing their "sniffing skills" and intend to make the BARC JR foxhunt, followed by a family pot-luck, an annual event. WR

Hoyt Kiepke, NØUJD, and John Tyler, KBØKER, hunting.
— Photo by Laura Breyfogle, NØVMI.

Amateur Radio for hospital disaster communications

NORM BROOKS, K6FO

April Moell, WA6OPS, is an Emergency Coordinator for hospital disaster communications in Orange County. The group she has led since 1980 has assisted in numerous hospital communications emergencies. She has been licensed since 1976, and holds an Advanced Class license.

At the Southwestern Division ARRL Convention, called Hamventure '93, April gave us a unique insight to hospital operations in a disastrous emergency.

Plan

The hospital should have a written plan on when and how to use Amateur Radio operators. The Amateurs are listed on call-up sheets in their disaster manual. The hospital should only need to contact one person on the list. That person should then take steps to have the rest of the list called.

In Orange county there is a "Core Team." These are people who have said that the hospital response team is their primary group, they will not have another group in higher priority. Many amateurs belong to several groups — RACES, Red Cross, etc., and when the fire bell rings, they will be sure to get in on something. The problem is that all of those groups think they have you. You must make it clear to all of your groups, as to which is your primary group in the case of a multi-agency disaster.

Core Team people also self-activate in case of a disaster. They can go to the hospital in advance of an emergency and determine if the existing facilities are OK. In the Landis quake, a hospital was in serious trouble. There was no power, no phones, and the emergency generator had failed. If it hadn't been for the hams going to the hospital to check on them, a geat deal of time could have passed before anyone knew that help was needed.

Myths or half-truths

In communications planning, we've found that hospital administrators succumb to various myths, or half-truths. Here are some of them:

• *Our phones will be back in 5 minutes.* — This often drags out to hours.

• *We have a cellular phone in our disaster box.* — Are the batteries dead? Can the cellular system really handle all the traffic during a disaster?

• *We have walkie-talkies to pass out.* — Who uses walkie-talkies? In one case they were handed out to department heads. At 3 a.m. what good are they at the department head's home, or locked up in a desk? Department heads also are uncomfortable using radios and want someone else to talk for them. They have been known to send a radio to maintenance because it gives out a loud shhhh sound. You and I know that the squelch is open!

• *We have HEAR/REDDI.* (Hospital Emergency Administrative Radio) This links everybody together on one simplex frequency at one time. — This is most useful for announcing to the hospitals how many patients they are getting; REDDI net is like commercial packet. (Rapid Emergency Digital Data Information). Most Southern California hospitals are not impressed with the high technology because when a station goes off the net for any reason, it must be re-initialized. This can be done only by the University of California at Irvine.

• *We have power phones.* — This is a separate phone system that works only in a telephone outage. An average sized hospital has about 1000 telephone extensions. The power phone system would have about 20 phones. Which telephones should these 20 be? The regular phone system must be completely out before the power phone system will come on. If there is a partial phone outage, the power phone system will do no good at all.

• *We have an antenna on the roof and a ham station in the hospital.* — In the Landis quake, 18 hospitals had antennas, but only two were available after the quake. It's a false security. Don't put all your eggs in that basket and think you're prepared. Ham operators should be able to take their equipment to the hospital and set up and operate. Don't wait until they buy antennas and radios before you organize your group.

• *We have an engineer, doctor, pharmacist, etc., who is a ham.*— These people will be busy with their own jobs

and not have time to wear two hats.

• *We have trained non-ham staff members to use the ham radios in case the hams cannot get here in an emergency.*— I strongly urge you ***NOT*** to do this. It is not legal, they are not licensed, they may not have the opportunity to "play radio," and they will certainly cause problems on a net by not knowing how to identify, use call signs and procedures. It is not a wise thing to do. Even we hams have problems staying oriented to equipment if we don't use it regularly.

• *We set up packet last year at the disaster drill site, and sent messages to a hospital.*— How can this help? The drill was known in advance, and the packet experts were there two hours early. In a real emergency the disaster teams will want to get the injured into medical facilities as quickly as possible. There will be no time to set up packet stations by inexperienced people.

• *I've been a ham for 25 years.* —Time in amateur radio does not correlate with how well people perform. It takes an interest and willingness to learn what it takes to be part of an emergency group.

• *Our club does a lot of public service events.*— That's nice in that it brings the members together and talking to each other on the radio. But public service events do not have the same level of intensity or pressure that a disaster provides.

• *I've had a lot of Field Day experience.* — Setting up the equipment is useful experience, but shouting "3A Orange" does not really train you for emergency operating.

• *We have a net checkin every week.* — If checking in with call signs is all they do, you're not really going to be prepared for emergency communications. You need drills with multiple people calling at the same time for practice in prioritizing communications.

Our image

Whether you're a specialized hospital group, or coverage of a hospital is one of many entities your group might assist, here are some things you should know about hospitals. Hospitals are mostly self contained. They deal with emergencies every day. As a result, they think they are pretty well prepared. On a daily basis, they have communications that are critical. Every day they need this "stat"; they have "Code Blue." A hospital is also a highly specialized technical environment. They speak different languages — 'surgery,' 'therapy,' 'radiology,' 'lab.' It's interesting to hear these different languages being thrown around, usually in acronyms ICU, MRI, EKG, etc. It's a highly professional and highly competent environment. It's important that we match with that. I don't mean that you come in with a white coat and your name badge, you don't need a skirt or a tie. I think that in our behavior and general appearance we need to match the environment. Because we are volunteers, we are associated with the words untrained, unskilled and unreliable. We must show these words are not true in describing us. We must present a professional demeanor, and prove that we're competent. That's what hospital people relate to.

Urgency vs. confidentiality

You are probably aware that a hospital patient doesn't want everybody to know what is going on in the patient's case. There is a high level of confidentiality in hospitals. We ought to be sensitive to that. You should make the people at the hospital aware that when we handle a message on the radio, it may not be fully confidential. The equation you must look at is "urgency vs. confidentiality." When urgency outweighs confidentiality it is alright to send it by radio. If it isn't that urgent, wait for the pay-phone or wait for the runner. For example, we don't need to put out over the radio the fact that the patient has died in the intensive care unit.

Anatomy of a disaster

In an MCI (Mass Casualty Incident), The first medical effort will be triage. In 15 to 30 seconds, they will triage each injured person. This is a quick assessment in terms of respiration, consciousness, etc. Victims will be tagged. Black tags mean they are already dead, or so far gone that we don't have the resources to save them. Red tags mean if we can get them out of here within an hour, we might save their lives. Yellow tags mean it's serious, but can be delayed. Green tags mean they can walk (walking wounded). Triage continues throughout the event, and people's status can change. A yellow tag victim can go into shock and become a red tag case. We don't need to know this as hams because we're not going to be making the triage decisions, but when we handle the communications, we should have a sense of what's going on and why.

Transport from the scene to the hospital requires major communications. If the county system is working, fine. If not, it's the kind of thing that hams may back up. The messages are like this: Hospital, you're getting two immediates and two delayed victims, coming by ambulance such and such. It's sort of "ready or not, here they come." In the hospital parking lot a ham there tells the hospital command post which ambulances have arrived, etc. There might also be a ham in the emergency room helping with these communications.

How important are hams?

Although we have important roles to play in a hospital emergency, we must remember we are not the only game in town. Every hospital emergency plan makes use of people as runners. They will use runners for confidential issues, for example. They will use pay-phones too. Remember that just because we can do it on the radio, doesn't mean that we must do it on the radio. One more thing that is often forgotten: Hams can help with internal communications. Just because we have antenna on the roof doesn't mean we cannot back up internal communications. The 220 and 440 MHz bands are especially good for this because they have a somewhat better security value. **WR**

From one mile deep

NORM BROOKS, K6FO

Readers will recall that on page 26 of our September 1993 issue we carried a letter from Barry Goldwater, K7UGA, asking for suggestions for reliably communicating about 100 miles from the bottom of a canyon one mile deep. We received several answers. Here is a summary:

HF

Replies suggested the use of high frequencies to cover the 100 mile path. Further, because of the deep canyon, they suggested the use of the Near Vertical Incident Sky-Wave (NVIS) technique.

• Frank Kurtin, KB3NV/AAAØW, sent in a very comprehensive package including computer analyses of various NVIS antenna arrangements.

NVIS: An antenna for NVIS is designed to perform just the opposite of an antenna designed for DX. In DX work, the antenna is raised quite high, so that the radiating angle is low, and the signal goes out as close to the horizon as possible. Such an antenna would be useless in the canyon, as the low angle of radiation would send the signal directly into the walls of the canyon. Instead, an NVIS antenna is designed to send the signal straight up to the zenith. Army *Field Manual* (FM 24-18) describes NVIS propagation in this way: "This effect is similar to taking a hose with a fog nozzle and pointing it straight up. The water falling back to earth covers a circular pattern continuously out to a given distance. . . .the effect of terrain and vegetation (when operating from defiladed positions such as valleys) are greatly reduced, and the receive signal strength will not vary greatly." The *Manual*'s Figure 1 diagrams this concept:

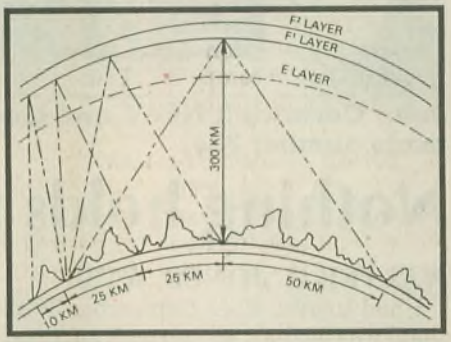

Figure 1

• C. H. Stewart, KD5DL, suggests: "try a regular dipole mounted only .1 to .25 wavelength above the canyon floor. The floor will act as a radiator, putting much of the signal straight up, where it will be re-radiated by the ionosphere. . . .his chances of making contacts on 80/40/20 should be good."

Editor's note: .25 wavelength at 80 meters would be about 30 feet. .1 wavelength would be about 12 feet. Corresponding figures for other bands are: 40 meters 16 feet, 7 feet; 20 meters 8 feet, 3 feet; 15 meters 4 feet, 2 feet.

• Gary Altig, N7UVL, also suggested NVIS and says he is interested in learning more about it.

• Ralph Bilal, WDØEJA, describes a situation he encounters from his location on the west side of Pike's Peak. He communicates the 20 mile path eastwardly, jumping the 5000 to 8000 foot "wall" by using *Isotron* antennas on the 160, 80 and 40 meter bands. He states: "there are transitional times when one band stops working and another picks up, but for the most part, communications are reliable for a good portion of the day. There are many rigs with 100 watts of power capability that could be packed into the canyon. The *Isotrons* can be hauled assembled; 160,80 and 40 taking up only 3 feet across and 32

inches high, or they can be knocked down and put in a 12"x12"x18" case. A light push up mast is easy to pack on a raft."

Six meters

• Ken Neubeck, WB2AMU, sent a persuasive argument for the use of the 6 meter band for this canyon operation. He correctly states "there is no one radio or radio frequency that can guarantee a 100% success rate, but there are setups that will be reasonably reliable. . . .not many people are aware of its (6 meters) excellent ground wave characteristics. . . .There has been a lot of misinformation about the six meter band, but it is probably the most valuable radio band that we have." He suggests a trial run on a trip down the Colorado River with tests at various stopping points to see what "dead" areas might exist.

VHF

One anonymous answer suggested "A couple of portable 2 meter repeaters on opposite sides of the canyon."!

VLF

• Dave Spearing, KB9CSW, offers the following solution: "This is a perfect example where the laws governing the 1750 meter "experimenters' band" need to be changed. . . .the band could be a useful method of communicating from such places as the Grand Canyon if it were given: unlimited antenna length, more power (perhaps 50 to 100 watts) and even Amateur Radio band status (as I understand is done in Canada). . . In a nutshell, VLF frequencies propagate through things like rocks and water; higher frequencies do not."

Editor's note: The originals of all responses have been forwarded to Senator Goldwater, K7UGA. Thank you, Barry, for giving us the opportunity to discuss such an interesting question. WR

John Cormwell, NC8V and Greg Neinfurtner, NS8O after WT8E made number 324.

Nothing holds back *real* DXers

WALTER H. JONES, WT8E

I had known since September 1992 that I was facing a second back surgery; the date just hadn't been determined by the doctors. It's difficult to get both surgeons of your choice available at the same time. Many tests had been completed; the waiting game had begun. One terrible thought had been nagging my mind: In planning the operation, would the doctors and the hospital schedule me for surgery right in the middle of the AH1A Dxpedition?

Finally, the date and time were set for 15 January, 1993, 8 a.m.

The holiday season came and passed and everything was looking good for the date of surgery. I thought that I'd be back home in 10-14 days and at least have the opportunity to work the AH1A.

Not to be. On the fourth of January, I received a call from my doctor's office saying that the surgery date had been moved back to 22 January. That began to cut into my chances for the AH1A if any problems occurred with the surgery. The previous operation, two years before, had kept me in the hospital for 15 days before the doctor would let me come home. I could only hope for the best.

The "magical" day came and the XYL and I arrived at the hospital on time. All was well. The preparation for surgery was completed and I was on my way. I remember sitting in the hallway with my doctor, telling jokes before we went into the operating room.

After the operation, I was taken to my room about 2:30 p.m. The family was there waiting. Everything had gone well, according to the doctor. I was now minus two discs in my lower back , and three vertebrae were now fused together.

It was time to see with whom I would be sharing my room for the next few days. Imagine my surprise when it turned out to be KB8AYZ, Randy, also from my hometown of Athens, Ohio. He'd had surgery for a hip-joint replacement four days before, and we both have the same doctor. (I think Doc had us put in the same room just to make his rounds shorter.) Randy was there for a week before going home. My stay lasted nine days, and then I was taken home by ambulance. For an additional month, I was confined to a bed.

The evening of 1 February, NC8V, John and NS8O, Greg came to the house to set up a station for me. The regular shack is in the basement, and stairs

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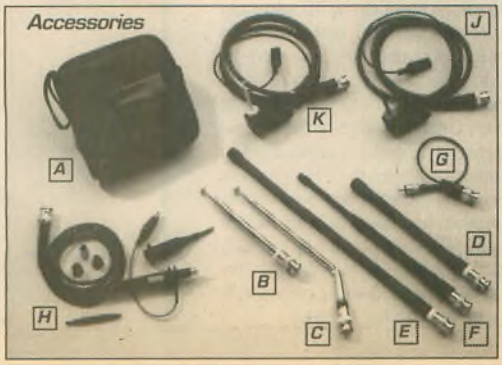

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were out of the question. John and Greg tore down the Drake TR-7 station and brought it upstairs. They put it on an adjustable hospital table at my bedside, along with my keyer and clock. Now I was ready to make my attack on the AH1A.

Just imagine, I would actually listen now just like the old days for the DX station, instead of catching spots on the DX packet cluster!

The coax ran across the floor and down the stairs to the shack, leading to the antenna switch to the tri-bander at 52 feet. I told John to park it to the west and I would be waiting for them, as conditions permitted. No amp this time, just 100 watts and I'd jump into the pileup.

I first heard them on 15 meters, about 19:00 UTC 2 February, working split. The operator was WØCP, Walt. I made it into the log at 19:22 UTC. My report was: "You are 5x9 from my hospital bed recovering from back surgery." His report was: "also 5x9 and hope we made your day."

Did he ever make my day! Chasing DX is the most important part of the hobby for me, even the short-signal report of a DXpedition. Before the AH1A left the island, I also had them on two more bands and a CW contact.

That's me in the picture, horizontally polarized, with NC8V, John on the left and NS8O, Greg on the right. The picture says it all. The number 324 doesn't include all of the countries, but they are getting fewer and harder to find all the time. A bonus was added before the month was up: S21ZG, Bangladesh, was added for another new country.

Credit has to go to NC8V, and NS8O for all the help and for giving me the opportunity to work a new country. They were my Elmers for the Advanced and Extra Class studies as well as VEs on the Extra Class exam. Also, a special thanks should go to the XYL for putting up with the coax running through the house for a month.

It's just another example of how hams stick together in times of need. **WR**

Awards

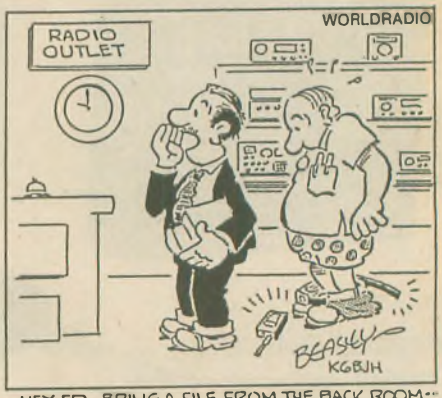
Tom Carten, K1PZU honored

Fr. Tom Carten, K1PZU, was recently awarded the 1993 Jules Schick Award for Outstanding Service, by the Blinded Veterans Association of Pennsylvania. This award, the organization's highest honor, was given in recognition of Tom's 22-year commitment to visually impaired people locally and nationwide.

Starting in 1971, Tom has been the voice and distributor for the taped version of ***Worldradio*** magazine, a monthly publication for Amateur Radio operators. In addition, he has taped several dozen religious books for the Braille Circulating Library, in Richmond VA, and has spent many years as a Braille transcriber. He is a member of the National Braille Association, and the Pennsylvania Association For The Blind.

For the past 19 years, The Radio Home Visitor, broadcast over the King's College, Wilkes-Barre, PA, radio station, has brought daily and weekly newspapers to the visually impaired and homebound. Tom began the program as a King's student, and remains today as manager, producer and director of this radio reading service.

The award is named after Jules Schick, an Associated Press photographer during World War Two. He became involved with wounded GIs at the Valley Forge Army Hospital working extensively with blinded patients there and at the Philadelphia Naval Hospital. **WR**



HEY ED, BRING A FILE FROM THE BACK ROOM... THE BELT CLIP ON THIS NEW HANDHELD HAS REALLY GOT A SHARP EDGE!

Soldering for electronics

ED CLULON, W7TWL

Most Amateurs will eventually face the prospect of soldering. It might be an electronics project, working on an antenna or replacing a defective component in a piece of equipment.

Many new Amateurs look on soldering as some black art known only to a selected few. There have been many who have quit in disgust on some project that they could not get to work right, not knowing that the chief problem was their soldering.

Heathkit stated that the vast majority of kits returned for service were a result of bad soldering. Soldering is easy and fun and should not be an impediment to building some of your equipment.

The most important step in soldering is getting the right equipment and materials. The selection of the soldering iron is based on the size of the objects you are soldering.

The purpose of the iron is to raise the temperature of the area to be joined to the melting point of the solder. I find for most circuit board applications, a 25W iron is sufficient. A larger iron can damage the thin foil on the board.

For larger devices, such as tube socket pins, ground lugs and moderate size lugs on switches and devices, I have a 47W iron. For outdoor stuff like antenna wires and such, my 90/125W soldering gun will do the job.

The proper solder for most applications is the rosin core 60/40, sold most places as electronic solder. The purpose of the flux is to clean the surface of the joint of oxides and prevent further oxidation as the surface is coming to the melting point of the solder. For large areas, cleaning the area with a liquid flux will speed up the soldering process and require less heat, important for sensitive components or coax braid.

Soldering is mistakenly thought of as using a metal glue to hold metal parts together. That is not what is happening. Soldering is the process of dissolving one metal into another.

In the case of copper, we are using an alloy of tin and lead that melts about 360 degrees and dissolves the surface of the object to be soldered. When the joint cools you have two pieces of copper joined by an alloy of copper, tin and lead. Properly done, the joint will be a mechanically solid, gas tight connection that is free from corrosion.

The proper technique is to bring the joints together and raise the temperature of the joint up to the melting point of the solder by applying the iron to the joint. Melt the solder on the joint, not on the iron.

As the joint becomes hot it will first melt the flux out of the core of the solder and it will start to flow down over the joint. A moment later the solder will begin to melt into a liquid and flow over the areas that are hot enough to keep it melted. The trick is to get a good "wetting action" with the solder to coat the joint. If the solder is "beading up," the joint is not taking the solder and may not have a solderable surface.

Solder should flow like water when hot. Just under the melting point it becomes plastic and will mechanically hold a joint together, but the connection will usually fail. This is the infamous "cold solder joint."

The rosin that remains around the connection is an insulator and can be left, but for appearance sake it can be cleaned off by gentle scraping or use of a flux remover. In some applications pre-tinning the surfaces to be mated will result in less heat being required for the finished joint. This is done by heating each component of the joint and flowing the solder over the surfaces before joining.

During all of the soldering operations, keep your iron tip clean. A small amount of the tip of your soldering iron is dissolved in the joint and any oxide on the tip will impede the soldering action. Some people keep an open bottle of liquid flux for that purpose. A small wet sponge near your iron holder can be used for cleaning also.

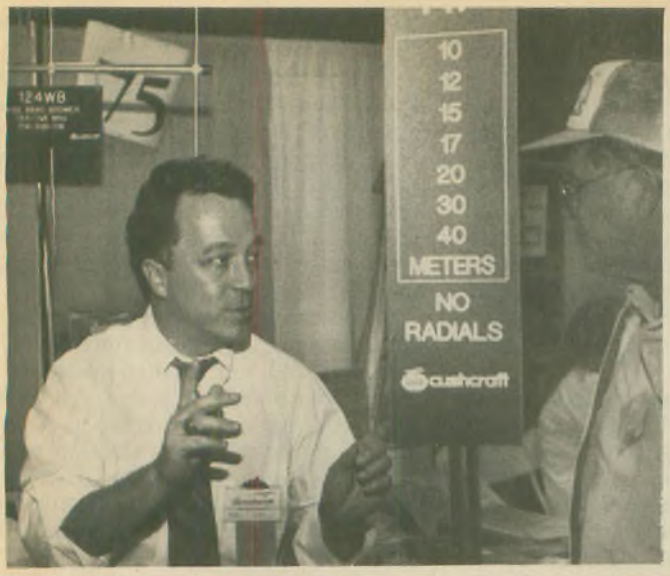
When using a soldering iron, observe certain safety precautions. Always return a soldering iron to a soldering iron holder when not in use. Avoid inhaling the soldering flux vapor. Above all, always wear eye protection when soldering, as a tiny drop of molten metal could cause a very serious eye injury. Occasionally a joint, especially outdoors, will spit when hot.

Get some scrap stuff and practice making some connections. When they are right, believe me you will know. Don't let that soldering devil keep you from the full enjoyment of the hobby.

Mirror images

The Sun City Amateur Radio Club, in Sun City, California, has the distinction of having two of its members with Amateur call signs exactly the opposite of the other:

K6UN Felix Paplawski, and
NU6K Don Chilcotte.



SW Division convention

By the sea, by the sea, by the beautiful sea. At this convention the hotel was right there at the beach. And, wherever she goes, Irma Weber, K6KCI, makes everyone feel the sun is shining.

In a departure from our usual reporting on a convention we instead turn to the way it was seen by one of the attendees. From "Scope" (Palomar ARC, Vista, ARC, Vista , CA) a slightly edited version of the article written by Harry Hodges, WA6YOO.

"Over the weekend of 17-19 September, my wife and I attended the ARRL Southwestern Division Convention which was held in Ventura, about a three-hour drive from San Diego. It was put on by the Santa Barbara Section and was an outstanding affair. Conventions of this sort are created by the volunteer efforts of members of the Amateur Radio community for their fellow hams. Profits, if any, go to finance club projects such as VE programs, antennas for hospitals, creation of radio communication vans for use in disasters.

"There are seminars to attend which are educational and entertaining where ideas about our service are freely exchanged. An evening banquet featured a program on NASA's search for extraterrestrial intelligence. The speaker was Dr. D. Kent Cullers, WA6TWX, NASA Ames Research Center mathematician. Absolutely fascinating!

"For the DXers in the crowd, there was the Sunday morning DX breakfast at which the attendees were entertained by Art Goddard, W6XD, a well known DXer and Contester who gave a slide supported talk on last year's CEØY contest operation from Easter Island.

"And last but not least was the Exhibition Hall and Flea market

where you could drool over the latest Gee Whiz-bangs with all the assorted whistles and bells and bargain for the latest in boat anchors. There was really something there for everyone!

"These Santa Barbara folks worked their fannies off to put on a good show.

"Here was a chance to look, learn, relax, be entertained, walk on the beach, visit the local historical sights, dump the kids off at grandma's and have a mini-honeymoon, buy a new gadget, whatever. If you weren't there, you missed a great weekend!"

SILENT KEYS

Shetland's GM3KZH.

Andrew Halcrow, GM3KZH

The Radio Amateurs of Shetland recently paid tribute to GM3KZH, who died at the age of 81. Andy's radio career began when he obtained his certificate of proficiency in radiotelegraphy from Edinburgh's Radio College in 1929. Radio was in its infancy, with Morse being transmitted by spark gap.

After serving in the Merchant Service, he joined the Air Ministry during World War II, serving at radar installations, and later training RAF pilots in radio.

After retiring in 1976, he returned to Scotland's Shetland Islands where he continued his longtime hobby of Amateur Radio.

Andy and I had planned to meet for a few days on his way back from a visit to his sister and brother-in-law in New Zealand, but he passed away the day he was to leave Shetland. He will be greatly missed. — *Information submitted by David Lawrence, KB6QAQ.*

Dr. Charles Moser, W6HS

Dr. Charles (Mert) Moser, longtime friend of Pitcairn Island's Amateur Radio operators became a Silent Key in April of this year at age 84. He served as Tom and Betty Christian's QSL manager for many years, and administered a fund which collected money for the purchase of gasoline to keep their generator going.

W6HS operated from aboard the *Sagafiord* in 1980.

"Mert" was the founder and first president of Southern California's Old Old Timers Club (for those licensed for forty years or more); a member of the Quarter Century Wireless Association; the San Fernando Radio Club; Crecenta Valley Radio Club; and the Valley Good Guys Radio Club.

Dr. Moser received his Bachelors, Master's, and Doctorate degrees in Pharmaceutical Chemistry from the University of Southern California. He served as manager for Winthrop Laboratories for Southern California and Nevada. He was elected to the board of directors of the Alumni Association of the School of Pharmacy at USC, and served for three consecutive terms.

Along with Ruth, his wife of 50 years, travel became a great pleasure in his retirement. When Ruth passed away in 1982, he devoted his time to his grown children, grandchildren, and great-grandchildren — and Amateur Radio. — *Submitted by Fred Ferguson, W6GED.*

William Long, N2UIX

William Long, N2UIX, became a Silent Key on 7 October, 1993, at the age of 64. He lived in Western New York State all his life and was a retired operating engineer.

He was a member of Operating Engineers Local 17 in Buffalo for 42 years, retiring in 1991.

He was a member of St. Joseph's Catholic Church in North Tonawanda; the Wheatfield Garden Club; BIBMUG, a computer club, and the Amateur Radio Association of the Tonawanda's, Inc., ARATS.

He is survived by his wife Dolores, one daughter, two sons, and two grandchildren. — *Information submitted by James E. Keller, N2LQQ.*

CW in the media

The following is taken from the FISTS CW Club News Letter which quotes "a packet circular" about Morse passages in music which originated at KA3VSP.

"The rock band RUSH has a song titled YYZ on their album 'Moving Pictures' which starts with heavy percussion belting out 'YYZ' echoed by brass and guitar running the same theme. The characters 'YYZ' are the beacon identifier for Toronto Airport and it is noted that the inspiration for the song came from Alex Lifeson (guitarist) who holds a private pilot's license with a commercial rating.

"N2JQA spotted Morse on the Ronnie Montrose album 'Gamma 3' in which the song 'Stranger' contains code which spells out just that.

"KEØYG notes the phrase 'The Russians are coming' spelled out in code on the computer game 'Red Storm Rising' at about 18 wpm on his C64 version and believes that the IBM version plays the cw message in the theme song.

"Some of you may note that (as reported by VK3CRA) the series 'Inspector Morse' (on *Mystery* on PBS) contains the name in its intro music whilst the Inspector's name is never mentioned in the screenplay."

If you're not subscribing to Worldradio, you're missing a lot of Amateur Radio news.

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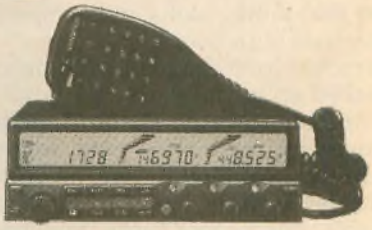

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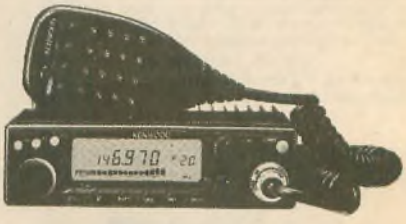
TS-850S

TM-732A

TS-450S



TM-241A

TH-28A

TS-50S

TR-751A

Can you talk to your kids?

STEVE RATHBONE, KF6ZH

As a single parent this question raised its head a number of times over the past several years. And other than raising the "AUTO PATCH," my answer was "NO."

Well, a number of years ago I decided that I would have my children become Amateur operators. Not bad, I decided what they want! Actually, I developed a plan to bring my son Steven "into the field" — so to speak.

I started not by letting him speak as third party, but even more subtle. I gave him a *Rand McNally Road Atlas.* It tied in well with his school work and he enjoyed learning what the symbols were all about. I would give him states and cities to look up. . .ask him to route my journey from one city to another. . .and ask the mileage. Great Fun! At the same time (he was seven) it helped his reading skills and he spent quality time with Dad.

We moved from one room to the next and ended up in the shack. We would tune up and down on the low bands "discovering" new cities and would take turns "mapping" them. . .guessing the miles, etc.

All this time we took turns tuning as well. I would say, "You'll be able to talk there when you get your ticket." It was understood. . .Dad did it — son did it. Kids copy their parents — ask a psychologist, ask a smoker.

Steve started slow studying at the age of 8 and was taking a class. The class had other kids in it and once a week, off we went. Sometimes he balked, but he was "signed-in," so he stuck to his commitment.

The hard part was the code — not so much copying it but finding the time to practice schoolwork, Dad's work and the ever important responsibility of being a kid. If we backslid anywhere it was here. . .Until —

I found out that Steve copied code better if he sent to me first. . .and it was a book of his own choosing. Sometimes a comic book, sometimes the "Nintendo Players Guide."

Yes, I made mistakes. He saw them and corrected my copy. Then I would send to him out of his book — on stuff like "My sister has stinky feet." Great fun! But Morse code was our secret code.

He passed his written at the age of 9 at a regular testing session that the VEs put on (4th attempt), and got his "Certificate of Successful Completion." Six months later he passed his code portion. He was now a "Novice Pending."

One month to the day, KB6ZQV went on the air. The next day we went to a club breakfast and I presented him with his call sign hat. I don't know who was prouder, him or me. Everyone made a fuss.

Last week he missed his Tech upgrade by one question. No tears, he knows when the time is right he'll get it.

What have I done? He's an "old man" at 10-years-old! I talk to my son, do you? Can you? *—Morena Valley ARA, CA*

The odd phrase

ROGER BARBER, N9CQQ

Through the years I have collected comments from foreign operators where something was misconstrued, or lost in translation. Thought these might bring a chuckle.

- In the meantime I work and do nothing. . .
- My antenna is 15 meters up to the ground. . .
- Your frequency is off, come up a little down. . .
- I must QRT because now comes thunderlight. . .
- Once again I can spell my name. . .
- I can't listen to you-can you listen to me?
- My english is no good but don't worry about it. . .
- What state is your state in?
- I thank you for the short nice talking. . .
- The rig is made home. . .
- This blond woman is for some reason was middle aged. . .
- His daughter is married at the moment. She is normally married in England. . .
- Much of the rivers are out of the rivers. . .
- I was built in 1920. When were you built?
- I hope to talk to you again in the next future. . .

Product Review

Marathon Contest Software review

JIM PETERSON, AA60Z

Having been a Macintosh user for a number of years now at both my home and the office, I have always been frustrated at the small amount of ham radio software for the Mac. As a result, it was a real pleasure to recently discover the Marathon amateur radio contest software package. As far as I can tell, Marathon is the first truly complete Mac based contest program which runs without significant delays, is user friendly, and handles most of the major contests.

Earlier Mac based software products which relied on Hypercard have tended to be both slow and cumbersome. In contrast, Marathon logs and files contacts in about a second, even when I'm using my fairly low-octane Mac Plus. Marathon is pretty non demanding in terms of platform requirements — a Mac Plus or better running System 6.04 with 1 Mbyte of internal memory is all that is needed. It is also Multifinder/System 7 compatible and has an enhanced logging capacity when used with 3 Mbyte of internal memory.

I discovered Marathon while looking around for a contest software package that our club could use for Field Day this year. Our club had ready access to a couple of portable Apple Powerbooks, and Marathon was recommended as a good program. After a busy Field Day weekend and 8 different operators, the assessment was universal that this was just about the ideal software package for our purposes. As you would expect from a Macintosh program, Marathon is designed to be intuitive and user friendly. Our operators were able to sit down and start running it with almost no instructions. The pull-down menus, windows and log entry screens minimize the amount of required typing. Even the two-fingered typists in our crew had no problems.

The real time dupe checking with automatic look-up got universal rave reviews from our team. (Rather than forcing the operator to manually search through a large dupe sheet, Marathon automatically beeps a warning if the QSO-in-progress is a duplicate.) The fact that the program automatically recorded the time of each QSO from the computer's memory made life a lot simpler. In addition, Marathon enabled us to simultaneously display point credit, chart our QSO rate, and keep track of how many different sections we had worked during the contest. When I occasionally made a mistake logging, fixing it was simply a matter of double clicking on the offending log entry and typing the correction. The partial call look-up and note pad capabilities came in handy, and the 50 page user's manual was both clear and direct for those of us who felt inclined to read it. After the contest, the program even printed facsimiles of the entry forms along with the log pages and check sheets.

Although our humble club operation didn't require them, Marathon includes a number of other bells and whistles which should be of interest to the more serious contester. These include maintainable country and prefix lists for DX contests, a log export capability for disk submission of logs, rig interface for automatic logging of the frequency and mode of each contact, and a packet interface for DX spotting (provided you have a TNC). The manual includes the necessary connector type and pin assignments for most common transceivers. Marathon will also automatically look up and display DX country information during a DX contest, including beam heading and distance to the DX country from your QTH.

In addition to Field Day, this software also handles the ARRL DX Contest, 10 Meter Contest, RTTY Roundup, November Sweepstakes, *CQ*'s WPX, World-Wide DX and World-Wide RTTY Contests, as well as the IARU HF Championships and the JARL All Asian Contest. Although I haven't tried it yet, the manual says Marathon even has a CW interface and programmable memories that can be used with any serial-to-CW device that accepts ASCII characters, such as the PK232, KAM, or MFJ-1278.

The bottom line is that our club found Marathon to be a great addition to our Field Day experience. If you've got a Macintosh in your shack and you enjoy contesting, Marathon is an excellent way to add to the fun and boost your score at the same time. If you are curious about Marathon, you can order a demo disk and manual for $8.00 (refundable), or order the whole package for $59.95 from Kevin Krueger, NØIOS, 1780 Ruth St., St. Paul, Minnesota 55109. WR

OFF THE AIR

Contesting vs. QSOs

Once again, the contesters have dominated the spectrum! Another quasi-sanctioned event has completely decimated the bands disrupting normal communications. Operating on 75M this weekend, we were again disrupted by those more intent on making a 5 second contact, rather than having some consideration for those who were already on the frequency, engaged in normal QSOs. I also sometimes wonder how many of these operators are running more than the legal limit for power, their signals vastly exceeding any distances that their receivers could possibly hear. I have also realized that a lot of these "disrupters" are Extra class operators who should know better! I know I do!

I can't for the life of me figure out why these contests are so important that the participants operate without regard to others who may be using the frequencies. What's the deal? If there were some substantial prizes offered like a new car, a Carribean cruise or some new ham equipment I could understand, but just for the sake of getting your name in *QST*? Hogwash!

Although I am not opposed to the contests in general I think it is high time that some restrictions be put on operating spectrum for contests. Let's give a little consideration to those who do not care to contest. Some of us just like to make our contacts with our friends or engage in normal rag chewing. I would seriously like to see the spectrum used for contesting limited to a certain portion or portions of each band, thereby allowing some normal and use to continue without too much disruption.

Let's see-I'm only 1 out of an estimated 615,000 licensed hams in the U.S., making me only .0000016 of the total voice. However small, I don't think I'm alone.

John Wilson, KM6BF
Chino Valley, AZ

Visiting Israel

Here is a brief report on my trip to Israel last November. To say the least it was fantastic. Made contact with a group of hams in Natanya through Haim, 4X6ZI. On very short notice he called the hamdom of Netanya, and the following hams showed up at a very pleasant meeting in Hotel Goldar: Paul Gross, 4X6UU; Haim, 4X6ZI; Micha Klein, 4Z4KM; Avner Hirschfeld, 4Z4NH; Hayim Dentes, 4X4DJ; Jose Cohen, LU1HGA; Haim Ken-Tor, who is waiting for his call sign; and Israel Berko, 4X1OM.

They really were very hospitable and very enthusiastic to talk to an American ham. Our tour group was based in the King Solomon Hotel in Natanya. The group was eager to talk about ham radio in America and since the Israeli license structure is patterned after ours they also wonder if we are going in the right direction. It was a great experience to stand on 10,000 years of civilization. Makes me feel very young.

Arnold Samuels, KH6COY
Ocean Shores, WA

Belt bag HT protector

RONALD W. HOOKER, K9WTF

Light rain occurred while we were providing communications for the West Allis Western Days Parade. I had not taken a jacket of any type, a raincoat, or an umbrella. Not liking the idea of getting my new dualband HT wet, I was trying to figure out a way to keep it dry.

I had worn a belt bag to the parade to carry an extra battery for the HT and my sunglasses. It quickly became clear how I could keep the HT dry; use the belt bag which is fairly waterproof.

I have been using a hat clip antenna mount when using the HT in this type of activity and a remote speaker mike. This allowed me to put the HT into the bag and close the zipper up onto the two small cables. This gave me full use of the HT with it protected from the elements.

The belt bag is also very handy for carrying your HT when you want to have it with you in a public place but with it turned off. And you do not want to have it in the open on your belt. It can be very quickly removed for use when needed.

I have found that using the hat clip antenna is a benefit with improved coverage. It has proven to be a help for me on the parade route, and at swapfests.

—West Allis Radio Amateur Club

SPECIAL EVENTS

Frostbite Falls Beach Party

The St. Paul ARC will operate a special event station on 8 January, 1994 for the Minnesota Frostbite Falls Beach Party. Minnesota stations work non-Minnesota stations and vice versa, exchanging country, state or county, and current Celsius temperature.

Work stations once per band and once per mode. CW 3.540, 3.690, 7.040, 7.140, 14.040, 21.040, 28.040, 28.140; SSB 3.850, 7.250, 14.250, 21.350, 28.350. Score one point SSB, two points CW. Final score is QSO points + average temperature worked. MN station with highest score wins; non-MN station with lowest score wins.

SASE for info and sample log. Work five MN stations for FFBP certificate or work all counties for SPRC Worked All Minnesota Counties Award. Send logs to Ed Van Cleave, AAØHI, 2700 16th St. NW, St. Paul, MN 55112;(612) 659-1420 or (612) 626-0108.

Kalawoa County, Molokai

Richard LaChance, AH6IO, is organizing a DX-pedition to Kalawao County, Molokai. The isolated county is the historic site of a Hansen's Disease (leprosy) hospital. The station will be on the air Saturday, 4 December 1993. Operators will use their own callsigns.

Operations will be in the Novice and General portions of the bands. Listen for CW and phone activities; at press time, digital plans were still uncertain.

For commemorative QSL card, please SASE to operator's home call.

Charles Dickens Festival

The Fenton Area ARA will operate KB8MBJ 1400-2400Z, 11 December, 1993, during the annual Charles Dickens Festival. Operations will take place between 28.300-28.500 MHz and in the General portions of the 20 and 40 meter phone subbands. For special card, send QSL and #10 SASE to Bill Coale, KB8MBJ, 605 S. Broad St. Holly, MI 48442.

60th anniversary

The Genesee County Radio Club will operate W8ACW 4 December, 1993, 1200Z-2400Z to celebrate the 60th anniversay of the Genesee County Radio Club. Operation will be in the General 80-15 meter phone subbands, the Novice 10 meter phone subband, and 2 meters. For QSL, send QSL and SASE to GCRC, P.O. Box 485, Flint, MI 48501.

Challenger Space Shuttle anniversary commemoration

Challenger Junior High School ARC will operate its station, KI6YG, on 28 January 1994 to commemorate the eighth anniversary of the Challenger Space Shuttle tragedy. Operation will be 1400Z-2400Z on the 20, 15 and 10 meter bands 14.280, 21.280 and 28.380 depending on conditions. For a special commemorative QSL card, send your QSL and SASE to Challenger JHS ARC, 10810 Parkdale Ave., San Diego, CA 92126.

Historic Colorado St. Bridge

The Pasadena Radio Club will operate W6KA from 1800Z-2400Z on 12 December, 1993, to commemorate the restoration of the historic Colorado Street Bridge. Operation will be single sideband on 21.335 MHz or 14.260 MHz, and 147.150 MHz(+) PL 131.8. For a certificate, send your QSL card and $1.00 to W6KA, P.O. Box 282, Altadena, CA 91003.

North Pole Ltd. Steam Train

The Orange Empire Railway Museum will operate KC6TKT and other calls 18 December 1900Z-2359Z to celebrate their annual North Pole Limited Steam Train operation. SSB-28.330 MHz. for QSL, send QSL and #9 SASE to OERM, P.O. Box 548, Perris, CA 92572-0548.

Thanksgiving Day

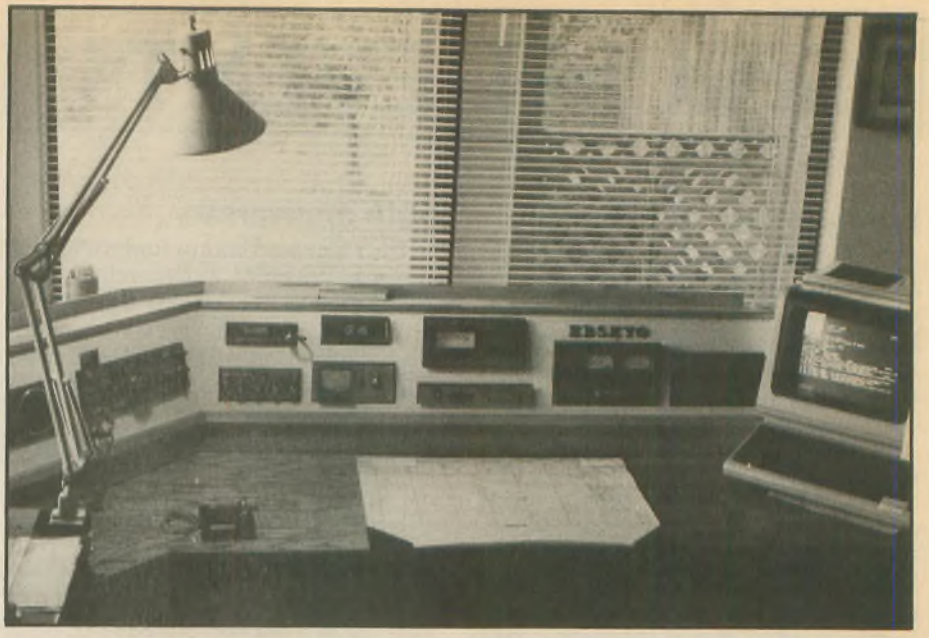
The Onslow ARC will operate 18 November 1400Z-1900Z to celebrate Thanksgiving Day. Operation will be in the General CW and phone 40, 20 and 15 meter subbands and the Novice 10 meter subband. For certificate, send a 9x12 inch SASE to OARC, P.O. Box 841, Jacksonville, NC 28540.

Mike Streeter, KB5KYO

STATION APPEARANCE

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

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



Sleek, stylish and very well organized, Mike Streeter, KB5KYO, wins this month's station appearance.

Some operators will know my call from the occasional island portable operations I've made, although I myself am not an IOTA collector.

This is my very simple home station. On the left is the Kenwood TS440 SAT, (so I can adjust the radio while rotating the antenna or sending CW with my right hand). Next to the 440 is the Alinco XMTR Packet rig (top) and Avtek Research HF audio filter. The clock, 2 meter, rotator and MFJ 1278 are in the center. To the right are the 20 amp HF and 12 amp VHF power supplies. On the extreme right is the old Digital VT101 terminal and keyboard, used with the 2 meter rig, mainly for monitoring the DX packet cluster.

My main interest is DXing with confirmed counts of 244 mixed, 210 SSB and 142 CW.

Because of space and height limitations I use only one antenna, a Mosley TA33 Jr., WARC, at 35 feet, which allows me 5 band operation.

The desk and console shelf are of ash faced plywood (to match the other cabinets in the house) and the console face is white foamboard, all home brewed.

As you can see, I have a very good view from the shack across the front garden. **WR**

Amateur "Hi"

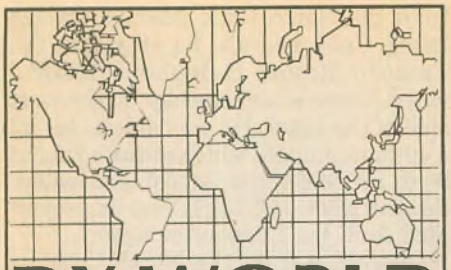
Ever had a funny or strange experience with Amateur Radio, either on or off the air? If so, type it up (or print neatly) and send it to us for consideration in our monthly AMATEUR "HI" contest. You could win a free year's subscription to ***Worldradio****!*

This amusing sidenote was submitted Jeff Reinhardt, KM6II.

Our Disaster Communications Service detachment for the Lost Hills-Malibu area of southern California takes pride in the number of families which have earned Amateur licenses as a part of emergency preparedness. Of course, these licenses are being used at other times as well. It's not unusual to hear families coordinating their busy schedules over the local repeater. This particular exchange also shows how quick kids are to understand technology and its limitations. . .

"KD6ARA, this is KD6BIT." "Go ahead, Mom, this is KD6ARA." "Jessica, I'm running a little late, so I'd like you to set the table, take the chicken out of the refrigerator and put it in the oven, make a salad and boil some water for a frozen vegetable." "Sorry Mom, message garbled in transmission! KD6ARA clear!"

Submitted by proud husband and dad of those quoted above. **WR**



DX WORLD

John F.W. Minke III, N6JM
P.O. Box 310 Carmichael, CA 95609-0310

W-100-N

The following DXer was recently awarded ***Worldradio***'s Worked 100 Nations:

465. EA5ZR Jose P. Garcia Fuentes 17 September 1993.

Pacific Tour

As of the end of September the latest on the Pacific tour by Mike Parker, G4IUF, is as follows:

N6SVL/KC6	05 to 10 November
N6SVL/KH2	10 to 15 November
V63UF	15 to 22 November
V73UF	22 to 29 November

All QSL requests should be sent to Mike via his home call. Thanks to Bruce Clark, KO1F, for the above information.

Eritrea (E3)

On 29 September, 1993, the ARRL Awards Committee voted unaimously to accept the recommendation of the DX Advisory Committee (DXAC) to reinstate Eritrea as a DXCC country. The Awards Committee in a 4 to 3 vote made reinstatement effective 24 May, 1991.

The DXCC Desk will accept QSL cards for Eritrea starting 1 January, 1994. QSL cards received prior to that date will be returned without action.

Those who have credit for deleted Eritrea (ET2) need not resubmit their cards.

Eritrea was deleted from the DXCC Countries List in 1962 after it was annexed by Ethiopia. Liberation came on 24 May, 1991, when forces of the Eritrean People's Liberation Front (EPLF) gained control of the country. The EPLF, now known as the Provisional Government of Eritrea (PGE), chose not to make an international declaration of independence at that time. The formal declaration came in 1993 following a PGE-administered national referendum. The Awards Committee felt that sufficient evidence of sovereignty existed to justify the 1991 reinstatement date.

New Caledonia (FK)

One-hundred sixty meter season is on the way. Don't give up the idea that nothing worthwhile can be worked on this band. As reported in the September issue of *The Low Band Monitor*, Remi Touzard, FK8CP, has been very active and has been worked often on 1.838 MHz. Look for this one beginning around 1000 UTC. Remi requests that U.S. and Canadian stations do not call him unless he clearly ends his CQ with "W/VE." He normally listens at 1.842 MHz.

Also active from New Caledonia is FK8GJ who has shown on several bands. This one has been reported on 7.005 MHz around 1300 UTC, 10.104 MHz after 0600 and 1300 UTC, 14.009 MHz at 0600 UTC, 18.070 MHz at 0230 UTC, 21.021 MHz at 0100 UTC and 24.891 MHz at 2330 UTC. He has also checked into the net on 14.247 MHz at 2300 UTC. He is a regular at the time and frequency for the 30 meter spot listed above.

Other calls reported active from New Caledonia include the following:

FK8FA	3.799 MHz	1415 UTC
FK8FI	14.195 MHz	0415 UTC
FK8FU	7.010 MHz	0945 UTC
FK8GG	10.102 MHz	1230 UTC
FK8RA	14.011 MHz	0500 UTC

Midway Island (KH4)

Active now through 6 January, 1994, is Scott Richardson, N7TNL/KH4. Scott is also active in the Worldwide DX contests, with most of his activity on CW. *QRZ DX* suggests the following frequencies: 1.836, 3.536, 7.036, 10.136, 14.036, 18.096, 21.036, 24.896 and 28.036 MHz. For SSB try 7.096/7.236, 14.236, 18.136, 21.336, 24.936 and 28.336 MHz. The 7.096/7.236 spot for 40 meters is his transmitting/listening frequency. Stations in the "lower 48" please don't call him on SSB at 7.096 MHz.

Somalia (T5)

QRZ DX reports that Rob, N3HQW, is in Somalia and should now be signing with T5/N3HQW. His operating schedule is as follows:

14.270 MHz	1200 to 1500 UTC
18.150 MHz	1500 to 1700 UTC
21.270 MHz	1700 to 1900 UTC
	2000 to 2100 UTC
24.980 MHz	1900 to 2000 UTC
28.480 MHz	1900 to 2000 UTC

During September we found only one report for his activity where he was on 14.182 MHz on a Monday at 1800 UTC working Europeans. During the conflicts in early October his activity could have changed.

Also reported from Somalia was T5/OZ1FJB, who has been reported on CW on several bands such as 7.004 MHz at 2015 UTC, 10.104 MHz at 2030 UTC, 14.004 MHz at 2000 UTC and 18.086 MHz at 1800 UTC.

DX News Sheet reports that of a T5YOU on 14.256 MHz one Wednesday in September working Europeans at 1900 UTC.

Kazakhstan (UN)

This former Soviet republic now shows with the UN prefix, which was formerly used by the deleted DXCC country of Karelo-Finnish Republic. Several calls have been reported with most of them on 20 meters CW, and include the following:

UNØPYL	14.049 MHz	1200 UTC
UN5A	14.032 MHz	2000 UTC
UN7CBS	14.013 MHz	1445 UTC
UN7EC	14.011 MHz	0330 UTC

UN7FCO	14.024 MHz	0145 UTC
UN7FW	14.024 MHz	0245 UTC
UN7JJZ	14.012 MHz	0100 UTC
UN7JX	14.011 MHz	0100 UTC
UN8CWA	14.018 MHz	0300 UTC
UN8FB	14.030 MHz	1200 UTC

On RTTY, UN5PR was reported from the midwest on 14.086 MHz on September 19 at 0230 UTC.Other reports for this one include UN7FL on 3.795 MHz at 1345 UTC on 12 September and UN7TX on 7.003 MHz at 0130 UTC on 17 September working into Florida.

Mellish Reef (VK9)

The DXpedition to Mellish Reef came on the air on Saturday morning, September 18, signing with VK9MM. During their stay they were reported to have made some 40,000 contacts with them battered by wind and water the last few days on the reef. The operation ended the beginning of October. We could have used it on 80 meters. You can never work 'em unless you try. So, there! Congratulations to all the deserving DXers who grabbed VK9MM for a new one.

Christmas Island (VK9X)

Bob Winn, W5KNE, will be active again from Christmas Island, from 27 November through 15 December. Bob will most likely be signing with VK9XN, a call he has held during past DXpeditions. Some emphasis will be made for 80, 40 and 30 meters.

Macedonia (Z3)

The DX Bulletin reports that the Republic of Macedonia now uses the following call sign structure:

Z31	Class A HF, Full power
Z32	Class B HF, 250 watts
Z33	Class C 40 and 80 meters
Z34	Class D VHF only
Z35	Repeaters and Beacons
Z36	Class E VHF only
Z37	Club Stations
Z38	Special events and contests
Z39	Same
Z30	Same

For activity from Macedonia the following calls were reported during the month of September:

Z31CZ	7.011 MHz	0430 UTC
Z31GB	18.071 MHz	1430 UTC
Z31PK	7.002 MHz	2345 UTC
Z31RB	14.010 MHz	2045 UTC
Z32JA	14.019 MHz	2130 UTC
Z32KV	14.195 MHz	1900 UTC
Z32VP	7.005 MHz	0215 UTC
Z39QRQ	14.015 MHz	1815 UTC

Quite active on 75 meters SSB has been Z31PK, who has been reported on the east coast between 3.794 and 3.799 MHz from 0345 UTC.

Two RTTY reports include Z31GX on 14.067 MHz at 1400 UTC and Z32JA on 14.088 MHz at 2300 UTC.

St. Helena Island (ZD7)

A regular on Sundays on 15 meters has been ZD7SM. Look for this one between 21.257 and 21.267 MHz between 1830 and 2100 UTC.

Also reported from St. Helena Island is ZD7DP who has been reported on 15 meters a couple of times between 1900 and 2130 UTC at 21.267 MHz and 21.295 MHz.

Cook Islands (ZK1)

Dick Paille, N7NKG, wrote to us regarding operating from the Cook Islands. Dick, who also holds the call ZK1XR, has been there three times during the last 12 months and has operated from both the South Cook Islands (Rarotonga) and the North Cook Islands (Manihiki). Dick has provided us with much information for those who may wish to operate from there.

Licenses are obtained from the Telecom Office in Rarotonga. The actual authority that issues the tickets is the Chief Postmaster in Rarotonga, but it is handled at Telecom. The regulations are the same as in New Zealand. The cost of a license is $20 NZ per year, where $1.00 US equals approximately $1.73 NZ.

Dick says that most of his operating is from the North Cook Islands. On the South Cook Islands, he stayed at the Tamure Resort (telephone 22415), where there is a vacant lot on the west side of the hotel. He was able to set up a 40-meter dipole which required about 80 to 100 feet of coaxial cable to feed it. Several other visiting DXers have operated from the Edgewater Resort.

Operating from the North Cook Islands is a *whole different* problem. You must have special permission to even go there. And, this is not easy to obtain without a good reason. Dick says his is for business, plus that he has local friends there. There are no accommodations for tourists and you need to stay with a local family. The language is also a problem, as is food. Sanitation is also not that with which most western cultures would feel comfortable.

There are two other things to consider when going to the North Cook Islands. The first is the cost. A round trip ticket by air between Rarotonga and Manihiki is $1000 NZ (approximately $600 US). To Penrhyn it is $1200 NZ. You must have special permission to buy the ticket.

The second thing to consider is the schedule of the flight as it can and does change often. Also the weight limit per person is 10 to 15 kilograms (approximately 25 pounds). This is includes both the checked and carry on baggage. Extra weight *if* they will take it is $5.00 NZ per kilogram.

Local power is 240 volts, 50 Hertz. On the North Cook Islands, the power is on for only a few hours per day.

It is possible to travel to the North Cook Islands on a once-a-month freighter at a slightly lower cost. It takes about 5 days and is not recommended. However, you are not limited to the amount of gear that you can bring.

There are some other locations from which to consider operating:

Rakahanga Island (OC-014)—To get to this one you must first travel to Manihiki and if the ocean is not too rough take a 16-foot outboard to the island.

Pukapuka Atoll (OC-098)—You cannot go there right now. There is a ship sailing for there now and then. Presently they are building a landing strip.

Suwarron Atoll (OC-080)—The only way to get to that one is via ship.

Dick says he is presently working on putting together a package for operating from the North Cook Island. He shortly will begin construction on some accommodations and will set up a complete station.

Reported in a recent issue of *QRZ DX*, Amy, ZK1AT, has been operating from Penrhyn Atoll (OC-082), in the North Cook Islands. Look for Amy on 3.797 MHz at 1100 UTC.

DX Prediction — December 1993

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

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

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(14)*	9	*14	9	*14
10	*(14)*	9	14	*(9)*	14
12	*(23)*	9	14	*(9)*	19
14	29	*12	*23	16	*30
16	31	*(12)*	20	*(14)*	*33
18	*30	*(11)*	*(18)*	*(11)*	*34
20	25	*(11)*	24	*(10)*	*3
22	*21	*(19)*	28	*(10)*	*30
24	*17	*(15)*	26	9	*22
2	*16	*(11)*	18	9	*17
4	*15	*(10)*	*(16)*	9	*16
6	*(14)*	*(10)*	*(15)*	9	*15

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(11)*	12	*14	*(9)*	14
12	*(11)*	11	*14	*(9)*	*(14)*
14	*(17)*	11	*14	*(9)*	26
16	*(22)*	12	*20	*(13)*	32
18	24	*(11)*	*(18)*	*(10)*	*34
20	24	*(11)*	24	*(10)*	*34
22	20	23	28	*(9)*	32
24	*18	24	31	*(9)*	*27
2	14	20	27	9	*18
4	*12	14	18	9	*17
6	12	13	17	9	*15
8	*(11)*	*12	*15	10	*14

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	*(14)*	9	*(14)*	*9	*14
9	*(14)*	9	*14	*(9)*	*14
11	24	9	14	15	20
13	30	10	*25	18	*29
15	32	*(9)*	22	16	*32
17	*32	*(9)*	*(18)*	13	*33
19	*28	*(9)*	*(22)*	*(11)*	*34
21	*23	*(15)*	*(26)*	10	*31
23	*18	*(15)*	*(26)*	9	*22
1	*16	*(11)*	*(18)*	9	*18
3	*15	*(10)*	*(16)*	9	*16
5	*14	*(10)*	*(15)*	9	*15

IOTA

Here are a few more of those IOTA islands that have been active during August and September.

EU-028 Tuscany Region IA5/IK1QBT
7.001 MHz 2100 UTC

EU-033 Vesteralen Islands LA6DGA
14.260 MHz 1630 UTC

EU-045 Ponza Island IB0/W7SW
14.012 MHz 1900 UTC

EU-085 Kolguyev Island 4K3/UA1ZFQ
14.009 MHz 1915 UTC

EU-128 Fehmarn Island DK4AP/P
21.260 MHz 1345 UTC

NA-075 North Pender Island VE7LQH
14.241 MHz 2330 UTC

NA-083 Tangier Island WA3NAN/4
14.023 MHz 2000 UTC

NA-128 St Lawrence Waterway VE2OV
14.260 MHz 0015 UTC

NA-148 Appledore Island NT1E
14.260 MHz 0300 UTC

NA-187 Lobos Rock KK6EK/P
14.260 MHz 0000 UTC

OC-147 Irian Java Coast YC8BJK/9
21.250 MHz 1200 UTC

OC-174 Sibutu Island DU8ARK
21.260 MHz 1415 UTC

SA-008 Tierra del Fuego XQ8ABF
28.503 MHz 1800 UTC

SA-016 Maranhão State Centre PR8FT
21.223 MHz 1345 UTC

DXCC Desk

Documentation for the following operations has been received at the DXCC Desk and has been approved with dates beginning as follows:

6Y5/DF5UL	25 Apr 93
6Y5/DL2FAI	25 Apr 93
6Y5/DL4ZBI	25 Apr 93
7Q7CE	20 Jul 93
D68CA	09 Aug 93
FH/I4ALU	21 Aug 93
FJ/I4UFH	09 Aug 93
TY8OBO	-14 Aug 93

As of the end of September the backlog of unprocessed applications at the DXCC Desk was 652 (46,362 QSL cards). During the month of September 1,330 applications (95,212 QSL cards) for endorsements and new awards were received. The DXCC Desk reports that this is the largest number of QSL cards received in a single month in three years.

Slim

In a recent issue mention was made concerning Slim and the unfortunate DXers who work him. One of our readers contacted us and was completely baffled by the comments. This is understandable to those new to the DX game and the jargon sometimes used.

Slim is a name that was coined many years ago by a white-haired old gentleman from San Rafael. Slim is a pirate! You might also say it could apply to a station operating from a location other than what he claims!

Often these Slims appear on the bands during a DXpedition using the DXpedition call. Some poor unsuspecting DXer works him and thinks he worked the DXpedition for another new one — only to get his QSL card sent back with a note *NOT IN THE LOG!*

As a result many DXers don't take a chance and work the DXpedition call again as an insurance contact. Unfortunately, this happens too often and many DXpeditioneers get frustrated and blackball the DXer for making the insurance contact by refusing to reward him with a QSL card. The DXer had really worked the DXpedition and not Slim.

We hope that this clears any misunderstanding concerning the recent note. Personally, Slim is really too affectionate a name for these pirates. What we would really wish to address them with would be censored by our editor!

Middle Asia Award

The Middle Asia Award (MAA), sponsored by The International Diploma Foundation, is available to any DXer for working each of the five (5) republics of Middle Asia: Turkmenistan, Uzbekistan, Tadjikistan, Kazakhstan and Kyrghyzstan. All bands may be used, using CW or SSB. There is no date restrictions and all contacts must be made from the same location. We assume that with no date restrictions, contacts made prior to the Soviet breakup will count. But to be on the safe side, let's stick with the "new" republics.

To apply for this award, prepare a list of the required contacts, showing the republic name, call, date, UTC, mode, frequency, and report sent and received. Include the QSL cards (or photocopies) and a fee of $5.00 U.S. and send your application to: Yuri V. Funkner, P.O. Box 1, Frunze 459411, Ordzhonikidzevskiy Rayon, Kustanayskaya oblast, Republic of Kazakhstan. Yuri's call is UN9LX, but we don't recommend including the call in the address. We also recommend registered mail. If you choose to send your QSL cards, include 2 IRCs for their return.

Clubs

We recently received the 1993-1994 membership roster for the Northern California DX Club which included the names, calls and addresses of some 364 DXers. Included were 11 Honorary and 19 Associate members, leaving a balance of 334 active members. Scanning through the pages we noticed a vast amount of members with Amateur Extra Class tickets, so we decided to count.

We found that there were 237 members who held Amateur Extra Class tickets, or 71 percent of the active membership. There were 80 members who held the Advanced Class ticket, or 24 percent, and 13 members who held the General Class ticket, a mere 4 percent. There were also 4 members who held a Technician Class ticket, 1 percent of the membership.

Probably without that Novice Enhancement on 10 meters, there would have been no Technician Class members. Real DXers upgrade to Advanced or Amateur Extra, which amounts to 95 percent of the club membership. As to why the 4 percent membership who hold only a General Class ticket and don't upgrade to at least an Advanced Class ticket is beyond me. Hey you Generals! Refer to the VEC schedules elsewhere in ***Worldradio***. Please, no excuses as to why you haven't upgraded!

Solar Max

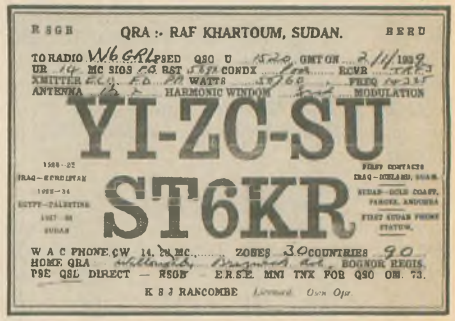
We received an interesting program from Bob Brown, NM7M, called *SOLAR MAX*. The program is a contesting game, and according to Bob, runs like the CQ WPX Contest in that the total numbers of contacts and prefix multipliers are the premium. *SOLAR MAX* is for DXers, or to be more subtle, a contest game for real DXers who know how to use propagation to their advantage in competitive situations. The program looks interesting, but at the time we received this we were busy with out of town work. We hope to have an evaluation on this program soon.

For those of you who can't wait, the program is available from Bob at 504 Channel View Drive, Anacortes, WA 98221, at $10 postpaid in the U.S., $11 (U.S.) to Canada for the domestic model and $13 for overseas Air Mail of the export model. Please indicate disk size (360K or 720K MS-DOS). As you all know, Bob writes the Propagation column for ***Worldradio***.

Antique QSL Department

You might say the following two antique QSL cards are from the days when the sun never set on the British Empire.

The first QSL card is for a 1939 contact with ST6KR in Sudan, who was worked by Doc Stuart, W6GRL on 20 meters. Notice that the card is marked "PSE QSL". Doc was the first W6 to work Sudan.



The next card is for a contact some 11 years later in 1950 with VS7KR in Ceylon. Don Wallace, W6AM, worked him on 14 MHz Phone (AM) at 1540 UTC, which would have been 7:40 in the morning California time. Ceylon is now know as Sri Lanka with the 4S7 prefix. Notice that the ARRL Prefix Cross Reference in the DXCC Countries List lists the prefix VS7 as before 1949. And we have a VS7 contact made in 1950!

Notice that the same operator held both calls, one K.S.J. Rancombe, of the Royal Air Force. Both California DXers are now Silent Keys. Many thanks to Jan Perkins, N6AW, for sharing these cards with us.

The third QSL card was submitted by "KC" Jones, W6OB, for a contact he

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Joe, KD8GA, Mgr.

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(602) 242-3515
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Gary, WB7SLY, Mgr.
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Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285

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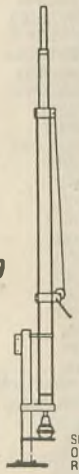

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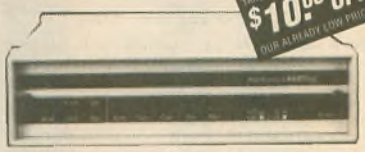

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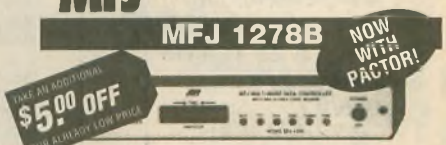

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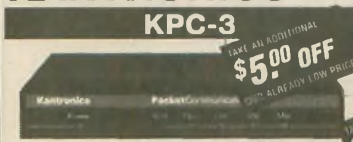

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• Detailed illuminated map shows time, time zone, sun position and day of the week at a glance for any place in the world. Continuously moving - areas of day and night change as you watch • Mounts easily on wall. • Size: 34 1/2" x 22 1/2".

Reg $1295. ***SALE $999.95***

made with PK5AA in 1948 using his former call of W6RLN. KC says the card is unique in that only six of these cards were ever made. PK5AA was in Dutch Borneo and the operator was using an old BC-342 for a receiver. For nostalgia purposes it would be nice to have one of those sitting on the shelf. When we get old we get romantic!

QSL Routes

3A/DL9SCW/P --DL9SCW
3A/DK6AS --DJ8MT
3A/DL3SCW/P --DL3SCW
3D2HG --JR2KDN
3D2MT --JR2KDN
3D2OH --JR2KDN
3D2YS --JR2KDN
3V8W --DK2WV
3X0DEX --F6IBA
4J7GWO --DL1VJ
4K1D --UZ1PWA
4K3/UA1ZFQ --UA1ZX
4K3/RN8A --DL5DSM
4K4DV --UA3GPA
4L/WA1QZW --WA1QZW
4O1V --YU1DX
4X0A --DJ6QT
5B4E --5B4ES
5H3OT --JO1ALS
5N1ARC --GM3UDJ
5N2APC --GM3UDJ
5R8DL --JH1CLU
5W1MW --VK2BEX
6V6U --K3IPK
6W1/IK7SUE --IK7MCJ
7J1AOE --K3DI
9G1XA --K0EU
9H3SA --DL9XAT
9H3SB --DL5XAT
9H3SC --DG3HC
9H3SD --DL4HG
9J2DH --DL2MGB
9Q5PL --OE7MCJ
9V1ZM --VE3MMB
9Z4PC --VE3FOI
A61AD --WB2DND
AA7VB/TI3 --AG7U
AH6DR/KH7 --KH6JEB
C51A --W3HNK
C53HG --W3HCW
C56V --KD7E
C6A/W9ILY --W9ILY
C6A/K2ZDC --W9ILY
C6AFT --AA5NT
C6AHM --N5TVL
C91AI --CT1DGZ
C94BE --CT4DK
CE3CJ --JA3GIY
CE3MMV/9 --EA8BGY
CN2JF --WA0RJY
CO2NA --WA4RZL
CQ6AHU --CT1AHU
CR1C --DJ0MW
CS2B --CT1EGW
CY9R --VE3MRN
DU8ARK --I2YDX
EA8AX/P --EA8AKN
ED7UCR --EA4EIC
EJ9HQ --EI9HQ
ES0/SM3CVM --SM3CVM
ET3BH --SM3EVR
ET3IJ --DJ5IO
ET3RP --F6GZA
EX0A --DF8WS
EX8M --UM8MO
F5SSM/P --F6CYV
FH/F5NCU --F5NZD
FK8GJ --F6CXJ
FO4OA --F5REQ
FR1GV --FR5DN
FS/JL1MUT --JH1EDB
FS/JG1RXQ --JA1VPO
FW1DJ --F5REQ
GB100MR --GD3AHV
GM0PCE/P --G3ZAY
HB0/DL0GK --DL6ET
HB0/DL1ECU --DL1ECU
HC4MZ/HC8 --HC4MZ
HP2DFU --WT3B N4YWY
HR2IQC --JF1NZW
IB0/W7SW --KC7EY
II2M --IK2SGC
IQ1A --I1JQJ
IR1A --IK1GPG
IR1T --IK1NAO
IU1A --IK1SLE
IU1R --I1ZQD
J5UAI --NW8F
J79DX --AA5DX
JT7/UB0YW --SP4BY
JX5EX --LA5NM
K1EFI/VP9 --K1EFI
K8UNP/C6A --K8UNP
KG4CB --WD9APE
KG4MK --N1OHV
KH3/NH6D --NH6D
KH6M/C6A --KB4GYT
N6SVL/KH2 --G4IUF
N6SVL/KC6 --G4IUF
N7TNL/KH4 --W1OO
NH6D/KH3 --NH6D
NH6HX/KH3 --NH6HX
OE6CLD --WB6EQX
OH0DX --OH2BAD
OH3JF/OH0 --OH3JF
OX3GX --WA3KSN
P29CN --WA0IWF
P29PL --VK9NS
P39C --5B4NC
P39KH --5B4KH
P39NC --5B4NC
P40BT --DL2BAY
P40L --N5RZ
P40ST --DL2BAY
P40W --N2MM
P49T --(See Note 2)
PJ1B --K2SB
PJ7/WA7LNW --KE7LZ
PJ7/OH2LVG --KE7LZ
PJ8DD --N4XO
PJ8X --LE7LZ
PP5ZYZ --PP5TM
PY0FF --W9VA
PY0ZFB --JL1KSL
PY0ZFF --JL1KSL
R200ED --UA6ABD
RA9K/RK1NWD --DL5DSM
RB5LJX/UY3H --RB5LJX
RW0AJ --W3HNK
SV3/WY3V --WB2RQW
SV9/PA2JWN --PA0KHS
T30NA --SP2NA
T32BE --WC5P
T5/N3HQW --WD4NGB
TA6JM --SP7LZD
TL8FL --I3CTX
TM6DGF --F6FOZ
TO5MM --N3ADL
TY8OBO --WA4OBO
UD8F --UD6DFF
UD8F --G3DZS
UI0A --G3L2K
UI8AA --G3SWH
UN0NW --UL7NW
UZ1FWA --DK4VW
V31DX --KA6V
V31JV --KB4UHW
V31JW --KB4VHW
V46DX --AA5DX
V47NS --W9NSZ
V47XS --N8LXS
V63UF --G4IUF
V73C --AH9C
V73JA --JR7OEF
V73UF --G4IUF
V7X --KH6HH
V85XF --G3TXF
VE3YDX/P --VE3IPR
VI2AUS --VK2WI
VK2WAH --VK2KAA
VK9MM --VK4CRR
VO2/KB4GYT --KB4GYT
VP2MH --KC4DWI
VP2VI --AB1U
VP2VR --AB4JI
VP5/JM1GYQ --JM1GYQ
VP5/JJ1BMB --JJ1BMB (See Note 1)
VP5N --N2VW
VP5P --WB3DNA
VP8CON --G0EIG
VP8CON --G0EIG
VQ9CE --AB2F
VQ9UN --W5UNY
W5BOS/NH8 --W5BOS
WB8JEX/VP5 --WB8JEX
XM3T --VE3FOI
XQ8ABF --LU8DPM
XT2DM --FJ5FT
XV7TH --SK7AX
YL93JP --YL2MM
YO9FVU --WA2AUF
YP0A --DB8VM
YP7CB/P --YO7CEG
ZA/IK0DCA --IK0DCA
ZB2X --OH2KI
ZD8M --G3UOF
ZD9CQ --ZS6AS
ZF2JI --KG6AR
ZF2QW --KG6AR
ZF2TB --KJ6HO
ZF2VA --K6URI
ZF2VF --K6GXO
ZF2VH --W9NQ
ZK2XX --ON4QM
ZP0SAT --ZP5ZR
ZV2BW --PT2BW
ZY0PS --PP5SZ

7Q7DU --Don, 4554 SW 128th Place, Miami, FL 33175
9D5CW --Najib, P.O. Box 24754-154, Teheran, IRAN
9G1NS --P.O. Box 13291, Accra, GHANA
9G1RQ --P.O. Box 3936, Accra, GHANA
9Y4NZ --Chris Ellis, P.O. Box 168, San Fernando, TRINIDAD
AR5N --Pakistan Amateur Radio Society, G.P.O. 1450, Islamabad, PAKISTAN
BV93TSG --CTARL, P.O. Box 39, Changhua 50099, TAIWAN
HP2DFU --Jose Ng Lee, FIT Box 6758, Melbourne, FL 32901
HR2BDC --Don, P.O. Box 2424, San Pedro de Sula, HONDURAS
J28RD --P.O. Box 3321, Djibouti, DJIBOUTI
P29VH --Vince, P.O. Box 1246, Boroko, PAPUA NEW GUINEA
P39ADA --P.O. Box 1642, Nicosia, CYPRUS
R0F --P.O. Box 62, Sakhalin 693000, RUSSIA
R10F --P.O. Box 62, Sakhalin 693000, RUSSIA
S92SS --Charles Lewis, P.O. Box 522, SAO TOMÉ, West Africa
ST2/G4OJW --A.Szondy, P.O. Box 4016, Khartoum, SUDAN
SU2MT --Mohamed Tartousieh, P.O. Box 1616, Alexandria, EGYPT
UP5A --P.O. Box 292, 466200 Aktau, KAZAKHSTAN
V410K --St Kitts ARC, P.O. Box 827, Basseterre, ST KITTS
XQ0YAF --P.O. Box 4, Easter Island, CHILE

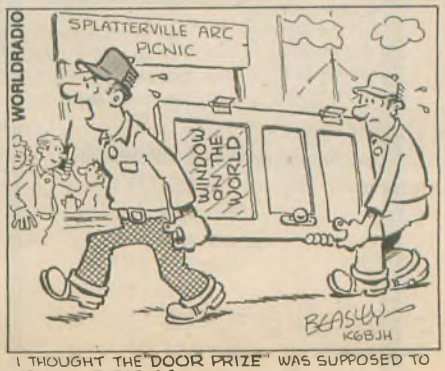
1. This manager requests cards be sent via the bureau only.

2. For contacts made with P49T during the CQ Worldwide DX Contest, QSL requests should be sent via K4PI; for contacts outside the contest use W3BTX.

Many thanks to the following contributors: UN9LX, KO1F, W4YCZ, KC5ALW, N6AW, W6OB, N7NKG, The American Radio Relay League (K5FUV), Northern Arizona DX Association (W7YS), Western Washington DX Club (WA0RJY) Salt City DX Association (KB2G), Western New York DX Association (KB2NMV), *The Low Band Monitor*, *The Long Island DX Bulletin* (W2IYX), *DX News Sheet* (G4DYO), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

We assume that you have had a good start in DXing for this winter. As you read this most likely you are recovering from the October Worldwide DX Contest and are filling out QSL cards for those countries you need. And, when sending your QSL cards direct or to a manager be sure to include an s.a.e. with appropriate postage or funds to cover the return mail.

Our activity in the California QSO party from Sierra County was fun. Again we operated at an elevation of a little over 6200 feet in the mountains. On the way home we could tell the fall weather was coming. Coming down over Yuba Pass on the east side we ran into a cattle drive that took up the whole road. All those cow bells tinkling away was an earful. Speaking of an earful be sure to wear the cans while working serious DX. 73 and GL DX de John N6JM. WR



I THOUGHT THE "DOOR PRIZE" WAS SUPPOSED TO BE AN H.F. RADIO!

Beyond HF

Did you know that your modern high frequency amateur radio SSB transceiver is more than just a ham rig? Did you ever wonder what's really behind that button called "general coverage receive"? If you have a high frequency ham transceiver that was manufactured after 1984, chances are it's going to let you listen to a lot more than just hams.

First try WWV from Fort Collins, Colorado, and WWVH in Kekaha, Hawaii, These are the time signals operated by the National Institute of Technology. You can start off by calibrating your high frequency dial to their exact frequency at 5, 10, 15, or 20 MHz. Their carrier may be only off plus or minus 1 part in 100 billion, so trust this as your best source of calibrating your high frequency readout. The Hawaiian station has the female voice giving the time, and the Colorado station has the man's voice. All times are given as UTC, 24-hour time referenced to Greenwich.

Most important for you, now as a shortwave listener, is the 18 minutes past-the-hour WWV ionospheric report. It's here you will find out about major storms on the sun, and how it may effect radiowave propagation within the next 48 hours.

Have you tuned your Amateur radio into the shortwave broadcast bands? Here is where you will find Voice of America, BBC, and a multitude of other shortwave broadcasters airing everything from pop music to politics and propaganda. Many of these broadcasts are in English, and are fascinating to tune in.

If you have an AM switch on your transceiver, tune these stations in like you would an AM radio ballgame on your car radio. If all you have is USB and LSB, tune them in carefully, always setting your dial to read .00 for best reception zero beat.

Do you own a laptop or home computer? If so, turn your rig into a powerful digital interceptor. With your home PC or Macintosh computer tied into your all band receiver, a $99 digital modem and computer disk are all that's necessary to tune funny-sounding tones into meaningful information on your computer screen:

Radio-teleprinter shortwave signals
Shortwave digital broadcasts
United States Coast Guard NAVTEX weather reports
Read Morse Code on the screen
Decode amateur radio ASCII, RTTY, and packet calls
Display color satellite weather facsimile imagery

•

You take the audio out from your receiver, run it into your computer's comm port via a special comm port plug that contains an analog-to-digital converter, run the disk, and watch your program. I like picking up weather facsimile(WEFAX) charts on the following frequencies:

8.680.1 USB	Pacific Coast
12.728.1 USB	Pacific Coast
11.088.1 USB	Pacific/Hawaii weather FAX
16.133.1 USB	Hawaii
10.863.1 USB	Atlantic weather FAX
6.850.1 USB	Gulf weather FAX
10.534.1	USA weather FAX

Another fascinating set of frequencies to tune in with your Amateur gear are aviation and marine long-range channels. These are all upper sideband, and are easily picked up with even the smallest of antennas:

5.547 MHz	Aeronautical
11.282 MHz	Aeronautical
13.261 MHz	Aeronautical
13.300 MHz	Aeronautical
13.089 MHz	Coast Guard distress
8.764 MHz	Coast Guard distress
4.426 MHz	Coast Guard distress
8.728 MHz	Marine weather & phone
13.161 MHz	Marine
13.083 MHz	Marine

4.750 MHz - 5.060 MHz	60-meter nighttime band
5.950 MHz - 6.300 MHz	49-meter nighttime band
7.100 MHz - 7.300 MHz	41-meter nighttime band
9.500 MHz - 9.905 MHz	31-meter daytime & evening band
11.650 MHz - 12.050 MHz	25-meter day & night band
13.600 MHz - 13.800 MHz	22-meter daytime band
15.100 MHz - 15.600 MHz	19-meter daytime band
17.550 MHz - 17.900 MHz	16-meter daytime band
21.450 MHz - 21.850 MHz	13-meter daytime band
25.600 MHz - 26.100 MHz	11-meter daytime band

Listening in on the world.

There are literally thousands of radio calls out there beyond your ham radio band limits. In fact, tune to our ham radio 40 meter band anytime at night, and decode all those whistles you hear. When you put your receiver into the AM mode, you'll discover there are shortwave broadcasts, right in the middle of our 40-meter ham band. It is the carrier you are hearing as an annoying whistle.

Finally, take your dial all the way down to below the 160 meter ham band, and switch into AM. Tune into AM broadcast stations at night. See how far away some of the AM broadcast signals may travel, thanks to the ionosphere.

So take your worldwide high-frequency Amateur Radio for a spin this evening. Start at the 40 meter ham band, and work up in frequency until you hear something interesting. From digitized weather maps to frequency calibration signals, there is plenty to listen to out there on the airwaves. WR

Computers & BASIC STUFF

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

BASIC and SPICE —

In a previous column I gave a thumbnail sketch of SPICE, a sophisticated program that allows you to analyze electronic circuits on your computer. SPICE, for Simulation Program with Integrated Circuit Emphasis, is really a kind of a computerized electronics lab that allows you to build and test circuits right at your keyboard.

This makes SPICE attractive to designers since all the components and the usual test equipment is either resident in the program or can be easily entered by the user.

Components and component values can be changed with just a few strokes on the keyboard, and a number of comparative tests can be run in less time than it used to take just to wire together the circuit the old fashioned way.

The end result is a circuit you can reasonably expect to perform as predicted, but which essentially cost nothing for parts and very little in time and labor to design.

BASIC can do some of the things SPICE does, but not everything. SPICE is pretty much an all-inclusive program — all the designer needs to do is tell it what the circuit looks like and what kinds of tests to run. To do the same thing in BASIC would take an awful lot of program writing.

An outstanding reference that compares SPICE and BASIC applications to circuit design, along with an excellent discussion of theory and application, is "Electronic Devices and Circuits" by Theodore F. Bogart, Jr. The book is published by Merrill Publishing Co., PO Box 508, Columbus, OH 43216.

Dot's a Problem —

The editors and I try what we can to insure that program listings are error free. The "galley proof" copy of the typeset listing is faxed to me for review. I usually scan the listing character-by-character for any typos, then I double check the accuracy by loading the corrected copy into a computer and running it. Any mistakes I find I point out to the editors and they make the corrections to the final text.

But there is a gremlin who sometimes gets in our way and causes all kinds of havoc. In October's listing of the Suntrack program, our gremlin added a dot where one wasn't suppose to be.

Line 110 can be corrected by omitting the final decimal point. The corrected line should read:

```
110 V = (H + 29218.5) /36525
```

Wiring a Toroid —

When this column premiered it featured a BASIC routine to calculate the length of wire required to wind a single-layer solenoid coil. The program took wire size and winding skew into account to provide a fairly accurate estimation for length. The column ended with a challenge to design a program to do the same thing with toroid coils.

Unlike a solenoid, where starting with too short a length is the major problem, a toroid's biggest headache seems to be using too long a wire. Threading any wire through the donut hole can lead to kinks, twists and knots, and using too long a wire seems only to complicate the mess.

This month's program accomplishes two things. It calculates the number of turns possible, based on toroid and wire sizes, then it calculates the approximate length of wire needed for a single-layer winding of any number of turns up to the maximum.

```
10 REM WINDING TOROIDS, BY KD5DL
20 PI=3.14159: INPUT "OUTER DIAMETER ", A
30 INPUT "INNER DIAMETER ",B
40 INPUT "CORE HEIGHT",C
50 INPUT "NUMBER OF TURNS",D
60 INPUT "WIRE AWG",E
70 F = .3169 * .8896 ^ E * E ^ .0152
80 G = (B -2 * F)  * 9.8950744 * 2.71828 ^ (.1119 * E)
90 IF D>G THEN PRINT : PRINT "TOO MANY TURNS" : GOTO 50
100 H = A/2 + F: I = B/2-F: J = C+2*F
110 K = SQR ((I*PI/D) ^ 2 + (2* (H-I) + 2*J) ^2)
120 PRINT "WINDING USES ";INT (K*D + 3.5) ; "INCHES OF WIRE"
130 GOTO 50
```

The number-of-turns problem is solved by calculating the inner circumference of the donut when it is wound and seeing how many wire diameters will fit. The calculations use wire formulas modified to consider the average additional thickness of enamel insulation.

The length-of-wire solution is not as accurate as it could be, but it is still probably within a small percentage of the real thing. The length is calculated on the distance around a cross section of the core, with skewing and wire thickness factored in. The formula also assumes that core edges are not beveled. The answer is padded with three inches of excess, just in case it's needed. Cores with beveled edges will require slightly less wire.

The program loops back to line 50 so that different windings and wire sizes can be tried without having to reinsert core dimensions each time.

The formulas could be a little more accurate if we took into consideration the angle cut by each turn, and the curve of the core walls, but such accuracy would be overkill. Wire and toroid sizes are approximations anyway. All we are really looking for is a reasonable estimate of how long a piece of wire we need to get the core wound.

Now, if someone were enterprising enough, they'd modify the program to print inductance values versus number of turns for the various iron and ferrite cores. I would imagine that core dimensions and permeabilities could be stored as data statements.

Ideally, the program would ask for the inductance desired, the operating frequency and, perhaps, the voltage, then it would print a list of "qualifying" toroids, the number of turns each would need to be within the inductance range and the length and size of wire needed to wind each.

If you are so inclined, a close formula is:

L=.03193*N^2*(R-SQR(R^2-A/PI)*MUwhere L is the inductance in microhenries, N is the number of turns, R is the core's mean radius, A is the cross sectional area, MU is the permeability of the core material and dimensions are in inches.

And so it goes...as the year's end nears I would like to extend holiday wishes from my family to you and yours.

Happy Thanksgiving, Merry Christmas and Happy New Year. WR

Visit Your Local RADIO CLUB

ALABAMA

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

ALASKA

Anchorage Amateur Radio Club, Inc. Meets 1st Fri./monthly, 7 p.m., Alaska Pacific Univ. Carr-Gottsten Cntr., 4101 University Ave., Anchorage, AK. Fred S. Wegmer, KL7HFM, Pres.

ARIZONA

Central Arizona DX Assoc., (CADXA). Meets 1st Thurs./monthly, 7 p.m., Salt River Project Pera Club, 1/2 mi. West of 68th & Continental Dr., Scottsdale, AZ. Rptr. K5VT 147.32/92. Packet Cluster nodes (S): 145.09, 144.93, 145.03. Info: Warren Hill, KF7AY, (602) 396-2218.

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. Meets 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.22/82 (146.88-, 147.08-, 448.550-, & 145.15 Packet).

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Thurs./monthly, 7:30 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835.

Amateur Radio Club of El Cajon, WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. Rptrs. 147.675(-), 224.08-. PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info: (619) 697-2700.

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 Recrea-tion Hall, 1708 E. Hill St., Signal Hill, CA.

Conejo Valley Amateur Radio Club, (CVARC). Meets 2nd Thurs./monthly, 7:30 p.m. Thousand Oaks Elks Lodge, 158 Conejo School Rd., Thousand Oaks, CA 91360.

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

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. 146.175(+). 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., West Co Times Bldg., 4301 Lakeside Dr., Richmond, CA 94806. Info: Rachel Lewellen KB6LHR, (510) 233-5034.

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

Gabilan Amateur Radio Club (GARC). P.O. Box 2178, Gilroy, CA 95021-2178. Meets odd months, 2nd Thurs., 7:30 p.m., First Interstate Bank, First St., Gilroy and even months for brkfst., 2nd Sat., 8:30 a.m.

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

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

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly, 4 p.m. with potluck supper following. Talk-in on 144.50 Simplex.

Lee DeForest Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., San Jacinto Civic Cntr., 625 S. Pico Ave., San Jacinto, CA.

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

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

Marin Amateur Radio Club (MARC). W6SG. Box 151231, San Rafael, CA 94915-1231. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA. (415) 883-9789 (Summer exceptions; contact Pete N61YU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

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 K61S Thurs., 8 p.m. 145.190. 220 Net, Tue. 8 p.m. 224.40(-).

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

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at 907 E. Vermont, Anaheim, CA. (Between Anaheim Blvd. & State College) Call in on 146.55 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 Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. + Stockton Blvd., Sacramento, CA. Info net every noon on rptr. W6AK/R 146.910. Jim L. White, N6UGO, (916) 773-5890.

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

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

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

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

Santa Cruz County Amateur Radio Club, Inc. Meets last Fri./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., 146.67(-).

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.

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

South Bay ARC. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Airport, 3301 Airport Dr., Torrance, CA. Talk-in on WB6MYD rpt. 244.38/78. Info: (310) 328-0817.

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

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

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

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, CA.

United Radio Amateur Club, K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly (except Dec.), 7:30 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. Rptr.: WD6BUS 145.470- PL 127.3. Alan McCarthy (707) 446 0200.

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

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

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

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

COLORADO

Denver Radio Club. Meets 3rd Wed./monthly, 7:30 p.m., St. Joseph Episcopal Church, 11202 W. Jewell Ave., Lakewood, CO. Club net: Sundays, 8:30 p.m. 147.33 MHz.

CONNECTICUT

Shoreline ARC, (SARC). P.O. Box 256, Westbrook, CT 06498. Meets 3rd Thurs./monthly, 7:30 p.m., Westbrook Ingraham Sch., (203) 245-1969. Call-in: 145.29.

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

DELAWARE/PENNSYLVANIA

Penn-Del Amateur Radio Club. P.O. Box 1964, Boothwyn, PA 19061. Sponsor of KA3TWG/Rptr. on 224.22 covering Delaware & Tri-state area. Info/net Thurs./wkly, 20:00 hrs. or call Hal Frantz, (302) 798-7270.

FLORIDA

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

Indian River ARC, Inc., (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931-3011. Meets 1st Thurs./monthly, 7:30 p.m., Martin Andersen Sr. Ctr., 1025 S. Florida Ave., Rockledge FL.

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

GEORGIA

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

HAWAII

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

Emergency Amateur Radio Club, (EARC). P.O. Box 30315, Honolulu, HI 96820-0315. Meets 4th Thurs./monthly, 7 p.m., Lincoln Elem. Sch., 615 Auwaiolimu, Honolulu. Nets: nightly 7:30 p.m., 146.88 & 146.80. Rptrs: 146.76(-), 148.80(-), 148.88(-), 148.98(-) 146.94(-). Info: (808) 621-5916.

IDAHO

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

ILLINOIS

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

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

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

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

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. 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. Ctr. at Bode & Springinsguth Rds. Schaumburg, IL. Net 145.23, 8 p.m. Thurs. Info: (708) 213-0910.

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

Tri-Town Radio Amateur Club. P.O. Box 302, Hazel Crest, IL 60429. Meets 1st & 3rd Fri. (Sept.-June), 8 p.m., Hazel Crest Village Hall, 3000 W. 170th Pl. Net Wed. 146.49. 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 p.m., 145.39 MHz. 440 MHz net on Tues., 8:30 p.m. on 444.475 MHz.

MICHIGAN

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

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. Meets 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 146.64(-) Call-in. W8JXU Club Call. Net Sun., 9 p.m., 146.64(-).

Michigan Amateur Radio Alliance, (MARA). O-11555 8th Ave. NW, Grand Rapids, MI 49504. Meets 1st Thurs./monthly, 7 p.m., TJ Mfg., 1739 Elizabeth, Grand Rapids, MI. STBY 145.78+ 145.41.

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

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

MINNESOTA

Minneapolis Radio Club. P.O. Box 583281, Minneapolis, MN 55458-3281. Meets 3rd Fri./monthly, Mpls. Red Cross Bldg., 11 Dell Place, Mpls, 7:30 p.m. Making waves since 1916.

MISSISSIPPI

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

MISSOURI

Gateway To Ham Radio Club, N0DN. Young hams of all ages. Meets 1st Sun./monthly, 2-4 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 (314) 225-1952 (voice or Fax).

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

NEBRASKA

The Ak-Sar-Ben ARC of Omaha, NE. Meets 2nd Fri./monthly, 7:30 p.m., Omaha Red Cross near 38th & Dewey St. 146.34/94. Contact Jim Miller (NØORV), (402) 253-8272

NEVADA

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

Sierra Intermountain Emergency Radio Assoc., (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 265-4278. Meets 2nd Tue./monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in 147.33.

NEW HAMPSHIRE

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

NEW JERSEY

10-70 Repeater Assn., Inc. 235 Van Emburgh Ave., Ridgewood, NJ 07450. Meets 1st Wed./monthly (except July & Aug.), 8 p.m., VFW, Valley Rd., Clifton, NJ. Rptrs.: 146.10/70, 223.24/224.84, 449.15/444.15.

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

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

NEW YORK

Amateur Radio Assoc. of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Co., 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955/ .355 rptr. W2PVL.

Genesee Radio Amateurs, (GRAM). N.Y.S. Civil Defense Ctr., 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, 7:30 p.m. Info: Charlie, WA2JUJ, (518) 420-0046.

New York City Rpt. Assoc. P.O. Box 140819, Staten Island, NY 10314-0019. Meets 2nd Thurs./monthly, 8 p.m., Eger Nursing Home. Talk-in rptrs. 146.88/ 447.375. Info: (718) 998-1088.

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

PROS, Pioneer Radio Operators Society. Meets 1st Wed./monthly (except July/Aug.), 7 p.m., Masonic Temple, Rt. 78, Java Village, NY. Other Wed., 8 p.m. 145.1701 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, (SCRC). Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Way, Bohemia, NY. Talk-in: 145.21 rpt. Morten Eriksen, KA2UIU, (516) 929-6911.

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

Westchester Emergency Comm. Assoc., (WECA). Meets 2nd Mon./ monthly, 7:30 p.m., Westchester County Ctr., White Plains. Contact WB2VUK or call WECA INFORLINE (914) 962-9666 or WECA landline BBS (914)738-6857 for details. Talk-in WB2ZII/R 147.66/06 MHz.

Yonkers Amateur Radio Club, (YARC). Meets 2nd Sun./monthly, 10a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-8995. 146.865-, 445.15/440.15.

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets Mondays, 28.35 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240 and Wed. 9 p.m. on 7259. "The Alligators" — all mouth, no ears.

Rowan Amateur Radio Society, (RARS). Meets 2nd Mon./monthly, 7:30 p.m., Rufty Holmes Sr. Ctr., 1120 Walnut St., Salisbury, N.C. Info: Ralph, WB4AQK, (704) 636-5902.

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

OHIO

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

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E rptr. 145.35 and 442.625 MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS.

Firelands Area Rptr. Assn., (FARA). Meets 4th Tue./monthly, 7 p.m., Ohio Veterans Home, Sandusky, OH. WB8LLY rptr. 146.805-/205. Net Sundays, 8 p.m. Info: Rob Harshbarger, N5XRB.

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

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

Northern Ohio Amateur Radio Society, (NOARS). Meets 3rd Mon./monthly, 7:30 p.m., Gargus Hall, Rt. 254, Lorain, OH. Info: rptr. K8KRG 146.70, DX alert rptr. 145.15.

Springfield Independent Radio Assoc., (SIRA). Call-in 145.45—224.26. Meets 2nd Tues./monthly, 7:30 p.m., Mercy Hosp. & 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. Contact: Brian, WD8MXR, 385-5624.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.48 at 8:30 p.m., 7260 at 9 p.m. Rptrs. 146.91- & 146.115/ 715-. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

Van Wert Amateur Radio Club, Inc. 1220 E. Ridge Rd., Van Wert, OH 45891. Call-in: 25/85. Meets 1st & 3rd Sat./ monthly, 8 p.m.

OKLAHOMA

Enid Amateur Radio Club, Inc. W5HTK, WA5QYE, WA5OUB. P.O. Box 261, Enid, OK 73702. Meets 4th Thurs./ monthly, OK Hwy. Patrol Stn.

OREGON

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thurs./monthly, 7 p.m., Bend Sr. Ctr., 1036 NE 5th, Bend, OR. Net Sun. 7:30 p.m. 147.06(+) MHz. Info: (503) 382-1739.

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

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

Salem Amateur Radio Club, (SARC). Meets 4th Tues./monthly, 7:30 p.m., Four Corners School, 500 Elma Ave., SE, Salem, OR. Talk-in 146.86. Info: (503) 390-1386.

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

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16001-1787. Meets 1st Tues./monthly, 7:30 p.m., Boy Scout Cntr., 830 Morton Rd., Butler, PA. Call-in W3UDX/R 147.96/36. Net 10:10 p.m. nightly.

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

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 147.6901147.090 Wed. 8:30 p.m. and 28.450 Sun. 9 p.m.

TEXAS

Brazos Valley Amateur Radio Club, (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thurs./monthly, 7:30 p.m., Sugar Land Community Ctr., 226 Matlage Way., 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.

VIRGINIA

Southern Peninsula Amateur Radio Klub, (SPARK). Meets 1st & 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Rptrs. 146.13/73 & 449.551(-5) T. VE Exam Info: (804) 898-8031, W4RTZ.

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

WASHINGTON

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

WEST VIRGINIA

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

Tri-State Amateur Radio Assn. Club mtgs. 3rd Thurs./monthly, 7 p.m., monthly brkfst 1st Sat., 9:15 a.m., Green Valley Vol. F.D., 16th St. & Norwood Rd., Huntington, WV.

WYOMING

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

OLD-TIME RADIO

The North Pole Incident

RUSS RENNAKER, W9CRC

It was a very cold winter day sometime in the early 1930s. I had been working with my radio all afternoon. There were not many stations on the air. I copied press from one of the Press Wireless stations along the east coast to improve my code speed and was just about to give up when I heard a faint signal at one end of the band,

I adjusted the honeycomb coils on the front panel and held the headset tight against my ears. The signal was coming in at about twenty words a minute and that was just about my limit. The operator was signing WNP at the end of each transmission. WNP was a commercial call. Why was he operating in the ham bands? Suddenly it struck me. I had read about the North Pole expedition and remembered the radio call had been especially assigned WNP. The operator was a ham.

No one seemed to be answering the call. WNP seemed to be asking for assistance in some manner but the local static obscured some of the words. He was sending the same thing over and over. I was never very good copying code by ear without writing it down, so I reached for a writing pad and a pencil. The first few words didn't seem to make any sense, then it began to take form. The exploration ship was stuck in ice a short distance from the North Pole and was trying to raise someone connected with the Zenith Radio Company in Chicago.

I finally copied the whole message. I fingered the key to my little 100 watt transmitter. No, of course not! It would be a miracle if he would hear my signal. No one else seemed to be hearing him.

At the next pause in the WNP transmission I pushed my transmit button and sent my call, asking if I could be of any assistance. He came right back with the repeated message. He had not heard me. At the next pause I called again. Whoops! Wait a minute! WNP was calling me.

I copied furiously, refusing to ask him to slow down. He was asking if I lived near Chicago. I replied it was about 160 miles. Now he was asking if I had a telephone. Yes, I had a telephone. Could I possibly make a call to the Zenith Radio Company and relay some information? Well, yes, I guess I could do that. I was just about to ask about the cost of the long distance call, then thought better of it.

I cranked up our local telephone operator and explained what I wanted to do. I had to say it twice. The first time I could see she didn't know what I was talking about.

After a few minutes and many strange noises on the telephone a voice answered. I had reached the Zenith company. I explained that I had WNP on hold on my radio and would have some questions from the North Pole. I passed information back and forth for a good half hour and then the static drowned out the North Pole. I turned off my transmitter and sat listening to the static for a full minute before I took off my headset and slumped back in my chair.

Boy, did I have something to talk about with the other hams I worked for the next few weeks.

A few weeks later I received a check from the Zenith Radio Company for $10.00. I paid my dad the $4.50 the call cost, and put the rest in the bank with my bicycle savings. I never heard WNP again and never received any verification of the incident from anyone. But I know I worked the North Pole.

Editor's note: Rennaker is author of "A Radio Journal, 1912-1945." **WR**

How much does gravity have to do with HF propagation? Not much, you say? Well, that's not quite right but the answer depends on just how far you want to dig into the matter. Maybe "dig" isn't the word I should use; after all, in gravitational matters which deal with the earth, it might be considered a Freudian slip. So perhaps something based on "detail" would be a better choice. Having said that, let's probe the matter, starting with the obvious situations and advancing toward its more subtle aspects.

For starters, the earth under foot is of importance to HF radio propagation, determining to a certain extent the pattern and feed-point impedances of our antennas. But whatever dirt or rock we have near our antennas is a reminder of past geological processes and gravity certainly played a role there, determining how the molten magma flowed, cooled and even the shape of the surface. Of course, there were other factors over the course of geological time, continental drift and mountain building, even erosion, to name a few. So our terrain was shaped by gravity.

When one says "terrain" these days, that brings to mind VHF radio. With line-of-sight propagation prevailing in that part of the spectrum, "high ground" takes on yet another, very special meaning. And in recognition of the fact that we live on a curved earth, there are people who now make a living exploring how the terrain affects the signal coverage for FM and TV stations to say nothing of VHF repeaters.

In the HF part of the spectrum, terrain can play a very important part too. Perhaps you've noticed that already. For my part, my QTH is on a bluff overlooking Guemes Channel, just north of Anacortes, WA. That's to the south; to the north I have a wooded slope rising at an angle of about 3-5 degrees, depending on which way one looks.

To the south, my tribander is effectively at 75 feet, plus or minus tides, above salt water. Any RF from my antenna that goes downward is reflected quite efficiently off the salt water. If you go back to antenna fundamentals, that means that I have an "image antenna" that's at about the same distance below the water's surface.

Since most antenna books don't cover separations that large (at least in terms of wavelengths) between a radiator and its image, you'll have to do the calculations separately, say with MININEC, using the amplitude and phase of RF reflected off the salt water, to see what the vertical pattern is like. If you're interested, you might try using MININEC for a dipole at that height above a perfectly reflecting ground; that's a start for the radiation from my antenna in the southern direction.

So much for terrain to my south; to the north, I have a slope of covered with "glacial rubble", something pulled downhill by gravity in eons past. Of course, there's a suitable cover of loam now, built up from organic debris. If you look into skin depths at HF frequencies, you see at once that is what determines the characteristics so important to the reflection of RF, dielectric constant and conductivity, in that direction. Knowing what those numbers are like, I think more kindly of my view to the south, salt water on the way to longpath contacts, than all the fertile dirt to the north, between me and Europe.

Okay, that's terrain but in the abstract. Perhaps just as important as the abstract view is the ideal location of L.A. Moxon, G6XN, as discussed in his book HF Antennas for All Locations (R.S.G.B., 1982). There, in Chapter 10, he goes through all the features of the environment and its relation to antenna performance. Of course, his "dream location" is one at the very peak of a hilltop, surrounded by a down-slope on all sides. I can think of a number of locations like that, all quite windy, but he has a point: there will be a lowering of the radiation pattern of any horizontally polarized antennas that are pointed in the direction of the down-slope. That's just great for DXing.

Having said that, you should remember there's always a realist in any crowd and David Leeson, W6QHS, fills that bill. His recent book, Physical Design of Yagi Antennas (ARRL, 1992), goes into questions of siting and the survival of HF antennas. The question of survival is best left to his writings, dealing as they do with the strength of materials and other matters of mechanical engineering.

But after Moxon's remarks, the question of siting is our concern; there, Leeson points to the obvious matter that all peaks are rounded off at their top, probably by wind-driven erosion. In that case, he points out that a site at the peak of the hilltop may actually be to the detriment of HF propagation as there would be a "foreground foreshadowing" that would work against what Moxon suggests. Clearly, like everything else in this world, we have to take these things on a case by case basis.

How does gravity get into that discussion, you ask? Maybe the hilltop was thrust upward gravity in eons past or eroded by those winds I mentioned, gravity carrying the debris downward. I think you see that you can't win on that one! But Moxon's idea is good as the radiation pattern of an antenna is relative to the local ground surface beneath it; if it slopes downward, the pattern which results from ground reflection goes in that direction too and downward by the same amount.

While we're talking about local environments and the role of gravity, think about trees. Gravity determines how they grow, with an assist from the winds that blow. At my QTH, I look south toward longpath but through some big fir trees. But my beam antenna is horizontally polarized and the trees are vertical. I can't say that the trees have impaired my DXing on long-path; on the other hand, I've never had a clear view to the south. Maybe I've been missing something.

I do have a triband vertical nearby and it seems to work fine; certainly I can work the RS-12 satellite with it on any occasion and also DX into the South Pacific with ease, say to VK and ZL lands. I haven't put it to any other test but the vertical antenna on 10, 15 and 20 meter bands seems to be just fine for me, trees and all.

Having said that, I must say that all my friends here on Guemes Island who live behind a good number of trees simply cannot get TV signals through them. I won't say the trees are resonating at TV frequencies but I have to think they're good signal absorbers in that part of the spectrum. But what about being radiators?

At this point, I have to tell my "story", albeit imperfectly and through a hazy recollection of things past. Anyway, I'm sure you've heard about the idea of using a tree as a vertical antenna. I saw a press story along that line in the last decade, coming out of India. I understand also that the idea had some circulation during the Viet-Nam era. But it goes farther back than that.

Those of you who belong to the Society of Wireless Pioneers (SOWP) may recall reading a series of stories about trees being used as antennas dating back to the days of spark transmitters early in this century. It seems a young Captain in the U.S. Army had that idea and tied a spark transmitter to a tree in the Presidio of San Francisco. Some youngster with a keen interest in radio heard about the test and tried to receive the signals across town.

The long and short of the story was that the experiment didn't work, the young lad not hearing a peep out of the transmitter-tree combination. That was not the end of the suggestion of using trees nor was it the end of the young man's interest in radio. The Captain went on to become the commanding General in the Signal Corps during WWI, in spite of continuing to espouse his crazy idea. And the young man went on to become the CEO of IT&T, to say nothing of the President of SOWP.

Not having measured the conductivity of any trees in the HF range, I can't say there's any merit to the idea of cutting the limbs off a tree and trying to shunt feed it like a metal tower. I have to think that the organic molecules in a tree would make it more like a capacitor than a conducting cylinder. Maybe I shouldn't have brought this up in the first place but I thought you'd find it interesting.

Okay, back to reality. Having touched on the various ways that gravity can have an effect on HF propagation, at least at low altitudes, I now must move upward and tell you about how it affects matters in the various ionospheric layers. In that regard, we begin by noting that the atmosphere is held to the earth by gravity. True, there is the possibility that atoms at high altitudes might "escape" from the earth. For that to happen, they must have a speed in excess of 11.2 km/sec and be going outward with no further collisions to deflect them. On a larger scale, that's the condition that must be met for a spacecraft to leave the earth's gravitational field and orbit the sun or the moon. But you knew that.

Of course, the atoms and molecules in our atmosphere are part of a gas at some temperature T that varies locally. If you know their mass, you can calculate their mean speed, the heavier ones moving more slowly, etc. That idea, coupled to the idea of ballistic motions between collisions, means that eventually the gases in the atmosphere are sorted out according to mass, the heavier particles being held closer to the earth.

But close to the earth, where weather and such keep things stirred up, the composition of our atmosphere is pretty uniform, at least in the long run. Pollutants give rise to local variations from time to time and the growth of minor constituents like carbon dioxide, the oxides of nitrogen and even volcanic ash contribute to changes in the atmospheric mix.

But once one gets close to the 100 km height range, the composition begins to change with the lighter atoms starting to prevail. Thus, in the F-region atoms and ions of oxygen are most important, then ions and molecules from nitrogen and finally at high altitudes well above the F-region, all that's left is the lightest atom of them all, hydrogen.

So gravity does affect HF propagation through the separation of constituents as outlined above. But, as you might expect, there are more subtle effects, the composition of the atmosphere, even electron-ion recombination rates in the ionosphere, at a given physical height varying with season and latitude. We won't get into it now but that's basically the reason why winter MUFs are so high.

And you thought HF propagation was simple, not affected by the force of gravity. In the case of weather, there's the "Wet Finger in the Wind" school of thought and you know how reliable that is. I suppose there's an ionospheric equivalent to that school and it produces about the same results when it comes to predictions. I could be wrong, of course, but I think the problem is not to be caught in that trap.

So count your blessings. And to take this one step further, what would have happened if gravity waves had been discovered before radio waves? Probably you'd be studying books on Einstein's General Theory of Relativity now instead reading Maxwell's Theory of Electromagnetism or this column on HF propagation. Your transmitter might be a huge rock hanging from a steel cable in the middle of your backyard, excited to emit gravity waves by some exotic mechanism. And your receiver; who knows? As I said, count your blessings. It's a good hobby just the way it is, gravity and all. Enough said. QRT! WR

Frequency corrections

Last column, I listed some frequencies for ARSENE's S-band linear transponder. Unfortunately, these frequencies were not correct. So to rectify this error, I have included the correct S-band transponder frequencies: 435.095 MHz (uplink) and 2.446499 GHz (downlink), 16 KHz passband. Sorry about the mistake.

Speaking of ARSENE and Mode-S, it was reported in the September 15th issue (#277) of OSCAR Satellite Report that the Mode-S transponder for ARSENE has gone silent. The loss of this transponder coupled with the early loss of the Mode-B transponder signals is a terrible blow to the SATCOM fraternity. More on this problem as details become available.

MODE-S. Like it or not, Mode-S is here to stay and we should all be thankful. S-Band (2.4 GHz) downlinking is much more quiet than the 2 meter downlink we find on Mode-B. Antenna dimensions are smaller for S-Band. Thanks to quality products like the SSB Electronics model UEX-2000S S-Band down converter, SATOPS looking to upgrade their stations to operate on Mode-S are going to be able to do so a moderate cost. (I hope to have my hands on a UEX2000S downconverter for product review in the near future.) True, there will be some money expended in order to take advantage of Mode-S, but with some careful planning with respect to equipment and hardware selection, you won't have to mortgage the family jewels to start enjoying the S-Band downlink on OSCAR 13 and P3D.

In the September 1, 1993 (#276) edition of OSCAR Satellite Report, there appeared an excellent article detailing an inexpensive 5-band antenna manufactured and marketed by Conifer Corporation of Burlington, IA.

The model 24H-2127 is a lightweight antenna with small surface area to reduce wind loading. It will fit masts from 1.25 to 2 inches OD and can be mounted for either horizontal or vertical (linear) polarization. Calculated gain is 24.9 dBi. A downconverter can be mounted at the feedpoint to make an extremely compact Mode-S downlink receiving system.

I called Bob Myers, W1XT, to inquire about this antenna and he advised me that, at present, the company was unaware of the possible demand for S-Band antennas and were not used to talking to hams about their antennas as related to amateur satellite communications. Also, they were in the prototype stage of mating a modified S-Band video downconverter to the antenna for sale as a complete Mode-S antenna/converter package. Cost of the antenna (without any S-Band downconverter) is $48.50 plus UPS. This is a real bargain. As more details become available on this convenient and inexpensive way to upgrade your antenna system to include 5-Band, I will insure that they are covered in this column.

OTH SATCOM

Over The Horizon (OTH) HF signal propagation is the cornerstone of communications on the High frequency bands. Believe it or not, SATOPS can enjoy this HF signal propagation mode using RS-12/13 in Mode-S (21 MHz uplink — 29 MHz downlink).

We all experience Line Of Sight (LOS) satellite communications when any of the Low Earth Orbit (LEO) satellites are above our local horizon. However, RS-12 provides the experimenting satellite communicator with the added chance to make some real DX contacts by taking advantage of the signal propagation phenomenon on this HF satellite.

Using your tracking program you should be able to predict when RS-12 is in position (below your normal horizon) to yield DX contacts. Obviously checking with WWV at 18 minutes after the hour for their prop forecasts and flux readings will save some wasted effort. Flux readings must be above 125 in order for 10 and 15 meters to support long haul communications. Unfortunately, we are now experiencing a downturn in sunspot activity and associated flux levels. More often than not, 10 and 15 meters will not be able to support long-haul communications. However, there will be those times during the "sunspot doldrums" that will yield some wild propagation characteristics. So, don't give up.

With RS-12 out over the Pacific, under enhanced propagation conditions, DX contacts from the east coast of the U.S. into Japan and the Pacific rim would not be out of the question. Likewise, if RS-12 is well to the east of the east coast, contacts into the Commonwealth of Independent States, Africa and the Middle East (and looking westward into Hawaii) could be a real possibility

If anyone has experience using RS-12 for long-haul DXing, I would be very interested in hearing about their efforts. I will make space available in future columns so we can exchange ideas and techniques on this unusual use of RS-12.

"Tick-tock" how accurate is your clock"

What kind of clock do you have in your shack? For the last several years, I have used the dual MFJ LCD clock set that provides for both local and Zulu (GMT/UTC) time. These two tiny clocks have provided me with accurate time measurements and, until I received the Spectra-Com WWV-format Universal Time Piece from JRO Research, I had no idea what I was really missing.

This new clock features a large ten inch diameter face that can be used to tell time (either local or Zulu) in 12 or 24 hour format. The really unique thing about this clock is that the dial face is marked off to show specific information as related to WWV's time and frequency services. The dial is partitioned into 60 one minute bands showing yellow (500 H2 tones) and blue (600 H2 tones) codes. These bands signify the two types of tones broadcast by WWV. A quick glance at the clock and you can tell which tones are being broadcast at any particular time.

Also displayed on the clock dial are the times that the tone begin and end, the silent period prior to the time announcement and the time the voice announcement begins. "Tick" information is printed on the bottom center of the dial. This shows what each second "tick" contains.

Around the dial face are a series of red bands which depict special information or events that happen within

each minute. These pertain to storm information, solar flux and propagation activity, GPS info, etc.

OK, so now I have a 10 inch analog dial clock that tells me a whole bunch of stuff about WWV, how accurate is it? Well, according to the accompanying literature from JRO Research, this little jewel is accurate to within 2 minutes per year (worst case) and +/- 1 second short term. I have found, over a 2 week period that there is ZERO (none, nada, zip, zilch) error. I am impressed! Not only is this clock neat to look at, it's accurate AND when non-hams drop by the old shack, it makes for a great conversation piece. Of course, after these folks leave they have absolutely no idea what I have told them about the clock and WWV, but what the heck. . . it makes me look like I know what I'm talking about!

Price of the Spectra-Com WWV-format Universal Time Piece: $29.95 on a limited introductory offer plus $4.50 shipping and handling from JRO Research, 7140 Colorado Avenue North, Minneapolis, MN 55429.

Mode-B on P3D

Up until Sunday, August 8th, there was no one "stepping forward" to build the MODE-B transmitter for P3D. No MODE-B transmitter meant that many active SATOPS in the U.S. would be left out in the cold once P3D was launched. MODE-B is the favored mode in the U.S. Most of the rest of the amateur radio world does not care whether a 2 meter downlink transmitter flies aboard P3D, owing to the tremendous interference on the 2 meter band in Europe and Japan.

The AMSAT News Service (ANS) broke the story on Sunday (August 8th) that Mike Dorsett, G6GEJ, of AMSAT-UK, has volunteered (in the 11th hour) to design and build the Mode-B (soon to be called Mode-UV) transmitter for P3D! quoting from the ANS news release: "Together with the 70cm uplink receiver already planned, this means that there will, indeed, be a Mode 'UV' capability (formerly known as Mode-B) on the new satellite. If all goes as expected, users of Mode-B on AO-13 can look forward to improved performance from Phase 3D."

While this is certainly good news for many current Mode-B users on OSCAR-13, it remains to be seen how often this mode will be "on" once P3D flies. Time will tell. One very high ranking AMSAT insider was quoted as saying: "Why build a MODE-B transmitter for P3D when it will be never turned on.

Editorial comment on being an AMSAT Volunteer several weeks prior to the Valley Forge Ham Show (August 21-22), I received a call from Bill Tynan, W3XO, President of AMSAT, requesting that I do some yeomen's work at the AMSAT booth at the hamfest. I was only too glad to accept this opportunity to be of service to God, country and Satellite Communications. Fellow SATOP, loyal AMSAT member and President of the MURGAS ARC, Rick Rinehimer, KA3QKI and I joined AMSAT Representative Howard Ziserman, WA3GOV, at the Valley Forge Convention Center about 0700 on Saturday morning.

As usual, Murphy had been at work leaving things in disarray. Our table was missing, there was no power available at our booth, and coffee was a $1.50 a cup! Howard had brought his shack computer to demonstrate some AMSAT software. I had, likewise, included my laptop. Unfortunately the software that Howard wanted me to put on my laptop was ORBITS-II and he only had it on 5.25 inch floppies.

The good folks at BC Computer Systems, Inc (118 Burrs Road, Suite Cl, Westampton, NJ 08060) provided a solution. They just happened to have a 486 tower up and running and I was able to copy the ORBITS-II software onto 3.5 inch medium. With ORBITS-II and InstantTrack running side by side, we had plenty of graphics to show interested amateurs as they strolled by the AMSAT booth.

Our goal was to stir up as much interest in satellite communications as possible and provide attendees with some information on how easy it is to work the birds. In the process it was hoped that we could sign up a few new members. When Rick and I left on Saturday evening we had managed to bring 15 new members into the fold. Not a bad day's work!

In talking with ham show attendees, it became very evident that the majority of new satellite users and a good portion of the seasoned SATCOM veterans are very active on the Low Earth Orbit satellites like RS-10/11, 12/13, AO-21 and the Microsats. During the ham show Rick and I talked to several hundred people, many of whom were amazed and thrilled that they could become active SATOPS using the LEO birds and gear that they already had on hand.

At the Ham Show I received a review copy of the new *CQ* communications tape "Getting Started in Amateur Satellites," from the good folks at *CQ* Magazine (a full review will be forthcoming). I have watched it several times and it is very well produced and informative. The tape features active SATOPS talking and demonstrating their equipment for the camera. unfortunately, the tape misses its intended market, that of the new or potential satellite operator. While it is very impressive to see various SATOP's shacks stuffed to overflowing with V/VHF gear, transverters, preamps, RF amplifiers, sequencers and rotor controllers, it is also quite overwhelming to the uninitiated.

The RS-10/11 & 12/13 satellites are mentioned only in passing. This casual reference to these entry level satellites is almost glossed over in favor of their high tech, high cost cousins.

Too bad *CQ* didn't consult me about how to interest newcomers in satellite communications. After authoring this column for a year, speaking to various amateur radio clubs in N.E. Pennsylvania and doing volunteer work at the AMSAT booth, I am firmly convinced that the way to attract and keep people interested in satellite communications is to use a series of stepping stones, starting with RS-10/11 and 12/13 and progressing on to AO-21 and finally the higher orbit satellites as operating skill, technical prowess and money become available.

NOTE: OSCAR Satellite Report and Satellite Operator newsletters are published by R. Myers Communications, P.O. Box 17108, Mountain Hills, AZ. Write Bob Myers, WlXT, for further details and prices.

73 Rich, K7YHA WR

Richard Fisher, KI6SN

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QRP Holiday Spirit

Here's a bit of the holiday Spirit even Ebenezer Scrooge would like.

Actually, it's the Oak Hills Research "Spirit" transceiver. And inside this handsomely wrapped package are enough goodies to make most any QRP-er's yuletide bright.

From its position atop OHR's kit line, the Spirit is a single band CW transceiver available for 80, 40, 30, 20 or 15 meters. Three printed circuit boards are home to a superheterodyne receiver, five watt VFO-controlled transmitter and iambic keyer.

It's all in a cabinet 4 inches high, 6¼ inches wide and 6 7/8 inches deep. The Spirit tips the scale at just under three pounds.

For $198.95, builders have a right to expect a lot of this little rig. And they'll get it.

Receiver

The receiver is a single-conversion superhet with an RF preamp and diode ring mixer. No NE602 lash-up here. There's a switchable high performance, audio-derived AGC, audio filter and a hefty two watts of audio output — plenty to drive an 8 ohm speaker. Front panel adjustments include audio gain, RF gain, and RIT for tuning 800 Hz to either side of the transmitter's zero beat.

The receiver has a filtered bandwidth of 700 Hz — great for QRM quashing, and for popping weak signals out of the noise.

Transmitter

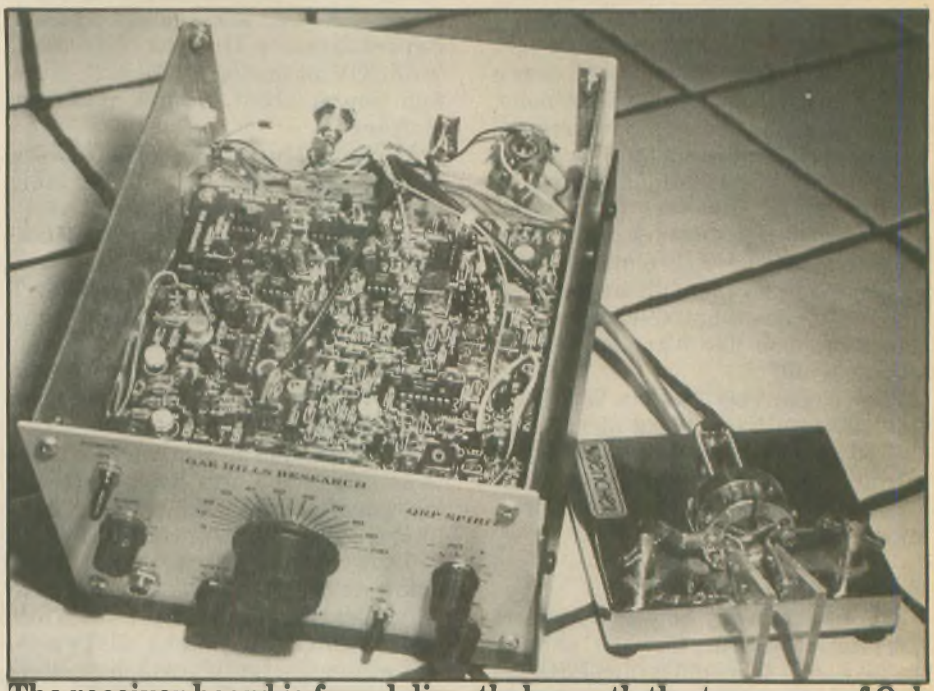
Featuring an 8:1 vernier-driven capacitor, the Spirit's VFO spans any 100 kHz segment of the bands offered. The *five* watt transmitter has an MRF476 seated in a hefty heat sink in its final. The rig has full, relayless QSK that is about as smooth as you'll find anywhere. From all on-air reports, the VFO is as solid as a rock. Power output is as advertised. Through a tuner, the rig nicely matches the G5RV at hand here.

Keyer

The Curtis 8044ABM chip is the heart of the iambic keyer. Speed is adjusted from the front panel. Weight adjustment is made with a board mounted trim pot. The Spirit has an adjustable sidetone for monitoring CW.

controlled transmitters might be used to. An oscilloscope, frequency counter, dummy load and wattmeter Kare recommended by Oak Hills to get this rig running at optimum efficiency.

For an additional $40, though, the company will align the rig for you and perform minor repairs.



The receiver board is found directly beneath the top cover of Oak Hills Research's Spirit single-band CW transceiver kit.

The PC boards

The Spirit's boards match the superb quality of other OHR kits, with each component's position outlined in white and numbered on a forest green background. The PC boards for the transmitter and receiver are double sided and plated through. The keyer is single sided and not plated through.

As part of the manual, large drawings of each board show parts placement, and a complete schematic shows exactly what this rig is made of. Between the component-annotated PC boards, the enlarged drawings and the schematics, several routes are open for builders to assure that things are going together properly.

Alignment

The Spirit is not a simple circuit, and alignment takes a bit more effort than operators accustomed to working with direct conversion receivers and crystal

Construction

If you're looking for a weekend project, this is NOT it. The component count offers a clue why: the circuit contains more than 400 parts. The receiver board is particularly dense. Despite its high parts count, though, every component and piece of hardware was present and accounted for when the kit arrived in the mail.

The Spirit, while not especially difficult to build, takes a lot of time, patience and perseverence. The instruction manual suggests taking frequent breaks from building to reduce the chance for error due to fatigue. I wholeheartedly agree.

Toroidaphobics needn't worry — all of the inductors are prewound.

The 30-plus page manual points the builder in the right direction — "Start installing the resistors first, followed by the caps..." — but there's not a great deal of hand holding. Where detail is needed, it's offered. Make no mistake, this is truly a homebrew rig.

It's certainly not for the beginner, though. Some building experience is requisite.

Operation

On-air tests have been quite gratify-

ing. The receiver is both sensitive and selective, and playing with the RF and AF gain controls and AGC can yield some very nice sounding CW from across the band.

I selected the 30 meter version as a test rig to determine just how good the Spirit's receiver performs in weak signal conditions, and in rejecting strong adjacent foreign broadcast stations. On both counts, it passed with flying colors.

It was a pleasure copying a stateside pileup chasing 4K1F, operating from King George Island, in a DX feeding frenzy late one October afternoon. The Spirit's selectivity permitted weak signals in the fray to be "popped" from the bedlam. The sensitivity made the 4K1 solid copy. Using the Spirit here in Southern California, contacts with several western states and Canada have yielded excellent signal reports on tonal quality, stability and keying.

In an otherwise sterling piece of equipment, the only shortcoming I find is in the Spirit's keying circuit. The design does not give the operator the option of bypassing the built-in iambic keyer to permit the use of a bug, straight key, or another keyer.

Wondering if the Spirit is up to the challenge of working DX? UW1ZZ was snagged on the low end of 30 meters at 0300 UTC on a lazy Tuesday morning. On the first call, no less.

I have run the Spirit from a 12 volt battery for several hours at a time with success. The cabinet has remained cool even during longwinded ragchews.

If you're in the market for a high quality, nicely designed single-band CW QRP transceiver, OHR's Spirit merits serious consideration. I found it well worth the time and effort needed to put it all together.

For more information about the Spirit, or other Oak Hills Research kits, write 20879 Madison St., Big Rapids, MI 49307. Telephone 800/842-3748.

The HW-8 Handbook (cont.)

Over the last few months we've been mounting a search for copies of "The HW-8 Handbook," a modification manual for the popular Heathkit QRP transceiver compiled several years ago by Mike Bryce, WB8VGE, of Massillon, OH. "Ask your readers if they would like a reprint and if there is enough response, I'll push up the printing date," he wrote when learning of our search for copies. ***Worldradio*** QRP column readers have taken up the challenge, with a growing number of operators expressing keen interest in a handbook reprint. Among them: W1AG, Bernard T. Lee, Plymouth, MA; AKØN, Ron Erickson, Shenandoah, IA; K8JC, E. Russell Cox, Saginaw, MI; AA5WE, Bob Hickman, Copperas Cove, TX; KB7OPD, Philip Corlis, Coeur d'Alene, ID; WAØGAI, Eugene J. Seifert, Crystal Lake, ID; KE4AGT, Jim Hall, Huntsville, AL; K2BE, Carl N. Johnson, Oak Ridge, NJ; NØPVS, John Dilsaver, Sparta, MO; and KV5A/9, Ken Brown, West Frankfort, IL. Copies of their letters are being forwarded to Bryce. If you would be interested in obtaining a reprint but have not yet let your voice be heard, please drop me a card or letter. Your support will be noted here, and then sent along to Massillon.

Meantime, if you've got a copy of the original handbook and would be willing to part with it, please let me know. Perhaps a lending library can be established while Bryce is testing the waters.

Catalog compendium

Since April, monthly recommendations have been made in ***Worldradio's*** QRP column for developing a library of catalogs as sources for components of general interest to QRPers — especially radio amateurs who like to homebrew QRP rigs and station accessories.

A complete list of the names, addresses and phone numbers of the parts and specialty houses listed through '93 is yours free by sending a self addressed, stamped envelope to the address at the head of this column.

As always, your suggestions for adding to the list are welcomed as we continue the quest into 1994.

QRP ARCI Holiday Contest

Why not pass along season's greetings to fellow QRPers and engage in a little friendly competition at the same time? The QRP Amateur Radio Club International-sponsored "Holiday Spirits Sprint-CW" is 5 December from 2000 to 2400 UTC. WR

Search And Rescue Communications

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

The cover article in *West Yellowstone News* (Sept. 30, 1993) caught my attention. Faced with a growing population, a huge tourist influx and a pretty remote location, the town's emergency medical service is hurting for volunteers.

One of their challenges is that of keeping their volunteers trained. The article pointed out that the fire department requires 4-6 hours training a month while ambulance volunteers need 88 hours BEFORE their first callout and then 24 hours every two years to remain current.

There are 24 volunteers with the fire department and they average a 50 percent callout. There are nine members of the ambulance crew which has a lower response rate.

Their fire chief, a paid position, described what many groups face by way of a "public relations problem." The chief said this problem translates as "what do people expect of their emergency services?" He pointed out that his "customers expect us to one, show up, and two, deal with the problem. Period."

The chief continued saying "we need to educate the public to what we can and can not do. If the public says 'OK,' then great. If not, then the town needs to be aware so at least we are all making an informed decision."

There are several concerns here in common with Amateur Radio communications. We also face the public relations problem and seldom address it adequately because we're often not sure what we can or cannot do. It is difficult to educate a search coordinator as to our communications ability if we don't know what our resources are.

I included the information on EMS training only to point out that many of our members express the opinion that the radio license represents complete qualification. This opinion is often reinforced, for example, with the issuance of special vehicle license plates. These plates usually require little more than a valid FCC license yet the intent was to identify a community emergency resource.

Training and planning (including resource identification) are key to a quality program. I would propose that your activities should be significantly tilted toward training and planning and not focused on the actual response. Take a few moments and review your group's upcoming calendar. Have you focused on a course of training for new members? Do you have an established training path for upgrading skills? Do you promote skill training? Is a current list of resources (people and equipment) available?

You cannot educate the "public" you serve until you know your own limits, know your own resources, and have a training program that encourages your members to keep learning and increasing their expertise. It's worth the effort!

A Good Idea

During a recent airport exercise an operator at the city emergency operations center posted a sign showing all of the other locations active on Amateur Radio. The operator related officials' surprise when they learned the Amateur Radio could directly contact various EOCs, command post, medical examiner, Red Cross, various hospitals, military agencies, etc.

Because agencies often operate on trunked 800 MHz systems, VHF and UHF without common channels, they can't usually just pick up a radio and make a call. This is a pretty big selling point for an Amateur Radio emergency network — we can communicate with many agencies by providing direct links.

Consider having operators at an agency post a "network" map or list. Hospital emergency room people may not need to call the National Guard, but if they are aware of who you can contact, they'll know who to see if the need arises! Keeping people informed of your capabilities is what it's all about.

Taken to Task

Mike Blenderman, N6OUC, wrote from Oregon taking me to task over comments about Incident Command System. And he's correct. You cannot have a lot of incident commanders — only one. When the incident happens, it gets a name — like "Center Street Fire." The commander is called "Center Street Command." Operations chief would be "Center Street Operations."

I'm a solid believer in ICS. Not just the concept but the functions and structure as well. ICS can be embraced by any emergency group as a day-to-day philosophy of operation. This perhaps better describes my focus. Mike points out that Amateur Radio seldom has any jurisdiction and would probably never be the incident commander of a major

event. This is true.

It was misleading in my October column when it was implied that communications might have standard ICS staff titles for an event such as a major search. My soapbox is that we should think ICS functions within our own organization. ICS functions apply to any emergency services group. You need command, operations, planning and logistics.

While it would be confusing to call the ARES leader the "fire command," I don't think it out of line to call her/him the ARES commander, or ARES operations chief or ARES planning chief, etc. We need to think "function" and this must be our day-to-day philosophy. Functions such as command and planning are just as important for ARES as for the fire department.

When ARES responds to support an event, we (meaning Amateur Radio) need to think about our OWN (as a group) operations, planning and logistics in support of the overall incident. We can't just respond and rely on the incident planner to know and plan communications needs. To an agency, we are a resource. We still have to do some planning, figure out some logistics and get our people to the scene. If we, as a major organized group, are not structured to support an event, we'll add to the confusion. What I'm pushing is that as an organized group (not individuals) you can operate under ICS so you don't miss critical functions.

ICS and SAR is an evolving thing. Let's not get too formal in our thinking but use ICS concepts — they're valid for any emergency response group. More in future columns.

Another Letter

Deborah Riehl, AA7RW, writes from Washington that I've lost sight of what SAR is really about — "getting out in the wilderness and rescuing people." She is disappointed that I seem to endlessly preparing for the "base camp and seldom get involved in the real thing."

She has been in SAR for over 20 years and from her letter I can see that Amateur Radio probably augments her SAR talents of being an experienced "in the field" person.

For many SAR people, a radio is just a link to the base camp. Something that is used to check in and to call in for support when clues or the victim is found. SAR communications, however, is a support structure. It is that "other end of the radio" for those out doing the searching.

"War stories" include the profound joy when the field teams call in a find and a save or the sorrow of a mom (at the base camp) when her son is found dead in a plane crash.

For most SAR missions the event never gets past "phase one" or the initial response. Plane crashes and missing people are most often found during the initial SAR effort — before a base camp gets established. Because of this, little attention is given to planning and preparation and what happens in "phase two." What happens when the whole SAR team searches for 12 hours and doesn't find missing Sally? What do we do then? Have we planned for extended events?

This is my soapbox — day two, day three, etc. For the search planner, the first effort is followed by a lot of uncertainty: Will there be searchers? Will there be support staff? Will there be communications? Who will help? From experience, it gets worse from there. After 10 days it's often the coordinator and one or two search crews.

SAR includes that initial effort to grab your gear and head out to the rescue. There's nothing quite like an adrenaline rush of being dropped from a chopper into hot search area. There's more to SAR behind the scenes — people who don't get their picture in the paper or get featured on TV shows. These unsung heros set up command posts, staging areas, feeding areas, spend hours processing search clues, preparing search assignments and setting up communications systems. It is a team effort. We need people willing to fly or hike or bike or crawl through caves in service to others.

Communications is the critical link — and there's more to it than a radio. While it's important to be willing to hike into a technical rescue area, it's just as important for someone to undertake a study of lost person behavior, helping us know where to search.

When I look at where communications has come over the past 20 years I wonder how we accomplished search missions without all this fancy stuff. It is my opinion that we need to catch up in our training and planning. We need to bring together the technology and the research and apply it to our emergency missions — it's called management. ICS is one of the best candidates for our attention.

We'll still have quick missions. That's good. It means the objective was found quickly. Technology also allows us to set up for quick missions.

Having a communications facility ready to go, knowing who can respond and having a tested system with trained operators helps missions go quick. That's the idea — save lives, reduce suffering.

Thanks for your letters. More next month. WR

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

10-10 Convention

The every-other year 10-10 Convention was held in Wichita, in conjunction with the Kansas State ARRL convention on September 25-26,1993. A great time was had by everyone. The special 10-10 Net, held on Saturday afternoon, had 104 checkins with everyone exchanging 10-10 numbers. Bob Crawshaw. WAØNGV #4408, convention co-chairman, was net control and did an excellent job maintaining "net order" with the large number of checkins. The 10-10 club station, W6OI/Ø was active all weekend, with a large number of members picking up 10-10 #109, which is not often on the air.

There were 31 states, including Alaska, and two foreign countries represented. In addition to the daytime activities, Ed Redwine, K5ERJ #11843, convention co-chairman, hosted a wonderful Saturday night banquet at the top of one of the local hotels which provided all with a spectacular view of Wichita. 138 10-10 members and their guests enjoyed a good dinner and shared in the drawing for a large number of super prizes.

The 10-10 Board of Directors held their annual meeting the day before the convention and acted on a number of pressing items regarding the organization and management of 10-10. A four hour pre-board get together was held on Thursday night in which many of the matters went through serious "open forum" discussions. The Friday board meeting lasted slightly over 10 hours, but all items on the agenda were resolved.

New 10-10 WPX Award

The new 10-10 WPX (prefix) Award was announced at the recent 10-10 Convention.

The basic rules are: Work 100 10-10 prefixes and qualify for the basic award and receive a beautiful three-color certificate. For each *additional* 100 new 10-10 prefixes worked, you will receive a gold bar. This award, like many of the other 10-10 awards, is based on the "honor system," that is QSL confirmation of the contact is *not* required. There is a space for gold bar 200 through gold bar 1700 on the certificate. The only requirement is a station must be a 10-10 member and you must record his 10-10 number during a legal 10-10 contact. These are normal 10-10 requirements for all 10-10 awards issued on the "honor system". The effective date for collecting prefixes is the date you received your 10-10 number.

Rex Holford, KFØYF #20423, has been selected by the Board of Directors as the WPX certificate manager. An application is available from Rex at 3123 11th Avenue, Council Bluffs, IA 51501. *Please* enclose an SASE for the rules and an application. All applications received by Rex will be held and a lottery drawing will take place on January 10, 1994, at which time all applications will be placed "in a hat" and a drawing will determine the certificate number for all applications received on or before January 9,1994. With this procedure, all applicants have an equal chance of receiving certificate #1.

Please only your first 100 WPX contacts until after you receive your basic certificate, then you can submit each additional 100 contacts and receive a gold bar for each additional 100 WPX contacts.

So here is a new challenge. Go for the new 10-10 WPX Certificate. And after you receive your basic certificate for the first 100 prefixes, go for the gold, go for the gold WPX bars!

New 10-10 Net Control Manager

Nat Green, 8P6SA #45858, has assumed the duties of 10-10 Net Control Manager, replacing Sherm Sherman, K6PTF #17977, who oversaw the Net Control stations for several years. Look for Nat on the Tuesday 10-10 Net on 28.800 at 1800Z. Sherm will continue to run the Friday net on 28.800 at 1800Z.

Lonnie, NØOSN #61493, has assumed the duties of Net Control for the Wednesday Net that meets on 28.380 at 1800Z. Did you know that there are two 10-10 Nets daily at 1800Z? One net meets on 28.300 MHz and the other meets on 28.800 MHz. Listen on one or the other of these frequencies, and depending on band conditions, check in and join in the fun!

New 10-10 address. . .

10-10 has a new address for *all* dues renewals, address changes and call changes. From now on, please send your dues renewals, address changes and call changes to the following address: 10-10 International Net, Inc., 643 N. 98th Street #143, Omaha, NE 68114.

This new address and the procedure for processing dues renewals, address and call changes is to improve the processing time it takes to enter these categories of record changes into the 10-10 data base. The dues renewals and address/call changes go directly to the 10-10 data contractor and are input into the data base on a regular frequent basis. With this procedure, the chance of missing a copy of the *10-10 International News* because of late input of the data is greatly reduced.

New member applications still go to the AREA MANAGER with the same number as the number in your call. One exception — those in the 7th Call Area are to send New Member Applications to the 10-10 address as noted above. The reason for this is that the 7th Area Manager has resigned and the board has not appointed a replacement.

New 1000+ Bar Manager

Lonnie Butler, N9OSN #61493, is assuming the duties of the Bar Manager, 1000+ Bars. Applications for bars 1000+ should be sent to: Lonnie Butler, N9ONS #61493, 10-10 Bar Manager, 1000+ Bars, 26 Second Street, Greenwood, Bloomington, IL 61704.

Lonnie has taken over the 1000+ Bar manager's job from Ed Neal, N5EGA #26638, who spent a great deal of time and effort to make the 1000+ Bar program operate under some difficult situations. We thank Ed for the many volunteer hours he spent working for 10-10.

Crazy Eight Chapter QSO Party

Bob Ross, KA3AVB #25732, Crazy Eight Chapter Head announces that their 14th Annual QSO Party will be held from 0000Z 13 November, to 2400Z 14 November, 1993. In this 48 hour contest period, log call, time, name, state and 10-10 number, and Crazy Eight Number, if any.

Score is one point per QSO, plus one point for each 10-10 number, plus one point for each Crazy Eight Number, for a possible 3 points per QSO. All contacts on 10 meters, phone or CW. The award is a red seal for your Crazy Eight certificate and two points for your upgrade. Awards to each US call area, Canada and a DX award. Send logs to Bob Ross, KA3AVB #25732, 2431 Hampton Avenue, Allison Park, PA 15101 before 6 December, 1993.

New Area 4 Manager. . .

The 4th Area has a new manager. He is Stephen P. Sites, KC4LOR #56976. All 4th Area *New Member Applications* should be sent to: Steven P. Sites, KC4LOR #56976, 13065 S. Dixie Hwy., #136-494, Miami, FL 33176-7252.

Steve has taken over the 4th Area managers job from Rick Roberts, K4KCC, who found it necessary to resign. We thank Rick for an outstanding job in serving 10-10 and the 4th call area.

New 10-10 photo album

Introduced at the recent 10-10 convention in Wichita is the *10-10 Photo Album*. This 36 page book, printed on gloss magazine paper, contains 230 pictures of 10-10 members. It is indexed by both call and 10-10 number, making it easy to locate a member's picture.

In addition to members pictures, both US members and a number of DX members, there are three pages of 10-10 net officials, officers, directors, and managers.

The new 10-10 Photo Album is available from Mike Elliott, KF7ZQ #54625, 10-10 information Manager. Mike's address is 140 Parkway Drive, Boise, ID 83706. The cost is $7.00 post paid to a USA ZIP code address and $9.00 air, post paid to DX.

Information about 10-10?

If you are not now a 10-10 member and would like to learn more about the 10-10 organization, send a green stamp ($1.00) to help cover the cost of printing and postage, along with two first class stamps and an address label for the return of the 10-10 information package. Please *no* SASE as the 10-10 information package requires a 9 x 12 envelope. You will receive a copy of the 24 page Informational Manual along with a copy of the latest issue of the 32 page *10-10 International News*. Send to: Mike Elliott, KF7ZQ #54625, 140 Parkway Drive, Boise, ID 83706.

Finally. . .

If you have let your 10-10 membership dues expire, or have lost your 10-10 number, the same as above ($1.00 + 2 stamps + address label) to Mike will get you the info package along with your lost 10-10 number.

73, es cu next time. . . Chuck, W6YLJ #19636 WR

Help others learn by relating your public service activities in *Worldradio*!

Worldwide DX CONTESTING

John Attaway K4IIF/ZF2JI

P.O. Box 205 • Winter Haven, FL 33882

The frenzy of the autumn contest season subsides and activity reaches a resting point as contesters worldwide prepare for the Christmas and New Year holiday season. Christmas shopping replaces contesting activity on the amateur radio operator's agenda, but there isn't any reason why some of that shopping can't be done at your local radio store. A few hints in that direction might prove fruitful. 'Nuff said.

Fortunately, all is not lost as there are two worthwhile single band events which take place in early December.

The calendar looks like this:
3 December — ARRL 160 Meter Contest
11 December — ARRL 10 Meter Contest

The 160 Meter Contest is CW only. It begins at 2200 UTC Friday evening, 2 December, and ends at 1600 UTC on Sunday, 6 December. There is no time limitation. See November *QST* for complete rules.

The 10M Contest begins at 0000 UTC 11 Saturday, 11 December and ends at 2400 UTC Sunday, 12 December. A special segment, 28.090-28.130 MHz has been set aside for slow speed code, 10-13 WPM. Again, see November *QST* for complete rules.

Results of late — 1992 DX Contests

We have received the official results of the remaining 1992 contests, and the Japan International DX CW, Low Band Contest which took place in January 1993. Here are the highlights:

VK/ZL Contest (October 1992):

Continental winners for non-VK/ZL stations were:

	CW	Phone
North America	K7JYE	K3ZO
Oceania	YB6TI	YC8PN
Europe	VB3JWW	UB7W
Africa	7Q7XX	AM8TH
Asia	UAØSAU	UAØSAU
South America	No entry	No entry

The VK/ZL high score on SSB was VK2APK with 1,554,293 points. Tops on CW ZL3GQ with 2,416,960 points followed by VK2APK with 1,872,520. (Results courtesy ZL1AAS)

Japan International DX CW Contest. Low Band Contest (January 1993):

High scoring stations were the following:

	Multiband	7MHz	3.5 MHz
North America	N6AW	AA5NK	K6ILM
South America	PY1BVY	LU6BEG	No entry
Africa	5U7M	No entry	No entry
Asia	No entry	VS6BG	VAØLCZ
Europe	OH6RMC	UA6LTJ	No entry
Oceania	KG6DX	No entry	No entry

WØZV had the highest score in the world on 1.8 MHz. I would love to see that antenna system.

Plaque winners from North America included N6AW, AA5NK, K6ILM, WØZV, N4AR (Zone 4 winner) and K3DI (Zone 5 winner). (Results courtesy JA1ELY)

Worked All Germany (WAG) Contest (October 1992):

This contest does not list the winning stations by continent, but does break out scores by country. The top stations in some representative countries outside Germany included: USA-K3ZO; Japan-JA5APU; Czechoslovakia-OK1OH; Netherlands-PA3EBA; Spain EA7TL; France-FD1PTI; England-G5LP; Sweden-SMØTXT; and European Russia-UA6LTI. High scoring stations from Germany were DL1IAO in the single op, all bands CW class; Y24UK in the single op, all bands mixed class, DF4KW in the multiop, single TX class and DL3KVR in all bands QRP (Results courtesy DL1DTL).

Bulgarian LZ DX Contest (September 1992):

The high scores for each continent were tallied by: North America-AA1M; South America-PY1CE; Europe-YL2KL; and Asia-UA9OA. Some top stations by country included: Bulgaria-LZ1DZ; Germany-DF3QN; England-G3IAR; Japan-JL2LOR; European Russia-UV3AIN; Asiatic Russia-UA9OA and Ukraine-RB5LJ (Results courtesy LZ3SM).

OK DX Contest (November 1992):

Congratulations to K4PQL who was high for North America and 7th in the world in the all band category with 679,990 points. Other U.S. and Canadian entries in order of score were: KA1DWX, K3ZO, K4BAI, W6ISQ, VE3NXB, KA7FEF and W2LRJ. VE6BF scored 8,856 points as a 20M, single band entry.

The top scoring stations in some representative countries included: Germany, DL1TH; Spain, EA7CA; France, F5DE; England, G3ESF; Scotland, GM3CFS; Hungary, HA60Z; Italy, IØZUT; Japan, JA3ARM; Fubkabdm OI5AX; Belgium, ON7RN; Poland SP3FLR; European Russia, UA4WHW; Asiatic Russia, UA9KW; Ukraine, RY8I; Kazakh, UL2G; Latvia, YL2KL; and Romania, YO2DFA. The top score for the sponsoring country in the all band category was OK2PAY as a single operator and OK5W in the multisingle class. (Results courtesy OK2FD).

Contesting from the Caribbean

What better way to spend the winter contesting season than in the balmy Caribbean, 80°F beats 30°F any day of the week and twice on Sunday.

U.S. Virgin Islands (KP2) — Charles, K4VUD/KP2 enjoyed his "poor man's DXpedition" to St. Thomas for the I.A.R.U. contest in July. Charles stayed at the Sapphire Beach Resort, P. O. Box 8088H, St. Thomas, V. I. 00801. Phone (809) 775-6100 or toll free to (800) 524-2090. The advantage of KP2 is no license to apply for and no problems in going through customs. K4VUD used low power to a hustler antenna. No competition to KP2A in a major contest but he had "A couple of good runs."

British Virgin Islands (VP2V) — Two happy DXers, Arch Doty, K8CFU, and Ben Pinz, W2GUP, endorse the B.V.I. as an enjoyable site for a Caribbean operation. Licenses from the B.V.I. are now strictly on a reciprocal basis, i.e. VP2V/W2GUP. It is recommended that license applications be sent well in advance, although it is possible to get a ticket on site. Write to the Telecommunications Officer, Department of Works and Telecommunications, Roadtown, Tortola, B.V.I. with a copy of your home license and a Postal Money Order in the amount of $20.10 payable to the Accountant General. Personal checks will not be accepted. Allow at least 3 weeks for return of the license. No deposit or any other formality is required to bring radio gear into the country. The maximum power which U.S. visitors are permitted to use is 300 watts P.E.P.

Tortola can be reached in 2 ways. You can fly to San Juan and take the local carrier to Beef Island. However, there are severe restrictions on the amount of luggage you can carry on the flight to Beef Island. Many Caribbean veterans prefer flying directly to St. Thomas and taking the ferry to Tortola.

There is an active amateur radio club which meets the second Thursday at Pusser's Bar in Roadtown.

W2GUP indicates that a good hotel for working back to the states from Tortola is the Cane Garden Bay Beach Hotel, phone (809) 495-4639.

St. Martin (FS7) - Bob, AI7B, writes that he has operated several times from the Coralita Beach Hotel. He says that the hotel is very accomodating and understanding of amateur radio operations and has set aside a special room, #24, with extra power outlets for amplifiers. This room is isolated on the 2nd floor at the end of the facility and is best suited for erecting antennas. There are no room phones or TV sets so interference issues are at a minimum. Power mains are French 220V with no center tap, but there is a Radio Shack and several hardware stores with a good selection of 220V adaptors.

The airport is on the Dutch side of the island, St. Maarteen, but customs are minimal with no inspection of radio gear in or out. Movement between the French and Dutch sides of the island is wide open with no restrictions. A rental car is needed as the Coralita Beach is a bit remote.

Bob used the Coralita Beach in the *CQ* WW CW Contest in 1992 and made 5,000 QSO's using a small amplifier and a Hustler 5-band trap vertical stuck in the sand at Ocean's edge. The hotel numbers are phone 011-590-87-3181 and fax 011-590-87-3120. Ask for Danille.

Some useful local contacts include Dave, PJ7VP, who runs a taxi service and has a van to haul lots of luggage; Mort Bardfield, W1UQ, who has the Cellular One franchise on the Dutch side, phone 0115995-22100; and Lionel, FS4PL.

The Pacific

We are building a file on contest spots in the Pacific for use in early 1994 when contesters are planning their expeditions for the ARRL and CQ WPX Contests. It is interesting that a larger percentage of Pacific Contesters will share their information than do Caribbean Contesters. Why is this? It is a profound and philosophical question which we will refer to Jack Troster, W6ISQ, at our next meeting. Jack is very wise in such matters. WR

YLs on the Air

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

Coming events

Jan 15-16 — Meet the Novices and Technicians Day (YLRL)

New YLRL officers

Dr. Christine Haycock, WB2YBA, has been elected President of YLRL. She will take office on 1 January 1994 and will serve a two-year term. Chris was a noted surgeon and teacher at the UMDNJ-New Jersey Medical School before her retirement in 1992, and she compiled a long list of honors during her medical career. A longtime active member of MARCO and YLRL, Chris previously served as YLRL President in 1975.

Serving with Chris in 1994-1995 will be Secretary Eleanor Cyr, N1FJR; Disbursing Treasurer Joan Gibson, KG1F; Receiving Treasurer #1 Jean Chittenden, WA2BGE; Receiving Treasurer #2 Elizabeth James, KA6NZK; Receiving Treasurer #3 Dana Tramba, N0FYQ, and Receiving Treasurer #4 Lorraine Witkowski, WA1EDR. Chris will appoint a Vice President in the near future. Congratulations to all the newly elected officers and District Chairmen.

Meet the Novices/Tech. Day

YLs who hold a Novice or Technician license don't have an opportunity to meet many YLs in most of the YL contests, so YLRL is sponsoring an activity in January to remedy that problem. Only frequencies in the HF bands that are available to Novices and Technicians will be used, and the maximum power output is 200 watts PEP. You'll earn 3 points for each YL Novice or Technician worked; 2 points for each YL General or Advanced, and 1 point for each YL Extra.

Most of the major Amateur Radio magazines will print the complete rules, or you can write to me or to the current YLRL Vice President Carla Watson, WO6X, 473 Palo Verde Dr, Sunnyvale, CA 94086, for more information. All YLs are invited to participate. The dual purposes of the contest are to give more YLs a chance to get acquainted and to help motivate newly-licensed YLs to upgrade so that they can enjoy more of the YL activities scheduled throughout the year.

The YL signature — 33

YLs who are new to the bands may have wondered at the meaning of "33," which they hear YLs exchanging at the close of a contact. 33 has been used since 1940, when it was officially adopted as YLRL's own special signature, meaning "Love sealed with friendship between one YL and another YL." Clara Reger, W8KYR, was the originator of this unique YL signature, and in 1942, Bart Pooper, W1HNE, wrote this poem about the event.

The Birth of Thirty-three

Clara had her ticket.
She also had a rig.
Because she was just starting
It wasn't very big.
She slowly tuned the crystal,
And watched the meter drop.
Then tapped the key a couple times
To be sure it wouldn't stop.
Now everything was ready.
She called a short CQ
And received an answer
On thirty-six sixty-two.
They chewed the fat 'bout stuff and things,
'Bout dresses, work and dates.
They finally called it QRT
The girl sent eighty-eights.
Clara thought it mighty funny,
Whether it be Miss or Mrs,
To end a perfect QSO
By sending "love and kisses."
It sounds too sentimental;
Just a little too much "goo"
To be sending "love and kisses"
To a girl the same as you.
For an entire week she pondered;
Wouldn't even touch the rig.
She pushed her slide rule by the hour,
Employing "logs" and "trig."
She added and subtracted.
What could the answer be?
To reach a happy medium,
Twixt eighty-eight and seventy-three.
Clara finally looked up from her work
All smiles and not forlorn.
Twas July in Nineteen-forty
That THIRTY-THREE was born.
There's no real definition
But its meaning is known well.
It's how a YL says good evening
To another friend YL.

W2QHH is a Silent Key

Most YLs who have been active on the bands for even a short time probably have worked or at least knew of Howy

Bradley, W2QHH. Howy had the distinction of having confirmed contacts with over 4000 YLs, and no one else has even come close to his record at this time. I'm very sorry to report that Howy became a Silent Key in July, 1993.

Howy was first licensed in 1933 as W8JIW, before western New York was transferred from the 8th to the 2nd call area. YLs on the air then were few and far between, but with a 10 - 17 watt input, Howy earned the first WAS-YL, the first WAC-YL, and the first DXCC-YL certificates. In 1982, he needed only a YL contact in Zone 24 for completion of WAZ-YL #1.

All operation has been with low power from a very poor QTH at the bottom of a 1500' hollow, with several forms of local commercial QRN to contend with. He used a simple end-fed wire for all bands from 160 through 10 M, with a maximum of 55 watts input to the final stage. 20 watts to the longwire was the power used for most of his contacts.

Howy operated CW for 90% of his contacts, which made the search for YLs more challenging as it's much more difficult to distinguish them on CW, of course. He listened carefully on the Novice bands for the exchange of names and the "33" or "88" signature, which helped his contact totals.

Howy Bradley, W2QHH, confirmed over 4,000 YL contacts.

In 1973, YLRL surprised Howy with a suitably engraved silver bowl, when he submitted confirmed contacts with 2000 YLs. At both the 2000 and 3000 plateaus, he thought of giving up the quest, but so many YLs urged him to continue that he eventually confirmed over 4000 YL contacts. The photo shows his YLCC certificate in 1988, with silver seals denoting each 50 additional YL contacts above the original 100, shortly before he reached 4000. He had long since run out of space and was putting the seals outside the frame of his certificate.

Howy was not active in the last three years of his life, but during his more than 50 years of Amateur Radio operation, he earned more than 300 awards. Many, such as the All British Counties, All Swiss Cantons, 7-Band WAS, and Worked 500 Puerto Ricans were the first achieved in the U.S. He confirmed all 3080 counties in the U.S. and had QSLs from all countries available to him on the DXCC list, for a total of 363.

Howy achieved all this while working for the Post Office, delivering the local mail for 30 years, walking from 17-22 miles a day, often in 2 to 3 feet of snow, with temperatures dipping to minus 20 and 30 degrees F. He also found time for hunting, fishing, trapping, gardening, and botany, and he maintained a botanical collection of many rare varieties. Howy enjoyed propagating these rare plants and then sending them to others who were interested in the native U. S. flora. He specialized in the "alba" forms, the white "sports" of flowers that normally are another color.

Howy was much more than a certificate earner. He was a first-rate operator, who overcame tremendous obstacles that would have discouraged most people, and he was truly the YLs' friend. Howy was a splendid example of what Amateur Radio can be. YLs around the world mourn his loss and send condolences to his widow, Lolly, in Hamilton, New York. WR

Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

New PR officer

It is with great pleasure that I have accepted the appointment by Chief Army MARS as the Public Relations Officer for all of Army MARS. In that capacity, I look forward to a long and productive relationship with ***Worldradio***; and I thank the publisher and editor for affording Army MARS the opportunity and the space in their magazine.

While the origin of this column is Army MARS, it has always been my policy to include news and ideas from all of the MARS services. Some readers may have read my columns over the past two and one-half years in other publications. Materials from both Air Force and Navy Marine Corps MARS have been included prominently when the information available warranted such treatment. Thus it is with this column as well. All MARS members are encouraged to send material to me.

The spirit of cooperation among the three service MARS organizations is strong. The spirit of cooperation between the Amateur community and MARS is strong and is being further encouraged by joint ARRL/MARS operations in the upcoming ARES Simulated Emergency Tests (SET).

Holiday PR campaign

Another cooperative effort is the Operation: Holidays public relations campaign. This campaign is designed to acquaint the non-radio public with the free services that are available to them via Amateur Radio and MARS.

"Merry Christmas" ... "Happy Holidays" ... Everywhere, greetings are exchanged with the joy and warmth that this special holiday season reflects.

"This is AAT4JK" or "This is N4ZCF" ... "Message number seven zero ... Love Mom". It could be love from Mom, Dad, sweetheart, friend, all kinds of people sharing their love with each other. "Jeremy has two teeth." "Don't cash that check!" "God bless you." "Mother and baby doing fine." "Send money." These and thousands of messages like these traverse the air waves and bring that special touch to the thousands of senders and their recipients.

MARS and the NTS (National Traffic System) have earned their fine reputations for being top-notch message services. Only by continuing to handle message traffic can these reputations be sustained and expanded. Only an informed public can generate the message traffic needed to keep traffic handlers' skills at optimum levels — skills that are highly developed for use in times of public emergency or disaster needs.

This Operation: Holidays is the third annual promotion for public use of the Amateur radio services for the sending of radiograms to loved ones during the holidays. In encouraging people to use our services at this time, we, the Amateur Radio community, can let them discover the pleasure in using a medium that is new to them. They can discover, as recipients, the fun in receiving a greeting or other message in a new way.

An ultimate goal of the program is to have the non-radio public develop such familiarity with the two traffic systems that sending radiograms becomes an ingrained natural habit for people everywhere. The promotion urges all Amateurs and MARS members to promote the idea of having the public send radiograms (civilian-to-civilian) and MARSgrams (military-to-civilian-to-military) to supplement the sending of greeting cards and other messages.

Only an informed public, using the services available to them, will realize that Amateur Radio is an important national asset. Only an informed public can help to protect the Amateur bands from being usurped by other users. Only an informed public can influence legislators and regulators in our favor.

Most of the general public does not know that either MARS or NTS exist. Operation: Holidays gives all of us in Amateur Radio an opportunity to let people know that both services are free, reliable, and available at all times — not just during special seasons. We have the opportunity to generate good will throughout the communities in which we live. The opportunity lies in offering people everywhere an opportunity to send radiograms to their loved ones wherever they may be. If the sender and the addressee are both civilian, NTS will handle the messages. If either or both the sender and the addressee are military, MARS will handle the messages. Messages intended for a military addressee can originate with the NTS system and be refiled into the MARS system at a later point.

Only you in the Amateur community and as MARS members can inform the public. The public does not know how to reach you. Act NOW! Get your radio clubs involved. Write letters to the editors of your local newspapers. Contact local radio and TV stations for spot announcements. Submit news items. Put posters up. Talk to your family, your friends, your neighbors.

Radiograms

Have you sent a radiogram lately? Have you ever sent one? Why not? It's an excellent way to keep in touch with friends or family members who are far away. All you need is a complete address and 30 words. Messages going to addressees in the United States and Canada should have a telephone number. Most people are surprised at how much can be said in 30 words. Send a radiogram today. You will enjoy it and your recipient will as well.

Information

To send me information or to request information, you may reach me at:

Lorraine S. Matthew, N4ZCF
AAA9PR
P. O. Box 1439
Santa Rosa Beach, FL 32459
Via Packet: N4ZCF@N4GXX or AAA9PR@AAT4BM WR

CONSTRUCTION

A simple limited-space all-band HF antenna

HOWARD LIEBMAN, W2QUV

If you recently got your new FCC license, or even if you've had it for a while, and haven't yet gotten on HF, do it now. Many newly licensed hams hesitate to get on the HF bands because they think an elaborate antenna system is required and great monetary cost is involved. Nothing could be further from the truth.

The simplest limited-space, all-band, HF antenna is a piece of wire fed at one end. To enhance performance, the wire should be as high and as long as practicable. This is not a big problem even where space is limited because the wire can be bent. That is, it doesn't have to run in a single direction. For example, the antenna used at my station for many years ran vertically from the station in the basement to the roof, then horizontally to a pole on the end of the garage. The height was only 27 feet, and the horizontal portion 40 feet. This added up to a total of 67 feet of antenna, and it worked very well.

Let's discuss antenna length. It was already stated that it should be as long as practicable, and this is true for multiband use. However, if operation on only one band is contemplated, it would pay to make the antenna a certain length. Some antenna lengths will minimize RF in the station area. See Table 1 for recommended lengths for specific bands. These lengths are based on quarter wavelengths or odd multiples thereof. Note that 33 feet is a good length for both 40 and 15M.

Band	Length, feet
80M	65
40M	33 or 99
20M	16½ or 50 or 82½
15M	11 or 33 or 55
10M	8¼ or 25 or 41¼

Table 1. Lengths for single-band end-fed antennas

The lengths listed in Table 1 are also suitable for multiband use. So, if you have a favorite band, you might consider using a length selected from Table 1, even though you contemplate multiband use. Of course, if your favorite band is 10M and you expect to go on other bands, use at least the 41¼ ft. length.

For your safety, and for effective operation of an end-fed antenna, a good ground is necessary. Connect the transceiver to a convenient cold-water pipe. This may be all the grounding you need. If results are unsatisfactory on some bands, additional grounding may be necessary.

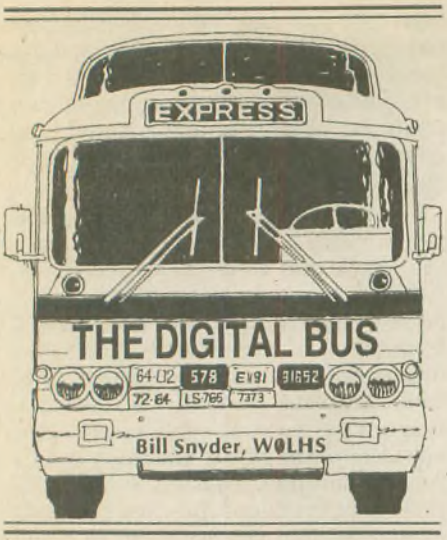
Feeding the antenna may be accomplished by use of a simple antenna tuner and an SWR bridge. Your transceiver or antenna tuner may already have a built-in SWR indicator. If not, a separate SWR bridge will be required. The best location for the antenna tuner is at the point where the antenna enters the shack, even if it's several feet from your rig. The reason for this is that you don't want the antenna radiating inside your shack. If you use an external SWR bridge, it should connect to the input side of the tuner with a short piece of coaxial cable. The input side of the bridge connects to the antenna terminal on your transceiver with another piece of coaxial cable. If the SWR bridge is built into either the tuner or rig, then only a single coaxial cable connects the rig to the tuner. If your tuner is not next to your rig, you may be wondering how to turn the rig on and off while making tuner adjustments. This is easily accomplished with a simple push-button mounted at the antenna tuner and connected to the CW key line of your rig with shielded wire.

The input end of the antenna is the point where the antenna wire enters the shack and connects to the tuner. Antenna length is measured from this point to the far end of the wire where it terminates in an insulator. The tuner makes the match between the coaxial cable and the wire of the antenna. Remember, coaxial cable is not used on the antenna side of the tuner in this type of antenna. Follow the manufacturer's instructions for tuner adjustment, and you will be ready to enjoy DX.

None of the items necessary for setting up a simple end-fed antenna are expensive. Everything you need except the antenna tuner may be obtained at your local Radio Shack store. A suitable SWR bridge is the Radio Shack SWR/Field Strength Meter, Part Number 21.523, selling for $19.95. If you're operating in the 100W class, a suitable tuner is manufactured by MFJ and available from any distributor. The part number is MFJ-16010, Random Wire Tuner, selling for $39.95. If your transceiver doesn't have a built-in SWR bridge, you might consider a tuner with one built-in, such as the MFJ-941E, selling for $109.95.

Do these simple antennas work? They certainly do! I've always used simple wire antennas and low-power (100W class) and still achieved DXCC. Incidentally, the DXCC was accomplished without going on DX nets or getting on lists; all QSOs resulted from calling or answering a CQ. Of course, more elaborate antennas can produce more elaborate results. However, if you don't have the inclination, time, funds, or ability to build a more sophisticated system, then just go for a simple wire antenna. The results could be very rewarding. WR

If you want to get something out of an organization, put service into it. —*Marge, N6JTJ*



The mailboxes at my house, both postal and packet, bring a lot of interesting ideas and thoughts. I have been letting them pile up for a while, and so here are samples of the stuff that comes in from around the country.

Jim Romelfanger, K9ZZ, in Baraboo, Wisconsin (the editor of the Wisconsin area "Smoke Signals" ham radio tabloid) always sends something of interest about the goings on at the Wisconsin circus city in his packet messages. If you ever travel through Wisconsin on Interstate 94 during the summer months, plan on spending a full day in Baraboo at the Circus World Museum (contact Jim on the two meter repeater when in the area). The CWM has the greatest collection of circus wagons and rail cars in the world. The wagons you see there are in the annual Milwaukee Circus Parade that is usually telecast on public TV. Besides the exhibits, the CWM has a full blown circus that performs every day during the season. It's a great place to take the kids of all ages.

Recently Jim told of going on a "cattle call" casting session for duty as an movie extra in a flick that is being shot this fall in the Baraboo area. I hope Jim gets a job as an extra because it's an experience he'll never forget.

When I went to California in 1935, I worked as an extra in a movie called "Suicide Squad." Years later, during my career working for a television station in Fargo, the very film I worked in arrived as part of a program package of old movies we leased for telecast. Because the TV station had a 16mm printer, I copied my "biggest scene" — where a fire engine comes to a stop in front of a burning building. There I am, a young 18 year old kid, standing right in the foreground of the shot. When I show the clip to my friends they never recognize me; I have to tell them the "young whippersnapper" hogging the shot is me! Age does funny things to old people, doesn't it?

Jim also has discovered a theorem I wrote about a few months ago: program sizes rapidly rise to meet the amount of storage left on your hard disk. For example: right at the moment my 340 meg hard drive has 11 megs open for use—and I just cleaned my "hard drive house" the other day! Graphics really eat up your "free" storage!

Another guy I hear from quite often is Paul Linnell, WQØM, of West Fargo, North Dakota. Here are some of his thoughts:

"With the advent of PACTOR there is even more crowding on the 20 meter band. The new folks to digital communications need to be informed about operating frequencies, etc.

"Those of us who prefer to run QRP CW are really getting clobbered by the PACTOR stations. We are only running somewhere less than 5 watts and we don't bother anyone, but the reverse isn't so true. 14.060 is the QRP frequency for 20 meters. We can probably get a good 20 QSOs in the same amount of frequency spectrum as two SSB'ers running 1500 watts on SSB would use. Everyone seems to think they need to run megawatts, and they're doing it. 20 meter SSB has gone to the dogs, and I'm afraid the digital modes aren't going to be much better off in the near future."

Now for a bit of my own thoughts: On 15 September, I received a SYSOP @ AMSAT bulletin from SV1IW that was mailed sometime last year, 1992. It was relayed all over Europe for the Lord only knows how long, and then put into the American system by WB4WBR on 23 December of last year (1992). It was hung up in one BBS for about eight months and then it spent another month getting to me. I counted 97 relays, including the list of calls from all over Europe. That ought to be some kind of record for "pony express" on packet. The digital "ponys" must have become terribly tired and quit running for long periods of time.

"Good old days" stuff

I bought my first computer in 1976. It was an SOL, manufactured by a company called Processor Technology in California. At first they were available only as a kit, later the company offered wired and running models. The SOL featured up to 64K of RAM, and the boot up was from a cassette tape recorder which took about five minutes to get the computer going. Originally my SOL had only 32K of RAM, so when I wanted to expand the RAM to 48K, it cost 450 bucks for the additional 16K. I don't remember what the processing speed was, but I'm sure it wasn't more than five megahertz—but it worked great. I was really pleased with it at the time.

To use it, I had to take a crash course in writing BASIC so I could write my

own programs and store them on the cassette tape recorder. My first really useful program was for computing the camera moves on the animation stand that I used in my industrial motion picture production business. Prior to that I had been using Hewlett-Packard hand calculators. The first HP was a 400 buck HP-45 model. I used it to calculate the X, Y and Z moves of the camera on the stand. It was slow work, but it was faster than the old way we did it.

On the very day my son, Tom, a new freshman at Cal Tech in Pasadena, called and said he needed a good scientific calculator for school, I received a flyer from HP announcing the new model HP-65. That up-to-the-minute calculator could store a huge program of 100 steps on a magnetic strip and it only cost $800. That very day I ordered the new model from Hewlett Packard and air expressed the HP-45 to my son. This was in the fall 1974, only about 20 years ago.

The new calculator with the magnetic memory strip worked like a champ. I wrote and stored the animation program on the little magnetic strip. After that the calculator did its stuff. All we had to do was enter the East/West and North/South coordinates for the center of the beginning and ending picture frames and push the "run/stop" button for each frame. The output would appear in the LED window and we listed the numbers with a pencil for each camera position. It speeded up the calculations greatly. The camera zoom calculation had to be done separately. Off center zooms and pan shots were then a snap to figure.

Animation camera moves are graduated in 1/100s of an inch, and to smooth out the move on the screen the picture must gradually pick up speed at the beginning and then slow down gradually at the end of the move. A computer is just the ticket for the calculations.

When I saw Popular Electronics offer plans for a computer, I sent for them. I read all I could find about computers including subscribing to BYTE magazine before they produced the first issue (it was published by Wayne Green then). My colleagues at work kept saying "Wouldn't it be great if we could have a computer print out all the camera moves?" I had to have one.

With that in mind, I jumped at buying the SOL when a friend told me where to get one. Two thousand bucks paid for the basic computer and a cassette recorder. I hadn't gone far in computing when I found I needed a printer: $1400 more. When I visited the computer department at Moorhead State University and saw the instructor hooking up two North Star disks to a SOL, another 1400 bucks went out for a set of disk drives that would hold 77K on a disk. Now I was in business!

With the SOL, it only took about five minutes to print out perfect X, Y, and Z numbers for the most complex camera move scene. It was a great success.

Then I tackled writing a program for the payroll and business bookkeeping. I also did all my script writing on that old SOL for a long time, too. I still have the relic, and one day I'll donate it to the North Dakota State Historical Museum for it was one of the first microcomputers in the state.

About the same time I shifted from a Teletype machine in my ham shack to the Robot 800. I still use it on the HF bands, although I have an XT computer running my packet bulletin board, and now and then my satellite rig, too. If I remember correctly I purchased the ROBOT around 1979 for about 800 bucks. I've seen the ROBOT at flea markets for little or nothing, but, alas, it's out of date now!

EAVESDROPPINGS

"I'M AS HAPPY AS A REPUBLICAN COMMITTEEMAN LISTENING TO BLOWHARD RADIO MAN RUSH LIMBAUGH CUNNINGLY CLOBBERING THE CLINTON CLAN... BY THE TIME THE RUSSIANS GET DONE CUTTING UP THEIR COUNTRY, WE'LL HAVE 400 DX COUNTRIES TO WORK — WHO SAYS THERE AIN'T NO NEW DX COUNTRIES TO CONTACT... MY OLD 286/16 COMPUTER IS LIKE A MODEL T BESIDE A '94 CAR, BUT IT TAKES LESS GAS. . . I HOPE TO BUY MY WIFE A NEW BEAM ANTENNA (WITH ALL THE BALUN TRIMMINGS) FOR CHRISTMAS THIS YEAR. . . HARD TO BELIEVE THAT 52 YEARS AGO ON DECEMBER 8TH (THE DAY AFTER PEARL HARBOR) I FLUNKED A COLLEGE FINAL EXAM ON THE SUBJECT OF CONTEMPORARY HISTORY. . . YOUR PACKET MESSAGE OF THE 25TH ARRIVED TODAY WITH NO MESSAGE BODY — ONLY THE HEADERS, AND THERE WERE PLENTY OF STATIONS LISTED. . . (MSG RELAYED COURTESY OF TWINSLAN METRO-NET). . . MY XYL SENDS 88 FROM THE BOTTOM OF HER HEART AND I SEND 73 FROM MY BOTTOM TOO."

My address for packet messages is WØLHS @ WØLHS. # SEND. ND. USA. NA. My postal mail address is in any call book for the last 35 years. Gee, that's a long time in one shack, ain't it? 73 de Bill Snyder. DIT DIT. WR

John G. Troster, W6ISQ

Messages and thanks at large

Chip, K7JA, QCWA QNB (New Breed): Good to hear you are still distributing QCWA memberships at conventions, etc. Glad they are in such demand. Will ask general Manager W7LVN to send you more forms. Thanks for the good work.

JW3MPY: Finished chapter 4 of "Chesapeake". Only 4000 or so pages to go!

W1PEX: Thanks for your message via NTS from one of my favorite states, New Hampshire. Hope you received my reply. Anyone else out there want to swap greetings via NTS? Send it to me and you'll get a reply. QSL here next month.

Joe Fairclough, WB2JKJ, QCWA, Life Member #24611

No doubt most of the readers here have heard of Joe, WB2JKJ, and his 22 Crew. Some of you have talked to them on the air from their classroom station in lower Manhattan, N.Y. The background story about Joe Fairclough (clough rhymes with snow), and The 22 Crew is a heartening success story of uncommon interest. Joe used his own inspirational Junior High School experience to help the new generation of students he now teaches.

After eleven years of teaching non-responsive kids, Joe realized something had to be done. Conventional classroom methods were just not working. These were street kids, most of whom disliked and misunderstood authority, were unmotivated, bored with books, and, as Joe says, "could care less about 'See Spot Run'. In fact most would just as soon shoot Spot as see him run. . ."

Motivation needed

Joe reached back into his own experience as an unmotivated 12 year-old 7th grader. It was at that point he was introduced to amateur radio by an electric shop teacher. Radio got Joe interested in *something*, something that absorbed his attention. His students at Junior High #22, needed a *something* to propel them into being interested too, to give them motivation, and hold their attention. Amateur radio had been his catalyst, why couldn't it work for his students? Joe developed just such a "something," an original, and immediately successful teaching program that turned on the light for students heretofore almost given up for hopeless. His inspiration led him to re-write the standard curriculum for the 7th and 8th grade, using Amateur Radio as the theme. Teach students the Morse code, then via the code, teach them spelling, vocabulary, etc. When Joe introduced this new idea to the Superintendent the reaction was ". . .Morris Code? Sure I know him, he lives on Third Avenue." But Joe had hit them where it counts, the wallet: the selling point was that it would not cost the school a nickel. Joe in his enthusiasm, promised the kids would fight to get in, rather than out of the classroom.

Joe's brainchild

The EDUCOM-Education Thru Communication began in 1979, an English class, with "30 of the most difficult kids the District had to offer. Kids so bad they were kept in one room all day instead of traveling with the rest of the population."

The program was a big success and today, 13 years later, Joe teaches six classes of 30 students each daily. This curriculum, conceived and developed by Joe, using ham radio as an educational theme, is now printed by the New York City Board of Education. Says Joe, "I have become president of the Radio Club of JHS 22 NYC, Inc., a non-profit organization that works to use ham radio as a theme for teaching in schools all over the country, not necessarily to make hams but to make better kids who can read, write, and learn about self-respect and respecting the rights of others by communicating and listening. Learning there is more to life than drug dealing, danger filled streets. . . that there is life west of the Hudson. . ."

Brooklyn Dodger fan

Joe was born just a long jump over the East River in Brooklyn. However, he grew up farther out in Queens and, according to him, "aside from girls, baseball and the Brooklyn Dodgers," high school was Ho humm. He did enjoy the social studies but was not much for math and science. He played on the PAL baseball team mostly because his father was the coach. But a sense of duty emerged early in his life and he began to communicate with underprivileged kids who could not see well enough to read.

It was in seventh grade when Joe's electrical shop teacher helped him and three other kids, get their ham tickets. Young Joe emerged as Technician Joe, WB2JKJ, with an enthusiasm for Amateur Radio that would be life long. After high school, he went to Long Island University where he activated the ham club and became captivated with the university as a way of life. He completed a marketing major and a teaching minor and decided that teaching was what he wanted to do.

In between, a traumatic experience. The Dodgers left Brooklyn for Los Angeles! Joe wondered what was left to believe in? Well, how about a switch of allegiance to the Yankees? Why not? He's been in that mode ever since.

Teaching career

After graduation in 1968, Joe taught business courses in high school. Along the way he picked up a MS in marketing. When this curriculum was phased out in an economic crunch, he moved to Junior High School #22 in the lower east side of Manhattan. (If you're from Nu Yawk, that's pronounced "Minhaaattin".) They asked, "What language do you speak?" He said, "English." So, Joe was assigned to teach English. He bought some books and began to prepare for this field.

After a few years, it became crushingly clear that "Dick and Jane" were not going to make it in JHS #22, and that's when he got the unique inspiration that culminated, after a year's preparation, in a march to the Superintendent's office bold, new plan in hand.

First "new" class

Those first 30 students were tough and hard to get through to. The break came when Joe gave a hand-held, two meter rig to one of the ring-leaders, a fella called "Little Eddie." Joe called him over and said, "Eddie, someone in this box wants to know you." "Eddie replied, "%*&#@%!". But when Eddie took the rig, he was overwhelmed, shocked with the recognition that some adult did indeed take the time to speak, and to speak cordially, to him over the

The Fairclough family on holiday: Joe WB2JKJ, wife Juanita and daughters Jessica, KB2DLX, Johanna and Justine.

air. Eddie and the class were hooked. — Happy P.S. Recently, Joe had a visit from Little Eddie. Wearing a new three piece suit and carrying a beeper, Little Eddie thanked Joe for straightening him out. He's now a licensed electrician, doing well.

Most of the radio equipment at the school is Joe's or has been donated. Code practice is held daily and by Thanksgiving time the kids are all up to at least 5 wpm, fast enough to begin spelling and grammar via Morse code. Nobody told them that code is tough, so they just go ahead and learn it. Feminists take note, the girls are better at learning code than the boys!

Honors

Joe and his 22 Crew have been honored with the Marconi Award of the Veteran Wireless Operators Association, and by the Radio Club of America which has awarded the Radio Club of JHS #22 a Grant-in-Aid for the past four years. The Crew has also received attention from Senator Goldwater, and from Mayor Koch of New York. Joe, in recognition of the work he is doing, was invited to the Reagan inauguration. In 1984 he was named Teacher of the Year by ARRL.

Family Support

Joe's wife, Juanita, and daughters Jessica, 16, KB2DLX, Johanna, 12, and Justine, 6, are enthusiastic supporters of Joe's productive program. It all doesn't leave much time for anything other than school, but he does enjoy rebuilding cars and drag racing. Can it be that drag racing is calming after a week with 180 7th and 8th graders!

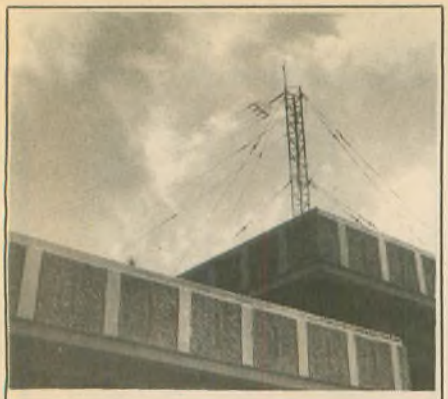
Schedules

WB2JKJ and The 22 Crew maintain schedules with other schools and with individual amateurs around the country. In the morning from 7-8:30 the class talks locally to classes in other schools about current events, the Big Apple, weather, etc. The rest of the day they may be found, when not learning code or English via code, on 21.395 MHz as control of the Classroom Net which involves classes around the country. The 22 Crew can be contacted on the air between their regular schedules. It would be great if each of you readers checked in with the "Core of the Big Apple" Radio Station, WB2JKJ on 21.395. Congratulate them and QCWA Joe.

QCWA Convention

By the time you read this; the QCWA Convention will have happened in Tampa-St. Petersburg. I hope many of you were able to make the trek. Until next time, 73 and 25. Jack, W6ISQ WR

Jim Walsh, W7LVN and Don Johnson, W6AAQ, author of *40 plus 5 Years of HF Mobileering*, at a recent meeting of the Sacramento Chapter of QCWA.
— photo courtesy of Paul Wolf, W6RLP



AERIALS

I see that Malcolm Keown, W5XX, calls the MFJ SWR Analyzer "This miraculous device." How right he is. He went on to say, "Modern technology is wonderful in protecting the mind and the body." Which this unit from MFJ certainly does.

I see that books and articles are still using the formulas dividing 300 by either FM Hz or wavelength to get the other. Please, for the sake of accuracy use 299.792458.

Looking at a catalog. Tsk, Tsk. Offered for sale is a horizontal wire 33 ft. long and a vertical wire for 16 ft. and some sort of balun device for $60. This antenna, we are told is "spectacular" and is truly a "secret weapon." For only $60, on 20M you will be "king of the hill." Ahhhh, if life were only that simple. This bit of wire doesn't just give you a low angle of radiation, it gives you a "Very low angle pattern."

Over a dipole, at the same height, this configuration will give you a 6 - 12 dB improvement, we are told, and "you can be a BIG GUN." Soon as a few more hams buy a copy of my book "Aerials II" I will send off my $60 so I can be a BIG GUN.

Next subject. What if, instead of measuring SWR, the meters on our operating desks showed us "dB lost"?

Would we get as agitated if the meter read .6 dB (that's point six dB or 3/5 of a dB) as we do today when the SWR bridge reads 2:1?

Would there just be a big yawn about it or would we stay in the half a century old pattern and say, "Well Bob, I just don't get out as well in this part of the band. I'm reading a smidgen over a half-dB loss."

Your good friend Bob probably won't mention that you would have to lose almost 30% of your power to drop down one-half of one-half of an S-Unit. So let's say that you've got some real narrowband kluge up on the roof. The 150 watt output rig sees a 25% loss because of that 2.62 : 1 SWR. Oh, pain.

But wait, we whisk that SWR meter from your desk and put in its place the "dB meter." Instead you see a 1 dB loss. I say you "see" it because neither you nor Bob would hear it.

How can you tell if that coax you bought at the flea market is any good? And, you had best test it out before using it because there is some real rank stuff out there.

Coming out of the transmitter, hang a wattmeter. From the wattmeter run the length of coax you just acquired. That goes into another wattmeter. From the second wattmeter run a short piece to a dummy load.

Go key down on the rig and read the watts in the first meter and the watts in the second meter. Subtract one from the other, compare the power lost to the dB table and see if that is acceptable.

Possibly you should swap the two meters back and forth to see if there is any difference in the readings. As far as wattmeters go, the old saying "you get what you pay for and you pay for what you get" really applies.

One could, of course use but one meter, pulling it out of the line at the transmitter end and then taking a reading at the dummy load end.

Assuming that we start at the transmitter end with 150 watts, we will now show the power remaining and the associated dB loss:

148	.1	132	.6
144	.2	129	.7
141	.3	126	.8
138	.4	123	.9
135	.5	120	1.0

Note that 30 watts is 20% of the power you started with. However the loss is only 1 dB. In about 100 feet of really top coax, that would be the loss expected.

In reading a book published by a really big outfit I see that a gremlin must have done a baddy. The book says, "If you are trying to measure VSWR and do not have the VSWR bridge at the antenna itself, then a length of feedline that is equal to a an exact multiple of a half-wavelength will repeat the antenna impedance at the other end of the line."

Well, that's close. But, close is only good enough in horseshoes and hand grenades.

What pertinent fact left out of the book's explanation was this: The Velocity Factor of the coax must be figured in. The actual length of the "exact multiple of a half-wavelength" may be, in truth, .80 or .66 or whatever of a measured, with a yardstick, half-wavelength. The best way to determine the real (VF factored) line is with a noise bridge. The one you get from Palomar comes with full instructions.

It's nice to strive for the very best signal possible. However, if you are HF only and you are looking at RG-8 Foam and the loss in a hundred feet (28MHz) is .9 of a dB, and you see another (MUCH more expensive) cable that has a loss of .7 dB, save your money. Two-tenths, or one-fifth of a dB difference is absolutely unhearable.

To answer lots of letters quickly, all in one fell swoop, the radials for a vertical really do not have to be all in a straight line and perfecto like the books relate. Don't worry about it. Do what you can.

If you are roof mounted, just run the radial out as far as you can and then fold it back along the roof line. Wrap tape at the end of the radial. High voltage present.

Run a bunch of short radials. There are charts in the books showing how long to make radials depending on how many you can have and versa vica. But if you just get out a whole bunch of long ones or short ones or a combination of both, you'll do just fine.

Eavesdropping on a conversation: One ham, in describing his mobile setup said he had talked all over the world (barefoot) and, here I quote "I have a small antenna tuner in the line, and use that to increase the usable bandwidth on the antenna, even though the experts all say not to do it that way."

Well, I don't know what "experts" he's been listening to, but he is right and those "experts" are wrongo.

For all those who are still on the "It doesn't tune the antenna, all it does is fool the transmitter" kick, here's an idea.

Have an antenna that is "off some" and ask the station at the other end to watch the S meter as you go key down. Then quickly cut in the tuner (adjusted correctly) and go key down again and ask the station at the other end what the difference was.

ABSOLUTELY SPECTACULAR!!!! The Butternut Electronics Co, is running an advertisement that goes like this:

"A No-Radial Vertical that covers 80 or 75 Meters? There's One Now!"

"No we won't insult your intelligence by telling you that it's a 'halfwave' or that ANY vertical will operate more efficiently without a good radial system than with one; it certainly won't! If you want expensive fairy tales talk to our competitors!"

Bravo! I say Bravo! (Sounds like they have been reading my book.)

Butternut then goes on and says that their antenna will work better than the "lossy no-radial 'halfwaves' because their antenna has longer active elements for higher radiation resistance and thus greater efficiency than "the so-called halfwaves."

Butternut offers their brochure and what they call "Dirty Little Secrets From The Antenna Designer's Notebook." They

say that the technical note "shows you how to calculate the probable efficiency of any vertical antenna using the manufacturer's own specs so you won't have to learn the truth the hard way!"

Butternut is at PO Box 1234, Olmito, TX 78575, Phone is (210) 350-5711. Tell them that Kurt sent you.

I see an ad from Joe Brancato at The Ham Contact, PO Box 3624, Long Beach, CA 90803 (SASE for info). He is selling the SG230 HF autotuner. He says this works better than tuners in rigs because you put this right at the antenna terminals. Claimed is you can match from .5 Ohm to 10,000 Ohms. and he says:

"It can easily match random wires, dipoles, rain-gutters, shopping carts, etc. The result is MORE POWER."

Shopping carts! Shopping carts! Is he talking about ME?????

(Honest, folks. I don't know either of these guys, Brancato or Butternut.)

People are saying that no antenna can be less than 2.1 dB weaker than a dipole.Or are they saying less than an isotrophic? I can't remember, but it doesn't matter.

All I ask is, have you ever measured the signal from a rubber ducky compared to a real antenna at those frequencies. Hooo, a decrescendo of dBs down. Compared to a coat hanger (cut to a 1/4 wave) those little rubber ducks are heading for the bottom of the tub. And, just how many dB down is one of those mobile whips on 75 Meters? What are they running maybe 8% efficiency? What is that, about 11 dB down?

(Many are curious about the true identity of KNS and LP. So as not to prolong the anguish any longer we will reveal that somewhere in the USA they can be found as C.L. & D.E. Stine.)

Telephone Pioneer QSO Party

The George S. Ladd and John I. Sabin Chapters invite all Telephone Pioneer Radio Amateurs to participate in contacting as many members in as many chapters as possible, including members of the United States Telephone Pioneer Association. Future Pioneers may participate. The contest will take place from 1900 UTC, Saturday, 4 December until 0500 UTC, Monday, 6 December 1993.

Rules: Fifteen bands are defined for use in the QSO party. They are:

1.8:	1.800-2.000
3.5:	3.500-3.750
3.9:	3.750-4.000
7.0:	7.000-7.150
7.2:	7.150-7.300
14.0:	14.000-14.150
14.2:	14.150-14.350
21.0:	21.000-21.200
21.2:	21.200-21.450
28.0:	28.000-28.300
28.3:	28.300-29.700
50.0:	50.0-54.0
144.0:	144.0-148.0
220.0:	222.0-225.0
UHF:	420.0 and above

Any station representing a chapter other than the contestants 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;14.260 14.305;21.360-21.405; 28.305-28.350; 50.0-50.5; 144.1-148.0; 222.-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 minimum multiplier is 120 (all TPA chapters plus a minimum 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 belong 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 1994, to George S. Besley c/o John I. Sabin, Rm 3200, 2700 Watt Ave, P. O. Box 15038, Sacramento, CA 95851. **WR**

California

The LIVERMORE AMATEUR RADIO KLUB will sponsor the East Bay area Amateur Radio/Electronic/computer Swap Meet on 2 January 1994 and the first Sunday of every month, 7 a.m. to noon (rain or shine) at the Las Positas College, No. of I-580 at the Airway Blvd. exit. Features include free and admission and parking. Refreshments are available. Sellers pay $10 space fee. Covered spaces are available at no extra costs in the event of rain. Talk-in on 147.045(+) from the west and 145.350(-) (100Hz) from the east. Contact Noel Anklam, KC6QZK, at 510/447-3857 evenings or leave a message during the day at 510/783-2803.

Florida

The FORT MYERS ARC, Inc. will sponsor a hamfest on 8-9 January 1994, starting at 9:00 a.m. at the ARABA Shrine Temple Hall, 2010 Hanson St. (one block east of Rt. US 41). Features include free parking, RV parking (but no hookups), snack bar, pancake breakfast until 10:00 a.m., VE exams (no preregistration required) are on Saturday at 1:30 p.m and Sunday at 10:30 a.m. and forums including ARRL, Traffic handling, RACES/ARES, Antenna Demo and Packet. All booths are inside. 24 hour security inside all weekend. Admission is $5 in advance and $6 at the door (send SASE for ticket return to FMARC, P.O. Box 061183, Ft. Myers, FL 33906). Tables are $12 for two days and tailgating is $5 per day (plus admission for both). Vendor set-up time is Friday, 7 January, 6 p.m. to 9 p.m. and Saturday, 8 Janurary, 6 a.m. to 9 a.m. Talk-in on 147.345(+). Contact Jerry, KQ4UW, 813/472-5130 or Dale, KD4UAO, 813/275-8360.

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.

DOES THIS SIGN SAY "RADIO AMATEUR LICENSE EXAMS HERE TODAY?"

Famous phrases

- Don't unplug it, it will just take a moment to fix.
- Let's take the shortcut. He can't see us from there.
- What happens if you touch these two wires tog . . .
- We don't need reservations.
- It's always sunny there this time of year.
- Don't worry. It's not loaded.
- They'd never be stupid enough to make him a manager.

—Amador County ARC, Pine Grove, CA

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

AEA's new HamLink and RadioLink

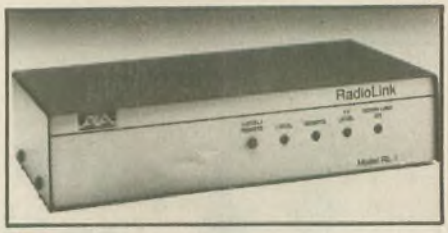
These two new products allow remote control of any HF station utilizing touch-tone technology.

HamLink controls your ham station using a touch-tone telephone. Change bands and frequency, tune up or down, switch modes (AM/SSB/FM/CW), scan, run split VFO, or virtually any other radio feature from anywhere you can find a touch-tone phone.

Although HamLink hooks into your existing telephone line, there is no need for a second phone line. HamLink functions perfectly even if you have an answering machine connected to the same phone line.

RadioLink lets you use the touch-tone keypad on your handheld or mobile radio to change bands, frequency or mode. RadioLink can go between your HF/VHF/UHF transceiver and a repeater or a 220 MHz or UHF full duplex link.

A demonstration unit has been set up for people who would like to call and try



it out. Call 800/432-8873 and request a brochure with the telephone number and a listing of the commands.

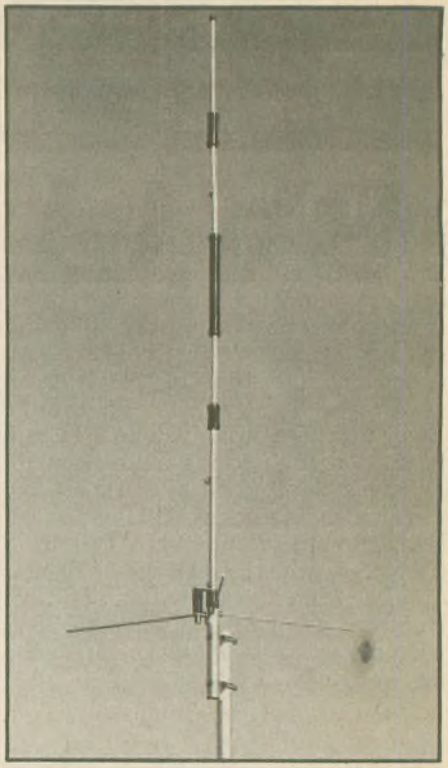
Suggested retail price for HamLink is $269.00 and for RadioLink is $329.00. Both are available from your favorite Amateur Radio dealer.

For more information, please contact Advanced Electronic Applications, Inc., P.O. Box C2160, Lynnwood, WA 98036; 206/774-5554.

Cushcraft AR270B

Our newest dual band vertical is the ideal antenna for those seeking a perfect balance between cost and performance. This All American aluminum dual bander offers a potent 5.5dB on 2 meters and 7.5dB on 70 centimeters.

Using computer enhanced technology this compact 7.7 foot tall model is perfect for low profile installations where performance and gain are important. The three sections go together in minutes for excellent coverage at an economical cost.



New catalog from Mouser

Mouser Electronics, one of the top 50 electronics distributors nationwide, announces the publication of their latest industrial electronic components catalog. The comprehensive 240 page catalog is easy to use with a Quick Index on the front cover and a comprehensive index of both manufacturers and product categories. Mouser is sensitive to time constraints and provides

same day shipping on all orders. This is all designed to demonstrate Mouser's continuing commitment to doing business the customer's way.

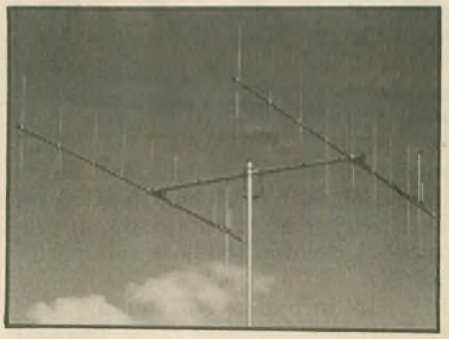
The new catalog contains over 42,000 in-stock, factory-authorized product selections from more than 90 quality conscious manufacturers and features new product listings from Cornell Dubilier, 3M, Tripp Lite, LMB, AMP, Carol Cable, Amphenol, Rohm, Spectrol, SGS Thomson, Augat, Keystone, Switchcraft, and DGS Pro Audio. Select from semiconductors, passive components, electromechanical devices, resistors, capacitors, switches, transformers, inductors, wire and cable, connectors, publications, equipment, and supplies . . .all available at guaranteed published prices and in-stock for immediate shipment or scheduled order delivery.

Complimentary copies are available by calling toll-free 800/992-9943.

For more information contact Mouser Electronics, 2401 Hwy. 287, North Mansfield, TX 76063; 817/483 4422 or 800/992-9943.

Cushcraft A148-20S

A newly designed FM economy stack offering 16.2dB gain, the A148-20S is perfect for those needing the extra push for repeater or simplex operation.



The package includes two A148-20S, harness, stacking frame and all is in stainless steel hardware.

This lightweight array, (15 lbs.), is ideal for mounting above your existing tribander and will make the 2M FM band radioactive.

S & S Engineering

• Now available for 20 meters! The newest in the ARK series of synthesized QRP transceivers, the ARK20 transceiver is a rugged unit intended for use during field day, expeditions, camping trips, business trips or in the home shack. Lightweight & portable, the unit measures 2 3/4" X 5 1/2" X 8", weighs less than 4 pounds and comes with a tilt-up handle/bail. The transceiver covers the CW portion of the 20 meter band and tunes in 100 Hz steps. RIT and a 200 Hz wide audio filter are selectable from the front panel.

The kit is complete with all parts, silk screened front and rear panels, and an extruded, anodized aluminum case. The transceiver operates from 11 to 13.8 VDC and provides 3-4 watts of RF power. The output power is adjustable to milliwatt levels. Breadboard area on transceiver PCB makes adding your own favorite optional circuits easy.

• S & S Engineering's Adjustable Speed Keyer Kit ($39.95), designed for the ARK Series transceivers, allows

addition of speed keyer circuit without compromising the unique breadboard feature. The ARK20 kit price is $269.95.

• S & S Engineering also has available an HF Frequency Counter Kit. Designed to our exacting specifications, it provides a low cost alternative for HF experimenters and homebrewers.

The counter uses a liquid crystal display and counts to 75 MHz . The display portion can be remoted to add a digital readout to a VFO. It features 1 Hertz resolution with 4 1/2 or 8 digits. Unit sensitivity is 50 mv and is input protected. The power source is a simple 9V battery.

The kit includes a MIL quality PCB and all components (no case). The unit is mounted on metal standoffs (included).

FC4 kit (4 1/2 digit LCD display) $49.95; FCAT4 (assembled and tested, 4 1/2 digit) $69.95; AD4 kit (Add-on to 8 digits total) $16.95.

To order contact: S & S Engineering, 14102 Brown Road, Smithsburg, MD 21783; (301) 416-0661.

ALC225P automatic volume controller

The ALC235P studio quality automatic audio level controller provides constant or nearly constant output (user adjustable) whether the input signal is a whisper or a scream. The low level signals are amplified and the large amplitudes are attenuated without introducing noise or distortion.

The ALC235P's output level is held constant by a light dependent resistor (LDR). As the input signal amplitude changes, the LDR changes its resistance to oppose and cancel level variations.

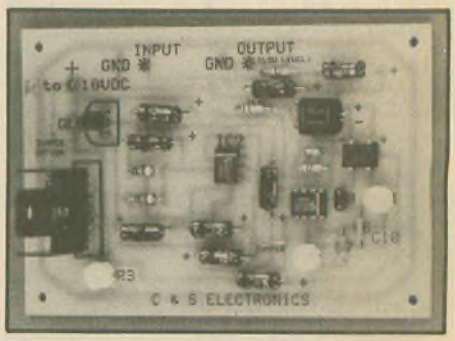
User adjustable controls are provided to enable the user to precisely tweak the unit to meet individual requirements.

A three watt onboard amplifier is also provided besides the low level output of 100 mv.

Suggested applications of the module includes transceivers, scanners, PA amplifiers, TVs and recording studios. Other possible uses where uniform output level listening comfort and safety is important.

Dimensions are: 3.0" x 4.5" x 3/4"

Supply requirement is +10 to 18VDC @ 10 ma without using the power amplifier. Single quantity price is $49.95.



For further information, contact C & S Electronics, P.O. Box 2142, Norwalk, CT 06852-2142. Phone and fax 203/866-3208.

EEB Catalog

Pictured below is a photo of the cover of EEB's 1994 catalog. It features the latest in Amateur equipment, as well as products for shortwave, scanners and commercial needs. Write to: Electronic Equipment Bank, Inc., 323 Mill Street, N.E., Vienna, VA 22180. $4.95.

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.

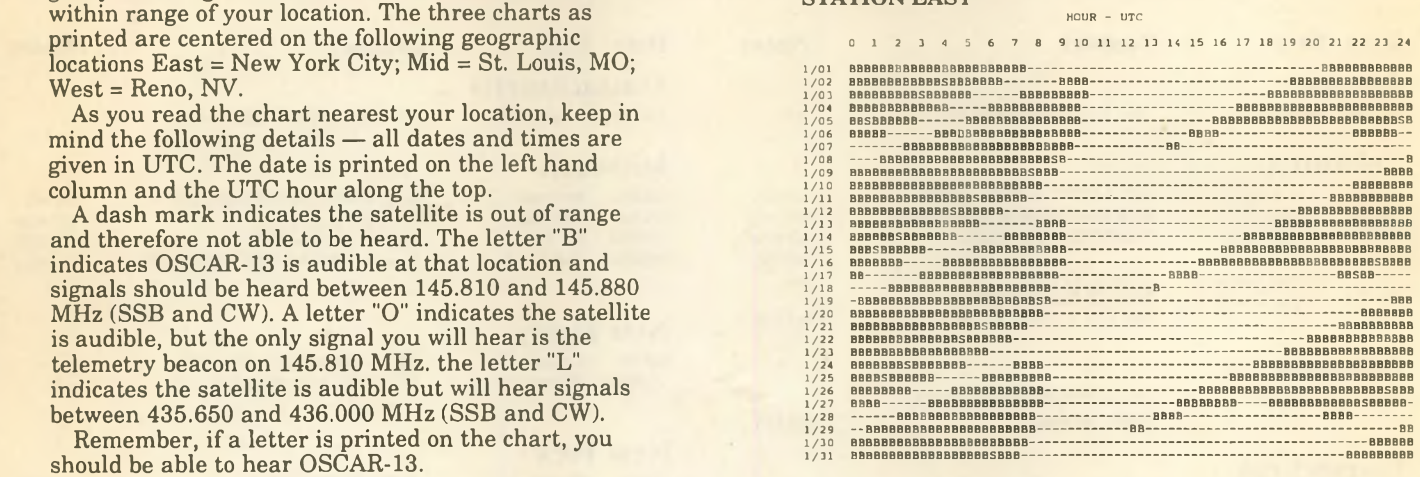
As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

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 will hear signals between 435.650 and 436.000 MHz (SSB and CW).

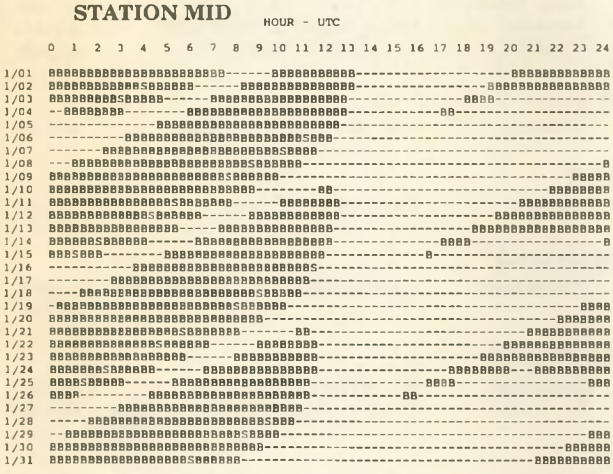
Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send an 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. **WR**

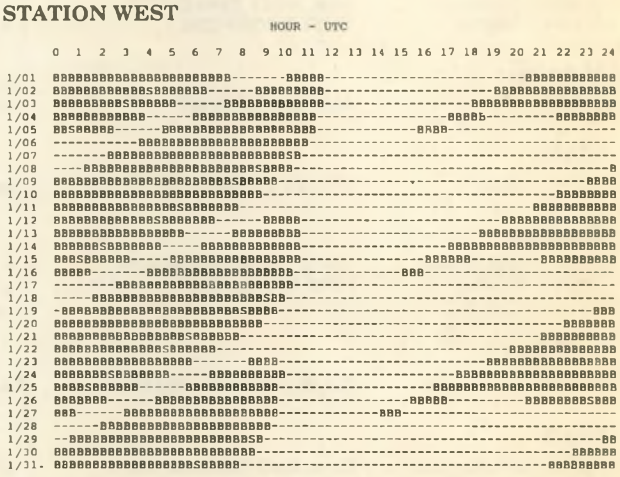
STATION EAST



STATION MID



STATION WEST



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.

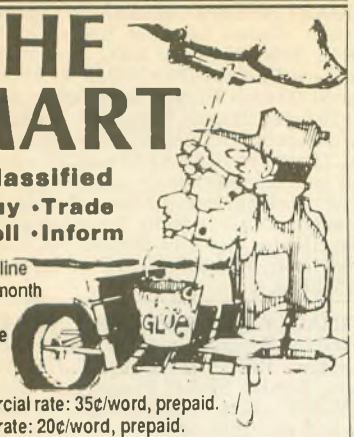
p/r=pre-register w/i=walk-in

Date	City	Contact	Notes
Arizona			
1/15/94	Tucson	Joe, K7OPX 602/886-7217	w/i
California			
1/1/94	Los Angeles	Ali, AA6WC 213/778-6226	w/i OK
1/8/94	Adelanto	619/244-1396 or 619/247-5433	w/i only
1/8/94	San Pedro	N6DYZ 310/325-2965	p/r pref.; w/i ltd.
1/8/94	Santa Barbara	Darryl, KF6DI	w/i
1/27/94	Long Beach	W6LRF 714/847-6370; N6LUH 310/592-1713	w/i OK
Colorado			
1/8/94	Denver	Glenn,WØIJR 303/360-7293, 24-hr. message	w/i OK
Connecticut			
1/15/94	Hampton	Dick, WE1Y 203/423-6420	p/r pref.
1/26/94	Shelton	WJ1T 203/283-1044	w/i pref.
Hawaii			
1/15/94	Hilo	AH6P 808/935-8893	w/i
Idaho			
1/8/94	Boise	W7JMH 208/343-9153	w/i
Illinois			
1/8/94	Oak Forest	David, NF9N 708/448-9432	w/i
1/15/94	Godfrey	KF9F 618/466-2306	p/r no-code
Indiana			
1/14/94	Logansport	Bill, WA8HSU 219/722-1338	w/i OK
Iowa			
1/22/94	Mt. Pleasant	Dave, KAØFBL 319/986-6677	p/r
Maryland			
1/15/94	Laurel	WB3GXW 301/572-5124 after 6 p.m.	p/r pref.

Date	City	Contact	Notes
Massachusetts			
1/8/94	Braintree	Phil, K1UPY 617/326-6446	
Missouri			
1/2/94	Antonia	Jim, WAØFQK 314/942-2268	no w/i
1/8/94	Sullivan	NØGLN 314/764-2777	p/r only
1/22/94	St. Louis	NØIS 314/892-4434	w/i OK
1/29/94	Big Bend	Gregg, KAØVWC, 314/567-8777	p/r only
New Jersey			
1/8/94	Cranford	24-hr. hotline: 201/377-4790	
1/20/94	Bellmawr	WA2VQG 609/933-1500	w/i
New York			
1/2/94	Yonkers	AC2V 914/237-5589	w/i OK
1/8/94	North Tonawanda	Vern, AA2AC 716/634-5276	p/r only
1/19/94	Lancaster	Chuck, WD2AIK 716/937-3592	p/r only
1/29/94	Lockport	Judy, N2KJB, 716/751-9223;	p/r only
Ohio			
1/4/94	Bellevue	John, N8RFK 419/684-7822	w/i OK
Oregon			
1/12/94	Roseburg	KB7CMB 503/672-5997	w/i OK
Pennsylvania			
1/6/94	Philadelphia	ND3Q 215/482-0386 or 215/879-0505	p/r pref; w/i OK
Rhode Island			
1/8/94	Slatersville	Bob, W1YRC 401/333-2129	w/i OK
1/13/94	Providence	NN1U 401/231-9156 or 401/454-6848	w/i OK
Texas			
1/8/94	Houston	Jim, KB5AWM 713/488-4426	w/i only
Wisconsin			
1/22/94	Appleton	KD9IA 414/788-3823	w/i

THE MART

Classified
•Buy •Trade
•Sell •Inform



MART deadline 20th of the month two months prior to issue date.

Commercial rate: 35¢/word, prepaid.
Private rate: 20¢/word, prepaid.

THE MART *Worldradio*
2120 28th St., Sacramento, CA 95818

WORLDRADIO ON CASSETTES for the blind. For information, contact TOM CARTEN, K1PZU, 1602-Y King's College, Wilkes-Barre, PA, 18711. F194

FREQUENCY DIRECTORIES: Large selection, SWL and scanner books, frequency guides: SWBC, mediumwave, utes, spy, press, weather, FAX, RTTY, military, federal agencies, Marine, aero, police, fire etc. Big free catalog! CRB RESEARCH, P.O. Box 56-WR, Commack, NY 11725. 992-194

QSL SALE! 200 cards $11.00, 300/$14.00, 500/$20.00, 1000/$33.00, 2000/$58.00. Many designs! Free shipping! Phone or write today for samples or ordering. SHELL PRINTING, KD9KW, P.O. Box 50, Rockton, IL 61072; 815/629-2193. Anytime. 5-1293

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 at 2000Z. Speeds range from 20 to 60 wpm. F194

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92033. 1293-1294

AMATEUR RADIO REPAIR: FCC licensed, 17 years experience, lab quality NBS traceable test equipment, reasonable rates. G.B. COMMUNICATIONS, INC., 963 Birch Bay Lynden Rd., Lynden, WA 98264. 206/354-5884. 5-1293

DISCOUNT PRICES AT RT ELECTRONICS. 10/11 meter radios, antennas, scanners, power supplies and more. Free flyer. P.O. Box 2123, Warren, OH 44484; 216/369-1789. 6-594

POST CARD QSL KIT—Converts post cards, photos to QSLs! Stamp brings circular. K-K LABELS, P.O. Box 412, Troy, NY 12181-0412. 1193-294

LEARN THE CODE — A course for family members and friends who don't know the difference between a dot and a dash. Mon.-Fri., 0630-0700 California local time, 3765 kHz ± A2/A3/LSB, Mar.-May, Sept.-Nov., K6RAU. Starts first Monday of each month. F394

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Bearcat 100XLT-G handheld	$149.95
Bearcat BCT2-G info mobile	$139.95

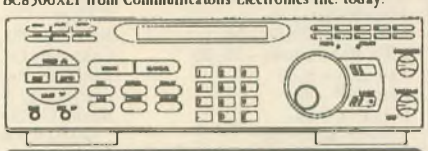
New FCC Rules Mean Last Buying Opportunity for Radio Scanners

On April 19, 1993, the FCC amended Parts 2 and 15 of its rules to prohibit the manufacture and importation of scanning radios capable of intercepting the 800 MHz. cellular telephone service. Supplies of full coverage 800 MHz. scanners are in *very* short supply. If you need technical assistance or recommendations to locate a special scanner or solve a communications problem, call the **Communications Electronics Inc. technical support hotline for $2.00 per minute at 1-900-555-SCAN.**

Bearcat® 8500XLT-G

List price $689.95/CE price $369.95/SPECIAL
500 Channels • 20 banks • Alphanumeric display
Turbo Scan • VFO Control • Priority channels
Auto Store • Auto Recording • Reception counter
Frequency step resolution 5, 12.5, 25 & 50 KHz.
Size: 10-1/2" Wide x 7-1/2" Deep x 3-3/8" High
Frequency Coverage:
25.000 - 28.995 MHz. (AM), 29.000 - 54.000 MHz. (NFM), 54.000 - 71.995 MHz. (WFM), 72.000 - 75.995 MHz. (NFM), 76.000 - 107.995 MHz. (WFM), 108.000 - 136.995 MHz. (AM) 137.000 - 173.995 MHz. (NFM), 174.000 - 215.995 MHz. (WFM), 216.000 - 224.995 MHz. (NFM), 225.000 - 399.995 MHz. (AM) 400.000 - 511.995 MHz. (NFM), 512.000 - 549.995 MHz. (WFM) 760.000 - 823.9875 MHz (NFM), 849.0125 - 868.9875 MHz (NFM) 894.0125 - 1,300.000 MHz. (NFM).

The new Bearcat 8500XLT gives you pure scanning satisfaction with amazing features like Turbo Scan. This lightning-fast technology featuring a triple conversion RF system, enables Uniden's best scanner to scan and search up to 100 channels per second. Because the frequency coverage is so large, a very fast scanning system is essential to keep up with the action. Other features include ***VFO Control*** - (Variable Frequency Oscillator) which allows you to adjust the large rotary tuner to select the desired frequency or channel. ***Counter Display*** - Lets you count and record each channel while scanning. ***Auto Store*** - Automatically stores all active frequencies within the specified bank(s). ***Auto Recording*** - This feature lets you record channel activity from the scanner onto a tape recorder. You can even get an optional ***CTCSS Tone Board*** (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. ***20 banks*** - Each bank contains 25 channels, useful for storing similar frequencies in order to maintain faster scanning cycles. For maximum scanning enjoyment, order the following optional accessories: PS001 Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter $14.95; PS002 DC power cord - enables permanent operation from your vehicle's fuse box $14.95; MB001 Mobile mounting bracket $14.95; BC005 CTCSS Tone Board $54.95; EX711 External speaker with mounting bracket & 10 feet of cable with plug attached $19.95. The BC8500XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden. Order your BC8500XLT from Communications Electronics Inc. today.



CB/GMRS Radios

The Uniden GMR100 is a handheld GMRS UHF 2-way radio transceiver that has these eight frequencies installed: 462.550, 462.725, 462.5875, 462.6125, 462.6375, 462.675, 462.6625 and 462.6875 MHz. This one watt radio comes with flexible rubber antenna, rechargeable ni-cad battery, AC adapter/charger, belt clip, F.C.C. license application and more.

Uniden GMR100-G GMRS Handheld	$169.95
Uniden GRANTXL-G SSB CB Mobile	$149.95
Uniden PC66XL-G CB Mobile	$78.95
Uniden PC76XL-G CB Mobile	$99.95
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Uniden PRO330E-G CB Remote	$99.95
Uniden PRO510XL-G CB Mobile	$36.95
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ICOM R1-G ultra compact handheld wideband receiver	$469.95
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ICOM R71A-G 100 kHz - 30 MHz. base (add $39.00 shipping)	$1,029.95
ICOM R72A-G 100 kHz. - 30 MHz base (add $39.00 shipping)	$954.95
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ICOM R7100-G base with 900 memory (add $49.00 shipping)	$1,289.95
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Sangean ATS803A-G portable with SSB reception & AC adapter	$159.95
Sangean ATS808-G portable 45 memory shortwave	$159.95
Sangean ATS818-G portable without cassette recorder	$189.95
Sangean ATS818CS-G with cassette recorder	$209.95
Sangean ANT60-G portable shortwave antenna	$9.95

Weather Stations

Public safety agencies responding to hazardous materials incidents must have accurate, up to-date weather information. The Davis Weather Monitor II is our top-of the-line weather station which combines essential weather monitoring functions into one incredible package. Glance at the display, and see wind direction and wind speed on the compass rose. Check the barometric trend arrow to see if the pressure is rising or falling. Our package deal includes the new high resolution 1/100 inch rain collector part #7852-G, and the external temperature/humidity sensor, part #7859-G. The package deal is order #DAVI-G for $524.95 plus $15.00 shipping. If you have a personal computer, when you order the optional Weatherlink computer software for $149.95, you'll have a powerful computerized weather station at an incredible price. For the IBM PC or equivalent order part #7862-G. For Apple Mac Plus or higher including Quadra or PowerBook, order part #7866-G.

Other neat stuff

Cobra CP910-G 900 MHz spread spectrum cordless phone	$299.95
ICOM GP22-F handheld global positioning system	$699.95
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RELM WHS150-G VHF handheld 5 watt, 16 ch transceiver	$319.95
RELM RH256NB-G VHF 25 watt synthesized transceiver	$289.95
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