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JAMES MAXWELL
PO BOX 473
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Jim White, N6UGO at Watsonville EOC, 10/22/89.



I-880 collapse in Oakland, near Bunce School.

Earthquake activates Amateurs

STORY AND PHOTOS BY JIM WHITE, N6UGO, AND BRIAN MAHAFFY, N6UGP

DATELINE: Oct. 17, 1989, 5:05 PM PST

"I knew at once something big was up. Jim White, N6UGO, was running across the building with his handie-talkie near his ear. He had changed to the telescopic antenna, so something on the radio must be important. I turned on my radio and heard Frank Reshke, N6SNO, already organizing an emergency net." — Brian Mahaffy, N6UGP

The devastating earthquake that shook the San Francisco bay area that day gave Amateur Radio operators a true understanding of those words from FCC Part 97; "... service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications."

In Sacramento, just a short 150 miles from the epicenter, the quake was felt not just geologically, but also in our responsibility to help neighboring communities. Many Amateurs helped with the passing of health and welfare traffic into the stricken areas, while others dutifully monitored their RACES and ARES nets. These ac-

tivities went well into the night and did a lot to relieve the worry of concerned parties outside the quake area.

Jim, N6UGO, sought out repeaters still functioning in the bay area despite the destruction and power loss. Finally a functioning repeater was found, and they had an urgent message for Sacramento Red Cross, but could not get a working phone line to Sacramento. Jim quickly relayed the message to Sacramento Red Cross. This repeater later became an important link to the Oakland area.

Monitoring through the night, it soon became apparent that local radio amateur resources would become strained if left unrelieved. Brian, N6UGP, contacted Sacramento RACES officials, Bob Lyman, KI6FT, and Frank, N6SNO, to inform them of Oakland's need for assistance. The K6IS repeater on 145.19 MHz in Sacramento was put into emergency-net mode and recruiting of volunteers began in coordination with Oakland Red Cross. On Thursday, Mike Fedeler, N6TWW, N6SNO, N6UGP,

N6UGO, Fred Burger, N6RCQ, Aaron Barstis, KA6GQW and Jim Rich, N6SZQ went to Oakland as the first group from Sacramento to receive Red Cross assignments.

Some operators were dispatched to remote Red Cross operations, while others worked at the central office, installing radios and helping with net control. At Bunce School near the devastating I-880 freeway collapse, food was being prepared for the many rescue workers, volunteers and sheltered families. Radio Operators there helped coordinate food preparation and delivery with the other Red Cross centers. At the shelters, operators sent in information regarding the numbers and needs of the sheltered families. At the Oakland Emergency Operations Center (EOC), operators kept the Red Cross Director in contact with the central Red Cross Office despite unreliable phone conditions.

The amateurs, upon returning from Oakland, were greeted by new requests for volunteer operators. (please turn to page 6)

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Great Earthquake of 1989

DAVE LARTON, N6JQJ

Members of the Amateur Radio Emergency Service and the state Radio Amateurs in Civil Emergency Service are working on one of the biggest disaster operations ever to strike the Northern California area.

Amateurs from throughout the San Francisco Bay Area have mobilized to keep their emergency services operations going. Like many of their non-Amateur friends and neighbors, many returned to find their homes a mass of twisted wreckage, their loved ones missing and many of their services cut off, such as power, gas, telephones and potable water. In addition, they needed to mobilize quickly to initiate disaster plans that included repeater sites that were no longer working, roads that were impassable and facilities that were in the process of being evacuated.

The so-called Great Earthquake of 1989 occurred along a 30 mile section of the San Andreas fault, which cuts a wide swath between Mendocino County and Hollister in San Benito County. The California Office of Emergency Services estimated the temblor at 7.0 on the Richter scale, with the epicenter near the city of Santa Cruz.

Amateurs responded almost immediately to the emergency, activating directed nets on the repeaters left standing. Of the dozens of repeaters accessible to Amateurs in the Bay Area, only a small handful were still operational after the earthquake. Towers fell over, repeater cabinets were smashed and emergency generators destroyed by the seismic waves. Amateurs utilized 2M simplex frequencies designated

to each of the affected cities and established lists of available volunteers on the few repeaters still left standing.

Requests for Amateur assistance came from many agencies all at the same time. Some Amateurs were dispatched to the Red Cross to help with the establishment of disaster shelter communications; others helped with damage assessment. Still others set up links for Health and Welfare traffic on HF, VHF, UHF and packet frequencies. Makeshift radio stations were set up and radio equipment was loaned from several electronics stores.

Amateurs fanned out in a variety of roles, riding in ambulances, fire and rescue vehicles, to establishing secondary communications between agency representatives by becoming a sort of "shadow." Gilroy RACES dispatched their incident support unit, a converted school bus loaded with the latest in communications gear, to the Hollister area and provided public safety dispatchers there with an alternate dispatch center.

Police, fire and medical services were dispatched from the unit, along with another similar vehicle supplied by Amateur operators who volunteered with the Department of Forestry and Fire Protection.

While hundreds of Amateurs worked through the first days of the disaster helping to establish emergency communications with several agencies, others set up teams to restore high-level repeater sites to operation. Teams brought portable repeaters up to the smashed sites and repeater clubs



Photo by Jim White, N6UGO

Quake-damaged home in Watsonville, California.

worked around the clock to rebuild shattered repeaters, towers and antennas.

Within 72 hours of the earthquake, Amateurs began to let out the first sighs of relief. Power had been restored to the area, along with telephone service. Water was being brought into areas with contaminated public water systems. Shelters began to be consolidated, and Amateurs from out of the area began to respond to help.

The Great Earthquake of 1989 will see a continuing Amateur Radio role in the coming weeks and months, using Amateurs recruited from many areas and agencies to serve a common goal. Continued disaster planning and mutual-aid agreements will insure a quick and accurate response to the next "BIG ONE." □

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Our goal is to be a valuable resource of
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the flame of vitality to this avocation.

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One reader wrote to say that he
wasn't renewing his subscription be-
cause we didn't run enough technical
articles. No tears ran down the chubby
cheeks here since we have no preten-
sions regarding the nature of our maga-
zine. This is a news and feature maga-
zine. For the most part we tell what
people do with the radios after they get
them to work.

In a recent letter Ken Miller, K6IR,
of Rockville, MD, wrote: "It continues
to be the finest publication available,
with its human interest and people-
oriented content." That's what the
purpose of Worldradio is.

Ken also said, "It is MUST reading
for those interested in our hobby."

Nick Hauck, K6QPE, of Sanger, CA,
wrote in regarding my column about
Amateur Radio actually being a very
INexpensive avocation and recounted
items he purchased many years ago,
what they cost then and what they're
worth today.

He's still using the tubes that were in

the amplifier he bought 14 years ago.

A highly amusing letter came from
Fred Maia, W5YI, asking me to con-
tribute a ton of money which would go
to a Washington, DC, law firm so they
can file their pro-comments on a code
free license with the FCC.

Fred, this could only rank with a let-
ter to Milton Friedman asking for a
donation to build a statue of Karl
Marx.

Continuing in that "we need more
Amateurs so we'll have more engineers
and take back the technical lead" vein:
SONY just donated \$3 million to the
University of Illinois for a research and
teaching position in electrical and com-
puter engineering.

That's very nice of SONY, but it will
probably go for naught. You know that
in Japan they produce one lawyer for
every 10 engineers. In the United
States the ratio is the exact opposite!

In fact, and we quote: "At the gallop-
ing rate of increase in the number of
lawyers, every man, woman and child
in the United States will be a lawyer by

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the year 2074." (*Straight Shooting: What's Wrong With America and How to Fix it*, by John Silber).

Who, then, will design the computers and tape recorders?

England is proposing a Novice license. The only problem is the class structure bugaboo is raising its ugly head.

The new Novice would be allowed all of 5W DC input to the final. That's 3W output on the 160M SSB that the newcomer would be allowed. What could be more discouraging?

The same power restriction would apply on CW on some of the HF bands and phone, again on 10M and 6M and above. Big Whoopee. How many of the new little Novices would give up after those unanswered CQs night after night?

Now that we've looked at (above) another non-answer to the lack of new blood problem, we must ask, Pogo-like, if we have met the problem and the problem is us.

How many Little League teams are there? All with two or three adult coaches. How many Pop Warner football teams are there? How many Cub Scout troops? American Legion baseball teams, Explorer Scout troops, CAP, and on and on all with adults wishing to share their knowledge, but not Amateur Radio.

How many of our radio clubs have an office with the title of Youth Chairman. How can we grumble so about today's youth "just not being interested" unless we attempt to reach them somehow?

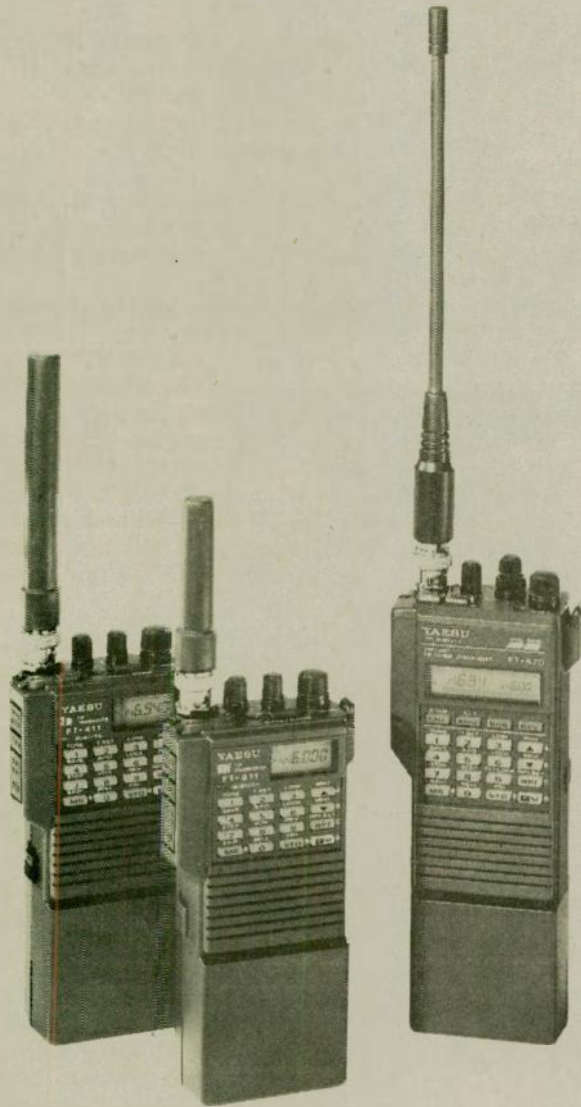
It's obvious that others in different endeavors are doing so. Your thoughts on this?

—Armond, N6WR

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VFOs	2	1	1
Memory Channels Store Any Offset	49	10	10
Wide Receiver Frequency Range (MHz)—VHF	140-173	138-174	141-163
Wide Receiver Frequency Range (MHz)—UHF	430-450	440-450	438-450
Built-in CTCSS Encode/Decode	Included	Option	Encode Only
Memory DTMF Autodialer	10	None	None
CTCSS Paging	✓	Option	—
Programmable Battery Saver	✓	✓	✓
Backlit LCD Display	✓	✓	✓
Backlit DTMF Keypad	✓	—	—
APO, Automatic Power Off	✓	✓	—
1 MHz Up/Down Stepping	✓	✓	✓
Vinyl Case	✓	Option	Option
Scan For CTCSS Tone	✓	—	—
Built In VOX	✓	—	—
Clock	—	✓	—
Odd Split, Any Tx Or Rx Frequency In Any Memory Channel	49	10	1
Suggested Retail Price	\$406.00*	\$439.95*	\$349.95*

DUAL-BAND HANDHELD SPECIFICATIONS	YAESU FT-470	ICOM IC-32AT	KENWOOD TH-75A
Memory Channels	42	20	20
VFOs Per Band	2	1	1
Wide Receiver Frequency Range (MHz)—VHF	130-180	138-174	140-164
Wide Receiver Frequency Range (MHz)—UHF	430-450	440-450	438-450
Built-in CTCSS Encode/Decode	Included	Option	Encode Only
Memory DTMF Autodialer	10	None	None
Dual Receive With Balance Control	✓	—	✓
CTCSS Paging	✓	—	✓
Cross Band Full Duplex	✓	✓	✓
Programmable Battery Saver	✓	✓	✓
Backlit LCD Display	✓	✓	✓
Backlit DTMF Keypad	✓	—	—
Alternating Band Scan	✓	✓	✓
Cross Band Repeater	✓	—	—
Power Output on 2 Meter and 440	2.3W	5.0W	1.5W
APO, Automatic Power Off	✓	—	✓
1 MHz Up/Down Stepping	✓	✓	✓
Memory Channels Store Any Offset	42	20	20
Vinyl Case	✓	Option	Option
Odd Split, Tx Or Rx, Any Frequency In Any Memory Channel	42	20	2
Suggested Retail Price	\$576.00	\$629.00	\$549.00

AMATEURS come through

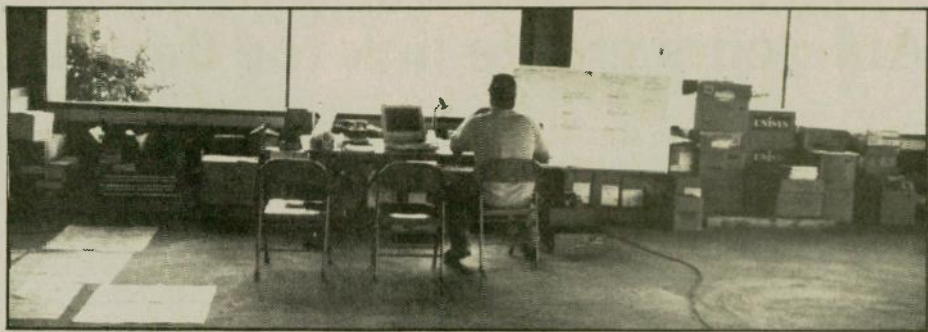
(continued from page 1)

Disasters don't just last for a day. The needs can last — and even increase — for a week or more after the disaster strikes. On Sunday, N6UGO, N6UGP, Roger Krautkremer, W6SOT, N6-VYX, Mike Payne, N6OFT, Orlin Wing, N6MPH and N6SZQ went to Oakland, many for a second time. Upon arriving, some received Oakland assignments, while the others were sent south to Watsonville, a town near the epicenter.

The situation in Watsonville was clearly a disaster. Upon arriving in town, our caravan of volunteers passed hundreds of homeless people standing in the street and in the open. This was near the Watsonville Armory, one of the shelters that had been set up. Winding our way through town, we passed house after house, block after block of crumbled houses. Some homes were intact but tilted a couple of feet off their foundations, many were crumpled and collapsed. Most of the homes had condemned posters on the front.

Arriving at Watsonville City Hall, the location of the EOC center, we set up (for the first time) a radio station to be used for communications with Red Cross in Watsonville, Santa Cruz and at the half dozen shelters being set up. The EOC required almost hourly reports of refugee populations, food and shelter requirements, and health needs. This was truly disaster communication. With between one and two thousand homeless, and a Pacific storm on the way, there was a lot to be done.

tion set up at the EOC and had checked into the emergency net, we had our first assignment. The command personnel at the EOC needed the status of each of the shelters. Starting at the top of the list, we



Brian Mahaffey, N6UGP operating at Watsonville EOC, 10/22/89.



Quake-damaged home in Watsonville, California.



Jim White, N6UGO operating at Bunce School, Oakland, 10/19/89.

started querying each of the shelters about population, capacity and needs. By the third shelter the party line effect (one of the things that makes Amateur Radio so effective in such a situation) was helping out. Shelter three had already compiled the answers to our questions and just read them off to us.

By the time we had performed shelter updates for the third time in just a few hours, the Red Cross administrator was overwhelmed with relief. He commented that in just hours we had provided three updates, while it had taken him an entire day of driving around just to compile one update.

Throughout the night needs and urgent requests came in from each of the shelters. The station was manned until after midnight and then shut down when the traffic had finally died off. That evening we caught a few hours of sleep on the same Red Cross cots as the frightened refugees. The station was back on the air just as the first hint of dawn broke. In just a

short time the traffic was busy as ever, as more people awoke at the shelters.

It was very rewarding to find out we were well prepared for Watsonville. Being so was not easy, as we had left town not knowing what conditions to expect. Indeed, we left not even knowing what town we would be in or for what duration. But Brian, N6UGP, (have station will travel) was well prepared. We found that each operation, be it in a command center or a field shelter, had different requirements. For one, an HT was ideal; whereas for another; it was essential to have a 25+ watt base/mobile rig, coax and an effective antenna that could be set up in a field situation.

This was a very tiring, but extremely gratifying experience. We had the chance to help those who, because of circumstance, were in great need, and we are thankful we were able to help. Hopefully, we will never have to do this again. But if we do, we know we succeeded once, and we can do it again. □

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Amateurs create link for Bay Area quake victims

"Five thousand pounds of medical supplies will be flown out of Santa Barbara tomorrow and will arrive at the Watsonville airport."

Amateur Radio, as it always does, again came to the swift assistance of people in need.

Volunteers. They stayed up all night and drove 100 miles to serve where needed. They didn't go to their regular jobs.

Amateurs in the afflicted areas came on the air using their own sources of power, as there were vast power outages.

Phone systems dropped away and TV stations went off the air, but the reliability of radio Amateurs was proven again.

"This is a message to the Director of the Burn Center . . ." Slices of the radio spectrum usually carrying casual conversations or contest exchanges took on a different character as messages for the National Guard, State Police, Red Cross, OES, FEMA, county governments, hospitals, Air Force and

many others moved on 75, 40 and 2M.

They're called Amateurs but the operating was as crisp and professional as could be.

In addition to the emergency traffic for the relief agencies, Amateur Radio worked to relay reassuring messages to relieve the fears of families elsewhere.

"The house is a big mess, but she's OK." Across the country on the 20M band could be heard, "Some damage, but all came through OK."

For some the anguish would continue: "I couldn't get through to your daughter in Oakland."

The messages: "The family is fine. "A few things fell off the shelves but no problems."

One Amateur was heard to say, "Hooray, my lights just came on." Another immediately replied, "I'm still on my generator."

At the same time operators were saying, "That prefix is not in operation at this time," we heard on an adjacent

channel, "We have hundreds of messages that have come in on packet."

"There are no landing lights at the Hollister airport because there is no power."

"FEMA wants to know . . ." And the answer would come back, "Seventy-five injuries, no fatalities."

Reports on various areas would state: "Phone lines out, electricity out." But batteries kept the Amateurs on the air. And just outside the Amateur bands, MARS, as you would expect, was moving the traffic.

The above was obviously but a tiny sampling of days and nights of effort. Worldradio invites you to send us accounts of your involvement. What can you tell others to do to better prepare them?

There were operators in the San Francisco area who on the air acknowledged that even this quake, as bad as it was, "Isn't yet the Big One" that the scientists predict. □

Blood bank network

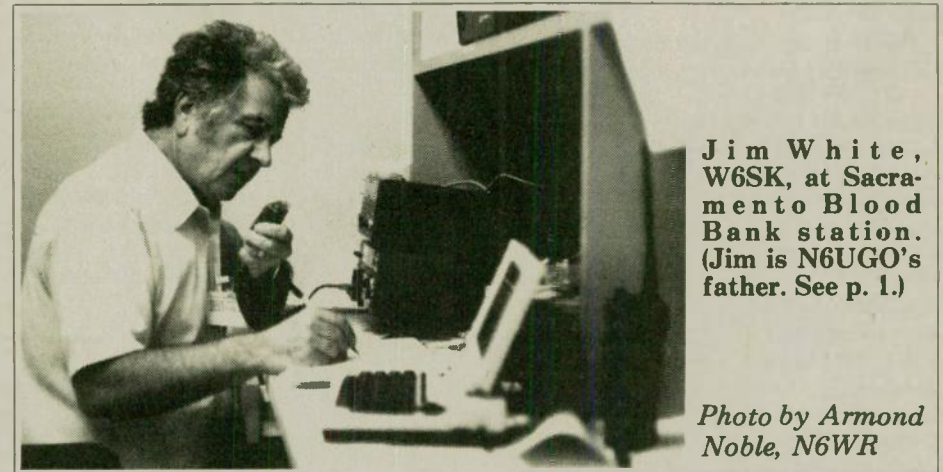
JIM WHITE, WS6K

The various blood banks in California have banded together to form their own organization, the CBBS (California Blood Bank System), with disaster mutual-aid and communications as one of its prime goals.

Each of the blood banks in the state has been urged to set up and maintain an Amateur HF, VHF and packet station for emergency/disaster use. A monthly net is held for the various banks to check in and "stay in touch." I've been involved in this for about four years, the last two as Disaster Communications Coordinator for the CBBS.

Well, the day arrived. Shortly after 5 p.m. I was sitting back to watch an exciting World Series game only to find out that the Bay Bridge Series was being pre-empted by an earthquake. Shortly afterward, the "boss" from the blood bank phoned me and asked me to stand by until the severity of the problem could be ascertained.

I later went in, turned on the IC-751 and started monitoring "our" frequency (3.875 MHz). Some member stations were already on —WA6CMA, WB6NFY, WB6WMI and N6RBY were there to greet me. Propagation to the south regions of the state were not



Jim White, W6SK, at Sacramento Blood Bank station. (Jim is N6UGO's father. See p. 1.)

Photo by Armond Noble, N6WR

favorable, so no stations down there were heard.

A call was received from the Alameda-Contra Costa Blood Bank for additional blood supplies to be sent to them, which they would helicopter across the bay to the San Francisco Blood Bank as needed there. WB6WMI in Berkeley informed the SF bank that 125 units of type O-positive and 15 units of O-neg were on

(please turn to page 18)

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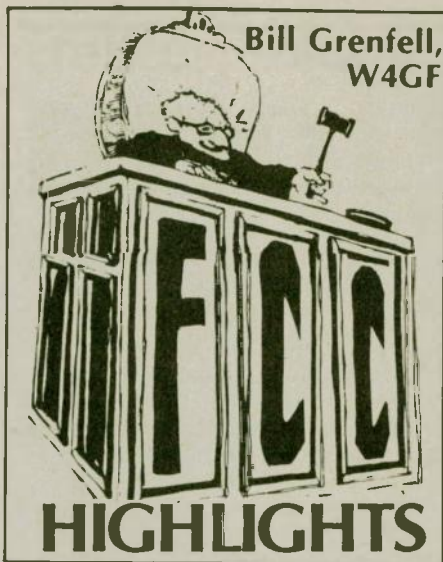
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The ARRL has submitted a petition (08/31/89) to the FCC seeking "establishment of a class of Amateur Radio operator license not requiring a demonstration of proficiency in the International Morse Code." The ARRL Board not only considered the views of its members, but also the recommendations of a special study committee. . . ."

They reached four basic conclusions: 1. There is a perception that the code proficiency element of the Amateur entry level examination is a significant barrier; 2. . . .the code proficiency requirement does not act as an appropriate filter to weed out undesirables; 3. . . .there are many good reasons for maintaining code proficiency; 4. . . .there is nothing antiquated or irrelevant about the code requirement "but this is a matter that some individuals must learn for themselves, in order to appreciate that relevance."

The FCC's Rules Branch Chief has advised informally that he thought Amateurs ought to hold their comments until the Notice of Proposed Rule Making (NPRM) stage. (*W5YI Report*, 09/15/89; *Westlink Reports* 9/15 and 9/29).

"On Sept. 20 a budget bill containing a license fee proposal was introduced into the House as HR 3239." Action was expected in both houses of Congress early in October."

ARRL members wanting to express

their opposition to the Amateur Radio license fee aspects of HR 3299 will want to contact their Congressional representatives without delay. "Senator Carl Levin of Michigan has indicated a desire to work with Amateurs to defeat the license fee proposal." (*ARRL Letter* 09/23)

"On July 19 the ARRL submitted a Request for Issuance of Errata List to the FCC in the Part 97 rewrite proceeding. . . the FCC responded with its Errata list on September 7."

The editor of the ARRL's newly rewritten FCC Rule Book said that the Errata will be included in the appendix of the Rule Book. (*ARRL Letter* 09/23/89).

"On Sept. 14 the FCC issued a Public Notice listing filings from the ARRL and 11 other petitioners for amendment of the FCC's Part 97 Rules.

"The ARRL, along with six other petitioners, filed for the creation of a codeless class of Amateur license. . . Two petitioners filed for a change to the code speed requirements. . . Two others filed to restructure Amateur operator licensing requirements and operating privileges and one petitioner filed to eliminate all classes."

Interested persons had 30 days to file comments opposing or supporting these petitions with the FCC. "The full text of these documents are available for viewing and copying in Room 239, 1919 M St., NW, Washington, D.C., or may be purchased from the Commission's copy contrac-

tor, International Transcription Service (202/857-3800)." (*ARRL Letter*, 09/23/89; *W5YI*, 09/15 - 10/01/89).

"The FCC has issued a Public Notice concerning communications with Amateurs in foreign countries:

Permissible countries: Section 97.111 states when the administration of a country objects to its Amateurs contacting US Amateurs, it becomes a "banned country." Currently there are no banned countries.

Prohibited transmissions: Section 97.113 says that communications for the purpose of facilitating the business or commercial affairs of any party is prohibited. Use of Amateur communications as an alternative to other broadcast, common carrier, maritime, land mobile or other authorized radio services is also prohibited.

Third Party arrangements: Section 97.115 "...authorizes an Amateur station licensed by the FCC to transmit messages for a third party to any Amateur station within the jurisdiction of a foreign government whose administration has made arrangements with the United States to allow Amateur stations to be used for transmitting international communications on behalf of third parties." (*ARRL Letter*, 09/23/89).

"At the recent Telecommunications Industry Association Part 15 Seminar, one manufacturer asked what would happen when his products received interference from sources such as Amateur operations. He was

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 Oct. 1, 1989.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.51 of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17326.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	WX0B	KF0FO	N0LBX	KB0FGF
1	NY1Y	KC1QM	N1GZF	KA1UMA
2	WT2I	KE2PK	N2JXX	KB2IPO
3	NW3P	KD3PD	N3HNQ	KA3VFA
4	AB4QX	KM4YQ	N4WZL	KC4MPI
5	AA5OF	KG5YR	N5PHT	KB5KRX
6	AA6QX	KK6AG	N6WKV	KC6FYH
7	AA7BX	KF7XB	N7NPO	KB7ISH
8	WV8T	KF8BQ	N8LIH	KB8IEF
9	WK9P	KE9SI	N9IXW	KB9DKQ
North Mariana Is.	AH0H	AH0AF	KH0AM	WH0AAL
Guam	KH2K	AH2CF	KH2EE	WH2AMH
Johnston Is.	AH3B	AH3AD	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAG
Hawaii		AH6JW	NH6UN	WH6CFG
Kure Is.			KH7AA	
American Samoa	AH8C	AH8AD	KH8AH	WH8AAZ
Wake Wilkes Peale	AH9A	AH9AD	KH9AD	WH9AAH
Alaska		AL7LO	NL7SS	WL7BVR
Virgin Is.	NP2F	KP2BR	NP2DJ	WP2AGZ
Puerto Rico		KP4QJ	WP4WX	WP4IOD

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answered curtly by the FCC's... (representative), who said, "I think, sir, that you have had prior notice that you are operating on a sufferance basis... You made the marketplace decision. If you succeed then you reap the benefits of success. If you fail, then you've taken your chances and lost. Part 15 is still Part 15. It is not an authorized service such as we have for services which are allocated. There are no allocations for Part 15 devices..." (Westlink Report, 09/15/89).

The New York City FCC Field Operations Bureau office is asking Amateurs in the area to help it rid

10M of illegal taxicab dispatchers. Since April the New York City office has been investigating complaints by area Amateurs alleging the illegal use of 10M by New York City taxicabs and other for-hire vehicles... Several of the illegal stations were closed down as a direct result of the investigation.

The illegal operations are, however, continuing and the Commission indicates that the next step may have to be prosecution of the illegal operators. The FCC is requesting that New York City Amateurs who have pertinent information of such operations report it to the FCC at 201 Varick St., New

York City, NY 10014. (Westlink Report, 09/15/89). □

JRSD Fund

The JRSD Fund, which was legally started in 1985 as a non-profit trust to defray the legal expenses of Jack Ravenscroft, VE3SR, has come to an end. The Fund acronym stood for Jack Ravenscroft Susceptibility Defence Fund.

Over \$89,000 was collected from supporters sympathetic to the technical enigma caused by radio sensitive consumer equipment malfunctioning when located near an Amateur Radio transmitter.

The ensuing legal case sidestepped the real technical issue because it was tried as a Civil case, under Nuisance law. Existing legislation under the Radio Act precluded any intervention by a Regulatory agency since much of the sensitive equipment is covered by no regulation.

VE3SR was ordered by the court to suppress his neighbor's appliances and this was achieved to a degree satisfactory to the Department of Communications. He was also fined \$7,500 for "damages of inconvenience." His neighbors were bound by the Court to cooperate in the suppression work.

Finally, a permanent injunction preventing VE3SR from transmitting was lifted after the above conditions were imposed by the Supreme Court of Ontario.

Jack lived to see the last appliance suppressed; however, his untimely passing 10 days later was a short-lived technical victory which all radio Amateurs will remember.

Trustees of the JRSD Fund express sincere appreciation to all donors and for those who so genuinely believed a solution could be achieved. Over 1,800 separate donations were received during the four year course of the Fund. — Ralph Cameron, VE3BBM, Chairman, JRSD Fund □

My first shortwave radio

KENNETH LANGE, K6DSB

I enjoy reading accounts of how radio Amateurs became interested in the hobby. For that reason I enjoyed Bill Snyder's story in the July 1989 issue of Worldradio, page 40. My story is somewhat similar since I, too, built my first shortwave receiver in 1930. Mine also had two 201-A tubes.

An uncle had many radio magazines which I read and studied with en- (please turn to page 25)

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On Sept. 2, 1989, the *Marinka* sailed under the Golden Gate bridge, past Fort Point to a berth at the St. Francis Yacht Club marina in San Francisco Bay. The 43 ft. yawl had been on a 58,000 mile 8½ year journey circumnavigating the globe.

Starting out with a crew of two, Stan, N6ELR, and Caren Sutton, the number of voyagers expanded to four by the end of the adventure with the addition of daughters Elizabeth, now 8, and Jennifer, 5.

High school sweethearts, Stan and Caren married in 1974. In 1976 they purchased a "bare hull and deck" boat kit, and Stan worked from 1976 through the early part of 1981 constructing the interior of the boat in preparation for their planned adventure of "a couple of years."

Caren worked during this period to keep the wolf from the door. Stan's experience in his family's business, Inland Marine Industries, which constructs the interiors for US Navy ships, gave him courage to tackle his sailboat outfitting task.

The cabin's wood interior is well designed with no sharp edges. It has two rooms for sleeping, one fore and one aft, galley (complete with refrigerator), radio room, dining area with built-in table, bench encircling the table on three sides and another long bench across from the table, engine room and the head.

Although the breadth at the widest part of the boat is only 13 ft., it appears much more spacious than that inside. Every nook and cranny is utilized for storage — under benches, behind the backs of benches, under the floor, etc.

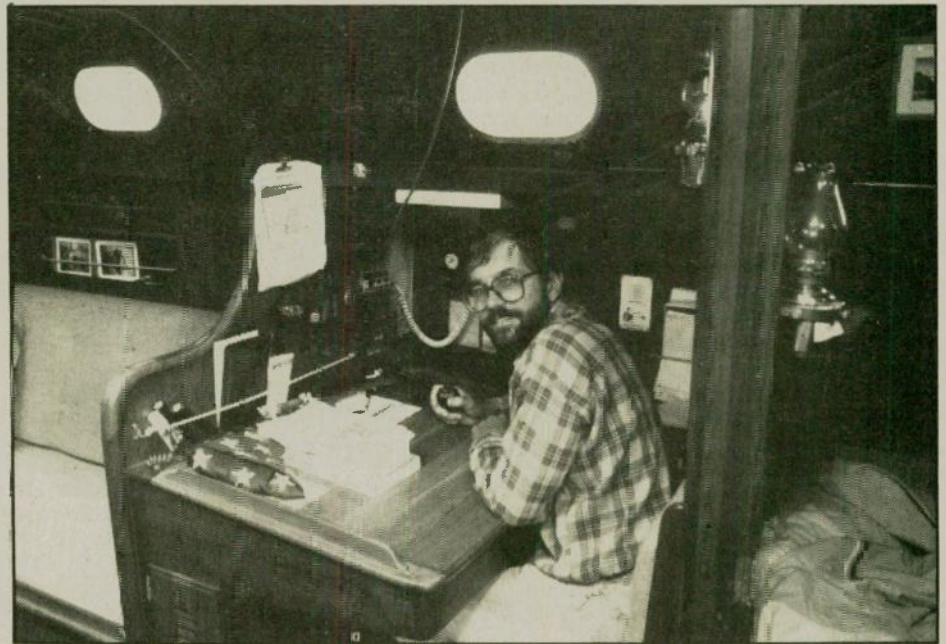
The *Marinka* makes about 7 knots per hour under sail and 5 knots per hour (8-9 mph) when powered by her 85 hp engine.

A changing itinerary

Caren and Stan had originally planned to sail around for a couple of years, come back home to San Francisco and start a family, but three days before their planned departure on March 31, 1981, Caren told Stan she was pregnant.

The couple decided to go ahead with their planned adventure and sailed to Cabo San Lucas. Caren flew back to San Francisco to see her doctor, who persuaded them that better medical facilities would be available to them in Hawaii than in their planned stopover of Tahiti, so they sailed to Honolulu to await Elizabeth's birth in September.

Stan worked at a variety of jobs dur-



Stan Sutton, N6ELR, in the radio shack aboard the *Marinka*. Photos by Armond Noble, N6WR

ing their year in Hawaii. He dove for coral, sailed between islands as a tour guide and also did some work in con-

nection with his family's business. When Elizabeth was six months old, they continued their journey, going to

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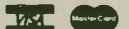
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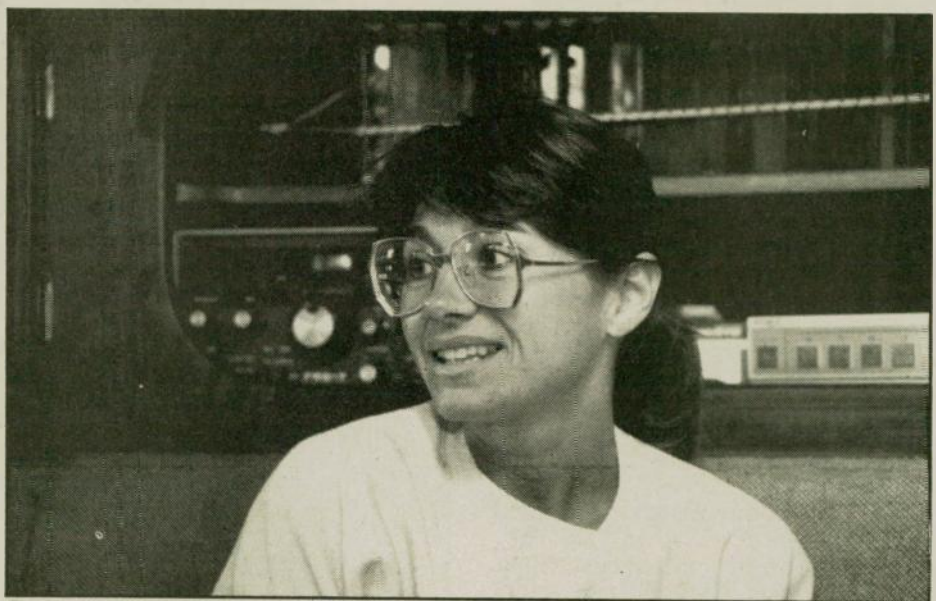
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Caren in front of the entertainment center. Note videotapes and VCR on shelf, and Yaesu FRG-7 which supplied their news.

Tahiti, Samoa and Tonga.

About two years into their odyssey, Caren became pregnant again, so they returned to American Samoa to await Jennifer's birth. Stan taught high school physics in Pago Pago. Part of the teaching contract arrangement was a trip home, so the Suttons were able to fly to San Francisco to see their family.

Having fine-tuned the procedure of traveling with a baby, Stan and Caren again set sail when Jennifer was three months old. *Marinka* took the Suttons to Wallis Island, Fiji, New Zealand (six months there), Vanuatu, New Caledonia, eight or nine months in Australia, Indonesia, Malaysia, Thailand, all around Southeast Asia, Sri Lanka, India, Oman, Sudan, Egypt, Israel, Cyprus, Turkey, Greece, Tunisia, Malta, Italy, Spain, Morocco, Gibraltar, across the Atlantic to the Caribbean, Venezuela, Colombia, Panama, Costa Rica, the Galapagos and back to San Francisco. In all they visited 53 countries.

Keeping in touch

Throughout their journey, Stan talked two to three times a week, and sometimes daily, to Tom Hamilton, WD6EAW, in Keno, OR. He is extremely grateful for the excellent care Tom took of them.

Stan also has high praise for those

who work the Maritime Mobile nets around the world. He says they really take care of people, watch their position and follow up on their welfare.

Stan held 10 to 15 different calls during their odyssey. Among them were VK4BYO (Australia), FO0SGS (Tahiti), FW0BYB (Wallis Island) and YJ0ASG (Vanuatu).

Policy on granting of reciprocal licenses varied from those obtainable on a walk-in basis to a six-month waiting period. Many of the places they visited permitted radio operation aboard their anchored boat with just a US license.

Sri Lanka prohibited taking the radio on shore. Visitors had to list everything on board and officials would come back periodically to see that everything listed was accounted for.

Stan started out with an Atlas 180. When that gave up the ghost, they purchased a Kenwood 430S in Hawaii. They used a Yaesu FRG-7 for news and an AEA PK232 furnished their weather FAX information. They carried a backup radio, as well as enough parts to completely rebuild their boat's engine, had the need arisen.

Antennas were a 20M Hustler vertical (the same type used by many people on their cars), a quarterwave sloper high on the mast (also for 20) and a long wire end-fed through a tuner for 20 and 40. Each of the antennas would prove to be the best at one time or another, depending on propagation and the desired direction of transmission.

Twenty meters was the band Stan found most useful, followed by the MM nets.

Caren and Stan were able to talk to their families regularly via phone (please turn to page 14)

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Built-in dummy load

A built-in 300 watt 50 ohm dummy load makes tuning up your rig sooooo easy. How do you tune up your rig without one?

An external dummy load will cost you about \$30 more -- plus it takes up valuable space at your operating position and requires another cable.

Full 1.8 to 30 MHz coverage

The MFJ-949D gives you full 1.8-30 MHz coverage.

Make sure the tuner you're considering covers **all** the HF bands.

Don't get a tuner that keeps you from operating all the frequencies you've worked for -- now or in the future.

Plus more ...

You get a versatile 6-position antenna switch and a 4:1 balun for balanced lines.

You can run up to 300 watts PEP and tune out SWR on coax, balanced lines or random wires.

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You get a **full one year unconditional guarantee**. That means we will repair or replace your MFJ tuner (at our option) **no matter what** for a full year.

Others give you a 90 day **limited** warranty. What do you do **after** 90 days? Or **before** 90 days when they say, "Sorry, it's your fault"?

What's really important? precise control for minimum SWR

What's really important is your tuner's ability to get your SWR down to a minimum -- and the MFJ-949D gives you more precise control over SWR than any tuner that uses two tapped inductors.

Why? Because the two **continuously** variable capacitors in the MFJ-949D give you **infinitely** more positions than the **limited** number on two switched coils.

This gives you the precise control you need to get minimum SWR and maximum

power into your antenna.

After all, isn't that why you need a tuner?

High efficiency and a compact size: performance is most important

The MFJ-949D uses a **single** airwound coil. Using only one inductor takes up a minimum of space and there's no mutual coupling problems.

The excellent form factor of the short fat coil gives you highest Q. Plus you get plenty of inductance that gives you a much wider matching range than other designs.

This results in a highly efficient tuner that puts maximum power into your antenna and a compact 10 x 3 x 7 inch size that complements your rig and fits right into your station.

Competing tuners using **two** tapped coils require a large cabinet -- not just to house the coils but also to help reduce detrimental coupling between the inductors. The result? A tuner that's **bigger** than your radio.

Your very best value

The MFJ-949D gives you your very best value, first-rate performance, proven reliability and the best guarantee in ham radio ... all from the **most trusted** name in antenna tuners. Don't settle for less. Get yours today!

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For a few extra dollars the MFJ-962C lets you use your barefoot rig now and have the capacity to add a 1.5 KW PEP linear amplifier later. It covers 1.8 to 30 MHz.

You get MFJ's **new peak** and average reading Cross-Needle SWR/Wattmeter.

You also get a 6-position antenna switch and a teflon wound balun with ceramic feed-thru insulators for balanced lines. Measures just 10 1/4 x 4 1/2 x 14 7/8 inches.

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Proven Reliability: MFJ has made more tuners for more years than anyone else -- with MFJ tuners you get a highly-developed product with proven reliability.

First-rate Performance: MFJ tuners have earned their reputation for being able to match just about anything -- anywhere.

One full year unconditional guarantee: That means we will repair or replace your tuner (at our option) **no matter what** for a full year.

Continuing Service: MFJ Customer Service Technicians are available to help you keep your MFJ tuner performing flawlessly -- no matter how long you have it -- just call 601-323-5869.

Your very best value: MFJ tuners give you the most for your money. Not only do you get a **proven** tuner at the lowest cost -- you also get a one year **unconditional** guarantee and **continuing** service. That's how MFJ became the world's leading tuner manufacturer -- by giving you your very best value.

Choose your MFJ tuner with confidence! You're getting proven performance and reliability from the most trusted name in antenna tuners. Don't settle for less.

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WORLD RADIO, December 1989 13

Around the world

(continued from page 12)

patch, and a VCR supplied with video tapes (*Sesame Street* for the girls and tapes of family gatherings back home) kept them abreast of family and friends.

Stan's and Caren's mothers visited them at different ports in their journey, and the family flew back to San Francisco a couple of times. Caren tutored the girls, and when they enrolled in Bay Area schools this fall, Elizabeth was quite ready for third grade and Jennifer for kindergarten.



Jennifer, 5 and Elizabeth, 8 aboard the *Marinka*. They had been playing down by the water, thus the wet heads and oversized (dry and available) sweaters.

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Hair-raising tales — whales

Eight and a half years of living on a boat resulted in a variety of experiences. Their most frightening were the four hurricanes they encountered — three of them at anchorage, and once they chose to tie up at a dock because the direction of the wind was coming over the land. The hurricane they experienced at anchorage at Tahaa lasted five days.

In the Galapagos one night a whale rammed the boat. Stan was on watch and ran up to the deck. He heard the whale blow, could smell it, but he could not see it in the darkness, although he heard the splash when it dove.

He was concerned that the boat might have been damaged and he called to Caren, saying they had been hit by a whale. She ran up the stairs saying, "Oh, I hope he's (the whale) all right!"

Fortunately, *Marinka* suffered no great damage, and presumably the whale was unhurt, too.

And pirates?

Off Malaysia they had a pirate scare. Stan observed what he assumed was a fishing boat about three or four miles

off. Two hours later it had sailed closer to them.

Stan had heard tales of pirates who would seek out a lone vessel, strip it and murder the occupants, and he was concerned that the observed boat was getting closer.

He took a hard right toward the land, and the other vessel followed them, narrowing the distance between them. Stan knew the other boat could catch up with them, so he told Caren to put life jackets on the girls and to hide them in the engine room.

Stan figured his only defense was to ram the other boat, disable its rudder, and hope they could then escape. The other boat approached to about 20 meters and Stan, poised to ram the boat, at the last minute did not. There on the deck were 15 to 20 ragged, turbaned people, smiling and waving. They had approached out of curiosity, not with any evil intent.

Pictures from the past

Stan's stepfather had been on Penrhyn during WWII. He had taken photographs while there, and when Stan and Caren embarked on their journey, they took the old photos with them.

The island residents were delighted to see for the first time what their relatives had looked like 40 years ago. Stan was able to locate his stepfather's friend and arrange a phone patch so they could talk to each other again.

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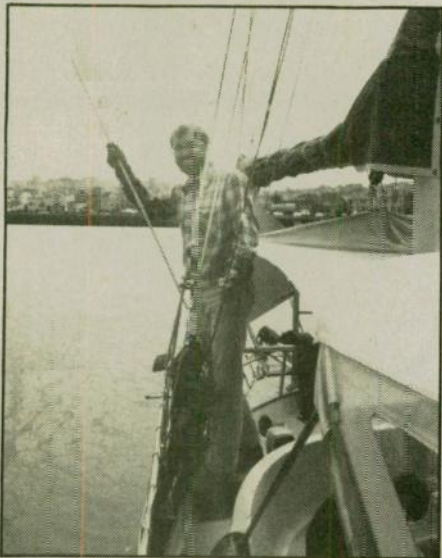
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Search mission

One of the aforementioned hurricanes occurred when Stan and Caren were in Tonga. As a result of the hurricane, a Tongan fishing vessel was lost.

Stan and Caren took *Marinka* out to help in the search. One other private yacht assisted in the search and the US Coast Guard offered to send a plane if the 12 ft. dinghy was sighted, but no trace of the boat or the fishermen was found.

The winds were so strong it took *Marinka* five days to return from the search area, and it had taken only one day to get there.



Stan with his Hustler 20M vertical. San Francisco marina district (before the earthquake) is in background.

On the open sea

Stan and Caren's longest time at sea was 31 days, with several other voyages of 18 to 22 days. While at sea, they had to go on deck and check the horizon every 10 minutes during the day and every 15 minutes at night. Stan took celestial readings at dawn, noon and sunset.

Stan's daytime hours were filled with keeping things in running order, and he and Caren spelled each other on the night watches.

They were very careful to save everything that would not disintegrate in the water. They used disposable diapers for the babies and carefully separated the plastic parts of them and stowed them until they reached port.

Stan says he disembarked one time and deposited the carefully saved diaper parts in the trash barrel on the dock just as a garbage truck was approaching. He watched in dismay as the truck emptied the contents of the trash barrel in the back, drove the length of the dock and emptied the

whole truckload of garbage into the harbor!

Ubiquitous bureaucrats

The officials the couple dealt with from country to country were generally OK, although in Egypt officials did board the ship without clearance from Stan and Caren.

The US Coast Guard, Customs, Treasury and Drug Enforcement Agency can board a vessel without asking. The Coast Guard boarded *Marinka* in Mexico under the guise of a "safety check" looking for drugs. So their efforts were not in vain, they cited Stan for not having a bell and for not having a sign in his engine room stating that the discharge of oil into the water was prohibited.

In Tahiti Stan and Caren were forced to post bond for four people. It seems that Tahiti worries about people stopping there having no means of leaving — "Come and visit, but don't stay forever!"

Stan says that Amateur Radio "pirates" are a big problem. He thinks

the United States could lessen the occurrence by doing as some other countries do, by issuing a one year maritime mobile license for use outside the territorial limits, thus insuring the proper use of radio on a temporary basis.

Would they do it again?

Caren and Stan estimate their living costs during this odyssey to have been about \$6,000 per year. They bought fresh produce at markets where they stopped (they had to hitchhike 20 miles in Oman to reach the market), and they caught a lot of fish. Caren said she cooked up a storm prior to their departures, as she could always count on being seasick for the first three to four days.

Stan envisions staying in the Bay Area for some years, working in the family business, getting the girls through school and maybe, sometime in the future. . . after all, there are a lot of islands out there. Caren's eyes glaze over, but she doesn't say anything.

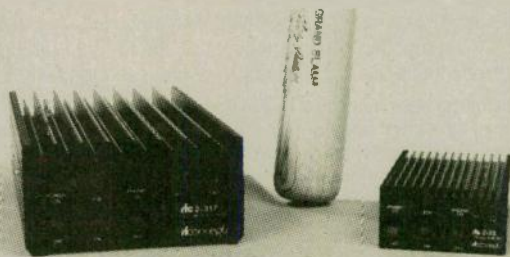
Their advice to others is, "Do your dream!" □

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The ARRL Forum

NORM BROOKS, K6FO

As is usually the practice (and why not?) at all ARRL Division Conventions, there is an ARRL Forum. This is the meeting where the ARRL members hear their elected ARRL officers tell how things are going in Newington, CT. They, in turn, listen to the comments and answer the questions of their constituents, the ARRL members.

The Pacific Division ARRL Convention in San Jose, CA, on Oct. 6, 7 and 8 was no exception.

Pacific Division Director Rod Stafford, KB6ZV, with Vice Director Chuck McConnell, W6DPD, "brought the membership up to speed" on current items of concern.

The 220 MHz spectrum grab

Two months ago the FCC decided they were not going to reverse their decision to take 2 MHz (220 to 222 MHz) from the Amateurs for the land mobile commercial service. This left the ARRL with only one option — to take the FCC to federal court.

The League has retained a law firm in Washington, DC. This firm has had a lot of experience in fighting government agencies. The basis for the lawsuit is this: The FCC has made not only a stupid decision, but also made it illegally.

The no-code proposal

The FCC endorsed the idea of a no-code Amateur license six or seven years ago. You may recall the furor that ensued at that time. Since then, things have quieted down.

A year ago ARRL President Price appointed a committee to study the current possibility of a no-code VHF/UHF license. The committee presented its recommendation to the board in its July 1989 meeting. The details are presented at great length in the September 1989 issue of *QST*.

The main provisions are:

- Class of license to be "Communicator."

- Operating privileges/start at 220 MHz, and up.
- Power limit 250W
- License exam to be given by the VEs, not by two Amateurs like the Novice exam now.

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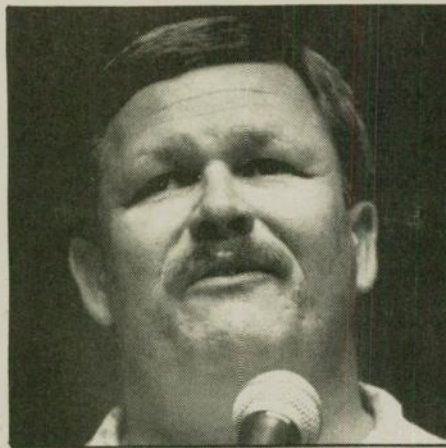
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Rod Stafford, KB6ZV, Director, ARRL Pacific Division

- The license should be just another way to enter Amateur Radio. Upgrade to Technician would require only the 5 wpm code test. (Some wags have already bestowed the name on such a person as "Turbo-Tech")

- Call signs would be in the same series as Novices, so the Communicators could be assimilated into the Amateur ranks without the "red badge of Communicator."

The current status is that a petition number has been assigned and a NPRM (Notice of Proposed Rule Making) will soon be issued. We will all have our chance to write to the FCC in response to the NPRM. Rod's guess is that we will have some form of no-code license before the end of 1990.

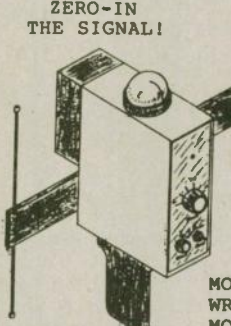
Rod has some reservations about turning people loose on the VHF/UHF bands with 250W of power. He also feels there ought to be a time limit for upgrade. Other countries have had good results with upgrades from no-code licenses.

The \$30 fee

Bills are before the US Senate now,

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which would charge fees for Amateur Radio licenses. The present proposal is for a \$30 fee for renewal, change of address, change of class, etc. This is mixed in with charges of fees in other services in order to raise revenue.

If there are any exemptions in any other service, we will ask for exemptions on Amateur Radio licenses. Even if it looks as if we will have to pay for renewals, we will ask for the first license to be free, as now. We want to make becoming an Amateur as painless as possible. The same argument applies to upgrades.

Further, if the FCC wants us to promptly report change of addresses, there should be no fee for that either. If there is a charge for change of address, the FCC data base will obviously have much worse accuracy problems than it does now!

If you feel strongly on fees, write to your senators now.

Questions and answers

Questions asked in the Q & A period brought forth much more discussion on the 220 MHz situation.

There is one redeeming feature of the "grab." Previously, we shared the 220 to 225 MHz with other services, primarily airborne radar. Now, the proposal is that our 3 MHz will be exclu-

sively Amateur.

One possibility of settlement of the lawsuit the ARRL has filed: We may be able to get secondary usage in the 215 to 220 MHz band and our packet links may be able to move there. Inland Marine service now has that part of the band as a primary service.

There will have to be a new bandplan for the remaining 3 MHz of the 220 MHz band. ARRL bandplans do not always lend themselves to local conditions.

WARC 1992

There will no doubt be a World Ad-

Impressions of a real disaster

DOC GMELIN, W6ZRJ

When I was teaching high school science, one of the units we covered was geology. Each year we conducted a field trip along the San Andreas fault, which is one of the major geological features of the South San Francisco Bay Area.

We taught our students that the fault is like a large spring that is being pulled tighter and tighter and that someday it would snap, causing a 1906 type earthquake.

Last Tuesday, Oct. 17, it did just

ministrative Radio Conference in 1992. Frequencies considered will not be "DC to light" as in 1987.

Instead, smaller trouble spots will be considered. One of these is a clamor from the broadcasters in our Region 3 to be allowed to broadcast in the 7100 to 7300 kHz band, as broadcasters are doing in the rest of the world.

It does not look good for our retention of this part of the 40M band. Some of our members say it doesn't make much difference anyway, as the broadcasters in Regions 1 and 2 make that part of the 40M band almost unusable now. □

that and caused a 7.0 earthquake. That's not as bad as 1906, but bad enough.

I was in a computer store at the time the quake hit and had just purchased a book when the ground under my feet suddenly started going up and down. It felt at that time as though it moved a foot or two. Actually it probably wasn't even an inch.

When the shaking stopped, we all went outside and were talking about what had happened when a second shock hit. It was only about 6.0, but that's a pretty big shock itself. I watched as my pickup truck must have bounced up and down five or six inches as the shock waves passed by.

I drove home to find a real mess; books off all the shelves, cups and glassware thrown out of cabinets in the kitchen and cabinets and bookcases that had not been tied down had fallen (please turn to page 20)

BLOOD bank net

(continued from page 7)

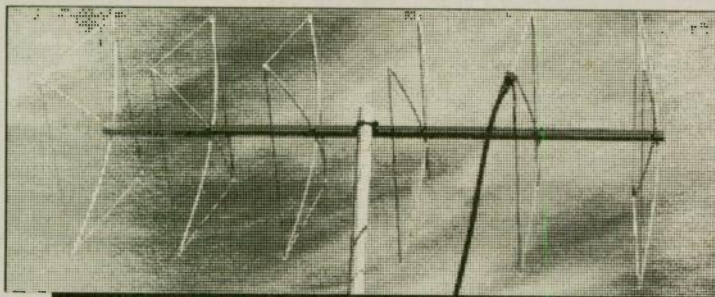
the way by a CHP vehicle.

Later, Paul Sauter, W6SJJL, checked in by phone from San Bernardino, and N6OOB came on from the Delta Blood Bank in Stockton. As telephone service became more normal at about midday on Wednesday, Oct. 18, the net was then closed at 2 p.m. when the CBBS felt everything was under control.

As devastating and tragic as this shake was, it is not the Big One that will come in time. And the CBBS will be sure that every California hospital has the human blood and derivatives that it will need when that time comes.

A lightning bolt can be as long as 20 miles. —Central Arkansas Radio Emergency Net

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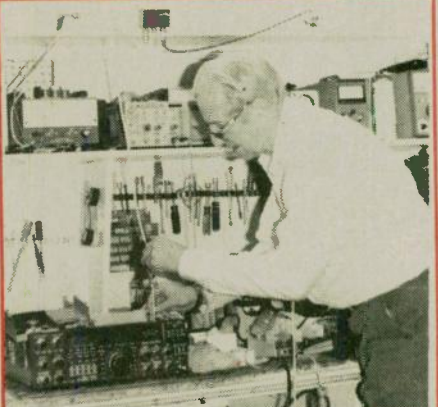
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DISASTER impressions

(continued from page 18)

over. My Heath electronic clock had fallen over.

Of course, I rushed into the shack and found that only one transceiver had slipped off the table. I use battery power on most of my equipment, so I was still on the air.

I cleaned up some of the mess and then checked into the Cupertino OES net on 2M simplex.

Since there was little major damage in Cupertino, most reports were about the electricity being off. I moved operations into my RV, but when the power came back on, we moved back into the house. It was still pretty scary.

The next morning I checked into the Disaster Resource Net on the WB6ADZ repeater and offered use of my portable packet in the RV. Operation of the resource net was handled by AA6HX.

I was eventually sent to Los Gatos ARES Command Post at the QTH of Jim Atwood, KJ6CW, Los Gatos Emergency Coordinator and Assistant District Emergency Coordinator.

Los Gatos was the hardest hit city in the immediate San Jose area. The city is only about six miles from the epicenter of the quake, in the Santa Cruz Mountains between Los Gatos and Santa Cruz, which was also hit very hard by the tremor.

Numerous houses and buildings in the Santa Cruz Mountain area were destroyed or seriously damaged and as a result there were several hundred "quake refugees" to be housed by the Red Cross. Radio Amateurs were providing communications between the various shelters and Red Cross Headquarters in Los Gatos and San Jose.

The Amateur operation in the San Jose area was mainly on 2M using plans already established in earthquake drills held over the past several years. Planning does pay off.

Much of the planning was done by members of the Silicon Valley Emergency Communications Service, under the direction of N6MWD, who was District Emergency Coordinator during much of the time of the planning and earthquake test drills. She worked closely with Santa Clara Valley SM, WB6W.

There were three main repeaters used during much of the emergency. They were W6WSH, the Loma Pioneer Radio Club repeater located on Mt. Loma Prieta, about a mile from the epicenter; W6PIY, West Valley Radio Club; and WB6ADZ, the Silicon Valley Emergency Communication Service repeater. All stayed on the air during the entire disaster operations, even when normal AC power was out. That's remarkable in view of their proximity to the San Andreas Fault.

There were also several simplex frequencies in use on 2M, as well as repeaters in 220 and 440.

My first assignment the day after the quake was to set up communications at a "shelter" that was being set up by the Red Cross at a church in Los Gatos. We operated on a net which included stations at the Los Gatos and San Jose Red Cross, Santa Clara County Communications, Los Gatos OES and the Headquarters of Los Gatos ARES.

We stayed at the church and operated for some nine hours and then were relieved. There was no power at the church, so this operation was just like setting up for Field Day. We used 12-volt battery power.

My second assignment on Thursday morning was as an operator at the San Jose Red Cross Station, used by SVECS and the Santa Clara County Amateur Radio Association, W6UW.

The Red Cross station was one of the three main control stations for much of the operation.

Chief operator at the time was AE6Z, who was the Chairman of PACIFI-



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CON, the Pacific Division Convention, held in San Jose two weeks before the earthquake.

The Emergency Coordinator for San Jose, NG6A, was in charge of the San Jose Red Cross operations.

In addition to the 144, 220 and 440 we used 75, 40, 15 and 10M frequencies, mostly for Health and Welfare traffic, which started coming in on Wednesday.

Packet radio was used on the VHF frequencies for much of the incoming and outgoing H & W traffic. KA6ETB, South Bay NTS Packet Manager, set up H&W nets on 144, 220 and 10M, in addition to the packet operation.

N6MWD had just recently retired as District Emergency Coordinator, but she came out of "retirement" to help the new DEC, KB6PDA, who assumed command of the emergency situation right after the earthquake hit.

The operation on the SVECS Repeater was mostly for resources and Amateurs from the entire San Francisco Bay area and further volunteers were assigned to Santa Cruz, Watsonville and Hollister, the cities that were hardest hit in the Monterey Bay area to the south of the epicenter, as well as in the South Bay Area.

These Amateurs are far too numerous to list here, but it should be pointed out that the resource net operated just as planned and Amateurs were sent to the areas with greatest need.

The most difficult assignments were in the Santa Cruz Mountains at or near the epicenter of the quake. Red Cross shelters were set up at Redwood Estates and along the Summit Ridge. Both locations are almost exactly on the fault and within a mile or two of the epicenter.

Since the road from Los Gatos to Santa Cruz was closed by rock slides, travel to these locations was restricted and at times very difficult. Amateur Radio was just about the only communications to those areas up until the time of this writing, Sunday, Oct. 21.

The problems on the 880 Nimitz freeway in Oakland, on the San Francisco/Oakland Bay Bridge and in San Francisco itself received the most media attention, but the problems in Santa Cruz, Watsonville and Hollister were as serious, if not more so.

Of course, there was not as much loss

of life and the effects were often more localized. The collapse of a section of the Bay Bridge and on the 880 Freeway will cause major traffic problems.

On Friday and Saturday most of my own operation was from my home QTH, handling H&W traffic mostly on 80, 75 and 40M, as well as on packet.

At this time plans are being made to handle outgoing traffic on NTS nets and via other traffic channels, including packet radio.

Is it all over yet? Well, I don't know. On Saturday we went through a 4.8 aftershock while I was working Region 2 OES on 40M phone and, as I sit here on Sunday morning, there were two aftershocks of about 2.5 or 3.0 on the Richter Scale.

The need for Amateur operators re-

mains, especially in view of the need for the Red Cross to maintain the various shelters in the South Bay Area and the Monterey Bay Area for at least several weeks.

Yes, the San Andreas "spring" did bounce back in a "big one." At least it sprung back a small way. The fault was still shaking some four days after the main shock.

And we still have to look forward to the "big one," of magnitude 8.0 or over. That's some 30 times as powerful as the earthquake we experienced this past week.

Amateur Radio operators will do as well then as they are doing now. Amateur Radio is one of the best examples of volunteers in service we have ever seen. □

Quake stuns DX net

MARRA McELROY, N6WLM

On Tuesday, Oct. 17, 1989, things were pretty much par for the course for the Heard Island DX Net, which meets every day at 3:30 p.m. PST on 14.222. Net control Mary Matheny, KB6CLL, of San Francisco, was lining up stations to work 3D2XV in Rotuma. Things had gotten into full swing by about 4 p.m.

About one hour and four minutes later, IT happened. Mary said, "Oh . . . It's an earthquake!", and then there was silence. She had gone off the air.

IT, of course, was the earthquake measuring 7.0 on the Richter scale, which rocked San Francisco and the rest of the Bay Area, causing at least 63 deaths, 3,089 injuries and billions of dollars in damage.

At about 4:45 p.m. that evening, Don Batten, W6RMM, a regular HIDX participant, had checked in. Don lives in Tiburon, which is about 12 miles from San Francisco. At 5:04, when the quake hit, he just grabbed hold of his

desk and held on.

"Everything was shaking, the grandfather clock chimes were bonging, my antennas were squeaking," he said.

Once the approximately 15-second jolt was over, Don noticed that Mary had not come back on the air and immediately telephoned her. She told him she had been thrown off her chair by the force of the quake and had lost all of her electricity.

Don, who is a member of the Marin area RACES, has two generators and his home is powered independently of the electric company, so he didn't lose his power.

In those first few minutes after the

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quake, neither Don nor Mary realized how catastrophic the quake had been. It was decided that Don would go ahead and take over as net control and the sked would go as planned.

It wasn't until about 10 minutes after that phone conversation that Don turned on his television. One of the local stations was doing a live report on the quake and was broadcasting an aerial view of the damaged Bay Bridge, where a section of the top portion of the cantilevered bridge had fallen down upon the lower portion. It was at this point that Don realized the situation was much worse than he had originally thought.

In the meantime the net was getting busy, with stations desiring a sked with 3D2XV. When Don came back after having seen the bridge, he relayed the apparent seriousness of the situation to those waiting on the air for news.

"They were all agog," he said.

Don was suddenly deluged with questions about the quake.

Joanna Nettleton, KB1ER, of Torrington, CT, was on at this time. When Mary can't work 6s and 7s, Joanna acts as net and checks in stations from the West Coast. She and Don decided to abandon the DX net and concentrate on Health and Welfare traffic.

A friend of Don's came to his home and monitored the TV, and Don gave reports as he got them from the news. As the severity of the situation became more apparent across the country, the calls came in larger number.

"The lines became so jammed, I

couldn't have called my back yard," Don said.

He eventually began taking phone numbers and promising to get back to people for their requests.

At the time of the quake, the HIDX Net was mostly dealing with stations from the United States and Canada. As propagation became better, about 30 minutes after the jolt, Australian and New Zealand stations came on.

At about this time Jim Smith, VK9NS, of Norfolk Island, Australia, broke in. He was calling from the 222 DX Net and he wanted to check on Mary's condition. He eventually contacted 3D2XV and told him they would have to put off the DX net.

Jim also acted as a liaison on earthquake news for the Australian and New Zealand media.

Don was on the air for six hours straight that night. As propagation conditions got better, he was able to transfer concerned callers to other nets in affected areas who could better answer their questions. He also talked to other stations who were taking H&W traffic and contacted people to let them know their relatives were worried about them.

The 33 years Don spent working as an engineer and cameraman at KPIX, Channel 5, in the Bay Area held him in good stead when television stations in St. Louis, MO, and Canada phone patched him from Amateur stations in their areas. He went live on their evening news programs and discussed the quake.

Don's vital role in this saga became secondary when telephone service im-

proved and people were able to call directly those areas with which they were concerned.

He said he thought the San Francisco Radio Club was most active, on 7315, as they were in the middle of the hubbub. Most of the traffic coming in to the Marin area was from other parts of the country — people wanting status reports and to know what areas were affected. Don said most of the calls he got were about San Jose and its residents.

Around the area where Don lives, there was not much damage. Primarily affected were the supermarkets, he said.

May 15, 1989, was Don's 50 year anniversary as an Amateur. He still holds his original call.

He said these last few days were the most exciting he has had in those 50 years.

"It was interesting being on the receiving end of a pileup after so many years of working these nets," he said. "Everyone was so cooperative. There were no jammers, like on some DX pileups."

As far as Don's concerned, Amateur Radio "did itself a great credit throughout this crisis.

"I'm hoping that after this incident people will have a different view of Amateur Radio and realize that it's more than just a hobby centered around ragchewing and talking about the weather. I think they'll really be able to tell the difference now between CBers and Amateur Radio operators, or at least I hope so." □

RACES Coordinator lauds Amateurs' contributions in earthquake aftermath

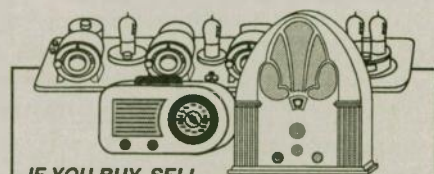
Stanly E. Harter, KH6GBX, State RACES Coordinator, Governor's Office of Emergency Services

The California State OES activated its Radio Amateur Civil Emergency

Service shortly after the 5:04 p.m. Richter 7.1 earthquake on Oct. 17, 1989. It was evident that telephone systems were impaired in many parts of the state, either by damage to the carriers' facilities or by an overload with too many people trying to use the telephones.

The primary points of Amateur Radio communications were between

the State Office of Emergency Services headquarters (W6HIR) in Sacramento, the State OES Region 2 office in Pleasant Hill, the Santa Cruz County emergency operations center, Hollister in hard-hit San Benito County and the State OES Region 6 office in Ontario. The latter was used extensively to bypass intermittent and overloaded telephone circuits.



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- **BELL FUNCTION**

- **REPEATER REVERSE FUNCTION**

- **CALL CHANNEL FUNCTION**

- **BEEP FUNCTION**

- **20 MEMORIES (10 FOR EACH BAND)**

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- **4 SCANNING MODES**

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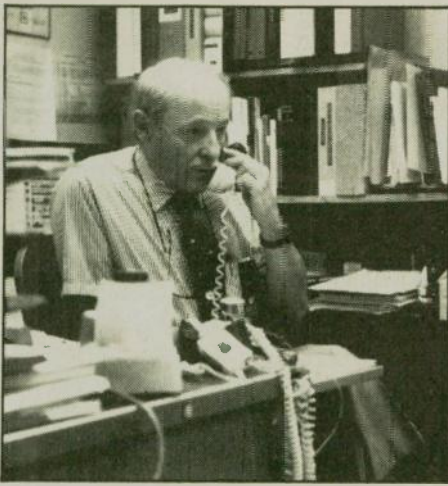


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Stan Harter, KH6GBX, state RACES Coordinator for California.

Telephone communication in and out of the heavily damaged city of Santa Cruz was impossible. Grady Williams, K6IXA, also helped by making a W6BXN digipeater frequency change to better serve Sacramento Valley emergency packet communications.

State OES Amateur Radio Service Coordinator Stan Harter, KH6GBX, was particularly appreciative of the efforts of Joel Paladino, N6AMG, for setting up a solid 440 MHz system between Santa Cruz, Pleasant Hill and Sacramento. Others making this



Les Ballinger, WA6EQQ, at California State OES headquarters. Photos by Armond Noble, N6WR

system available and so reliable were Jim Pratt, N6IG; Gary Young, N5DTL; Larry Haddox, N6QZH; and Ken Holliday, K6HCP.

State RACES Radio Officer Bill Musladin, N6BTJ, directed around-the-clock operations at the State OES Region headquarters. He was assisted by Ken Wing, N6MPH; Les Ballinger, WA6EQQ; Howie Phelps, WA6TUJ; Bill Siver, KB6GCW; Bill Pennington, WA6SLA, Herb Hildebrand, W6UBI;

Bob Meyer, K6RTV; Jim Buckman; N6HOS; Herb Bennett, KA6VHF; Bud Peters, K6HDE; and Lee Rominger, KB6RIH.

State OES Region 2 RACES Coordinator Art Botterell, KI6WE, reported that the Amateur Radio equipment and systems performed flawlessly. He said the Contra Costa County Amateur support at Region 2 and to the Concord Red Cross was superb.

OES Region 2 Radio Officer Larry Kaye, W6CPO, was assisted by Loren Woolf, N6AYU; Dwayne Eskridge, W6LKE; AA6NM, Fletch Young, KI6RP; Al Bond, N6RFZ; N6UTX; Derek Brown, N6CUK; Mark Curley, N6MIN; Glenn Zumwalt, KJ6EN; Nolan Smith, KI6TH; Rachel Lewellen; KB6LHR; Sue Ludeman, KA6SOC; Raymond Bryant, N6RBY; N6VVT; Robin Congdon, K1HRN; Shirley McGlathery; N6QHF; and KA6IVF.

State OES Region 6 RACES Coordinator John Hudson, WA6HYQ, and Region One's Don Root, WB6UCK, put in long hours in Ontario with Radio Officers Tim Peters, KA6GIU, and "Doc" Nordland, WB6MOQ.

Nevada State Radio Officer Carl Chaplin, W7QO, offered us the services of the Nevada RACES people if needed.

The Sacramento operations afforded an excellent opportunity to show the UPI bureau manager an impressive and professional demonstration of Amateur Radio in an emergency.

I regret any errors or omissions in this report. It was written in the midst of an on-going major incident.



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FIRST radio

(continued from page 10)

thusiasm when we visited their home. Someone gave me a copy of *QST* and that was read and reread. Thus, I was aware that there were radio Amateurs who communicated using code and voice.

We had a Radiola IV from 1923 so I was somewhat familiar with radio. In the spring of 1930 my interest to build a receiver reached the point that I began efforts to do so.

Unlike Bill, I had virtually no money and my parents had little cash since we were farmers in the throes of the Depression. In order to obtain parts I was given several radios that friends no longer used. In these broadcast receivers were all the components I needed, when modified.

Two variable capacitors were required with a capacity of 100pF. In broadcast receivers the capacity was about 365pF.

To use the capacitors I modified them by removing plates. Fortunately, the capacitors were constructed using screws and nuts and could be readily

modified. I calculated that two rotors and three stators would yield the correct capacity.

The regenerative detector required 22½ volts on the plate while the audio amplifier could be operated with either that voltage or 45. For a source of plate power, B batteries were obtained from the junk box of the town's radio repairman (he was Leonard Schnirring, WØKLD, of Sac City, IA. Leonard was listed in *Silent Keys*, *QST*, September 1957).

Constructing the plug-in coils using tube bases was quite a feat, especially when I think how young I was — inexperienced in the steps required to make coils, and lacking tools.

The small holes had to be drilled in the right places and the two windings spaced correctly for the coupling required. The coils were, despite the difficulties, the best constructed part of the set; the soldering was the poorest.

My father had a gasoline blow torch and a soldering copper; that is the correct name for the tool having a pointed piece of copper and a wooden handle at

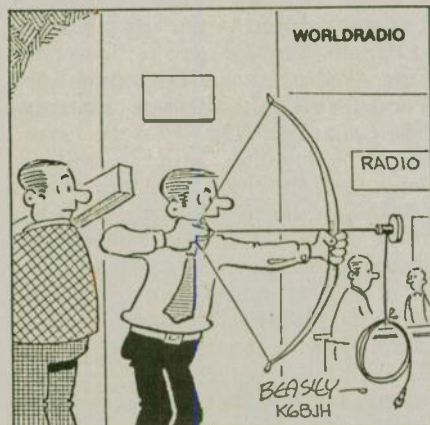
the other end. The copper was not tinned when that first receiver was built so it was a "battle" to solder since the heat didn't flow readily through the crust of oxide.

If that were not bad enough, I used acid core solder! Anyone who has studied the art of soldering electrical parts learns quickly that acid core solder is an absolute no-no. It conducts electricity and corrodes almost everything it touches.

Despite the use of the wrong solder and the atrocious wiring, the receiver worked well. I wound the first coil for 75-80M and listened to hams all over the central states. The regeneration was smooth and I was pleased with the reception.

Dad and Uncle Oscar had put up an excellent antenna for the Radiola IV and that was the antenna I used. It was 125 ft. long and was fastened at one end to the peak of the barn. The other end fastened to a rafter of our two-story home, so the total length was about 150 ft.

That receiver, and others constructed later, gave me the impetus to eventually become a ham and to obtain a First Class Radiotelephone license. □



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I'll take a club

On page 12 of the November 1989 issue, there was a picture of two very charming men, Valery Tyulyupin, RA9YD, and Terry Dubson, W6MKB, at the Hamcon '89 SW Division convention.

We incorrectly stated that the Cen-

tral Arizona DX Association hosted Valery's visit. In fact all arrangements for his visit to the states and his activities while he was in Arizona were made by the Coconino Amateur Radio Club and the Northern Arizona DX Association, of Flagstaff. □

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It was on a September weekend that I heard on the AM radio that a hurricane was approaching Puerto Rico. Not being one of those weather fanatics I paid little attention to it. But the next day I, like so many other Amateurs, was called into action to assist in obtaining information from the Caribbean Islands so devastated by Hurricane Hugo.

Though I had a very small part to play in the sending of traffic and assisting with nets, I was proud to often encounter call signs of those people familiar to me through the Courage HANDI-HAM System.

It was my hope that this column would contain an interview with some of those HANDI-HAMS who have been most active in the efforts to assist persons getting traffic in and out of the affected areas in the Caribbean. However, at the writing of this column, that

was not feasible, so perhaps next time we will hear in more detail from persons who have been active, such as K0FSM, W8IQJ and N0HSR. These are only the people I have heard in my limited net experience and I know there are others in the HANDI-HAM System who have not let their disabilities stop them from providing service when it was needed.

The HANDI-HAM System has a long tradition of a membership who were eager and willing to jump in where help was needed. In fact, it was this need for help during the daytime when others were working which prompted the founder of the Courage HANDI-HAM System.

Over the years there have been many who have been outstanding traffic handlers. Below is an article which appeared in our most recent newsletter by one such person who handles scores of birthday messages for the Courage HANDI-HAM System, wishing our participants a happy birthday and asking them how their Amateur Radio studies toward Novice or Technician license are coming along.

Who is Judy?

Have you ever received a piece of traffic from July Mortenson, WB0-WNJ?

Well, that's me. Sometimes there is a bit of confusion as to just who I am and where I am from because people giving you the traffic see my name, my call sign and the HANDI-HAM signature and fail to notice that the traffic didn't originate in Golden Valley at HANDI-HAM headquarters, but in Tracy, MI, where I live.

It was 13 years ago when Phil Bourque (now W1AJU of Maine, a HANDI-HAM member), who then lived in Tracy, helped me to get my license. But it wasn't until six or seven years ago that I started getting into traffic.

In addition to the monthly 400 to 900 pieces of traffic I send on behalf of the HANDI-HAM System, and my personal messages to HANDI-HAM members, I send from 125 to 250 pieces per month to other folks around the state of Minnesota. I'm on the air an average of six to 10 hours per day.

Regularly I'm net control for several traffic nets including the Minnesota

Noon and evening phone net, the Interstate net, the Piconet and the Ten region net.

Each month Sister Alverna, of the HANDI-HAM staff, sends me a computer printout listing all of the HANDI-HAM participants having birthdays in the upcoming month. The HANDI-HAM System classifies its participants into three groups—students, handicapped members and members. My mother takes the information from the printouts and re-types it onto various colored sheets of paper. Each color represents a different HANDI-HAM category. Once typed, she reads it to me so I can braille the information into the correct format to pass along to the nets.

Once brailled, I'm on my way. When traffic comes for me, my mother writes it down and later reads it to me for braille. I have a physical disability in addition to blindness and can't braille fast enough to do it without help. Though my mother's not an Amateur, she is learning much about the hobby and is a valued assistant to me.

In addition to Amateur Radio, I enjoy reading braille books, talking on the phone and knitting. Amateur Radio is a great way to pass the time. And over the years I've met the most wonderful people through traffic handling.

I love every minute of my time on the air and am proud to be a representative of the Courage HANDI-HAM System.

Are you a dedicated ham?


**JACK GOLDSWORTHY,
KA6EPF**

It could happen. Eleven p.m. and you're just dozing off after a long hard day. Suddenly a loud BEEP BEEP BEEP jolts you to full wakefulness. You hear an all too familiar voice say "all Los Padres Search and Rescue and ARES personnel report to station 31 for a rescue ASAP."

As the dispatcher repeats the call-out, your feet hit the floor and the adrenalin starts to flow. Ten minutes later you're at the sheriff's office and you learn that a car is over a cliff and about 200 ft. down along highway 154 near Painted Cave, with three people still inside. You grab your pack, throw it inside "rescue one," and jump in after it.

The ride up the hill seems to take forever, but really only lasts about 10 minutes. The team truck arrives on scene where the Highway Patrol has blocked traffic and the driver maneuvers it into position so it can be used as

(please turn to page 28)



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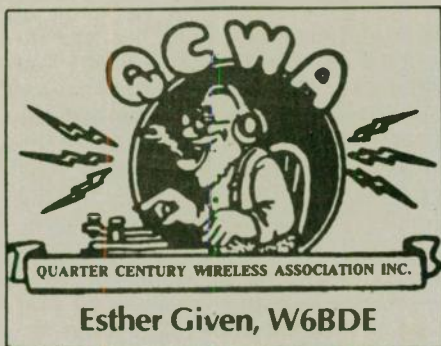
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The Quarter Century Wireless Association is greatly indebted to its chapters and their members for services rendered to the national organization. Each year different QCWA chapters volunteer to handle at least three important events which benefit the whole organization.

Early in 1989 the QCWA Cleveland (OH) Chapter #1 handled the log tabulations for QCWA's QSO Parties held in February and March. Processing 154 CW and 158 phone logs and tabulating points was the job tackled by those who volunteered to assist in the 1989 program.

The team did an outstanding job. In addition they were bound by a "vow of silence" concerning the outcome until results were released by QCWA's activities manager.

The processing of annual election returns is another service volunteered by a chapter. QCWA's 1989 vote count was handled by Canton (OH) Chapter 21. A total of 4,907 ballots were processed by the tellers between mid-May and the closing date of July 31. Those tellers were also bound by "silence" concerning election outcome until the official count was released on Aug. 1. A superb job was accomplished by these members.

The third volunteer service given by a local chapter each year is to host, plan and present the annual QCWA Convention. That honor for 1989 goes to Baton Rouge (LA) Chapter 109. The committee has worked hard for well over a year arranging accommodations, meeting rooms, food services, tours, transportation and countless other conveniences for visiting delegates.

The result made the Oct. 20 to 21 event an outstanding example of Cajun hospitality. QCWA members all over the world extend their gratitude and recognize the great contribution these chapters and their participating members have made.

Claude (Duke) Schmidle, W9RA, of Indianapolis, IN, is a recent recipient of QCWA's 75 year plaque. First licensed as "Radio Operator, Amateur Second Grade" in Cleveland, OH, on May 29, 1914, having shown he had

good knowledge of general adjustment, operation and care of apparatus; could send and receive Continental Morse at 8 wpm and had good general knowledge of international regulations and Acts of Congress to regulate radio communication. The original was renewed eight months later on July 21, 1915, for an additional eight months pending his being "duly examined."

In those days the US Department of Commerce was the licensing bureau, and the license was not valid unless the licensee executed a notarized oath on the back swearing to faithfully preserve the secrecy of all messages coming to his knowledge through his operations under the license. Duke still has this precious document, which was stamped "expired" in letters an inch high when he renewed it.

Michigan Chapter 10 distributed a questionnaire at a recent meeting asking attendees to indicate the number of years they had held an Amateur license. The longest reported was 66 years and the shortest was a guest with one year. The total for all those present was an amazing 2,029 years.

Beaver State (OR) Chapter 108 hosted a QCWA luncheon recently at the SEA PAC HAM Convention. They too made a survey of those attending and were surprised to have QCWA members present from 16 different chapters, eight of which serve QCWA members as far removed from Oregon as New England, the middle west and southern California.



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QCWA members attending conventions are urged to sign up for and attend QCWA functions scheduled.

Central New Jersey Chapter 138 recently programmed a field trip to Sandy Hook. Official docent was chapter member John Mulhern, N2GOF, who spent his boyhood there and is active in the Sandy Hook Veterans' Historical Society.

The field trip included a tour of the Coast Guard Station and its communications center; Fort Hancock's Coast Artillery Battery Emplacements and the Sandy Hook Lighthouse, which is the oldest continuously operated lighthouse in the United States, celebrating 225 years of service this year.

Inland Empire Chapter 130, in southern California, has held 468 consecutive Saturday morning roundups on 75M phone since it was chartered in 1980. "Wagon Master" of the popular net has been charter member Len Yerger, K6SS, who plans to retire at the end of the year. His replacement will be Troy Wideman, AA6J. □

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DEDICATED ham?

(continued from page 26)

the tie-off point for the rescue teams.

Then you and one other ARES operator and six LPSAR members scramble out of the truck. The fog is starting to roll in and the temperature is going down. Nobody says a word but you sense an extra amount of urgency.

You learn from the HP officer and the team leader that the victims are a man, his wife and their three-year-old daughter, all still alive. You help the rescue teams by calling for the paramedics through K6TZ phone patch. You do what you can to help the rescue teams load up. Then over the side they go, one ARES with them.

After what seems like an eternity, the first team reaches the car and its victims. All are alive, though somewhat the worse for wear. The team leader calls for the Stokes and the "big wheel" and they are sent down. Paramedics arrive on the scene.

About the same time the father is brought up to the top with a broken leg and internal injuries. A second ambulance is summoned via phone patch. The mother arrives topside next with a broken arm. Finally, the three-year-old girl is brought up, in good shape with just a lot of bumps and bruises.

Is this the kind of PUBLIC SERVICE that you would like to be involved in? If you like the out-of-doors, if you like to backpack, if you like that good all-over feeling one gets when you help your fellow man, then you need to join the ARES FIELD TEAM! — Santa Barbara Amateur Radio Club

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In order to plan our space to serve the interests of our readers, we ask that you take a moment to let us know what you find most useful in Worldradio, and also what you would like to see that we don't currently cover.

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Traffic*				
VE Exams				
Who's Who*				

*Appears every other month

I would like to see _____

Thank you for your participation.

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!

With a story that will probably ring true for most devout Amateurs, this month's winner is Joe Curlott, K5CTG/4, of Bolivia, NC. "CQ... CQ... Marconi??"

It was a cold evening at Eagle River, AK on April 2, 1978, and tuning 20M seemed like a much better idea than shoveling snow from the walks and driveway.

The band was wide open for the Pacific and the prospects of working a rare one seemed good.

I cranked up KL7HKE, gave a short CQ and KH6BGF answered. Somewhere in my gray-matter memory bank that call rang a bell.

While we exchanged the usual information, I kept trying to remember when and where we had QSOed before. While he was transmitting I went to the QSL file and there it was: KH6BGF and KA3JC (my old Japan call) had contacted on April 29, 1956, just a few days short of 22 years before.

Sam got a bang out of me remembering that QSO, but the best was yet to come.

He asked for a sked 22 years from that time. That would be April of 2000.

I replied that there was a possibility that one or both of us may not be around to keep a sked so far in the future.

"Well," Sam replied, "it doesn't make any difference about that because when I go, I'm taking my rig with me."

With an answer like that, what can one say? We made the sked.

So Sam and I will sked in April of 2000, and we may not even have to plug in our rigs. □

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STATION APPEARANCE

DECEMBER WINNER

John Gordano K6JJU

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.



This month's winner is John Gordano, K6JJU, of Redwood City, CA. John has been an Amateur for 35 years. He has operated VHF for about 25 years and HF the last 10. He worked WAS on 50 MHz and enjoys chasing DX and ragchewing.

Following is a description of his equipment:

From left to right the equipment consists of a Kenwood TS 830S transceiver, Kenwood AT-200 antenna tuner,

Yaesu FT 102 transceiver, Kenwood 520 transceiver and Drake MS4 speaker.

Top left to right is a QF-1A all mode filter, Alliance HD rotator indicator, clock radio, Kenwood TS-700A 2M transceiver. On top of this is a KLM 2M 40W amp.

On the desktop are a ham key, Kenwood MC50 microphones and Worldradio magazine (a very politic move on John's part if I do say so. Wonder if this guy's a diplomat?). □

Triumph is just umph added to try. — Orleans County ARC, Albion, NY

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OFF THE AIR

The communication miracles of Amateur Radio

This year I will celebrate my 50th year as an active Amateur Radio operator. I have had many exciting and rewarding experiences as W2NHB.

I received my ticket in September 1939, just before leaving for two weeks training camp with the 102nd Observation Squadron NY Air National Guard in Watertown, NY.

The 102nd was based at Miller Field, Staten Island, and later became the 102nd Bomb Squadron. I was in communications and operated our MARS station as a Staff Sergeant when we moved to Floyd Bennett Field, Brooklyn.

I have had many radio experiences, but this one proved to be exceptional and emotional for me. I have a radio friend named Libero Massoni, an Italian Amateur Radio operator, 11VHQ, QTH Intra-(Verbania) Lago Maggiore, 40 miles north of Milan near the Swiss border.

He recently collaborated with me (August 1987) in the rescue of his friends floundering in a 42 ft. sailing vessel in the mid-Atlantic, enroute from Miami to Genoa.

I have been speaking to Libero twice a day for the past three years. Libero suffers from asthma attacks and has been quite ill.

After our contact on May 8, 1989, I called him at our usual frequency and time and received no contact. I was concerned and felt I had to make a contact with him.

After several days of this I finally asked a contact (10MKW) in Alleron,

Italy, 60 miles north of Rome, to see if he could obtain Libero's telephone number for me. We made a schedule for the following day.

The next day 10MKW told me Libero had an unlisted telephone number, but that he would get the word out to him by radio. On May 30 I made my usual call to Libero and, miracles, he answered my call.

This was very emotional for us both and I had goose-pimples from the thrill. He told me that he finally received a telephone call from a radio Amateur who knew him. His friend told him that an American Amateur Radio operator wanted to hear from him.

I understand that the Amateur Radio fraternity in towns from Torino, Milan, Acqui, Termini and Livorno were alerted and that's how he was finally contacted. He told me he had a severe leg infection and was in bed and not able to move for some time and that the doctors considered the possibility of an amputation for awhile.

His radio shack is on the second floor patio overlooking Lago Maggiore. He had two friends carry him in a stretcher to the top floor so he could give me the news of the cause of his absence on our

schedule. I told him I was glad to hear that he had not been called to the Big Wireless Station in the sky.

I am happy to say that we are again back on schedule.

AMILCARE "Percey" PER-SICHETTY, W2NHB
Staten Island, NY

Patty strikes again

Well, here I am again! Poison Pen Patty (see July 1989 issue). After my last letter was published, I expected a few letters or comments and received next to nothing. A few fellow members of the west coast net I belong to said they enjoyed my letter. One close friend said "We're all entitled to our opinions," but didn't elaborate.

Maybe this letter will generate a few responses. I hope so. I can't imagine everyone agreeing with me.

I halfway hoped for a solution to my Mexican license problems, but nothing materialized. Not even encouragement from Gordon West. Our next trip to Baja will be near Christmas. With all the turnover in Mexican politics recently, maybe things will get better.

I've been thinking of other things that have caught my interest while listening on various bands.

I can't remember the number of times I've heard, "Well I'll have to sign, it's getting too (hot-cold) out here in the (garage-shack) and the XYL won't let the rig in the house."

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(please turn to page 32)

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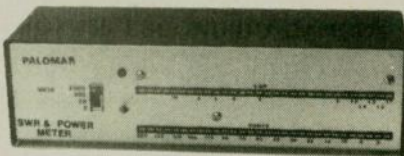
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Off the Air

(continued from page 30)

hutch with the fine china out in the garage. The little lady will get used to it.

The bedroom is also ideal. Prop your feet up on the silk bedspread and QSO in comfort!

Ladies, I have to give you equal time. If the OM has a den, cellar, etc., move out the gun cabinet, computer or Shop-Smith and make yourself at home!

Kidding aside, I'm sure you both need your hideaways to enjoy your hobbies.

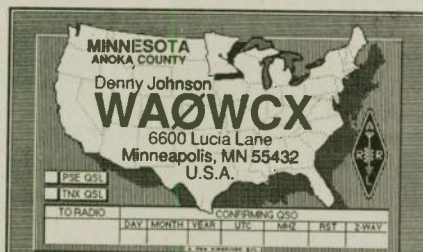
I myself have experience in domestic radio stress! Let's call it "DRS." Let me tell you about the case of the "Lost Ship."

Not too long after receiving my license, I made contact with a cruise-tourist ship that made trips from New York, down around the tip of South America and on up the West Coast to Seattle. I made several patches for the crew to their families and was getting well acquainted with the radio operator — well enough to be invited to tour the ship next time it came into LA Harbor. It sure sounded like fun!

Next scene. The OM was watching a rerun of some old TV program and I was tearing it up. Suddenly an arm flew by my face, hit the off-switch on the SB 220 and a nasty voice said, "That's it."

Well, it was for that evening (I try to compromise). I tried many evenings after that, but never made contact with the ship again. The OM says they are still trying to make contact but are stuck in the Bermuda Triangle somewhere. One of many experiences.

Since then the station has been upgraded to eliminate TVI. With the help of the OM, I have a better ground, good match and cable TV, which all helps, and we rarely have a problem.



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A few more things I'd like to mention, mainly to get a little reaction. First of all, I dislike contests, but recognize and appreciate everyone's right to compete. I only wish they could coordinate the frequencies so the whole spectrum isn't taken up. On big contest weekends I just plan on shutting down.

Another is DX waiting lists. If I can't make it on my own, I don't want it.

I've really been disillusioned about Field Day on CW. I must confess that I haven't been on a Field Day for several years, due to plain neglect.

I was discussing the latest efforts of one of our larger Amateur clubs in the area with a friend. He was enormously impressed with the current "state of the art" equipment and "hot shot CW operators." These guys can sit back with their feet up and, with the computer programmed, make several hundred contacts in a few hours with little effort.

I can't see the benefit of this in a real disaster. Field Day should not be a mechanical contest. A disaster is a human catastrophe, not a computer contest.

There is a definite place for computers and radio, but in my opinion it is not on Field Day with people learning to handle emergency communications. Be careful! With your packet and computers the human element is gone and the robots take over.

I would sure like to be the Ann Landers or Dear Abby of Amateur Radio. Not for technical problems, though. There are enough of you out there to handle that. How about opinions, gripes, accolades, domestic stress or just plain humor? We need more laughs and tears out there in radio land.

If I come up short, you can chase me with a wet coax instead of a wet noodle! Ouch!

I'm still good in the Callbook, or write to Worldradio.

PATTY SMITH, WB6DRG
Torrance, CA

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—Western ARC, Cerritos, CA

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SPECIAL EVENTS

Sacramento sesquicentennial

The Sacramento Amateur Radio Club will operate special event station W6AK from Sutter's Fort from 1750Z, Dec. 2, until 2330Z, Dec. 3, to celebrate Sacramento's 150th birthday.

Suggested frequencies: SSB—14.300, 21.400 and 28.450 during the day and 3.962,

7.270 and 14.300 at night; CW—14.050.

For a QSL send a SASE to Sacramento ARC, P.O. Box 161903, Sacramento, CA 95816. □

Tournament of Roses

The Relay Repeater Amateur Radio Club will operate special event station KE6PE from Dec. 30 to Jan. 1, from the Wrigley Mansion in Pasadena, CA. This commemorates the 101st

Anniversary of the Tournament of Roses — 101 years of the Rose Parade and 76 years of the Rose Bowl Game.

The station will operate from 1600Z to 0400Z each day on the following suggested frequencies: 14.260, 21.335 and 28.450 Novice/Tech, plus or minus GRM.

For a certificate send a QSL and a 9 X 12 SASE to Relay Repeater Club, P.O. Box 81, Arcadia, CA 91006-5019. □

Solder splatters: Use silicone heatsink compound to improve heat transfer on screw-on type of soldering iron tips. —Dave Guimont, WB6LLO, North Shores ARC, San Diego, CA

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KAM All-Mode Communicator

RICHARD ARLAND, K7YHA

The Kantronics KAM All-Mode Communicator is "cute!" That is one of the first words that comes to mind when I look at the tiny KAM, the smallest of the current crop of Multi-Mode Data Controllers (MMDCs), measuring 1 1/4 X 5 7/8 X 9 inches. It features Version 2.85 firmware, 32K of RAM, dual radio ports, independent audio output adjustments and sturdy one piece case construction with end panels.

The KAM receives and transmits CW, Baudot and ASCII RTTY, AMTOR and HF and VHF Packet Radio and receives WEFAX transmissions. It will receive NAVTEXT transmissions — FEC Amtor — but not selective on 518 kHz. Most likely, the next firmware upgrade or possibly the next generation of Kantronics MMDC will incorporate this very useful mode.

In addition the KAM is the only MMDC that will allow the HF and VHF ports to be linked to function as a cross-band gateway using the GATEWAY command. Once in this mode, anything received via the MYGATE

call sign on one port will be automatically retransmitted on the other port!

Power requirements (12VDC at 300mA) are spartan. The gateway feature coupled with small power requirements make the KAM perfect for disaster/emergency communications.

The three manual set is must reading prior to delving into the digital netherworld. Unfortunately all three manuals provided are multi-unit manuscripts dealing with several Kantronics TNCs, including the KAM. The necessary information on how to install and operate the KAM should be condensed into one manual.

The Kantronics folks have, however, made life considerably easier on us country boys, as the manuals present the information in a cross-indexed format for easier reference.

The terminal program used for the KAM was my favorite standby, CoCoPack (Ver. 5.0) by Monty Haley (Rt. 1, P.O. Box 150-A, Evening Shade, AR 72532) for the CoCo II (using cassette tape). Monty has just sent me info on his latest creation, an updated version of CoCoPack which cures problems on

Version 5.0.

In addition, the new software supports the CoCo 3 computer. Cost is \$7 (\$5 for the software and \$2 for postage and handling) to registered CoCoPack users or \$19.95 for first time subscribers.

HF radio to MMDC interfacing is accomplished using an 8-pin DIN jack and supplied pre-wired plug/cable. In both instances you have to supply the necessary connectors on the radio end of each cable to mate with your favorite transceiver.



The Kantronics MMDC is a good value and an outstanding performer.

Computer to KAM interfacing is done using the supplied DB25 connector on the back of the KAM where TTL or RS-232C signal levels can be selected. CW transmitter keying is supplied via the HF radio cable and reed relay is used to key the transmitter. Unfortunately, a 100 ohm current limiting resistor (a safety feature for most transmitter installations) is placed on the output of the relay and this added resistance will not allow the KAM to key the Argonaut (and similar transceivers whose key line must see true chassis ground).


The resistor had to be jumpered to get the KAM to key the Argonaut. An external transistor switch could also be used to pull the key line down to chassis ground. Jumpering the resistor is the most expedient and least costly solution to the problem.

The KAM front panel is simple and very well designed. It incorporates an on/off switch and an AM/FM switch which places limiters into the demodulator for RTTY (FM) and CW (AM). The 10-segment tuning LED allows spot-on tuning of incoming signals. HF/VHF port operating conditions are shown by the red and green LEDs under the tuning indicator. A LED power indicator shows when power is applied.

Rear panel connections are very straightforward — a 12 V power connector, DB-9 (VHF radio port), 8-pin DIN (HF radio port) and DB-25 for RS-232 computer interfacing. That's it...no more connections.

So how does one select radios, control filters, etc.? Via the keyboard, that's how! The KAM is very versatile when it comes to user control.

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

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The KAM is easy to use, once you get the command set down. The KAM command set resembles the TAPR TNC-2 commands. After some intense practice my comfort level with the KAM command set was high and I enjoyed the operation of the unit.

So, how does it perform? In one word: GREAT! CW transmission (once the 100 ohm resistor was jumpered in the keying line) proceeded without difficulty. CW reception was the best of all the MMDCs. Why? Very simple. Kantronics provided a method of changing bandwidth and center frequency of the CW filters via the computer keyboard, ergo: Much better reception of CW.

The KAM is the only machine-operated CW receiving system that I have used which will copy under marginal band conditions. It still won't copy poorly sent CW via a bug or straight key; however, most keyers and CW keyboards copy very well using the KAM. One addition I'd like to see on the KAM is a full blown contest memory keyer. Since CW operation is available within the KAM firmware, it sure would be nice to have a contest keyer with memory buffers, sequential serial numbering, etc.

ASCII and Baudot RTTY worked well. As with the competitors, the KAM will support all standard speeds (45, 50, 57, 75, 100, 110, 150, 200 and 300 bauds) and shifts (170, 450 and 800 Hz). It should be noted that the shifts and speeds are also changeable in 1 baud and 1 Hz increments from the keyboard.

This is one flexible MMDC. The DIDDLE command will cause the KAM to transmit a special diddle character (called "blanks") when you are in the RTTY transmit mode but not sending data. In real-world RTTY operations, it is standard practice to send two carriage returns (CRs) and one line feed at the end of each line. By turning the CRADD command on, the KAM will send an extra CR after each CR is sent via the keyboard.

HF/VHF packet was extremely easy to use and produced outstanding results. HF Packet baud rates are also variable in one baud steps from 50 to 300 bauds. Some very powerful commands are featured in the packet mode. The KAM firmware supports the Kantronics Personal Packet Mailbox, which allows the user to set up his/her own mini-bbs to transmit and receive messages while unattended. The current firmware allows auto-connection to the PBBS when someone connects to your MYCALL.

Also, connecting stations are routed directly to the PBBS if you are away from the keyboard. The KA-NODE allows node-to-node connects, which

results in better efficiency and higher data through-put. Since end-to-end acknowledgments of transmitted data takes considerable time, it is replaced in the KA-NODE by local acks of packets. This cuts down the "data controller housekeeping overhead" transmissions, which increase efficiency of the TNC and increases data through-put, especially when going from one band to the other.

The KISS command is also available to provide TCP/IP packet protocol compatibility. One of the most powerful packet commands is XCONNECT, which allows the KAM to function as a cross-band gateway in the node-to-node configuration. This allows a VHF user access to HF packet frequencies!

The KAM is capable of simultaneous packet operation on HF and VHF, allowing the operator the enjoyment of conversing locally on VHF while, at the same time, chatting with someone else across the country on HF. All of these packet functions can be caused to operate concurrently — packet operation on both ports, PBBS, GATEWAY and KA-NODE! There are a lot of ones and zeros running around inside that little box!

Bottom line: Good value for money. Small, rugged, well suited to emergency communications applications. Outstanding performer. I wish it had a printer port for real-time printouts of received data. If you have a good quality comm package in your PC, you can toggle the printer on/off via keyboard commands. Price is \$319.95 and features a one year guarantee.

I'd like to thank Ken Johnson of Kantronics, 1202 E. 23rd St., Lawrence, KS 66046, for providing the test unit and helping out during the testing phase of this review. □



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Wilbur Sater, KØCRG

KØCRG, of New London, IA, passed away on Sept. 27, 1989, at the age of 72. He had suffered a stroke a month earlier and had been receiving treatment at the Burlington Medical Center.

Wilbur is survived by his wife, Beulah, to whom he was married for nearly 51 years.

KØCRG was an active HF DXer and a ragchewer on the local repeaters and in packet radio. He was a member of the Mt. Pleasant Amateur Radio Club and also the Iowa-Illinois ARC in Burlington. Back in the 1950s KØCRG started a long standing tradition of Mt. Pleasant area Amateurs operating a special event station at the Midwest Old Threshers Reunion.

Wilbur was a farmer for 53 years. He was on the New London Coop Elevator Board, was elected to several terms on the Henry County Board of Supervisors and was a trustee of the New London Presbyterian Church. He was also a member of the Odd Fellows, Masons and Rebekahs. — *Information submitted by Dave Schneider, WDØENR* □

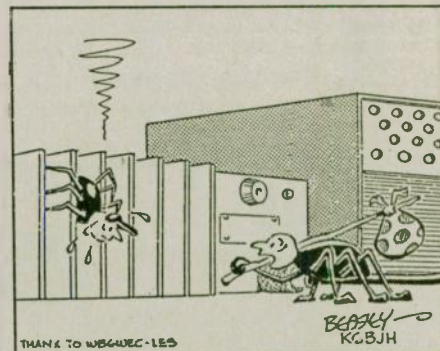
Fred E. Broad, W3QVY

Don Nolde, K4QV, informed us about Fred in this letter:

My friend W3QVY, of New Milford, PA, signed off on Sept. 20, 1989, in Scranton.

Fred and I were in contact for 45 years after leaving the navy, where we worked together on the *USS 15M 15*, which sunk at Okinawa. We even spent time on a life raft together.

Fred was laid to rest at sea in Long Beach, CA. Goodbye old friend. I will really miss you. □



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DX WORLD

John F.W. Minke III, N6JM

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Activities Calendar

- 02-03 Dec. URE Spanish DX Contest (CW)
- 02-03 Dec. ARRL 160M Contest (CW)
- 09-10 Dec. ARRL 10M Contest

W-100-N

Our congratulations to the following DXers for completing the requirements for Worldradio's Worked 100 Nations Award:

- 367. NM7M Robert R. Brown (All CW)
- 368. KF7RU Jerold A. Goetsch
- 369. VE1ACK Vincent H. Thorncroft (All CW)

Botswana (A2)

The Callbook lists three dozen, more or less, calls for Botswana. Most likely many of them are no longer active.

During the month of September, we found only seven calls reported and only three of them are in the Callbook.

A22AA	28.458 MHz	1900 UTC
A22BW	7.008 MHz	1430 UTC
A22CA	28.536 MHz	1915 UTC
A22FN	21.327 MHz	2030 UTC
A22MH	21.321 MHz	1730 UTC
A22RA	28.518 MHz	1300 UTC
A22SW	14.051 MHz	1430 UTC

Burkina Faso (XT2)

For you older DXers unfamiliar with Burkina Faso, try Upper Volta. QRZ DX reports that XT2PS has been very active on 21.305 MHz between 2300

and 0100 UTC. According to *The Long Island DX Bulletin*, he will be there on an extended assignment and will be active on more bands. He has been reported on 20M between 14.217 and 14.256 MHz after 2345 UTC.

Micronesia (V63)

Ed Michal, KB3R, reports that in early September 24 radio Amateurs in the Federal States of Micronesia had been issued the new V63 calls. Ed, who is a diplomat at the United States Embassy at Kolonia, holds the call V63AA and is the only station active on CW — 15M only. Look for him between 0630 and 0930 UTC.

The present calls include V63AA through V63AS, V63CQ, V63GD, V63JC, V63MA and V63VW.

Presently domestic US postage still applies to this new country. The zip codes also still apply — 96941, 96942 and 96243 for Ponapei, Truk and Yap, respectively, and require the abbreviation "FM" between the island name and the zip code.

I have the addresses for the above calls if anyone is interested. Please include a SASE.

Fiji (3D2)

During the big worldwide bash at the end of October, that 3D2KH operation was the effort of the Southern California DX Club. No doubt the effort helped reduce any demand for the Fiji Islands.

Not into contests? All right, then look for 3D2AG on 14.222 MHz around 0500 UTC. He often shows along with 3D2ER.

3D2AG has also shown on CW, as he was worked on 14.005 MHz at 1100 UTC at the end of the summer. For RTTY contacts try 3D2EA near 14.085 MHz at 1115 UTC.

Other reports for Fiji include:

3D2EA	21.255 MHz	0800 UTC
3D2HJ	28.509 MHz	0045 UTC
3D2YT	21.266 MHz	1015 UTC

Bouvet Island (3Y)

The latest on the Bouvet Island DX-pedition is that it's still a go, with the target date for landing on Dec. 22. The group (Club Bouvet) had been approached by another group inviting them to go along with them as their guests in February on a fully funded expedition. The DXpedition team decided not to accept this offer, though, as there would be a space limitation with all the people on the island. Also, the time selected by Club Bouvet allows for ample margins due to bad weather.

Club Bouvet also reports that contributions as of mid-September had reached 65 percent of the expected cost of \$100,000. That amount included at least 252 contributors.

To help with the cost of this DX-pedition, send your contribution to Club Bouvet, P.O. Box 88, N-1361 Billingstadsletta, Norway. Their bank account: DNC Oslo 7085.05.07382.

Another group of DXers have also announced their plans to go to Bouvet Island. This group, led by The Legion of Indianapolis DXers, is expected to arrive on the island at the beginning of February for 10 days of operation. The expected call sign is 3Y0B.

The expected total cost of this DX-pedition is predicted to be around \$120,000. The group is presently fully funded by private corporate interests and landing team members.

This is the other group to which Club Bouvet was referring. After almost two years of planning and development, this DX-pedition is to become a reality. Originally intended for the early part of 1989, the DX-pedition was postponed at the request of *National Geographic*.

This will be a multi-multi contest style operation with seven individual stations (three SSB, three CW and one satellite). All equipment will be donated by the Yaesu-Musen Corporation of Japan.

The DXers taking part in the land-

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ing party will include Tom Carroll, N9AZD; Rusty Epps, W6OAT; Bill Kennedy, KA9AND; Mike Koss, W9SU; Jay Kraus, WB9LTY; Mike Mallory, NE9O; Chip Margelli, K7JA; Mike O'Cull, WA9NPM; Al Olson, WB9QPN; Jim Rinehart, WB9CEP; Brian Smith, KA9OIH; and Mike Wetzell, W9RE.

More on this group will follow next month. Stay tuned to Worldradio.

Tanzania (5H)

Tom Warren, 5H3TW, keeps things alive in Tanzania, especially 40M. Look for Tom near 7.005 MHz from 2300 UTC.

On other bands for 5H3TW try 14.026 MHz after 1200 UTC or 21.020 MHz at 2230 UTC. Tom's schedule is irregular, but when he is on he piles up the contacts.

During the California QSO Party I heard him in the Novice portion of the 10M phone band. He said he was going to QSY to work the Californians. I tried to break in and give him Sierra County, but to no avail. You missed a nice multiplier, Tom!

In addition to Tom's activity we noticed reports of three other stations:

5H3MO	28.580 MHz	1415 UTC
5H3VB	28.514 MHz	2000 UTC
5H3ZW	28.488 MHz	1500 UTC

Nigeria (5N)

We found a few active stations reported in the DX bulletins for September, such as the following:

5N9ABY	21.088 MHz	1945 UTC
5N9BGD	3.792 MHz	0400 UTC
5N9FEA	21.280 MHz	2045 UTC
5N9GM	21.335 MHz	1730 UTC
5N9NRK	21.242 MHz	2100 UTC
5N0MRD	21.311 MHz	0830 UTC
5N0SKO	14.041 MHz	2345 UTC
5N0UDB	24.945 MHz	1330 UTC

Some of the Nigerian stations are presently using the commemorating prefix of 5N29 with their regular suffixes.

Algeria (7X)

For a 75M QSO from Algeria, look for 7X4AN at the beginning of the UTC day. Listen near 3.797 MHz. This station has also been reported on 14.226 MHz at 0001 UTC and 28.503 MHz at 0945 UTC.

Twenty meters appears to be a good hangout for Algerian DXers. Check 14.181 to 14.200 MHz for 7X5AV after 0045 UTC or between 14.222 and 14.247 MHz for 7X5ST after 0030 UTC. Check near 14.208 MHz around 0200 UTC for 7X2CZ.

For a CW contact look for 7X2CR, who was reported on 14.001 MHz at 0245 UTC in mid-September working

W6s. Also reported on this mode was 7X2AX, who was found on 21.015 MHz at 1745 UTC and 28.008 MHz at 2015 UTC.

7X3DA was reported on at least three different bands, such as 14.243 MHz at 0600 UTC, 18.139 MHz at 0700 UTC and 21.017 MHz at 1930 UTC.

Ten meters is another good band to check. 7X2LZ was found on 28.502 MHz at 1715 UTC with 7X4BL on 28.410 MHz at 1530 UTC.

Guyana (8R1)

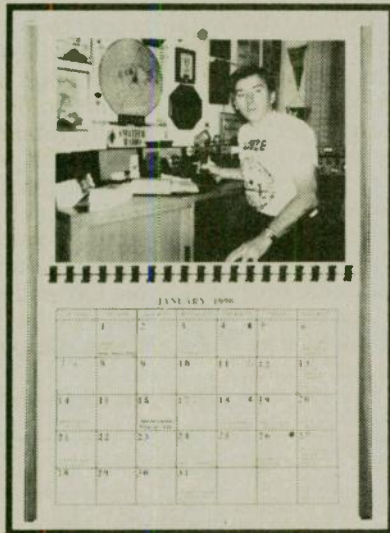
Very active from Guyana recently was 8R1J. Look for this one on 40M between 21.012 and 21.017 MHz from 2030 to 2300 UTC.

His 10M activity is between 28.007 and 28.023 MHz on CW and on SSB near 28.494 MHz. A single report for 20M was 14.009 MHz at 1030 UTC in early September.

Early September reports also found 8R1RBF active on 10M with the east coast. I found no further reports for this one.

Zaire (9Q5)

SM5DIC will be operating from various spots for about a year in Zaire, signing 9Q5TE. He prefers SSB and reports his favorite operating frequencies as 14.315, 21.315 and 28.515 MHz.



Calendar measures 11" x 18" when opened, and is spiral-bound to hang or lie flat. Has 12 large photos (5 in full color). Two color printing for dates. Contains 44 pp., total.

1990 Ham Photo Calendar

with Contest and DX References

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DX Prediction

Maximum Usable Frequency from West Coast, Central U.S., and East Coast (courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22180).

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

DECEMBER 1989

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(15)	17	20	(13)	20
12	(15)	16	20	(13)	19
14	(24)	16	19	(13)	37
16	(31)	16	18	(18)	44
18	33	16	(25)	(15)	47
20	34	16	33	(14)	47
22	29	32	39	(13)	45
24	25	34	43	(13)	38
2	19	28	38	13	26
4	17	20	26	12	23
6	(16)	19	23	12	21
8	(16)	17	21	13	20

CENTRAL USA

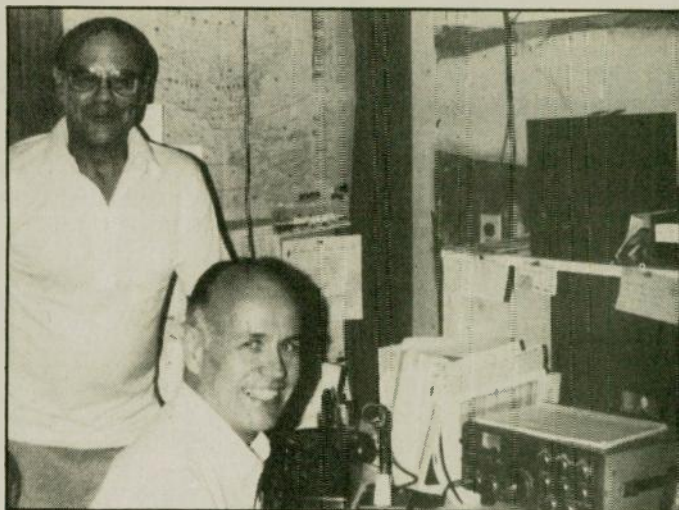
UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	(19)	13	20	13	20
10	(19)	13	20	(13)	19
12	32	13	19	(13)	27
14	40	17	33	23	42
16	43	(16)	28	20	46
18	42	(16)	(26)	15	47
20	35	(16)	34	(14)	47
22	30	26	39	(13)	42
24	24	(21)	37	13	30
2	22	(16)	26	13	25
4	21	(15)	23	13	22
6	20	(14)	21	12	21

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	19	13	(20)	13	20
9	19	13	20	13	19
11	33	13	19	21	28
13	41	14	35	25	41
15	44	(13)	31	23	45
17	45	(13)	(25)	18	47
19	39	(13)	(31)	15	47
21	32	(21)	37	14	43
23	25	(21)	37	13	31
1	22	(16)	25	13	25
3	21	(14)	23	13	22
5	20	(14)	(21)	13	21

In July John Ellington, TU-2VE, paid a visit to the shack of his QSL manager, WB4UBS, in Columbia, SC. Here is John (seated) while his faithful QSL manager looks on.

John is now back in the Ivory Coast. Look for him between 1800 and 2300 UTC near 21.350 and 28.400 MHz.



(Photo courtesy of WB4UBS).

Look for SM5DIC daily on the 20M frequency at around 0530 UTC. He will switch to the 10M frequency if 20M is no good. On Saturday look for 9Q5TE on 21.315 MHz at around 1400 UTC and again on Monday at 1600 UTC. He will give CW contacts upon request. SM0BFJ will be the QSL manager.

Zaire has been represented by a few other active stations recently. The one reported most often was 9Q5DX, frequently found working CW on 20M between 14.005 and 14.035 MHz from about 0300 UTC. He has also been found on 40M near 7.002 MHz from 0330 UTC, 15M near 21.032 MHz at 1900 UTC and on 10M around 28.025 MHz around 2100 UTC.

If you are looking for SSB contacts, try 9Q5XX at around 2000 UTC between 21.234 and 21.278 MHz.

WA9INK, after pleasing many a deserving DXer with a SU1EE contact, is now signing 9Q5EE. He was reported in the Novice band on 21.114 MHz at 1400 UTC in early September

and up on 10M near 28.500 MHz at 1945 UTC.

Not much activity by 9Q5EE, who is probably taking a rest from DXing. He was scheduled to work in the CQ World Wide DX Contest in October signing 9T5E.

During the early part of September, 9Q5UN was active on 15 and 10M, mostly CW. Other stations reported from Zaire include 9Q5AA on 21.242 MHz at 2100 UTC, 9Q5BG on 14.250 MHz at 0145 UTC and 9Q5US on 28.035 MHz at 2230 UTC.

IOTA

For you IOTA types (Islands-on-the-Air), the following is a selection of islands that have been reported recently. Frequencies and times are MHz and UTC respectively.

AF-42 Alboran Island	ED9BUD	21.015	2200
AN-15 Ongle Island	8J1RL	21.185	1500
AS-27 Wrangal Island	UA0HAE/UA0K	14.018	1315
AS-40 Goto Island	JR6CSY	24.961	1445
AS-64 Karaginsky Island	UZ9OWM/UA0X	14.023	0500
EU-16 Lastova Island	4N46L	14.195	1100
EU-17 Eolie Island	ID9I14LU	21.025	1045

The 1989 Worldradio DXathon

ELIGIBILITY — All licensed Amateur Radio operators, worldwide.
DATES — Start: 0000 1 January, 1989. End: 2359 31 December, 1989.

Exceptions: No contacts made during the time frame of any DX Contest will be valid. This is to be a prestigious award program, made so by its difficulty.

BANDS — 80, 40, 20, 15, 10 meter bands; plus satellite/moonbounce frequencies.

MODES — Phone, CW, Digital (includes RTTY, AMTOR, packet), Visual (SSTV), and Satellite (includes moonbounce).

Five Bands/Five Modes equals DXathon.

CATEGORIES — There is only one category — Single Operator.

OBJECTIVE — Contact as many NATIONS on as many modes as possible. A NATION is defined as an entity with enough sovereignty to issue its own postage stamps.

VALID CONTACTS — A NATION may be worked but once, on each mode, regardless of the frequency band. This is not a five-band per mode contest.

SCORING — Final score will be the total number of NATIONS contacted on the various modes. Contact with your own NATION does not count. The highest possible score would be about 900.

SUBMISSIONS — Entries must be received by 1 February, 1990. No QSL cards need be submitted or received by the entrants. Send signed log extracts to:

WORLD RADIO
2120 - 28th Street
Sacramento, CA 95818 USA

Award winning logs will be published in Worldradio. Decisions of the DXathon committee will be final. The committee has the right to disqualify entries for violation of the letter or the spirit of the rules. By submitting an entry, the participant agrees to abide by the decision of the DXathon Committee.

AWARDS
World Champion — The World Champion will receive a trophy significant enough to honor the effort.

Gold, Silver and Bronze Medals will be awarded for the highest scores on each continent.

Certificates will be awarded for:
A.—The highest score in each NATION.

B.—The highest score in each USA call area.

C.—The top single-band score in A. and B. above.

D.—Technician/Novice scores as warranted.

E.—High scoring 4 mode, 3 mode, 2 mode participants.

Nations with the highest participation (weighted vs. Radio Amateur population) will be honored.

In case of ties, duplicate awards will be made.

A certificate of participation will be awarded each "radio athlete."

It would be appreciated if monthly scores were sent in for publication.

RULE CHANGES — Rules may be modified over the years to reflect feedback from the participants. Please send copies of this page to your DX friends.

1989 Worldradio DXathon

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EU-72 Skiathos Island	SV2WT/SV8	21.296	1545
EU-87 Gulf of Bothnia Islands	SK2AT/2	14.258	1215
EU-93 Tabarca Island	ED5TIA	21.019	1000
EU-97 Kotlin Island	UA1ANP	14.006	1745
EU-103 Saltee Island	EJ8GM/P	14.260	1300
EU-113 Cythera group	SV8/DL3ZI	14.276	1600
NA-06 Northwest Passage Group	VE8VFC	7.000	0300
NA-60 Gulf of Fonseca Islands	H51KAS/HR4	14.160	1300
OC-27 Marquesas Island	F05LZ	14.256	0245
OC-105 Cagayan Sulu Island	N6VMW/DU8	21.305	1600
OC-106 Natuna Islands	YB5NOC	14.205	1420
SA-20 Salut Island	FY9IS	CQ WW DX Contest	
SA-38 Lobos Island	CW0L	CQ WW DX Contest	

Good news for North American IOTA chasers! W4BAA is the check point for the basic award (100 different islands, anywhere). Contact W4BAA at P.O. Box 1, Captiva Island, FL 33924, for details.

Oblasts

QRZ DX reports that RW3PW, UA3PW and RA3PW activated rare Oblast 046 at the end of September, including during the CQ World Wide DX Contest on RTTY. The prefix for this one would be UH8Y, Chardjouskaya.

QRZ DX also reports that new prefixes have been assigned to Soviet island stations as follows:

- 4K2 Franz Josef Land
- 4K3 Soviet European islands
- 4K4 Soviet Asiatic islands

The prefix 4K1 will continue to identify Soviet Antarctic stations.

Some of the wandering DXers in the Northern Arizona DX Association visited Oblast 100 in August to activate the call RZ9ZF.

According to *DX News-Sheet* UI8QZ reports that what was previously Oblast 185 (UI8Q) had become part of Oblast 051 in May 1988 and now has become part of Oblast 048 as of May 16, 1989. There are now believed to be 178 active oblasts in the USSR.

The operation of EK3LT (suffix "Leo Tolstoy") in August was the effort of the Tula Politechnical Institute in commemoration of the Yasnaya Polyana Pilgrimage in search of the Green Stick.

WSDXC

The West Siberia DX Club sponsors an interesting award called the Arctic Ocean Award. The object is to work countries in the Arctic Ocean and the awards are divided into three classes.

Class I requires 20 countries, while Class II and III require 15 and 10 respectively.

The following countries count for this award:

- JW Svalbard
- JW Bear Island
- JX Jan Mayer.
- KL7 Alaska
- LA Norway
- OX Greenland
- VE8 Canada
- UA1 Franz Josef Land

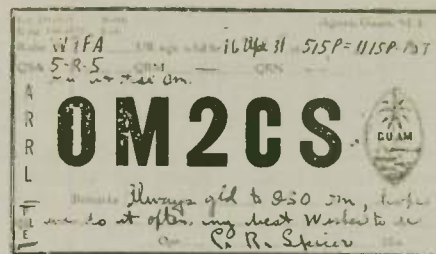
- UA1 Novaya Zemiya
- UA0 Severnaya Zemiya
- UA0 New Siberian Islands
- UA0 Wrangel Island

The following Oblasts also count for this award: 88, 98, 105, 113, 114, 139, 143 and 163. Valid contacts with three drifting ice stations will also count.

All contacts made since Jan. 1, 1980, will count. To apply for this award prepare a certified list and send to: UA9MC Sergey F. Kruglov, P.O. Box 836, Omsk 644 099, USSR. Please include a fee of 13 IRCs with your application.

Antique QSL department

This old-timer goes back a few years and was submitted by Ken Graves, W7FA, of Salem, OR, who has held the

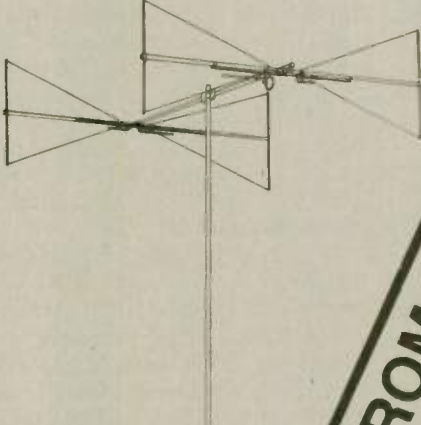


same call since 1928.

Back on April 16, 1931, Ken worked C.R. Spicer in Agana, Guam. The Guam station had the unique call letters of OM2CS, which was a carry over of the days prior to established prefixes. The 'O' stood for Oceania and the 'M' stood for Marina Islands, of which Guam was a part. The card was printed

The HF5B "Butterfly"™

A Compact Two Element Beam
for 20-15-12-10 Meters.
Operates as a dipole
on 17 meters.



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Butternut's HF verticals use highest-Q tuning circuits (not lossy traps!) to outperform all multiband designs of comparable size!

Model HF6V

- 80, 40, 30, 20 15 and 10 meters automatic bandswitching.
- Add-on kit for 17 and 12 meters available now.
- 26 ft. tall


Model HF2V

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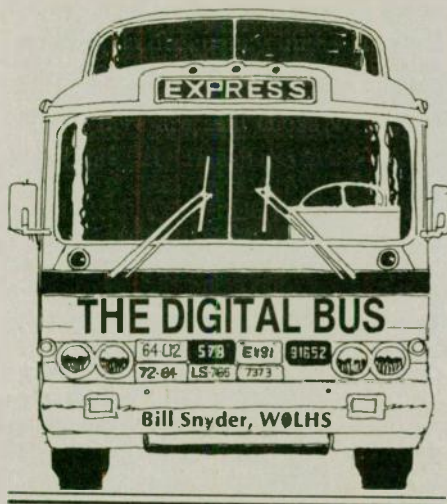
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Dean Showalter, WA6PJR, calls himself a real "frothing at the mouth RTTY DXer." I'll second the motion. Dean knows the pileup blues as well as any RTTY fan I know.

I've enjoyed knowing Dean for a long time and have ragchewed with him both on the air and in person. Now he is actively promoting RTTY activities at the Visalia, CA, DX conclave to be held April 6 to 8, 1990, at the Holiday Inn.

The plan is for a special RTTY banquet and at least one forum. In order to get an idea of what to expect in attendance, Dean is polling the world to find those who would like to attend such a clambake. If you're interested, drop him a line. His address is 36308 Panorama Dr., Yucaipa, CA 92399. For reservations at the Holiday Inn in Visalia, call 800/821-1127 and ask for Sherry.

I would like to attend the Visalia event, but this year I've set my sights on Dayton. Bob Stanek, W0HAH, and I hope to invade the RTTY banquet in Ohio near the end of April. We've missed the last two years because of other commitments, so this year we hope to be there when the RTTY fans congregate. If you've never been to either Visalia or Dayton, this is the year to go. They are addictive.

In his letter WA6PJR has some thoughts on the way DX should be worked on RTTY. After digesting his comments, here's a list of suggestions for "rare" DX operators to try.

1. Don't carry over SSB tactics to the RTTY world. RTTY is a different ball game.

2. Avoid working simplex when first putting a rare one on the air. Work "split" and don't answer anyone on your frequency. Announce with each "QRZ?" that you are listening "UP" and give the frequency limits through which you are tuning, e.g. "QRZ? UP 2-5." Put that in a buffer and send it often. There are still those who can't

read English very well.

3. Early on don't ragchew. Get rid of the hard core DX fans as soon as you can. Most of them won't bother you after the first contact.

4. If you must work simplex, please tell the pileup often that you will NOT answer those that send RYRYRYs. Ask the pile to send no more than three repetitions of their call sign (DE W0LHS W0LHS W0LHS K) and then LISTEN long enough to give you (the DX station) a chance to answer. With everyone trying to "tail end" the others who are trying to "tail end" the rest, the jumble of signals goes on and on. And tempers flare up!

4. If US calls become too much to handle, go by districts, but please announce your district policy often — and stick to it.

More DX stuff

The recent CQ WW RTTY contest was a barrel of fun for the RTTY crowd. There were many new stations participating and band conditions were superb.

DJ9QT really plastered the world from T77C. He did a first class job of giving out San Marino. Rod Hallen, 5Z4BH, put Rwanda on the map from 9X5AA in Kigale.

A group from Hungary handed out Mongolia, JT0DX, by working split in a very business like fashion. Latvia was present on at least three of the bands signing UQ0GZW.

Others of note: UR2FU, TJ1MW, ZS3GB, UW9CY, KE9A/DU3, JA6WFM/HR2 and CX5AE.

the CQ RTTY melee. I saw HZ1AB tell the pileup who called and called and called, "I CAN'T WORK ANYONE BECAUSE NO ONE SEEMS TO LISTEN, SO I AM GOING QRT. GOOD-BYE."

The same thing happened with another DX station, so please send SHORT CALLS and then take LONG LISTEN periods. Give the DX station a chance to work someone. Don't make them mad!

It is pleasing to see so many Russian stations appearing on RTTY. They have been rather scarce, only a handful until now. I had a QSO with UT5RP on AMTOR FEC mode. He runs a PK-232, a gift of JA1ACB, and an IBM clone computer courtesy of TG9VT; however, his transmitter will not key the ARQ mode, so he is restricted to the FEC mode.

Transceiver stuff

Every two years I develop a strange case of "new rig fever," and I change transceivers. When I look back through my log books, I see that I have been following that pattern. The disease seems to develop about the time a manufacturer comes out with a new model.

My most recent illness happened last summer when RTTY DX fan Marlowe Parries, W0ML, and I visited a very fine Amateur supply store in South Dakota. We sat down at the desk holding the new ICOM-765 rig, flipped it on and tuned around for a bit. I was immediately impressed. ICOM had fixed most of the things I thought were



JA4RED testing the RTTY system used at N2HNO/KH8 in American Samoa. It consisted of a PK-232 with word processor and a FT747 Barefoot.

My biggest surprise was finding an old friend, Al Goozner, who now signs 9J2AL, from Zambia. Al was once the president of our local Amateur club, so a contact with him was a double thrill. I needed his country and I was happy working him on 10M.

I did a lot of screen watching during

wrong with the IC-761 that sat on my desk at home.

The ability to change bands and not lose your frequency was the first improvement I noticed. I jumped from 21.090.04 to 14.076.65 and back again without having to retune each time. The 761 kicks back to a default fre-

quency. Great improvement! It was like having two VFOs on each band.

Then we discovered that nine of the 99 memories can store split frequencies. This seemed like a good addition. I use a lot of memories and will probably never need 99, but the split feature should be very handy. I like the ability to skip through the memories in the Memo mode of the 761 and the 765.

The extra digit on the dial was a welcome addition. I remember modifying my 930 many years ago to include that feature. It was standard on my 940, so I really hated to lose that feature when I traded for a 761. I covered the loss by using the memory bank to accurately record mailbox frequencies.

Marlowe and I took turns playing with the 765 for at least a half hour each. As I studied the spec sheet on the new rig, I could feel the fever virus starting to take hold.

"How long have I owned the 761?", I asked the dealer's bookkeeper.

"Two years," was the answer.

Well, on the 140 mile drive home, Marlowe and I discussed rigs at great lengths. He's a dedicated Kenwood 940 fan so we compared notes. Marlowe's wife had just had their kitchen redone, so he was more immune to "new-rig fever" than this old man.

Well, as you can imagine, after we got back to Fargo the virus multiplied logarithmically, and a few days later the UPS man laid a brand new 765 on my doorstep. The disease was under control.

I am really pleased with my new rig. Works great on RTTY and AMTOR, but don't ask me about SSB. I've never tried it in that mode. In fact, I can't remember if I ever had the 761 on phone.

I did try SSB once when I owned a Kenwood 940, and that happened when I checked into the AMSAT net the day they launched satellite FO-12.

Now I wonder what will happen two years from now? New rig fever, if past statistics are correct, takes about that much time for its incubation period. It's too early for the Kenwood 950, or is it?

Oh, I forgot to say I have had the fever at other times. For example, I swapped my Yaesu 726 for a 736 the year before. Yes, new VHF gear can hatch the virus. It's fun to be sick with "new rig fever," ain't it?

Important stuff

Bill Dennis, W1WA, would like to remind all RTTY and packet fans that the 14.100 frequency holds the worldwide beacon system that continually

transmits measurement signals (down to one tenth of a watt). Packet operations in that area are a real problem, because they do create QRM for those who are monitoring the beacons.

Eavesdroppings

"I HAVE PROBLEMS WITH THE COAX GOING TO MY BEAM AND IT WON'T WORK IN THE REVERSE DIRECTION...I MUST QRT AND PREPARE BREAKFAST FOR ME AND MY BEST XYL...HE SAYS HE IS NOW FLYING ON BORROWED WEATHER...HE SMOKED SO MUCH HIS DOG GOT EMPHYSEMA...SOUNDS LIKE YOU HAD A GAY OLD TIME IN SAN FRANCISCO...20 HAS SURE BEEN HOT THIS SUMMER WHILE 80 HAS BEEN DEADER THAN A TWO METER HANDHELD WITH NO ANTENNA...DO YOU WORK ON ANY OF THOSE NEW WARPED BANDS...PLEASE TELL SAM THAT I TRIED TO REACH HIM TOMORROW BUT NO LUCK...HOW ABOUT THE GUY WHO USED HIS COMPUTER TO DIAL THE PHONE AND A GLITCH GOT HIM THE 911 - BUT THAT LEARNED HIM!...WHOEVER IS ON THIS FREQUENCY: THANK

(please turn to page 46)

BATTERIES

Replacements (All New — Made in the U.S.A.)

CAMCORDER (batteries)	COMMUNICATIONS (complete battery packs and inserts)	SPECIALS!!!	CORDLESS PHONE (batteries)
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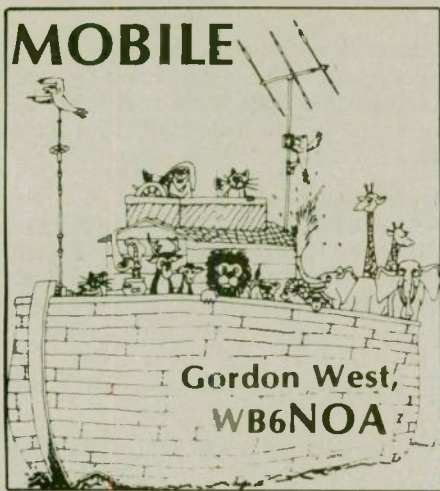
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- If you don't see it ask for it
- Custom battery packs
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- Lithium
- Gel Cells (Lead Acid)



Fiberglass VHF/UHF antennas

Chances are your local ham store may be displaying some relatively new antenna types (same refreshing new technology from Japan) that you haven't paid much attention to. Check them out. You'll be surprised by their performance.

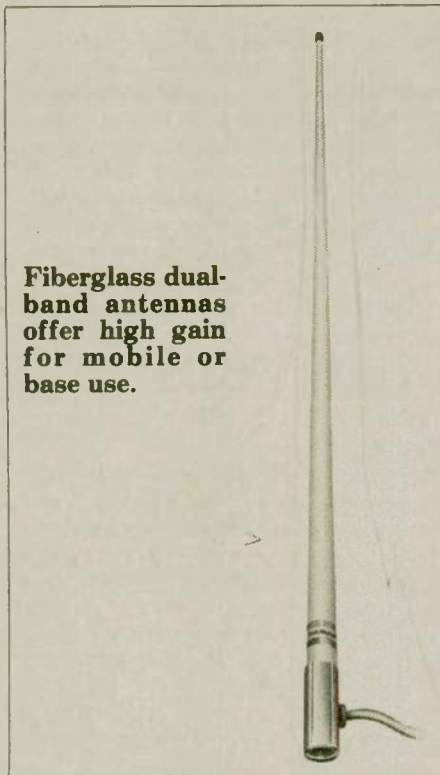
Inside the fiberglass shaft are antenna elements stacked in collinear array and specifically tuned to one or more of the following bands:

6M
2M
VHF marine
220
450
1270

What makes these antennas nice is their capability to go mobile without appendages. Unlike traditional aluminum base station gain VHF and UHF omnidirectional antennas, the sleek fiberglass shaft protects the delicate inside elements against collisions with trees, birds or just about anything else you might encounter while mobile. For use on a roof at home, their sleek appearance may be much more tolerable to your neighbors than the traditional aluminum hairpin or skyrocket looking antenna system.

The following companies offer well-illustrated catalogs featuring their many different VHF, UHF, dual-band and tri-band antenna designs. Write them for their brochures:

- NCG Company, 1275 N. Grove St., Anaheim, CA 92806; 714/630-4541.
- RF Parts Company, 1320 Grand Ave., San Marcos, CA 92069; 619/744-0728.
- Ireland Antenna Systems, 5101-B N.W. 36th Ave., Miami, FL 33142; 305/633-8185.
- Austin Custom Antennas, P.O. Box 357, Sandown, NH 03873; 603/887-2926.
- Shakespeare, P.O. Box 733, Newberry, SC 29108; 800/845-7750.
- Morad, 1125 N.W. 46th St., Seattle, WA 98107; 206/789-2525.



Fiberglass dual-band antennas offer high gain for mobile or base use.

NCG Company imports the Comet line of antennas and accessories. The Comet CA-2X4Z offers dual-band with plenty of gain performance on 146 and 446 MHz. They have a tri-bandder, the CX-701, that works at 50, 146 and 446 MHz. They also offer a tri-band CX-901 for 2M and 450 and 1200 MHz. For 1.2 GHz work, you can also trust Comet antennas.

RF Parts Company imports the popular Diamond antennas. Diamond also is a Japanese specialist in 1.2 GHz work. I have several Diamond antennas at 1.2, and they offer terrific gain.

There are also Diamond antennas for dual-band work. Their construction is excellent.

The Austin antenna is a tri-band performer and I understand they're working on other models for dual-band purposes, too. Write them for a descriptive catalog — it's a United States made antenna with some impressive gain figures.

And speaking of gain figures, the Ireland antenna systems are remarkably good performers — but not necessarily of the gain they advertise.

What you do get is an inexpensive

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fiberglass antenna system for either 2M or 450. Their gain is very good...but judge for yourself whether or not the 16 ft. antenna performs any better than a conventional 16 ft. fiberglass antenna.

Several years ago the Shakespeare Antenna Company produced 3dB, 6dB and 9dB gain VHF white fiberglass antennas. They no longer produce these — but if you ever find one at a swap meet, grab it immediately because they were great performers.

Shakespeare does produce an excellent line of 3 to 10dB gain VHF marine antennas, and these fiberglass

Spider Antenna

U.S. Patents 4348825, 4482005 Made in U.S.A.



Presenting the family of Spider™ Multi-Band Antennas

Four amateur bands (10, 15, 20, and 40 meters) at your command without having to change resonators or retune — just band switch your rig. Also available are the 75, 12, 17 and 30 meter bands. Needs no antenna tuner. Custom made with highest quality workmanship and materials.

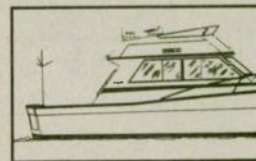
Wherever you roam, on Land or Sea . . . or even at Home



On Land



Suitable for use on any motor vehicle from a compact automobile to a motor home or trailer. Work four bands without stopping to change resonators.

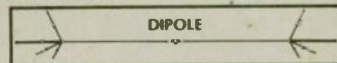


Or Sea

The Spider™ Maritimer is for use on or near the ocean. Highly polished stainless steel and nickel-chrome plated brass. Commercial marine frequencies (8, 12, 16 and 22 MHz) are also available.



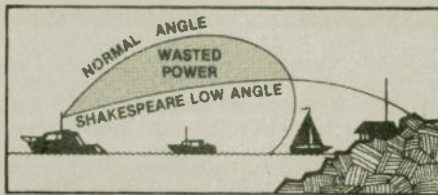
At Home



If you live in an apartment, condominium or restricted area, the Spider™ may well be the answer to your antenna problems.

MULTI-BAND ANTENNAS

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TELEPHONE: (818) 341-5460



High gain antennas concentrate wasted power down to the horizon for increased range.

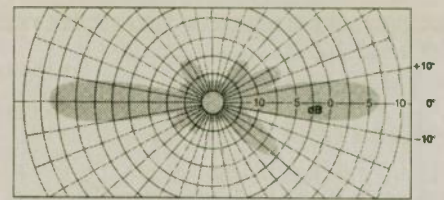
antennas work relatively well on the top 2 MHz of the 2M band. Although originally intended for the marine 156 MHz band, they do offer good performance down at 146 too.

Another excellent fiberglass antenna line to look for is made by a company called Maldol, in Japan. Their principal supplier is the well-known Jun's Electronics, 3919 Sepulveda Blvd., Culver City, CA 90230; 800/882-1343. P.J. at Jun's is an active VHF/UHFer and always carries the very widest selection of VHF and UHF fiberglass collinear antennas.

And what is inside the fiberglass tube? Stacked halfwave or 5/8-wave elements, with a base matching network. As you stack more VHF or UHF

elements vertically in a collinear array, you take normally wasted high-angle radiation and concentrate it lower to the horizon, adding gain to your omnidirectional, vertically polarized signal. You get the additional gain by recovering undesirable high-angle radiation.

If you're looking to extend your VHF and UHF omnidirectional signal, check out the new breed of fiberglass gain antennas. □



Stacking elements inside the fiberglass tube (collinear feed) lowers the angle of radiation for longer range contacts.

Digital Bus

(continued from page 44)

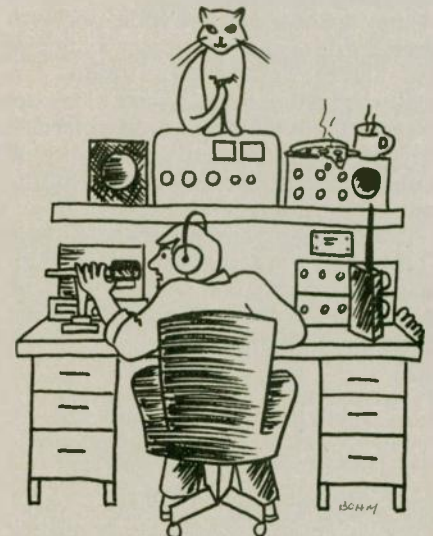
YOU VERY MUCH FOR THE DELIGHTFUL INTERFERENCE YOU ARE CAUSING ME. . .STANDBY ONCE AGAIN FOR THE DRAG TAPE. . .THIS HERE DUMB OPERATOR IS USING A VERY DUMB TERMINAL. . .CRABGRASS IS OUR NUMBER ONE CROP IN THESE PARTS. . .THE IMPEDANCE WAS ABOUT ONE HALF QUART OF CORN LIKKER. . .THE MAILMAN BROUGHT ME A 200 DOLLAR SCHOLARSHIP FROM JERRY FALWELL - THAT'S THE SAME AS TEN DOLLARS DOWN ON THE PURCHASE OF A NEW GRAND PIANO. . .GOT OVER THE

CW DX DISEASE, BUT NOW HAVE BAD CASE OF AMTOR FEVER. . .MY XYL IS IN THE OTHER ROOM MOWING THE FUZZ OFF MY OLD SWEATER. . .MY TRANSCEIVER IS DANCING BAREFOOT, NO BOOTS!. . .I USED TO LIVE IN THE NORTH WOODS WHERE I GREW MY OWN ANTENNA MASTS. . .THE 160 METER ANTENNA IS EVERY PIECE OF WIRE I OWN TIED TOGETHER AND WORKING AGAINST GROUND. . .I AM ABOUT TO GET MARRIED, BUT I DON'T KNOW IF I CAN FIT IT IN BETWEEN MY WORK AND HOBBIES."

Thanks to all the helpers, K1YPP, W0HAH, WQ0J, W3CVE and the unsuspecting people on whom we eavesdropped. I can be reached at W0LHS @ W0LHS.ND.U.S.A.NA or 1514 S. 12th St., Fargo, ND 58105. Please keep in touch! 73 de Bill Snyder. DIT DIT □

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

LOVE OUR HOBBY-----LARRY FISHER, KA3LOH

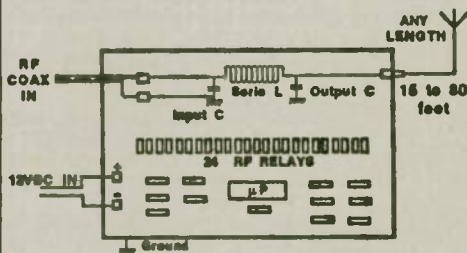


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*salt water please!



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ALABAMA

Montgomery Amateur Radio Club (W4AP). Alabama State Trooper Dist. Office. Intersection of Coliseum Blvd. & Federal Dr. Randy Smith, N4LZK, (205) 832-4598. Meets 3rd Mon./monthly, 7:00 p.m.

ALASKA

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

ARIZONA

Arizona Amateur Radio Club. Meets: 2nd Thur./monthly, 7:30 p.m., 1510 E. Flower St., Phoenix, AZ. Club info on W7WGWR/147.88/147.28 Rptr.

Old Pueblo Radio Club. Meets: 2nd Wed./monthly, 7:30 p.m. Location: Franklin Blvd., University of Arizona, N.E. corner of 5th St. & Park.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:30 p.m., Pima Co. Communications Bldg., 2545 E. Ajo. Net Thurs. 7:30 p.m. 146.28/88 (146.22/82, 147.88/08, 147.70/10-PKT).

Western Arizona Radio Club. Meets: 2nd & 4th Thur./monthly, 7:30 p.m. at Fort Mohave Mesa Fire Dept., ½ mi. East of Hwy. 95 on Joy Ln., Mohave Valley, AZ. Net Tues. 7 p.m. 147.12 or call (602) 758-5171.

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Senior Citizens Center, Jackson, CA. Meets: 1st Thur./monthly, 7:30 p.m. WA6WYI Rptr., 146.835, 146.235. Net Tues. 7:30 p.m.

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Fri./monthly, 7:30 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Citrus Belt Amateur Radio Club. P.O. Box 3788, San Bernardino, CA 92413-3788. Meets: 1st Fri./monthly, 7:30 p.m. at 777 E. Rialto Ave., San Bernardino.

Clairemont Repeater Assn. P.O. Box 7675, Huntington Beach, CA 92615. Meets for breakfast 3rd Sat., 8 a.m. odd months. W5YI Broadcast Net. 2000. Net last Tues. 2000. WB6HUL/R 145.220-1A PL.

Contra Costa Communications Club WD6EZR. P.O. Box 661, San Pablo, CA 94806. Meets 2nd Sun. at 9:00 a.m. Hickory Post Restaurant/Lucky Lanes. For info call Don K6DPQ, (415) 222-2449.

Downey Amateur Radio Club. 12708 Glynn Ave., Downey, CA 90242. Meets 1st Thur./monthly, 7:30 p.m., South Middle School, 12500 S. Birchdale, Downey, CA. Weekly nets Thurs. - except 1st, 7:30 p.m. 144.930 (S) Voice - Tues., 8:00 p.m. 145.700 (S) RTTY.

East Bay Amateur Radio Club. P.O. Box 1393, El Cerrito, CA 94530. Meets: 2nd Fri./monthly 8 p.m., Salvation Army, 4600 Appian Way, El Sobrante. Nets: Slow CW, Wed., 8 p.m. & SSB Net, Wed., 9 p.m., 21.395. Info, Bob Fields, KC6AOH, 415/237-3761.

The Electronic Museum ARC. Meets 1st Fri./monthly, 7:30 p.m., Electronic Museum at Foothill College, Los Altos, CA 94022. Call-in 145.27/145.67.

Fullerton Radio Club, Inc. W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed./monthly, 7:30 p.m., Sr. Citizens Center, 340 W. Common Wealth, Fullerton. Net: ea. Tue., 8 p.m. 147.495 simplex. Info, Grace Hastings, N6SFL (714) 990-9203.

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: South Valley Jr. High School, 385 I.O.O.F. Ave., Gilroy. 2nd Thur./monthly. 7:30 p.m. Talk-in 145.47/144.87.

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

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

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly at 4 p.m. (Pot Luck).

Veteran's Hall, Lake Isabella WA6UYW Rptrs. 146.085/146.685 224.22/Down 1.6 WB6ODZ Rptr.-224.58 Down 1.6 Low-Level. **Livermore Amateur Radio Club (LARK).** First Presbyterian Church, 5th & L St. Bill Richards, WD6J (415) 829-5229. Net Mon. 1900 on 147.12+. Meets 3rd Sat./monthly, 9:30 a.m.

Marin Amateur Radio Club (MARC) W6SG. Box 1231, San Rafael, CA 94901. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

Northern Calif. Vaca Valley Radio Club Inc. Meets 2nd Wed./monthly, 7 p.m. at Vacaville Fire Dist. Station, 420 Vine St., Vacaville, CA. Net: WX6F club net every Tues., 7:30 p.m. 147.475/146.475 rptr. (1 MHz split) PL removed during nets.

North Hills Radio Club. P.O. Box 41635, Sacramento, CA 95841. 3rd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress Ave., Carmichael, CA. Net 145.19 Thur. at 8:00 p.m.

North Shores ARC. (619-275-1495) So. Clairemont Recreation Center, 3605 Clairemont Dr., San Diego, CA. 1st Tue./monthly, 7:30 p.m. Club net each Mon., 7:00 p.m. 28.485 MHz.

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at Mercury Savings, Tustin, CA, 1095 Irvine Blvd. 2 Meter Net Wed. at 9 p.m. 146.550 simplex.

Radio Amateur Mobile Society. P.O. Box 214091, Sacramento, CA 95821-1091. Meets 2nd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress Ave., Carmichael, CA. Net Saturday a.m., 224.84 at 8:30 & 146.79 at 9:00.

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

Riverside County Amateur Radio Assoc. c/o County Emergency Services Div., 4080 Lemon St., Ste. 8, Riverside, CA 92501. Meets: 2nd Thur./monthly, 7:30 p.m., bsmnt., County Adm. Bldg., 4080 Lemon St., Riverside. Nets: Mon., 7:15 p.m., 222.860/224.460 and 7:30 p.m., 146.28/88; Tue. - YL Net, 7:30 p.m., 224.460, Bkfst, 3rd Sat., By You Bob's Rest, Riverside.

Sacramento Amateur Radio Club. Contact: Gary Bryant, KB6KZZ, (916) 646-1171. Meets Sacramento Blood Bank, 32nd St. & Stockton Blvd., Sacramento, CA, 2nd Wednesday/monthly, 7 p.m.

Sacramento "Old Timers" Ham Radio Bkfst. Club and Sacramento Valley Chapter #169 OCWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Carrow's Restaurant near Watt Ave., and Hwy 80 exit. For info contact Paul Wolf, W6RLP (916) 331-1830.

San Fernando Valley Radio Club, W6SD. P.O. Box 3151, Van Nuys, CA 91407. Meets: 3rd Fri./monthly, 7 p.m., Red Cross Van Nuys, 14717 Van Nuys Blvd., Van Nuys, CA.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW. P.O. Box 6, San Jose, CA 95103. (408) 249-6909. Meets: 2nd Mon./monthly, 7:30 p.m. Net other Mon./monthly, 7:30 p.m. Net other Mon., 7:30 p.m. W6UU 146.385 + /1442-425 +.

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

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 Amateur Radio Club. P.O. Box 3262, Auburn, CA 95604. Meets: 2nd Fri./monthly at Auburn Fire Station, 226 Sacramento St., Auburn, CA. Nets 7:30 p.m. Tue. 28.443 MHz, Thur. 145.43 MHz link with 223.86 MHz.

Simi Simmers Amateur Radio Club. P.O. Box 3035, Simi Valley, CA 93063. Meets: 2nd Thur./monthly, 7:30 p.m., at Seventh-Day Adventist Church, 1636 Sinaloa, Simi Valley. Rptr. 147.93/33.

Solano County Amateur Radio Society. P.O. Box 457, Fairfield, CA 94533. Meets: 3rd Wed. 7:30 p.m., Vanden High School. 441.150 + 5 (Remote 145.69 simplex) PL 77Hz, (707) 448-1461.

Southern California Amateur Transmitting Society, SCATS, WB6LRU. P.O. Box 1770, Covina, CA 91722. Meets 1st Mon./monthly, Community Presbyterian Church, 540 E. Vine St., West Covina, CA. Net, Sun., 7 p.m. 147.765 - , W6QFK/R. Classes. Contact: Pat McNulty, N6GXZ (714) 622-8315.

Southern California DX Club. P.O. Box 56292, Sherman Oaks, CA 91413. Meets: 2nd Thur./monthly, 7:30 p.m. at Dept. of Water & Power, 111 No. Hope St., downtown Los Angeles. Weekly DX roundtable, Thur., 7:30 p.m., 145.480-PL 100hz. DX Packet system 145.680. Info: Gary WB6PSY (818) 710-1705.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150 and 8:30 p.m., 28.400. FM Rpt. Net Wed., 7 p.m., 52.18/98 and Thur., 8 p.m., 52.28/88. FM Smpix call freq. 50.300.

Stockton-Delta Amateur Radio Club. Meets: 2nd Thur./monthly 7:30 p.m. Red Cross Bldg., 747 N. Pershing, Stockton, CA (Hwy 5, Pershing off-rmp). Net 28.450 SSB 8 p.m. Wed. Visitors welcome. Club Rptr. W6SF receives 147.165 MHz.

The Trinity County ARC. P.O. Box 228, Weaverville, CA 96093. Meets 2nd Wed./monthly, at the CD Hall in Weaverville, 7:30 p.m. WD6FHX Rptr. 146.13/73.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m. Pomona First Federal S&L (basement), 399 N. Garey, 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., 8:00 p.m. Talk-in 145.655 Simplex.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets: Victor School Board Room - 9th & "A". 2nd Tue./monthly, 7:30 p.m. WA6EFW Rptr. 146.34/146.94.

West Coast Amateur Radio Club. Fountain Valley School. Talbert/Bushard. Fountain Valley, CA. Meets 3rd Thur./monthly. 145.44-4Z.

West Valley Amateur Radio Assoc. 18011 Saratoga - Los Gatos Road, Los Gatos, CA 95030. Meets: 3rd Wed./monthly, 7:30 p.m. W6PIY/R. Net Tue., 8:30 p.m., 147.39 + , 223.96 -.

Yucaipa Valley Amateur Radio Club (YVARC). Meets 3rd Mon./monthly, 7:30 p.m. Far West Savings & Loan Community Rm., 1195 Calimesa Blvd., Calimesa, CA 92320. Pres: Don Ames W6RTM, (714) 795-5743.

Yolo Amateur Radio Society. Meets: 1st Tue./monthly, 7:30 p.m., Davis Branch of the Bank of Woodland located at 230 E. St. in Davis, CA.

CONNECTICUT

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

FLORIDA

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

Platinum Coast Amateur Radio Society, Inc. (PCARS). P.O. Box 1004, Melbourne, FL 32902. Meets: American Red Cross Bldg., 1150 S. Hickory St., 2nd Mon./monthly, 7:30 p.m. Talk-in on 146.850 rptr.

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.

West Palm Beach Amateur Radio Club, Inc. P.O. Box 6834, Southbore Station, W. Palm Beach, FL 33405. Meets: 2nd Tue./monthly, 7:30 p.m., Palm Beach Emergency Op. Cntr., 3723 Beveledere Rd., W. Palm Beach. Info: Jeff, WB2OUK, 586-5120, Henry, WA4HXZ, 655-4632 or Hyacinth, N4QWN, 848-0513.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., Helco Auditorium, 1200 Kilauea, Hilo. Talk-in on 146.76 (-).

ILLINOIS

Amateur Cross Link Repeater. 10, 6, 2 mtrs., 220, 440, 900, 1.2 MHz, ATV. Meets: 1st Sat./monthly, 7:30 p.m. Info: net Sun., 8 p.m., 147.225 MHz. KD9FA Rptr./Chicago.

Bolingbrook Amateur Radio Society. Meets: 3rd Mon./monthly, 7:30 p.m., Annerino Rec. Cntr., Recreation Dr., Bolingbrook, IL. Info net Thurs., 8 p.m., WA9DIP/R 224.54/222.94 and WD9AKO/R 147.33/147.93.

Central Illinois Radio Club, W9AML. Meets 4th Wed./monthly, 7:30 p.m. (from Sept. to May), McLean Co. Law & Justice Center, ESDA Rm., Bloomington, IL. Club Rptr. 146.94 - 600kHz.

Chicago Suburban Radio Assoc. (CSRA). P.O. Box 88, Lyons, IL 60534. 447-HAMS. Meets: 2nd Wed./monthly, 8 p.m., Clyde Bldg., 7222 W. Cermak, N. Riverside, IL. Net Mon. at 8 p.m., 147.225 + and 29.68 -.

Dupage Amateur Radio Club W9DUP. Mid-America Savings & Loan, 55th & Holmes (55th St. near RT 83), Clarendon Hill, IL. 4th Mon./monthly, 7:30 p.m. Club rptr. 145.250 - 600 kHz.

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

Fox River Radio League. Valley National Bank, Lower Level, Northgate Shopping Ctr. & RT. 31, Aurora, IL (312) 584-4925 for more info. Meets: 2nd Tue./monthly, 7:30 p.m.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m., Crestwood Civic Center, 139th & Kostner Ave., Crestwood, IL. Nets: Sun. 8 p.m., 28410 MHz and Mon. 9 p.m., 146.43 MHz.

North Shore Radio Club. Meets: 2nd Mon./monthly. Net 8 p.m. Tue. Karger Center, 1850 Green Bay, Highland Pk, IL. WB9FRM Rptr. 147.345 + 600 (PL 1B). Info: NSRC, P.O. Box 1066, Highland Pk., IL 60035.

Northwest ARC/W9LM. Meets: 2nd and 4th Tue./monthly, 7:00 p.m., Oehler Funeral Home downstairs community room, Lee & Perry Street, Des Plaines, Illinois.

Schaumburg ARC (SARC). Meets: Schaumburg Park District Community Rec. Cntr. at Bode and Springinguth-Roads, Schaumburg, Illinois. Third Thur./monthly, 7:30 p.m. Net 28.350, 8:00 p.m. Thur.

Six Meter Club of Chicago K9ONA. Bank of Lyons, Lower Level, 8601 West Ogden Ave., Lyons, IL. 2nd Fri./monthly, 7:30 p.m. Club Rptrs: 146.37/97, 448.30/444.30.

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

KENTUCKY

Kentucky Colonel's Amateur Radio Club, Inc. (KCARC), P.O. Box 9781, Bowling Green, KY 42102-9781. Meets 3rd Thur./monthly, Greenwood Mall mtg. place, Scottsville Rd., Bowling Green, KY. ARES Net 7 p.m. each Thur. 146.85 (-)KA4CLLR.

MARYLAND

The Peninsula Radio Operators Society (PROS). Family oriented activities, training and exams held throughout the year. PROS Rptrs. 146.925 and 146.625. PROS, P.O. Box 2315, Salisbury, MD 21801.

MASSACHUSETTS

Mohawk Amateur Radio Club. Meets: 4 Wed./monthly, 7:30 p.m., American Legion Hall, 325 Pequoig Ave., Athol, MA. (One block north of downtown traffic lights, past the bridge)

Mt. Tom Amateur Rptr. Ass'n., Inc. P.O. Box 3494, Springfield, MA 01101-3494. Meets: 3rd Thurs. (Sept.-May), 8 p.m. Holyoke Com. College, Holyoke, 2M, 220, 440 & packet. Info net Wed., 7:30 p.m. 146.94/R. Emer. net Sun., 8:45 a.m.

MICHIGAN

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

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

South Eastern Michigan A.R.C. Meets: 1st Fri./monthly, 7:30 p.m. Grosse Pointe North High School, Bldg. C. Cafeteria Commons. For info contact: AK8I (313) 372-1252. W8FWC Rptr. 146.740/146.140.

MISSOURI

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

NEVADA

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

Las Vegas Radio Amateur Club (LVRAC). Meets: 2nd Tue./monthly at 7 p.m., Nevada Power Bldg. Wengert Rm., 6226 W. Sahara Ave. (Near Jones). Net Tue. 8:00 p.m. on 146.94 MHz. Info: Call Jeff at 363-9013.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 782-8266. Meets: 2nd Tue./monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.330.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 742-0130/742-1374. 2nd Sun./monthly, 7:00 p.m. Dover Dist. Court. Talk-in 147.57.

NEW JERSEY

Bayonne Emergency Mgt. ARC (BEMARC). 16th St. & Ave. A Firehouse, Bayonne, NJ 07002. Meets: 2nd Tue./monthly, 7:30 p.m. Rptrs: 53.09/145.430/224.280/445.575 MHz.

Delaware Valley Radio Assoc. (DVRA). Our Lady of Good Counsel Church, 137 W. Upper Ferry Rd., West Trenton, NJ 08628. Meets: 2nd Wed./monthly, 8:00 p.m.

Gloucester County Amateur Radio Club (GCARC). Woodbury V.F.W. 1st Wed./monthly, 8:00 p.m. Woodbury, NJ. Talk-in 147.18/78. For info call K2JF (609) 589-2318.

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

NEW YORK

Communications Club of New Rochelle, NY. Harrison Street Firehouse. Bill McCaren, K2LV, (914) 738-0768. Meets: 1st Mon./monthly, 8 p.m.

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

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. The tristates' only 3-band linked rptr. system 144.300 S/223.600 - /445.225 -

Orleans Amateur Radio Club (WA2DQL). Meets: Office of Disaster Preparedness (CD), West County House Rd., Albion, NY 14411, 4th Wed./monthly, 7:30 p.m., 147.527 - WA2DQL.

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

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

Suffolk County Radio Club. 3rd Tue./monthly, 8 p.m. Bohemia Rec. Ctr., Ruzicka Wy. W2DQR/ 144.610/145.210, 223.080/224.680 rptr. Info call Jim Heacock (516) 473-7529.

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

Westchester Emergency Communications Assn. (WECA). 147.66/147.06, 222.80/224.40, 447.475/442.475. Meets: 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains, NY. Info: P.O. Box 831, N. Tarrytown, NY 10591. (914) 631-7424.

NORTH CAROLINA

North Carolina Chapter TSARC. Meets: Mondays, 28.350 on the air, 8 p.m. local time. "The Alligators" - all mouth, no ears. **Raleigh Amateur Radio Society, Inc.** P.O. Box 17124, Raleigh, NC 27619. Clubs net nightly, 8 p.m., W4DW, 04/64. Meets: 1st Wed./monthly, 7:30 p.m., YMCA. 18th Annual Hamfest, April 8, 1990.

OHIO

Amateur Radio Fellowship (ARF). Keith Melvin, KA8TKE, Sec. P.O. Box 2486, Streetsboro, OH 44241. Meets: 1st Sat./monthly, Kent Wally Waffle. KA8YKT rptr. 147.675/075.

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

Clyde Amateur Radio Society (C.A.R.S.) Meets: 2nd Tue./monthly, 7:30 p.m. Municipal Bldg., Clyde, OH 44811. NF8E Repeater 144.75/145.35. Net Sun. 9 p.m. **Dayton Amateur Radio Assoc.** P.O. Box 44, Dayton, OH 45401. Meets 1st & 3rd Fri./monthly (Sept. thru June) 8 p.m., Career Academy on River Corridor Dr. Info on W8BI 146.34/94 & 222.34/223.94.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., City Hall, Basement Club Rm., Broad & Main. Info Net every Mon., 8 p.m. K8QIKR 147.63/03 Rptr.

North Coast Amateur Radio Club. P.O. Box 30529, Cleveland, OH 44130. Meets 1st Thurs./monthly at the Old North Olmsted Town Hall, at Dover Center and Lorain Roads, between City Hall and the Police Station. Repeaters - (all K8SCI/R) 145.29, 224.76, & 443.15.

OREGON

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

PENNSYLVANIA

Butler County Amateur Radio Club. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tue./monthly, 7:30 p.m. at Red Cross Bldg., 312 Mercer St., Butler PA 16001. Call-in: W3UDX 147.96/36. Net 10:10 p.m. nightly.

Warminster Amateur Radio Club. Meets: 1st Wed./monthly 8 p.m., St. John's Lutheran Church, York Rd., Hatboro, PA. Nets: WA3DFUR info. Net Wed. 8:30, 147.09/147.69.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Operates 146.73/13 Rptr., VEC Information (804) 898-8031.

Virginia Beach Amateur Radio Club (VBARC). Open Door Chapel, 3177 Virginia Beach Blvd., Va. Beach, Va. Meets First Thur./monthly, 7:30 p.m. For info (804) 497-1235.

WEST VIRGINIA

Jackson County Amateur Radio Club. D. General Bailey, NK8P, Sec.-Treas. 113 Winters Dr., Ripley, WV 25271. First National Bank of Ripley. Meets: 1st Thur./monthly, 7:30 p.m. Net Mon. 9 p.m. on 146.67/07 WD8JUN/R.

Tri-state Amateur Radio Assn. Meets: 3rd Tue./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thur. 9 p.m. on 146.76/16 W8VA/R. Info N8IKP 523-5264.

WASHINGTON

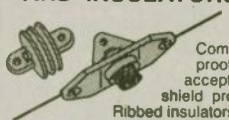
Mike & Key Amateur Radio Club. 3rd Sat./monthly, 10 a.m. Tukwila Com. Ctr., 4101 So. 131st St., Seattle, WA. Net. Wed. eve., 7:30 p.m. 146.22/146.82 rptr.

North Seattle Amateur Radio Club (NSARC). Meets: 3rd Tue., 7:30 p.m., (except Jul. & Aug.) at the First Interstate Bank, 30th Ave. NE and NE 125th St. (Lake City) in basement. Info: Mike Jr., W7WHT, (206) 282-1438 or P.O. Box 20279, Seattle, WA 98102.

WYOMING

University ARC. 146.01/61 Meets: 1st Tue., 7:30 p.m. Sept.-May U.W. Physical Plant Bldg., 15th & Lewis St., P.O. Box 3625, Laramie, WY 82070. June-Aug: Bernie Club picnics Wed.

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We are nearing "the Jolly Season," so here's a little Christmas present to make your QRPing more fulfilling. Thanks to John Dillon, WA3RNC, and D.A. "Mike" Michael, W3TS, we have not one, but two simple receiver projects for you this month.

Probably nothing over the last few years has been as revolutionary as the RF experimenter as the Signetics NE602N "receiver on a chip." Well, actually it's not really a whole receiver on a chip. It's more like the mixer/oscillator portion of a receiver in one package.

The NE602 is a neat little device that, when used with a few external components, can quickly become a very compact receiver. (Note: Details of the NE602 are contained in *The Neophyte Receiver*, by John Dillon, in February 1988 *QST*, which is must reading for anyone interested in NE602 receiver chips).

I have built several NE602 based receivers and results have been really outstanding considering the simplicity of the designs. The NE602 is basically a mixer/oscillator which lends itself extremely well to low power, compact receiver designs. The mixer portion of

the chip is a Gilbert cell multiplier. This is very similar to the old Motorola MC1496 chip designs which are also based upon the Gilbert cell multiplier.

The Gilbert cell consists of balanced circuit switching circuitry driven by a differential amplifier. In the case of the NE602, the amplifier inputs serve as RF input ports. The mixer is able to handle RF inputs up to about 500 MHz.

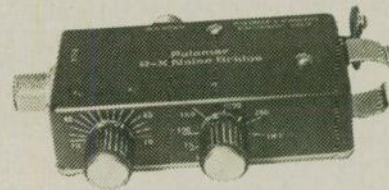
The NE602's oscillator circuitry can operate up to about 200 MHz. The typical current drain of the entire chip is a mere 2.4mA and the supply voltage can range between 4.5 and 8.0VDC. If you exceed 8.0VDC you will damage the chip!

You don't need to use the on-board oscillator on the NE602. A local oscillator (LO) frequency can be injected via pin 6 of the chip (don't forget to add a DC blocking capacitor if you use an external LO). Typical mixer noise figure (NF) is 5.0dB at 45 MHz, which, while not red-hot, will lend itself nicely to a variety of HF receiver projects.

Simple doesn't necessarily mean lack of performance, especially in the NE602 based receivers. Microphonics, AC hum and LO radiation, bugg-a-boos of simple Direct Conversion (DC) receivers, are simply not a problem with the Neophyte receivers.

Microphonics and AC hum can become really bothersome in many DC receiver designs. Elaborate methods of eliminating these beasties have resulted in hundreds of pages of articles in various publications. It is refreshing to see that the NE602 is tame by comparison.

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WA3RNC, of PennTek Electronics (14 Peace Dr., Lewistown, PA 17044) furnished two of his Neophyte Receiver Kits for the first portion of this month's column. A full kit, including PC board, parts, bread board, battery holder, speaker, vernier drive and knob and front panel was built up for 40M. The second "partial kit," which was just the PC board and parts, was placed on 80M.

Results on both kits were spectacular! My initial attempt at the 40M receiver resulted in some problems that were directly traced to "builder head-space." Once things were squared away, the 40M RX took off like a champ.

The 80M version was built into a case with the SCD transmitter (G-QRP-Club kit) to produce a tiny 80M QRP station that performs very well, despite its simplicity. The 40M receiver now has a 2W QRP transmitter included in the same case and provides lots of fun on camping trips.

For me, 40M has always been the "top" QRP band, whether operating portable or from the main station. I will be using the 40M Neophyte RX and HB TX combo in the October QRP contest as a single band entry. If you need a quick kit to get in on the homebrew fun and rack up added QRP contest

points in the QRP ARCI contests, contact John at PennTek and get one of his Neophyte kits.

W3TS gives us the second half of this month's column, with a novel approach to using the NE602 chip. How would you like to have a SW receiver in your car so you could keep up with your favorite shortwave stations while traveling to and from work? How about a spare SW receiver for the shop or den that will let you listen in on the world without having to be tied to the shack?

Mike has been experimenting with the NE602 for the past few weeks and has put together a nifty little converter that, when coupled to a standard AM broadcast band radio, provides access to the 31M SW band, including 10 MHz WWV broadcasts. Since AM broadcast is on its last legs here in the United States, I can't think of a better

put, converters are RF receivers that lack detector and audio stages. Their output is an intermediate frequency (IF) that is coupled (either directly or via inductive loop) to another receiver which acts as a tuneable IF strip and provides detection and audio amplification.

In the case of this month's project, the NE602 receives signals in the 9-10 MHz range and converts them down to the AM broadcast range (540 to 1620 kHz). The AM receiver then takes this IF input and detects and amplifies these signals for listening.

Figure 2 shows just how simple the converter is. Just one NE602N IC, a 9 MHz crystal and an old 10.7 MHz IF (from an old FM radio) plus a few resistors and capacitors can make up a very sensitive converter. The crystal can come from an old 9 MHz crystal filter or from an old CB set that used 9

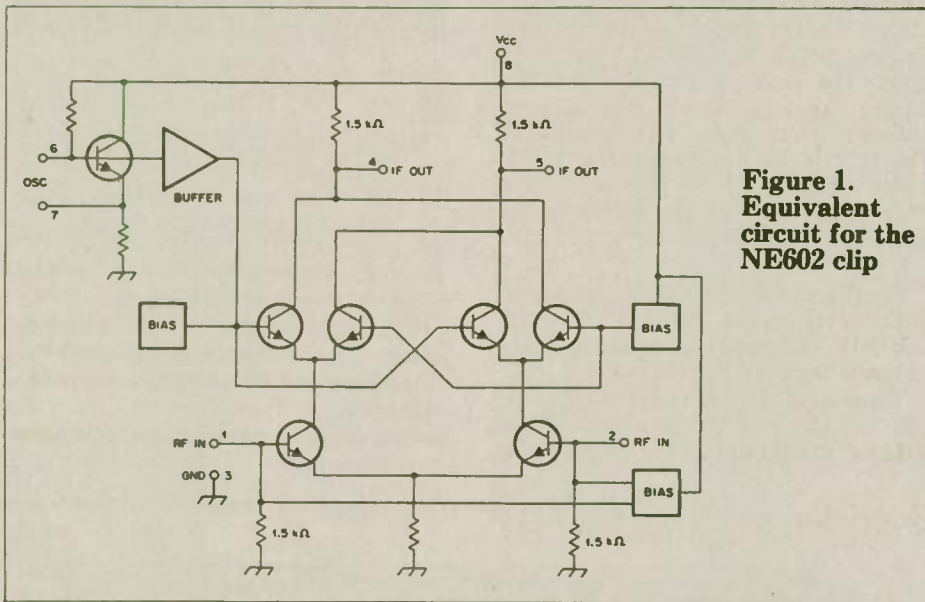


Figure 1. Equivalent circuit for the NE602 clip

project than adding a SW converter to an AM broadcast receiver and enjoying the fun on SW.

How do converters work? Simply

MHz third overtone crystals for the transmitter. Any crystal manufacturing firm (Bomar, Jan, etc.) will be able to provide a crystal of suitable type for this project.

The prototype converter was built using "sky wiring," a form of bread board "ugly construction" where the components that go to ground are soldered to a blank piece of copper clad board (try Radio Shack). The opposite end is stuck up in the "sky" and other components are bridged across these leads and soldered. This method saves time and money required to etch a PC board for a project. Also, since there is a very good ground plane (the copper clad board) this type of construction makes it easier to get the project working.

To mount the NE602 bend all the pins out to the side of the IC package, except pin 3, which goes to ground.

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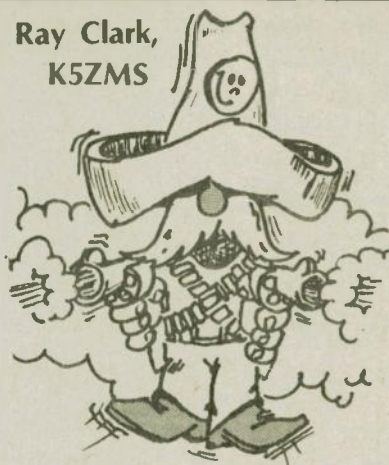
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1989 June SMIRK Party contest results

U.S. winner — NOKSC SMIRK #5486 — 30,576 Pts. International winner — XE2UZL SMIRK #5483 — 14,171 Pts. I hope you had better propagation during the Nov. 10 to 12 SMIRK Party contest. Get your logs into KA0NNO by Dec. 31, 1989.

"The" solar cycle!

Dennis Ponsness, WB0WAO/8,

sends this information regarding Cycle 22. September 1986 signaled the end of Cycle 21 and the start of the current cycle. 10cm radio flux levels are almost equal to Cycle 19 now.

The February 1989 smoothed 10cm flux was 194.1 at 29 mo. after beginning this Cycle (29 mo. after minimum). Cycle 21 did not reach this level until after 54 mo. from the minimum. Cycle 19 reached this level 28 mo. after minimum. We have almost equaled that!

Smoothed Sunspot Number (SSN) for Cycle 22 is ahead of Cycle 21 by about seven months. The February 1989 R.I. smooth value was 132.5 above minimum at 29 mo. after minimum. This figure was reached 35 mo. after minimum for Cycle 21 and 26 mo. after minimum for Cycle 19.

Proton Events, 35 mo. after minimum Cycle 21 had 13, versus 24 for Cycle 22. X-Ray Flares, 35 for Cycle 21 versus 50 for Cycle 22. So, it is his thinking that Cycle 22 will be almost as good as record breaking Cycle 19 and much better than Cycle 21.

Cycle 22 started out climbing faster than any cycle since Cycle 9 (about 1843) for 17 months. Dennis believes this cycle will peak in April 1990, with an approximate smoothed 10cm flux of 332.9 and a SSN of about 192.1.

If that is the case, why aren't you on

6M yet? This band will go through the roof! You can go back to 10M when 6M dies!

Upcoming DXpeditions

It is my understanding that there are TWO, maybe THREE, DXpeditions to Bouvet coming up! The one slated for Feb. 1, 1990, for 10 days will have 6M with it, according to Chip Margelli, K7JA, VP of Yaesu, who is supplying the gear for the trip. AEA will loan them two of the new MM3 beacon keyers to take with them, so they will be running a beacon on Six. The call is expected to be 3YOB.

There is a report that a 6 operator will be operating from the USSR sometime in February. He has been given permission to operate two spot frequencies, 50.105 and 50.110. I will get back to you with more details.

J52US 6M totals

The last information I received regarding the totals from the Guinea Bissau operation is this: (All times UTC) Best US openings: Dec. 11 — 1454-1509; 15th — 1839-1857; 18th — 1558-1701; 25th — 2052-2150 (I got him at 2120); 26th — 1742-1908; Feb. 3 — 1252-1300; 23rd — 1512-1523; 25th — 1515-1551; March 7 — 1525-1534; and March 8 — 1544-1610.

Best DX openings; Feb. 8 — 1206-1306 72 QSOs; 9th — 1219-1249, 44 QSOs; 16th — 1400-1425, 60 QSOs; 22nd — 1155-1300, 76 QSOs; 23rd — 1149-1245, 88 QSOs; 26th — 1307-1619, 258!

Dave did a great job. SMIRK and its members were glad to help him out with the gear. It is just a shame that he did not get better propagation toward the United States. He should be on from Sierra Leone, 9L, long before you read this.

The DX report

All times UTC. DX on Six is starting to pick up around the world. Various people are checking into 28.885 (the Six Meter Coordination Frequency) to pass on to WA5IYX, W3XO or myself, information regarding the latest propagation.

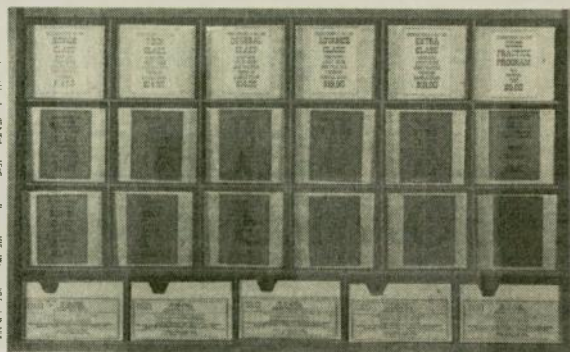
KH6s recently had a field day, with a 10 hour plus opening around the Pacific and South America. On the 16th, W5s in Arkansas, Oklahoma and North and East Texas, along with W8/W9s, had an opening to LUs, CXs and CEs from 1330 to 1430. At 1624 W5OZI got LU8AHW.

On the 18th at 0147, W3XO/5 got CX3XK on TE and heard LUs. On the 19th, in this part of the country, we had a super event caused by the solar flaring that took place that day (Flux=202, A=82!) and at 0900 the K=8! From 1345Z to 1651 we had HC, HC5K/ HC8, CE3BFZ, LUs and

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CX8BE. W4, other W5s, W6, W7 and W0s, were all in on F2 backscatter.

K7VAYW0 worked HC5K/HC8 from his mobile station! Between 1900 and 2000 HH7PV worked about a dozen ZLs who also worked into Florida.

At 1930 ZL2CD, ZL2TPY, ZL2KT and ZL1AKW were all being worked in here! From 1900 to 2000 HH7PV got about a dozen ZLs, who were also working into Florida.

At 2001 LU8YYO and LU1DVT were in here, followed by VK2s at 2100! What a shock to hear the ZLs and VKs.

0024 for several hours, working W5s, but he was very weak. On the 26th, at 2130, we had HC2/Beacon in here, followed by HC2FG at 60/S9! W5, W6 and W7s were in on BS. On the 27th HC2/B was in here at 1900, followed by HC2FG at 1930.

NI6E/KH6 reported to me on 28.885, as I was writing this, that he has had super conditions throughout the Pacific and into Central/South America. He counted 32 countries available to be worked into his area since Aug. 14. JAs have been into South Africa. A YB0 got the FY7/Beacon on long path over

possible. He said YN3CB, President of the Radio Club, helped him get permission.

YN3CC has worked HC5K, HC2ZE, HC2FG and a LU9 in early September. On Sept. 14 he got LU7FA, CE3BFZ, LU2EIO and CX6BH. On the 17th he got LU6BLB, LU3EX, LU8AHW, LU4DMX, CX7BBR, LU4DBK and LU4ERJ. He is in bad need of a rotator. Can anyone help?

EL2FO is on Six. 5N0/G3GJQ is on 50.110 with a keyer.

P29KK is on Bougainville. KN0E/KH3 is said to be active from Johnston Island. T33AB will be back on the air in November.

As of Sept. 19 Swedish stations (SMs) can operate 24 hours a day. Luxembourg stations (LXs) have to re-apply for licensing and when they get it will be allowed to operate only from 50.2 to .225.

VP2VDX will be on Six during the CQWW SSB contest. QSL 6M contacts only to N6CW.

SO1A, Sudan, is said to have permission to operate Six. OY9JD has gear but we don't know if he has permission.

N2HNQ/KH8 and NH6RT/KH8 are said to be active. QSL via JH4IFF.

Looking for Delaware? Watch for K3MPZ, SMIRK #1010, active from Wilmington.

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Thanks to N5TX who alerted VK2BA that I was coming out from work, I was able to get enough information back and forth to establish a contact with VK2BA from my mobile station! N5TX worked VK2BA, who was 20 over S9, VK2BKL and VK3AAU. As if that were not enough, the VK5s popped in at about 2315 and N5TX got VK5ZDR and VK5NY! What a day!

WA5IYX says HC5K/HC8 was in here on the 20th from 2050 for awhile. He had the S Meter on WA5IYX's IC-551DF pegged! He said he had 235 contacts in 85 grids on the 19th and worked from Connecticut to California during the opening and also worked YB0 and KH6s.

Since then it has quieted down with only an occasional LU being heard and on the 21st CX8BE was in here around

the Pacific.

On Sept. 23, from 2320 to 2330, ZD8MB worked a VK8 via long path over the Arctic. On Oct. 2, from 2145 to 2210, he worked Arctic long path again, this time to VK2JSR and VK4DDG!

On Sept. 30 NI6E/KH6 had a strange contact with W5OTH, in Waco, TX, while NI6E/KH6 was beaming to Japan. He heard the W5, so he turned his antenna around and promptly lost him on direct path. He turned back to Japan and worked him!

Who's on Six!

YN3CC finally has permission to operate Six and is on 50.110 as much as

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The New Zealand and Australian situation

ZLs who are 50KM away from the viewing area and TV Channel 1 repeater areas can operate around the clock on Six — 50 to 50.150 MHz. Unfortunately, that only affects about four ZL 6M operators. ZL TV will start coming on air at 1800Z soon. This means that ZLs not in the above area will have to get off of Six sooner than usual. This will adversely affect our ability to work them.

Coupled with this is the start of stereo TV using 51.1 MHz. This means they will not be able to operate in the 51 to 51.1 MHz range. We will have to look for them about 51.350 MHz so they can get in the clear of their stereo operation.

The VKs recently had their permits revised! With certain power limitations they can operate in the 50 MHz range 24 hours a day. Without going into the full details, this means that as long as they don't cause RFI problems, we will be able to work them, as we did on the 19th, on the low end of the band anytime they are in.

This is a great victory for them. For many of them it will mean a tremendous increase of contacts to be made and a big increase in the countries worked totals. They were losing so

much DX due to lack of MUF at 52 MHz.

Turkish activity on 6M

As of this report, TA4/G3SDL is having a field day on Six! On the 29th he worked ZS3AT, ZS3KL, ZS6WB, Z23JO, other ZS6s and 9Q5EE, who has his own transverter module for his rig.

9Q5DX has the SB-110. On Sept. 30 the TA4 was into Africa and Europe again. He got FR5DN, EL2FO and 9Q5EE. E12FO is running an IC-551D and 5-element yagi.

The HH7PV QSO situation

N2AU has told me that he has become the 6M only North American QSL Manager for HH7PV. He will handle ONLY those 6M contacts with North American stations. This will include the past contacts he has made so far. N2AU is working on getting the logs from HH7PV. All others QSL direct to HH7PV.

ZK1CG is looking for a beacon keyer. He said he will put a beacon on if someone can help.

You can get one to him through Randy Powell, NZ6N. ZK1CC should have his Yaesu FT-620B (supplied by SMIRK) by the time you read this.

The DX window

The results of the 6M DX Window

Poll by Bill Tynan, W3XO, were published in the October 1989 QST. You should read it. Out of nearly 200 who submitted comments, 175 were for it and only 20 against.

Now it is YOUR responsibility to put it into effect in your area. It will NOT work if you do NOT encourage its use. We have a consensus, by gentleman's agreement, that 50.1 to 50.125 should be used only for DX contacts. 50.125 seems to be the choice for the National Calling Frequency, with local and cross-country QSOing to go on above 50.125.

Technical tips

Steve Lund, WA8LLY/6, has some interesting comments regarding low pass filters in response to an article by David Gutierrez, WA6PMX, published in the Southern California Six Meter Club newsletter in recent months. If you would like to get that information from Steve, you might send him a SASE with 25¢ postage to 10180 Mill Station Rd., Sebastopol, CA 95472. It would be nice if you added a green stamp or two to offset his copying expense and time.

I want to take this opportunity to wish all of you a very Merry Christmas and a Happy New Year. May you get a lot of DX in the coming year. Santa Claus is bringing someone a 6M DXCC before the New Year! See you on The Magic Band all of a sudden. □

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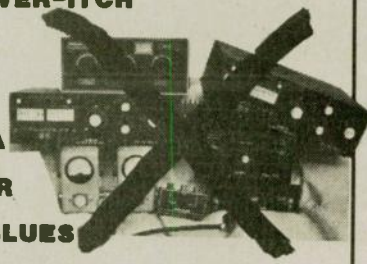
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10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

Who's who in 10-10

The membership of 10-10, like most any other organization, is made up of people in all walks of life. We have doctors, lawyers and, perhaps, even Indian chiefs, although I am not so sure about that last one! We have major league baseball players, teachers and maybe even a candlestick maker.

There is one 10-10 member that not only has an interesting profession, but he is also an outstanding Amateur who has done a great deal to promote Amateur Radio around the world. He is Dave Bell, W6QA, 10-10 #13883.

In 1951 Dave was licensed as W8GUE in Andover, OH. In 1956 he was DL4NV in Stuttgart, Germany, and was a principle operator of DL4USA, originating thousands of phone patches from Germany.

In 1960 he moved to Los Angeles, where his new license was W6BVN. In 1969, along with the help of Senator Barry Goldwater, K7UGA; Arthur Godfrey, K4LIB; Bill Leonard, W2SKE; and many others, Dave produced *The Hams Wide World* for the ARRL. He followed that in 1976 with a film entitled *Moving up to Amateur Radio*, with NBC science editor, Roy Neal, K6DUE, as host. This film is credited with converting many CBers into Amateur Radio operators.

Dave has operated from many foreign locations, much to the glee of DX-ers. In 1977 Dave operated the CQ Worldwide DX phone contest from

Torres' QTH on Macao, using his call CR9AJ. The following year Dave operated during International Telecommunications Week from 4U1ITU in Geneva, Switzerland, using a special call of 4U0ITU. After Geneva Dave attended the Cannes Film Festival for the first time and made a number of QSOs using his French call sign, F0ECW.

In 1979 Dave was in Jordan filming *The World Of Amateur Radio*, which featured His Majesty, King Hussein, JY1. (That's right, His Majesty's call is JY1, no suffix letters.)

The World Of Amateur Radio was hosted by Roy Neal and Dick Van Dyke and featured Senator Goldwater, Arthur Godfrey, Stu Gilliam, KI6M (of the LA Dodgers), and, of course, King Hussein, plus dozens of other Amateurs from around the world.

In 1983 Dave returned to Jordan to videotape His Majesty speaking with Owen Garriot, W5LFL, as the spaceship Columbia crossed over the Arab world. This scene is part of Roy's videotape entitled *Amateur Radio's Newest Frontier*.

In 1984 Dave was named "Dxer of the Year" by the Southern California DX Club and "Amateur of the Year" by the Dayton Hamvention. He is a past board member of the Northern California DX Foundation and past president of the Southern California DX Club.

To support his Amateur Radio activities, Dave is chairman of DBA Communications and is a producer of documentaries, motion pictures and

television specials and series. Some of his latest efforts include the Emmy winning television movie, *Do You Remember Love*, with Joanne Woodward and Richard Kiley; *Nadia*, about the gymnastics sensation Nadia Comaneci; *The Unsolved Mysteries* specials on NBC and many HBO documentaries. He has just finished shooting his first theatrical feature film, *The Long Walk Home*, starring Sissy Spacek and Whoopie Goldberg, which is scheduled to be released in early 1990.

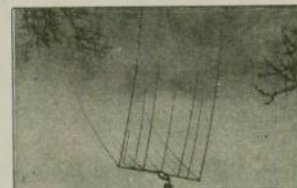
Dave and XYL Sam, N6FTW, live in the hills above Hollywood. Their station consists of a Kenwood TS930S, ALPHA 7800, 4-element wide spaced monoband yagis for 10, 15 and 20M, a 3-element beam for 40M and vertical for 80 and 160M.

Dave also, along with his partner Howard Lipstone, WB6ZRC, runs a travel agency catering to Amateur Radio operators. The name of the agency is, what else, DX Travel.

73, es cu next month. □

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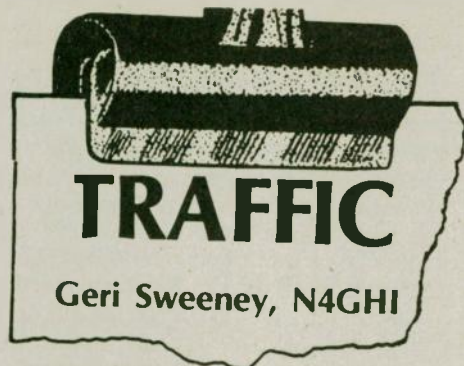
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ble), but on behalf of other newcomers . . . can we use words?

What does a net manager do?

The NTS is made up of hundreds of nets and yet there doesn't seem to be a job description of what basic things a net manager should do. So, here is my description of the perfect net manager:

— Be on your net seven days a week with time off for one vacation a year. This allows you to become familiar with net members and get an idea who can do what.

— Fill any vacancies (liaisons/NCS) within a week so that nets start on time and NCS doesn't have to waste time trying to get a volunteer. Learn to ask stations to take an appropriate slot. Few stations ask if they can have a liaison or NCS spot, even if they would kind of like one.

— Keep track (using a computer program) of net check-ins so you can award certificates and update them with liaison and NCS stickers.

— Stay on top of reports. Don't wait until the end of the month to try to figure out who owes you a report and wonder who was NCS.

— Train all net members to be perfect using SSB sessions, hamfest meetings and a bi-monthly newsletter.

— Send an updated roster to all net members with the bi-monthly newsletter.

— SMILE all the time and maintain your sense of humor.

The future of Amateur Radio

Does it have one? The FCC seems to be intent on getting rid of Amateur Radio. Perhaps it's just a matter of no money in the budget to deal with it. I hope it's not because they feel we are no longer worth their efforts.

We could be of great help in education. This resource has hardly been tapped. The NTS is more valuable than ever to pass "greetings" messages for our senior citizens who live on fixed budgets. We are still on the leading edge of experimentation into new technology. As a group, we have so much to offer.

The more the FCC divests itself of Amateur Radio, the more we need to pull together. While many of us feel strongly about certain aspects of Amateur Radio, we shouldn't let these feelings separate us into fractions. We are so few in number that we must stand together.

Just the other day I heard someone vent his feelings on "nets" and where he would like to see them go. A few have become vigilantes and seek to drive anyone off the air whom they judge lacking.

Luckily, these watchdogs are few in number. We need unity rather than bickering. We need to stand together with tolerance for the many different facets Amateur Radio offers or we may not have any frequencies left to quarrel about.

W1PEX

This man has been asking the right question. His latest query to the QCWA roster, "Are you still enjoying Amateur Radio," is bringing many replies and it's enjoyable to see they are all positive.

Abbreviations

Sri ur nr 8 undlvd, or, Tnx ur msg 3, add an element of confusion to a text. Actually, sometimes messages get garbled even when real words are used, due to bad fists, propagation, etc.

Copying a message full of abbreviations is difficult. This attitude may reflect on my few years as an Amateur Radio operator and my training (only listening to a good fist whenever possi-

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187 Telix 3.11 - great comm program - built in Z-modem!!!

1081 HAM RADIO 1-Packet-related - YAPP & PACTALK t.p.

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1084 HAM RADIO 4 - MORE ham programs - all countries, Smith charts (need BASICA or disk 591)

1089 MAPPER - an EXCELLENT EGA world map that shows grayline, MUF, longpath, shortpath, distance, beam headings

1087 RD-SSTV decoder - excellent SSTV pic. decoder for the PC-hooks into serial port - with example pictures

1099 TS440 & TS940 rig control - programs that allow you to control your Kenwood rigs via the computer.

1110 K1EA DX Contest logger - the much talked about program! Links via packet to PacketCluster, automatically logs, dupes and keeps score QUICKLY!

1120 Total Ham! - Excellent multi-purpose, all-in-one station utility program. Simultaneous logging, beam headings, awards check sheets, countries, countries, and other recording keeping.

1142 PMB - Personal Mail Box for earlier Kantronics TNC's

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1145 PK232 Terminal Program - for AEA PK 232 TNC's

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1149 GEOCLOCK-Real-Time Grayline Map of Earth - Like DX-Edge (CGA/Herc) - order #1150 for EGA/VGA version

1155 USN Floppy Almanac - US Naval Observatory yearly directory of radio objects, Messier objects and other data

1201 STORM - Hurricane Tracker - use w/ any graphics card

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Some of these things may be more difficult than others, some may never be achieved. But goals are necessary. Why not strive for perfection?

PAN/CAN/EAN meeting

Two years ago the ARRL cancelled the normal yearly meeting of the Eastern Area Staff. I don't know if this was due to finances or lack of confidence, but as a result, EAS decided to start on-the-air meetings. We now meet the second Wednesday of each month on 7270 or 3930, depending on propagation.

This year another approach was to be taken for the in-person meeting. Just the chairman of the PAN, CAN and EAN were going to meet. This would sure save money. Instead of three full staff meetings, only three people would need to be financed.

A meeting which would have allowed the exchange of ideas would have been beneficial for all traffic handlers. It may have peaked interest and enthusiasm. Information transfer on happenings, problems and concerns is essential. An influx of new ideas, such as:

— how our newest mode is being handled by each area and

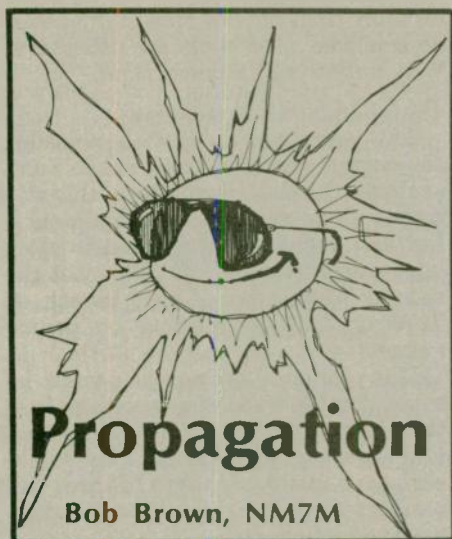
— what sort of nets are being used and what problems they may be encountering. (A friend just returned from the San Diego, CA, area and reported that one daily 2M net is used to pass all local traffic.) Many states in the Eastern Area hold many nets a day (Virginia has six). Each area has different geographical approaches and sharing this information would not only be interesting but of value to all. One is left to ponder why less support is being given NTS?

PACKET/Boy Scout Jamboree

Packet did a great job. The only disappointment was that there wasn't enough traffic. One of the boards handling much of the traffic says he expected the Jamboree would originate 10k rather than the 2k realized. This was over a period of 14 days.

The Jamboree used a local (to me) PBBS and received many replies to messages it had originated. Traffic left the jamboree to several outlets. WB0TAX reported that he handled over 700 messages and, "the traffic flow did not falter. Without exception the messages dissipated very rapidly throughout the 40 and 20M net of which I am a member. If I had to guess, I would say that sitting time on the board averaged no longer than two or three hours. There is no doubt in my mind that loading on the network in this part of the country (Virginia) was minimal."

This is encouraging, as packet's real (please turn to page 62)



you're tied into. Take the WWV broadcasts; there, you get the latest solar flux at 10.7cm wavelength from Ottawa, the A- and K-indices from the Boulder magnetometer as well as comments on the level of solar and geomagnetic activity. You even get spot announcements about major events such as flare outbursts, PCA events or magnetic impulses.

But if you're a subscriber to NOAA's Real-Time Alert service, you'd receive their latest messages about predictions or the occurrence of various solar-geophysical phenomena, such as solar radio noise bursts and solar X-ray events, even information about stratwarm events. All of those items are then summarized in the weekly report from NOAA.

Now, depending on your interests, perhaps even your level of sensitivity, you could take in all of what I've mentioned above and not have a single feather ruffled. On the other hand, you might pick out one thing as being controversial and start a heated discussion about its meaning.

Which item would that be? Simple, stratwarms. These show up on the WWV messages and Real-Time Alerts and can draw a crowd if a debate starts.

So what's the question? In a word or two, it's ionospheric absorption, the bugaboo of DXing. Most importantly, some people really take a Stratwarm Alert from WWV to heart and suggest that it means something akin to the "end of the world," at least for the HF bands, with signals dropping in strength by 10dB or more. Frankly, I don't think things are as bad as all that, given that a "Stratwarm Exists" message has been broadcast by WWV.

Having said all that and being

fearless, maybe even foolhardy, let me just tell you a bit about stratwarms.

Okay, you've heard a message on WWV that "Stratwarm Exists;" just what does that message mean? Well, if you go right to the government publication dealing with WWV messages, you would find that a stratwarm is defined as a meteorological event. Let me quote you from the document itself:

"STRATWARM — reports of stratospheric warnings in the high latitude regions of winter hemisphere of the earth associated with gross distortions of the circulation associated with the winter season."

Having read that and savored fully the meteorological flavor of the event, you might ask, "Just what is the big deal about stratwarms? How do some people look at them as potential disasters for the HF bands, talking about large increases in D-region absorption during stratwarm events? In short, just what is going on here? Is there a close connection between stratospheric events, between 10 and 30 km and the D-region way up there from 70 to 70 km altitude?"

In responding to that I suppose the place to start is the "winter anomaly" in ionospheric absorption, a term referring to the fact that at middle latitudes there is a winter maximum in absorption at a fixed elevation angle of the

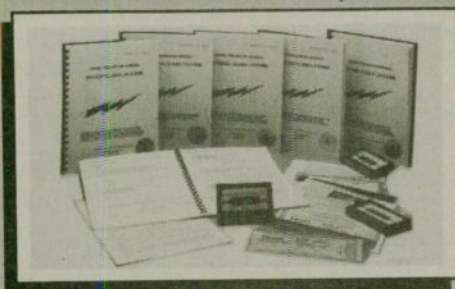
From time to time the news media come in for a lot of criticism, being blamed for shaping the way we think about issues because of their near-monopoly on our sources of information and how they report the facts.

I'd hate to think that such charges could be leveled at NOAA, being the prime source of our information on solar-terrestrial matters, but given the climate we live in, it could happen. And, as one who tries to point you in NOAA's direction for information at every opportunity, I'd probably be in the same line of fire should things come to that.

But I would hope that those who are interested in HF propagation would be more charitable, looking closely at the message and not bashing the messenger(s).

But what is the message? Well, that depends on which of NOAA's services

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sun. So beyond the "regular" anomaly (a contradiction in terms if I ever saw one), there will also be days during the winter months when the D-region shows unexpectedly high absorption, comparable to values in summer when the sun is higher in the sky. And, in addition to having a sporadic character, the winter anomaly shows correlations over great distances; however, on occasions it may show high absorption in one region, say Europe, but low values at other longitudes, say North America, at the same time.

Okay, that gets us oriented.

Now, as you well know, ionospheric absorption depends upon the electron density in the D-region and if the electron density is to be greater for a given level of solar illumination, then either the rate at which electrons recombine with positive ions must decrease or the rate at which electrons are produced must increase. Of course, there is always a third possibility, namely changes in the electron density can take place.

Having read that, you might sense that the first cause of the winter anomaly could be meteorological in nature — temperature changes such as those in a warming could affect the recombination of electrons that are already there in the D-region.

The second cause, increasing the production rate of electrons, is a bit more involved. For one thing, the solar radiation has ionized its share of available targets in the D-region, predominantly oxygen and nitric oxide molecules. If the solar flux and the temperature remain the same, the only alternative is to increase the number of targets.

But oxygen is a major constituent in the atmosphere, not one that would change in any significant way. That leaves nitric oxide (NO), a minor constituent to carry the burden.

Actually, in spite of being present in small numbers, NO is a major player in the lower ionosphere and any increase in the density of NO molecules in the D-region could lead to a substantial increase in the electron density. With that, you can see another way the winter anomaly could be produced, somehow introducing more NO molecules into the D-region at mid-latitudes.

Actually both possible origins of the winter anomaly could be attributed to meteorological phenomena; the first one thermal and the second one involving circulation processes. Just to make things more interesting, it can be argued that temperature changes and transport processes are not independent and thus have to be considered at the same time.

Having said all of the above, now let me repeat; I didn't want to drag you

through such a detailed discussion of the "winter anomaly," but everything considered, I thought you ought to know some of the background before the "buzz word," stratwarm, goes by you another time.

Actually, what I've given here is not the first word, which goes back to the early work of Appleton in 1937, nor the last word, the roles of temperature changes and the transport of NO molecules currently being discussed in the literature.

Appleton's work showed the presence of the "regular" anomaly while the current work is more theoretical, making computer models in an attempt to reconcile all the observations that have accumulated to date.

In between, there were a number of surprises. For one thing, some very complex ions, even with water molecules hanging on them, were found during rocket flights through the lower ionosphere; their role in the D-region is the one which would depend strongly on temperature. Then, it has been found that NO molecules can be formed by aurora in the polar atmosphere and survive for long times in the dark polar night. On the latter point, the sporadic aspect of the winter anomaly could come forth with any large scale atmospheric disturbance

after a period of auroral activity, one which would circulate and transport NO molecules from the polar regions down to mid-latitudes; there, the sun would ionize them and give rise to an anomalous increase in ionospheric absorption.

Okay, that was a large dose of ionospheric physics, all in the name of understanding HF propagation. But it was qualitative; we need some numbers in the discussion to make it sink in and become more of our own reality.

So let's start with all those dBs of absorption; just what frequency are we talking about? The current theoretical models which look so promising are dealing with effects in the 2 to 3 MHz range. Unless you're a DXer who's tied to the lower bands, say 80 and 160M, anytime a stratwarm message seems threatening to your skeds or whatever, you can just move up in frequency and take comfort in the fact that absorption decreases as the frequency increases, going as the inverse-square of the frequency ratio.

That was pretty glib, you say; but what comfort do I offer for the low-band DXer? After all, they look forward to winter and relief from the summertime static crashes that make their ears ring.

(please turn to page 62)

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AMATEUR SATELLITES

by

WB5ZDP
Keith Berglund

This is the first installment of a monthly column on satellites. We are pleased to introduce our columnist, Keith Berglund, WB5ZDP.

Keith is a senior engineer with the Antenna Systems Group at General Dynamics, Fort Worth Division. Licensed in 1976 and author of A Beginner's Guide to Oscar-13, he holds an Extra class license.

This column is for the beginner in Amateur Radio satellites. The very fact that you have an Amateur Radio license proves that you are not afraid to try new things. In the coming months I hope to show you that you don't have to be a rocket scientist or a PHD E.E. to be involved in the Amateur Radio space program. Just as you don't have to be a mechanical engineer to drive a car or a physicist to boil water, you don't have to have years of training to have a ton of fun on the "birds."

The biggest myth that we'll explode is that it costs megabucks to get involved with this stuff. Oh sure, you can go down to your favorite radio store, "whup-out" your checkbook and buy everything that you need for a kilobuck or three. Similarly, on HF, you can buy full sized stacked monobanders and put them on a 200 ft. tower. However, as we all know, this is in no way required to get on the air. A perfectly adequate station can be put on the air using wire dipoles.

The same thing applies to Amateur satellites. With a little ingenuity and a bit of scrounging, you'd be surprised how inexpensively you can set up a first class satellite station.

Why satellites?

I suppose I could go into a long discussion of how satellite communications is more reliable than HF or that there is more bandwidth in the UHF/VHF spectrum, but I guess what it boils down to is that it's just plain fun and challenging.

Virtually anything that can be done

on the HF bands is done on the satellites — SSB, CW, packet, RTTY, SSTV, DX, awards, contests, you name it. Amazingly, you're doing all of these neat things with stations all over the world on frequencies that we normally think of as "line-of-sight."

Like all of Amateur Radio, there is something in this for everybody. I personally like to design and build antennae. Satellite antennae are not very large and are cheap and easy to homebrew. Any weekend mechanic with a drill-press can turn out a first-rate radiator.

Speaking of antennae, did you know that satellite antennae don't have to be up very high? With the satellite up 500 miles or more, what would you gain by having your antennae an extra 50 ft. closer to the "bird?" This fact is important to those living in areas that are sensitive to tall antenna installations. I have talked to many stations situated in townhouses (you know, the type with a 10 X 10 ft. patch of grass in the back). Some subdivisions exclude rooftop antennae altogether. These guys produce an excellent signal into the bird with their antenna on a ground mounted tripod in the backyard.

I know several stations that hold DXCC and WAS on the satellite. Many DX stations like to get on the birds to

get away from the howling pileups on the HF bands. Where else can you have a 30 minute gentlemanly ragchew with a station in Manami-Torishima or Midway Island without tons of QRM and at least four or five breakers extolling how they need the DX for a new one.

I hope this paragraph doesn't have the ring of "EAT-YOUR-SPINACH-IT'S GOOD-FOR-YOU," but... if you get involved with this stuff you can't help but learn about "Real Communications." ("Gee Toto, this isn't HF anymore!") You'll learn about low noise preamps, circular polarization, Doppler shift and other engineering sounding stuff. However, fear not, we'll take this a step at a time.

What is a satellite anyway?

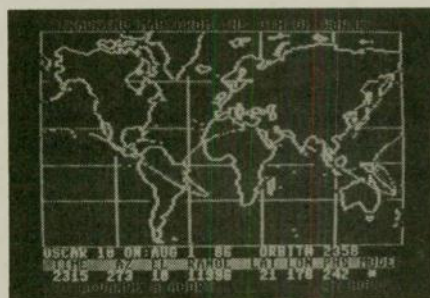
An Amateur Radio satellite is just a fancy repeater in the sky. That's right, just a repeater. Like your local 2M repeater, there is an input and an output. It's just like deciding which side of the road to drive on; as long as everybody knows where to transmit and where to receive, the system works. Unlike the local 2M repeater, though, the satellite doesn't have just one input and output frequency.

All Amateur radio satellites that are used for communications use "transponders." A transponder differs from a repeater in that it receives frequencies over a wide range, moves the whole range to another band, amplifies it and then retransmits it. A simplified schematic of a typical transponder appears in Figure 1.

The best way to show how a transponder functions is to give an example. Figure 2 illustrates the "Mode A" transponder of satellite RS-10 (more on modes later). As you can see, the satellite's transponder receives all frequencies between 145.860 MHz to 145.900 MHz. It then takes this whole slice of the spectrum and retransmits it between 29.360 to 29.400 MHz. Another way to look at it is that the satellite takes in a portion of the Amateur 2M band, subtracts 116.5 MHz from it and then retransmits it on the 10M band.

So, for example, if you were to transmit on 145.875 MHz, the satellite would hear this and retransmit your signal on 29.375 MHz (145.875 - 116.5 = 29.375). If you were to QSY (move frequency) your "uplink" to the satellite up one kHz, so then would your "downlink" from the satellite be shifted up one kHz.

Most Amateur satellites use what's known as "linear" transponders. In other words the satellite retransmits an exact copy of what it hears. So, if you were to transmit SSB, it would transmit SSB, and CW = CW, RTTY = RTTY, etc.



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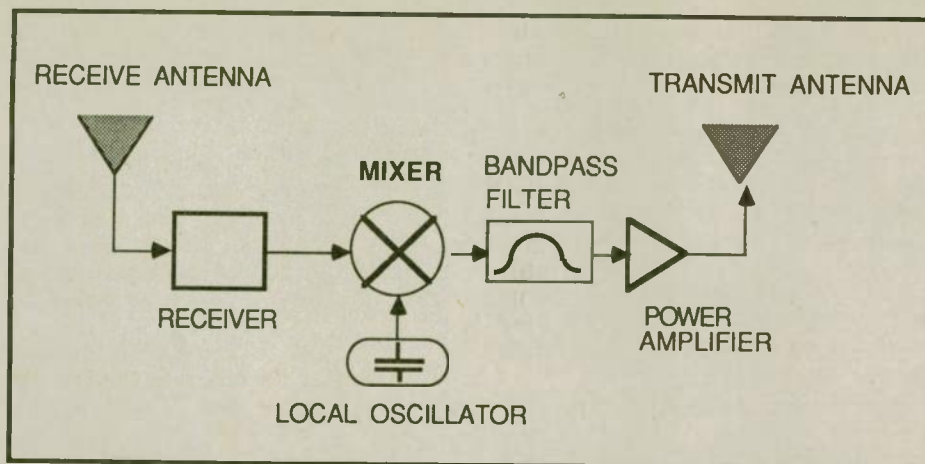


Figure 1. Block diagram of a typical satellite transponder

Also, the stronger your uplink to the satellite, the stronger the corresponding downlink will be. The trouble with this is that if somebody hits the satellite too hard, an automatic AGC will be activated in the satellite's receiver. This means that the weaker stations will not make it through the transponder and everybody else will have to increase their uplink power to be heard.

The rule of thumb on how much power to uplink is to use only the minimum power required to make the QSO and in no instance should your downlink ever be stronger than the CW

beacon located just above and below the transponder passband. (More on this next month.)

Satellite news

In the second half of this column, we'll discuss things like where to get satellite information, current events, and I'll answer any mail questions that I can. Chances are that if you need to know something, many others do too. There are no stupid questions!

AMSAT

AMSAT is a word that you are going to hear a lot in dealing with Amateur satellites. AMSAT is an acronym for

the Radio AMateur SATellite Corporation. AMSAT is a non-profit, tax-exempt, 501(c)(3), scientific and educational corporation.

As you can imagine, building and placing an Amateur satellite into orbit is a very expensive proposition. Even though a lot of contributions from corporations and individuals and "free rides" are available, AMSAT must spend a pile of money to build, launch and control modern Amateur satellites. They don't have a large paid staff; it's just people like me (and hopefully you) who *volunteer* their time and money to support the Amateur satellite program.

I strongly encourage you to join AMSAT and be an active supporter of it. Without AMSAT there would not be an Amateur satellite program.

For more information about AMSAT write (with SASE) or call AM-

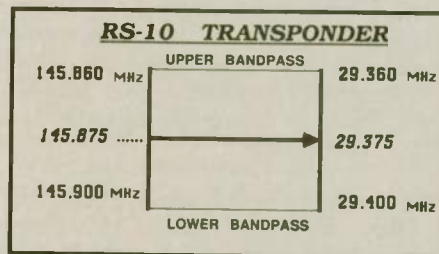


Figure 2. Block diagram of satellite RS-10 transponder

SAT, P.O. Box 27, Washington, DC 20044; 301/589-6062.

Information sources

Information on Amateur satellites is available from a variety of publications that are of particular interest to the newcomer. One publication that many who are now active on the satellites cut their teeth on is *The Satellite Experimenter's Handbook*, written by Dr. Martin Davidoff. This book begins with a history of the Amateur satellite program and then discusses satellite equipment and orbits. It starts with the basics and takes you as far as you want to go.

Another publication of note is *A Beginners Guide to OSCAR-13*. This AMSAT publication is a step by step approach to selecting equipment, antennas and tracking programs and operating procedures necessary to building and operating your satellite station. There are numerous charts and diagrams to illustrate the points.

The third publication I want to highlight is *The Satellite Anthology*. This book is a collection of QST satellite articles from the last two or three years. All articles were previously published; however, it's nice to have them collected in one publication. □

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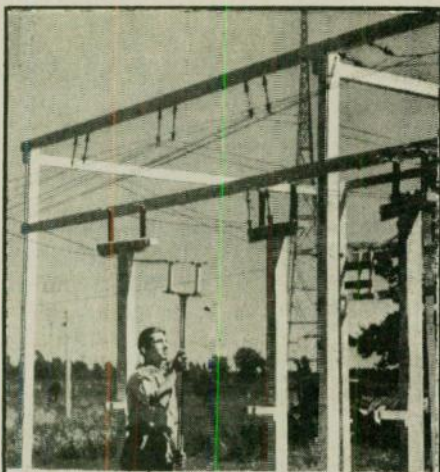
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AERIALS

KURT N. STERBA

Stop! No more letters about Maxcom. How come you all don't get upset at the big famous manufacturer who keeps advertising their 17 ft. vertical as a "halfwave vertical on 20." Huh?

There ain't no free lunch. No magic. You cannot get the radiation angle of a halfwave antenna from a quarterwave antenna. Why do they make that claim?

They even call it "our highly successful 1/2 wavelength vertical antenna." Pshaw, that's what I say.

Now, for those who worship at the altar of the Rhombic ... how 'bout those big terminating resistors? Hmhmhm

And how many letters go to the editors of the magazines that run the diagram of that TF whatever antenna? What do you think that big resistor opposite the feedpoint does? It does the same thing that the resistors in the Maxcom do.

Here's a letter from Ed deBuvitz, W5TTE:

I'm writing to ask your opinion of these horizontal loop antennas I keep reading about. I think the whole thing got started with an article in a QST back in 1986 or so.

I've worked the W0 in Florida who wrote that article about a loop skyhook. He claims these things are capable of wondrous things on all bands. Since then at least two members of the QRP Club have written articles singing the praises of the loop.

HAM RADIO Q&A MANUAL

Contains all 1,932 questions, multiple choices and answers used in all FCC Amateur Radio licenses, Novice—Extra Class. \$9.95 postpaid. Money-back guarantee. VISA/MC orders accepted 10:00 a.m.-2:00 p.m. (817) 548-9594...or send check to:
W5Y1, P. O. Box 565101, Dallas, TX 75356.

Now ... the people with computer programs and propagation knowledge tell me computer programs show beyond a shadow of a doubt that it is impossible to work DX with a horizontal loop because all the rf heads straight up at fantastically high angles. The experts say maybe you might get the same results with a single-band dipole at reasonable height, yet those who string them up seem to do quite well and, having worked a few of them, I can say their signals sound good to me.

It seems if these loops were all that good, the big DXers would dismantle their megabuck systems and string a loop around the back yard.

So Kurt ... waddaya think? You done any research on the subject?

First, I've written about that antenna far, far, farther back than 1986.

Yes, it does work just as well as its proponents say it does. Also, if you can't make it perfectly square, a rectangle or a triangle will work quite well.

True, the signal does go straight up. And down. Which makes it great for local and regional contacts. But it also, strangely enough, does a pretty fair job on DX. The theory is that, while it does take more bounces to get somewhere, the signal comes straight down-SPLONG-into the feedline of the station, no matter where his antenna is pointed.

An 80M loop is two wavelengths on 40, four on 20 and eight on 10.

The Big Guns don't dismantle their kilobuck systems because such systems will still win. And, the loop will perform better than a low dipole, at least in my experiences.

Here's a letter from Charlie Martin, WA5CCZ:

Do enjoy the "tongue-in-cheek" articles that appear under your by-line. Got to admit that it does my crochety old heart good to see some of these so-

called "experts" taken for a joy ride from time to time. I get so tired of hearing all of the "Expert Advice" on 40M that I sometimes have to turn the rig off in self-defense.

Oh ... I'm not so smart that I can't use a little good, factual information from time to time. But honestly haven't figured out how to sieve out the total BS from the occasional gem of truth. Probably a character defect in me.

I want you to know that I rolled while reading the article in the Jan. 89 issue concerning your "Patio" antenna. What a thing to say, after all the big advertisers have totally convinced all the little people out here that a 20-element Long John is absolutely necessary to talk across town, much less work a contest.

The article prompted me to take a few gallons of air out of a couple of the big guns here on 40 the other day. While in this group (7245) I proceeded to disconnect my main antenna and continue the QSO on my 2M ground plane, which is about 15 ft. high.

Received plus-20 in New Mexico, S-9 in old Mexico as well as 20-over from most Texas stations. All on the 20M GP running about 100W input, with the watt meter peaking up to about 35W output. Cut the power down to 10W and still maintained contact with all stations, including some 0s in Kansas (this occurred about 1730 CST).

I maintained the 1-1 SWR that my receiver was looking into. Just used a "TEE" connector into the Heathkit dummy load and hooked the center conductor of the coax going to the GP into the output. (Sonny Irons has been doing this to the CIA for years now hasn't he?)

ALL BAND

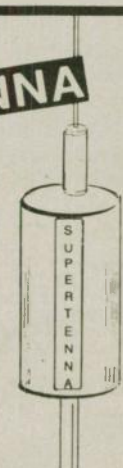
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Rev. Thomas Sable, S.J.
University of Scranton
Scranton, PA 18510



Pitcairn Island Bicentennial

Period of operation:

• The period of operation to qualify for the Bicentennial award will be from 0001 UTC Jan. 1, 1990, to 2359 UTC Dec. 31, 1990.

• The VR200PI/call will be used by all VR 6 operators during the month of January because of the historical significance.

• For each month after January, VR6 operators will rotate using the VR200PI/call, so as not to be a burden on any one operator.

• All QSL cards for the VR200PI/confirmation, applications for the Bicentennial award or the endorsement sticker should be received by the award manager no later than three months after the close of the event.

QSLing and confirmation:

• All contacts made with a VR200PI/ station should be sent to the award manager for confirmation.

• Many stations may also request a personal QSL card from the VR200PI/ that they worked, and those should be sent by that station's regular QSL route.

• The last two letters after VR200PI/ will identify the VR6 operator using the Bicentennial call.

• All VR200PI/QSL cards will be direct only. No bureau cards due to the long delay of the bureaus.

• All VR200PI/ cards sent to the award manager must have a No. 10 or (10.5cm X 24cm) SAE with sufficient postage or IRCs for its return.

• All cards outside of the United States will be returned by air mail direct.

• No QSL cards will be returned via the bureau.

The "Bicentennial" award:

• The Bicentennial award will be made available to Amateur Radio operators, shortwave listeners and Pitcairn enthusiasts in general.

• The award will be 11 X 14 inches or (28cm X 35.5cm) in size and will feature a picture by the world famous painter, Bryan Moon.

• The gold endorsement sticker will be available to radio Amateurs and shortwave listeners only.

• No award will be issued without first submitting an application.

• Additional applications are available upon request with sufficient postage for return.

Award qualification:

• Pitcairn Island enthusiasts in general need only to make application for the basic Bicentennial award.

• No club or organization affiliation is required to participate in the Bicentennial Celebration.

• Radio Amateurs or shortwave listeners who work/hear any of the VR6 stations will qualify for the basic award with application.

• Radio Amateurs or shortwave listeners who work/hear any of the VR200PI/ stations

will qualify for the basic award with the gold endorsement sticker.

• Radio Amateurs or shortwave listeners who work/hear a VR6 station on one date and a VR200PI/ station later may apply for the endorsement.

Closing:

• At the close of the event, all documents pertaining to the Bicentennial Celebration will become the sole property of the people of Pitcairn Island and their ongoing, colorful history. □



Arizona

The 4th annual SUPERSTITION AMATEUR RADIO CLUB hamfest will be held the weekend of Dec. 2 to 3 at the P & M Rodeo Grounds in Apache Junction. Hours are Saturday dawn to dusk and Sunday dawn to noon. Admission is \$1 per person and \$3 per vehicle for tailgaters.

Features include breakfast and lunch, hourly door prizes and appearances by the ARRL regional director and ARRL Section Manager.

Talk-in on the 147.12/repeater.

For information contact Bill or Marge Glaze, KA7SUF/K1YZC, at 602/832-3955. □

Florida

The SKY HIGH AMATEUR RADIO CLUB will sponsor the Tenth Annual Citrus County Hamfest on Jan. 20, 1990, at the National Guard Armory in Crystal River, FL. Expanded parking has been provided adjacent to the building and both indoor display area and outside fleamarket space has been increased.

Hourly door prizes will be presented and the Grand Prize will be awarded at 2 p.m. A food booth operated by the Club will be open all day for drinks, lunch and snacks. Self-contained RV parking is available.

Easy access to the building is provided for dealer setup, starting Friday afternoon at 3 p.m. Drive in early Friday and join the Com-

mittee for an informal "Dutch Treat" dinner and social hour at a local restaurant Friday evening.

Doors will open at 7 a.m. Saturday for exhibitor setup and only admissions purchased with tables or fleamarket spaces will be allowed entry at that time. Doors open to the public at 9 a.m.

Admission tickets are \$4 until Dec. 20, 1989 (send SASE for mail return), and \$5 thereafter. XYLs are free with OMs. Indoor swap tables are \$8 and outdoor fleamarket spaces are \$5, not including admission.

Talk-in frequency will be 146.355/955.

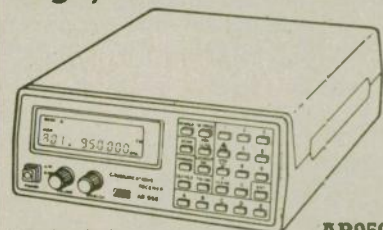
Contact Del Slocum at 904/726-0725, or write SHARC Hamfest, 3101 E. Oakton, Herndon, FL 32642, for tickets, tables, fleamarket space or further information. □

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NEW PRODUCTS

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K4TWJ books

MFJ Enterprises Inc. has released two books authored by Dave Ingram, K4TWJ.

First is *Golden Classics of Yesteryear*, \$9.95. Remember the 6L6 rigs, Heathkit DX-100, Collins KWM-1, WRL Globe Scout, Hallicrafters, RME, Hammular, National HROs, Eimac tubes, E.F. Johnson, WW II rigs—ARC-5 and BC-342/348—and bugs by Vibroplex, Speed-X, DOW KEY, McElroy...

You'll recognize all these famous names plus many more in this publication that's jam-packed with real life tales, transmitters, receivers, favorite circuits, telegraph keys and bugs and other topics.

This book includes easy-to-build projects from the 1920s, 30s, 40s and 50s and even shows you how to build a classic "tailender"—an early DX memory keyer that requires no power supply or other electronic parts and works like a champ.

An accomplished collector of classic radio gear, Dave shows you how to collect, restore and operate classic gear.

The second publication, *Oscar Satellite Revue*, \$7.95, is an anthology of CQ articles that show you how to set up and operate various types of OSCAR stations to work DX via the OSCAR satellites, as well as the

Japanese and Russian satellites.

Dave takes you from setup to success. Every part is written in non-technical, easy-to-understand language.

Topics include: Simplifying orbits, How to tilt masts for easy tacking, Selecting gear, GaAsFET preamp explanations, Gateways: How they work, Fine tuning your setup, Antennas and crossbooms, Frequency guides, Phase IV and future satellites, plus much more.

Each article is followed by a new updating addition to cover new information since the article was published. Articles are also followed by ready to use frequency conversion charts for all satellite modes.

You get clever tracking notes for OSCAR 13, OSCAR 10, Japanese JO-12 and Russian RS-10/RS-11, too. Dave even shows you how to work the Russian robot on RS-10—and exactly how to receive a QSL card confirming this rare DX!

There is also a quick start guide for newcomers and a large equipment review section.



Also included is up-to-date Keplerian data for computerized tracking programs.

K4TWJ's monthly "World of Ideas" column in CQ is one of the most avidly read features in ham radio. For more information on either of his two books, contact any MFJ dealer or MFJ Enterprises Inc., P.O. Box 494, Mississippi State, MS 39762; 601/323-5869. You may also order toll free at 800/647-1800. □



Fast Code prep tapes

Gordon West announces the availability of new Morse code test preparation tapes specifically designed for the new ARRL "Fast Code" CW examinations. Code characters are generated at 18 wpm and spaced for the 5 wpm ARRL Novice tests and the 13 wpm ARRL General tests.

Radio School tapes are now distributed by The Radio Amateur Callbook Inc., P.O. Box 247, Lake Bluff, IL 60044; 312/234-6600, and are available through most major Amateur Radio dealers. □

HF mobile mast

Hustler Inc. announces the introduction of a HF mobile mast for use with their ubiquitous line of mobile resonators and accessories.

Model MO-4 is a 22 inch all stainless steel mast which will allow the user a large number of mounting options previously unavailable to the HF mobile operator.

The MO-4 was designed to meet the needs of customers who, until now, were unable to mount a HF mobile system on their vehicle. Ideally suited for use on RVs, trucks, vans and cars with plastic bumpers, the MO-4 can be mounted on trunk lips, mirrors, roof racks and ladders. When used in conjunction with standard Hustler resonators, the MO-4 can be also installed on a high quality magnetic mount.



Since the MO-4 is only 22 inches long (a full-sized mast is 54 inches), it is easily stored and transported for use with company vehicles, rental cars, etc.

A shortened dipole can be formed by using two MO-4 masts and a matching pair of resonators. A tri-band dipole can be assembled

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with the addition of two Hustler VP-1 tri-band adapters and two each of the desired resonators. This configuration should prove to be of interest to those customers in condos, apartments and other areas with antenna restrictions.

The MO-4 is supplied with three 30 inch tip rods for use with 10, 15 and 20M resonators. These extra rods are used in place of the tip

rods normally used on the aforementioned resonators. No tip rod changes are necessary when used on 40, 75 or 80M.

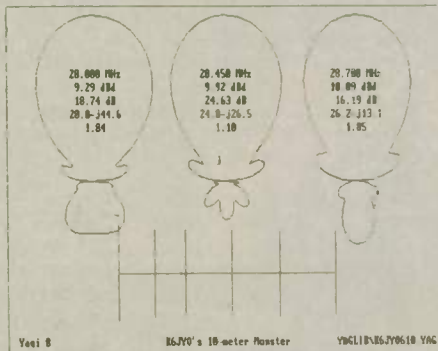
The MO-4 has a suggested retail price of \$19.95. For further information contact the customer service department at Hustler Inc., One Newtronics Place, Mineral Wells, TX 76067; 817/325-1386. □

YO Yagi Optimizer Software

This new YO program for IBM-PC and compatible computers will automatically adjust the element lengths and spacings of a Yagi design to maximize forward gain, optimize pattern and minimize SWR. Radiation patterns at the center and edges of a band and a scale drawing of the antenna are plotted on CGA, EGA or HGC graphics screens during optimization. Hardcopies of the plots may be made on dot-matrix printers.

YO will compute several trial designs per second for small Yagis, with a math coprocessor chip installed (not required). Yagis having up to 50 elements may be modeled.

The YO design package includes models for gamma and hairpin matching networks, element tapering, mounting plates and frequency scaling. A library of Yagi files and documentation are included.



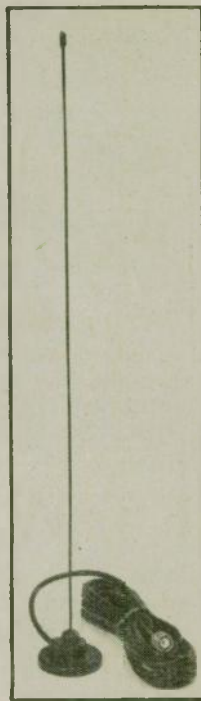
YO is \$90 (\$95 CA and foreign) and is available from Brian Beezley, K6STI, 507 1/2 Taylor St., Vista, CA 92084. □

Communications extender

Valor Enterprises' Model PAQM "communications extender" mobile VHF antenna provides mini-quarterwave reception.

This 2M unit is easily installed with a two-inch magnetic mount, 12 ft. of cable and a BNC connector, which are supplied. The unit can be modified to 220 or 450 MHz.

For information contact Valor Enterprises Inc., 185 W. Hamilton St., West Milton, OH 45383; 513/698-4194. □



Scanner catalog

Universal Shortwave is pleased to announce an all new scanner catalog.

Catalog 89-06 is typeset quality throughout and is very informative. Twenty-four pages in length, it covers a broad range of items for the VHF-UHF monitoring enthusiast.

A full line of both portable and base scanners is featured, along with antennas, headphones, books and accessories. Some of the key items featured in this catalog include:

- Icom R-9000 "DC to daylight" Communications Receiver. The new all band standard!
- A new line of Regency hand-held scanners.
- Kenwood RZ-1 wide band 12VDC receiver covering .5 to 905 MHz.

This catalog is available for \$1 (or 3 IRCs) or free with any purchase from: Universal Shortwave Radio, 1280 Aida Dr., Reynoldsburg, OH 43068. □

If you don't learn from your mistakes, there's no sense making them. —Cuyahoga Falls ARC, Cuyahoga Falls, OH

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No pruning. No tuning. No knobs to twist. No worry about SWR as you work 75, 40, 20, 17, 15, 12 & 10. TNT is The No-Tune HF Antenna for Solid-State Rigs.

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— Orleans County ARC

Now receive or leave messages with other local hams using the 16K Bulletin Board featured on the smallest TNC available — the Heath® HK-21 Pocket Packet.

The BBS operates under your call with simple commands like Send or Write a message, Kill a message and read the File messages currently on the system. And the HK-21 Pocket Packet is fully TNC-2 compatible.

Hookup is easy. Plug in supplied cables instantly to most

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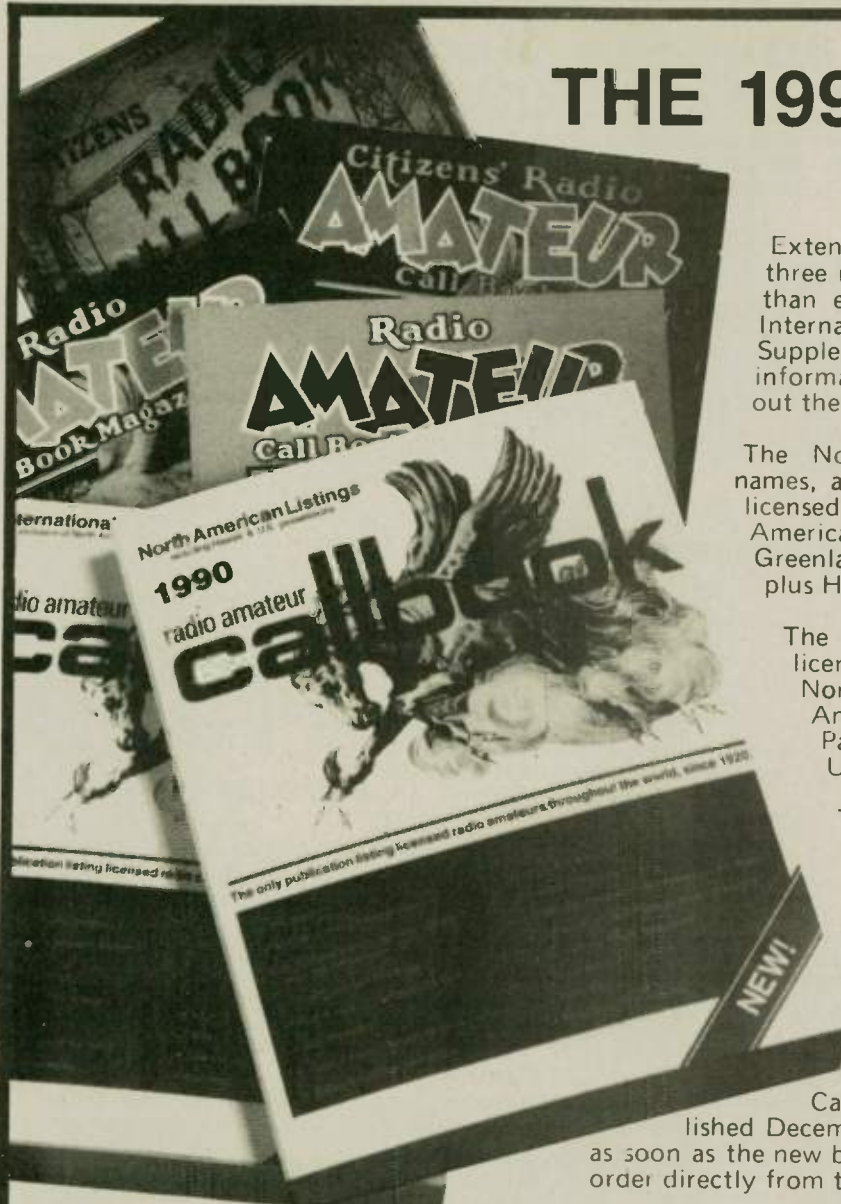
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Extending a 69 year tradition, we bring you three new Callbooks for 1990, bigger and better than ever! The North American Callbook, the International Callbook, and the new Callbook Supplement bring you accurate up-to-date QSL information on over 1,000,000 amateurs throughout the world.

The North American Callbook lists the calls, names, and address information for over 500,000 licensed radio amateurs in all countries of North America from Canada to Panama, including Greenland, Bermuda, and the Caribbean islands plus Hawaii and the U.S. possessions.

The International Callbook lists over 500,000 licensed radio amateurs in countries outside North America. Its coverage includes South America, Europe, Africa, Asia, and the Pacific area (exclusive of Hawaii and the U.S. possessions).

The 1990 Callbook Supplement is a new idea in Callbook updates, listing the activity in both the North American and International Callbooks. Published June 1, 1990, this combined Supplement will include thousands of new licenses, address changes, and call sign changes for the preceding 6 months.

Every active amateur needs the Callbook! The 1990 Callbooks will be published December 1, 1989. Order now for early delivery as soon as the new books are available. See your dealer now or order directly from the publisher.

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Supplement - June 1, 1990

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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 two months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid July.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, and 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	Date	City	Contact	Notes
Alabama							
Dec. 30	Montgomery	Leroy Bell, Jr. (205) 269-4201	w/i	Dec. 2	Topeka	NQ0S (913) 273-3328	w/i OK
Arizona				Maryland			
Dec. 2	Tucson	K7OPX (602) 886-7217	w/i OK	Dec. 9	Germantown	John Muller (301) 564-0178	p/r; ltd w/i
California				Massachusetts			
Dec. 2	Burbank	KE6AR (818) 349-0927	w/i OK	Dec. 15	Holyoke	William C. Sample (413) 567-7301	w/i
	Concord	WW6H (408) 255-9000	w/i	Dec. 16	Melrose	NC1V (617) 665-6061	w/i
	Roseville	W6SUP (916) 783-7610	p/r	Dec. 20	Cambridge	Nick Altenbernd (617) 437-0320	2-day p/r
Dec. 3	Chico	W6YKU (916) 342-1180	p/r pref; w/i OK	Michigan			
Dec. 7	Modesto	W6XK (209) 883-2968	w/i OK	Dec. 2	Saginaw	KO8M (517) 793-9636	w/i OK
Dec. 9	Camarillo	N6SR (805) 484-4461	p/r pref; w/i OK	Minnesota			
	Fullerton	KD6DA (213) 691-1514	p/r pref; w/i OK	Dec. 2	St. Paul	Mary Ketzler (612) 426-4438	p/r pref
	Modesto	W6XK (209) 883-2968	w/i OK	Nevada			
Dec. 14	Long Beach	KA6HOQ (714) 897-6331; or NF6X (213) 434-8278	w/i	Dec. 2	Minden	W6FFT (702) 266-3661	w/i
Dec. 30	Stockton	AA6NO (916) 662-0801	w/i	New Jersey			
Colorado				Dec. 4	Sayreville	K2FD (201) 442-9215	w/i
Dec. 9	Denver	W0IJR (303) 366-9689	p/r pref	Dec. 9	Cranford	N2XJ (201) 532-5354	w/i
Dec. 11	Boulder	N0BWS (303) 530-1872		Dec. 13	Fort Monmouth	K2USA (201) 532-5354	w/i
Dec. 16	Westminster	N0HNR (303) 451-1231; (303) 278-4280	p/r or w/i	Dec. 21	Bellmawr	WA2VQG (609) 546-7710	w/i
Connecticut				New York			
Dec. 12	Portland	KN9Y (203) 342-4300	p/r pref; ltd w/i	Dec. 15	Verona	K2NIL (315) 363-4297	w/i
				Dec. 17	North Babylon	KA2RGI (516) 957-5726	w/i OK
Delaware				Ohio			
Dec. 9	Wilmington	WB3DPJ (302) 478-2757	w/i	Dec. 2	Columbus	J. Kerr (714) 866-5531	p/r pref
Florida				Dec. 9	Cincinnati	Bill Simpson (606) 341-3952	p/r; ltd w/i
Dec. 5	New Port Richey	AA4FG (813) 849-1224	w/i	Pennsylvania			
Dec. 16	Melbourne	AA4NP (407) 768-1954; WB9IVR (407) 724-6183	w/i	Dec. 2	Erie	W3CG (814) 665-9124	w/i OK
	W. Palm Beach	W4SS (407) 967-1477; KG4U (407) 582-7617	w/i	Dec. 30	McKeesport	KQ3W (412) 466-5204	2 day p/r
Georgia				South Carolina			
Dec. 16	Albany	K4XA (912) 883-7910	w/i	Dec. 9	Columbia	N4WR (803) 345-3373	w/i OK
Idaho				Texas			
Dec. 9	Boise	W7JMH (208) 343-9153		Dec. 3	Princeton	NW5W (214) 736-2397	w/i
Illinois				Dec. 9	Midland	KT5G (915) 694-9450	w/i
Dec. 2	Schaumburg	W9KGT (312) 882-5226	w/i		San Antonio	NS5I (512) 681-0702	w/i
Dec. 9	Oak Forest	KA9HDN (312) 247-0650	w/i	Dec. 19	Denison	KA5KTP (214) 786-3847	w/i
Indiana				Vermont			
Dec. 2	Indianapolis	KA9H (317) 241-1272	p/r	Dec. 16	Burlington	WB2JSJ (802) 879-6589	w/i
Iowa				Washington			
Dec. 2	Ames	KC0RZ (515) 292-4504	w/i OK	Dec. 27	Redmond	WR7V (206) 881-1088	w/i
Kansas				West Virginia			
				Dec. 16	Nitro	WD8MKS (304) 768-1142	w/i
				Wisconsin			
				Dec. 2	Racine	NW9P (414) 658-8390	w/i
					Stevens Point	N9JW (715) 344-1182	p/r pref; w/i OK

HAPPY HOLIDAYS

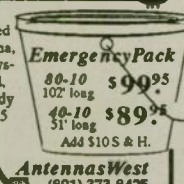
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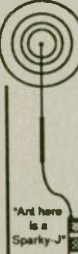


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As you read the chart nearest your location,

keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 145.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will hear is the

telemetry beacon on 145.810 MHz. The letter "L" indicates the satellite is audible but you will hear signals between 435.650 and 436.000 MHz (SSB and CW).

Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send a SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. □

Station East

HOURLY - UTC

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
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Station Mid

HOURLY - UTC

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HOURLY - LOCAL

Station Mid

HOURLY - UTC

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
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18 19 20 21 22 23 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

HOURLY - LOCAL

Station West

HOURLY - UTC

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
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HOURLY - LOCAL

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