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MR 01-0013935 LIFE W6CUP

3

Tragedy simulation ... Preparing for the worst

*Editor's note — The cover last month featured a story about the tornado that swept through Raleigh, NC, and the ensuing efforts of the local Amateurs to help out in the aftermath.

Unfortunately, incidents like this occur several times a year all around the world — both natural disasters and man-made. Following is the story of one ARC's efforts to be ready the next time.

JOHN M. ANZIVINO, WA2QYX President, BEMARC

On October 30, 1988, the Bayonne Emergency Management ARC, W2O-DV, conducted its annual simulated emergency test. This year's SET consisted of a simulated vehicle accident with unusual consequences.

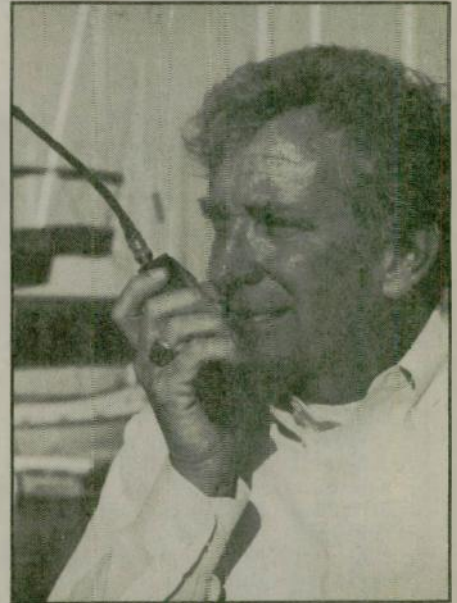
The city of Bayonne, NJ is a peninsula and the New Jersey turnpike extension bridges the city at several of its entry roads. Our SET simulated an

accident in which a vehicle carrying flammable chemicals overturned on the turnpike bridge and fell to the ground, bursting in flames. The consequences of the accident were the following:

Fire danger to several homes and businesses in the area. Temporary disruption of telephone service in Bayonne. Blocking a major roadway entry point to the city. Various injuries to drivers, pedestrians and residents.

A member of our club resides near the accident site, and immediately made a call on the BEMARC 2M repeater. That call was acknowledged by several of the control operators monitoring the frequency.

Charlie Reuter, WB2FUJ, who lives near the club location, activated the club station and called a special session of the Hudson County Traffic and Emergency Net. Over 10 members re-
(please turn to page 3)



Gordon West, WB6NOA

10M Kids-In-School

Photos courtesy of Ed LaTour, KA2TXL

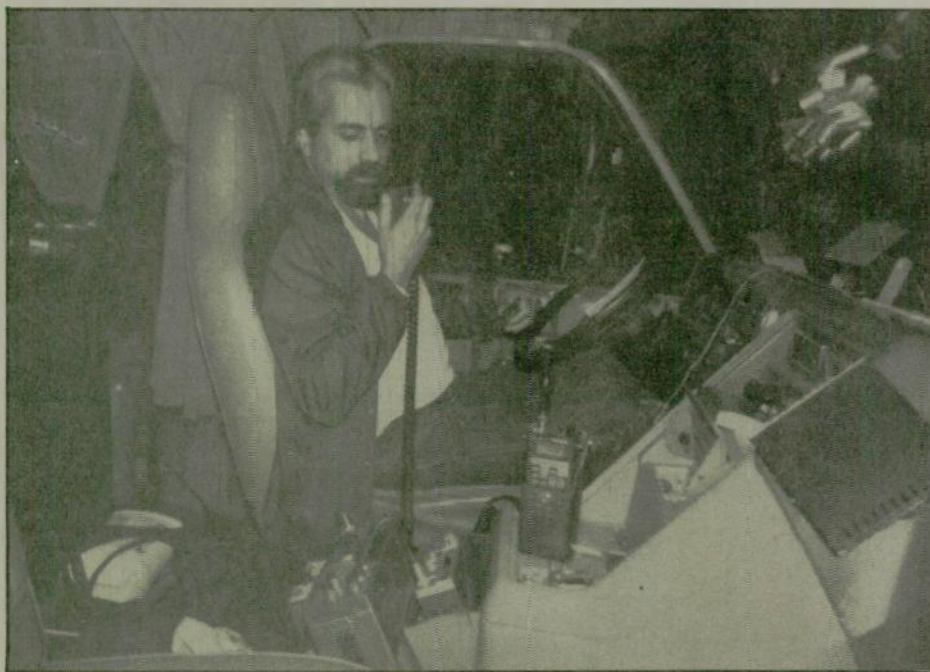
The growth of Amateur Radio may be found in junior high and high schools. The ARRL wants to see amateur clubs organized in the school systems. It's never been easier to obtain a Novice class license for voice privileges than right now — especially for kids and computers in school.

ARRL Instructor of the Year recipients Gordon West, WB6NOA, and Carole Perry, WB2MGP, found a pile-up on 10M when they began discussing what it would take to get schools on the air.

"By the end of our brief 10M contact, we already had five schools, including Carole's, all linked up on 10," Gordon commented.

A most notable station was part of the original contact — W5RRR, the Johnson Space Center. They were one of many hams wishing to support the "Kids in School" program.

"300 and up" will be the meeting spot — 28.300 and up for a clear frequency. Thursday has been chosen as an initial starting day. Noon Eastern time, 9 a.m. Pacific time and local time
(please turn to page 6)



Mike Cangro, KB2EQQ, activates the mobile van loaded with communications equipment.

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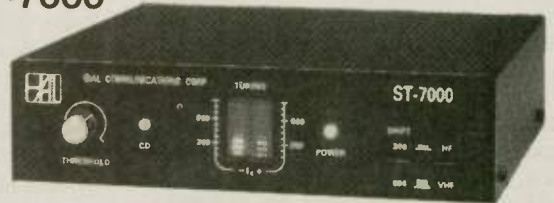


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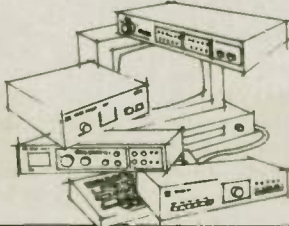
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Tragedy simulation

(continued from page 1)

sponded and were dispatched to various key locations throughout the city and county.

Communications were established at the local hospital and also at the county emergency medical facilities in Jersey City. Operators were dispatched to the Red Cross headquarters to assist in evacuation operations, and to police and fire headquarters in Bayonne.

At the direction of the Office of Emergency Management, the state police were contacted and a request was made for a medi-vac helicopter to transport the serious burn victims to the appropriate facilities many miles away. One operator was assigned to the local ambulance service company, as their services were required to transport the burn victims to a suitable helicopter landing site. Another club member was assigned to the medi-vac landing site, and finally, one member followed the progress of the phone company in their effort to restore telephone communications.

All Amateur Radio communications during this simulation were performed using either battery powered HT's, mobile radios operating on the vehicle's battery power or emergency power. During the simulation, which lasted about 1½ hours, more than 40 messages were handled. Some were communicated directly between the appropriate operators located at the various sites noted before; others were directed through net control. The simulation ended when all burn victims were evacuated and all telephone



Lou Manzano, WA2FPO operates club station W2ODV as net central.

communications were fully restored.

A critique of this exercise was made at the subsequent general club meeting in November. Ideas were put forth on methods to improve our communications skills for next year's SET. □

Old equipment manual source correction

We have been advised that our February issue, page 19, carried a "close, but not quite" address for a source for manuals for old equipment. The name and address of the company is now Hi-Manuals, P.O. Box 802, Council Bluffs, IA 51502-0802. If you wrote to the address as listed in the February issue, please redirect your inquiry to the correct address. □

•••••

Let Worldradio know what you do in Amateur Radio; many others will be interested in your experiences.

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ACSB ... what is it?

Single sideband modulation has been around a long time. In the past few years, several companies have developed a new mode called Amplitude Companded SideBand (ACSB), which may well become a standard modulation method, due to the fact that it makes efficient use of the RF spectrum.

An ACSB voice channel is similar to SSB because they both have a suppressed carrier and occupy approximately 5 kHz per channel. ACSB is also similar to FM in that no frequency tuning is needed for clear reception and DTMF signal decoding and it mimics the "capture effect" inherent with FM.

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(please turn to page 54)

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grade, MT; Harris Newcomb, W0-
RWS, St. Charles, MO. We thank those
fine gentlemen.

Eleanor Call, N6QJE, Carlsbad, CA,
wrote to tell about the passing of Clint,
W6OFT, who was licensed in 1936.
Clint was with Swan and Atlas for
many years. You'll have to go a long
way to find anyone who was as genu-
inely friendly as Clint was.

Sponsors of the smaller contests
seem to shed tears that more Amateurs
don't enter the lesser-known contests,
and that of those who actually partici-
pate, the number of log entries is
very low.

Possibly the reasons may be seen
from this episode. An announcement of
a contest (which looked like it would be
fun to enter) was made. Emphasis was
made that entrants must use the con-

test's log sheets, summary sheet and
dupe sheet. The usual SASE was sent.

But the return, which was to contain
the dupe sheet, summary sheet and log
sheet, contained but two log sheets. So
where does the blame fall for lower-
than-hoped-for contest activity?

On a higher note...the Amateur
Radio Calendar and Operator Aid by
John David, KB1T, is really nifty. All
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looking for good articles. Some topic
you find interesting will also interest a
good number of others. We're pleased
to note that the quality of photographs
coming in is moving in an upward
direction.

There are hundreds of nets out there,

all dedicated to one purpose or another.
They might find more attendees if they
would let more people know of their ex-
istence. Send the info to this journal.

Like the full moon or the sunspots,
rolling around again is the no-code
radio license issue.

Oh, if only, (advocates plead) more
people would get an Amateur license,
the USA would generate a mass ex-
odus to engineering school and we
would sweep to technical superiority
over all the world's people.

The argument is made that per-
capita vs. population as a whole, less
people are joining our ranks. Well, the
same is also true of people who could
vote for the president of this country.
In time, we can well imagine, Samuel
F.B.'s code will be blamed for that too.

Where is the real root of the problem?
Recently identical math tests were
given to fifth graders in many coun-
tries — tough stuff like the average of
five numbers, radius and diameter of a
circle, etc.

The US youngsters were stomped by
everybody. Japan, South Korea (which
35 years ago was rescued by the US)
and such bastions of high-tech as Spain
and Ireland all beat up on our kids.

Right now, half of all science and
engineering graduate students in the
United States are from foreign coun-
tries! Our physics professors are from
India.

In the past youngsters went into
Amateur Radio because they liked
technical matters, not the other way
around.

Now, exposure to science in the lower
grades is minimal in comparison to the
past. The teachers are uncomfortable
with it. To blame our current lack of ex-
cellence in science and math on the
Morse Code is a bit much.

The first step to solving any problem
is NOT to blame the wrong scapegoat.

—Armond, N6WR

For the gift that keeps
on giving, see p.9.

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Multimode versatility. The FT-747GX is ready to go on LSB, USB, CW, and AM. With provision for the FM-747 FM unit — great for watching 10-meter repeaters.

You get 20 memories to store frequency and mode. Dual VFOs with split frequency operation for DX-pedition work. And manual band scan plus auto-resume memory scan via the microphone up/down buttons.

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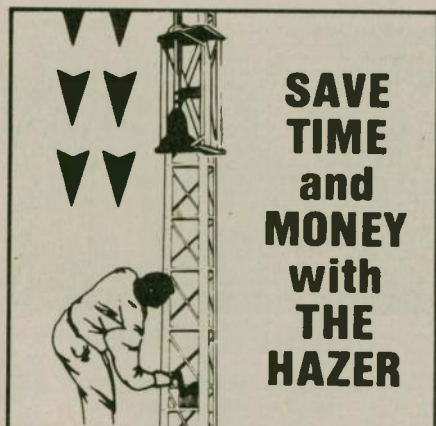
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10M Kids-In-School

(continued from page 1)



(Left to right) Kenny, KB2FGB, Tammy, Carole, WB2MPG, Yaniv and Aaron, locating the QTH of a DX contact.

in between the two coasts will prevail as the general start-up time for the Thursday mid-morning net.

Perry and West encourage instructors to tune in to a ham radio classroom demonstration medium that could very well spark a growing interest of Amateur Radio in the hundreds — and quite possibly thousands — of students who will get exposed to the airwaves.

"We were swamped with calls from hams wishing to say hi to our students,

and encouragement for them to get their license," commented Carole. "It was a wonderful pile up, and our students loved it — it's contagious. I encourage every school to get their kids on the air with ham radio in the classroom."

For more information about the Amateur Radio "Kids in Classes" 10M net, or Amateur Radio curriculum for the schoolroom, write Carole Perry, WB2MGP, 33 Ferndale, Staten Island, NY 10314.

The transmitter that we didn't count on

Rick Fearn, K6VE

Field Day 1988 was an event that the members of Mountain Repeater Association may never forget. I haven't participated in a Field Day in

more years than I'd care to remember. The reason was most likely because my birthday and Field Day occur at approximately the same time every year. This year was no exception, but I decided to participate anyhow, birthday or not.

At 8:00 Saturday evening, it was time for me to leave the Field Day site and check in at the home QTH. I drove very carefully out of the Field Day site, which was no easy chore. A mile (turn to next page)

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H.CON. RES. 317

To express the sense of the Congress concerning support for Amateur Radio and Amateur Radio frequency allocations vital for Public Safety purposes.

IN THE HOUSE OF REPRESENTATIVES June 14, 1988

MR. DORNAN of California (for himself and MRS. JOHNSON of Connecticut) submitted the following concurrent resolution; which was referred to the Committee on Energy and Commerce

CONCURRENT RESOLUTION

To express the sense of the Congress concerning support for Amateur Radio and Amateur Radio frequency allocations vital for Public Safety purposes.

Whereas more than 435,000 Radio Amateurs in the United States are licensed by the Federal Communications Commission after a thorough examination in radio regulations, technical principles and the international Morse Code;

Whereas by international treaty and Federal Communications Commission regulation, the amateur is authorized to operate stations in a radio service of intercommunications and technical investigations solely with a personal aim and without pecuniary interest;

Whereas among the basic purposes for the Amateur Radio Service is to provide voluntary non-commercial radio service, particularly emergency communications;

Whereas emergency communication services by volunteer radio amateurs have consistently and reliably been provided before, during and after floods, tornadoes, forest fires, earthquakes, blizzards, train wrecks, chemical spill, and other disaster: Now, therefore, be it

- 1 Resolved by the House of Representatives (the Senate
- 2 concurring), That it is the sense of the Congress that:
- 3 (1) The Amateur Radio Service should be sup-
- 4 ported in its emergency communication efforts in
- 5 every way possible;
- 6 (2) Government agencies shall avoid actions which
- 7 would reduce amateur radio frequency allocations used
- 8 for such purposes.

The transmitter that we didn't count on

(continued from page 6)

of rather bumpy dirt road connected our site to civilization.

I no sooner reached the main boulevard that bordered our site than I spotted a television electronic news-gathering vehicle. Could they be looking for us? Sure, we sent a press release for the bonus points offered in the contest. But surely the media wouldn't act on it . . . or would they? The truck was headed in the wrong direction, and besides that, the driver appeared to be lost. I turned my car around and gave chase.

When I pulled alongside, I asked if they were looking for the "hams." "We sure are," the driver replied. "Where are they?" "Follow me," I said.

The rest is a matter of record. The Los Angeles television station, KABC-TV, was planning to report about Field Day on the 11:00 news, and we were going to be the lead story! What a way to return to the Field Day site, in a VW Rabbit, followed by a fully-equipped ENG truck, topped with a 2 GHz microwave dish and telescoping pole. When we arrived at the site, the reporter and the engineers proceeded to set up their cameras, and gather the story from everyone there.

After a few interviews, some pictures and dinner at the bar-b-que grill, the story was finished and ready for transmission back to the studio for editing. One problem, however. The television ENG vehicle was parked right under our long-wire antenna. Since at least part of the story was going nationwide, this could be the most serious TVI problem ever! We decided to stop transmitting so that the story could be sent back to the studio by way of the 2 GHz microwave equipment on the ENG truck — *without TVI!*

We were very happy later because the 1½-minute story did appear as lead item on the 11:00 news. The 2 GHz transmitter that we didn't count on having at the Field Day site had done its job well, and we were glad it did.

1605-1705 kHz

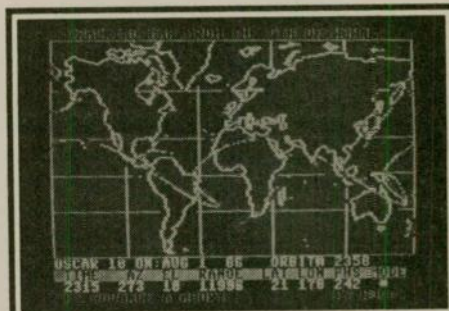
RALPH CAMERON, VE3BBM

The 1605-1705 kHz AM band will be available in Canada and for use by North and South American broadcasters by July 1.

Canadian border areas have priority for frequencies of 1610, 1630, 1650, 1670 and 1690 kHz, with power limited to 1kW.

Farther inland, 10kW power is permitted as long as protection is given to stations south of the border.

AM radio receivers should have started to appear with the increased coverage early this year. — *The Groundwave*



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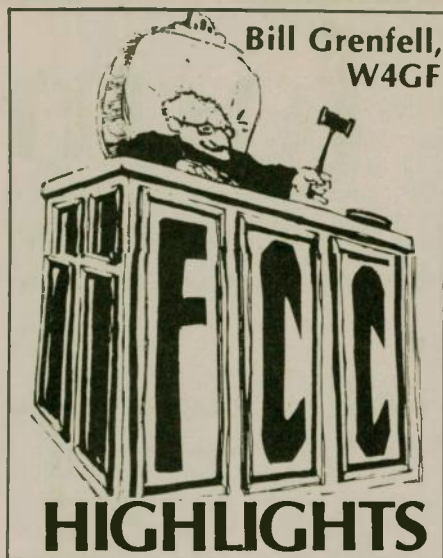
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Pass it on . . . **WORLD RADIO**



The battle to save all of the 220-225 MHz band for Amateur Radio in Docket 87-14 rages on! Back in Nov. 1988 "... United Parcel Service filed a Petition for Rule Making, RM-6595, to 'assist the Commission in the formulation of service rules for the 220-222 MHz band and to ensure that the much-needed spectrum is available on a timely basis.'"

This is an apparent effort to speed up the release of 220-222 MHz frequencies for private Land Mobile use. In filed comments strongly opposing the UPS petition, ARRL said: "It is apparent that UPS submitted its petition primarily as an attempt to justify the frequency allocation relative to the appeals, rather than to establish permanent operating parameters for the private land mobile use of the band."

"The first half of the petition, for example, makes no reference at all to the specifics of the UPS proposal for implementation of the band, but rather is a statement of the alleged justification for the frequency allocation... the UPS petition is thus no more than an unauthorized pleading submitted with the intent to influence the Commission's deliberations on reconsideration in Docket 97-14."

ARRL also pointed out: "The UPS petition, however, seeks to implement a frequency band which may well never be available to the land mobile service. It would be highly premature, and a waste of the Commission's time and resources, to commence a pro-

ceeding which may be rendered moot by action on any of the more than 500 reconsideration petitions now on file.

"Even assuming, for argument's sake, that 220-222 MHz was ultimately reallocated to both the government and non-government land mobile services, Paragraph 57 of the 87-14 Order noted there would have to be a coordinated procedure developed for the band between the two users. It would certainly be premature to propose any channelization plan prior to the development of sharing arrangements between government and non-government services.

The ARRL concluded by urging the Commission to dismiss the UPS petition. The League has requested the FCC to schedule oral argument before the Commissioners on Docket 87-14. The request concluded with: "Oral argument will permit the League to present, in concise fashion, the truth about the effect of the reallocation on the Service and factual data on the subject which has not thus far been adequately conveyed to the Commissioners." (ARRL Letter, 1/13/89; ARRL Letter, 1/27/89).

In the continuing crackdown on unauthorized radio use, Kingsville, TX FCC investigators visited several station operators who, when asked, said they were unaware that a FCC license was required for operation of these stations on frequencies in and around the Amateur bands. Now silent, further operation awaits action on station license applications. (ARRL

Letter, 1/27/89).

"... FCC has expanded the Special Temporary Authority (STA) for certain unattended HF packet stations to operate until January 5, 1990... The STA extension only applies to those 75 stations [which] are currently operating under the STA." (ARRL Letter, 1/13/89).

At 0001 GMT, 1/30/89, the 17M Band, 18.068-18.168 MHz, was made available for use by USA Amateurs with A1A and F1B emission and with A3E, F3E, G3E, A3C, F3C, A3F, F3F, H3E, J3E and R3E available from 18.110 to 18.168 MHz.

The 220 Spectrum Management Association (220-SMA) of Southern California advised the ARRL that they were "shocked and dismayed" that the League was withholding future recognition of the 220-SMA as the rightful 220 MHz frequency coordinator.

"Southern California has two competing 220-MHz coordinators, the 220-FCC and the 220-SMA, whose coordinations overlap and conflict."

220-SMA said its frequency assigning roots go back to the 1960s. ARRL president Price wrote 220-SMA membership that he did "not agree with your characterization of the actions of the ARRL Board as 'petty' and your use of language of this type adds very little to the merits of your presentation."

Price said their dispute is not with

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 Feb. 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	WR0E	KF0AS	N0KDL	KB0DXQ
1	NV1L	KC1NN	N1GGY	KA1TFB
2	WN2I	KE2LI	N2IYQ	KB2HDR
3	NT3O	KD3LH	N3GVC	KA3UDC
4	AB4MU	KM4NM	N4UWY	KC4IUS
5	AA5JZ	KG5RI	N5NVT	KB5IKW
6	AA6MO	KJ6QQ	N6UHQ	KC6BTW
7	WX7A	KF7RD	N7MFY	KB7GTC
8	WO8H	KE8WL	N8KIA	KB8GKZ
9	WF9L	KE9OM	N9IDA	KB9CBH
North Mariana Is.	AH0H	AH0AE	KH0AM	WH0AAI
Guam	KH2K	AH2CE	KH2DN	WH2ALX
Johnston Is.	AH3B	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Palmyra, Jarvis Is.	AH5A			
Hawaii		AH6JO	NH6SL	WH6CBV
Kure Is.			KH7AA	
American Samoa	AH8C	AH8AD	KH8AG	WH8AAX
Wake Wilkes Peale	AH9A	AH9AD	KH9AD	WH9AAX
Alaska		AL7KT	NL7QK	WL7BTQ
Virgin Is.	NP2E	KP2BN	NP2CU	WP2AGN
Puerto Rico		KP4PV	WP4TO	WP4IHC

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the ARRL, but with the FCC, "which has muddied the water. If you want to cry 'Foul' (to use your term) it is the FCC which has 'fouled' you." (W5YI Report, 1/01/89).

"The five member FCC has been operating with only three Commissioners for some time." The Senate Commerce Committee refused to hold confirmation hearings... (on replacement nominees).

FCC Chairman Patrick, as did the other Reagan Commission appointees, has handed in his pro-forma resignation. "The George Bush FCC could be markedly different from the Ronald Reagan FCC... Reagan's style... may not be Bush policy."

Eighty percent of the FCC budget goes for personnel salaries. "Agency wide manpower has dropped by 10 percent, from 1,800 to 1,620 employees."

"The FCC is also implementing a 1989 belt-tightening program involving early retirements, hiring freezes, travel plan cutbacks, equipment purchase postponement and possible furloughs (leave without pay) since they have to work with \$5 million fewer 'real' dollars.

"Many FCC personnel lost due to attrition are not being replaced ...

You can anticipate a necessarily slower pace at the agency." (W5YI Report, 10/01/89)."

END-OF-MONTH LICENSE TOTALS

November	1988	December
46,735	Extra	46,885
98,463	Advanced	98,681
112,974	General	113,082
100,878	Technician	101,495
79,988	Novice	80,168
439,038	Totals	440,311 □

Standing wave ratio

PETER ONNIGIAN, W6QEU

While at the ARRL National Convention, retired senior technical editor of QST — Lew McCoy, W1ICP — spoke about one of his favorite subjects: VSWR. McCoy is currently technical editor for CQ, and last year received the Technical Merit Award at the Dayton HamVention.

McCoy credits himself for the invention of the Monimatch antenna tuner. This device is described in every edition of the ARRL Handbook since 1968. It matches an unbalanced transmitter output to either an unbalanced 50 or 75Ω line, or with a balun, to a balanced line. It also cancels either reactance present, and transforms resistance so that the usual 50Ω transmitter may be properly matched to the line.

McCoy, who has retired to a New Mexico QTH that sits on a silver mine, offered these personal bits of wisdom about baluns, antennas and matching devices.

Open-wire dipoles are better than coax-fed dipoles, but he didn't say in what way. Baluns with one ferrite ring

are "too lossy." Multiple ferrite balun rings (e.g., three of them) will safely handle 3kW without heating.

Open-wire feeders can take extremely high VSWR without loss as voltage breakdown is difficult. But most coax lines must be matched to VSWR values under 2:1 and will arc usually with 100 watts at values greater than 5:1. Trap dipoles, at their best, are poor performers in efficiency.

These gems may not be the real McCoy, but the standing-room-only audience enjoyed his stories and comments about life, at the ARRL National Convention in September. □

Maltese Colvins

We left Cyprus (Asia) Nov. 28 and flew to Germany (stopover) and from there to the island country of Malta (Europe), arriving there Dec. 3. We obtained our radio license and got our radio receiving and transmitting equipment out of customs fairly easily. We encountered delays getting our triband antenna out of customs because the Board of Trade insisted that we obtain an import license for the antenna only.

We concluded our operation as K3JM today. We made 6,000 QSOs with radio Amateurs in 132 countries.

Joe Schembri, 9H1GY, had obtained a good hotel for us in the middle of the island. It was great for our station because the nearest TV antennas were 200 ft. away, and we created no interference of any kind. We were favorably impressed with Amateur Radio in Malta. They have three very active separate radio clubs. We attended Christmas and New Year's dinner meetings in all three clubs, and each club had turnouts of about 60 people, including many family members.

9H1GY, 9H5L, 9H5CL and 9H5BU helped install our antennas. We did encounter rains and the strongest winds in a year while putting up the antennas. While in Malta, we contacted Eric Rogers, 9H4G, who has the only Yasmé Supreme Award in Malta.

We go next to Africa, but are not sure what country we will operate from. Look for us to operate half phone and half CW on 7, 14, 21 and 28MHz (perhaps 3.5 MHz).

Lloyd and Iris Colvin
W6KG, W6QL □

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There's a 20 meter antenna with real DX punch hidden in this picture. You can't see it and your neighbors can't either. But the DX beam is anywhere. How about a low profile 80/40/30 or 40/30/20/15 m. beam? Or a pair of DX grabbing monobanders for the attic? All easily fit the pocketbook—from \$29 to \$99.

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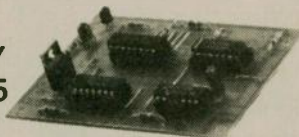
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How to put up an antenna tower

"I am writing in response to your request for additional information on my recent accident. In block No. 3 of the accident reporting form, I put "poor planning" as the cause of the accident. You said in your letter that I should explain more fully and I trust that the following details will be sufficient.

I am an Amateur Radio operator. On the day of the accident, I was working alone on the top section of my new 80 ft. antenna tower. When I had completed my work, I discovered that I had, over the course of several trips up the tower, brought up about 300 pounds of tools and spare hardware. Rather than carry the now unneeded tools and hardware down by hand, I decided to lower the items in a small barrel by using a pulley which, fortunately, was attached to the gin pole at the top of the tower.

Securing the rope at the ground level, I went up to the top of the tower and loaded the tools and hardware into the barrel. Then I went back to the ground and untied the rope, holding tightly to ensure a slow descent of the 300 pounds of tools and hardware.

You will note in block No. 11 of the accident report form that I weigh 155 pounds. Due to my surprise at being jerked off the ground suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate up the side of the tower.

In the vicinity of the 40 ft. level, I met the barrel coming down. This explains my fractured skull and broken collarbone.

Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley. Fortunately, by this time I had regained

my presence of mind and was able to hold tightly to the rope in spite of my pain.

At approximately the same time, however, the barrel hit the ground, and the bottom fell out of the barrel. Devoid of the weight of the tools and hardware, the barrel now weighed 20 pounds.

I refer you again to my weight in block No. 11. As you might imagine, I began a rapid descent down the side of the tower. In the vicinity of the 40 ft. level, I met the barrel coming up. This accounts for the two fractured ankles and lacerations of my legs and lower body.

The encounter with the barrel slowed

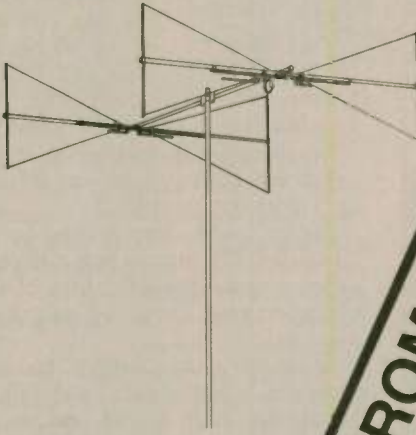
me enough to lessen my injuries when I fell onto the pile of tools and hardware and, fortunately, only three vertebrae were cracked. I am sorry to report, however, that as I lay there on the tools and hardware, in pain, unable to stand, and watching the empty barrel 80 ft. above me, I again lost my presence of mind. I let go of the rope." □



(Editor's note: Old accident reports never disappear. They resurface again and again and again . . .)

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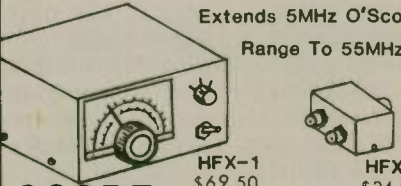
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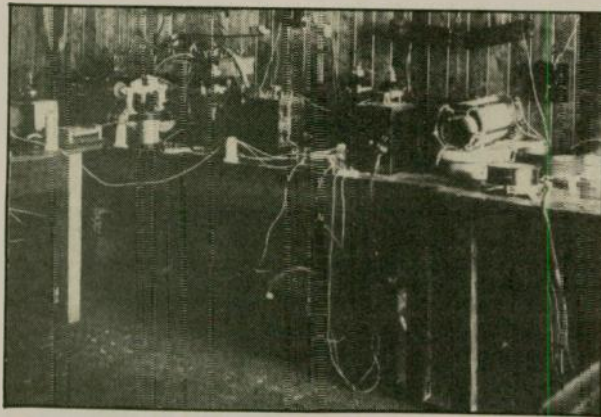
Historic site commemorated

The Marconi Radio Station in Ballybunion, Ireland was the location from which the first east/west transatlantic telephony transmission was made to Louisberg, Nova Scotia, in March 1919 (a photo of this building appeared in the May 1988 issue of

Worldradio in the *Special Events* section). Approximately three years after this historic communication occurred, the building was burned to the ground during Civil uprisings in the country.

electromagnetic waves for signaling. The development was completed last September, and according to John J. O'Carroll, EI6AH, a member of the IRTS, it has created a great deal of interest, particularly among visiting Americans.

While the site will provide many hours of interest for generations to



This is the transmitter (in 1919) which achieved that first transmission. While it wouldn't win the *Station Appearance* award today, we can't hold that against it. That landmark transmission obviously wasn't hampered by a few wires not being tucked strategically away.

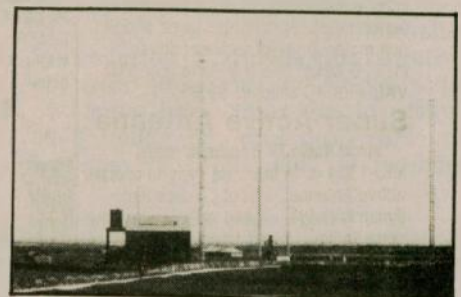


L to R: Kevin Keane, EI8FI, Desmond Burke, EI5FG, and John J. O'Carroll, EI6AH. Michael Andrew Beazley, EI2X, from the United States and Kieran O'Carroll, EI5BHB, from Bahrain, are IRTS members not pictured.

In commemoration of the station, which housed that precursor to countless later transmissions, members of the Ballybunion Irish Radio Transmitters Society have erected a plaque embedded in stone at the entrance to Marconi Avenue, a housing development now on the site.

Marconi Avenue, like the original Radio Station, was named for Guglielmo Marconi, the Italian inventor who first conceived the idea of using

come, it's important to remember that event which took place so many years ago. The stone, which recounts the 1919 transmission and contains the call signs of the Ballybunion IRTS members, is intended to help fulfill that purpose. — *Information and photos submitted by William Davis, WB6UWB and John J. O'Carroll*

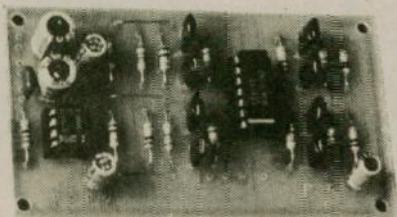


General view of Power House and Antennas at Marconi Station in March 1919. Center Mast - 500 ft. high. Six other Masts - 300 ft. high.

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50 ft. coax and connector. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, \$9.95.

MFJ-1024 **\$129⁹⁵**

• One year unconditional guarantee • 30 day money back guarantee (less s/h) on orders from MFJ • Add \$5.00 each s/h • Free catalog

MFJ Coax Antenna Switches



\$34⁹⁵ MFJ-1701



\$21⁹⁵ MFJ-1702



New **\$59⁹⁵** MFJ-1704

Select any of several antennas from your operating desk with these MFJ Coax Switches. They feature mounting holes and automatic grounding of unused terminals. They come with MFJ's one year unconditional guarantee. MFJ-1701, \$34.95. Six position antenna switch. SO-239 connectors. 50-75 ohm loads. 2 KW PEP, 1 KW CW. Black aluminum 10x3x1 1/2 inch cabinet. MFJ-1702, \$21.95. 2 positions. Cavity construction. 2.5 KW PEP, 1 KW CW. Insertion loss below .2 dB. 50 dB isolation at 450 MHz. 50 ohm. 3x2x2 in. MFJ-1704, \$59.95. 4 position Cavity Switch with Lightning/Surge protection device. Center Ground position. 2.5 KW PEP, 1 KW CW. Extremely low SWR. Isolation better than 50 dB 500 MHz. Negligible loss. 50 ohm. 6 1/4x4 1/4x1 1/4 in.

"Dry" Dummy Loads for HF/VHF/UHF



MFJ-260
\$28⁹⁵

MFJ-262
\$69⁹⁵

New MFJ-264
\$109⁹⁵

MFJ has a full line of dummy loads to suit your needs. Use a dummy load for tuning to reduce needless (and illegal) QRM and save your finals. MFJ-260, \$28.95. Air cooled, non-inductive 50 ohm resistor. SO-239 connector. Handles 300 watts. Run full load for 30 seconds, derating curve to 5 minutes. SWR less than 1.3:1 to 30 MHz, 1.5:1 30-60 MHz, 2 1/2x2 1/2x7 in. MFJ-262, \$69.95. Handles 1 KW. SWR less than 1.5:1 to 30 MHz. 3x3x13 in. MFJ-264, \$109.95. Versatile UHF/VHF/HF 1.5 KW Dry Dummy Load. An MFJ first. Gives you low SWR to 650 MHz, usable to 750 MHz. You can run 100 watts for 10 minutes, 1500 watts for 10 seconds. SWR is 1.1:1 to 30 MHz, below 1.3:1 to 650 MHz. 3x3x7 inches. SO-239 connector.

MFJ-1286 Gray Line DX Advantage

New MFJ-1286 **\$29⁹⁵**



Snag rare DX for only \$29.95! The MFJ-1286 is a computerized DXing tool that predicts DX propagation. Even the casual DXer can work rare DX by knowing when conditions are best for DX. The Gray Line is the day/night divider line where the most amazing DX happens every day. Now you'll know exactly when to take advantage of it.

Gives detailed world map. Shows Gray Line for any date/time, UTC in 24 user chosen QTHs, time zones and more. IBM compatible. Any graphics.

MFJ's Speaker/Mics

For Kenwood, Icom, Yaesu, Santic

MFJ-284 or MFJ-286 **\$24⁹⁵**

MFJ's compact Speaker/Mics let you carry your HT on your belt and never have to remove it to monitor calls or talk.

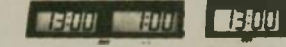
You get a wide range speaker and first-rate electret mic element for superb audio on both transmit and receive.

Earphone jack, handy lapel/pocket clip, PTT, lightweight retractable cord. Gray. One year unconditional guarantee.

MFJ-284 fits Icom, Yaesu, Santic. MFJ-286 fits Kenwood.



12/24 Hour LCD Clocks



\$19⁹⁵ MFJ-1088 **\$9⁹⁵** MFJ-107B

Huge 5/8 inch bold LCD digits let you see the correct time from anywhere in your shack. Choose from the dual clock that has separate UTC/local time display or the single 24 hour ham clock.

Mounted in a brushed aluminum frame. Easy to set. The world's most popular ham clocks for accurate logs. MFJ-1088 4 1/2x1x2; MFJ-107B 2 1/4x1x2.

Lighted Cross/Needle SWR/Wattmeter

MFJ-815 **\$69⁹⁵**

MFJ Cross-Needle SWR/Wattmeter shows you SWR, forward and reflected power in 3 ranges (20/200/2000 watts forward/5/50/500 reflected). Push button range selection. 1.8-30 MHz. Mechanical zero adjust for movement. SO-239 connectors. Light requires 12 VDC or 110 VAC with MFJ-1312, \$9.95.



Deluxe Code Practice Oscillator

New MFJ-557 **\$24⁹⁵**

MFJ-557 Deluxe Code Practice Oscillator has a Morse key and oscillator unit mounted together on a heavy steel base so it stays put on your table. Also portable because it runs on a 9 volt battery (not included) or an AC adapter (\$9.95) that plugs into the side.

Earphone jack for private practice. Tone and volume controls for a wide range of sound. Speaker. The key has adjustable contacts and can be hooked to your transmitter. Sturdy. 8 1/2x2 1/4x3 3/4 in. One year unconditional guarantee.

MFJ AC Voltage Monitor

\$19⁹⁵ MFJ-850 **New**

Prevent damage to rig, computer or other gear. Monitor AC line voltage for potentially damaging surge/brown out conditions on 2-color expanded 95-135 volt scale.

Plugs into any AC outlet. 2% accuracy. 2 1/4x2 1/4x1 1/2 inches.



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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
Alaska				Missouri			
Apr 1	Fairbanks	AL7IF (907) 474-0842	w/i	Apr 6	St. Charles	NF0Q (314) 946-0948	w/i
Apr 5	Anchorage	KL7HFQ (907) 243-2221	w/i	Nevada			
Apr 19	Eagle River	KL7HFQ (907) 243-2221	w/i	Apr 1	Minden	W6FFT (702) 266-3661	w/i
Arizona				Apr 22	Reno	E.J. Silva (702) 827-8450	w/i
Apr 1	Tucson	K7OPX (602) 886-7217	w/i OK	New Hampshire			
California				Apr 3	Salem	Frank Pariseau (703) 887-4467	w/i
Apr 1	Burbank	W6JEP (805) 948-8493	w/i OK	New Jersey			
Apr 1	Concord	WW6H (408) 255-9000	w/i	Apr 3	Sayreville	W2NL (201) 367-3179	w/i
Apr 2	Chico	W6YKU (916) 342-1180	p/r pref; w/i OK	Apr 8	Cranford	N2XJ (201) 635-7686	w/i OK
Apr 8	Camarillo	N6SR (805) 484-4461	w/i	Apr 14	Fair Lawn	K2MHP (201) 796-6622	w/i
Apr 8	Los Altos Hills	KG6XF (408) 255-9000	w/i	Apr 15	Jackson	William Haldane (201) 269-5659	w/i
Apr 8	San Pedro	N6DYZ (213) 325-2965	p/r; ltd w/i	Apr 20	Bellmawr	WA2VQG (609) 546-7710	w/i OK
Apr 9	Hanford	AA6GZ (209) 924-4221	w/i	New York			
Apr 15	San Diego	(619) 465-EXAM	p/r by 4/5	Apr 8	Greenvale	W2NL (516) 541-2450	w/i
Apr 15	Tehachapi	W6KQI (805) 822-6128	w/i	Apr 8	Selden	George Sintchek (516) 751-0894	w/i OK
Apr 16	Sunnyvale	W6NLG (408) 255-9000	w/i	Apr 12	Bethpage	W2QUV (516) 354-6861	w/i OK
Apr 19	Eureka	KB6FIW (707) 442-9245	p/r pref by 4/16	Apr 12	Farmingdale	Bert Wengler (516) 752-1312	w/i
Apr 20	Fountain Valley	N6ISY (714) 775-6095	p/r	Apr 12	Hamburg	Richard H. Haungs (716) 683-3589	no w/i
Apr 22	Chula Vista	(619) 465-EXAM	p/r by 4/12	Apr 20	White Plains	S. Fried (914) 285-3029	w/i
Apr 22	Grass Valley/ Nevada City	KD6SG (916) 273-2326	p/r by 4/1; ltd w/i	Apr 23	North Babylon	KA2RGI (516) 957-5726	w/i
Apr 22	Irvine	KD6DA (213) 691-1514	ltd w/i	Apr 25	New York City	(212) 838-5995	
Apr 22	Roseville	N6DFL (916) 484-1155	w/i OK	Ohio			
Apr 29	Eagle Rock	KB6RXE (818) 791-1779; or AA6HE (213) 256-2904	w/i	Apr 2	Mentor	R. Scott Farnham (216) 258-0320	w/i
Apr 29	Escondido	(619) 465-EXAM	p/r by 4/19	Apr 22	Akron	KX8V (216) 688-9876	p/r pref; w/i OK
Apr 29	Ridgecrest	WA6KZV (619) 375-7245	w/i	Apr 22	Mansfield	Thomas Dorsey (419) 756-4388	w/i
May 6	El Cajon	(619) 465-EXAM	p/r by 4/26	Oregon			
Colorado				Apr 1	Portland	Randy (503) 649-5066	w/i only
Apr 8	Denver	W0IJR (303) 366-9689	p/r pref	Apr 9	Portland	Edith Litvin (503) 640-5802	w/i
Apr 10	Boulder	(303) 530-1872	w/i	Pennsylvania			
Apr 15	Westminster	N0HNR (303) 451-1231; (303) 278-4280	p/r or w/i	Apr 1	Erie	W3CG (814) 665-9124	w/i OK
Florida				Apr 7	Nazareth	Donald C. Holmes (215) 252-5696	w/i
Apr 4	New Port Rchy.	AA4FG (813) 849-1224	w/i OK	Apr 15	Pittsburgh	Clifford Knapp (412) 364-9528	w/i
Apr 15	Melbourne	AA4NP (407) 768-1954; WB9IVR (407) 724-6183	w/i	Apr 16	Pine Grove	Mary Granger (717) 273-9350	no w/i
Apr 15	W. Palm Beach	W4SS (407) 967-1477; KG4U (407) 582-7617	w/i	Apr 20	Lancaster	Jay Consylman (717) 569-2132	
Georgia				Rhode Island			
Apr 8	Augusta	N4MWR (404) 863-9143	w/i	Apr 16	East Providence	Mike Arminio (508) 695-0529	w/i
Idaho				South Carolina			
Apr 13	Boise	W7JMH (208) 343-9153	w/i	Apr 15	Columbia	N4WR (803) 3373	w/i
Illinois				Texas			
Apr 8	Oak Forest	KA9HDN (312) 247-0650	w/i	Apr 1	Beaumont	J.C. Thomas (409) 265-6439	w/i
Indiana				Apr 2	Princeton	NW5W (214) 736-2397	w/i
Apr 1	Indianapolis	KA9H (317) 241-1272	p/r	Apr 8	Midland	KT5G (915) 694-9450	
Apr 1	South Bend	NI9Y (219) 255-4455	w/i OK	Apr 8	San Antonio	NS5I (512) 681-0702	w/i
Apr 15	Franklin	NV9K (317) 736-6320	w/i	Apr 22	Fort Worth	Chuck Tanner (214) 948-2806	w/i
Iowa				Virginia			
Apr 15	Ames	KC0RX (515) 292-4504	w/i	Apr 8	Willilamsburg	WJ4X (804) 253-2811	
Maryland				Washington			
Apr 1	College Park	NF31 (301) 963-4008	w/i	Apr 26	Redmond	WR7V (206) 881-1088	w/i
Massachusetts				Wisconsin			
Apr 15	Melrose	NC1V (617) 665-6061	w/i	Apr 1	Racine	NW9P (414) 658-8390	w/i
Apr 22	Cambridge	Nick Altenbernd (617) 437-0320	2-day p/r	Michigan			
Apr 1	Saginaw	KO8M (517) 793-9636	w/i OK	Apr 1	Saginaw	K8OT (517) 624-9094	
Apr 1	Saginaw	Stanley Briggs (313) 676-6248	no w/i	Apr 13	Trenton		

SPECIAL EVENTS

Tater Day

The Marshall County ARA will operate KM4TS in conjunction with the 146th Annual Tater Day at Benton, KY from 1700z April 2 until 2359z April 3.

Operation will be in the lower 25 kHz of the General portion of the 80-10M bands and the 10M Novice band.

For a special "TATER DAY" QSL send a QSL and a SASE to KM4GS, P.O. Box 917, Calvert City, KY 42029. Also send a special QSL to SWL'S for report and a SASE. □

Historical crafts look for contacts

The Olympia RAC will celebrate the Anniversary of the United States Submarine Service by operating a special event station from the USS Becuna, a WWII submarine, and the USS Olympia, flagship of Admiral Dewey.

Transmissions can be heard beginning 1300Z, April 8 until 2000Z, April 9 on frequencies for CW — 7.133 and 14.050 and phone frequencies 3895, 7245, 14245, 21365 and 28305 (all frequencies within 10 kHz). 2M operation will be FM — 145.270, and sideband will be 144.200. RTTY operation will be the 10M band.

An 8.5 x 11 inch certificate has been prepared for contacts.

Stateside mailings require a large SASE and your QSL card. Foreign contacts please remit one IRC, your QSL card and a large SAE.

The callsign to be used will be the club call WA3BAT, and the name will be that of the operator on duty.

Address all QSLs and any inquiries about the club or ship's histories to the Olympia RAC, P.O. Box 928, Philadelphia, PA 19105. □

International Marconi Day

The Cornish RAC is sponsoring International Marconi Day on April 22 from 0001 to 2400Z, when seven stations from five different countries will be on the air for one day only. The date was chosen for its proximity to Marconi's birthday.

All bands will be covered — 160 through 10M, in the general part of the band.

The stations taking part are:

GB4IMD, in Cornwall; GB0IMD, a UK station that will be operating from the site of Marconi's early trans-channel tests on the Isle of Wight; EI2IMD, in Eire, will operate from a site not far from the location where Marconi carried out his first Irish experiments at Crookhaven; K1VV/IMD, in the United States, will represent the South Wellfleet, MA site on Cape Cod where the first US to Europe contact was made; V01IMD, in New-

foundland, will operate from the spot where the first trans-Atlantic contact was made; VE1IMD, in Nova Scotia, will operate from the Marconi Museum in Glace Bay, where the first East/West Atlantic contact was made; and IY4FGM, from Italy, will operate from a special station in Bologna, Marconi's birthplace.

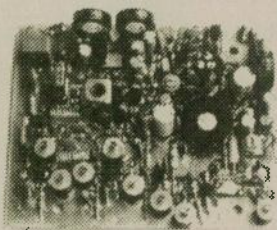
Operation by band will shift so all parts of the world will be worked during the operating periods. The stations will operate with 1kW output and beam antennas will be used on 40-10M, so all who desire to work K1VV/IMD will be able to do so.

A special award will be offered to sta-

AMATEUR TELEVISION

SURVIVES 100,000 FT. FALL

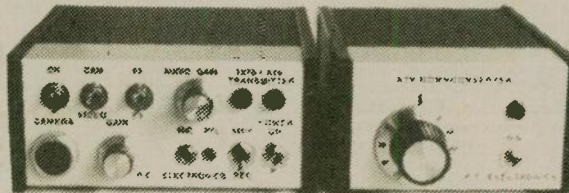
KPA5 1 WATT ATV XMTR ON 434 MHZ WORKED PERFECTLY IN WB8ELK LIVE CAMERA BALLOON THROUGH 100,000 FT AND BACK TO CONTINUE RUNNING EVEN AFTER FREE FALL IMPACT IN THE MOJAVE DESERT! VIDEO SEEN FOR 300 MILES.



KPA5-E board \$169

Shouldn't your ATV transmitter be as reliable? Weather you want to put one in a balloon, R/C model, Robot, use as portable ATV xmtr, or get one in our ready to go TX70-1 for the shack, with P.C. Electronics you see the best! Companion receiving downconverter board TVC-2G \$49, or ready to go in a cabinet - TVC-4G \$89.

TX70-1
XMTR
\$259



TVC-4G
RECV
CONV.
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Hams, Call or Write for our latest catalog of ATV gear! Transmitters sold only to Tech or higher licensed amateurs varified in latest Callbook or copy of new license. 5/89

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2522 Paxson Ln Arcadia CA 91006

Tom (W6ORG)
Maryann (WB6YSS)

tions who work any six of the seven stations. Also a special SWL award will be offered to receiving stations who copy six of the stations.

Send award claims to CRAC, P.O. Box 100, Truro, TX1 1RX, Cornwall, United Kingdom. Additional information may also be obtained by writing to this address. □

Alcatraz Island

The Sacramento ARC, operating station W6AK, will activate Alcatraz Island on a one-day effort, operating from the prison bakery of the old Alcatraz Prison.

Scheduled for Saturday, April 22, suggested frequencies for SSB are 7.270, 14.300, 21.400 and 28.450. CW frequencies are 7.125, 14.05, 21.085, and 28.150. Also, 2M FM will be on 146.52, as well as a 2M packet station.

The hours are from 1700 to 2230 UTC.

Special QSL from "The Rock" (SASE please) is available from the club at P.O. Box 161903, Sacramento, CA 95816. □

Bands of gold

The North Carolina Chapter of the Triple States RAC will be operating Special Events station N4KVF at the site of Reed's Gold Mine, where gold was first discovered in the United States.

In commemoration of the 12th anniversary of this State historic site, the station will operate from 1400Z to 2200Z April 22nd.

Suggested frequencies: CW — 7050, 14050 and 28050; SSB — lower 25 kHz General bands 40M and 20M; SSB

Novice — 10M 28.480.

For a certificate send #10 SASE to Walter Bastow, 484 High Rock Rd., Gold Hill, NC 28071. □

QCWA banquet

The Dayton/Cincinnati Chapter 9 QCWA will hold its Annual Banquet in conjunction with the Dayton Hamvention on April 28 at Neil's Heritage House in Dayton.

COD Bar at 6:30 p.m.; Dinner at 7:30 p.m.

Tickets are \$13 each.

Contact Bob Dingle, KA4LAU, 657 Dell Ridge Dr., Dayton, OH for tickets.

Progress is underway for an interesting speaker for the evening.

QCWA membership is not a requirement to attend. □

Bounty-ful event

In commemoration of the highly celebrated "Mutiny On The Bounty," the Radio Amateurs on Pitcairn Island in the South Pacific, who are also direct descendants of the mutineers, will be operating special event stations on April 28, the 200th anniversary of the Mutiny.

Intended hours of operation will be from 000Z to 2359Z on the 28th as individual time and band conditions permit.

Look for VR6ID, VR6KB, VR6KY, VR6MW, VR6TC and VR6YL on 10, 15 and 20M (exact frequencies not available) and obtain your report and contact number.

For a special QSL card, send your card, contact number and a SASE to: Bounty Mutiny Day, 7462 W. Lawler Ave., Niles, IL 60648. □

free continuous entertainment.

Hot dinner, sandwiches, snacks and beverages are available.

Two exciting top awards, and many others will be presented.

Stay right at Hara when the Hamvention closes on Friday evening and meet your friends for an evening of fun and entertainment.

For information write the Miami Valley FM Association, P.O. Box 263, Dayton, OH 45401. □

Special station

The Porterville Amateur Repeater Association will operate WA6CYN April 22 from 1600Z to 2400Z as a special event station to commemorate the 28th annual Jackass Mail Run.

Suggested SSB frequencies: 28.355; 14.265; 7.292 and the WA6CYN repeater, 145.31 (Dn 600) for mobile stations in the San Joaquin Valley.

For a QSL certificate send #10 SASE or 9 x 12 SASE to: WA6CYN, P.O. Box 1000, Springville, CA 93265. □

Call sign celebration

The Old Pueblo Radio Club will operate W7GV, the oldest continuously active call sign in Arizona, from 1500Z April 15 through 2400Z April 16, to commemorate 60 years of worldwide Amateur Radio operation on the 10M band.

Operations will be over the entire 10M band, including CW, phone, FM and packet gateways.

For a QSL, send your QSL and SASE to W7GV, P.O. Box 42601, Tucson, AZ 85733. □

Correction

In our February issue we printed incorrect information regarding the 3rd annual Northern California Emergency Response Institute.

The event will take place May 6 and 7, as opposed to the last weekend in March. The locale is the Apple Computer facility in Cupertino.

The dates were changed due to the Easter weekend.

For more information on ERI, see the *Special Events* section in our May issue. □

ANTENNA ANALYSIS

The new MN program will analyze almost any antenna made of wire or tubing. Compute forward gain, F/B, beamwidth, sidelobes, current, impedance, SWR, near-fields, and far-fields, in free space or over realistically-modeled earth. Plot antenna radiation patterns on your graphics screen. MN can compute the interaction among several nearby antennas. The 5-1/4" MN disk contains over 100 files, including libraries of antenna and plot files, a file editor, and extensive documentation. MN is an enhanced, easy-to-use version of MININEC for IBM-PC. \$75 (\$80 CA & foreign).

YAGI OPTIMIZER

The remarkable new YO program automatically adjusts Yagi element lengths and spacings to maximize forward gain, optimize pattern, and minimize SWR. Radiation patterns at band center and edges are updated on your screen during optimization. YO is extremely fast, computing several trial Yagi designs per second with 8087. YO is a complete Yagi design package for IBM-PC, containing models for gamma and hairpin matches, element tapering, mounting plates, and frequency scaling. A library of Yagi files and extensive documentation are included. \$90 (\$95 CA & foreign).

To order, send a check to:

Brian Beezley, K6STI, 507-1/2 Taylor, Vista, CA 92084

B*A*S*H

The 20th Annual B*A*S*H, sponsored by the Miami Valley FM Association, will be held at 7 a.m. Friday night during the Hamvention, April 29 at the Conference Center (Madison Room) of the Hara Arena and Conference Center.

There is no admission charge, and

NEW MULTI-BAND "G5RV" ANTENNA KIT



- Single coax feed
- Legal limit
- No traps
- Dipole, V or sloper
- Instructions

ONLY \$29.95
plus shipping and handling
CA res. 6% sales tax

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Oakview, CA 93022
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• Install Fast • Extend Range • Improve Reception •



The Sparky J Antenna is a flexible half wave radiator fed by 1/2 wavelengths of low loss coax through an efficient linear matching transformer. Sparky J's best dummies, 1/4 & 5/8 wave antennas, need no ground plane. Low flat SWR curve gives edge to edge band coverage. Great portable—rolls up to fit in pocket. Completely assembled with BNC connector.

- Easily hidden • Effective indoors or out • Money-back guarantee •

Available for every band from 50 to 440 MHz
\$39.95 each Two for **\$65.00** Add \$5 P & H
 Inspect \$1 by 1st class mail
AntennasWest
 Box 50062-W, Provo, UT 84605 (801) 373-8425

DAYTON Hamvention®

April 28, 29, 30, 1989

Early Reservation Information

• General Chairman, Bill McNabb, WD8SAY

- Giant 3 day flea market • Exhibits
- License exams • Free bus service
- CW proficiency test • Door prizes

Flea market tickets and grand banquet tickets are limited. Place your reservations early, please.

Flea Market Tickets

A maximum of 3 spaces per person (non-transferable). Tickets (valid all 3 days) will be sold IN ADVANCE ONLY. No spaces sold at gate. Vendors MUST order registration ticket when ordering flea market spaces.

Special Awards

Nominations are requested for 'Radio Amateur of the Year,' 'Special Achievement' and 'Technical Achievement' awards. Contact: Hamvention Awards Chairman, Box 964, Dayton, OH 45401.

License Exams

Novice thru Extra exams scheduled Saturday and Sunday by appointment only. Send FCC form 610 (Aug. 1985 or later) - with requested elements shown at top of form, copy of present license and check for prevailing ARRL rates (payable to ARRL/VEC) to: Exam Registration, 8830 Windbluff Point, Dayton, OH 45458

• Asst. General Chairman, Ed Hillman, NBALN

1989 Deadlines

Award Nominations: March 15

Lodging: April 7

License Exams: March 26

Advance Registration and banquet:

USA - April 4 Canada - March 31

Flea Market Space:

Spaces will be allocated by the Hamvention committee from all orders received prior to February 1. Express Mail NOT be necessary! Notification of space assignment will be mailed by March 15, 1989.

Information

General Information: (513) 433-7720
or, Box 2205, Dayton, OH 45401

Lodging Information: (513) 223-2612
(No Reservations By Phone)

Lodging

Please write to Lodging, Dayton Hamvention, Chamber Plaza, 5th & Main Streets, Dayton, OH 45402 or refer to our 1988 Hamvention program for lodging information which includes a listing of hotel/motels located in the surrounding areas of Dayton. Reservations for the surrounding area will then become the responsibility of the individual.

HAMVENTION is sponsored by the Dayton Amateur Radio Association Inc.

Advance Registration Form

Dayton Hamvention 1989

Reservation Deadline - USA-April 4, Canada-March 31

Flea Market Reservation Deadline: February 1

Enclose check or money order for amount indicated and send a self addressed stamped envelope.

Please Type or Print your Name and Address clearly.

How Many

Admission	_____	@ \$10.00*	\$ _____
(valid all 3 days)			
Grand Banquet	_____	@ \$20.00**	\$ _____
Women's Luncheon			
(Saturday)	_____	@ \$7.00	\$ _____
(Sunday)	_____	@ \$7.00	\$ _____
Flea Market	_____	\$25/1 space	
(Max. 3 spaces)		\$50/2 adjacent	
Admission ticket must		\$150/3 adjacent	\$ _____
be ordered with flea market tickets		Total	\$ _____

* \$12.00 at door ** \$22.00 at door, if available

Name _____

Address _____

City _____ State _____ Zip _____

Make checks

payable to -

Dayton HAMVENTION

Mail to -

Dayton Hamvention

Box 2205

Dayton, OH 45401

Scholarships available

The Atlanta Radio Club has announced its 1989 scholarship award program. Up to two \$1000 cash awards will be given to qualifying licensed Amateurs.

Successful applicants must be high school seniors graduating in 1989 and entering an accredited college or university as freshmen for the first time.

Awards will be based on such factors as class of Amateur license, citizenship and/or leadership ability, CEEB, SAT or ACT point totals and Grade Point Average. Some consideration of those having financial need will be given, along with preference to people living in Georgia and contiguous states.

Please mail requests for application blanks to Phil Latta, W4GTS, 259 Weatherstone Pky., Marietta, GA 30068. □

Each year, the ARRL Foundation sponsors a number of scholarships, the Victor C. Clark Youth Incentive Program and the Jesse Bieberman Meritorious Membership Program.

For the 1989-1990 academic year, the Foundation will offer nine different scholarships. The deadline for all

ARRL Foundation Scholarship applications for the 1989-1990 academic year, except for the \$5000 ARRL Scholarship to Honor Senator Barry Goldwater, is May 1, 1989. The deadline for the Goldwater Scholarship is June 1, 1989.

The Vic Clark Program is designed to provide mini-grants year-round to groups that demonstrate a serious intent to provide support for the development of Amateur Radio among high-school-age youth. The Bieberman Membership Program provides funding for long-time ARRL members who may no longer be able to afford League membership.

For further information about these scholarships, which range from \$500 to \$5000, and other Foundation programs, contact the ARRL Foundation, c/o ARRL HQ. —ARRL Letter □

The Dayton ARA is now accepting applications for its 1989 Scholarship Program. The program is open to any licensed amateur graduating from high school in 1989.

Awards will be based on a combination of financial need and academic accomplishment with consideration given for service to Amateur Radio and community involvement.

There are no restrictions on the student's course of study. Applicants are not restricted to those preparing to pursue four years baccalaureate degrees. Those working toward associate degrees or planning to attend an accredited technical institution will also be considered.

Each winner will receive \$1000 toward their tuition at the school of their choice. All entries must be postmarked no later than May 15. Award winners will be announced on or about June 1.

For further information and application forms, write to Scholarship Committee, 317 Ernst Ave., Dayton, OH 45405. □

Yaesu creates design team

Yaesu is inviting Amateurs to apply to join the company's special design advisory council. The team will meet with Yaesu's management staff Wednesday, June 14 through Friday, June 16.

These Amateur Radio operators will be asked to share their thoughts and ideas on what features they would like to see in Amateur Radio equipment.

Eleven applicants will be selected — one from each call district and one at Dayton HamVenture '89.

Those selected will be flown at Yaesu's expense to Southern California. They will stay at the Disneyland Hotel and be given a tour of the Jet Propulsion Laboratory and passes to Disneyland.

The first 10 council members will be chosen from applications postmarked by April 7. The final member will be selected from applications turned in by April 29 at the Yaesu booth at Dayton.

Yaesu designs, manufactures and markets Amateur Radio and commercial land mobile two-way radio equipment worldwide.

For more information, or to obtain an application form, call 800/999-2070, or write to Yaesu Council, Yaesu USA, 17210 Edwards Rd., Cerritos, CA 90701.

Share your ideas

ARRL HQ invites instructors to write papers for presentation at the ARRL 1989 Educational Workshop. Topics for papers, due at HQ by April 28, include all aspects of Amateur Radio instruction and recruiting, such as: training techniques, curriculum development, acceptance in school systems, one-on-one tutoring and working with youths, seniors and the handicapped.

Papers will be bound and made available at the workshop. Prospective authors should obtain an author's kit direct from ARRL (Attn: Rosalie White, WA1STO, 225 Main St., Newington, CT 06111; or call 203/666-1541).

The workshop takes place at the 1989 ARRL National Convention, Saturday, June 3, in the Dallas/Ft. Worth area at the Arlington Convention Center. Amateur Radio instructors will bring together new ideas and methods they have successfully tried in their classes. Announcements and showings of new aspects of the ARRL Instructor Program, including recruitment, will be made at a forum held the same day. □

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



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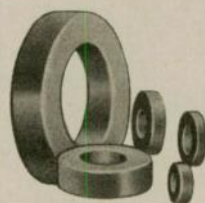
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STATION APPEARANCE

April
Winner

Pete Petersen
KA7QDB

Win a one-year Worldradio subscription!
Submit photos and description of your shack
to "Station Appearance." Entries are judged
on neatness and accessibility, not monetary
value.

This month's winner is Pete Petersen, KA7QDB, of Bellevue, WA. Normally in this section we give a synopsis of the information we receive from the winner, but this month we will print Pete's own description, since he offers it in his own inimitable way.

When I saw that your contest doesn't consider equipment value, I figured it was a contest I could at least enter with head unbowed.

The most important part of my shack is the Kangaroo plaque — a memento of a visit from John Hill, VK3WZ, and Cynthia.

On the shelf from left to right are: World globe (to add class); Home brew antenna tuner; WWII LF and HF receiver (I'll listen to anything) with "Minnesota Mosquito," another memento, on top; 1 tube regen receiver I built in 1940, atop a Tailtwister rotor control; SX-43 Hallicrafter receiver with (circa) 1928 loudspeaker.

Under the shelf: Dictaphone (I have to make a living); Home brew power supply (behind lamp) for WWII receiver; FL 2100 Yaesu amplifier; TS-820S Kenwood transceiver; SB610 Heath-scope (adds more class); Home brew UTC clock.

On the table: Ma Bell blower; can of dull pencils; snazzy brass lamp; Yaesu CB'er mike (Please don't tell on me*); enormous brass key.

The whole thing is on a reject



tabletop supported by second hand file cabinets.

Isn't that a beautiful sight?
*Editor's note — Sorry!

In the Beginning

JERRY N. VENTRE, AA6EN

A great side benefit of becoming a ham is that you will learn a few useful skills that you can use outside the hobby. There are a few tools and goodies that every self-respecting radio amateur should have in the "shack." Learning to use these tools properly is

a learning adventure that can be fun, as well as very useful.

Learning to solder (if you do not know how) is one of the skills you can use on many occasions. MUST you learn to solder? No, but you should if you want to be self-sufficient and en- (please turn to page 28)

OOPS!

We made a mistake (yes, believe it or not, we did) in our February Amateur "Hi" entry. We mistakenly gave our winner, Don Raduziner, the call WB6DD. His call sign is actually W6BDD. Sorry Don! □

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

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As of 1984, all ham radio license testing is handled by the amateur radio community itself. Teams of three Extra Class volunteer examiners [VE's] can now conduct all ham license upgrade examinations.

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PUBLIC SERVICE

Bike-a-thon

JEAN PRIESTLY, KA2YKN
Emergency coordinator, Camden County

Sunday, July 17, 1988 and the American Cancer Society bike-a-thon was underway. As I rolled up to my checkpoint at 7:15 a.m., it was already hot.

I was actually late because Louis Priestly, N2HQL, had been active since 6 a.m. while heading to the starting area in Philadelphia. Ernest Jackson, N2HQX, took his assigned position on the Admiral Wilson Boulevard near a grate that could cause the riders a lot of problems. William Farrey, NC2X, was at the Ben Franklin bridge plaza and James Maitland, N2DJY, was settled in at Rts. 38 and 73. Edgar Macy, KA2KFO, found a good vantage point at his checkpoint at Cuthbert Blvd. and Rt. 70.

But you have to have riders to watch to have a checkpoint. The riders had come over the bridge but had gone out Rt. 38 and up to the Rt. 73 ramp instead of out Rt. 70 and over. We finally realized what had happened as the reports came in from James.

Moving right along, the riders came off Rt. 38 onto Rt. 73 past my checkpoint at Rt. 73 and the entrance to 295. There was quite a problem with the traffic cutting in front of the riders to get onto 295. Several bikers had to jam on their brakes to avoid a problem. We certainly could have used a traffic officer.

The riders proceeded down Rt. 73

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and picked up Rt. 30. There were several mishaps and I would not be surprised that the heat contributed to these falls. One rider collided with another rider, bending his rim and hurting his arm and shoulder. A truck from a cycle shop carried him to the water stop.

My OM, N2HQL, who was on a repair/sag wagon, related that a celebrity was riding on a tandem with his wife. It seems he was their best customer of the day.

Brad Marsh, a member of the Philadelphia Flyers, and his lovely wife must have had Murphy riding with them because they had six flat tires. But that Flyers spirit came through and so did they, right into Smithville. Go Brad!

There was also a little guy about 10-years-old on a one-speed bike pedaling along course, and nothing was going to stop him either. I was able to follow his progress as I delivered some TV batteries to Smithville.

The last leg was along Moss Mill Rd. in the Hammonton area, which was perfect for bike riders. A real treat after a long hot ride. I saw a hose crew watering down the riders and not one complained.

The destination point was Smithville, and as I pulled up, all I saw was a wall of people. Lots of credit has to be given to these riders and all the radio operators for persevering in that heat. Jerry Barnish, W82CAK, the net control station, deserves a round of applause for picking up the net at the last minute.

Credit also goes to many operators, including Walt Ashton, WB2OYQ, who rode the route and gave out T-shirts.



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Rev. Thomas Sable, S.J.
University of Scranton
Scranton, PA 18510

Another job well done. Again radio and its dedicated operators did serve and assist in the public interest.

The right chemistry

The following story is an excerpt from "Ham used his book to figure fire fumes," an article by Maggie Rossiter in the Saginaw (MI) News.

Dennis Klipa, N8ERF, a research scientist at Dow Chemical Co., solved the mystery and uncovered the potential health hazards of toxic fumes caused when flames roared through a Flint (MI) Township plastics plant on Nov. 29, 1988.

Unfamiliar with the chemicals used in the manufacture of plastics, fire-fighters at the Diverse Plastics Inc. blaze became concerned about health problems when some fire officials and nearby residents had trouble breathing.

"I could recognize the chemicals from partial names," Dennis said, flipping through the pages of his *Guidebook for Initial Response to Hazardous Material Incidents*.

Besides potential health hazards, the paperback pamphlet also lists the fire explosion risks and emergency actions required for spills, leaks or first aid.

Because trees around his home obstruct his signal, he had to relay the information to a Saginaw Amateur who was in direct communication with another Amateur at the fire scene.

One of the chemicals Dennis, who is president and emergency coordinator of the Midland County ARC, recognized from the radio chatter is diisocyanate, which gives off toxic gases when it burns.

"Unless you are trained in chemistry, you couldn't find the name listed in the book," he said.

Another substance, polyol, is non-hazardous, but is very slippery when spilled.

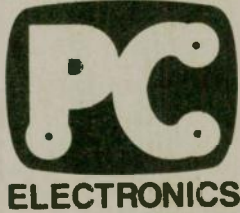
"That's the first time I got to use my chemistry background in an emergency," Dennis said. □

A visit with Santa

M.L. GIBSON, W7JIE

They did it again! For the fifteenth time the Mike and Key ARC of Seattle pulled off their "Santa Talks" program. On Dec. 22, 1988 six amateurs, four from Mike and Key, one from Issaquah ARC and one from Puget Sound Repeater Group, brightened up the night for kids at the Children's Orthopedic Hospital in Seattle.

Formal arrangements for the visit were set up by Tim Schneebeck, K7QMI; Santa, "Gib," W7JIE (with a



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*Transmitting equipment sold only to licensed radio amateurs verified in the Callbook for legal purposes. If newly licensed or upgraded, send copy of license. Receiving downconv. available to all starting @\$49 (TVC-2G).

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Any Tech class or higher amateur can get on 70cm, novices now on 23cm ATV. Any video camera, camcorder, VCR or computer with a composite video output can be plugged into the front panel 10 pin VHS jack or rear panel phono jacks for both audio & video.

DX with TC70-1s and KLM 440-27 antennas line of sight and snow free is about 22 miles, 7 miles with the 440-6X normally used for portable uses like parades, races, search & rescue, damage assessment, etc. For greater DX or punching thru obstacles add either the ATV compatible 15 or 50 watt amplifiers listed below.

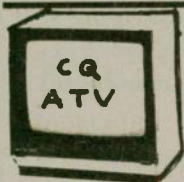
The TC70-1 has full bandwidth for color & sound, like broadcast. You can show the shack, home video tapes, computer programs, repeat SSTV, weather radar, or even Space Shuttle video if you have a home satellite receiver. See the *ARRL Handbook* chapt. 20 & 7 for more info & *Repeater Directory* for local ATV repeaters.

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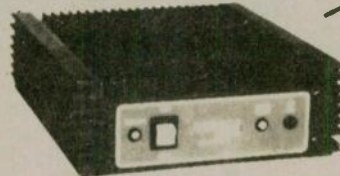


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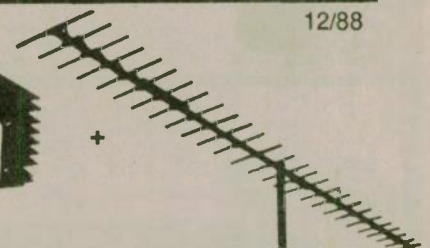


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helpful elf in 12-year-old Allison, a neighbor); and the hospital handhelds run by Curt Mills, WE7U, Vern Nelson, W7ZLW, Tom Ramus, WB7OUT and Mike Hanson, KA7CSE.

As the handhelds were escorted around the rooms, wards and play areas, kids of all ages got their chance to talk to Santa Claus by radio. Even doctors and nurses got their chance. Parents and grandparents encouraged the little ones to "really talk to Santa."

The response was terrific. Santa was in a mobile unit away from the hospital using 146.58 MHz FM. Even though

the hospital is large with many floors, coverage was good and sounded like "real" to everyone.

All in all there were more than 30 who talked for several minutes with Santa.

Will we do it again? You betcha. A very wonderful Christmas gift for all. □

ARC spreads Christmas cheer

The Virginia Beach ARC Christmas Message Center can go down as a great

success. About 2,600 messages were sent to points all over the United States, and a few overseas.

From set-up through tear-down, over 50 club members volunteered their time to help with taking messages from people, passing traffic to various nets, explaining Amateur Radio to various visitors, and more. The center was covered on television and the newspapers.

One of the more interesting messages was a marriage proposal — no word on the results. □

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IC-3AT FM HT		349.00	Call \$
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Receivers		List	Juns
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Help from all sides

It was just before the New Year. In fact it was New Year's Eve. I think I was working 20M SSB when I heard an emergency call. .CQ MIAMI, CQ MIAMI with medical emergency traffic. The guy calling seemed quite alarmed, and here I was in Tallahassee, FL, about 500 miles from Miami, and no one was coming back to him.

I answered, "WA4TWA back to the station calling emergency, QRZ the emergency station."

He came back to me and said he was a doctor, in either Central or South America. I asked what could I do and told him of my QTH. He said he was calling Miami to get someone to secure a certain type of medicine that was needed by a man who had just had a thyroid operation, and without this medication he would die.

I was running my Kenwood 530-S, barefoot. I hoped my signal would hold up. Lots of QRM, which made me wonder why no one else heard him.

I asked him to QRX one, and I phoned Eckerds, a local drugstore. I let the doctor speak to the druggist.

He described what was needed and she was familiar with the drug. She said she didn't have it on hand but would try to locate it or someone who had it. It was not a common drug.

We kept the frequency open while she telephoned looking for the drug. Periodically she would come on the phone to reassure herself that it was not a joke and that she was indeed talking with a doctor in the jungles of South America. I assured her that she was. What she couldn't understand was the fact that I was a half mile away from her and he was thousands of miles away, and we three were chatting like we were in the same room.

While waiting for the pharmacist to get back on the line, I asked the doctor what was the best way to fly the drug down there. He said he had an assistant who was on Christmas vacation in

Florida, and would pass through Miami on her return.

Just then the druggist came on the line and said she located the drug through a drug salesman who suggested she call Florida A&M University in Tallahassee, one of the largest pharmaceutical schools in the south. She called the dean of the college at home and got him to agree to go and secure the drug.

While she was on the phone, I asked the doctor what city his assistant was visiting. He said she was visiting her family in a town called Perry, but didn't know where Perry was. It is only 50 miles east of Tallahassee. He gave me her sister's name and I phoned.

It was a neighbor's phone. She had to run a block to the other house. In a few minutes a lady returned to say that the doctor's assistant was visiting her son in Tallahassee, and gave me the phone number. I called the son's house, let the doctor speak with the assistant, and gave her the instructions as to where to secure the medicine. Her flight was to leave Tallahassee that evening, and she had about two hours to go to the university to get the drug.

When all of that was over, the doctor thanked the druggist, who in turn promised to thank the drug salesman and college professor. He, of course, thanked me, and said something I'll always remember.

"Besides being a missionary doctor, HAM radio is one of the things I love the most. The way things happened this afternoon, I believe God didn't want this peasant man to die. Thanks to the Good Lord, you and Amateur Radio, he won't."

Needless to say, I was excited, choked up, and had my wife nearby listening in.

In all of the excitement I forgot to og the doctor's call, and it looked like he did likewise. I never received a QSL card and couldn't send one. So Doctor, if you read this, please drop me a line. It's been four years, and I've been

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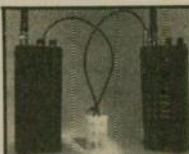
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wondering, how is the old gentleman getting along?

CHARLIE PORRETTO, WA4TWA
Tallahassee, FL

Welcome back home

Dear Reader,

I'm just a traveler in time like yourself — consider me a modern Rip Van Winkle of sorts. I sleep until a huge sun spot peak approaches and then I become "radioactive." A strange internal alarm clock is attuned to this wonderful solar rhythm.

After 30 years my interest in radio is renewed. Last active from 1958-62, I fondly remember the greatest peak recorded in modern times! The 10M band was often open 24 hours daily! Fellows used "door knobs" and "bed springs" as antennas for long skip!

So I get a new ticket, this time on the west coast instead of on the "east." I put up a half wave vertical on 10M and buy a secondhand Ten Tec Argosy (gee, it's only 8 lbs. and the size of a shoe box). I decide to go "iambic" and buy a dual paddle so I can practice for a month before getting "airborne." It seemed like a wise choice for a lover of CW — it's so much easier to send with the "squeeze" action!

Finally the day comes and I get on the air. Thank God for 10M! It's Radio Heaven! I meet DXers, QRPers, rag-chewers. All kinds of Amateurs love 10M! It's amazing that what was dead and dormant for so long has finally come to life — this giant of a band is 1.7 MHz wide!

Ten is certainly the "great equalizer," allowing the little guys (low power) a chance "in the sun."

At last the newcomers can believe the wild tales of the oldtimers about that mythical greatest that is 10M at a high sun spot peak. Oh yes, that Primal Energy, El Sol, is smiling solar radiation down to enliven the heavens — RADIO LIVES, TEN METERS IS ALIVE!

Very shortly I find the DX is quickly answering my 4W and that at 35W output I can punch holes in big pile-ups. *What a band!* I can sleep better knowing that the good 'ole days are back! It's good to be back home.

JOSHUA LACHTERMAN, AA6IT
Desert Hot Springs, CA

• People reaching People •
Amateur Radio is what Worldradio is all about.



If any of you folks have been hamming for a while, you know that there have been a lot of changes. In the 18 years since I have been an Amateur, I have certainly seen changes in fads come and go.

These changes have included the incentive licensing program, the changes in call sign format of US Amateurs, the advent of 2M coming into everyday use and the computerization of the hobby, among others. And, as Amateur Radio has changed, so has the HANDI-HAM System.

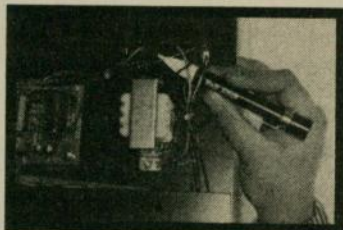
It has grown from a handful of volunteers in Southern Minnesota to over 7,000 members. It has grown from a group of volunteers to an organization that has four people on a paid staff still functioning mainly because of the dedication of its volunteers. And it has grown from a small non-profit organization to one of the programs of the Courage Center, a leading rehabilitation facility in the United States.

As the HANDI-HAM System has grown, we have introduced new ideas and attempted to change with the times and the needs of our students. Over the past several years the HANDI-HAM System has become nationally recognized as a leader in work with disabled Amateurs. Our equipment loan program has expanded from the original idea of providing first equipment (code only) to beginners, to one which has provided rigs for people having all classes of Amateur Radio license who needed them.

But even as Amateur Radio is changing in some ways which are seen as controversial and not always the most popular — the 220 band situation, more ordinances against antennas, etc. — so the HANDI-HAM System is going through such changes.

Beginning this year we are instituting a membership fee of \$10 for each disabled person wanting to belong to the System. Also, we are discontinuing our loan equipment program other

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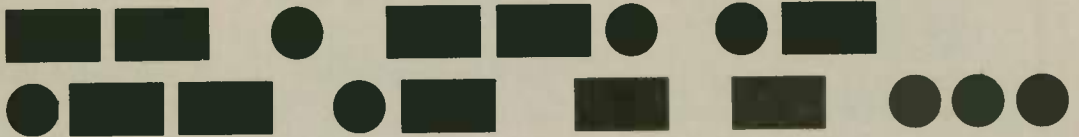
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
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than for code only transceivers for our members.

These decisions were not made easily. They were brought on by financial necessity and with the hope that they would strengthen the HANDI-HAM System. We have had a problem of growing a bit too fast for our britches in the past years, and staff was strained and overworked in its effort to provide the best services for each individual. We were receiving applications from persons who claim to be interested in Amateur Radio, but in fact did not even give a hoot about the hobby — they were just signing papers.

It is our feeling that if one has to make a financial commitment, even as little as \$10, this will demonstrate to us some motivation and true interest in the hobby.

After these decisions were made and published in our newsletter, we expected to receive hoards of phone calls from people not understanding the situation and putting us on the bottom of their popularity list, but to our delight, we have not received much criticism at all.

What we have received is requests from persons looking for equipment which can be obtained at a very reasonable price. These are individuals who are hoping to buy equipment

which they can afford even on a fixed income.

So, I am asking you, the Worldradio readers who are so generous in your support of the HANDI-HAM System, to keep a lookout for such equipment. If you know of someone that has a good piece of equipment in good working order which is ready to be put on the air without repair or modification, drop us a note. We would love to hear from you as to such equipment and would steer any students looking for a good buy in your direction.

Things to keep in mind when thinking about equipment in terms of handicapped users are the following: 1. Equipment should be small. Many people have space limitations because of living quarters. No heavy boat anchors which are hard to ship or to move. 2. Persons who are visually impaired can use digital rigs with voice synthesizers easier than they can rigs with the calibrated scale. However, this does not mean that another person with a varying disability could use such a rig. 3. Push buttons are always easier than knobs for persons with physical disabilities that involve muscle weakness. 4. The less tuning a rig requires, the better it is for a person with a physical disability. Audible tuning aids are available from the the HANDI-HAM

System, however, so that even a person who is blind can tune a rig if it's tuning is not too complex.

Thank you

The response to my February column in which I listed a "wish list" of places we needed one-to-ones was overwhelming. I am still getting letters and phone calls from persons who are interested in helping Amateurs in their area. We have had several students who now have volunteers with whom they are working on an individual basis. It is this student/volunteer relationship which is the heart of the HANDI-HAM System. We sincerely appreciate your willingness to help.

See you in another couple of months and, by the way, we would welcome any Worldradio readers to check into the HANDI-HAM System net which is beginning Monday, May 1 on 10M, 28.390, from 1600 to 1630 (that's 10 to 10:30 a.m. CST for you non-UTC types). So check in and say "hello." □

Prohibited frequencies

Are you planning to purchase a scanner in the future? If so, look at its frequency coverage in the 800 MHz range.

If there are gaps around 823-849 MHz and 868-894 MHz, it will not pick up cellular telephone conversations. This may or may not make a difference to some, but it will be very annoying to others.

This exclusion is in compliance to ECPA '86 (this is the law that forbids listening in on mobile telephones). I understand that almost all new models that come out will have this exclusion, but there are some models out there now that do not have this restriction.

—Central Arkansas Radio Emergency Net, Little Rock, AR □

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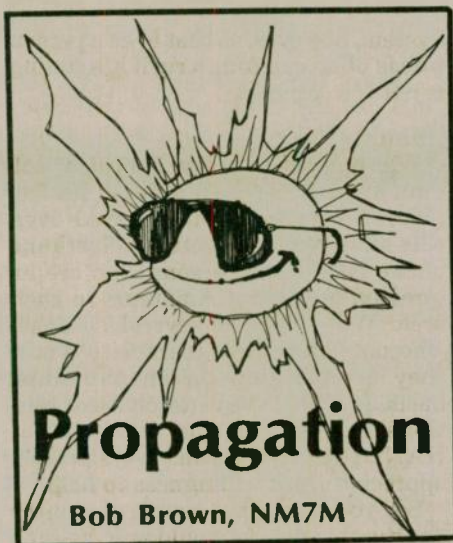
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Following is the first installment of our new Propagation column, which will appear on an alternating monthly basis. We here on the editorial staff would like to welcome our columnist, Bob Brown, NM7M.

First licensed in 1937, Bob was off the air for 40 years, but was "reborn" in 1981 when he was licensed as N7DGZ. In that time he was a Professor of Physics at the University of California at Berkeley. He was involved in using balloon-borne radiation detectors in the Arctic and Antarctic, as well as ground-based magnetometers and riometers (Relative Ionospheric Opacity Meters) in order to learn about the various forms of solar-terrestrial effects through knowledge of our atmosphere/ionosphere.

He has recently served as secretary/treasurer of QRP ARCI and written the Propagation and DX column for the QRP Quarterly.

In starting a column on HF radio propagation, I find myself in a position which is enviable in some respects and not so in others. Thus, I have an opportunity to write about one of my favorite topics; however, like the person who's asked to quickly summarize the first act of a play to a late-comer, I may be covering something that others are already aware of, to their obvious annoyance.

Okay, that's a risk I have to take so let's put it behind us for the moment and get on with the matter at hand — Solar Cycle 22 and what we can expect in the way of HF propagation during its growing phase.

First, let's get our chronology straight; Cycle 22 rose out of the ashes of Cycle 21, starting on the rise after September 1986.

In those earlier, bleaker days on the bands, the 10cm solar flux, as reported in WWV broadcasts, was rock-

bottom, down around 75 flux units. Once the new cycle got underway, however, the flux rose dramatically; indeed, smoothed values of the 10cm flux and sunspot numbers for the first 21 months rose at a rate equal to, or faster than, the rise of the biggest and best cycle of our times, Cycle 19 back during the International Geophysical Year (IGY).

Right at the moment, the daily values of the flux are varying in the 200-300 range, something that would have been mind-boggling to contemplate back around the time of solar minimum.

As you might suspect, there are several statistical models for predicting the growth of a solar cycle, each with its limitations and uncertainties. But if we just stay with experimental data from earlier cycles as well as the growth of Cycle 22 to date, we can expect the new cycle will peak around 48 months after the last minimum. And, as for peak levels of the flux and sunspot numbers, those are yet to be determined, but average flux values like 200-250 and sunspot numbers like 160-200 are well within reason the way this cycle has come on in recent months.

But those numbers are "smoothed" values, obtained from 13 months of recordings and centered on the middle month. As Amateurs on the bands, chasing DX or trying to keep skeds, both foreign and domestic, we have to size up the propagation situation on a given day from data that is available to us, right here and now.

At a minimum, we could simply listen on the bands, checking the calls and the sounds of the stations coming through to our QTH, and draw our own conclusions as to how conditions appear. Thus, the presence or absence of distant stations with that tell-tale "DX sound" tells us something about propagation right away. But we ought to "think bigger," beyond just the present moment, and try to see if conditions will change one way or the other in the days ahead. And that's where a broader database comes in handy, either by regularly logging the daily

values of the solar flux and magnetic index or relying on information from the pros at NOAA.

As you know, the solar flux provides something of a guide to band conditions, propagation being better when the flux is high than when it is low. But, at best, that is a relative statement; thus, high fluxes around solar minimum looked good then, but the very same flux values on the way up to the next solar maximum might be less than exciting to us, especially if higher fluxes were present earlier.

Moreover, solar flux alone is not the whole story; we have to consider the magnetic conditions at the same time. In that regard, it has been found that ionospheric storms also occur when magnetic storms are raging. So we have to look at the various magnetic indices reported on the WWV broadcasts to get a measure of the current magnetic activity, storm or otherwise.

I'll get into those details in some future column, but for the moment, let's just go with the idea that the geomagnetic A-index reported on WWV broadcasts is something that we should log, along with the solar flux, on a day-by-day basis. So we have to broaden our vision and look for days when the solar flux is high and the A-index is low; these should provide us with good propagation conditions. But the question about the A-index is simple, how low is low?

Okay, let me give you some values to use right now, when the solar flux is above 200. In doing that, however, I'll give the values in ranges.

Flux	Range of A-indices	Propagation
200-225	A < 12	Excellent
	12 < A < 22	Good
	22 < A < 32	Average
225-250	A < 15	Excellent
	15 < A < 25	Good
	25 < A < 34	Average
250-275	A < 18	Excellent
	18 < A < 28	Good
	28 < A < 37	Average

At this point, I don't see that the flux is going below 200, but if you go up beyond these values, you'll need a better crystal ball to gaze into. Those ranges are obtained from a short computer program I've put together, based on some years of experience, and I'd be glad to share it with you for a SASE.

Now, if you're the perceptive type, the fact that I've given ranges for the flux and A-indices would lead you to the conclusion that any statements about propagation conditions are not carved in stone with a fine chisel; indeed, they have a fuzzy quality all their own, not so much related to the data, per se, but the connection be-

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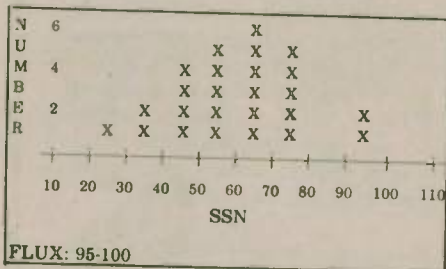
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tween the 10cm flux recordings we're using and the real physical agents that are involved. Thus, the energy of the photons in the 10cm range is about a factor of a million below those in the X-ray and ultra-violet part of the spectrum that produces the ionization in our ionosphere.

While there are statistical connections between the "soft" 10cm flux, the sunspot number and the "harder" X-ray and UV fluxes from the sun, there are variations about the averages, one variable against the other. So we can look for average relationships between the solar radiation we can observe through the "atmospheric window" at 10cm wavelength and the energetic flux that ionizes the upper reaches of our atmosphere, but nothing of a unique, one-to-one, connection without statistical fluctuations.

Just to give you an example of what I mean, I went through six months of 1987 solar data from the NOAA laboratory in Boulder, CO and plotted up how the daily sunspot numbers varied with the reported values of the solar flux at 10cm wavelength. For the flux range 95-100 flux units, the sunspot numbers (SSN) ranged from 20 to 100, as shown below:



Similar fluctuations were found for other ranges of the solar flux so you come away from the data with the understanding that any sunspot number we might associate with a given day, indeed use to predict propagation conditions, has some uncertainty if we try to infer it from solar flux data.

But face it, it's the only game in town. We have to use the 10cm data, but we have to temper our predictions with some expectation that there will be variations about the average.

Now in closing this first article on propagation, I would be remiss if I didn't point you to the prime source of solar and geomagnetic information, the NOAA-SESC laboratory in Boulder. There, you have a variety of ways of obtaining the solar information relevant to propagation conditions for your special needs — when you're pointing toward a DX contest or trying to work that New One who's going to be running a rig out in the middle of nowhere for a week or so.

You can call the Duty Forecaster at NOAA directly, 24-hours a day, 7 days a week at 303/497-3171, and he/she can give you an idea if that last solar big flare is going to give rise to a geomagnetic storm or not. All this will help you in your DXing, but you do have to pay for the phone call.

Beyond that, you can drop in on the Public Bulletin Board System (PBBS) that the Space Environment Services Center operates. Call 303/497-5000 after setting your computer to match the one in Boulder: 8-bit data words with one stop bit and no parity.

The BBS operates at both 300 and 1,200 Baud, so you can set your modem accordingly and download the data they have available, either the

current Propagation Report or Solar Report.

Okay, I've given you a quick summary of the "first act" of the current smash hit "Cycle 22," at least as I know it to date. I think you have some tools to help you along until I get back to you in June. At that time, I'll try to give you some better understanding of how surprises pop up on the bands, conditions that we wouldn't foresee just from records of the solar flux and the A-indices. Until then, however, start logging those values; you'll start seeing trends that can help you in your DXing.

For questions or comments write me at 504 Channel View Dr., Anacortes, WA 98221. □

Computers & Radio

Joe Toy, WB6KAI

If you are the average Amateur Radio computer user, you use several programs that are upgraded from time to time by the manufacturer or author. The question is whether you should invest additional money in the newer versions, or just continue to use the old ones since they seem to work all right.

Program publishers do not put out newer versions just to make more money, although that is no doubt an important factor. New versions are released mainly to add new features, to make improvements in old features, and to correct errors.

Before investing in a new version, any new features or improvements should be evaluated to see if they are worth the cost. If not, it is sometimes

possible to wait for a still later version. Correction of errors or "bugs" in the old version are almost never mentioned, as no one likes to admit that there were any. Nevertheless, this is an important reason for having new versions.

If errors are encountered in a program, it is a good idea to let the manufacturer know about it so it can be corrected in a later version. An error is any situation that can cause the program to "crash." That is, the program stops and it is necessary to load it again and start over. A good program never stops even if a wrong key is pressed. It should simply tell you that you have entered an unusable input and give you another chance to enter acceptable information.

—Golden Empire ARS, Chico, CA □

Learning to Solder

(continued from page 19)

joy all of the benefits of Amateur Radio. Don't, for a moment, think that being able to solder is a man's prerogative, ladies. If you've ever seen pictures of an electronics assembly line you know that most of the workers are members of the STRONGER sex!

If you need to start from scratch learning to solder, Heathkit (Heath Company, Benton Harbor, MI 49022) publishes a soldering tutorial (kit

number EI-3133, \$19.95) that provides you with the straight dope on soldering and gives you some practical experience, too. You can purchase your first 25W soldering iron from Radio Shack (#64-2030) for \$4.95. It includes a stand. For heavy-duty soldering you'll need a soldering gun, but let's learn the basics first.

Once you learn to solder, you can purchase equipment in kit form and have a ball building some items for your station or home. Plus you'll know how to put together patch cords for your computer or transmission lines for your rig. Ladies, you'll flabbergast your husband, boyfriend, brother or dad if you know how to repair or extend the speaker leads of his stereo!). I encourage everyone to build a kit in some form; it can be fun, useful and educational. —Pioneer ARC, Fremont, NE □

C. A. T. S.

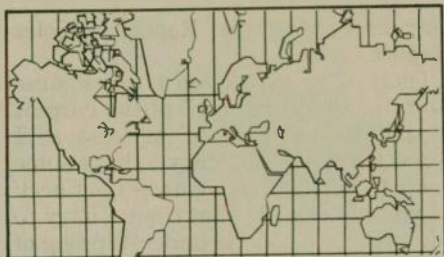
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01-02 Apr. PZK SP DX Contest (CW)

29-30 Apr. USKA Helvetia H-26 Contest

13-14 May RSF CQ-M Contest

27-28 May URE Ibero-America Contest (SSB)

27-28 May LABRE World

Telecommunications Day

27-28 May CQ Worldwide WPX Contest (CW)

W-100-N

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352. N2HOS James E. Mortensen

353. KB7M Jerry D. Tastad

354. N0AFW Peter D. Meyer

Most wanted countries survey

Every year *The DX Bulletin* runs a survey to determine the most wanted DXCC countries. A list of 100 countries is sent to each subscriber for he or she to mark off the ones they still need. One's definition of needed may also include not confirmed, needed on additional bands, etc.

The results of the 1988 survey were printed in the February issue of *The DX Magazine*, a satellite of *The DX Bulletin*. Here are the top 25, giving the percentage still needing the country.

Rank	DXCC Country	Prefix	% Need
1	Albania	ZA	87
2	Bouvet Island	3YO	80
4	People's Dem Rep Yemen	7O	79
5	Yemen	4W	74
6	Vietnam	3W	74
7	Afghanistan	YA	72
8	Laos	XW	64
9	Spratly Islands	1S	63
10	Bangladesh	S2	61
11	Bhutan	A5	61
12	Marion Islands	ZS2	58
13	South Georgia Islands	VP8	58
14	South Sandwich Islands	VP8	58
15	Laccadive Islands	VU7	53
16	Tromelin	FR/T	51
17	Mozambique	C9	48
18	Ethiopia	ET	48

19	United Arab Emirates	A6	48
20	Agalega	3B6	47
21	Kampuchea	XU	47
22	South Sudan	ST0	47
23	Malpelo Island	HK0	46
24	Peter I Island	3Y1	45
25	Mellish Reef	VK9	42

We have always wondered why Crozet Island (we haven't worked it) is not on the list, but Kerguelen Islands and Amsterdam and St. Paul Islands (we worked those) are. Perhaps the 1989 survey will be modified to include Crozet Island. Mr. Harris, are you listening?

The 100th most wanted country on the survey was Aruba with 8 percent still needing this one. This one was recently added to the DXCC list, but with the dominance of the DX contests each year by Aruba, no one should need this one, especially the all effort of P40V by AI6V and company.

Svalbard Islands (JW)

The DX Bulletin reports that Mathias Bjerrang, LA5NM, and Ragnar Scholberg, LA7FD, had planned to be on from Svalbard as JW5NM and JW7FD, respectively, concentrating on 80, 40 and 10M. The scheduled dates for this one were Feb. 22 through March. If you worked either of the two stations the QSL route is via Mathias' home call.

Also reported on from Svalbard is Tom, JW5E, who was reported on the E.T. Net, 14.160 MHz at 0030 UTC, and another net on 14.220 MHz around 2200 UTC. Arvid Jakobsen, JW6WDA, has been reported a few times on the lower portions of 20M SSB, near 14.171 MHz at 0015. We had two other reports, but unfortunately, out of the American Phone Band.

Jan Mayen (JX)

Reported regularly in January was JX1UG, mostly in list operations. One particular spot was 14.183 MHz after 2100. QRZ DX reports that this one will also honor CW requests, although he does not move down to the CW portions of the band. Other 20M spots reported include 14.226 MHz at 0145 and 14.171 MHz at 0215.

Inside DX reports that JX1UG likes 7.079 MHz around 0830 UTC and listens for North American stations on 7.159 MHz.

He has also appeared on 75M near

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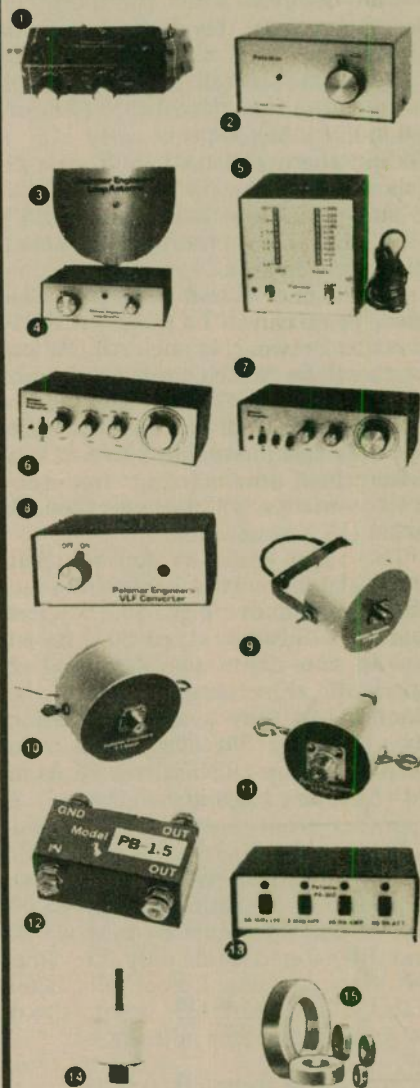
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3.791 MHz around 1930 UTC working Europeans. It is reported that 160M was planned for early February.

St. Peter & St. Paul Rocks (PY0S)

Karl Mesquita Leite, PS7KM, reports that the Natal DX Group is planning a DXpedition early May to Saint Peter and Saint Paul Rocks. The following calls will be used: CW, ZY0SW; SSB, PY0SS and RTTY, ZY0SY. A total of five operators are to make up the team.

Although CW and SSB are scheduled, priority will be given to RTTY (first time from this one). All CW contacts will be 25 kHz up from the edge of the band and RTTY 87 kHz up from the edge. This will be a split operation with the team listening 3 to 5 kHz up from their transmitting frequency. SSB contacts will be made on the usual DX frequencies.

The team plans to sail for Saint Peter and Saint Paul Rocks from Atol das Rocas, an overnight journey from Natal, on Sunday, April 30. The trip should take about two days and the operation is scheduled to begin on Wednesday, May 3, and run through the following Tuesday. The team plans to return to Natal via Fernando de Noronha Island. However, no operation from there was mentioned.

The Natal DX Group is looking for donations to help with the cost of the trip, which is estimated at \$3,000 (US). Donations must be sent via Air and Registered Mail only, to: Natal DX Group, Caixa Postal 385, 59001 Natal, RN, Brazil. QSL cards should be sent to the same address.

Franz Josef Land (UA1O)

Gena Kolmakov, UA9MA, informs us that UA1OIL will be active on all

bands, both CW and SSB into 1990. UA1OIL, operated by Serge Bushkov, is located on Heyss Island (1N 59E) at Franz Josef Land.

Check the low end of 20M between 14.010 and 14.020 MHz from 0130 UTC for Serge. He has also been reported near 7.004 MHz around 1000 UTC.

Also active from Franz Josef Land is UA1OT. The latest reports we have for this one include 14.029 MHz at 1945 UTC, 14.226 MHz at 0115 UTC, 21.018 MHz at 0015 UTC and 28.026 MHz at 2200 UTC.

Soviet Arctic Stations (UA1P)

Mike Sochinski, RA3YG, says that he is the QSL manager for UA1PAT, UA1PAV and UA1PAZ, all Soviet arctic stations located in Oblast 114. These calls are valid for the RAEM Award and are each worth 2 points. UA1PAT is located at Naryan-Mar, UA1PAV at Labozskoe-bay and UA1PAZ at Nes-bay. If you are after the RAEM Award, check the bands for these stations. Working all three will give you 6 points.

On the subject of the RAEM Award, this is a CW only award in honor of Ernst Krenkel, famous radio operator and Amateur. He was awarded the call of RAEM for his heroism as a radio operator aboard a Soviet ship which went down in the Arctic many years ago. RAEM was the call assigned to the ship. A total of 68 points is required for this award, Ernst's age when he died in 1971.

Hong Kong (VS6)

Much activity from Hong Kong has been reported from just a few stations. One such station is VS6DO, who has been reported on several different bands. Check the low end of 40 or 80



Jack Sproat, JY9LC, has been on the air from Amman for a little over a year. Jack, whose home call is W4LCL, is working with the Water Authority of Jordan on a technical assistance and training project. His tour is scheduled to end this September and he is hoping for an extension of another year.

on CW for this one after 1200 UTC.

Another very active station is VS6UW, who has been reported on the low end of 20M CW between 1130 and 1530 UTC. This station has also been found higher in the band at 14.036 MHz around 1445 UTC.

Forty CW is the band to look for VS6UO, found near 7.005 MHz from 1230 UTC.

Other Hong Kong stations reported include the following:

VS6BL	14.035 MHz	1145 UTC
VS6CT	14.220 MHz	0030 UTC
VS6CT	28.580 MHz	2330 UTC
VS6DX	14.226 MHz	1415 UTC
VS6GP	7.009 MHz	1300 UTC
VS6UN	14.013 MHz	1445 UTC
VS6UP	28.026 MHz	0115 UTC
VS6UV	14.006 MHz	1445 UTC
VS6VC	7.006 MHz	1330 UTC
VS6VU	28.502 MHz	0145 UTC
VS6WV	14.003 MHz	1445 UTC

Revilla Gigedo (XF4)

The Northern California DX Club has been informed that Javier Quinones, XE2TCQ, will be making a DXpedition to Revilla Gigedo sometime during the first half of May for about 10 days. The first half of the operation they will be looking for DX stations outside the Americas. The last half will be for North and South American DXers.

Included in the team will be Javier on SSB, XE2BDG on CW and XE2MRY and XE2JFG on RTTY. Look for this one on 1.850 MHz, 3.795 MHz (listening up 5 kHz), 7.050 to 7.090 MHz (listening 7.185 MHz for United States), 14.250 MHz (listening up 5 kHz), 21.300 MHz (listening up 5

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kHz) and 28.500 MHz (listening up 5 kHz). The normal DX frequencies RTTY and 6M will be used. They will also be on the lookout for Novice stations on 3.730, 7.105 and 28.495 MHz. Let's give the newcomers a break, (although that 10M Novice enhancement is fair game).

Indonesia (YB)

Good representation for this one comes from several Indonesian DX-ers. Formerly the Netherlands East Indies and related DXCC countries (PK), this CQ Zone 28 group was once on the Banned Countries List. That restriction no longer applies.

If 75M is a band on which you need this one confirmed, look for the following:

YB2BUT	3.798 MHz	1100 UTC
YB0WR	3.795 MHz	1100 UTC
YB8AX/0	3.793 MHz	2215 UTC
YC6GR	3.795 MHz	1200 UTC

CW types might check 3.501 MHz for YC3HCM, who was reported Jan. 20 working into Pennsylvania around 2215 UTC.

We also have several 40M reports of activity:

YB3ZAA	7.012 MHz	1415 UTC
YB6ZAP	7.004 MHz	1200 UTC
YB0DPO	7.010 MHz	1430 UTC
YB8AX/0	7.006 MHz	1245 UTC

Finally we have a 160M report for YB8AX/0, who was reported working into Montana Jan. 19 on 1.832 MHz at 1415 UTC. Twelve meters has also made the scene on this one with a YB0BRT reported working Europeans around 1515 UTC on 24.912 MHz.

Banks and Torres Islands (YJ8)

Norman Shackley, YJ8NJS, is planning a trip to Banks and Torres Islands this May. His QSL manager, Mike Adams, N4EVS, forwards this information he recently received from Norman. The latest position is that Posts and Telecoms has approved the use of two YJ1 prefixes for the dual operation. He hopes to have the calls YJ1BK and YJ1TR, a separate call for each island.

The planned dates will be May 9 to 12 at Banks Island and May 15 to 18 at Torres Island. The islands are not a

separate DXCC country, but they should count as separate islands for the IOTA Awards Program. Vanuatu has a separate designation under this awards program and excludes Banks and Torres islands. Presently, no identifying number has been assigned to these islands.

Ascension Island (ZD8)

The Long Island DX Bulletin reports that ZD8RP is often busy near 21.250 MHz from 1300 UTC. Also, check 21.195 or 21.215 MHz. He has also been reported on 14.164 MHz at 0200 UTC.

According to Inside DX Bob O'Hara, ZD8BOB, prefers 10 and 15M SSB between 2000 and 2100 UTC, and will make schedules for a 80 or 40M contact. Bob has been reported on 15M on 21.002, 21.006, 21.214, 21.222 and 21.252 MHz. Other frequencies include 14.010 MHz at 2045 UTC, 28.010 MHz at 2145 UTC and 28.010 MHz at 2145 UTC. Bob expects to be on Ascension Island for 3 years.

Reported on several bands is ZD8JP, found as follows:

3.507 MHz	2245 UTC
7.002 MHz	2315 UTC
14.013 MHz	0045 UTC
21.007 MHz	2130 UTC
28.029 MHz	2145 UTC

Three other stations have been reported from this one that include:

ZD8IAN	3.515 MHz	0700 UTC
ZD8IAN	7.005 MHz	2215 UTC
ZD8JF	14.235 MHz	1815 UTC
ZD8MB	50.107	1230 UTC

Senegal (6W)

Several calls from Senegal were reported recently with none of them on 20M except 6W6JX on RTTY near 14.086 MHz at 2345 UTC the end of (please turn to page 35)

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.

APRIL 1989 WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(18)	22	29	16	24
12	(25)	20	25	(15)	(21)
14	32	23	21	24	32
16	36	21	21	28	39
18	38	(17)	(19)	27	43
20	36	27	36	23	46
22	30	34	43	(16)	45
24	26	38	47	(14)	42
2	23	38	46	(13)	35
4	23	34	44	23	29
6	23	31	42	21	25
8	(20)	26	34	18	22

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	23	17	29	16	21
10	28	15	25	(15)	23
12	38	20	22	24	27
14	44	24	22	28	35
16	44	20	20	29	41
18	44	(17)	(19)	27	44
20	36	29	36	23	46
22	30	31	44	17	47
24	26	30	47	15	39
2	23	26	44	14	32
4	23	23	41	21	27
6	26	20	34	18	24

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	24	16	29	15	23
9	26	15	25	20	23
11	37	21	23	26	26
13	43	20	23	30	35
15	44	17	(21)	30	40
17	43	(15)	(19)	28	44
19	39	(20)	(29)	25	46
21	32	26	41	18	45
23	28	29	45	16	43
1	24	26	44	15	35
3	20	22	41	13	29
5	27	19	34	17	25

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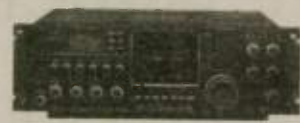
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MODES — Phone, CW, Digital (includes RTTY, AMTOR, packet), Visual (SSTV), and Satellite (includes moonbounce).

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  DXathon



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Ranger AR-3500 mobile, all-mode transceiver is the *only* user programmable 10 meter amateur radio in its price class. *And* America's most popular. It's a star performer, in a class all by itself. Because other transceivers just don't have these features and specs:

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- Warranty:** One full year—the best backed in the industry
- 2 Models:** 30 watt PEP output: Sale Priced \$299.95
- 125 watt PEP output: Sale Priced \$399.95
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San Marcos, CA 92069

DX World

(continued from page 31)

December. A good portion of the contacts were 10M, such as the following:

6W1AAD	28.498 MHz	1815 UTC
6W1NQ	28.507 MHz	2215 UTC
6W7OG	28.020 MHz	1700 UTC

On RTTY 6W6JX was also found on 10M near 28.084 MHz about 1800 UTC. This station is the only one we have seen reported, so look for him near the usual RTTY frequencies on 10 and 20M.

Fifteen meters also showed a few reports:

6W1AAD	21.335 MHz	1830 UTC
6W1HF	21.322 MHz	1915 UTC
6W1NQ	21.335 MHz	2300 UTC
6W2EX	21.029 MHz	2245 UTC
6W6AB	21.313 MHz	2345 UTC
6W8NJ	21.220 MHz	2245 UTC

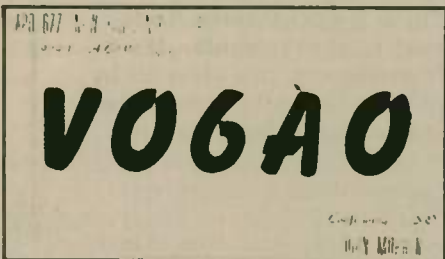
Down on 40 and 75M we had 6W7OG on 3.799 MHz at 0615 UTC and 7.159 MHz at 0600 UTC and 6W6JX on 7.006 MHz at 0700 UTC.

Contest news editor

Edward DeYoung, VK8XX, writes that Amateur Radio Action has appointed him as their new Contest news editor. Ed is a long time DXer whom many of us have worked at one time or another. Ed has held calls such as KH6GLU, VR3DY and most recently, 3D2XX, the call used on the Rotuma DXpedition. Congratulations to Ed on his new assignment in journalism.

Antique QSL department

Back on Dec. 21, 1955, John Mokren, VO6AO, was worked by K2IKS of Tenafly, NJ, on 15M on that old-fashioned means of communica-



tion (AM). John, located at the 924th AC&W Squadron at Saglek Bay, Labrador, was using an old E.F. Johnson Viking II transmitter running 100W to a long wire antenna. His receiver was a Hammarlund HQ-140-X. The rig at K2IKS was also a Viking, but the newer Ranger running only 65W to an 80M dipole.

During that period and into the 1960s, the US Air Force had several of these AC&W sites located in Canada and the northern parts of the United

States for tracking aircraft. We visited a few of them in Montana when we worked for the Air Force during the early 1960s. About all there was to do in one's free time there was Amateur radio — or drink. The Air Force also had these sites along both coasts.

QSL Information

Antonio Tiscornia, LU2FFD, informs us that he is now the QSL manager for the operations of AZ4F, LU4FM, LU4F and AY60F. Send your requests via his Callbook address.

QSL routes

A24Kh	-KC5MO	UA3PAZ	-RA3YG
A24RH	-KC4MO		(See Note 3)
C30LFR	-DL2AX	UW9XQ/UG6	-UA9OFS
CE9AM	-CE3EEO	V29A	-W4FRU
CU2AK	(See Note 1)	V31CV	-NA5S
DF9FA/4S7	-DF9FA	V85MM	-K1MM
DJ9ZM/6W	-DJ9ZM	VK9ZM	-NM2L
	(See Note 2)	VK9ZV	-NM2L
ED0MA	-EA7DHO	VP2EY	-HB9SL
EW2SD	-UC2SD	VS6WV	-K0TWM
FR7RA	-FR5DX	VU2GI	-N2HOS
FS/K2BS	-W2GHK	VU2UGI	-N2HOS
FT4ZE	-F2CW	VU7APR	-VU2APR
HJ0PPY	-HK0FBE	W7AWA/OY	-W7AWA
HL5BDS	-HL1ASS	YL2RG	-UQ1GXX
IB8A	-IK8DOI	YL2VZ	-UQ2GKL
JW5NM	-LA5NM	YL2ZG	-UQ2MU
JW7FD	-LA5NM	ZD8BOB	-ZL8AR
JW9SR	-W3FYT	ZF2HM	-K9QVB
KE8A/DU3	-WB9YXY	ZF2KE	-K9QVB
KC6JW	-DF6FK	ZF2NF	-WB8GEX
KC6MA	-DF6FK	ZK1SJ	-DK1SJ
KC6MA	-DF6FK	ZK1XC	-HB9CUY
KC6MB	-DF6AK	ZP5XDW	-N4DW
KC6NW	-DF6FK	ZS3Z	-ZS6BCR
KC6SI	-JA7HMZ	3A6E	-F9RM
KX6GL	-KX6BU	3D2TB	-W7TB
LX150L	-Bureau	3W0A	-W4FRU
RT0U	-UT4UWV	4W0PA	-PA3CXC
SC0CR	-WA7QAR	5U7CW	-DJ6SI
T77JK	-T77J	5U7DX	-DK9RX
TE6T	-TI4SU	5U7XX	-DJ6JC
TY9SI	-DJ6SI	5Z4DU	-KE4DA
	(See Note 1)	8P9EM	-G3VBL
TY9YL	-DJ6SI	8P9FD	-KH6WZ
	(See Note 1)	8P9FE	-WB6LMN
UA10IL	-UA9MA	8Q7CS	-G3NTS
	(See Note 1)	9G1PP	-G0CAD
UA1PAT	-RA3YG	9G1R	-JARL
	(See Note 3)	9M2AQ	-JA3WNB
UA1PAV	-RA3YG		(See Note 4)
	(See Note 3)	9N2PSR	-K2PSR
		9N88C	-JR6BKL
A22RA	-Private Bag 1, Orapa, BOTSWANA		
A22RB	-Private Bag 38, Selebi-Paikwe, BOTSWANA		
CT3FT	-P.O. Box 86, Porto Santo Island, Madeira P-9400, PORTUGAL		

FY4FC	-P.O. Box 6005, Cayenne, F-97306 French Guiana, FRANCE
LU1ZC	-P.O. Box 73, Salta, ARGENTINA
LU2ZC	-Grupo Argentino de CW, P.O. Box 9, 1875 Wilde, ARGENTINA
TA5C	-P.O. Box AR210, Adana, TURKEY
U1ZA/A	-P.O. Box 1009, Murmansk, USSR
UC7A	-P.O. Box 41, Minak 220 050, USSR
WA9YHW/HR6	-Rev John Miller, French Harbor, Roatan Islands, HONDURAS
XX9JN	-Jose Neves, P.O. Box 468, MACAO
YB6QZ	-P.O. Box 55, Pekanbaru 28001, INDONESIA
YL2VZ	-P.O. Box 19, Ainazi 229 135, Latvia, USSR
3DA0BK	-P.O. Box 122, Eveni, SWAZILAND
5N0/OK1AEX	-P.O. Box 1009, Lagos, NIGERIA
7X2AX	-P.O. Box 2, Eladjiba, ALGERIA
8R1PK	-P.O. Box 10907, Georgetown, GUYANA

Notes:

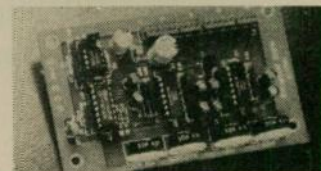
1. These stations or QSL managers request that all QSL cards be sent directly only. Do not send your cards via the bureau. Please include sufficient funds or IRCs for return postage along with your SAE.
2. Use P.O. Box 201435, D-4050 Monchengladbach 2, West Germany.
3. Address not in the Callbook. Mike E. Sockinaki, P.O. Box 5, Bryansk 241 000, USSR.
4. Use P.O. Box 36, Kakogawa 675, Japan.

Contributors for this month include W1APU, K2IKS, N4ESV, W7TB, W9GSB, W9LNQ, JY9LC, JY9SR, LU2FFD, RA3YG, UA9MA, VK8-XX, Redwood Empire DX Association (VP2ML), Northern California DX Club (KE6ZE), Southern California DX Club (WA6PSY), Western Washington DX Club (K7ZR), Salt City DX Association (KB2G), Natal DX Group (PS7KM), *The Long Island DX Bulletin* (W2IYX), *Inside DX* (N2AU), *QRZ DX* (W5KNE), *The DX Bulletin* (VP2ML), *Long Skip* (VE3IPR) and *DX Newsheet* (G4DYO).

By the time this issue reaches you, both of the ARRL DX contests are history. We hope you all did well whether you were looking for a few new ones or just wanted to rack up a decent score. Very 73, GL DX es John N6JM.

... TALK TO THE WORLD! ...

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YAESU - Order Model Y for FT-207R, Wilson. Fits in battery compartment. Model N for FT-203R, 208R, 209R, 727. Powered thru plug on radio bottom.
ICOM - Order Model I for all Icom (2AT/02AT). Slides on bottom of radio.
TEMPO, SANTEC - Order Model T (Simple mod). Write for spec sheet/info on other radios.

HANDI-TEK
P.O. BOX 357 • PINON HILLS, CA 92372

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

Who runs the 10-10 International Net?

10-10 is run 100 percent by volun-

teers. There is a president, vice-president, secretary, treasurer and a Board of Directors, consisting of four directors. This governing body sets the policy and basically takes care of the business of the organization.

Supporting the officers and Board of Directors are a group of volunteers known as district managers. This is a group of 16 managers, one for each US call district — except the 4th district, which has four managers — one for VK, one for ZL and one for all other DX call signs. District managers collect member dues and are the basic contact for members within their district and 10-10.

Another group of volunteers are the people who support 10-10 in a number of various other regular duties. This group consists of the chapter coordinator, Chairman of the Rules Committee (which organizes the 10-10 contests), editor of the *10-10 News*, editor of the *10-10 Net Guide*, the net manager, the printing advisor, the records manager, the roster manager and, last but not least, the supply manager.

Each of these jobs has various levels of activity dependent on the particular job. In addition the net manager has eight volunteers that are daily net control stations. They open the 10-10 Net each Monday through Saturday at 1800Z on one of the published net frequencies. There is also an alternate net on Wednesdays at 0300Z.

In addition to the above, there is the group of volunteers who are the awards managers. It is this group that is responsible for maintaining the integrity of the 10-10 Award Program. There are two bars managers, one for Bars 100 through 900 and one for Bars 1000 and up. There is an awards manager for the Worked all Continents Award, the Worked all States Award and the Countries Award. With the 500 Bar comes a membership in the International 500 of the World. In addition there is also a Lucky Thirteen Award.

Another hard working volunteer is Grace Dunlap, K5MRU, 10-10 #218, our 5th District Manager, who, in addition to those duties, provides a most valuable service of researching and providing a list of 10-10 Silent Keys to the records manager.

All in all, you can see that 10-10 is a well organized, well staffed, totally integrated organization with volunteers that are interested in promoting Amateur Radio, 10M and 10-10.

In case you have not counted as we have outlined the above, there are no less than 48 volunteers that keep 10-10 running.

10-10 chapters

In order for members within certain geographical areas to keep in touch, we have 10-10 chapters. These are groups of mostly local area Amateurs, all 10-10 members, who get together on a regular basis, normally once each week, and hold a chapter net meeting.

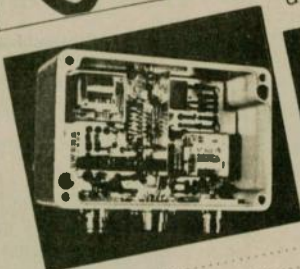
Most chapters have a chapter head and a certificate manager and, in some cases, additional officers. Each chapter is authorized as an official 10-10 chapter by the chapter coordinator.

Chapters issue certificates for working a certain number of their members and assign point values to the level of participation in contacts with other chapter members. Each chapter

(please turn to page 39)

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typ. 0.6 db	typ. 0.9 db	
18-20 db	17-19 db	
150 Watt	150 Watt	
750 Watt	350 Watt	
Type N	Type N	

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Visit Your Local RADIO CLUB

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

ALABAMA

Montgomery Amateur Radio Club (W4AP). Alabama State Trooper Dist. Office. Intersection of Coliseum Blvd. & Federal Dr. Randy Smith, N4LZK, (205) 832-4598. Meets 3rd Monday/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 Friday/monthly, 7:30 p.m.

ARIZONA

Arizona Amateur Radio Club. Meets: 2nd Thursday/monthly, 7:30 p.m., 1510 E. Flower St., Phoenix, AZ. Club info on W7WGW/R 147.88/147.28 Rptr.

Old Pueblo Radio Club. Meets: 2nd Wednesday/monthly, 7:30 p.m. Location: Franklin Bldg., 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, 147.68/08, 147.70/10-PKT).

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95865. Senior Citizens Center, Jackson, CA. Meets: 1st Thursday/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 Friday/monthly, 7:30 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Butte Amateur Radio Club. Meets: 3rd Thursday/monthly, 8 p.m., Chico Community Hosp. Conf. Center on Rio Lindo off Cohasset Rd. Net: 28.330 Wednesdays, 8:30 p.m. For info: 893-5208, KE6EP or KB6COH.

Caltrans RACES Club. Meets: 1st Mon./monthly, 8:30 a.m., State Transportation Bldg., 1120 N Street, Rm. 4123, Sacramento, CA. Info, Jim West, (916) 445-1757.

Citrus Belt Amateur Radio Club. 777 East Rialto Ave., San Bernardino, CA. P.O. Box 3788, Zip - 92413-3788. Meets: 1st Friday/monthly, 7:00 p.m.

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

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

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.

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. Tues., 8 p.m. 147.495 simplex. Info, Gracie Hastings, N6FSL (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 Thurs./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 Friday/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. Meets 3rd Mon./monthly at Bicycle Shop Cafe, 12217 W. Wilshire Blvd., W. LA. 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.

Lee DeForest Radio Club of Hemet. 1930 Local each Third Thursday at 625 Pico, San Jacinto, CA.

Livermore Amateur Radio Klub (LARK). First Presbyterian Church, 5th & L St. Bill Richards, WD6J, (415) 829-5229. Net Mondays 1900 on 147.12 + . Meets 3rd Saturdays/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). Sunday AM Club at Red Cross, San Rafael.

Moreno Valley Amateur Radio Assoc. P.O. Box 1304, Moreno Valley, CA 92337. Meets: 4th Monday/monthly, 7 p.m., Moreno Valley Unified Sch. Dist. offices, 13911 Perris Blvd., Moreno Valley. Net Tuesdays, 8 p.m. 146.655/055

Mount Diablo Amateur Radio Club. P.O. Box 23222, Pleasant Hill, CA 94523. Meets: 3rd Fri./monthly, 8 p.m., Grace Presbyterian Church, 2100 Tice Valley Blvd., Walnut Creek, CA. Net Thurs., 7:30 p.m. 147.06 + . Info, Vicki, (415) 458-4527.

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

River City A.R.C.S. Meets: 1st Tuesday/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; Tues.—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 Brkfst Club. Meets 2nd Wednesday/monthly, 8 a.m., Carrows Restaurant near Watt Ave. and Hwy 80 exit. For info contact Paul Wolf, W6RPL (916) 331-1830.

San Fernando Area Radio Club, W6SD P.O. Box 3151, Van Nuys, CA 91401. Meets: 3rd Fri./monthly, 7 p.m., Red Cross Van Nuys, 14717 Van Nuys Blvd., Van Nuys, CA 91401.

San Gabriel Valley ARC. Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. Meets: 1st Tuesday/monthly, 7:30 p.m., except Dec. W6QFK, Repeater 147.165/765.

San Mateo Radio Club. Beresford Park Recreation Center, 28th Ave. and Alameda de las Pulgas, San Mateo, CA 94403. 3rd Friday/monthly, 7:30 p.m.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW. P.O. Box 6, San Jose, CA 95103. (408) 249-6909. Meets: 2nd Mondays/monthly, 7:30 p.m. Net other Mondays, 7:30 p.m. W6UU 146.385 + /425.425 + .

Santa Clara Valley Rptr. Society (SCVRS). P.O. Box 3085, Sunnyvale, CA 95087. (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 Fridays.

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 Parkway Ave., Redding, CA. Net 146.64 Wed., 8 p.m.

Sierra Foothills Amateur Radio Club. P.O. Box 3262, Auburn, CA 95804. Meets: 2nd Friday/monthly at Auburn Fire Station, 226 Sacramento St., Auburn, CA. Nets 7:30 p.m. Tues. 28.443 MHz, Thurs. 145.43 MHz link with 223.86 MHz.

Simi Settlers Amateur Radio Club. P.O. Box 3035, Simi Valley, CA 93063. Meets: 2nd Thurs./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 p.m., Vanden High School. 441.150 + 5 (Remote 145.69 simplex) PL 77Hz, (707) 448-1461.

Southern California Six Meter Club. P.O. Box 448, Cypress, CA 90630. USB Net Tues., 8 p.m., 50.150 and 8:30 p.m., 28.400. FM Rpt. Net Wed., 7 p.m., 52.18/98 and Thurs., 8 p.m., 52.28/88. FM Smlx call freq. 50.300.

Stanislaus Amateur Radio Assoc. (SARA). P.O. Box 4601, Modesto, CA 95352. Stanislaus Co. Administration Bldg., 12th & H Streets, 3rd Tues./monthly, 7:30 p.m. 145.39 MHz WD6EJF, 223.68 MHz.

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

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wednesday/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 Monday/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 Friday/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, 6th & "A". 2nd Tuesday/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 Thursday/monthly. 145.44-4Z.

Western Amateur Radio Assoc. Cerritos Park East, 166th St. and Carmenita Ave., Cerritos, CA. Meets: 1st Tuesday/monthly, 7 p.m. Rptr., N6ME 145.40/224.18 MHz.

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

Yolo Amateur Radio Society. Meets: 1st Thursday/monthly, 7:30 p.m. 1207 Sycamore Lane, Davis, CA 95616.

Yucaipa Valley Amateur Radio Club (YVARC). Gibraltar Saving's Community Room, 34880 Yucaipa Blvd., Yucaipa, CA 92399. Pres: Jack Prather W6KJP (714) 797-1276. Meets: 3rd Monday/monthly, 7:30 p.m.

CONNECTICUT

Tri-City ARC. Groton Public Library, Route 117, P.O. Box 686, Groton, CT 06340. Meets: 2nd Tuesdays/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 Thurs./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 Monday/monthly, 7:30 p.m. Talk-in on 146.850 rptr.

Sarasota Amateur Radio Ass'n, Inc. Meets: 3rd Tues./monthly, 8 p.m. on the 6th floor (board rm.) of the County Admin. Bldg., corner of 301 & Ringling Blvd. Club Rptr. W4IE, freq. 146.91/31, open to all. Phone patch "Up #Down. Welcome.

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tuesday/monthly, 7 p.m., Melbourne Library, 2275 S. Babcock St., Melbourne, FL.

West Palm Beach Amateur Radio Club, Inc. P.O. Box 6834, Southboro Station, W. Palm Beach, FL 33405. Meets: 2nd Tues./monthly, 7:30 p.m., Palm Beach Emergency Op. Cntr., 3723 Beveledere Rd., W. Palm Beach. Info: H. Felton, 655-4632 or H. Logan, 848-0513.

HAWAII

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

ILLINOIS

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

Chicago Suburban Radio Assoc. (CSRA). P.O. Box 88, Lyons, IL 60534. Meets 2nd Wed./monthly, 8 p.m. Community Rm. Clyde Federal Savings & Loan Assoc., 7222 W. Cermak Rd., North Riverside, IL

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

North Shore Radio Club. Meets: 2nd Monday/monthly. Net 8 p.m. Tues. 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 Tuesday/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 Springinsguth Roads, Schaumburg, Illinois. Third Thursday/monthly, 7:30 p.m. Net 28.350 8:00 p.m. Thursdays.

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

KANSAS

Kansas City Heart of America Radio Club. Red Cross Building, 211 West Armour Blvd. Meets: 3rd Tuesdays/monthly, 7:30 p.m.

MARYLAND

The Peninsula Radio Operators Society (PROS). Family oriented activities, training and exams held throughout the year. PROS Rptrs. 146.925 and 146.825. 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)

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 9½ Mile Rd., west of Coolidge). Oak Park, MI 48237. 2nd Monday/monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

South Eastern Michigan A.R.C. Meets: 1st Friday/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 Tuesday/monthly, 7 p.m. Red Cross Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEBRASKA

Pioneer Amateur Radio Club (PARC). P.O. Box 445, Fremont, NE 68025. Meets: 4th Friday/monthly, 7:30 p.m. at Keene Memorial Library, 1030 North Broad. Wed. ARES net 146.67 18:30 CDT/19:00 CST.

NEVADA

Frontier Amateur Radio Society (FARS). Meets: 3rd Monday/monthly, 7 p.m., Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy. Net Mondays 7:30 p.m., 145.39 rptr. on Black Mountain. Club info, Jim Frye, NW7O, 456-5396.

Las Vegas Radio Amateur Club (LVARC). Meets: 2nd Tuesday/monthly at 7 p.m., Nevada Power Building, Wengert Rm., 6226 W. Sahara Ave. (Near Jones). Net Tuesdays 8:00 p.m. on 146.94 MHz. Info: Call Lyle at 456-9510.

Nevada Amateur Radio Assoc. (NARA) 2333 Rodney Cir., Reno, NV 89509. Meets: 3rd Tuesday/monthly, 7:00 p.m. at First Federal Savings & Loan Bldg., 2330 So. Virginia St., Reno, NV.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 782-8266. Meets: 2nd Tuesdays/monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.270+.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 742-0130/755-2600. 2nd Sunday/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, New Jersey 07002. Rptrs: 145.430 & 224-280. Meets: 2nd Tuesday/monthly, 7:30 p.m.

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

Gloucester County Amateur Radio Club (GCARC). Woodbury V.F.W. 1st Wednesday/monthly, 8:00 p.m., Woodbury, N.J. 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 McCarren, K2LV, (914) 738-0768. Meets: 1st Monday/monthly, 8 p.m.

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

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tuesday/monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. The trilaterals' 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 Wednesday/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 Wednesdays, 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!

Westchester Amateur Radio Assoc. (WARA). Scarsdale Village Hall, Scarsdale, New York. Meets: 1st Wednesday/monthly, 8:00 p.m. For info call B. Dubbs, Pres. (WA2FSR). (914) 725-1191.

NORTH CAROLINA

Raleigh Amateur Radio Society, Inc. P.O. Box 17124, Raleigh, NC 27619. Club net nightly, 8 p.m., W4DW, 04/64. Meets: 1st Wednesdays/monthly, 7:30 p.m., YMCA. 18th Annual Hamfest, April 16, 1989.

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, A18S (864-7316). County Justice Center, Jefferson, OH. 3rd Tuesday/monthly, 7:30 p.m. County Rptr., 146.715.

Clyde Amature Radio Society (C.A.R.S.). Meets: 2nd Tuesday/monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E Repeater 144.75/145.35. Net Sunday 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 146.3494 & 222.34/223.94.

PENNSYLVANIA

Butler County Amateur Radio Assoc. Meets: 1st Tuesday/monthly, 7:30 p.m. at Red Cross Bldg., 312 Mercer St., Butler, PA 16001. Call-in 147.96/36

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets: 4th Tuesday/monthly at 7:30 p.m. at Shenango Valley Medical Center, Farrell, PA. Net, Thursdays 8:45 p.m. on 147.75/15 W3LIF/R.

Warminster Amateur Radio Club. Meets: 1st Wednesday/monthly 8 p.m., St. John's Lutheran Church, York Rd., Haiboro, PA. Nets: WA3DFU/R info. Net Wed. 8:30, 147.09/147.69.

establishes their own rules for their certificates and the certificate up-grades they issue. 10-10 members who collect chapter certificates are known as "Paper Chasers," and pride themselves on the number of certificates they can collect and the levels of up-grades they can achieve.

There are approximately 210 authorized 10-10 Chapters located throughout the world. Their meeting times and frequencies are regularly published in the *10-10 International News*, the official quarterly publication of 10-10.

If you are interested in finding out more about the various chapters (or sometimes called 10-10 Nets), Jim Beswick, W4YHF, publishes a *Certificate Net Guide*, which lists all the

chapters, their chapter head and certificate manager and the qualifications for obtaining each certificate. A SASE to Jim at 112 Owltown Farm, Ellijay, GA 30540, will get you the information on this valuable bit of information and allow you to keep abreast of the happenings in the Paper Chasers world of 10-10. A group of 10-10 Paper Chasers have their own convention each year in Reno, usually in August. More on this later.

In Summary

Between last month and this month, I have tried to outline the purpose of 10-10, how the organization is run, who has what responsibilities and a little about the operation. I hope that for the new members, these two columns have been informative and shown that 10-10 is much more than just exchanging numbers with another member. It is the dedication of the volunteers of 10-10 that will make operating on 10M more enjoyable.

10-10 Scholarship Awards

The Foundation for Amateur Radio Inc., a non-profit organization with headquarters in Washington, D.C., has announced that 32 Scholarships for the academic year 1989-1990 will be awarded to licensed Radio Amateurs. Two of these scholarships are sponsored by the 10-10 International Net Inc.

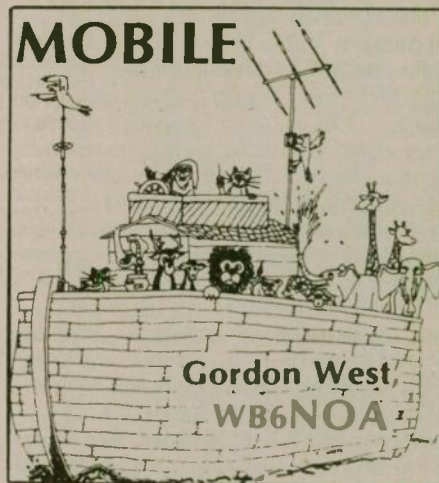
Licensed Radio Amateurs may compete for these awards if they plan to pursue a full time course of studies beyond high school and are enrolled in or have been accepted for enrollment at an accredited university, college or technical school. Additional information and an application form may be requested by letter or QSL card, post-marked prior to May 31, from: 10-10 International Net Scholarships, c/o FAR Scholarships, 6903 Rhode Island Ave., College Park, MD 20740. Be sure to ask for the 10-10 Scholarship Application.

If you feel so inclined, and I hope you do, you can make a donation to the 10-10 International Net Scholarship Fund by sending your check or money order to Gerry Gross, WA6POZ, 10-10 Treasurer, 8145 Cozycroft Ave., Canoga Park, CA 91306. Make your check payable to "10-10 Scholarship Fund." Please send Gerry a donation for the 10-10 Scholarship Fund right now, while it is fresh on your mind.

Finally

If you would like to receive a 10-10 Information Pack, including a copy of the latest issue of the *10-10 International News*, send me a green stamp (\$1) along with an address label to 18130 Bromley St., Tarzana, CA 91356-1701.

73 es cu next month.



SETs to the test

April is the annual Dayton Hamvention. If you haven't ever gone, you should. It's like going to Mecca. If you haven't already made reservations to go, forget it — it's too late. Unless you like sleeping in your car, the nearest hotel is 100 miles away!

Every April issue I review new equipment we will see premiered at the Hamvention. I have personally tested these sets, and what you are about to read is strictly my own opinion — and it will be straight to the point. It will be factual. These reviews should assist you in selecting new mobile gear.

Mobile H.F. antennas. Hustler series of mobile center-loaded whips, always a sound investment. The layover mast is great for RVs. Get the kilowatt coils if you're planning on running the KW 12-volt Magnus SSB HF amplifier (reviewed last month).

The white fiberglass helical whips from Mobile Mark (available from all Ham Radio Outlet stores) are another good way to go for HF mobile. They are only 6 ft. tall, and cannot be snapped when you accidentally hit a tree limb. If anything, your roof will come off before the antenna from Mobile Mark does!

RADIO CLUB *continued*

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tuesdays, Salvation Army Community Bldg., Hampton, VA. Operates 148/13 146.13 /73 Rptr., VEC Information (804) 851-5573.

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

WEST VIRGINIA

Jackson County Amateur Radio Club. D. Geneal Bailey, NK8P, Sec.-Treas. 113 Winters Dr., Ripley, WV 25271. First National Bank of Ripley. Meets: 1st Thursday/monthly, 7:30 p.m.

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

WASHINGTON

Mike & Key ARC K7LED. Good Neighbor Center, 305 So. 43rd Street, Renton, WA 98055. Meets monthly on 3rd St., 10 a.m.

North Seattle Amateur Radio Club (NSARC). Meets: 3rd Tuesday, 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 Tues., 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 Wednesdays.

WEST GERMANY

Wiesbaden Amateur Radio Club (WIESARC), DA1WA. Meets 2nd Tuesday/monthly at Stadion Restaurant, Wiesbaden. Steve Hutchins, DA2HS, Box 4205, APO NY 09633. PH: (011) (49)-6725-3462. American and German members.

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TAD **uniden**

The HF mobile antenna I like best is made from Valor. The Valor antennas offer helical base-loading and a stainless steel stinger for maximum efficiency. I like the whips because I can tune them down to maritime mobile frequencies, too. Each whip will cover an Amateur band plus 1 or 2 MHz up or down with a shorter or longer whip tip. They finally improved on their quality control, so Valor antennas get an "A."

Incidentally, for an informative catalog on all these antennas, baluns, mobile whips, connectors and transmatches, write The Radio Works, P.O. Box 6159, Portsmouth, VA 23703.

Kenwood RZ-1 Mobile Scanner. What a pretty little rig. It's about the same size as an auto stereo, and offers uninterrupted coverage from 500 kHz to 906 MHz. Wow! Use it as a mobile receiver, mobile scanner or even a mobile stereo — well, almost.

The RZ-1 is a nice little all-band scanner and receiver. It holds up to 100 channels, scans in banks and has lockout. As a scanner, not bad. Sensitivity was good, but intermod rejection in big cities not so great. Any preamplifier on the end of it swamps its tiny receiver.

On aircraft AM, some sort of passive squelch circuit keeps background noise to a minimum. Strong aircraft signals punch through loud and clear. Weak signals don't make it. Seems to be some mystery about their very quiet aircraft AM receiving capabilities.

The scanner internal speaker volume and external speaker volume was judged as "not bad." Not great — no base or treble option that I found on my Yaesu 9600.

We tried the television output — and sure enough, green and white pictures, with audio, appeared on our monitor. If you have never watched television on a green monitor, give it a try. It makes you appreciate black-and-white and color television that much more!

When installed in a mobile, it's natural to hook up the stereo function of this little receiver. This is where this unit lays the big egg. The stereo output comes direct from a chip. No amplification, so it won't work with your equalizer/booster network. And because it comes direct from the chip, there is no way to control the stereo volume.

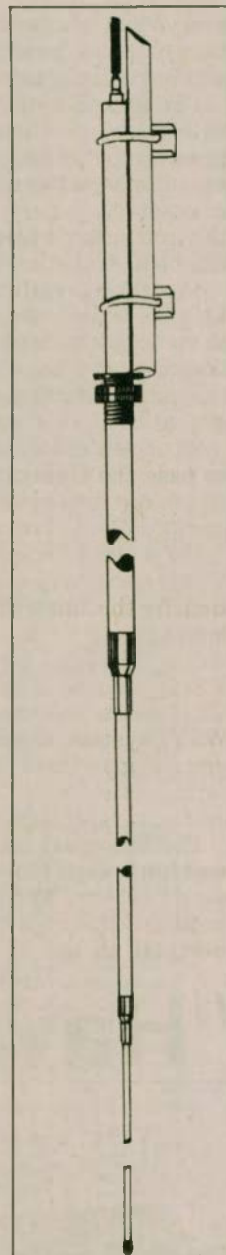
The factory says use it on a home stereo receiver with a preamplifier built in. Hey, if I already had a home stereo receiver in my mobile. I wouldn't need this stereo — would I? Another suggestion was to find a 12-volt mobile pre-amplifier, with volume control, that boosts the signal up for your booster/equalizer. A what? I'm still looking for one — and until then, I would consider the stereo feature for mobile use on the Kenwood RZ-1 as a magnificent flop.

Finally, the digital readout is cute and sexy at night. You can even put in your own designators for memorized channels. During the daylight hours, it's absolutely illegible. Any sunlight streaming into your camper, mobile or boat installation will make reading the display impossible.

So, Mr. Kenwood RZ-1, I think you're cute, small, but for any skilled radio buff, they will soon see through your small size and pretty face. And I'm still waiting for mobile stereo.

Antron still makes one of the world's best selection of mobile and base 10M antennas. If you love the 10M band, as I do, write Antron for their complete catalog of 10M antenna systems, including their 18 ft., no-ground, all-fiberglass, omnidirectional base station system (Antron, Youngstown, OH).

Radio Shack has a dandy single-band, 10M mobile set. It's virtually the same as the popular President and Uniden I tried it for several weeks, and I was impressed with its compact size, simple operation and consistently good signal reports. It's perfect for Novice and Technician class operators wanting to get on 10M for under \$260 with new equipment. You can also jack up its power with a slight adjustment of the ALC pot on the inside.



Antron iometer base antenna

Don't overdo it — but do take it up to about 30W out.

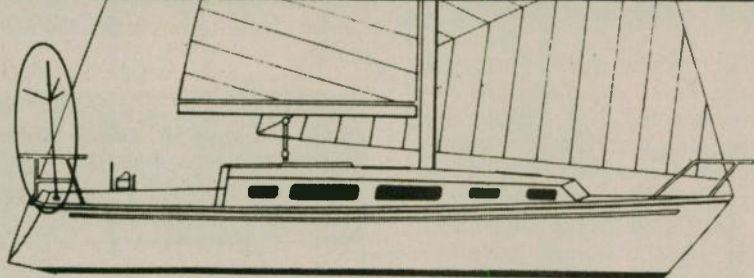
Radio Shack should also be congratulated for their support of the ARRL VEC test site listings at all their stores. Radio Shack is soon to distribute an ARRL local-Elmer list, too. The Radio Shack distribution of my Novice code and theory course, Technician class book and General class code and theory course has surpassed

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everyone's imagination — it's instructional material available to newcomers and beginner Amateurs.

I'm disappointed about ARRL 13 wpm General class code tests. The messages they are using lately are bizarre. The contents are complicated, mysterious and very unanticipatable. I thought code tests were supposed to be like typical QSOs, didn't you?

In talking with Jim Clary of the League, he indicates he wants to make them tough — and he doesn't care if they depart from the usual QSO-type tests that everyone else around town is giving.

So, if you're looking for a tough way to pass the General class 13 wpm exam, make sure your local VEC team is giving an ARRL exam.

However, I congratulate any and all VEC teams, regardless of their affiliation, for the hundreds and thousands of hours they are volunteering to help the Amateur Radio service grow. ARRL VEC team members, plus all other VEC team members, including the W5YI system, deserve all the support you can give them for their untiring efforts to help offer local examinations on a convenient basis.

The Yaesu 411 handheld transceiver was fun to test. I love it. There is little I would change. Makes me immediately want to sell my trusty Yaesu 23R handheld. Of all the micro-handhelds, the

Yaesu 411 is at the top of my list. Get one.

If you are into VHF and UHF, send away for the latest Comet antenna catalog from NCG, 1275 N. Grove St., Anaheim, CA 92806. NCG imports Comet antennas specifically tuned to US VHF and UHF Amateur bands.

Other rival antennas from some importers are reported to be tuned to other band limits — not necessarily ours. This makes a big difference at 1270 MHz! If you're into 2M, 220, 450, 900 and 1270, and even 2304, write NCG for their well-illustrated and descriptive Comet catalog.

Incidentally, NCG also carries a line of Panasonic 900 MHz transceivers for simplex operation. If you're looking for a quiet channel mobile, here it is!

Is mounting your mobile transceiver a problem? Another gadget I like is the MM-1 mobile mount from RF Concepts (Reno, NV). The base mounts on the floorboard, and features a 4 inch barrel. There are two swivel joints, top and bottom, so that just about any mounting angle can be accommodated for your equipment. A little bit like what police cars have — functional, and easy to put together. Write for more details.

Okay, that's it for this month. See you at Dayton. Yes, we will be wearing our instructor outfits, so stop by the Radio School booth and say "HI". □



By the time this hits your desk, our radio club, The Red River Radio Amateurs Inc. (W0LLO), will be busy putting together a radio museum at a local theme park known as Bonanzaville.

The park features 30 restored pioneer buildings from the 1880s when the bonanza wheat farm was the economic star of Dakota territory. Bonanzaville is a living history museum and it attracts thousands of visitors each year. If you travel Interstate 94 or 29 through North Dakota, be sure and spend a few hours browsing through the thousands of exhibits in the park.

Here are some of the things you can see at Bonanzaville: a one-room school, early pioneer log cabins, a sod house, an early day print shop, a creamery, an antique airplane collection, a superb antique car collection, a farm machinery exhibit and one of the finest Indian artifact displays in the upper midwest. Now our club is adding a radio exhibit and a club station.

To start our collection we have the



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"Have Fun" mobile



On a recent vacation through seven western states, Randy Miltier, N6HMO, and Sally Ortega, N6QHP, decided to work HF mobile for the first time. Besides keeping in touch with fellow amateurs at home in San Jose, CA, the traveling duo worked the world. Using an ICOM IC-735 and a newly purchased Spider HF mobile antenna, N6HMO worked all call areas in the US, a ZL, DL, HA, VE, IU, TI, KL7, JH, SM, EA, PJ1, IR, YT, YU and F6. This was all done on Saturday, Oct. 29, 1988, during the CQ Worldwide Contest on 10, 15 and 20M. HF mobile truly stands for "Have Fun" mobile.

Amateur station equipment once owned by the late Goodwin Dosland, W0TSN. It was donated to Bonanzaville by Mary Dosland, W5DEW, his widow.

"Dos" was president of the ARRL for 10 years, so having his rigs is a special memorial. You old timers will remember Mary as the "Texas Dew Drop." She held forth on 20M where her warm Texas accent charmed many a phone man during the last 50 years.

The building which will house our exhibit was donated by a regional telephone company, and the refinishing of the inside walls is being done by a Boy Scout group, so you can see that the whole project is a community affair. So far our collection of antique Amateur radio rigs is rather small, but it is growing.

I, personally, am donating my prized possession: a National SW-3. It is a three-tube TRF receiver which I bought in 1935 for \$13.30 with one set of coils. In addition I'm giving a Hammarlund 129-X and the first RTTY tuning unit I built back in 1953. I have been hanging on to that SW-3 for many years, waiting for a suitable place to put it for posterity. Now I have it.

So, if any of you have antique equipment you don't know what to do with, Bonanzaville is going to be a fine place to put it. It is a non-profit operation, run by the county historical society, so donations to the theme park are tax deductible. If you are so inclined, please contact me for details.

MARS

In a recent column I referred to the MARS network as the Military Amateur Radio System. Emery Flinn, Jr., N4DX, was the first to point out my error. It really is the Military Affiliate Radio System, and I stand corrected. When I belonged after WWII, it was the former, so I guess I was part right. Harold Parkin, K0TMH, an ardent MARS member, confirmed it all.

QSL cards

Every year I participate in the North Dakota QSO party, both on CW and RTTY. Our club sponsors the annual event on the third weekend of January.

After the contest the ND participants receive a blizzard of QSL cards from people who need North Dakota for WAS. I don't mind it, but some of our members complain that many of the QSL cards arrive without a SASE for return. With postage going for \$.15 a card, or two-bits if in an envelope, the cost of a weekend QSO party can zoom up rather quickly. So, may I suggest to everyone: please include a self-addressed, stamped return envelope with your QSL cards. It's the courteous thing to do.

Collector on the prowl

Arnold Madiol, WD8JIV, collects originals or copies of telegrams, radiograms, logs, routine books, number sheets, advertising or whatever, used by communications companies like Western Union, Postal Telegraph, RCA or any other in the world. He will swap items.

Propagation forecasters

I have three computers dedicated to Amateur radio. One runs my packet BBS, another is a venerable old Robot for RTTY and the third is used for OSCAR work or general Amateur type computing. Recently I received an upgrade of MINIPROP, a MS-DOS program by W6EL that will predict ionospheric propagation for the Amateur bands. I was quite impressed with the version 3, as I have been using the V2 for some time, and am familiar with the basic use of the software written by Sheldon Shallon.

The accuracy of the MINIPROP predictions has been greatly improved

in version 3. This was accomplished by taking E-layer effects into account when determining the ionospheric hop configuration and signal level calculations.

Because the program incorporates a unique mode-searching algorithm that searches for the ionospheric mode that will yield the strongest signal on each frequency at each half hour, it takes a lot longer to run than the previous edition. Sheldon suggests the addition of a math co-processor, and I agree.

The co-processor only speeds up the action, the accuracy is the same with a slower CPU. To overcome this slow crunching, Sheldon has included a Quick-look version which is equal to version 2. If you only work one or two bands, the program can be modified to predict only the bands you want, and that speeds up the process also.

The 52-page manual included with the disk is quite complete and easy to use. The section on fundamentals of propagation will certainly help anyone in understanding what it is all about.


MINIPROP requires the input of the solar flux or the sunspot numbers, which are readily available from WWV, at 18 minutes after the hour. Besides the MUF, Miniprop prints out the predicted signal levels in dB above 0.5mV.

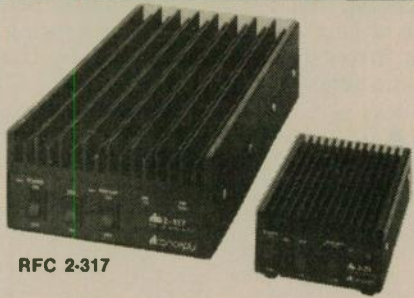
It also includes an availability estimate and graphic presentation of the short or long-path forecasts.

There are a whole lot of features in Sheldon's program that I have not had time to explore, but in the few days I have had it, I have used it a number of times. I straightaway printed out a new DX antenna aiming list to replace the old one I have been using, because the call prefixes have been brought up-to-date. I sometimes wish the program had absorption predictions incorporated with it, because we live at 47 degrees north latitude and the A and K indices do have an effect on our reception.

Eavesdroppings

"QRX WHILE I BURN THE ANTENNA ... HOW ABOUT THE COMPUTER HACKER ... WHO BROKE INTO HIS BANK AND OVERDREW HIS OWN ACCOUNT ... HE MUST BE THE GUY WHO PUT THE FLEW BUG IN ALL THOSE COMPUTERS ... THE DX STATION FADED OUT JUST AS HE SENT HIS QSL ADDRESS ... I AM RUNNING 100 WATTS NOW BUT WILL SHIFT TO THE "NEW COUNTRY" MODE AT 1500 BIG ONES ... AM THINKING OF BUYING A NEW YAZOO 777 OR WHATEVER THEY CALL IT ... ONLY COPYING YOU ABOUT 5 PERCENT, SO MAYBE WE BETTER MAKE





RFC 2-317

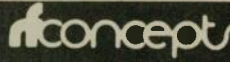
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" 2-417	45W	IN =	170W OUT

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RFC 3-22	2W	IN =	20W OUT
" 3-211	2W	IN =	110W OUT
" 3-112	10W	IN =	120W OUT
" 3-312	30W	IN =	120W OUT

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THIS THE LAST ONE . . . AND I'D BET MY LAST BOLIVAR TO YOUR LAST YEN ON IT . . . YOU CAN TELL BY MY BLINDING SPEED ON THE TYPING THAT I AM NEW TO RTTY . . . IN MY FLYING DAYS I USED TO WORRY ABOUT SNEEZING JUST AS I WAS LANDING BECAUSE I ALWAYS SHUT MY EYES WHEN SNEEZING . . . THE SLOOP HAS 12 CM RADAR AND LORAN C SO IT'S HARD TO GET LOST OUT IN THE ATLANTIC . . . I USED TO SPEAK FLUENT FRENCH, BUT TODAY ALL I CAN SAY IS HELLO . . . GIVE ME YOUR ZIP CODE BUT REPEAT THE NUMBER FOUR TIMES . . . THE PROBLEM IN YOUR POWER SUPPLY IS CAUSED BY CRUEL AND INHUMANE TREATMENT . . . MY JAPANESE LICENSE IS NOT GOOD FOR VS6 BUT MY KH0 ONE IS . . . I HAVEN'T BEEN ABLE TO COPY YOU, SO THANKS FOR THE FB QSO . . . I DON'T KNOW IF I AM HEARING THINGS, BUT I JUST COPIED A CALLSIGN: SL1M . . . PLEASE DON'T TELL THE OTHER HAMS HOW GREAT RTTY/AMTOR IS . . . YOUR SIGNALS ARE 40 DB UNDER S-9 . . . THE FUSES BLOW WITH BRIGHT NOISY SPARKS . . . I HEARD A CW STATION LAST NIGHT THAT SOUNDED LIKE HE WAS COMING FROM MARS OR PLUTO VIA

LONG PATH! . . . WHEN IT IS VERY COLD THE ELECTRONS IN THE COAX SHRINK UP AND THE SIGNAL TO NOISE RATION CHANGES . . . MY YOUNG GUEST IN THE SHACK IS SELLING CHOCOLATE EARS FOR HER SCHOOL . . . I'M NOT REALLY SURE WHY I CHASE DX LIKE I DO . . . I'M A SOFTWARE PACKRAT AND I HAVE MANY PROGRAMS THAT I CAN'T FIND . . . I KEEP HIZZING THE WORN KEYS ALL THE THME . . . I LIKE OPEN WIRE FEEDERS BETTER THAN COAX ALTHOUGH COAX WORKS ALL RIGHT IF THE ELECTRONS ARE RUNNING DOWNHILL."

The greatest eavesdropping of all time

I heard this one on talk radio station KOA in Denver at about 4 a.m.

"I've got hi-tech electronics all figured out. All them electron things run on just plain smoke. If you let the smoke out of the box, it quits working!"

Thanks to all those who contributed to this column: W7VFR, W0HAH, W7GHT, K0ERM and W0PCI. Bill Snyder, W0LHS, 1514 So. 12th St., Fargo, ND 58103. Packet address is W0LHS@W0LHS.ND.U.S.A.NA.DIT.DIT. □

Disneyland Mickey Mouse repeater

Disneyland (CA) has a 2M repeater for visiting Amateurs.

When you enter the park, check-in at the business office inside the main entrance. Tell them you're an Amateur and that you have a 2M HH. They will explain the use of the repeater (operation requires a touch-tone access pad).

You are asked to keep the receiver on, and in addition to making contacts with other Amateurs, you may be asked to help with situations as they occur — lost children, etc. It's public service and it comes to the attention of the public.

Disneyland gets the service of trained communicators in situations within the park to everyone's benefit. —Mt. Diablo ARC, Pleasant Hill, CA □

Russian navy uses CW

Popular Communications magazine says in an article that the Soviet Union Navy uses CW extensively for many of its communications needs. Faced with the vulnerability of satellite communications if attacked, or the possibility of a malfunction at a critical time, they have realistically de-

ecided to retain old-fashioned, reliable HF CW.

The article claims the Soviet Navy has a specific communications requirement to link surveillance vessels with attack vessels at a distance too great for VHF, but well suited for HF. HF is also well suited for communications with shore stations established in a number of countries.

These stations have operated for years, and their standard CW transmissions can be copied by anyone with a regular communications receiver in many cases. Of course, the transmissions are in Russian CW with Soviet text, codes and abbreviations, but at least you can get the call signs for practice.

You former military cryptographers might test your former "code breakdown skills"!

—Union County ARC, OH □

Code Matters



Loraine McCarthy, N6CIO
315 1/2 Ruby, Balboa Island, CA 92662

Did you ever notice how code copy sometimes just doesn't look like written English?

Quite often test answers are available in our code copy which are not seen because of some errors or improper spacing. Here is a good rule to remember: If you cannot read a sentence, it probably isn't correct. This sounds very basic but you would be surprised how easy it is to forget this simple rule!

After you have copied a sample QSO, remember to carefully check your work. The following steps will help you prepare for taking the code exam written test:

1. In reviewing the call signs, check them at the top and bottom of the QSO to be certain they match. If there is a variation in a letter, you will need to decide which letter you would least likely miss.

2. Review your work sentence by sentence. Go in order through your copy from top to bottom. If an answer is in the last sentence or two, it will still be there when you get to it!

3. In reviewing your practice draw vertical lines between words. This will

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help you separate work run together and to read your copy.

4. Be certain when answering a question that you have identified the beginning and end of the answer. Drawing vertical lines will also help you with this. For example if the type of antenna is a "5 band trap vertical," you would not receive credit for just the word "vertical."

5. Take note of the types of mistakes you are making by taking the time to check your work. Quantity of practice done is not always the best exam preparation. It's like taking a test in school, you grade your work in order to review areas that need improvement.

6. Remember that just because you do not recognize a city, type of rig or antenna does not mean that your answer is not correct. Be sure to always transfer your answer to the answer sheet.

7. Finally, remember to check your work. Have you transferred all 10 answers correctly and spelled them right? Double checking one's paper before turning it in to the examiner often saves a point. When checking your work at home, place yourself in the role of the examiner.

Following each of these steps will assist you in more rapid and thorough exam preparation. If you have any questions regarding your code practice you may reach me at 714/979-CODE.

If you need additional practice to get ready for the tests, try the Radio School random tapes at 5-7, 13-15 and 20-22 words per/minute. Each tape is \$9.95 plus \$1 postage and handling and can be ordered directly from me: Loraine McCarthy, N6CIO, Code Programs Manager, 315½ Ruby, Balboa Island, CA 92662. □

FM repeater etiquette

- Repeaters are a shared resource. Allow frequent breaks for others to join the QSO (conversation).

- Keep each transmission short (less than 2.5 minutes), especially during morning/afternoon drive times.

- Avoid jumping into casual QSO's and immediately changing subjects. Be patient: roundtable QSO's change topics naturally.

- Autopatch/telephone capabilities are provided for operator/emergency convenience. Never use them for business.

- Support your local repeater. Nominal financial donations from new FMers keep many repeaters and autopatches perking.

—Porter County ARC, Valparaiso, IN

Ray Clark,
K5ZMS



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DXNews

All times UTC. On 1 Jan. '89 — Flux = 192, at 0023-ZLs hear W6s. 1230-Es here to LA W6s, AZ, NV. 1431-HC5K hears W3JO. 1830-K6EJO heard J52US, who now has the amplifier on. 1900-Es to W6s, AZ. 1911-K6FV/B heard in Maine.

2nd — Flux = 202, 0000 brought more F2 from W6s, to VKs & ZLs. Some W6s had very strong ZLs & weak VKs, like K6QXY, who worked ZL2CD & 5 other ZLs at 51 MHz, very strong signals. Also heard was FK1TZ. From 0035 on, W6UXN heard/worked all VK districts except VK8! He also worked FK1TS. H44 & 40-50 VKs were in.

0100 — we have Es here to AZ, NV, W6s. 0133-N6CW got FK1TS. 0135-K6EJO QSOs ZL2CD. W5FF-NM also was reported to be working ZLs & VKs. VK3OT reports hearing/working XE2GBO. 0315-NOLL QSOs VK4BRG! At 0400-N6CW says W6XJ had just worked another VK4. Gary works many VKs & ZLs & FK1TS.

There was much backscatter from US stations clear to the Mississippi

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River. Much of this activity was going on inside the DX window. I would like to make three points about this:

1. If you work backscatter amongst US stations, you should be above 50.125.

2. If you had been paying attention to 28.885 & the activity in the DX window, you might have also worked ZLs or VKs via Sporadic Es linking as Larry-NOLL did.

3. By virtue of your working cross-country backscatter in the DX window, you may have caused interference to intercontinental DX activity. It doesn't make good sense to QRM DX operations, particularly since you, I & others have been going to great expense and effort to obtain & ship more gear to get more countries active. Enough said!

3 Jan. — Flux = 198, HP3XUH QSOd KH6HI. 4 Jan. — Flux = 211, — nothing reported. Note that flux remains high, but January conditions are just not quite right for whatever reason.

5 Jan. — Flux = 209, — 0400-0600, K7IEY reports aurora. 1600-Gs report aurora, & had FY7THF/B for awhile. 1945-2000, W6s have NI6E/KH6. 2021-K7IEY reports hearing W7FN & WA7VHW working HH7PV. 2040-NF7X heard KP2A. 2359-ZD8MB got FY5DG.

6 Jan. — Flux = 208, 1345-VE1YX has 45 QSOs to Gs, & SV1DH heard Bob. 1533-G4JCC QSOs T70A-San Marino! 7 Jan. — Flux = 248, HP3XUH QSOs, 0116-CX8BE, PY2DM, 0151-PZ1AP, OA8ABT, 0200-LU2EIO. 1330-VE1YX works Europe. 1740-W6s & W5FF heard G0GNO.

8 Jan. — Flux = 268, — 2000-KH6s into WA, W. Coast & NOLL. 9 Jan. — Flux = 256, — 1415-HC5K is into K1JRW & was worked down to FLA. 1428-HC2FG to K3ZO. 10 Jan. — Flux = 251, — 2100-KL7NO works Amarillo area.

11 Jan. — Flux = 269, — 1330-VE1YX works into Europe. 1700-Some European operators report aurora. 1850-VE1YX is worked on aurora into ME.

12 Jan. — Flux = 266, — 0330-0530, W6s have Es to W. US 1350-HC, FY & DL3ZM/YV5 beacons are all into East Coast. We have the YV5 beacon here. HC2FG & HC5K are in strong here. 1405-HP3XUH is barely breaking through here, but strong in the East Coast.

HC2FG says he has the opening from TX to FLA & up the E. Coast to VEs. 1428-TI2NA/B into W1, W2s. 1520-VO & VE1YX into TX. 1613-VE2STL/B in here very strong. 1620-VP5D/B, VP2MO/B into CO & MN. VP2MO works VE3KKL.

1630 — major F2 VE1, VO opening

here, 2nd & strongest since last cycle peak. VE1YX, VO's & E. Coast working very strong F2 to Western US. 1707-VE6BCC QSOs HG4SM! 1713-KG4SM is into WY. 1935-KL7NO QSOs W5AL, Amarillo.

13 Jan. — Flux = 291, — 1326-NE has 10 minute opening to Europe. 2100-NF7X & W6UXN report W1s & 2s in on F2.

14 Jan. — Flux = 274, — 0000-W6-UXN heard VK9ZM & a /KH4 beacon on .076 from 0250-0350. AL7C says he, AL7FH & IKV had a JA opening at 0035 & again around 0300.

1330-Northeast area works into EI, F, PA, G's for several hours today, with the opening extending into W8 & W9 land. Numerous stations in that area also work into Europe until around 1700. N8AXA reports heavy aurora on European signals.

1610-K5CM-OK works into Europe, as does W5FF, who works G4GLT, at least. At 1730-W6UXN reports he heard G4UPS, G3LDH, G4NEO, PAOHIP & EI5FJ. W6s later have F2 to Northeast. WB0WAO/8 works EI6AS, GWs & Gs from 1537-1710. 2137-LU7DZ reports he worked VP8-PTG!

15 Jan. — Flux = 282, — No European activity reported. 1000-1200-VK9ZM worked about 180 JAs & some VKs. 16 Jan. — Flux = 299, — 0010-aurora from E. to W. Coast. 1409-on, HC5K heard over much of the US, along with the HC2FG & HC8SIX beacons. 1605-K7ICW QSOs KP2A. 1650-W6UXN reports TI2, KP2A, HC5, into his area. There has been considerable aurora the past few days due to heavy solar activity.

17 Jan. — Flux = 281, — No. East works into CT4KQ, Gs, EI6AS, etc. FY7/B, DL3ZM/YV5/B, HC5 in. 1945-W07FI & NF7X get KH6IAA & KH6FOO. 2000-2030-KH6s get WA, OR, VE7s.

18 Jan. — Flux = 269, — 0105-0300, HP3XUH had Es QSOs w/PZ1AP, HC5K, OA8ABT, FY5AU & FY5DG. 1325-P43AS, OA8ABT, HC5K, HC2FG, FY7THF/B, VP2VI, PJ9JT, PJ2KI, HI8DAF, TI2HL, J52US, all reported heard and/or worked until about 1545!

There was a very good F2 backscatter event from VE1YX covering the eastern half of the country in here. Signals were very good. MUF monitoring revealed commercial Spanish FM activity as high as 55.5 MHz! US commercial signals were being picked up by So. American repeaters & somehow being repeated back to the US into the 6M band. I have never heard so many US & Spanish commercial signals in the band or as high in the band before.

VE1YX reported hearing European,

So. & Central American & Caribbean stations all at the same time! 1645-W6s QSO to No. East on F2. 1700-W7FN reports F2 from ME to FLA w/25-30 stations worked. 1740-HH7PV has VE7s in & the Pacific NW works FLA. 1930-KL7NO works into NM, So. W6s again. After 1930-the Ea. Coast-W. Coast F2 died.

19 Jan. — Flux = 249, — 0240-JA8s report hearing HC2FB/B & HC5K. 1210-FY5AU QSOs Gs. 1408-CT1DTQ works VE3KKL. 1542-VE1-YX worked Fs, CT, Gs & PA again today. 1715-W6s work No. East. 2045-KL7-NO hears W0s.

20 Jan. — Flux = 247, — 1330-VE1YX into K1JRW on aurora. 1343-W2MPK/4-NC QSOs PZ1AP, FY7/B into NJ & KP2A also in. 1445-8P9AY is in here weak, HC2FG/B into MD. 1817-KH6FOO & KH6IAA are barely in here.

21 Jan. — Flux = 216, — 1400-No. East working into Europe. 1503-K8MMM works Gs. 1505-8P9AY QSOs VE1YX. 1600-No. East still into Europe. 1826-1930-5 KH6s on, working 9s & 5s. At 1850-KH6HI was just barely breaking the noise level for some time.

22 Jan. — Flux = 212, — 0010-0058, very good JA & KG6DX opening to W6s. WA6BYA QSOd 58 JAs. 1315-FY5AU, HC8VHF/B, PZ1AP, into No. East. 1600-1700, very good opening to EI6, F, Gs, PA. 1600-HC8GR works into AZ & W6. 2355-0025-WA6BYA works 19 JAs.

23 Jan. — Flux = 219, — 1330-N4EJW hears Gs. CTs in, G beacons, HC8SIX/B & FY7THF/B all in. 1930-KH6 into IA & KS.

25 Jan. — Flux = 234, — It is reported that HP3XUH QSOd a VK4 or VK4s this date. KH6s report ZD8VHF/B in to them 0030 & 0200 & OA8, HC8 also. 1320-VK30T heard European TV again, from Norway. He also heard the 9H1 beacon. It is the first time in 30 years for him to actually see the video picture!

It was reported that contrary to rumor, DJ3OS/EA8 did have permission to operate from EA8. In fact, he is going back soon for some additional operation. The QSLs are all out.

29 Jan. — Flux = 209, — VE1YX gets PAs & Gs. 31 Jan. — Flux = 195, — 1436-VE1, W1s get a couple of Gs QSOs.

The reported solar flux average for January was 236.39.

Who's on six?

Tony Ceccoli, T77C, via delle Carrare 67, RSM-47031, Murata, Republic of San Marino is reported to have received legal permission to operate

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6M and is on the band now. He will be operating on 50.010-50.020, CW. The Republic of San Marino Radio Club Station, T70A, P.O. Box 77, RSM-47031, San Marino, will also be active I am told. Actually, it looks like Tony will just be operating the T70A station.

Christian Albrieux, FY5DG, is on Six with 3W. On Jan. 17, 8Q7 may be on 6M. J52US received the WB8IGY donated amplifier and is on with 50W. Kathy & Don Knollinger just donated a 35 amp power supply that should allow the Lunar amp to be run at over 100W. ZD8MB shipped VP8PTG a nice antenna. SMIRK just shipped ZD7CW a Yaesu FT-620B (donated by Lyle Henry-K700) & A50-3 Cushcraft. It arrived at ZD8MB's QTH by air. It will be shipped by boat.

Info received from G4UPS indicates that all QSOs with SV1DO & SV0FE between 19 April, 1988 & 15 July, 1988 are all valid. So says Costas-SV1DH.

The father of OH2BK is going to live on Madeira Island in January. He is interested in getting on 6M as CT3DJ and will take a 6M rig and 4 element yagi with him.

Mal-Z23JO, has had a little success on 6M already, working ZS3AT on Es 26 Dec.

Atze van der Kooi-J6LAH/8R1, c/o Airport Manager, Timehri Airport, Guyana, South America, is on from Guyana now. He has a SB-110 and a FTV700R w/6M module, a Mirage amp and a Cushcraft antenna. He will be there for 6-18 months.

Art Hubert-N2AU, of *AU Report*, says the following KP4s are active on Six: WP4G, ALC, KP4EKG, EIT, ABN, A, EIH & EOR. These KL7s are reported active: AL7C, FH, FS, KL7CDG, IKV, WE & NO. CO2KK should have the W3XO rig by now.

Apparently, no one is operating from Johnston Island, as they have not been reported heard on any band since Bob-WY5L left. LA6HL should be signing / TF July 20 - Aug. 7th. Active from

Costa Rica are TI2NA, KD, HL, TI5RLI & TI7TE.

Future 6M operations

Jimmie Treybig-W6JKV is reported heading for T20-Tuvalu & T30-Tarawa, with a possible stop at 3D2-Rotuma, which now has new country status. His trip is planned for late March/early April, and he will have several weeks in which to make it.

His fall trip is being taken under consideration. It is probable that he will visit the Pacific again. Stops being considered are KH7-Kure Island, KH9-Wake Island, KH1, KB6-Howland/Baker Islands and other points.

If anyone knows how he could get permission to visit KH4, KM6-Midway Island for a short DXpedition, please let Jimmie or me know. If you can provide Jimmie with any information that would help him formulate his plans for a Central Pacific trip I am sure he would appreciate hearing from you.

It is possible we will see some more KH0-San Andres Island activity soon. There was some activity there last cycle, but it was limited to certain areas. It is possible we will have something in Guatemala, if we can find someone we can count on. VQ9SG-Diego Garcia is a possibility also, as is HZ1AB, if everything works out. SMIRK is accepting equipment donations toward gearing up these and other countries.

The NATAL DX Group of Brazil is planning a St. Peter & St. Paul Rocks trip for May/June & plans on being on Six. I have recommended, if possible, that they plan the trip for the ARRL VHF/SMIRK Party Contest weekends, or hold it in the latter part of November or the first part of December to take advantage of what should be maximum F2 conditions on 6M.

The 28.885 International 6M Coordination Frequency

Ever wonder how this got started? It was established in 1976 by Ed-KA5-CEB (now N5JEH) and Earl-K2QWD. It was started around 28.575, but QRM soon made them move up to around 28.625. There again, QRM caused them to move in early 1977, this time to 28.885, where it has remained.

They believed a frequency of this type was needed for exchanging 6M in-

formation that could not be passed on 6M itself. Today, it is recognized as the International 6M Coordination Frequency, and 6M operators around the world can be found there. Well done!

QSL info

SMIRK has a new QSL Info List available for a greenstamp and a #10 SASE to me. The green stamp will go into the equipment fund.

Wayne-WB5QBV brought to my attention that many QSL cards come in without an indication of the fact that the contact was a two way QSO. One should be certain, if your card printer does not already do it, that you put "2X," "2WAY," or "TWO WAY" on your QSL to indicate that the contact was indeed a two way contact on the band cited. Failure to do so could invalidate the QSL you tender for future awards.

Wayne suggests that your printer add this statement, your county, grid, SMIRK #, 10-10 #, etc., to your QSL to save you from having to write it in.

Wayne also told me of a method he has used to gain a QSL card from the operator in a much needed state, or Grid. He uses a card called the MRC or Mobile Reply Card (this one printed by W4MPY). You fill out the card with all the pertinent information and put your return address, and postage, on the opposite side. All the recipient has to do is sign the card and mail it back to you. Using this method, he recently gained his 6M Rhode Island QSL.

6M beacons

50.073 is about to become an active beacon frequency from Texas and Hawaii. Pat Rose-W5OZI will have his beacon on that frequency soon, as will Bert Ingalls-KH6HI. An updated beacon list is also available for a greenstamp and a #10 SASE. Again the proceeds go to the equipment fund.

Technical info

The January issue of the Southern California Six Meter Club's *The Six-pack* has an excellent article on low pass filters. Write P.O. Box 448, Cypress, CA 90630 or SMIRK Technical Editor KA0NNO for a copy.

For Yaesu FT-620B users who might have problems with the relay in the rig, write to OMRON Electronics Inc., One East Commerce Dr., Schaumburg, IL 60173; or phone 312/843-7900. According to Terry Harmon, product application engineer, they can provide a replacement relay, part #LZNQ-203-US-DC12, that will replace the defective relay.

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73, WD9IIX



Aerials

LIL PADDLE

I've been sitting back for some time now, being rather amused by the swirl of controversy that my OM Kurt has precipitated.

A cascade of letters, truly a veritable snowstorm of white envelopes, bearing vituperative essays have avalanched upon us.

The names of writers on antenna subjects are lofted about as if they were part of an exorcism ceremony.

Alas, the actual readings of the works appear not to match the vigour with which the author's names are tendered.

To send many off into the corner, to sit atop a stool wearing the traditional cone-shaped paper hat, I could simply quote the actually unread source. It is being offered as research which contradicts Kurt, but actually it agrees with him.

We move to another subject which seems to be sending many into near hysteria. There is an advert which promises an acceptable match on every

Amateur band with the same length dipole.

Many people have been scathingly critical of this product. From knowledge of tests conducted on the unit, I can say that it fulfills its promise to a far higher degree than other merchandised items which draw no vitriol in the Amateur periodicals.

For example: Have you noticed a four-element 10 Metre Yagi (on a 13.5 ft. .38 WL boom) with a claimed gain of 15dB?

In the real world, 4L on .7 WL boom equals 8.3dBd.

The only standard over which said advertised transducer would have 15dB gain is (to lower myself to the use of Kurt's vernacular) a garbage can lid about five ft. underground.

Surely you don't believe the claims of 40dB front-to-back ratio. A more likely figure would be about 18dB. The claimed side rejection of 45dB we'll just, as it deserves, ignore.

For those who leap to chastise, vent your spleen upon the Earl of Peterborough.

In perusing the pages of another periodical, lo and behold... a 2M antenna with a gain of 4.5dB, and all that from a magical rod but 56 inches long. Since a halfwave at 145 MHz is about 39 inches, pray tell how does lengthening the antenna less than half-again as much produce such a leap?

The same magical properties also deliver a claimed 7.2dB gain on 430. Methinks the marketing department, not the engineering department, is running the tests.

Then in the February issue of 23 *Skidoo* was found a most remarkable item that will certainly warm the hearts of the perpetual motion fans. Lo and behold, it is a dipole with gain over a dipole!

Yes, a perusal of the printed specifications reveals this statement, "Gain: 7.65 dBi."

This is from an antenna "approximately 18 ft. long," and designed for use on 28 MHz. A few moments spent with but the least expensive and most rudimentary calculator and our old friend, the 468 formula, reveals that this is, yes, a halfwave radiator.

The text of the article states in three places, 1. "halfwave vertical antenna;" 2. "vertical halfwave antenna;" 3. "center-fed dipole." And for good measure "omni-directional antenna" is tossed in.

First, let's look at the 7.65dBi. The reference is to an isotropic source

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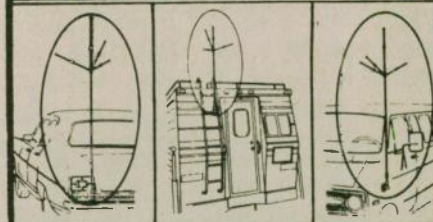
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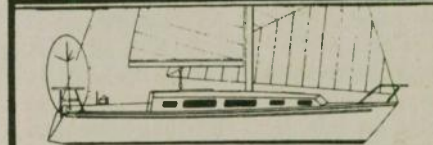


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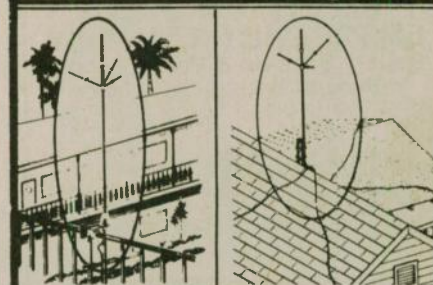
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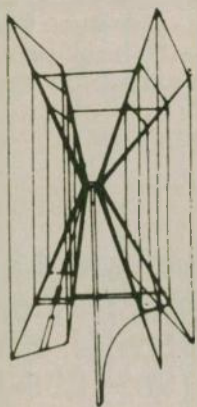
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which radiates equally in all directions. A dipole, because of its pattern, radiates in its lobes 2.15dB stronger than an isotropic. Since the isotropic is a nonexistent, hypothetical device, the better sorts will reference their antennas "dBd," which is: gain over a dipole.

We have now arrived at removing the 2.15dB gain that all halfwave antennas have over the (no-such-thing) isotropic. When we subtract 2.15 from the claimed 7.65dBi, we now have 5.50dB gain left.

What a miracle of miracles: Certainly the scientific discovery of the decade. A dipole with 5.5dB gain over a dipole. Run out and get a copy of the magazine so as to save it for your grandchildren. This will most certainly displace Dr. Yagi from the history tomes. Not even the esteemed Dr. Kraus devised such, or I'm quite sure, even dreamed of such.

I can certainly see why the manufacturer (Shakespeare) calls it the Gold Band Big Stick III Antenna.

What prize will the scientific community award for this? The Nobel (awarded for the transistor) seems pale by comparison as to what this magnificent absolute breakthrough truly deserves. The IEEE is so awestruck by it they are suffering

from abject depression and haven't printed a word. A fishing pole company leaped past the PhDs of RCA, ATT, GE, NASA, NSA, NRO and all the rest.

As my granddaughter would say, "Totally Awesome!" Can the average Amateur even grasp the concept of an omni-directional, halfwave antenna with a gain of 5.5dB over reference which is itself? It will indeed be beyond the comprehension of most. Being four times as strong as you are is rather abstract.

And to think that Major Armstrong received accolades for merely recycling energy through an amplifier.

We have now stepped into an entirely new dimension.

Let us not tarry on that any longer, and move on to other matters.

A cliché that is constantly promulgated is that canard, "A tuner just fools the transmitter." Never once do those simpletons attempt to explain how it also deceives the Power Meter.

Pray tell, into what giant maw did all that reflected power fall?

Some readers went all atwitter over something Kurt wrote regarding antenna-matching. If he had but said antenna-system matching, he would have been totally correct. For, should the antenna not present the proper im-

pedance (to match the feedline exactly), the feedline thus enters the plot. Unless, of course, the feedline is an exact halfwave at that frequency. Sometimes I feel Kurt is anti-semantic.

I'd like to restate some of what Kurt tries to say. Unfortunately, his syntax suffers. But what can you expect from someone who, when filling out his application for *Who's Who*, under higher education wrote "Obstacle Course."

With the Transmatch at the transmitter side of the feedline. . . with a conjugate match . . . the load (antenna) will absorb all available power from the generator (transmitter) despite a load mismatch.

With the proper settings of the Transmatch. . . reactances of the mismatch are cancelled by equal and opposite reactances.

The system (antenna and feedline) now have zero reactance. Resonance!

An antenna, longer or shorter than that which would be considered correct for a particular frequency, is indeed brought to resonance by the Transmatch at the transmitter end of the line.

All that remains is to match the remaining resistance R, to the R of the transmission line, which is ALSO accomplished with the Transmatch.

The Transmatch reflects a wave back to the antenna which is opposite in phase and equal in amplitude to the wave arriving from a mismatched antenna. Your SWR indicator will display zero reflected power.

Now let's put it all into proper perspective. As an example the following is presented:

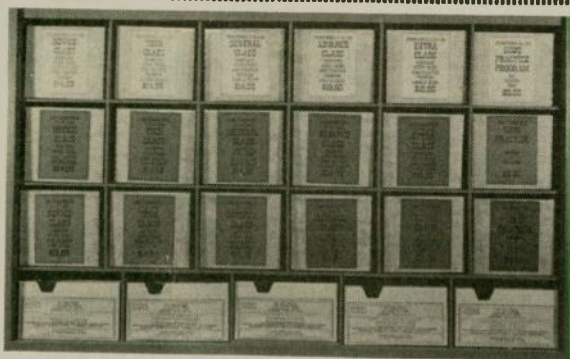
All the way up to the very top of the 10 Metre band. RG-8, 100 ft. Placing a SWR bridge right at the junction of the feedline and the antenna, we find a SWR of 5:1.

Rather dreadful you would say, wouldn't you? The antenna, instead of being 50 Ohms Z is either 10 Ohms Z or 250 Ohms Z.

What will be the total line loss? Some will say the signal won't be heard beyond the garden. Others, using their slipstick, will know that this heinous situation will have a 2.1dB loss. Yes, all that. Less than half a "S" unit.

Scoffers may turn to page 25-3 of the latest *ARRL Antenna Book*. And, it should be mentioned that the loss would be less at 14 MHz, less again at 7 MHz and even less at 3.5 MHz.

(Lil Paddle [Mrs. Kurt], goes by her pen name so as to avoid discourse from oafs who might, through utter frustration, cause her to slip into unladylike language. Willful refusal to acknowledge facts makes her testy.) □



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Working DX and contesting with a couple of watts is quite heady stuff. All too soon, it becomes somewhat mundane. What are the lower limits of RF output that will allow communications across the miles? Can we "span the Pond" using milliwatts instead of watts? It is possible to reduce RF output power into the nanowatt region and still support communications? Hopefully, this column will answer a few of these questions for you.

Introduction time: Chris Page, G4BUE, is a world-class DXer and contesteer. He holds 300 countries DXCC using high power, 220 DXCC using 5W QRP and has worked over 100 countries using milliwatt power levels. A dedicated QRPer, Chris is a whiz at CW, a member of FOC and edits the "Members News" column in the G-QRP-Club's quarterly publication, *SPRAT*.

Chris has been a milliwatt pioneer in the QRP movement. His abilities are extraordinary. He builds some of his gear, but operates QRP mainly with an Argonaut 515.

In the late 70s, Chris tried experiments using milliwatt power levels in contests and chasing DX. Details of these trials are documented in the June 1982 issue of *CQ* and *SPRAT*. The results were astounding! Chris was able to "span the Pond" using power

levels around 25 and 50mW! These are documented QSOs with stateside stations, none of which were pre-arranged.

Now that we've set the stage, I'll let Chris tell his own story. The following is reprinted with permission from *SPRAT*.

With the increase in sun spots and better conditions on the HF bands, I have been turning to milliwatt and microwatt again.

My article in *SPRAT* #50 described the method I used during the last sun spot high. That system was based on accurately measuring input power, but since then we have gone over to output power.

I have made several references in my "Members News" column to the Welz RP-120M, which I purchased at Dayton in 1986. The lowest setting is very good for measuring output power, as it has 200mW on fsd, but it is difficult to accurately measure below 5mW.

After my results during the last sun spot high, I am now confident that with well designed and efficient antennas, DX QSOs can be made with much lower power levels, well down in the microwatt range. Some alternative to my RP-120M had to be found in order to accurately measure these very low power levels of RF. In addition, none of

the dealers at Dayton this year had any RP-120M, so it may be that Welz has stopped making them.

Whilst in the flea-market at Dayton, I purchased an Allan Industries Inc. stepped attenuator, model 50TA82-5, for \$20. The unit is 50 Ohms impedance and capable of inserting up to 82.5dB of attenuation in steps of 0.5, 1, 2, 3, 6, 10, 20, 20 and 20dB. 81dB attenuation of a 1W signal represents 7.5 nanowatts of RF, which I considered more than enough for my purposes!

The unit is very well constructed and, testing it against the Welz meter, it would also appear to be accurate, i.e. halving the output power with each 3dB inserted. I have fitted the attenuator to my Argonaut 515, and by using the Welz meter, can accurately set the drive to provide 1W out. It is now an easy matter for me to insert the appropriate amount of attenuation to obtain the desired output.


I have made up a small chart which I keep by the Argonaut, showing my output power in relation to the amount of attenuation. I can now quickly and accurately decrease my power from 1W to almost any level, e.g. 250mW (6dB), 976 microwatts (30dB) or, if I am feeling really ambitious and confident, 953 nanowatts (60dB)!

One problem I have encountered is


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that by inserting the attenuator in the antenna lead, the received signal is attenuated as well as my transmitted signal! This is not a problem if the received signal is 599 from a big contest station, but doesn't help with the average QRP signals. Some form of relay to switch the attenuator out during receive will have to be designed.

My first QSOs with the attenuator were on a very rough 15M band at the beginning of August. I worked WB2-LEM with 3dB (500mW) and K2LE with 6dB (250mW) of attenuation. Nothing remarkable (oh, really, Chris!), but it showed the attenuator was working.

My Summer QRP Party the following weekend coincided with the WAE CW contest, and contests are always a very good way of making QRP contacts. Carlo, PA3DWZ, was one of the three Dutch QRPers staying over the weekend and, after the other guests had departed, we settled down to do some serious milliwatting.

It was great fun to listen to a USA QRO contest station continually making contest-style QSOs, while we called him with gradually less attenuation until we finally got through. 20M was the only band still open and I had never been able to make milliwatt QSOs on that band during the last sun spot

high. I later discovered this was due to my antenna, as after re-designing my four element tri-bander onto a bigger boom (30 ft.), I was able to cross the Atlantic with levels down to 5mW and once with about 1mW, as measured with the RP-120!

First we worked KQ3F at 15dB (31.25mW) and then K3WW and N2GZL at 20dB (about 10mW)! By then the band was going out and it was necessary to go back to a full watt to make QSOs.

Two interesting points came out of these QSOs. First, while making them, we called several other well-known contest stations who were the same strength as those we worked, but they did not hear us. I suggest this is because they were using high power to achieve their loud signals while the stations we worked were using good antennas with skillful receiving ability. The second point is that, in theory at least, you do not need a big beam to go milliwatting. I like to think my Yagi has a forward gain of about 8dB, and assuming this to be right, if I had been using a dipole instead of the Yagi, I should have been able to work K3WW and N2GZL with 20-8dB = 12dB or 62.5mW. I may erect a simple dipole to see how much the theory differs from the practical.

The purpose of this article is to try and persuade you to give milliwatt and microwatt a try. I am confident that given the right conditions and efficient antennas, microwatts (and possibly nanowatts) can be used to make DX QSOs.


However, I can hear you saying, "But where do I get an Allan Industries Inc. attenuator?" I cannot answer that, although one of our American members may be able to.

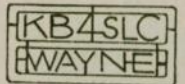
What I can suggest is turning to the *ARRL Radio Amateurs Handbook*. Page 25-42 of the 62nd edition (1985) describes the construction of a low power step attenuator of 50 Ohms impedance as having the ability of switching up to 60dB (1953 nanowatts) on 1W. I would like to hear from other members who have tried milli and microwatting, especially those who have used different methods.

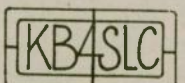
So, there you have it, straight from one of the premier QRP operators in the world. Not only are milli and microwatt DX QSOs possible, they can become routine, if proper planning and the right equipment are employed.


With the sun spot cycle on the rise, now is the time to start some documented milli/microwatt QRP tests. If you decide to give this a try, please send me your results so they can be published for others to read.

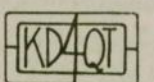
My sincere thanks to Rev. George Dobbs, G3RJV, editor of *SPRAT* (and CEO of the G-QRP-Club) for allowing me to reproduce Chris' article. Thanks to Chris for his dedication and efforts to push back the horizons of low power operating and taking the time to put it into print so others can benefit. Questions/Comments? SASE to Rich Arland, K7YHA, 25 Amherst Ave., Wilkes-Barre, PA 18702. □


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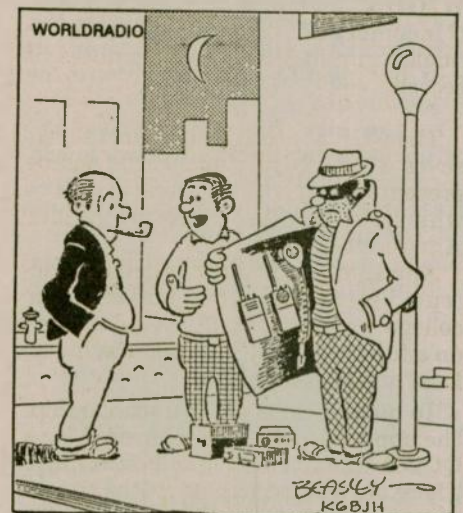
A **B** **C** **D** **E**

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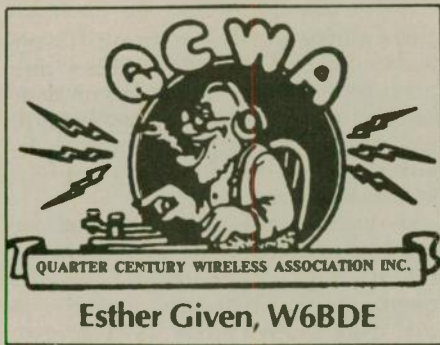
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WANT TO BUY SOME HAM GEAR? HE SAYS HE'S NO LONGER INTERESTED IN AMATEUR RADIO AND WANTS TO LIQUIDATE HIS ASSETS.



QCWA president, Leland Smith, W5KL; secretary, Jim Walsh, W7LVN, and treasurer Wes Randles, W4COW, visited seven QCWA chapters in Florida in early February. The highlight of their tour was honoring three QCWA members licensed 75 years ago.

President Smith presented the rare awards to Worth Gruelle, W4ZG; Reginald Iversen, K4QZ, and Robert Sidnell, W8KS. We hope to bring our readers more information on each of these individuals in a future column.

Candidates for QCWA's 1989 election have been announced following the filing closing date of Dec. 31, 1988. The organization's four officers and five of its ten directors will be elected for two-year terms.

Harry Dannals, W2HD, and Jim Walsh will vie for the office of president. Incumbent Hugh Winter, W5HD, and John Weber, KA2IXW, will appear on the ballot for vice-president.

John Swafford, W4HU, will run for secretary and Wes Randles for treasurer, neither is opposed.

Nine candidates have filed to fill five positions on the board of directors: George Apfel, W2GHV; Pete Backstrom, W3DM; *Travis Baird, W9VQD; Milt Chaffee, W1EFW; Neil Foster, KC4MJ; *Art Kay, W5APX; *Jack Kelleher, W4ZC; *Stuart Meyer, W2GHK, and Robert Ray, W5ZMI. (*Incumbent directors). Ballots will be mailed in mid-May to all members of record.

The QCWA proudly announces that seven \$750 scholarship awards will be presented to qualified young students who hold General class or higher Amateur licenses.

Applicants must be enrolled in or accepted by an accredited university or college where they will attend classes on a full-time basis and be pursuing at least an associate degree.

To qualify for a QCWA scholarship, the applicant must be sponsored by a QCWA member in good standing. There are no restrictions on the course of study or residential area of the applicant.

QCWA's program is handled by The

Foundation for Amateur Radio in Washington, D.C., which processes scholarship awards for numerous Amateur organizations. By submitting only one application the student is eligible for any of the many scholarships awarded in FAR's program if requirements of the various donors are met.

Young Amateurs wishing to apply should contact: FAR Scholarships, 6903 Rhode Island Ave., College Park, MD 20740. They will be sent full particulars and an application form, which must be completed and returned to FAR by May 1.

This is the 11th year QCWA Memorial Scholarships have been made available to young licensed Amateurs.

Gold Coast Chapter #167 is QCWA's "new arrival" for 1989. The new chapter will accommodate QCWA members in the San Fernando Valley area of California.

Officers include president, Jeffrey Seiligman, WA2VNT, of Thousand Oaks and secretary/treasurer Philip Bartlett, K6UJO, 419 Pacific Circle, Newbury Park, CA 91320, who will be glad to hear from QCWA members looking for chapter affiliation in that vicinity.

W6FQ, Herb Glead, net control of QCWA's Sunday 20M net, conducted a surprise celebration saluting the 90th birthday of W9AC, Bill Halligan, founder of the Hallicraft line of electronic gear.

Congratulatory letters from President Reagan and Illinois Governor James Thompson, of Halligan's home state, were read to him over the air by Leland Smith, followed by personal salutations from the seventy QCWA officers, directors and members checked into the net.

Halligan acknowledged the greetings from his ham shack in Bal Harbor, FL where he is now retired.

An apology is in order: This columnist committed a temporal error and wrote the QCWA QSO Party item for Worldradio a month too late for the information to reach CW party enthusiasts. We beg forgiveness.

Recently Win Jackson, W1WCI, editor of Pine Tree Chapter 134's newsletter, on a trip west visiting his brother in Arkansas asked about possible Amateur Radio activity in the area.

"No problem," says the kid brother, "I'll call a fellow over the mountain who's been a ham for years and he'll know all the answers."

The call brought amazing results. The Amateur over the mountain turned out to be Leland Smith, who took (please turn to page 52)

PREAMPLIFIER



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Tubes obsolete? Not yet

BERT BAILEY, W4FMN
TUBES? FOR RUBES? ANCIENT HISTORY???? Some people think of vacuum tubes as being found in the pharaohs' tombs. Others are afraid of being tagged as old fuddie-duddies. But what are tubes? Does anybody use them anymore? Are any still in captivity?

Well, truthfully QSOing, there ARE lots of 'em around, despite the disapprobation of youthful engineers and purveyors of solid state.

How many times have we heard about the "all transistorized TV set"? Yet we still look at the CRT (T-tube) to watch our programs.

We all benefit from radars, the ones used at airfields, those monitoring weather zones, policemen using their own little portable jobs, trying to locate schools of fish and other such advantages.

Without the tubes, no radar, no tracking, no vectoring aircraft that are lost or trying to land, no hurricane or typhoon warning and no violent crimes or mean, brutal policemen harassing gentle, law-abiding, free-'em-after-arrest thugs.

So what are tubes? Well, to begin with, they are devices we used to use before we had transistors, thyristors, GaAs diodes and other types of solid state.

The tube was far more rugged than its successor, but it required excessive voltage just to fire up its filaments. Much heat was developed and, despite coffee cups on the 807s, it was wasteful. Instead of plate, grid and cathode currents, bipolars use collector, base and emitter currents. As a matter of fact, when unipolar transistors replace bipolars, in many ways it can be said we are back to VT days — low Zin, high Zout.

Where else do we find the venerable tubes glowing forth? Well, ever heard of satellites? They are surely of the "new set." But what are they using? Remember that satellite orbiting way up yonder is mighty scrimped for power, and we couldn't launch it for a peanut-sized band-width.

So what has high power and yet large bandwidth? Not a state device but a TRAVELING WAVE TUBE, again, TUBE. Yep, that brand new bird uses a TWT. The TWT was invented by an ARCHITECT in Vienna in 1942 in England (??he was born in Vienna; it was born in England).

The TWT is an 0-type or linear device like the klystron but it has a completely different circuit. It uses a helix delay line structure. Without going into lengthy physics formulas and complex engineering concepts, let's just say the TWT's design renders it admirably suited to the requirements of the satellite for high power (more'n 120W), wide bandwidth (24 channels per transponder) and long life (20 years).

Someday some type of solid state device will no doubt replace the TWT. But just perhaps it will be a "transistorized tripolaxz" (with a XCRT). Anybody for an old dirty nasty-word TWT a la vintage 1987 AD???

—Raleigh ARS, NC

QCWA

(continued from page 51)

the visiting Connecticut Yankee to the semi-annual meeting of QCWA's Razorback Chapter #90, which was held in Smith's childhood hometown, Eureka Springs, 100 miles away.

W1WCI found a new friend and real Ozark hospitality.

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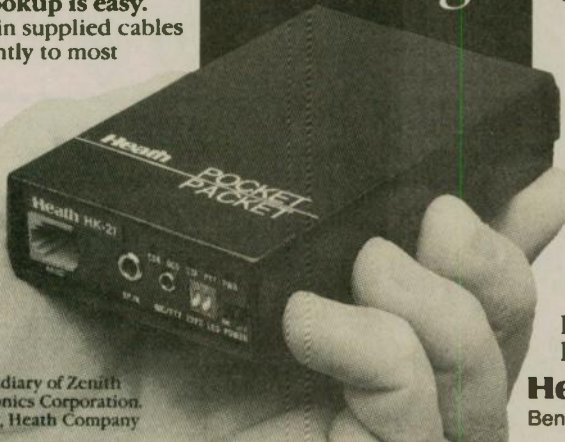
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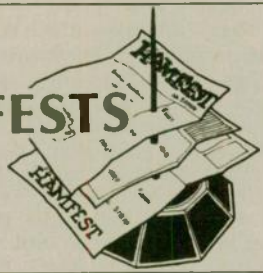
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HAMFESTS



Colorado

The LONGMONT ARC is sponsoring a swapfest from 8 a.m. to 3 p.m., Sunday, April 2 at the Boulder County Fairgrounds in Longmont. No exhibitors or shoppers need be crowded, as the building is very spacious.

This will be a combined Hamfest and Computer Swap. A CAD System will be used to help exhibitors make advanced reservations for specific table locations.

For information, contact Bob Dornan, WA2EKU, 1106 Fordham St., Longmont, CO 80501; or phone 303/651-3613. You may also contact Ken Parker, W0ONF, 1221 Aspen St., Longmont, CO 80501; or phone 303/772-4719. □

Georgia

The Georgialina hamfest, sponsored by the ARC OF AUGUSTA, will take place the weekend of April 22 and 23 at the Hippodrome in Augusta.

There will be 30,000 covered square ft. at the arena, and acres of tailgating space.

Admission is \$3 in advance, \$4 at the gate. Tables are \$10, in advance only.

For more information write to James Abercrombie, N4JA, at P.O. Box 5943, Augusta, GA 30906; or phone 404/790-7802. □

Massachusetts

The FRAMINGHAM ARA will hold its annual spring flea market and license exams on Sunday, April 9.

The flea market will be held at the Framingham Civic League Building.

Doors will open at 9 a.m. for early bird buyers. Early bird buyer admission is \$5. Doors will open at 10 a.m. for all other buyers. Standard admission after 10 a.m. is \$2.

Table setup will begin at 8:30 a.m. Cost for a table is \$12, which includes one free admission to the flea market.

Pre-registration for the flea market and exams is required.

Talk-in will be on the 147.75/15 Framingham Repeater.

For information and table reservations, contact Jon Weiner, K1VVC, 52 Overlook Dr., Framingham, MA 01701; or phone 508/877-7166.

To register for license exams, send a completed Form 610, a copy of your ham license and a check for \$4.65, payable to "ARRL/VEC" to the Framingham ARA, P.O. Box 3005, Framingham, MA 01701. □

The SOUTH SHORE ARC of Braintree will again hold its annual indoor flea market on Sunday, April 9 at the Viking Club in Braintree from 11 a.m. to 4 p.m.

There will be 8 ft. tables available for \$10 each (which includes one free admission per table), only if paid for in advance before April 7 by sending the appropriate amount to Hal Jones, WB1ABM, 48 Saning Rd., N. Weymouth, MA 02191.

Tables will cost \$12 on the day of the sale (no guarantee of table space unless paid for in advance). Checks should be made payable to the South Shore ARC. Confirmation of check receipt will be sent. No cancellation refund after April 7.

The Viking Club will open to vendors at 9 a.m. Doors open to the public at 11 a.m. with an entrance fee of \$1. Plenty of free parking and refreshments are available.

Questions? Call 617/335-5777 (Hal), in the evenings. □

Michigan

The STARS ARA will hold its annual Swap & Shop on Saturday, April 1 from 8 a.m. to 2 p.m. at the Grandville High School in Grandville.

Raffle prizes will be offered — 1st prize: \$100 gift certificate from H-R Electronics, 2nd prize: Avanti 2M on the glass antenna and 3rd prize: an electronics utility cart.

Advance tickets are \$3, \$3.50 at the door. The first table is provided free of charge, the second table is \$3.

Plenty of free parking will be provided for the indoor facilities. Coffee and doughnuts will also be available.

Talk-in with K8XL/R on 145.270.

For more information write STARS, 1714 Havanna S.W., Wyoming, MI 49509; or phone 616/243-1730. □

Minnesota

The LAKE REGION ARC will be sponsoring their 2nd annual hamfest on April 15 from 8 a.m. to 2 p.m. at the Otter Tail County Fairgrounds in Fergus Falls.

Doors will be open for early setups only on Friday at 4 p.m. Security will be provided Friday night. Camping spots will be available Friday night only.

The club is featuring VE testing, a packet meeting, an Army Mars State meeting, a satellite meeting and demonstration, commercial dealers, flea market, concession stand and more.

Registration is \$4 at the door, and \$3 in advance. Six ft. tables are \$4.

VE tests, Novice to Extra, start at 9 a.m. Send 610 form, copy of original license or all current completion certificates, with a check for \$4.55, payable to ARRL/VEC, to Tom Shubitz, P.O. Box 157, Fergus Falls, MN 56537. Walk-ins, first come, first serve.

A packet meeting will be held by Bill Snyder, W0LHS, and the satellite demonstration by Dale Cary, WD0AKO.

For more information, call 218/826-6274 or write to Keith McKay, N0FKF, Rt. 1, P.O. Box 46, Battle Lake, MN 56515. □

New Mexico

The MESILLA VALLEY RADIO CLUB is holding its 25th Annual hamfest — the ZIA Hamfest and Beanfeed on April 29 and 30. Included will be food, ham forums, VE Exams, RV Parking, Dealers and a Flea Mart.

Indoor tables are \$6. Admission is \$5.

Talk-in on 146.64/04.

For information contact Joe Herring, WI5E, P.O. Box 234, Organ, NM 88052; or phone 505/382-5629. □

New York

The third annual AUBURN ARA spring hamfest will take place Saturday, April 22, at the Aurelius Fire Department in Auburn. The hours are 8 a.m. to 4 p.m.

For more information write to James P. Nash, N2DTG, 114 Dunning Ave., Auburn, NY 13021. □

Ohio

The Eleventh Annual Lake County Hamfest, sponsored by the LAKE COUNTY ARA, will be held Sunday, April 2 at Madison High School in Madison from 8 a.m. to 3 p.m.

All-indoor flea market and commercial ex-

Call Sign Mugs

Your amateur radio call sign on a distinctive 10 oz. ceramic coffee mug or a 15 oz. beer mug, with the ARRL or QCWA logo on the flip side. Get one for the shack and one for the office. Mug pairs can have the same or different call signs. Coffee mugs are \$5.95 each, or two for \$10.95. Beer mugs are \$7.95 each, two for \$14.95. S/H \$1.50 for one, plus \$0.50 for each additional mug. NC residents add 5% sales tax. State your logo choice.

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hibits, programs, prizes and food are just some of the features.

Admission is \$4 at the door, \$3 in advance. Tables are \$5 (6 ft.) and \$6.50 (8 ft.).

Talk-in on 147.21/81, 222.90/224.5.

For information write to Roxanne, 7803 Skylineview Dr., Mentor, OH 44060 (SASE, please); or phone 216/953-9784. □

The eleventh annual Lake County hamfest will be held on Sunday, April 2, at the Madison High School in Madison, from 8 a.m. to 3 p.m.

Featured will be hourly drawings, an auxiliary raffle, displays, various programs, VE exams and a flea market.

Admission is \$3 in advance, \$4 at the door. Six ft. tables are \$5, 8 ft. tables are \$6.50. The school will be open for vendor setup at 5:30 a.m. Pre-paid table space is reserved and held until 9 a.m., unpaid is held until 8 a.m.

For reservations and information contact Roxanne, Lake County Hamfest, 7803 Skyline Dr., Mentor, OH 44060; or phone 216/953-9784 from 6-9 p.m. on weekdays or 10 a.m. to 9 p.m. on weekends. □

Washington

The Washington State centennial INLAND EMPIRE hamfest runs the weekend of April 15 and 16 in Spokane at the Spokane Youth Sports Association Building.

Admission is \$5 for both days. Featured will be a Ladies' Luncheon at noon on Saturday. Tickets are \$7.75 each. There will also be a Sunday breakfast from 7 to 9 a.m. A surprise guest speaker will be included. Tickets are \$4. A Saturday night dinner dance is also part of the festivities. Tickets for the dance are \$12 in advance and \$15 at the door.

Seminars, swap tables, dealers, factory representatives, a QCWA spring meeting and Amateur license exams will also be included.



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CA residents add 6% sales tax.

Parking is provided for 500 cars and RV's.

For information write to IE Hamfest '89, West 72 Spofford Ave., Spokane, WA 99205.

West Virginia

The 5th annual Charleston, WV Area Hamfest and Computer Show, sponsored by the TRI-COUNTIES HAM CLUB and the KANAWHA ARC, will be held April 15 from 9 a.m. to 4 p.m. at the Charleston Civic Center.

Admission is \$5. Tables are \$6 each and A/C power is \$12. Walk-in VE exams and alternative programs will be available.

For dealer and flea market information write P.O. Box 1694, Charleston, WV 25326; or phone Bill Hunter, K8BS at 304/744-2650 or Lovell Webb at 304/342-7247. For other information write P.O. Box 9076, South Charleston, WV 25309; or phone Doug Sweeney at 304/766-6655. □

Wisconsin

The MADISON AREA REPEATER ASSOCIATION INC. will hold its 17th annual Madison Swapfest on Sunday, April 9 at the Dane County Exposition Center Forum Build-

ACSB

(continued from page 3)

noise ratio and what is said to be noticeably less flutter than on FM.

This special modulation technique is helping fit new channels in otherwise filled-to-capacity bandspace. Part 74 of the FCC rules governs the use of studio-transmitter links, inter-city microwave links and remote broadcast pickup links for use in such things as electronic news gathering and broadcast remotes. It is this area of the radio spectrum where ACSB manufacturers have been directing their major mar-

keting effort to date.

Doors will open at 7 a.m. for flea market sellers and 8 a.m. for the general public.

Special arrangements for early setup are available for commercial exhibitors and purchasers of six or more flea market tables on Saturday, April 8 after 7 p.m.

The Forum Building has over 20,000 square ft. of space for commercial exhibitors and the flea market as well as plenty of space for parking in the adjacent paved lot.

Hotel accommodations are available within walking distance of the Swapfest.

Doughnuts, rolls, coffee, soda, milk and sandwiches will be available at the Swapfest. Talk-in will be on the MARA repeater, WB9AER/R, 147.75/15.

Admission is \$3 per person in advance and \$4 at the door. Children 12 and under are admitted free. Flea market tables are \$8 each in advance and \$9 at the door, plus admission. Be sure to reserve early, as tables were sold out last year.

The deadline for mail orders of admission tickets and table reservations is March 31.

For table reservations or information on commercial exhibit space write to MARA, P.O. Box 4007, Madison, WI 53711; or phone 608/274-5153 day or night for information. Leave a message on the answering machine. □

keting effort to date.

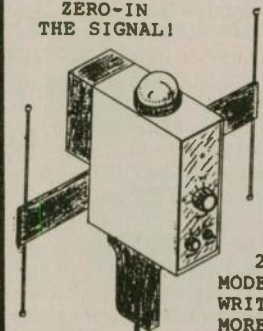
Each Part 74 channel is 30 kHz wide. An FM signal in the center of one such channel needs a guard band to protect it from the adjacent channels. In an area where all Part 74 spectrum is used, two ACSB channels can fit between each pair of 30 kHz FM channels. These "middle" channels are 12.5 kHz removed from their FM neighbors.

Where geography permits, research indicates that ACSB channels can be spaced as close as 5 kHz apart from one another. The interleaved ACSB channels have proved to be relatively immune to adjacent FM interference, and FM seems to likewise ignore ACSB if everyone sticks to the rules.

In a recent development, the FCC has re-allocated a portion of the 220 MHz Ham band for commercial use of ACSB. Hopefully, the Amateur Radio Community will soon benefit from this new radio technique, rather than lose more band space to it. —Independent Repeater Association, Byron Center, MI □

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Foxhunt!

Whether you're a novice at finding hidden transmitters or an expert... the Birmingham ARC's Foxhunt Committee invites you to a day of challenges, excitement and fun! Bring your hiking shoes and a compass — you'll be combing the woods, looking for the elusive radio fox, Saturday, April 15 at Oak Mountain State Park in Birmingham, AL.

Three transmitters (all on 2M FM) will be hidden within the boundaries of the park. Can you find them? Trophies will be awarded to the top finishers... everyone who participates will receive a handsome certificate verifying completion of this fun-filled activity.

A one-hour session on map-reading and radio direction finding begins at 9 a.m. There is a \$2 map fee. Then, at 10:45 a.m., the hunt begins!

Talk-in will be on W4CUE/R, 146.880 MHz. Come and spend the night in one of the park's RV or primitive campgrounds. For park information call 1-800-ALA-PARK.

For more information phone James Pilman, KA4ZQA at 205/991-7762 (evenings). Packet messages may be left for James at W4CUE PBBS in Birmingham. □

DX YL to NA YL Contest

The 1989 DX YL to North American YL Contest, sponsored by the Young Ladies Radio League, will be held during two weekends in April. The CW portion lasts from 1400 UTC, Wednesday, April 12 to 0200 UTC, Friday, April 14. The phone portion lasts from 1400 UTC, Wednesday, April 19 to 0200 UTC, Friday, April 21. All licensed women operators throughout the world are invited to participate.

Procedure: DX YLs call "CQ North American YL" and NA YLs call "CQ DX YL."

Operation: All bands may be used. No cross-band operation. Net contacts, repeater contacts and contacts with OMs do not count. Stations may be worked and counted once on each band and mode. Participants may work only 24 hours of the 36 hours in each contest. Operating breaks must be indicated in the log.

Exchange: Station worked, QSO number, RS or RST, state/province/country.

Scoring: A) Phone and CW will be scored as separate contests. Submit separate logs for each contest. B) DX YL's, including Hawaii and Alaska, may contact all the North American continent which includes the 48 contiguous states and Canadian provinces. C) Contestants on the North American continent (including the 48 contiguous states and Canadian provinces) may contact DX YL stations

including Hawaii and Alaska. D) A station may be counted once on each band for credit and 1 pt. is earned for each station worked once in each band. E) Multiply the number of different QSO's by the number of states/provinces/countries worked. A multiplier is counted only once in the contest. F) Contestants running 150W or less on CW and 300W PEP or less on SSB, at all times, may multiply the results of E by 1.25 (low-power multiplier).

Suggested frequencies: CW — (80M) 3.540-3.570; (40M) 7.040-7.070; (20M) 14.040-14.070; (15M) 21.180-21.210; (10M) 28.180-28.210. SSB—(80M) 3.940-3.970; (40M) 7.240-7.270; (20M) 14.250-14.280; (15M) 21.380-21.410; (10M) 28.380-28.410 MHz.

NOTE: Since band allocations in other countries are often different than the United States, North American YLs should look for DX YLs in other parts of the bands, especially on 40 and 80M.

Logs: All logs must show your state/province/country to qualify for awards. For each QSO, logs must show the station worked, QSO number given and received, RS(T) given and received, country/state/province of station worked, time, band and date. Logs must also state the power output used and the operating breaks taken. If you have 200 or more QSOs, submit a separate log for each band and submit a "dupe" sheet. Do not send carbon copies of logs. Please print or type.

Logs must be signed by the operator and no logs will be returned. Remember to file separate logs for each contest. Logs must show claimed score and be postmarked by May 5 and received no later than May 2 or they will be disqualified. Mail logs to: Vice President YLRL, Carol Shrader, 4744 Thorougheed Dr., Virginia Beach, VA 23455.

Awards: Cup to 1st place DX phone; cup to 1st place NA phone; cup to 1st place DX CW; cup to 1st place NA CW. Plaque to highest combined CW and phone NA score. Plaque to highest combined CW and phone DX score. The 2nd and 3rd place DX and NA winners in each contest will receive certificates. □

Connecticut Party

The Connecticut QSO Party, sponsored by the Candlewood ARA, will last from 2000Z April 22 until 0200Z, April 24, with a rest period from 0500Z to 1200Z.

Modes: Phone and CW.

Operation: Work stations once per band and mode. CW QSOs in CW bands only. Work portables and mobiles again as they change county. No repeater QSOs.

Exchange: Serial number, signal report and QTH (county for CT stations; state/province/country for others)

Suggested frequencies: Phone — 1.860, 3.927, 7.280, 14.280, 21.370, 28.370, 50.150, 144.200, 146.55 MHz; CW — 40 kHz up from lower band edges; Novice — 25 kHz up from low end.

Scoring: Count 1 pt. per phone contact, 1.5 pts. per CW contact, 3 pts. per OSCAR contact. Club station W1QI counts 5 pts. per band/mode. CT stations multiply QSO points by states worked (DX only one multiplier); others multiply by CT counties worked.

Awards: Certificate to highest scorer in each state and WACC Certificate for working all CT counties.

Logs: Mail logs by May 23 to CARA, P.O. Box 143, Bethel, CT 06801. □

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Product Review

Optoelectronics freq. counter

RICH ARLAND, K7YHA

Quality test equipment is a must for any shack. Whether you build your own gear or want to be able to troubleshoot problems when they arise, you need the proper tools in order to do the job correctly. A good selection of quality test gear will greatly speed any troubleshooting task around the shack.

In 1975, Optoelectronics first started manufacturing clock kits. These proved successful, and by 1976 Optoelectronics was marketing the very first LSI freq. counter for the ham radio market.

The FC-50 was good from 10 Hz to 600 MHz and sold for about \$150 in kit form. It was an immediate success and placed Optoelectronics in the forefront of Amateur Radio digital test equipment.

Optoelectronics is owned and operated by Linda Hufft, one of the founders of the firm. Linda believes that quality and low price have kept their product line accessible to Amateurs, government agencies and commercial industry over the years.

Linda states, up front, that the success of Opto is credited to her cadre of caring, dedicated employees and the faith that the Amateur community has in their products.

My FC-50 (purchased in 1976) worked fine for many years. I used it to align 2M rigs, sniff around inside transmitters and various other tasks that only a digital counter could perform.

A counter, like the proverbial "left-handed monkey wrench," is unique in its function. Nothing else will readily take the place of a freq. counter or a left-handed monkey wrench.

Originally, when I contacted Optoelectronics about doing a review of one of their counters, I wanted to obtain a sample of one of their counter kits that covered up to 1200 MHz. The Opto folks told me that these were being discontinued and I should test out one of their newer products. What the heck . . . I'll try anything, once.

The folks at Optoelectronics provided me with one of their newer model 1300H/A counters for this review. My, my, how things have progressed!

Where my FC-50 was rather large (about 7 x 3 x 5 inches, as I recall) the 1300H/A counter is tiny! Measuring roughly 4 x 3 x 1 inches (H/W/D) and carrying its own NiCad battery pack, the 1300H/A is truly a marvel of miniature electronics.

The tiny counter covers from 1 MHz to 1.3 GHz, weighs only 9 ounces, has an 8 digit display, dual gate speeds, resolution to 100 Hz, a built-in RF amplifier to increase sensitivity and an accuracy of +/- 1 part per million (well within commercial standards for transmitter alignment).

Accessories include a direct probe for sniffing around inside transmitters and such, a telescoping whip antenna

and a carrying case. The internal NiCad battery pack makes this counter highly portable. Drop it in your tool kit or put it in your pocket and take off!

I am very favorably impressed with this counter. The 1300H/A is one fine piece of test gear. Since I do a lot of building (mostly QRP gear) the counter is a welcome addition to the test bench. Gone are the days of using my Sony 2001 as a digital freq. meter when trying to align a stubborn VFO. No longer do I have to suffer the inaccuracies of an Argonaut 509 slide-rule dial. Never again will I have to ask one of the local 2M crowd to monitor the input of the repeater, while I try and net a new transmit crystal in my Kenwood TR-2200A transceiver. Having an Optoelectronics 1300H/A counter is almost as good as owning a BMW . . . almost!

The little counter really proved itself during Field Day 1988. My faithful Argonaut 509, while a great rig, never was known for dial accuracy. Enter the Opto 1300H/A counter. Holding the antenna close to the rig's output, I could directly read the transmitter freq. by merely keying the rig. Once known, I could then adjust the dial to correctly read my frequency. Beats the heck out of using a crystals calibrator of dubious accuracy. Watch out, world . . . Arland's in the big time!

Around the test bench the 1300H/A is absolutely indispensable. I have used it in conjunction with my old Eico grid dip oscillator to accurately set up the GDO for antenna and L/C network measurements.

In addition to netting crystals on my 2M rig, I have used the tiny counter to align several VFOs in my homebrew QRP rigs. During the next VHF contest at Red Rock Mountain (with the Murgas ARC-K3YTL) you can be sure that the 1300H/A counter will be there checking transmitter frequencies right up through 1296!

Bottom line on the Opto 1300H/A: a great value for the money. Highly portable and very accurate. Just what the doctor (DR. DX, that is) ordered for a great, all round counter for the shack.

Price of the 1300H/A is \$169.95. Whip antenna is \$12, case sells for \$10 and the direct probe costs \$20. These prices do not include shipping or tax (where applicable).

For more information about the com-

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OSCAR-13

NORM BROOKS, K6FO

This is the second of a series of articles explaining the intricacies of the high-flying Oscar satellites. The first installment appeared in our January issue.

In that issue, I explained the difference between low orbiting and high orbiting satellites. Here, I hope to clarify the term "mode" as used with satellites.

Mode

If you're like me, you remember when the word mode applied to the type of radio emission, such as continuous wave (CW), single sideband (SSB), radioteletype (RTTY) and amplitude modulation (AM). When we bought a radio that would handle all of these, it was known as an all-mode radio.

It's not surprising that a beginner in satellite work gets confused now that satellite gurus have invented a new meaning for the word.

Satellites carry transponders that receive on one frequency band, retransmitting the signals to another frequency band. Different combinations of uplink and downlink bands are used, so some system had to be devised to keep track of these combinations.

Unfortunately, someone early-on called these frequency combinations "modes," so now we have this second meaning.

Following are some of the frequency modes used in Oscar satellite work. The frequencies are not precise, but vary with the various satellites. They are intended to show the BAND used.

Mode	Uplink Band (MHz)	Downlink Band (MHz)
A	145.860-145.900	29.360-29.400
B	435.423-435.573	145.800-146.000
J	144.423-144.473	435.990-435.940
K	21.160-21.200	29.360-29.400
L	1269.351-1269.641	436.005-435.715
S	435.601-435.637	2400.711-2400.747
T	21.160-21.250	145.860-145.950

You will note that mode J is the opposite of mode B. There is a reason for this. In Japan, the 2M band is just half that of the United States, from 144.0 to 146.0, and there are no repeaters. Therefore, Japanese Oscar enthusiasts find it almost impossible to use mode B because they can't hear weak satellite signals through the local 2M in-

terference. So the Japanese devised mode J, which calls for transmitting to the satellite on the 2M frequencies, listening for the satellite on the quiet 435 MHz frequencies.

If this isn't confusing enough, some satellites now carry transponders that give an output in two bands, with an input in one band, OR inputs in two bands with output in one band. Here are some of these:

Mode	Uplink Band(S) (MHz)	Downlink Band(S) (MHz)
KA	21.160-21.250 and 145.860-145.950	29.360-29.450
KT	21.160-21.250	29.360-29.450 and 145.860-145.950
JL	144.423-144.473 and 1269.366-1269.416	435.990-435.940

On Oscar 13, the most popular frequency mode is Mode B. Within that mode B, you can operate emission modes SSB, CW or RTTY. The most popular is SSB. So, if you want to equip yourself for operation on Oscar 13, using the most popular frequency and emission modes, you would need a SSB receiver that covers 145.800 to 146.000 MHz, with a transmitter that sends SSB from 435.573 to 435.423 MHz. (there are some other specialized frequency modes used which we do not cover here). □

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NEW PRODUCTS

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Brake delay

The Brak-D-Lay is now available. Providing a 7-second delay time for brake engagement on the CDE/Hygain series of ham rotors, the board is designed especially for the old Ham "M" control box, and actually fits inside.

Instructions are included for mounting the unit in models Ham "M," 2, 3, 4 and T²X.

It is available from C.A.T.S., 7368 S.R. 105, Pemberville, OH 43450. □

Red Face Department

International Radio Inc. informs us of a typographical error in the phone number we printed in their product release for the IRI "Tuning Upgrader" in our February 1989 issue, page 58. The correct phone number is 407/879-6869. □

Days are short in winter and long in summer because cold contracts and heat expands — very simple. —*Arrowhead RAC, Duluth, MN*

North America is slowly sinking into the ocean. This is because of the accumulated weight of the back issues of *Worldradio* and *National Geographic Magazine*. —*Arrowhead RAC, Duluth, MN*

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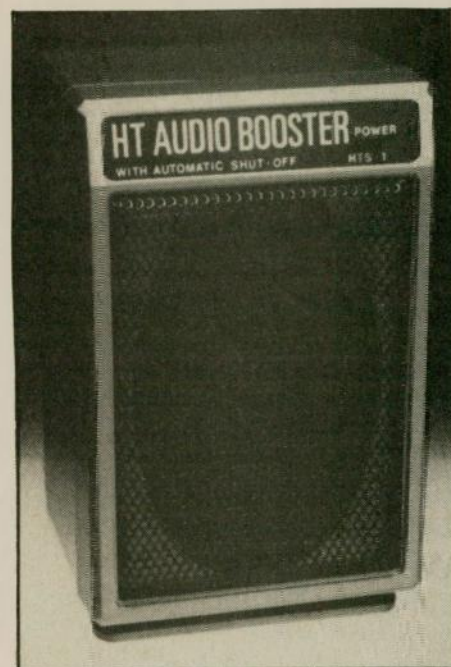
Amplified speaker

Naval Electronics Inc. introduces the HTS-1 Amplified Speaker with specific features for use with hand-held radios: The HTS-1 is very compact yet offers big radio sound from its 3.5 inch oval speaker and 10dB internal amplifier.

Powered from internal batteries or any external voltage from 6-15VDC through a DC jack, the HTS-1 is truly versatile. It even has a built in NI-CAD battery charger and a special "automatic shut-off" feature that kills power to the amplifier whenever there is no input audio (receiver squelched) to conserve batteries. When manually switched off, the amplifier is bypassed and the input jack is connected direct to the speaker.

The HTS-1 has a tilted base for desk mounting and a special mobile harness is available for mounting the unit on the inside of a car door. A 5 ft. cable with mini-plugs and a stereo to mono converter is included. A free stereo cable is available if two units are ordered together for use with a walkman or personal stereo system.

For further information contact Naval Electronics Inc., 5417 Jetview Circle, Tampa, FL 33634; or phone 813/885-6091. □



General code and Theory course

Gordon West announces a new General class code and theory course for Amateur Radio operators wishing to upgrade from Technician to General.

The West-written General class theory book covers the 284 questions specifically for General class written Element 3B. This is the only book on the market that separates the General class questions from the combined Technician/General class question pool.

The exact questions on the exam, word for word, are followed by the four possible exact right and wrong answers, the right answer identified, and then a brief paragraph about how the correct answer was determined.

"I try and relate these questions and answers to the real world of ham radio — and most students appreciate my subtle humor that goes into each paragraph following each

question and answers," comments Gordon, WB6NOA.

Two long-play code cassettes, recorded personally by WB6NOA, take applicants from a "forgotten" 5 wpm to 13 wpm. The cassettes are fully narrated and provide excellent code practice that will sound identical to the actual VE-administered 13 wpm code test.

"We recommend these two code tapes in addition to on-the-air code practice, classroom and club code programs and any and all other forms of Morse Code reception. My two cassettes make it fun to go from 5 wpm to 13 wpm in preparation for the big code test," adds West. The cassettes also contain sample VEC-type code examinations with West narration.

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ing case. For the visually impaired, the General class theory book may be substituted for two West-recorded General class theory tapes at no additional charge. Included with this course are manufacturer rebate certificates, color frequency charts, a colorful world map, a QSL card starter pack and a free magazine coupon.

The General class code and theory course is available from local Radio School dealers or directly from Radio School, 2414 College Dr., Costa Mesa, CA 92626.

Radio School also offers a similar West-written Technician theory book, as well as Technician theory tapes. And for the beginner, the Gordon West 21-day Novice course is one of the most popular code and theory programs around. Write Radio School for their new updated catalog. □

Digital Communications With Amateur Radio The Complete Packet Radio Book

by Jim Grubbs, K9EI

The stars of *Digital Communications With Amateur Radio* are packet radio and the equipment required. What the equipment is, how to interface it, how to use and operate it to get connected via the Amateur Radio link. And then going further — with networking and

satellites. This is *The Complete Packet Radio Book*.

Are you a computer hobbyist looking for new ways to communicate with your fellow hackers? Are you a ham wanting to expand your Amateur Radio network? Communications using digital techniques, and specifically packet data communications, is your next exciting step.

A new dimension can be added — substituting an Amateur Radio link for the common telephone modem.

The book explains the Amateur Radio digital techniques and provides:

- An understanding of digital techniques for communication
- An understanding of how to interface digital equipment and ham gear
- An understanding of packet radio techniques and protocols
- An understanding of how to get connected and operating.

The author holds an Extra Class License and has been a ham for over 27 years. Jim has authored over 300 columns and articles for popular Amateur and computer magazines. In addition, he has previously published several books on packet radio for the Amateur Radio operator.

Digital Communications With Amateur Radio is available in Radio Shack stores.

For the gift that keeps
on giving, see p.9.

MN antenna analysis software

The new MN program for IBM-PC and compatible computers will analyze almost any antenna made of wire or tubing. MN will compute antenna forward gain, front-to-back ratio, beamwidth, sidelobes, angle-of-radiation, current, impedance, SWR, near-fields and far-fields.

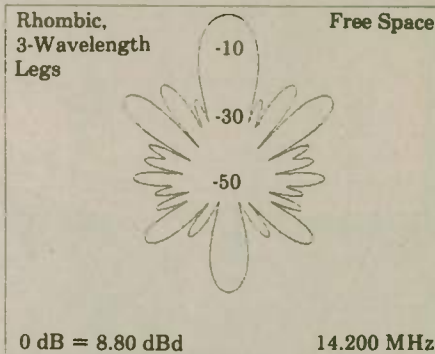
Antennas may be modeled in free space or over real earth.

MN will plot antenna radiation patterns in polar or rectangular form on CGA, EGA or HGC graphics screens. Hardcopies of the plots may be made on dot-matrix printers.

MN can compute the interaction among several nearby antennas or structures, allowing detailed analysis of stacked arrays.

The 5¼" MN disk contains over 100 files, including libraries of antenna and plot files, a file editor and documentation.

MN is an enhanced version of the U.S. Navy's MININEC program. MN is available from Brian Beezley, K6STI, 507½ Taylor St., Vista, CA 92084. □



Sample MN plot

End bells from discarded power transformers make ideal recessed mounting brackets for panel-mounted devices. —*Dave Guimont, WB6LLO; North Shores ARC, San Diego, CA* □

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The 1989 Callbook Supplement is a new idea in Callbook updates, listing the activity in both the North American and International Callbooks. Published June 1, 1989, 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 1989 Callbooks will be published December 1, 1988. Order early to avoid disappointment (last year's Callbooks sold out). See your dealer now or order directly from the publisher.

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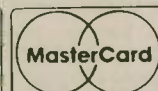
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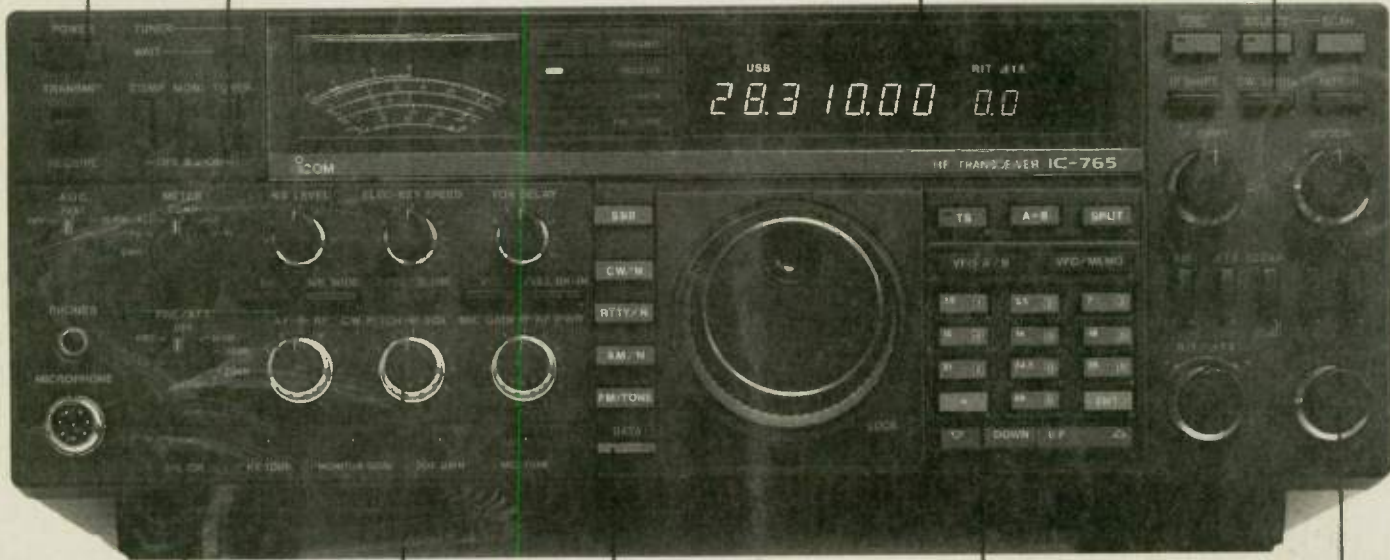
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