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WORLDRADIO

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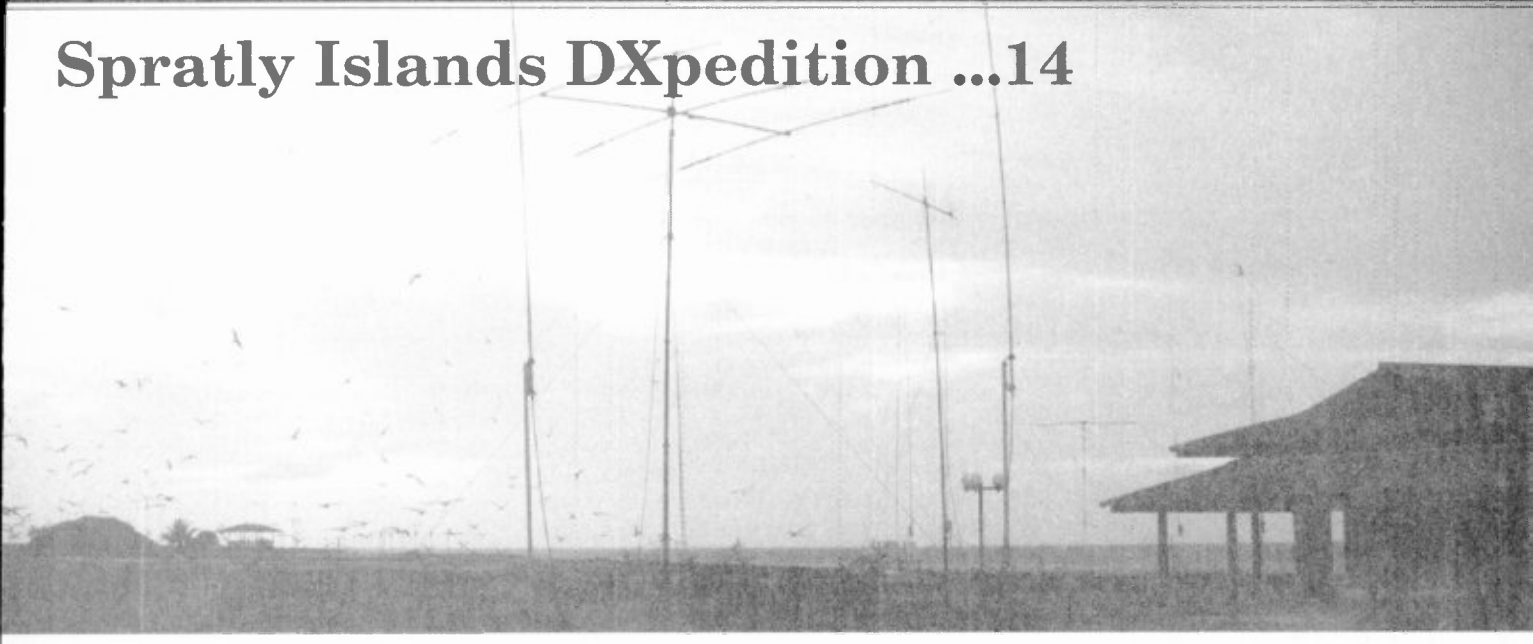
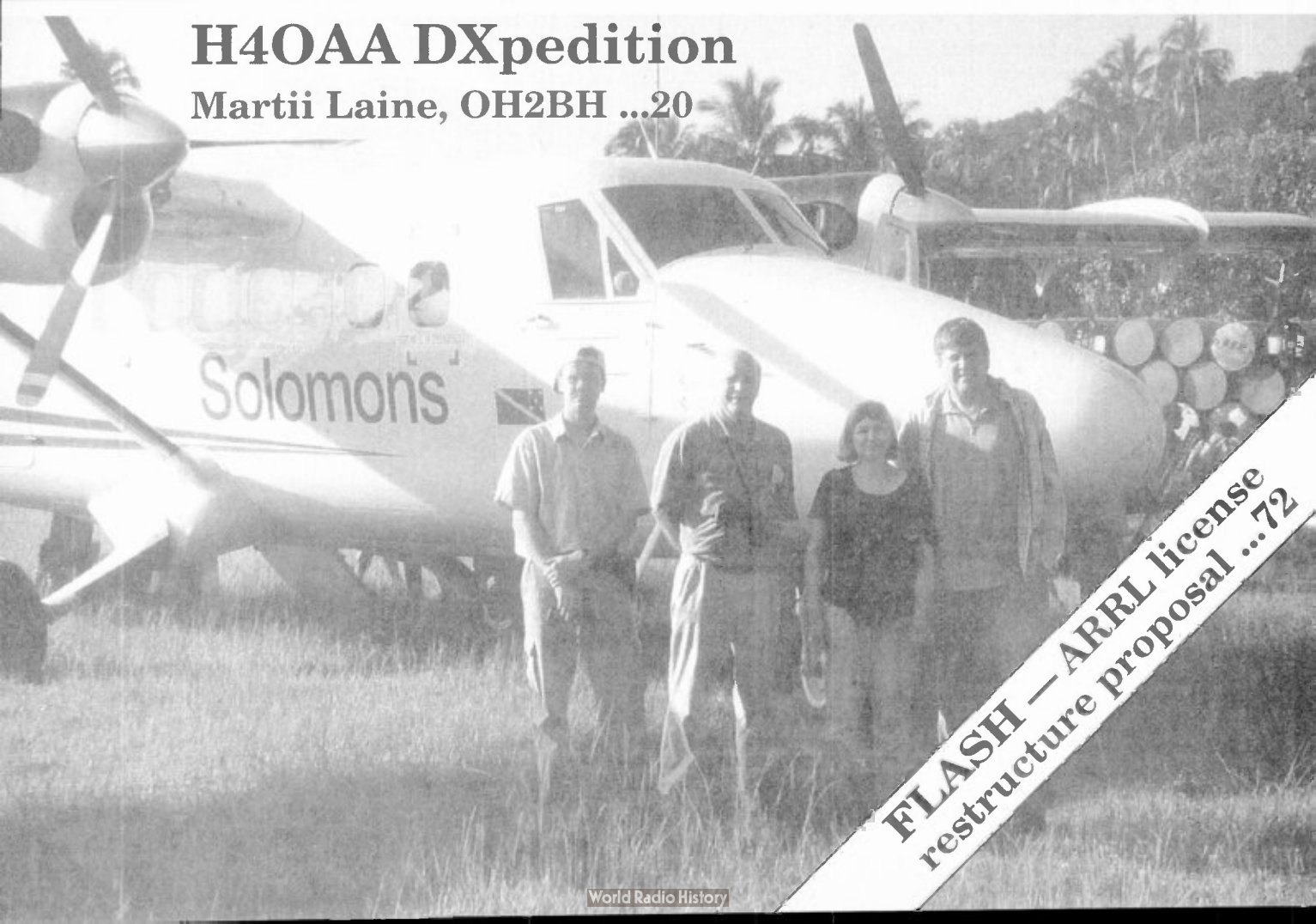
Spratly Islands DXpedition ...14



H4OAA DXpedition

Martii Laine, OH2BH ...20



FLASH — ARRL license restructure proposal ...72

World Radio History

NEWSFRONT

Worldradio

Some information has been supplied to *Worldradio* Newsfront courtesy of *Newsline*.

Guatemala commercializes 70cm

Reports from Guatemala indicate that commercial land mobile stations are currently being licensed in the 430-440 MHz band.

This is against International Radio Regulations and because of this, these stations may cause harmful interference to stations in the amateur-satellite service operating between 435-438 MHz.

According to Art Feller, W4ART, Hams experiencing interference from what appears to be a Guatemalan land mobile station should gather as much information as possible about the intruder. This should include the call sign, frequency, emission type, and if possible, the content of its transmission. Also, note the date, time, and call signs of the other amateur station you are attempting to communicate with. Report all of this information to your national IARU member society so that a formal complaint may be lodged through appropriate diplomatic channels.

For Hams living in the United States, reports go to the ARRL. — *W4ART, Newsline*

RAC President announces resignation

Radio Amateurs of Canada President Farrell "Hoppy" Hopwood, VE7RD, plans to step down at year's end. Hopwood, RAC's first and only president, advised the RAC Board of Directors that he is resigning as RAC President and Board Chair effective 31 December. The RAC Directors now will convene the RAC Elections Committee to elect a new president to fill the one year remaining in Hopwood's two-year term.

In a message to the RAC Board, Hopwood cited personal and family obligations for his decision. "I am very grateful for the honor and the privilege of serving our members and the amateur community as RAC's first President during these times of formation and growth," he said.

Licensed since 1956, Hopwood retired from British Columbia Telephone in 1992. He served as president of the former Canadian Amateur Radio Federation (CARF) and was instrumental in the merger of CARF and the Canadian Radio Relay League (CRRL) into the Radio Amateurs of Canada. He was elected RAC's first president in 1993. — *RAC, ARRL Letter*

Russian only spoken on RØMIR

Now that U.S. astronaut Andy Thomas, KD5CHF, is back on terra firma, amateurs hoping for some Amateur Radio communication with the orbiting outpost had better bone up on their Russian. Thomas was the last U.S. astronaut to live aboard Mir, now slated for an earlier-than-expected deorbiting.

The remaining crew members aboard Mir are Russian cosmonauts Talgat Musabayev, RO3FT, and Nikolai Budarin, RV3FB, who speak only Russian. "Any message addressed as personal to RØMIR will not be understood by any of the crew members unless it is in Russian," advised MIREX President Dave Larsen, N6CO.

Larsen said MIREX has again opened up the RØMIR-1 digital system for third-party traffic (ie, store-and-forward messages). "This means that you will be able to address messages to other radio amateurs," he explained, but asked Hams to use good judgment in posting messages to RØMIR-1.

"Please use this medium if you have no other e-mail or packet/bbs systems available," he said. Messages must be addressed to a valid amateur call sign. The system uses a Kantronics KPC-9612. Commands are similar to most PBBS and BBS systems.

Meanwhile, Bob Bruninga, WB4APR, reports that he has modified his LIVE MIR Space Station Downlink Web page to capture messages and mail from the RØMIR Mir packet system on 145.985 MHz. Files of the last eight passes, as monitored in Maryland, are available at http://web.usna.navy.mil/~bruninga/mirex.html. Bruninga's page also links to a Mir locator at http://liftoff.msfc.nasa.gov/temp/Mir_loc.html

Larsen said QSLs for R0MIR contact from everywhere except Europe should come to him at PO Box 1501, Pine Grove, CA 95665. — *ARRL Letter*

FCC to act on licensing decline

Volunteer Examiner Coordinators have learned that the FCC plans to take action to stimulate growth in Amateur Radio.

The FCC appears to believe the decline in Amateur Radio interest

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Congratulations to Deborah Kirkbride, KA8YKK, winner of a $200 gift certificate (redeemable from MFJ). Her name was selected at random by the computer from the ***Worldradio*** subscriber list. Check here next month to see if your name has been selected.

World Radio History

and licensing is bad for the service. As a result D'wana Terry, Chief of the Wireless Division, confirmed that the FCC would soon be issuing a Notice of Proposed Rulemaking intended to streamline the service and eliminate any unnecessary rules used in governing Amateur Radio.

Terry told the VECs that she was very limited in what she could say about the NPRM. This is because the FCC is still preparing it. Ms. Terry did say that the recommendation would include both a discussion of current problems and specific proposals on how the FCC plans to deal with them.

Ms. Terry did acknowledge that one of the things the FCC is looking into is a reduction in the Morse code exam speed. This, as a way around the allegedly abused 13 and 20 words-per-minute handicapped applicant code examination waivers.

No date has been set for the release of this internally generated NPRM. But it could come as early as the end of August, if not before. Once that document is made public, it may not reach every Ham in time to comment. This is because the FCC intends to issue it under the so-called "fast track" initiative.

It's not known if the FCC will allow the sixty days requested by the VECs. As reported last week, this rule making will be under the fast-track. That means expedited handling of it by the Commission. — *Newsline, WB6NOA*

ARRL reiterates stance on LMCC petition

The ARRL has called upon the Land Mobile Communications Council (LMCC) to withdraw its request for reallocation of segments of the 420 to 450 MHz band to the Private Mobile Radio Service. Such a move would permit the FCC to focus its attention on portions of the LMCC petition that "might have more merit," the ARRL said. The League's suggestion is contained in reply comments filed 16 July with the FCC in response to the LMCC's petition for rulemaking, RM-9267, filed earlier this year.

Amateur Radio shares the 70 cm band on a secondary basis with the federal government. The LMCC seeks immediate reallocation of the segments 420 to 430 and 440 to 450 MHz from the federal government to the PMRS.

Alternatively, the League asked that the FCC dismiss those portions of the LMCC petition dealing with the 420 to 450 MHz band as "plainly not deserving of further consideration."

The League said that comments from Amateur Radio operators—the vast majority of those filed in response to the LMCC petition—establish that the LMCC proposal for a PMRS allocation in the 70 cm band "was ill-conceived." Hams told the FCC that the band is heavily used and vital to amateur public service activities. The League noted among other commenters "a complete absence of support" for the 420 to 450 MHz proposal in particular. Some commenters were altogether silent on the 420 to 450 MHz reallocation issue, while one LMCC member, the Association of Public Safety Communications Officials-International (APCO), opposed any reallocation in the band.

The League urged the FCC to pay close heed to the comments of the National Telecommunications and Information Administration. The NTIA said national security and other federal interests would preclude sharing on the band. Those comments, the League noted, were "clearly protective of its own use of the 420-450 MHz band, and that of the Amateur Service as well."

The League said the LMCC has failed to justify a 420 to 450 MHz reallocation. Comments filed so far, the ARRL said, disprove both the LMCC's "rank speculation" about possible federal reductions in the use of 420 to 450 MHz as well as its representations about amateur use of the band. "The record that has been developed shows that there is no compatibility between incumbent Federal and amateur facilities and new PMRS facilities," the League said. But the ARRL said it has no quarrel with the LMCC to the extent that it seeks to open discussion on the general issue of PMRS allocation needs.

A complete copy of the League's reply comments is available on the ARRLWeb page at http://www.arrl.org/news/bandthreat/RM-9267/arrl-reply.pdf — *ARRL Letter*

ICOM donation

ICOM has donated an IC-706MkII transceiver and an AH-4 automatic antenna tuner that will be used to establish a club station for South African youth. This is part of a government initiative to interest young people in technical activities and careers. The transceiver was on display at the IARU booth during the ITU- sponsored Africa Telecom 98 in Johannesburg. — *ARRL, Newsline*

WORLDRADIO

September 1998 Year 28, Issue 3

News & Features

Hams help in Florida fires — 6
The ones who got away — Dayton DX Forum — 12
9MØC — 1998 CDXC Spratly Islands DXpedition — 16
Field Day on the Magic Band — 18
H4ØAA pushing DXpedition envelope to new peaks — 20

Departments

69 — Advertisers' Index
57 — Aerials
28 — Amateur "Hi"
8 — Amateur Radio Call Signs
26 — Awards
44 — Club Huddle
58 — Contests
54 — County Hunter
33 — DX Prediction
30 — DX World
36 — FM & Repeaters
62 — Hamfests
45 — Inside Amateur Radio
41 — MARS
68 — MART Classifieds
65 — New Products
2 — NEWSFRONT
29 — Off the Air
50 — Old-time Radio
47 — Product Review
52 — Propagation
4 — Publisher's Microphone
46 — QCWA
48 — QRP
34 — QSL Managers
8 — Rules & Regs
42 — SAR Communications
27 — Silent Keys
26 — Special Events
28 — Station Appearance
9 — Subscription, ***Worldradio***
67 — VE Exams
39 — Visit Your Local Radio Club

Next month's columns will include With the Handi-Hams, Youth Forum, 10-10, Computers and Basic Stuff, Positively CW, Wires and Pliers, and YLs on the air.

World Radio History

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September 1998 Year 28, Issue 3

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- **Bruce Johnson, KF6PLF Ridgecrest, CA**
- **James Tiemstra, KJ6AT Oakland, CA**
- **Kevin Richardson Kailua Kona, HI**

•

The IARU HF World Championship was a great success with propagation being quite good most of the time. There were many examples to emulate when it came to smooth contest operation. WB9Z, W7NN, KS4XG, KH7R and, as always, 9V1AG were particularly noteworthy. And special mention should be made of XK7SZ, WU4G, N4UH, KO7X, K3ZO, and KW7N, who while racking up the contacts in fast fashion quickly connected the call of WR6WR with being the *Worldradio* Staff ARC callsign and stopped to say hello.

For me, one of the highlights was working Uganda with 100 Watts.

•

There seems to be a definite cycle where amateurs, many in unison, bring up a particular subject. It then fades away and at the usual interval rises up again. And that is the price of radio equipment. While the dollar numbers may be high one has to put them in perspective. QCWA eligible amateurs can think back to the Wilson 2M handheld. That was around $200 way back then, in way back then's money. And what may be surprising to today's newer amateurs is that 2M radio had only six channels and you had to buy transmit and receive crystals for each channel! The power supply was eight AA cells and it all weighed a great deal. So it's not too hard to see that today (and crank in the inflation rate) amateurs are getting far, far more for their money than in days past.

Some amateurs, trying to make some point or other, say, "How can youngsters shell out $3,000 for a transceiver?" Well, they probably won't as we all (that's a collective we) didn't, when we were young buy a top-of-the-line car, house, suit, etc. It was so much down and so much a month for years to even buy a Gonset Communicator at $300 or so.

There are some great HF rigs at less than a thousand and the used (and reconditioned) market has some quality equipment at about a week's salary for young people who are just starting out in their careers. I recently heard a Swan Cygnet on the air and it sounded just great. That was the type of rig I took to VK9AM in 1969. A 30-year-old radio works fine today. An Atlas 210 goes for around $200 today. I don't know in what other field that $200 (and some wire thrown up in the air) can purchase so many hours of enjoyment.

The other night on 20M I heard an amateur telling another about the (top-of-the-line) amplifier he'd had for 20 years now. It's just as good now as it was then and it had cost him over those years about 20 cents a day.

I'd bet that on a dollar-for-dollar/hours-used, basis that radio equipment is our best bet. We don't have to haul it a hundred miles to use it. We don't have to wait for the sun to shine, and whether it snows or doesn't snow doesn't make any difference.

At the longevity of today's equipment, when one amortizes one's station over the years of use, the cost is really quite, quite low.

For example, 30 years ago a Collins transceiver was at about the same price as a car. Not too many 30-year-old cars are on the road today but there are still a lot of Collins on the air every day. If still in use by the original owner the cost was about 11 cents a day.

Don't forget, we're very interested in seeing the article you may have written. If you find the subject of interest, others may also. Don't be bashful now.

— Armond, N6WR

World Radio History

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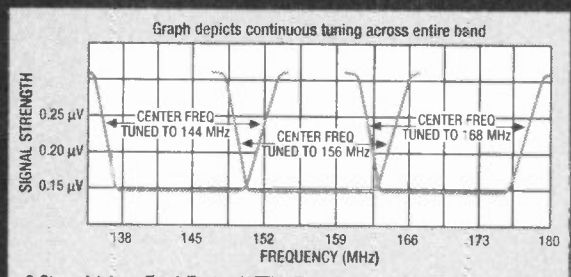
Experts say the FT-2500M is the only commercial-grade amateur radio available. So, for tough manufacturing standards, inside and out, with true FM clarity, and outstanding performance, the FT-2500M is your mobile.



3-Stage Advance Track Tuning (ATT) – The exclusive 3-Stage Advance Track tuning front end automatically adjusts band width sensitivity across the entire receiver range, while maintaining selectivity specifications. ATT significantly reduces interference from inter-modulation and front end overload.

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- Backlit DTMF Mic
- 31 Memory Channels
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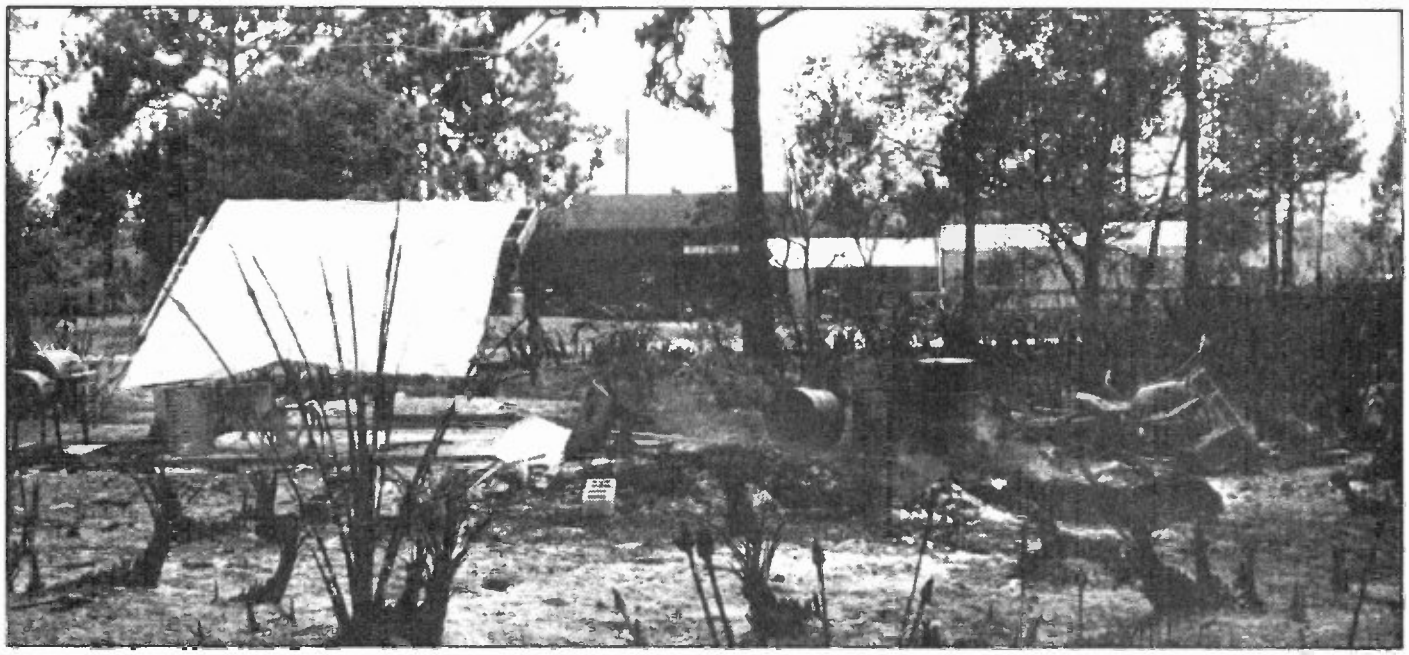
World Radio History



Some homes fell victim to the fires, while neighboring homes were spared.

Hams help in Florida fires

NORM LAUTERETTE, WA4HYJ; MIKE WELCH, KF4HFC; CARLA SIKORSKY, KF4FRE

ARES/RACES kept active

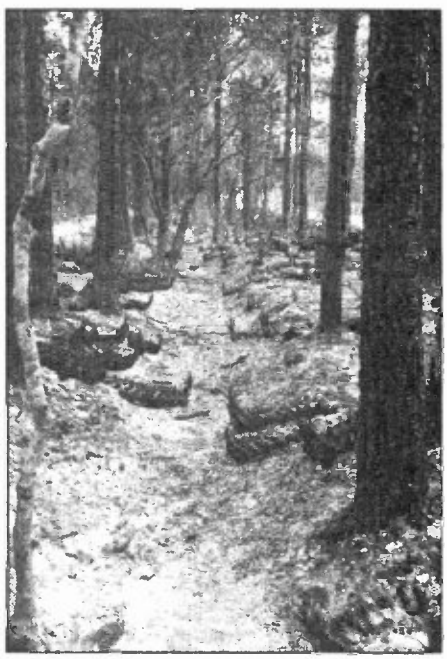
During the weekend of 06-07 June, wildfires spawned by more than three months of drought spread over four central Florida counties of Flagler, Seminole, Brevard and Lake. With no forecast of rain in sight, more fires will continue to erupt. Who would have imagined it? Less than four months ago Central Florida ARES / RACES units were activated to handle county communication needs for the worst tornadoes and floods this area has seen. Now it's wildfires, and hurricane season is just starting.

In Flagler County, fire consumed 1,650 acres, destroyed 19 homes and damaged others. Sections of Interstate 95 were closed due to intense smoke and fire that leaped across the interstate fanned by high winds. The American Red Cross activated a shelter at Bunnell Elementary School with Amateur Radio support. The Lake and Brevard County fires consumed large forest areas but residential damage was kept to a minimum.

Seminole County Emergency Management declared a state of emergency Saturday evening around 1830 (EDT). Dick Fess, EC of Seminole County, ARES / RACES activated the callup. The American Red Cross opened a shelter at Geneva Elementary School, close to the fire zone. Bob Wendoth, KS4CI, and Norm Lauterette, WA4HYJ, set up the initial station in the Emergency Management command post at the shelter. Seminole County ARES / RACES emergency net was activated at 1900 hours (EDT).

Close to 300 residents were evacuated from the 1,800 acre Geneva fire zone. County helicopters were used to direct fire control and evacuate trapped residents surrounded by fire pockets created by the shifting winds. Approximately 56 evacuees took refuge in the shelter and stayed Saturday night, others stayed with friends or in motels. Families were split up and several residents were listed as missing. Condition of loved ones, pets, livestock, homes and property were the main concerns of officials and evacuees.

Emergency Management did a great job keeping evacuees appraised of conditions Saturday night but many feared everything was gone. The ARES/RACES Amateur Radio direct communication link to the EOC was very valuable during



Blackened trees stand as testimony to the fire's fury.

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World Radio History

1957 Ford and other antique autos in the burned and collapsed building were lost.

Rob Frazier and Norm Lauterette, WA4HYJ, talk with tanker crew at Geneva Fire.

this time period.

Firefighters gained control around 2400 (EDT). Emergency Management and the Sheriff's Office allowed drivers of official vehicles to transport selected residents to their home sites to determine the status of their property. All were returned to the shelter.

Rescue dog handler Allen Wilson, WB7BCI, remained at the shelter most of the night ready to assist if partner "Duke" was needed.

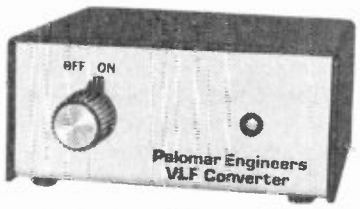
Relief ARES/RACES operators picked up operations at 0500 (EDT) and handled traffic with the EOC. The primary activity at the shelter Sunday was "Medical transport" of residents to their property to retrieve medicine and care for pets and livestock. Those at the shelter were kept up to date on conditions by Emergency Management and the Sheriff's Office.

At 1700 (EDT), Emergency Management allowed most of the evacuees to return to their homes. Our local ARRL PIO team had the opportunity to gather additional information and Carla Sikorsky, KF4FRE, snapped some photos of the fire zone.

More then 30 structures, including 15 homes and 24 vehicles were destroyed in the Geneva wildfire. A total of 54 homes and structures were destroyed in the four Central Florida fires. Seminole County ARES/RACES recorded 17 amateurs who volunteered their services for a total of 119 hours — a job well done and one noticed by the many county officials on scene.

Norm, Lauterette, WA4HYJ, relays information on a flareup to net control.

VLF CONVERTER



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W4ZC

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FCC proposes 5.9 GHz allocation

The FCC has proposed allocating 5.850 to 5.925 GHz for use by intelligent transportation systems (ITS). The 11 June NPRM was in response to a rulemaking petition from the Intelligent Transportation Society of America (ITS America), who said the band is optimal for DSRC on the basis of propagation, consistency with international allocations, and compatibility with existing users.

The Amateur Service has a secondary allocation at 5.650 to 5.925 GHz with government radar systems and nongovernment fixed satellite service uplinks. Under the proposal, dedicated short range communications (DSRC) highway safety systems would share the band as coprimary users.

The FCC seeks comments on the need for nationwide operational standards and channelization and on the potential for DSRC operations to share with other services.

ITS America, a nonprofit organization dedicated to promoting ITS, has worked with the ARRL and others to develop a sharing plan. The League has said it is prepared to work with ITS entities to resolve spectrum sharing issues.

In its comments, the ARRL questioned whether the 5.9 GHz band was appropriate for DSRC and urged the FCC to look into frequencies above 40 GHz, where DSRC systems could avoid interference from other users. The League said the ITS proposal and the FCC decision to deploy unlicensed National Information Infrastructure (U-NII) devices in the band could render 175 MHz of spectrum in the 5.8 GHz range significantly less useful to hams.

The complete NPRM is available on the FCC Web site at http://www.fcc.gov.

Court upholds FCC vs. Free Radio Berkeley

The U.S. District Court for the Northern District of California has issued a permanent injunction against unlicensed broadcaster Stephen Dunifer, operator of Free Radio Berkeley. The 18-page decision reaffirms the FCC's authority to require broadcasters to have a license. The court enjoined Dunifer and "all persons in active concert or participation with him" from broadcasting without a license or causing or enabling unlicensed radio transmissions to occur. Dunifer had claimed the FCC's regulations were unconstitutional. FCC Chairman William Kennard applauded the decision. "The permanent injunction in the Dunifer case, and the FCC's success in the last two years in shutting down over 200 pirate stations, should send a message to all pirate broadcasters: obey the law — and join the FCC in our efforts to expand the legal uses of the public airwaves."

LMCC petition update 440/450 MHz portions of 70cm band.

Under "Many Comment on LMCC Petition" the League said that hundreds of formal comments had been filed in the wake of the LMCC rulemaking petition (RM-9267) seeking primary access to 420 to 430 MHz and 440 to 450 MHz for the Private Mobile Radio Service (PMRS) at the expense of the fed-

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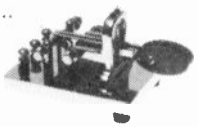

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For more information about the sequential call sign sytem, see Fact Sheet PR5000 #206-S or contact the Federal Communications Commission, Consumer Assistance Branch, 1270 Fairfield Road, Gettysburg, PA; email: fccitd@fcc.gov

Radio District	Group A Am Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
Ø	ABØHT	KIØNM	++	KCØDUO
1	AA1TW	KE1JX	++	KB1CZO
2	AB2FK	KG2OP	++	KC2DUP
3	AA3RD	KF3BW	++	KB3CUH
4	AF4KO	KU4TF	++	KF4ZDA
5	AC5QQ	KM5RK	++	KD5EQG
6	AD6FS	KQ6WW	++	KF6RUG
7	AB7YI	KK7ON	++	KD7CEU
8	AB8CW	KI8GG	++	KC8KOH
9	AA9WD	KG9OA	++	KB9TCB
N. Mariana Is.	NHØE	AHØBA	KHØHE	WHØABJ
Guam	++	AH2DH	KH2TL	WH2ANX
Hawaii	NH7I	AH6PM	KH7JZ	WH6DER
Amer. Samoa	AH8R	AH8AH	KH8DM	WH8ABF
Alaska	ALØL	AL7RD	KLØPG	WL7CUU
Virgin Is.	++	KP2CN	NP2KD	WP2AIJ
Puerto Rico	NP3Y	KP3BI	NP3XG	WP4NNT

++All call signs in this group have been issued in this district.

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eral government. (The petition also seeks other UHF spectrum).

Among formal commenters, those weighing in on the side of Amateur Radio, at least in terms of preserving the current secondary (shared) allocation on 70 cm for Ham use, included the ARRL (a copy of the League's comments is available at http://www.arrl.org/news/bandthreat/RM-9267/arrl-cmt.html; the National Telecommunications and Information Administration (NTIA), which manages federal spectrum; the Quarter Century Wireless Association (QCWA); the Amateur Television Network; the Sarpy County, Nebraska, Emergency Management Agency; the Washtenaw County, Michigan, Emergency Management Division; the DiPaolo Timber Corporation; AMSAT-NA, and the Association of Public-Safety Communications Officials-International (APCO). All cited the public service benefit derived from volunteer Amateur Radio operations in the event of emergencies and disasters.

Washtenaw County Director of Emergency Management Marc Breckenridge called 440 to 450 MHz "a priceless resource to emergency management organizations" and said its reallocation would not be in the public interest. DiPaolo Timber CEO Carl DiPaolo, W7EXH, likened the sharing arrangement by Hams and the federal government to "multiple use of the forests, many citizen users sharing a resource." DiPaolo went on, "Once the PMRS users get to the frequency area, it is lost forever." There's "no way" amateurs could be secondary to PMRS, he concluded.

AMSAT-NA President Bill Tynan, W3XO, mentioned use of 70 cm for the upcoming Phase 3D satellite and pointed out that the International Space Station is expected to make "heavy use" of the band for Amateur Radio. Ham radio is an official ISS payload. In all, AMSAT-NA cited more than a dozen examples of current and future amateur use of 70 cm (see http://www.amsat.org/amsat/regs/rm9267c1.html).

But it was the NTIA that spoke the loudest in favor of retaining the current federal-amateur sharing arrangement on 70 cm. The NTIA said it supports amateur operation at 70 cm and other bands "as an important adjunct to the National Communications System and the National Weather Service, and with general recognition of the valuable public service performed" by Hams. Amateur operations "share well" with military radiolocation radars because Hams can tolerate the restrictions involved. But, the NTIA's bottom line was that "critical Federal operations in the 420-450 MHz band" make it inappropriate to consider reallocation. The NTIA also noted that Wind Profiler Radar operations at 448 to 450 MHz — which the LMCC had suggested be "discouraged" — are operational, not experimental. The NTIA said it "consulted extensively" with the amateur community to coordinate WPR operation and said plans for an extensive WPR network at 449 MHz were proceeding.

Annexed to the NTIA comments were individual comments from members of the Interdepartment Radio Advisory Committee. These include federal agencies ranging from USDA, the National Weather Service, and the Department of Defense to NASA. All opposed reallocation from the federal government. Some, such as the NWS, specifically cited the value of Amateur Radio public service and the network of 150,000 weather spotters on call for emergencies. On a more practical level, the Department of Defense said that interference from its radars and communication activities, including "very high power critical safety-of-life command destruct, flight termination and drone control", would preclude sharing with PMRS.

Several commenters were altogether silent on amateur issues. A few challenged the FCC to address the larger issue of private wireless spectrum allocation policy or urged the FCC to issue a Notice of Inquiry to initiate a dialogue on spectrum needs. The Industrial Telecommunications Association (ITA) encouraged the Commission to respond "with a publication of its own views on the character and needs of the private wireless community." The ITA said the petition "makes a compelling case" for additional PMRS spectrum. Other commenters said they felt the needs of the private radio community had been subsumed by demand for consumer wireless services. Some debunked the notion that commercial services could satisfy private wireless needs.

Some organizations indicated full and wholehearted support for the LMCC petition. These included the UTC, The Telecommunications Association, an LMCC member that, itself, represents other commercial spectrum users. Motorola declared that private wireless users "are in dire need" of new spectrum. The American Petroleum Institute urged the FCC to "move forward as soon as possible" on the LMCC petition.

The 08 June issue of *Wireless Week* reported that Hams "flooded the FCC with letters" opposing RM-9267, "often in vehement terms." The article, "Hams Oppose Spectrum Sharing," by Caron Carlson, says that Hams "warned the FCC that any further loss of their spectrum would be debilitating to the services they provide to the public free of charge," including help in natural disasters and emergencies..

In a related matter, the American Automobile Association said it received incorrect information from the LMCC about how amateur frequencies came to be identified as targets for reallocation. Triple-A had told some correspondents that the Spectrum Planning and Policy Advisory Committee (SPAC) worked

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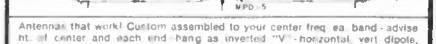

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with the NTIA to identify 70 cm for reallocation. "We now know that was incorrect and that it was the LMCC that initiated the plan without support from either SPAC or NTIA," the AAA's Gary Ruark said in response to a letter from ARRL Executive Vice President David Sumner, K1ZZ. Ruark said AAA's future correspondence would "reflect the correct information."

Ruark also said AAA would contact the LMCC secretary and other Council members to discuss the status of the petition. "We are aware that the Association of Public Safety Communications Officials (APCO) has withdrawn its support and that may have a bearing on how the remaining LMCC members perceive the value of the petition," Ruark wrote.

Next WRC to be in 2000

It's settled. The next World Radio Conference, until now referred to as WRC-99 for planning purposes, actually will take place in 2000. The ITU Council decided the question when it met 20-29 May in Geneva. What's now likely to be called WRC-2000 tentatively is set to be held 08 May to 02 June of that year in Istanbul, Turkey. The agenda and final schedule are subject to confirmation by the ITU Plenipotentiary Conference this fall in Minneapolis.. The change also means the following WRC won't happen until at least 2002.

Still hoping for an allocation of additional spectrum will be the low-Earth orbiting satellite industry, the infamous "Little LEOs." The industry seeks an additional 7 to 10 MHz of spectrum below 1 GHz.

Another potentially hot Amateur Radio topic at the next WRC is a technology called "fixed wireless access." FWA uses radio instead of wires to connect user telephone or data equipment to an access point in the public switched telephone network. FWA proponents are looking at the suitability of more than 100 frequency bands between 27 MHz and 66 GHz, some of which involve amateur bands.

An ITU task group has also been studying the topic of "unwanted emissions," which includes both spurious emissions and out-of-band (OOB) emissions. OOB emissions include splatter and key clicks. A plan to replace current spurious emission limits with more stringent standards was adopted at WRC-97. Still under consideration are new spurious emission limits for spacecraft and mandatory OOB limits for all radio services.

One issue of concern to Amateurs may be postponed to WRC-2002 or later. The Earth Exploration Satellite Service has been eyeing the 430 to 440 MHz band for use by synthetic aperture radars (SARs). These systems are capable of penetrating the upper canopy of a rain forest to monitor ecological changes. The ARRL and the IARU already have introduced papers expressing concerns with respect to the use of the 420 to 450 MHz band. However, it now appears that the ITU will not take up the issue at the next conference due to a lack of funding.

For more information on "WRC-99" preparations, www.fcc.gov/wrc-99.

FCC to tighten scanner rules

The FCC plans to further tighten its rules on scanning receivers to prevent reception on cellular telephone frequencies. In a rulemaking notice released 03 June, ET Docket 98-76, the FCC proposed to require receiver filtering adequate to prevent cell phone reception even when the receiver is tuned to frequencies outside the cellular telephone bands, such as an image frequency. To prevent modification of legal receivers to receive cellular frequencies, the FCC wants scanning receivers designed so that the tuning and control circuitry is "completely inaccessible," and that attempts to modify the receiver "will likely render the equipment inoperable." The proposed rules also would prohibit scanner kits.

The FCC said the proposals were in response to a petition (RM-9022) from Uniden American Corporation, which manufactures both cellular telephones and scanners.

The proposed rules would affect Amateur Radio equipment that includes scanning capability, as defined in the FCC rules. The FCC has invited comments on whether it should modify its definition of a scanning receiver to include units that can be manually tuned or which automatically switch among fewer than four frequencies.

The FCC wants to require that scanners provide at least 38 dB of rejection for cell band signals at any frequency the receiver can tune. The FCC also proposes that scanners be unable to receive a signal level of 5mV/meter or less in the cell band at any tunable frequency.

The FCC suggested covering control and tuning circuits with epoxy or some other substance, or encasing them in a non-removable metal compartment, to make them impossible to access and modify. The Commission also plans to ban the import or manufacture of scanning receiver and converter kits capable of receiving cellular frequencies. Test equipment would be exempted from the definition of a scanning receiver, however.

The FCC also proposed modifying the rules to make it clear that modification of scanning receivers on a substantial scale to receive cellular frequencies would be the same as manufacturing, which already is illegal. The FCC took the opportunity to point out that it's still illegal to modify receivers imported or manufactured prior to the effective date of the current scanning receiver rules. Those rules became effective 26 April 1994.

The complete petition is available at the FCC Web site at www.fcc.gov/oet/dockets/et98-76/.

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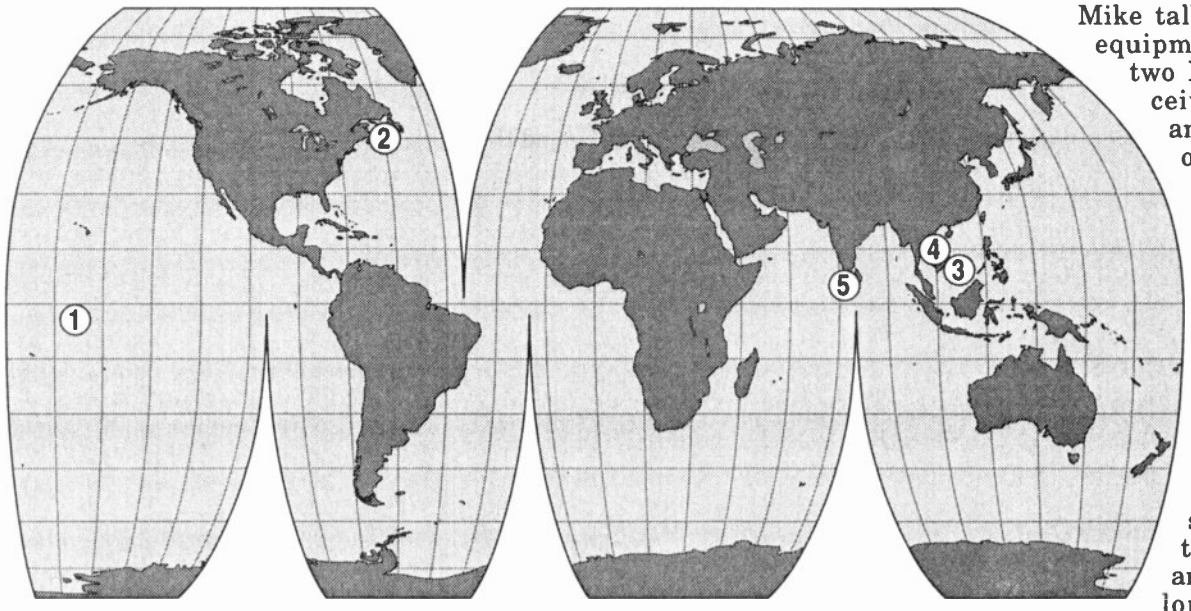


Exotic DX locations covered at the Dayton DX Forum were 1) ZK1XXP, North Cooks; 2) ZYØ, St. Peter and St. Paul Rocks; 3) 9MØC, Spratly; 4) XW3Ø, Laos; 5) 8Q7AA, Maldives

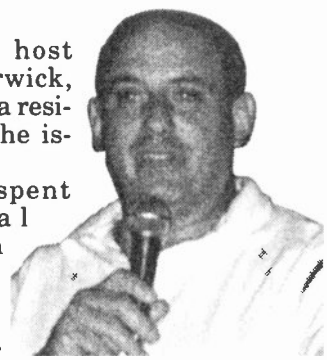
The ones who got away — Dayton DX Forum

ACE JANSEN, N3AHA

The DX forum started with Steve Bolia, N8BJQ, welcoming everyone and explaining the reasons DARA decided to move the DX and Contest forums off the Hara Arena campus. These forums historically get a big draw, and it was worth dedicating space off campus for the forums. Steve introduced each of the five presentations.

ZK1XXP, North Cooks

Mike Mraz, N6MZ, was the lead-off speaker and gave an entertaining presentation of the multi-operator, ZK1XXP DXpedition to North Cook Islands, sponsored by the Dateline DX Association. The highlight of their trip was their 7-day operation on Penrhyn Island in September 1997. Also making the trip with Mike were K8XP, N4RF, N7RO, KI6AN, WA4YBV, and ZA8IR.



Their host was Warwick, ZK1WL, a resident of the island.

They spent several nights on the South Cook Island of Rarotonga on the way. Rarotonga is a popular scuba diving spot. Getting the ZK1 license was an island breeze, just 20 minutes! When Saturday rolled around it was time to get up at 3 a.m. to catch the turboprop Air Rarotonga flight to Penrhyn Island. It's a weekly flight, so that's why their trip was a 7-day operation, Saturday to Saturday.

Mike talked about their equipment. They used two Icom 756 transceivers with QRO amplifiers and lots of antennas: an A3 at 50 feet, a TH3 at 30 feet, a 40-foot rotatable dipole, a Hygain DX77 vertical, an Outbacker vertical, and a Battlecreek Special for the low bands.

Interesting stories included the unusual guy anchors — 55-gallon drums of jet fuel; a melted PL259 on Sunday which they couldn't fix until Monday, since no outside work is allowed on Sunday on the island; and a blown 50-amp breaker on the 240-volt Oman diesel generator that Warwick allowed the operators to use. Consequently, they operated a few days without amplifiers on the backup generator.

Penrhyn island was formed by a volcanic crater that collapsed, creating a lagoon with a circle of islands. Mike said the temperature in the lagoon was 90° F, air temp was 90° F, and the sea temp was 80° F. There are 300 inhabitants on the island and Warwick does weather research, launching radar balloons to test upper atmospheric conditions. Warwick has tracked a balloon to 40,000 feet, a record!

The ZK1XXP team had two official duties closing down the station:

1) they attached an island memento to the Battlecreek Special box crate, a tradition also accomplished by the previous DXpeditions using the same antenna, VP8SSI, AH1A, YKØA, and CYØXX, and

2) they attended a prayer breakfast hosted by native islanders in their honor.

All told, the team made 15,299 contacts with 6,708 on SSB, 8,101 on CW and 490 on RTTY. Not bad for one week of operating.

St. Peter and St. Paul Rocks, ZYØ

The next speaker was Karl Leite, PS7KM, who discussed a February 1997 operation from St. Peter and

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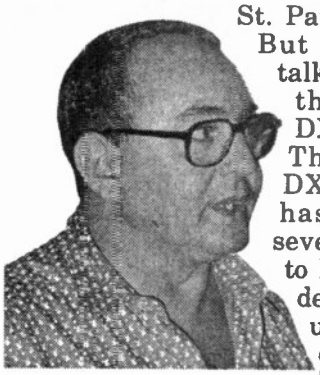


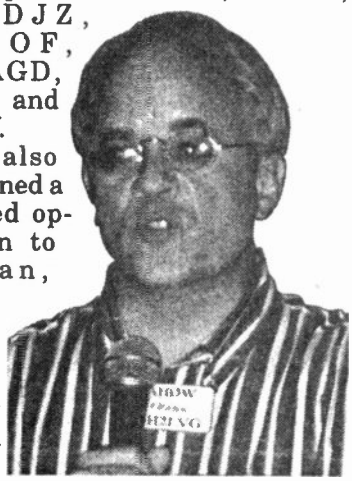
St. Paul Rocks. But first, he talked about the Natal DX Group. The Natal DX Group has made several trips to Fernando de Noronha under calls ZYØFA and PYØFF. Karl talked about trips involving four days on a boat and two months on the island.

In February 1997, Karl, operating as ZYØSK and Tino, PT7AA, operating as ZYØSG, managed 10,000 contacts from St. Peter and St. Paul Rocks. Karl talked about the small boat they had to take from the fishing boat and how difficult it was to land on the island. The strategy was to wait for the waves, then pull the boat against the rocks and climb the rocks quickly before the waves came back. Karl and Tino were very dependent on help from the fishing boat crew members.

Since it was very hot, 45° C, they operated from a small tent. Their antenna was an all-band vertical. When Karl finished, someone from the audience impressed by the difficulty of the landing asked Karl if he was crazy. Without hesitation, Karl responded, "Yes!"

XW3Ø, Laos

Frank Smith, AHØW/OH2LVG, talked about his operation celebrating the 30th Anniversary of the Laotian News Agency, hence the call XW3Ø. Actually, the operators used XW3Ø on CW and XW3ØA on SSB. 27,000 contacts were made by a series of operators: JH1AJT, JAØDAI, SMØDJZ, JP1IOF, SMØAGD, XW1A, and AHØW.



He also mentioned a planned operation to Bhutan, A51, with Zorro, JH1AJT, in early 1999. A second Laos operation is in the works. Stay tuned...

Maldives, 8Q7AA

Warren Hill, K7WX, recapped the January 1998 operation from Maldive Islands. The operators included KP4RF, KM5EP, N6NT, AF7O, K7WX, K7ZV, NA7DB, and W8AEF. Warren discussed the antennas: a Force 12 C3 tribander, an RF vertical, 700-foot beverages, and a 160-foot Gladiator antenna. They also utilized Dunestar filters and coaxial stubs to provide 40-50 dB isolation.

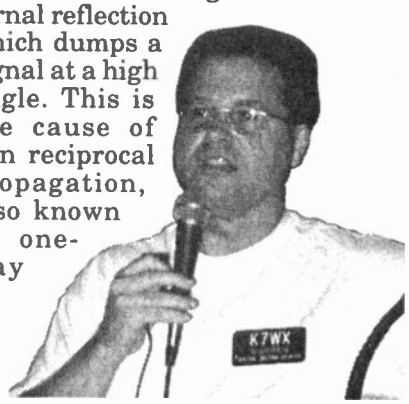
The purpose of this talk was not to discuss the operators, equipment or DXpedition results. Warren set out to educate the audience on the finer points of low band propagation, specifically top band, 160 Meters. The DXpedition used propagation forecasts by NM7N, author of the book, *The Little Pistol's Guide to HF Propagation*. Warren also highly recommended a computer program, Mini Prop Plus to do MUF forecasting and a relatively unknown program, DX Aid, to predict the Aurora Polar Oval. You see, MUF has nothing to do with HF propagation on 80 and 160 Meters.

The key to successful 160M or 80M contacts is a path through darkness. Also, it's important to avoid polar ionization or, put another way, minimize exposure to ionization at the auroral polar oval. Warren went on to say, propagation between two locations that passes through the polar oval is virtually impossible. That's why at certain times of the year, you may not be able to contact a DX location on 160 or 80 Meters.

If you utilize a program, such as DX Aid, to map the auroral polar oval, one can tell when propagation is possible between two locations. The mapping program will confirm that propagation is more likely during a time of low magnetic activity (darkness) and a target location near the terminator (also known as the gray line). Best times are 1½-2 hours after sunset and then an evaluation of what areas have shared darkness without a path through the polar oval. Also important is the K index; the size of the polar oval is directly proportional to a higher magnetic K index value.

Warren showed several paths, using different DX locations, different frequencies, and different K indices. It was rather fascinating to learn when propagation is and isn't possible. Making contact on 160 and 80 Meters is really a science.

A contact that stumped the researchers was using a form of propagation called ducting: an efficient internal reflection which dumps a signal at a high angle. This is the cause of non reciprocal propagation, also known as one-way skip. Warren analyzed the 8Q7AA, 9MØC, S21XX, VK9XY and two other DXpeditions for this talk.



For those of you interested in learning more about the polar oval, take a look at *The Little Pistol's Guide to HF Propagation. (available from Worldradio Books, see p. 70.)* Also, to predict the polar oval, DX Aid is available from Peter Oldfield, 251 Chemin Beaulne, Piedmont, Quebec JØR 1KØ, Canada for $25 US.

The Dayton DX forum had something for everyone: DXpeditions run like a business, dangerous adventures, beautiful pictures with local history, and a low band propagation lesson. If you make it to the Dayton Hamvention next year and you have an interest in DX, I strongly recommend you make your way to the High School and enjoy the DX forum.

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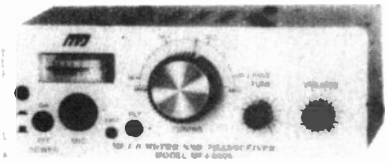

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MFJ Dual Band 6/2 Meter Mobile

On 6 Meters, it's a high performance *full quarter wave* mobile magnet mount antenna. On 2 Meters, it's a *maximum gain* 5/8 wave antenna. Low SWR, handles 300 Watts. MFJ-1728B **$24.95**

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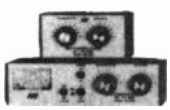

MFJ-906, $79.95. Lighted 2 Range Cross-Needle SWR/Wattmeter, bypass switch. 100 watts FM, 200 Watts SSB PEP. 8x2½x3 inches.

MFJ-903, $49.95. Like MFJ-906, no meter, bypass switch. 5x2½ x3".

MFJ-945E, $109.95. Compact *mobile* tuner covers 6 Meters thru160 Meters. Lighted Cross-Needle SWR/Wattmeter. Antenna bypass switch. 300 Watts PEP SSB. 8x2x6". Mobile mount, **MFJ-20, $4.95.**

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Full size performance also gives you exceptionally wide bandwidths so you can use more of your hard earned frequencies.

Full size performance is achieved by using separate full size radiators for 2 through 20 Meters and highly efficient end loading for 30, 40 and 75 /80 Meters.

Get very low radiation angle for exciting DX, automatic bandswitching, omni-directional coverage, and low SWR. Handles 1500 watts PEP SSB.

MFJ's unique *Elevated Top Feed*™ elevates the feedpoint *all the way to the top* of the antenna. It puts the maximum radiation point high up in the clear where it does the most good -- your signal gets out even if you're ground mounted.

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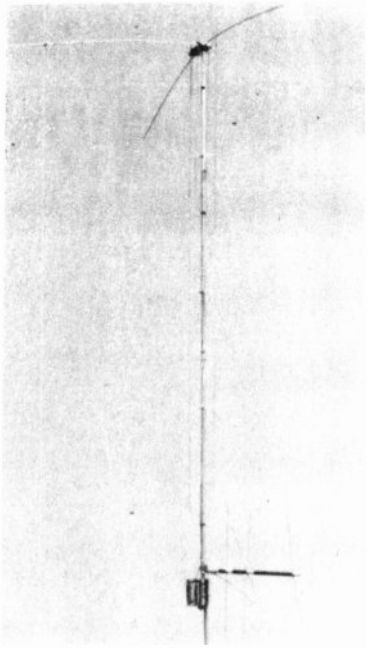
Self-supporting and just 20 feet tall, the MFJ-1798 mounts easily from ground level to tower top -- on small lots, backyards, apartments, condos, roof tops, tower mounts.



MFJ-1798
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Separate *Full Size* Radiators

***Separate** full size* quarter wave radiators are used on 20, 17, 15, 12, 10 and 2 Meters. On 6 Meters, the 17 Meter radiator becomes a 3/4 wave radiator.

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This forms a very large equivalent radiator and gives you incredible bandwidths.

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MFJ's unique *Frequency Adaptive L-Network*™ provides automatic impedance matching for lowest SWR on these low bands.

Tuning to your favorite part of these bands is simple and is done at the *bottom* of the antenna.

No Ground or Radials Needed

You don't need a ground or radials because an effective counterpoise that's 12 feet across gives you *excellent* ground isolation.

You can mount it from ground level to roof top and get awesome performance.

No Feedline Radiation to Waste Power

The feedline is decoupled and isolated from the antenna with MFJ's exclusive *AirCore*™ high power current balun. It's wound with Teflon® coax and *can't* saturate, no matter how high your power.

Built to Last

Incredibly strong solid fiberglass rod and large diameter 6061 T-6 aircraft strength aluminum tubing is used in the main structure.

Efficient high-Q coils are wound on tough *low loss* fiberglass forms using highly weather resistant Teflon® covered wire.

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MFJ *Super Hi-Q Loop*™

MFJ-1786
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MFJ's *tiny* 36 inch diameter *high efficiency* loop antenna lets you operate 10 to 30 MHz *continuously* -- including the WARC bands!

It's ideal where space is limited -- apartments, small lots, mobile homes, attics, motor homes.

Enjoy both DX and local contacts when you mount it vertically. You get *both* low angle radiation for excellent DX *and* high angle radiation for local close-in contacts. Handles 150 watts.

Super easy-to-use! Only MFJ-1786 *Super* Remote Control has *Auto Band Selection*™. It auto-tunes to your desired band, then beeps to let you know. No control cable is needed.

Fast/slow tune push buttons and built-in two range *Cross-Needle* SWR/Wattmeter lets you quickly tune to your exact frequency.

All *welded* construction, no mechanical joints, welded butterfly capacitor with no rotating contacts, large 1.050 inch diameter *round* radiator -- not a lossy thin flat-strip -- gives you highest possible efficiency.

Each plate in MFJ's *superb* tuning capacitor is welded for low loss and *polished* to prevent high voltage arcing. It's welded to the radiator, has nylon bearing, anti-backlash mechanism, limit switches and a continuous *no-step* DC motor for *smooth precision* tuning.

A heavy duty 1/8 inch thick ABS plastic housing with ultraviolet inhibitors protects it.

MFJ-1782 $289.95. Same as MFJ-1786 but remote control has only fast/slow tune buttons.

NEW! **MFJ-1788**, $379.95. Same as MFJ-1786 but covers ***40 Meter through 15 Meter*** continuous. Includes super remote control.

Super 80/40M Vertical

MFJ-1792
$159.95

Designed as a *high performance* antenna for 80 and 40 Meters, the MFJ-1792 features a *full size* quarter wave radiator for 40 Meters - - that's a full 33 feet of ruthless radiating power.

End loading -- the most efficient form of loading -- is used for 80 Meters. It's accomplished by a virtually lossless 4½ foot capacitance hat and a high-Q coil wound with Teflon® wire on a *low-loss* fiberglass form.

The *entire length* radiates power.

High strength 6061-T6 aluminum tubing, super strong solid fiberglass insulator, *Frequency Adaptive L-Network*™, heavy duty *swing* mount. Handles 1500 watts PEP. Requires guying and radials, counterpoises or ground screen.

MFJ-1793, $179.95. Same as MFJ-1792 but includes *full size* 20 Meter quarter wave radiator.

Box Fan Portable Loop

MFJ-1780
$229.95

No, it's not a fan -- it's a high efficiency portable loop antenna that's about the same size and shape as a 2x2 foot box fan, complete with carrying handle.

Carry it like a suitcase, tuck it in a corner of your car or check it as baggage on a plane.

When you get there, set it on a table or desk and enjoy ragchewing or DXing.

All welded construction, covers 14-30 MHz *continuously* including WARC bands, handles 150 watts. Remote control has fast/slow tune buttons. Separate control cable not needed.

MFJ *halfwave* Vertical

6 bands: 40, 20, 15, 10, 6, 2 Meters . . . No radials or ground needed!

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Operate 6 bands -- 40, 20, 15, 10, 6 and 2 Meters -- with this MFJ-1796 *ground independent halfwave* vertical antenna! No radials or ground ever needed!

It's only 12 feet high and has a *tiny* 24 inch footprint! Mount it anywhere from ground level to tower top -- on apartments, condos, small lots, even motor homes. Perfect for vacations, field day, DX-pedition, camping.

Efficient *end loading*, no lossy traps. *Entire length* is always radiating. *Full size* halfwave on 2 and 6 Meters. High power *air-wound* choke balun eliminates feedline radiation. Adjusting one band has minimum effect on other bands.

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World Radio History

9MØC: 1998 CDXC Spratly Islands DXpedition

DON BEATTIE, G3OZF

For many HF operators, DXpeditions provide a high level of excitement. Not only is there an opportunity to work a rare country, there is the thrill of vicariously sharing the challenges faced by operators who travel to remote parts of the world.

During my years in Amateur Radio, I, too, have eagerly awaited the activation of rare countries, so it was a wonderful opportunity when a group of colleagues from the CDXC (Chiltern DX Club), the UK DX Foundation, decided to mount a major DXpedition to a rare country. It didn't take long to decide that the Spratly Islands would provide an excellent choice for such an expedition. They are relatively easy to reach, accommodations are available, and in the Malaysian part of the group there are no licensing difficulties. And so it was in the summer of 1996 plans began to form for a major effort to take the Spratly Islands off the "most wanted" lists of DXers.

The Spratly Islands have a unique place in Amateur Radio folklore. Located in the South China Sea, they are disputed territory. Viet-Nam, Malaysia, the Philippines, China, Taiwan, and Brunei have each made claims on some or all of the islands or the surrounding seas. In past years, expeditions have been fired on by military forces from one or another of these countries and, tragically, two amateurs died in 1983 from such action. Fortunately, all is more peaceful now and the island of Layang Layang is an idyllic retreat for keen divers and radio amateurs.

Layang Layang lies some 160 miles northwest of Kota Kinabalu in Borneo. Built up from the original sandbars, it now houses a small base for the Malaysian navy and a dive resort with some of the best scuba diving in the world. The island's reef is some six miles in circumference with ocean walls reaching down 2000 feet. The island itself is some 300 by 1100 meters.

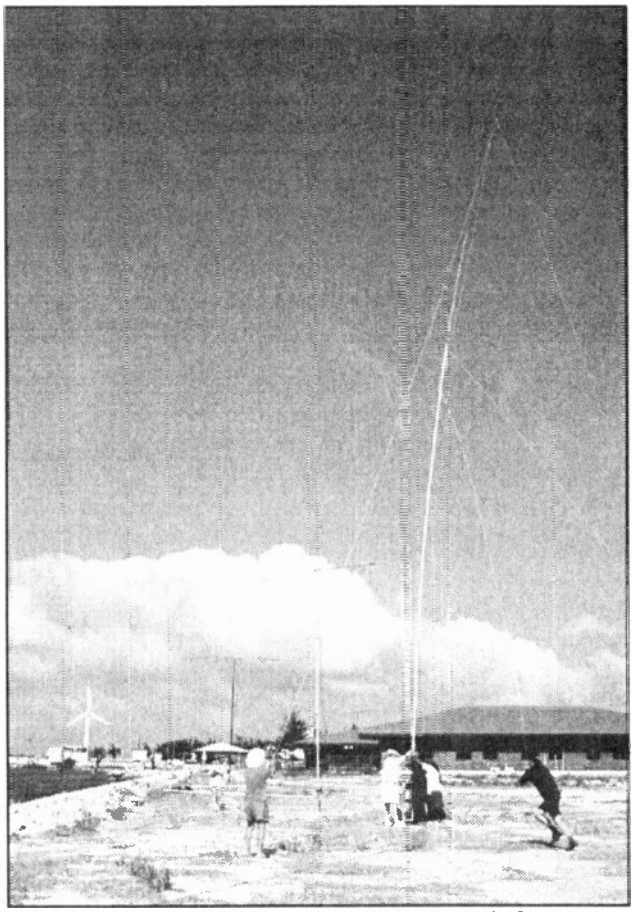
The team and its objectives

From the start, the team nucleus was created from a small group of CDXC members: Neville Cheadle, G3NUG; Don Beattle, G3OZF; Steve Lowe, G4JVG; Don Field, G3XTT; John Linford, G3WGV; and Tony Canning, GØOPB. The team was later joined by Ray Gerrard, G3NOM (who was living in Malaysia at the time); Mike Devereux, G3SED, Vince Thompson, K5VT, John Krzymuski, N2OW (also G4DQW); Jeff Morris, 9H1EL; and Kazu, JA1RJU. Our local logistics support came from Donald Soh, 9M6SU.

Early in the planning we agreed that our mission would be "to reach those parts that other Spratly DXpeditions had not reached" — a challenge for an operation near the minimum of the sunspot cycle.

The advance party

On 06 February, I left London via Kuala Lumpur for Kota Kinabalu (KK). This was the starting point for the more adventurous part of the journey by small plane to the island. Ray, G3NOM, and I were the advance party, arriving 48 hours before the main team. We also flew in the full set of Yaesu equipment and the boxes, air-freighted from London on the same plane, a trusty Twin Otter. The heavier equipment, all 1.5 tons of it, had been delivered to the island by trawler a few days earlier. On 08 February, Ray and I presented ourselves at the airport in KK for the 75-minute flight to the island. The plane was virtually full of freight and we were both wedged between boxes and crates in very cramped conditions. We flew out at 6000 feet over the South China Sea in perfect weather. The ground temperature was about 35°C, but in the plane it was cool and comfortable. As we approached the area of the island, clouds appeared below us, denying us a view of the sea. Then, magically, there was a gap in the clouds and there it was, Layang Layang in a pool of sunlight, the destination for our expedition.



OK, you guys just hold the base of the mast for the next 7 days...

On Tuesday, 10 February, the main party arrived from KK. After

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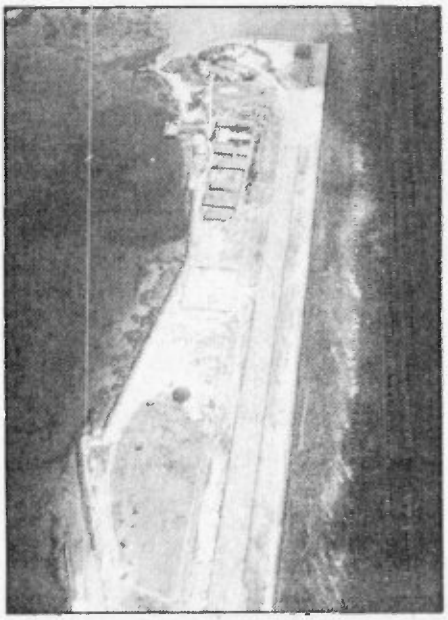


Layang Layang, not much room for the long wires.

taking an hour or so to assess the situation, we agreed to house all stations in the large, air-conditioned conference room. This provided better access to the large antenna space and allowed greater flexibility in antenna selection. During the next 36 hours, we assembled a vast antenna farm. In intense heat, we erected four HF Yagis, two four-square vertical arrays for 40 and 80 Meters, an 80-foot high Titanex vertical for 40/80/160M, phased verticals for 10 MHz, a Battle Creek Special vertical for 40/80/160, and Yagis for 6 and 2M. We also assembled six stations and a computer network for real-time logging and creation of logs for uploading by satellite phone to the Internet.

We were a little worried at the response of the naval base personnel to the creation of a major transmitting station so close to their installation, so we took great care to meet the head of the base and explain our objectives. We were delighted to receive total cooperation, even to the extent that naval personnel helped with some of the antenna erection work. By 23:30Z on the following day, we were ready to go, a full 24 hours ahead of schedule. We arranged four-hour shifts for operators, giving each operator eight hours a day for operating, eight hours for sleep, and eight hours for relaxation — in theory!

9MØC on the air

Steve, G4JVG, made the first contact and from there it didn't stop. In the first 24 hours we had 8,000 QSOs in the log and the rate continued steadily throughout the whole expedition.

Conditions, though not outstanding, were acceptable. The solar flux peaked at 107 during the operation, but subsequently declined toward the end.

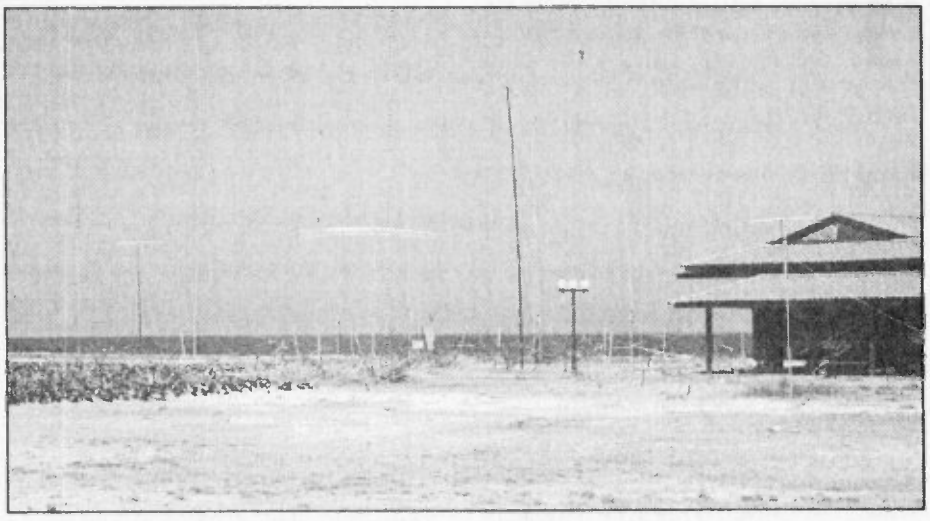
Operating from Spratly

It was a unique privilege to operate from Spratly with such a range of state-of-the-art equipment. Four Yaesu FT-1000MPs with VL-1000 solid-state linear amplifiers worked flawlessly during the 12 days of 24-hour/day operation. Two other stations used FT-920 transceivers "barefoot" with excellent results. The antennas went together easily and performed exactly to specification.

On any DXpedition, quickly getting to know the times for band openings to various parts of the world is vital. Using our own propagation predictions and the input from our pilot stations, we quickly built up an understanding of which bands to use when and to where. As expected, peak activity was around dusk and dawn when all nine LF and HF bands were buzzing with signals. This forced some tough choices and even with the six HF stations available, we were unable to cover all the available bands during these periods. During the night, 160, 80, 40, and 30 were very busy, and during the day all bands between 14 and 28 MHz had reliable propagation.

Pile-up discipline was varied. Japan and the U.S. were generally good, but Europe.... All the operators had plenty of opportunity to brush up on their pileup techniques, and given the volume of callers we had, it's rewarding that we were able to keep up the QSO rate. CW QSO rates peaked at over 300/hour on one station, with SSB rates peaking even higher — this in conditions where we were taking pains to give our own call sign very regularly, thus slowing QSO rates.

The days of operating dissolved into a blur. Most operators began to suffer a little from disturbed sleep patterns (particularly Mike, G3SED, and Don, G3XTT, who shared the overnight 160-meter operating), but after awhile we became acclimatized to taking short naps when time allowed. I was able to study and pass my PADI diving qualification and explore some of the coral reef areas off the island. The opportunity to see hammerhead sharks, white tip sharks, sea turtles, manta rays and dolphins was truly a memorable experience.



Sunlight reflecting off a beam....what more could you ask for?

The final tally

The end results show 65,524 QSOs in 180 countries over the ten bands from 6 Meters to 160 Meters, including 2,075 QSOs on RTTY and 1,149

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on 160 Meters. This DXpedition has the fourth highest QSO total ever, and we believe the highest of any on RTTY.

The support we received from the resort personnel could not have been better. Always accommodating to our needs, they went out of their way to help and ensure that we had everything we needed. This included refurbishing our nine wooden packing crates for their return sea voyage, and handling the logistics of shipping the air freight in the tiny aircraft that serves the island as its only regular transport link with the rest of the world.

At the end of the operation, it took little more than a day to pack everything and ship it back to the UK. We all flew out of Layang Layang, happy that the job was well done, but sad to leave a tropical desert island which had been our home for two weeks.

A welcome dinner hosted by the Sabah Tourism Promotion Corporation and a press conference, attended by the minister for tourism, awaited us in KK followed, for me, by the long flight home. Before returning to the cold and mists of England in February, the others made a brief stopover at the Hiliview Gardens Resort at Keningau in the Borneo highlands. The resort is run by Doris and Alfons Udans, 9M6DU and 9M6MU.

We hope to prepare a book on the experience of mounting a major DXpedition from scratch. Next time it will be a bit easier! In the words of Martti Laine, OH2BH, "Where do we go next?"

The 9MØC DXpedition team extends its gratitude to INDEXA for its support during the 1998 operation.

(Reprinted with permission from the INDEXA Newsletter, *Winter, 1998)*

Field Day on the Magic Band

KEN NEUBECK, WB2AMU

The Magic Band of 6 Meters has seen growth in activity, particularly during the past five years, to the point where there have been more clubs taking equipment for 6-meter operation during Field Day, the premier Amateur Radio event. 1998 may well mark the year in which the turning point occurred for 6 Meters, when it became one of the premium bands for clubs to operate on during Field Day. This is because many clubs in the U.S. and Canada that remembered to take 6-meter gear with them were rewarded with two back-to-back days of Sporadic-E activity on 27-28 June that was both long and had wide coverage. Based on the logs generated from various clubs throughout North America, it was hard to imagine that there was any area that did not see some sort of skip activity during the 24-hour period! The Magic Band at many locations became the supernatural band!

Because of the terrific openings and the large number of stations present on 6 Meters during Field Day, many clubs throughout the country easily made over 100 QSOs on 6 Meters with several clubs exceeding 200 QSOs. One of the more active stations, K4TLH, out of North Florida hit the 400 QSO mark during the two-day period. It seemed like the best place to be for 6-Meter action was in the middle of the country in the 8, 9 and Ø call areas, as skip was working both east and west from there. K9BGL, out of Illinois, said on the air that he worked all 48 contiguous states during the Field Day period. Many clubs experienced double-hop Sporadic-E during Sunday morning. How about this for a band that has often been neglected in the past?

I set up and operated the 6M station for the Peconic ARC, W2AMC, out of Eastern Long Island at the Hortonís Point lighthouse in Southold and saw the best band conditions on 6 Meters ever during the Field Day period! We ran 150 Watts into a 3-element beam up 22 feet at our 80-feet-plus height above sea level, from our location on the north shore of the island overlooking the Long Island Sound. At W2AMC, we worked over 265 stations on 6 Meters (over 200 of them via Sporadic-E and the rest by line-of-sight). There were so many stations to be worked on 6 Meters that it was the number one band for our Field Day group (as it was for many other groups in the U.S.), accounting for almost a quarter of all of the contacts during the FD period. During one particular one-hour stretch of time on Sunday from 1220Z to 1320Z, we worked 65 stations. We also saw double hop Sporadic-E during Sunday morning with contacts into Colorado, Utah and Idaho. We basically had the beam pointed west during the entire time on Sunday. Another local club station on Long Island was the Radio Central Club out of Rocky Point, about 30 miles west of W2AMC, and they made around the same number of QSOs on 6 Meters as we did at W2AMC.

Yet, while listening to 6 Meters during some band openings days after the contest, I heard some stations say that they did not experience much activity and questioned whether they should bother taking 6 Meters to their Field Day group next year. I noticed that these sta-

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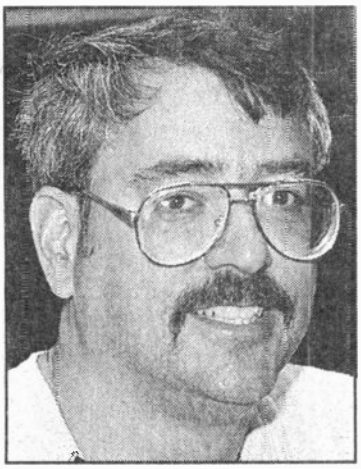
tions were from locations that I had worked during the furious action on Sunday morning. All I can say is that perhaps they did not leave the 6-meter rig on or check the band periodically to take advantage of skip activity. It is almost a safe assumption to say that at some time during the 1998 Field Day period, there was Sporadic-E activity through almost all of the U.S.

I know what you're thinking: Why should you take 6 Meters when you may be in an area of little line-of-sight activity (say a place like Wyoming)? To this I say, can you afford not to? I even heard a Wyoming Field Day group briefly on the band this year and I am sure that they were glad they had 6 Meters. They were probably cleaning up with the large number of stations throughout the country that were coming through on Sporadic-E skip. The odds are always good that some Sporadic-E activity will be seen during Field Day as the months of June and July are the best for Sporadic-E for stations in the Northern Hemisphere. Even in the worst conditions, which happened during our Field Day in 1997, I was able to work 10 stations via Sporadic-E while working another 90 via line-of-sight.



Ken Neubeck, WB2AMU

For those stations in locations that fall into this situation, take the 6-meter rig and leave it parked on 50.125 during the contest while you operate other bands. If you hear some activity break through, you can take advantage of the skip conditions. If you have an HF+6 package, make a point to periodically check up and down the band during the Field Day period. Remember the 6-meter station is a VHF station and does not count as a transmitter toward your transmitter class in the scoring! There is no excuse not to monitor the band at some time during Field Day.

It's easy to set up a modest station on 6 Meters for Field Day. An omni-directional antenna such as a squalo or Saturn Six will work, but not always during marginal conditions. I recommend some sort of directional antenna, such as a two- or three-element Yagi, be put up as high as possible. This can be accomplished by using telescoping mast or five-foot mast sections (available at Radio Shack). Even if one only has 10 watts for 6 Meters, a decent antenna setup described here will do reasonably well. Of course, results will generally be better when higher power levels are used.

When you run higher power, it's easier to hold on to a frequency where you can call CQ for longer periods of time. This is hard to do with a 10-watt station, and using the hunt and peck method works best for lower power stations. A station using an amplifier that can put out 150 watts will find it easier to hold on to the frequency for calling CQ, particularly as you get in areas close to the 6-meter calling frequency of 50.125 MHz. The advantage of being able to stay on one frequency and call CQ is that you can run very high QSO rates when the band is hot as opposed to moving around and searching for stations, which slows down the rate.

The beauty about 6 Meters is that if you set up your Field Day station correctly, there should be very little intermod interference between 6 Meters and the HF stations as is often seen between 10 Meters and other HF bands. If you can't get 10 Meters going, why not use 6 Meters to fill in the gap? What a lot of Hams don't realize is that Sporadic-E on 10 or 6 Meters is an extremely efficient propagation mode and signals can get very strong during a good opening such as the ones observed during Field Day.

The terrific openings on 6 Meters during the 1998 Field Day will whet the appetite of many of the Hams who were lucky enough to experience them. The word about this year's great event will hopefully provide incentive for groups new to the band to set up a station for next year! Remember, the 6 Meter band does not count as a transmitter toward your overall transmitter classification, so you can essentially work hundreds of stations for free! Hope to see you all on the Magic Band during next Field Day!

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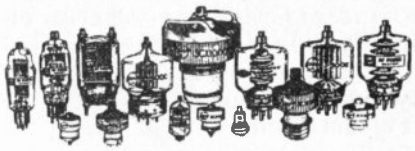

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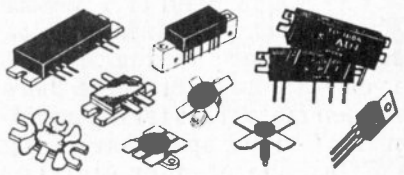

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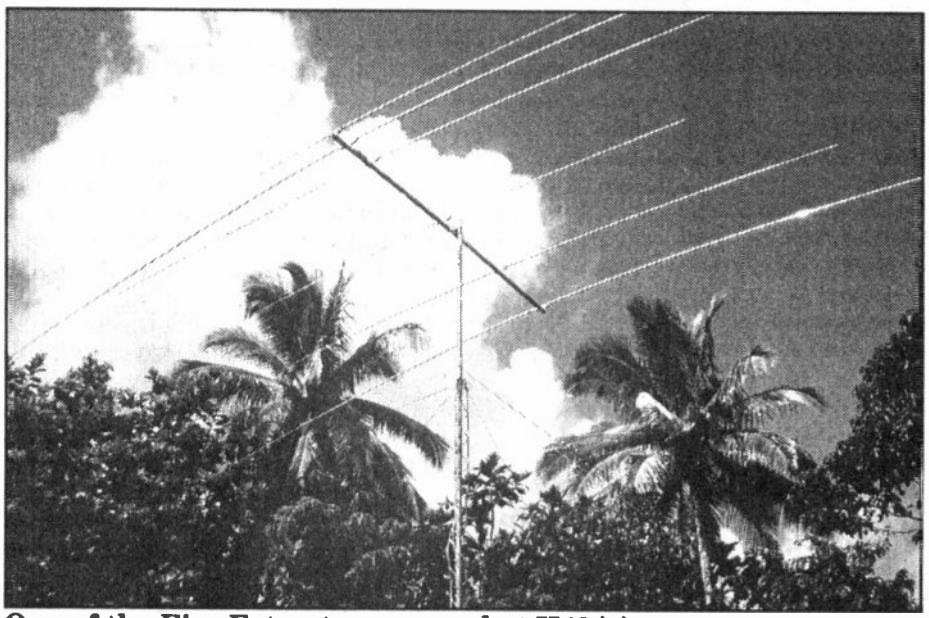
H4ØAA pushing DXpedition envelope to new peaks

MARTII LAINE, OH2BH/BY

It was 20 January 1998 when news broke from Newington of the ARRL completing work on a reform of the DXCC program, the so-called DXCC 2000 project. The expectation was that the action would bring new light to the world of DX for the year 2000, seen as the start of a Big Bang that all were anticipating.

All the serious DXers had scheduled their retirement for Christmas 1999, not only to see the lights of Christmas but also to be ready for a lineup of new countries and maybe starting the whole program all over again — from scratch.



One of the FinnFet antennas used at H40AA.

So it was thought, but this historic January Board Meeting changed the world order; the wise men at Newington decided to set the implementation date for the re-worked DXCC for 31 March 1998, only two months away from the date of their decision. The world was to see hot action no matter how peaceful everything looked at the moment.

Going back to old archives

It was just a matter of reading the new rules, and several brand-new countries appeared quite obvious. Three new entities were immediately identified, based on early research which was just collecting dust in the South China Sea DX Team archives. A few tentative phone calls confirmed that an early network of professional DX people were kind of on their alert, but seemingly not aware of the new prospects.

Personally, I was not quite ready for another outing, specifically because of the tight timing element, but also because I had been around the track more than once. Additionally, the way the DX audience was treating some of our recent Far East initiatives was not particularly to my liking. I did not consider the situation worth the trouble.

Someone else had got his eye on the situation and a team of two was formed. Tim Totten, N4GN, had undertaken another thorough study around the globe and discovered basically the same new ones that were well documented in my old archives. Tim wanted some solid action!

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The year was 1989. While living in the U.S. I had a habit of killing time in the Fresno State University Library's map room and scanning the globe in my quest of potential new ones. This was an era of DX research, probably resulting from my study tour of the only DX library in the world at W6CF. I had to go through a lot of material when preparing my book *Where Do We Go Next* during my time in the U.S.

Jim Maxwell, W6CF, convinced me that it was an everlasting journey to study the DMA maps and search for the ultimate in DXing, discovering another new DXCC country, a holy entity for the DX brotherhood and a source of another potential DX performance.

It was a joyous moment for the librarian and the DX believer himself — a new country was born. Strangely enough, within the busy archipelago of Solomon Islands a sufficient stretch of open water was clearly spotted toward the island group's outer province. The situation was hiding amid a motley cluster of Pacific islands.

Measuring the distance on a variety of maps gave us different readings, some clearly more than 225 miles and others less. The maps dated back to WWII days and had not been updated recently. A number of U.S. government agencies were contacted for satellite measurements, but it was evident that no civilian U.S. geostationary satellites were overlooking that area.

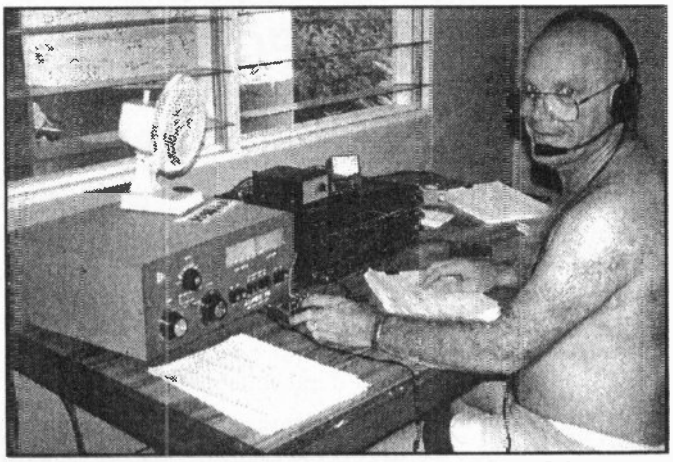
Contact was subsequently made with Stuart Honeysett, (then H44SH), in the Solomons, and his early communication with the local Land Survey Office confirmed the distance as being more than the needed 225 miles. We were in the process of nailing down the dates and transportation when the mapping agency bluntly readjusted the earlier statement and informed us that the distance was short by less

World Radio History

than one mile. What a disappointment: so close but so far.

The initiative was suspended and filed for the next eight years, always bearing in mind, though, that slow movement of the continental shelf might gradually one day take us to Temotu.

The ARRL Board of Directors were to make the continental shelf shift by leaps and bounds when they decided to go metric and convert from 225 miles to 350 kilometers, just enough to close the missing one-mile gap!



Wayne Mills, N7NG, spent the entire thirteen days at Temotu.

The team began to take shape and identify the strategy elements.

A quick call to Wayne Mills, N7NG, confirmed his interest in another DX outing and we soon had a case on our drawing boards. Some of the recent developments bothered us greatly. Wayne had just seen another missile launch cut short the operation at Scarborough, BS7H.

Jammers would build up on any DXpedition frequency, and every expedition was cash hungry, selling coffee mugs at street corners. We agreed to go ahead, but it had to be a clear-cut policy and some new horizons were to be explored in an effort to improve the current code of conduct.

A decision was made not to seek any individual contributions, but to have the DXpedition participants cover their expenses. Only two major DX outlets and one corporate sponsor were involved in terms of providing the expedition with specific transportation facilities, while selected equipment manufacturers were given a choice to participate in building up the H4ØAA sites to high standards of technical excellence.

Wayne, incumbent DXAC Chairman, made his participation conditional, aiming at harmony between the past and the future, trying to test the newly drafted rules in practice, a concept which was to guide us through at H4ØAA in many ways. The operation was to make enough QSOs to please the audience, but our ultimate sights were set far beyond the traditional QSO tallies.

The target set for this write-up was simply to bring into focus these strategy elements in the hope of giving the DX community renewed inspiration in the current age of DXpeditioning and to be well received by the DX audience, called the thundering multitudes.

Our sincere hope was to make H4ØAA more than just a DXpedition, one that would not only provide a lot of QSOs and folded QSL cards. The day had to come for us personally and for the DX community at large to measure up the performance and make a judgment.

Multinational team — multiple knowledge and complementary skills

The month of February was set aside for lining up the team and the logistics. Going public by mid-March was the plan, since we felt that late publicity would see less competition show up in our destination on the day of our grand opening — a reasonable assumption from those of us who had discovered the entity but who were not intent on protecting our discovery in any other way.

While basic confidentiality was maintained, several people with a good track record were contacted to make the team highly efficient with multiple skills and to round up personalities that would fit. The final outline was Tim Totten, N4GN, Wayne Mills, N7NG and Bruce Butler, W6OSP from the U.S. and Pekka Kolehmainen, OH1RY, Pekka Holstila, OH2TA and Martii Laine, OH2BH from Europe and Olli Rissanen, OHØXX/LU from South America plus James Brooks, 9V1YC, from Southeast Asia, and obviously one was needed from Japan, as we had planned. The last-mentioned presented an ultimate challenge because of heavy DX politics in Japan. We had to stand very firm and honor proven performance found outside the inner circles of the Japanese DX community. Aki Nagi, JA5DQH, was invited, coming as he did with an excellent track record and a set of multi-faceted skills. The team was now complete.

It was quite evident that commanding such a broad range of knowledge was to be one of the key elements ensuring the future success of H4ØAA. A lot of effort was required to put the team together in this manner and to facilitate the flow of information and communication, but it was ultimately worth the trouble.

Given the logistical challenges, a limited number of slots were available on the operating team. We looked for people with a wide range of important talents, rather than selling seats at a high price for those who might have deep pockets but less to offer at the actual DXpedition site.

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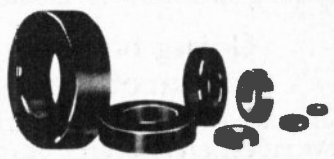

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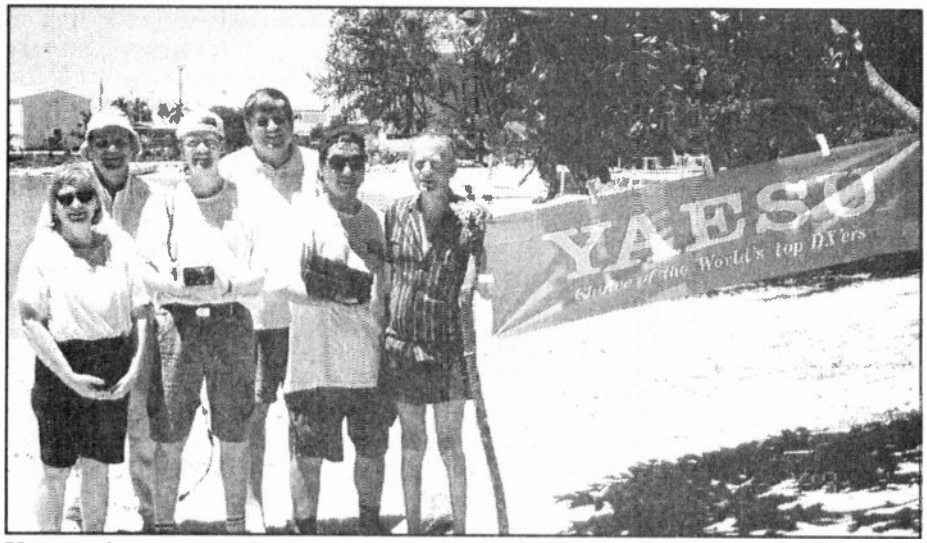

Yaesu donated one complete station to the Solomon islands Radio Society to further strengthen Amateur Radio in the islands. Left to right: Leena, OH2BE, Wayne, N7NG, Pekka, OH2TA, Martii, OH2BH, Aki, JA5DQH, and accepting the donation, Graham, H44GR.

Three phases and tight operating strategy

It was decided that the operation would be organized in three phases with different operators and a different focus for each phase. With this concept, we expected to throw fresh operating power into the battlefield and make maximum use of the available time for each desired operator. It was also known that the facilities at the final destination could not facilitate a large group of people all at once. We knew that we would be going right to the basics. No luxury hotels were to be found in Temotu as their typical housing was crafted from the leaves of palm trees.

Pekka, OH1RY and Wayne, N7NG volunteered to stay in Temotu for the entire duration, thus securing the maintenance of our efforts as well as keeping up with the original strategy elements. Pekka arrived in the Solomons two weeks prior to the actual H4ØAA operation and ran the CQWPX contest from the Temotu expedition site using the then, still-current Solomon prefix H44RY.

The first phase was to run a few selected bands hour after hour for five days and give a first QSO to each DXer in a record time and to allow the thundering multitudes to go back to their daily routines without the pileups calling day in and day out.

The 15-meter band was selected, and both CW and SSB were operated simultaneously to maximize worldwide coverage. As this phase included one full weekend, success was rather obvious. It was surprising that in five days, the basic pileups were largely worked down and the number of different callsigns reached 17,892 (61%) out of a total of 40,836 QSOs at that point. We had worked all Europeans at least once with no often-claimed European hassle — and we still had another eight days to go!

The second stage embraced the weekday phase with another set of operators now launching several other bands and sub-activities such as 160 Meters and RTTY. It was time for those who were willing to get a multitude of bands to be given a break for their investment in time during the week.

The observation was that reasonable pileups were there, but pileup discipline was not the only aspect of Japanese on-the-air behavior. Workplace discipline was remarkably tangible in Japan and consequently few JA QSOs were made during the propagation hours correlating with Japanese working hours. Still a total of 15,107 JAs were logged with 4,525 different call signs.

The third stage encompassed our second weekend phase when the H4ØAA stations returned to the original production bands while also establishing another massive weekend presence on the WARC bands and 17 Meters, which probably represented an optimum mix of both production bands — 20 Meters and 15 Meters. Those who, for whatever reason, missed the opening weekend had another fair chance. Following the initial five-day phase, we were able to log another 26,268 QSOs but they only represented 5,248 new individuals. The second part, according to our strategy, was a clear fiesta for multiple QSOs. As the dust had settled, we had 67,104 QSOs in our books representing 2.9 QSOs per each station worked, the most active stations having 20 QSOs under their belt.

With these three phases or stages, it was felt that there should be no one in any of the three population centers still lacking a Temotu QSO. H4ØAA was to claim 23,140 different people worked during one DXpedition — still far behind the 32,000+ number once achieved at ZA1A — something that can be cited as the ultimate success factor for any DXpedition. This represented an approach where quality took precedence over quantity, both no doubt being inter-related: a distinct three-phase strategy.

Arrangements with local Hams in Honiara

Any DXpedition will have two options. Go independently and ignore the local Amateur population, or go together with the locals and secure their support.

We opted for the latter approach and made contact with the Solomon Islands Radio Society, with the SIRS President, Greg, H44GP and Secretary, Graham, H44GR. They turned out to be a group of jolly good fellows and Hams who assisted us and participated in a multitude of local H4ØAA arrangements.

Such were the dealings with the licensing authorities that we obtained a license for Honiara (H44DX) and a first-ever H4Ø call sign, now representing a dedicated block for this new DXCC entity, a

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major goodwill gesture from the telecom administration.

Customs arrangements were also greatly assisted by the locals who additionally helped us to negotiate a charter deal with their national carrier, Solomon Airlines, to fly two charters to Temotu. The distance was that magic 350-plus kilometers, resulting in a 3-hour flight from Honiara.

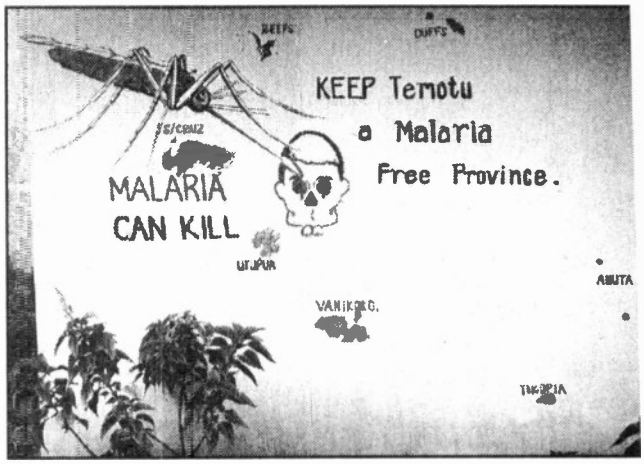
We wanted to honor the fact that Solomon Islands, as another ITU member country, represented equal voting power along with countries such as the U.S. in matters pertaining to Amateur Radio. Thus we assisted and reinforced the efforts of the local amateur community with regard to their local telecom administration. Those efforts would often require a boost from the visiting delegation. Additionally, many of the group members had a professional profile which was complementary to these efforts.

Luelta Resort, Lata, Santa Cruz Islands, was the site for the first ever Temotu DXpedition.

We were pleased with the attitude of the local community as well as with the telecom and various other governmental agencies with whom we were dealing directly or through the local amateur community. The story of H4ØAA was featured in a Solomon Airlines in-flight magazine to further promote Amateur Radio and its related potential for those traveling with the national carrier.

Experiencing life in Temotu Province

If life was tough in the capital Honiara, those outer islands adrift in time certainly stood out as a place where a traveler would go back in time by decades. Only some 30 percent of the island population receive any sort of schooling. People still lived in their original huts hand-crafted from tree leaves, kerosene light allowing them to walk around during the dark hours. They eat fish caught from the ocean and pick up an assortment of juicy fruits that Mother Nature has kindly made available for those she loves.



Malaria is the biggest health problem in the Solomon Islands.

It's no wonder that the Solomons only receive some 11,000 tourists annually. The limiting factor is that malaria and other diseases has affected some 40 percent of the population in recent years. The U.S. Center for Disease Control classifies all parts of the Solomons as a high risk area for malaria throughout the year.

The situation is primitive but life goes on in Temotu every day with the normal routines. We got acquainted with two Temotu volunteers from New Zealand, Ashley and Lynn, who work hard with their limited resources to raise the level of education, to build a healthy society and to create some commerce that could help people pursue some meaningful activities and achieve success.

Dr. Ashley Wilson immediately opened his private house and personally moved elsewhere to allow the H4ØAA CW station to occupy his house and be located far enough from the main camp to have two signals on the same band with no mutual interference.

Dr. Ashley's worries were many, and this group sympathized with his sincere situation a lot. The church has educated a majority of people in the basics of life through the Holy Book and their society is mentally sound. They have never experienced murder or loss of property. Material wealth is missing but the fundamental values of life are definitely very much in place in Temotu.

We passed no one on the streets who did not politely greet us strange-looking and -behaving visitors to their homeland. If the question was raised among the locals about the H4ØAA mission in Temotu, the question was fortunately raised among the DXpedition group as well. Had we come here merely to make QSOs and eat their limited food supply, or could we possibly be of more value than that and offer something in exchange for the hospitality and the kindness extended to us by the people and the volunteers of Temotu? Was it unfair for a DXpedition only to get something but not leave anything valuable behind? The H4ØAA DXpedition ran the island's 60KW generator for two weeks with one barrel of gasoline a day. There were seventeen barrels left on the day of our departure and soon there would be none left, and total darkness could not be avoided! Would we, after all,

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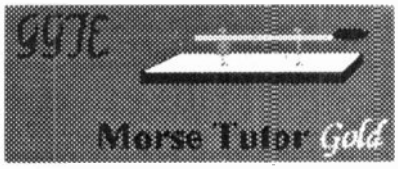

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World Radio History

be responsible world citizens or just a bunch of pileup machines?

Temotu development fund established

So another idea entered the minds of those who visited the local villages and met with the people. We looked into their native settlements and realized that these people studied the Bible most seriously although they could not yet read the text.

Dr. Ashley's recent successes included establishing a processing mill for coconut butter to make soap and seeing a man with his newly opened woodwork shop. The man had already produced wooden products worth $4,000 for shipment to Honiara and could certainly lay claim to being the first industrialist in Temotu — through his own hands, to say the least.

Dr. Ashley's worries were many. Only part of his soap factory's work force showed up daily for work because of the serious malaria situation. These people might study the Bible too seriously and not yet focus on creating their own wealth. His list of worries continued, and he was running right at the edge of his resources.

The H4ØAA team took great pride in stepping forth and suggesting that the DX community should participate and help the country that they were about to add to their collection and to the overall DXCC listing.

The rationale was to help this new entrant to be at least partially in line with the other entities on the DXCC countries list. It was instantly agreed that, in addition to providing timely regular QSL services through Martii, OH2BN, we would establish a special fund through Bruce, W6OSP, NCDXF Treasurer, and would provide those supporting the development efforts with a commemorative QSL card, signed by Dr. Ashley Wilson, and mailed from the Temotu Post Office. A special arrangement was made with Solomon Airlines to handle this one-off exercise courtesy of their flight to Temotu.

And so the message was heard loud and clear the world over. Within a short period of time, just two weeks, the DX community demonstrated its awesome power and almost 500 DXers stepped forward to donate more than $20,000 to be used exclusively in Temotu to further develop their society and commerce.

Hundreds of DXers gladly volunteered the requisite $25, and some felt moved to designate even more to this good cause. Lee Shaklee, W6BH, who long ago prowled the bands as W6PQW, presented the fund with a check for $10,000. Lee was one of the early visitors to Temotu Province, patrolling the area in a PT boat and living with the native folks for the better part of two and one-half years during WWII. Lee remembers these times well and has always harbored a fondness of the people of the area,

When Lee stood up and gave this very substantial amount for the people of Temotu, it was unquestionably one of the happiest days for the participants of H4ØAA. We knew we were doing the right thing for the DX fraternity. We were not only proud of being DXers but also realized that we were able to rejoice at someone else's potential success, a rarely experienced feeling in today's busy world.

The friendly, photogenic people of Temotu.

Logistics and equipment

Yaesu FT1000MPs were used for clean multiple operating in close proximity to one another with ICE filtering, and Alpha Power provided some heavy 91B power together with airline-cabin-size amps from FinnFet Ltd. For a show of technical excellence, two stations were set up on 21.195 and 21.295 to run segmented pileups on SSB simultaneously. A truly satisfying experience for all those involved.

All the equipment was hand-carried by the participants to avoid those long-running customs procedures and often complicated clearance formalities required for regular cargo operations. It all paid off nicely with full control of the situation throughout the exercise and minimum cost. Everyone had his own personal materials list and as of now, we had not noticed that anything was missing at any point during the operation.

OH1RY's FinnFet outlet had produced three beam antennas, two of which were left behind at Ashley's house for possible future operations from Temotu. A complete Yaesu station (courtesy of Yaesu Musen Co. Ltd.) with a tribander (courtesy of W6OSP) were donated to the Solomon Islands Radio Society for their future activities. Maybe one day local Amateur Radio operators will hit the airwaves, so much so that Solomon DXpeditions could be considered a thing of the past.

Recap of H4ØAA DXpedition

What was originally scheduled to be another DXpedition turned out to be a major charity event on several fronts. Our aim was to try to focus these and other added values that could be considered part of any DXpedition to any remote society where Amateur Radio did not exist or could be further promoted.


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World Radio History

Yet those 67,104 QSOs were made and a sense of satisfaction was very much in evidence among those who traveled to Temotu. Let me pull out a piece of email from James Brooks, 9V1YC (AD1AD), to the entire H4ØAA project group which reflects the essence of our international H4ØAA three-phase multipurpose DXpedition.

"I'd just like to say thanks to the entire team of support crew (M.J. Atherton, G3ZAY, Jaakko Silanto, OH1MA, Jarmo Jaakola, OH2BN, Robert Dixon, K4MQG and K6GNX) and the ops for a super expedition. The pilots were there every day, and never missed a beat. Well done. And to the ops, you were probably the most highly skilled team of DXpeditioners assembled in the world. Excellent work all around. It was truly an honor and learning experience to be included with you all. Thank you, and let's do it again!" — James, 9V1YC

The ultimate measure of success would obviously rely on you, the entire global audience of H4ØAA. Did you make your QSO? Did you make your first QSO quickly? If you were a little pistol in Poland, did you still make your only QSO? With some extra effort down the line, hopefully, your multiband appetite was satisfied as well.

Yours is the final word as the curtain falls after another performance on the DX stage!

The H4ØAA operation was supported by the Northern California DX Foundation, INDEXA, Mikrolog of Finland, Yaesu Musen Co. Ltd., Alpha Power and Finnfet Ltd.

You may learn more through the H4ØAA website at: www.iglou.com/n4gn/h40aa/ . While checking your QSOs using the website's log search facility, you can also see those in the Five Hundred Century Club — QSOs from 001 through 500! Or, maybe you would like to play part of the soundtrack of an early H4ØAA pileup or just play back your own QSO as it sounded on site at Temotu. For the playback function, only the first five hours of contacts are available so that you can try out this new technology feature. We call it DXpedition magic!

We would like to recognize the first ten from each major Amateur Radio population center. They did not get into the log just by accident:

North America: K5QY, N2TK, K6YRA, N6KK, W7WT, KJ9I, K4MQG, N5JR, AD6DO & W6CF.

Japan & Asia: JA1ETQ, UAØFZ, JA8CDT, JA5ADR, 9V1YC, JH1QYT, JA2XKM, JA4DLP, JF5APX & JA1USO.

Europe: OH7WP, UA4RZ, OH5BR, OH5WW, OH2WI, UA3AB, OH7AB, OH8SR, OH5NZ & OH7MS.

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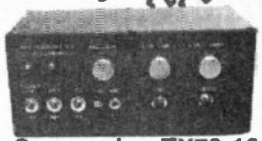

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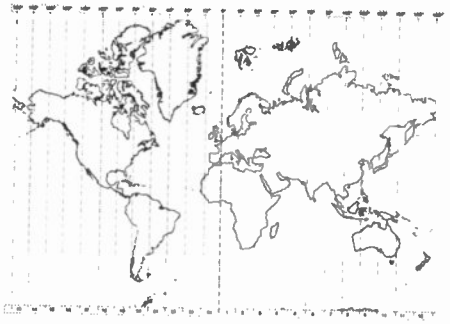
World Radio History

Awards



100 Nations Award

In an effort to encourage personal communications among peoples around the world via Amateur Radio, ***Worldradio*** offers the *Worked 100 Nations Award* to those confirming two-way amateur communications with permanent stations in 100 distinct countries having a permanent, native population.

The purpose of the ***Worldradio*** *Worked 100 Nations Award* is to demonstrate the unique opportunity Amateur Radio offers for communications between international borders to further worldwide understanding.

The *W-100-N* is not a radio sport award as such, but a token of achievement in communication. At the same time, it offers all Amateur Radio enthusiasts several features not found in other awards.

1. W-100-N virtually eliminates the need to work geographic areas heard only during DXpeditions. Almost all national entities have amateur stations consistently on the air.

2. W-100-N, then, will be of perennial interest. The advantage to those stations having worked a national entity long absent from the air will be minimal.

3. W-100-N is difficult to achieve, yet is within reach of all moderately well-equipped stations whose operators utilize good communication skills.

Rules

1. The *Worked 100 Nations Award* is available to any licensed Amateur Radio operator who can prove confirmation of two-way communications with government-authorized Amateur Radio stations in at least 100 different nations of the world.

2. No contacts with stations using reciprocal calls will count toward this award, such as N6JM/UL7.

3. All contacts must be with land-based stations. Contacts with ships, at anchor or otherwise, and aircraft cannot be considered.

4. All contacts shall be made from the same country.

5. Only contacts made on or after 01 January 1978 will count.

6. The application shall include the following:

a. Letter requesting W-100-N.

b. List of contacts in alphabetical order by prefix showing nation, station call, date, band and mode.

c. A signed statement by two other licensed radio amateurs, General class or above that they have inspected the required QSL cards.

d. A fee of $5 to cover the cost of the award.

7. All applications and requests shall be addressed to:

W-100-N Award Manager
Worldradio
2120 28th Street
Sacramento, CA 95818

8. There are no special endorsements to this award; however, endorsements may be made if the achievement bears such recognition. All modes and bands may be used.

Upon approval of an application for W-100-N, a certificate will be issued and the issuance of the award will be noted in a future issue of ***Worldradio.***

SPECIAL EVENTS

Send your special event to ***Worldradio*** *two months in advance and we'll put it on this page!*

THOMSON MELON DAYS

The Palisades ARC and 90 West DX Association will operate W9BPT, Sunday, 6 September from 1700Z to 2100Z to celebrate Thomson Melon Days. Operation will be on the lower portion of the General 40 and 20 Meter bands. For a certificate, send QSL and 9x12 inch SASE to Bob Plumley, K9IEG, 1123 West Main St., Thomson, IL 61285.

COLORADO 14ER EVENT

The IAAS, a Denver Metro Area Youth Astronomy & Aerospace Research team will be participating in the Colorado 14er Event on 30 August. The team will be operating portable from the summit of Mt. Evans. Listen for the team on 146.580mhz, 52.525mhz & 446.000mhz. The team will be using the club callsign KBØUAA. Check out the webpage www.iaas.org for more details.

WINESBURG FALL FAIR

The Clyde ARS will operate station NF8E 1600-0000Z 19 September from the Winesburg Fall Fair.

Frequencies: CW, 7.125, 21.150; Phone, 7.250, 14.300, 21.400.

For certificate send SASE: NF8E, 302 Hamer St., Clyde, Ohio 43410.

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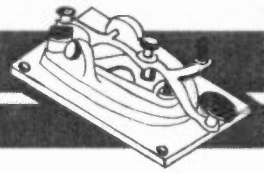
Silent Keys



ELLIS UNZICKER, KA9EPR

Ellis "Fritz" Unziker died 02 April 1998, at the age of 76. He obtained his Novice license in 1979. Fritz was not a "big-gun" or big-time contester and never won any awards. He was just an old gentleman who loved to mess with radios, antennas and make do with what he had. A few years ago he suffered a stroke, and was forced to learn Amateur Radio all over again. He had a lot of trouble remembering callsigns, names and he could barely remember the code. His logbook was not filled with contacts, but Amateur Radio kept him going.

ROBERT HOHERTZ, W5PYT

Robert Hohertz died 06 March 1998 in a care center in Ozona, TX. He served in the Merchant Marines as a Radio Officer and in the U.S. Navy during the Korean War. Bob was an Amateur for more than 50 years. He worked for Gulf Oil in Research Development and traveled extensively across the U.S. and worked in Venezuela for a brief period. He retired in 1993 and spent the majority of his time on the airwaves, known to many as "Ozona Bob."

HAROLD ESTEP, W6BEU

Harold A. Estep died 03 April 1998 at a convalescent home in Marin County, CA, two days before his 90th birthday. First licensed in 1926, he served in the U.S. Navy in WWII and the Korean War as an intelligence specialist. A graduate of the University of California, Berkeley, Mr. Estep spent 25 years as a teacher with the Grant Joint Union High School District in Sacramento, CA. Among his many talents, Mr. Estep had a very unusual knack for finding underground water. Farmers from all over California would call on Mr. Estep to "dowse" for water. He could tell how many gallons per minute, whether the supply would be year-round and how far underground the water was. He founded the Sierra Dowsers, a local chapter of the American Dowsing Association. He was also a friend and local fundraiser for Richard M. Nixon, and other prominent Republican politicians. Mr. Estep and his twin brother, Gerald, W6JAO, had been looking forward to their 90th birthday party. Gerald Estep died several weeks prior to Harold, in San Diego, CA.

Amateur Radio Education Alliance

Bruce Winchell, N8UT, says there is a new national Amateur Radio organization on the web. The Amateur Radio Education Alliance purpose, structure and philosophy is pretty well explained on the website. Go to www.area-ham.org to learn more. — *N8UT, Newsline*

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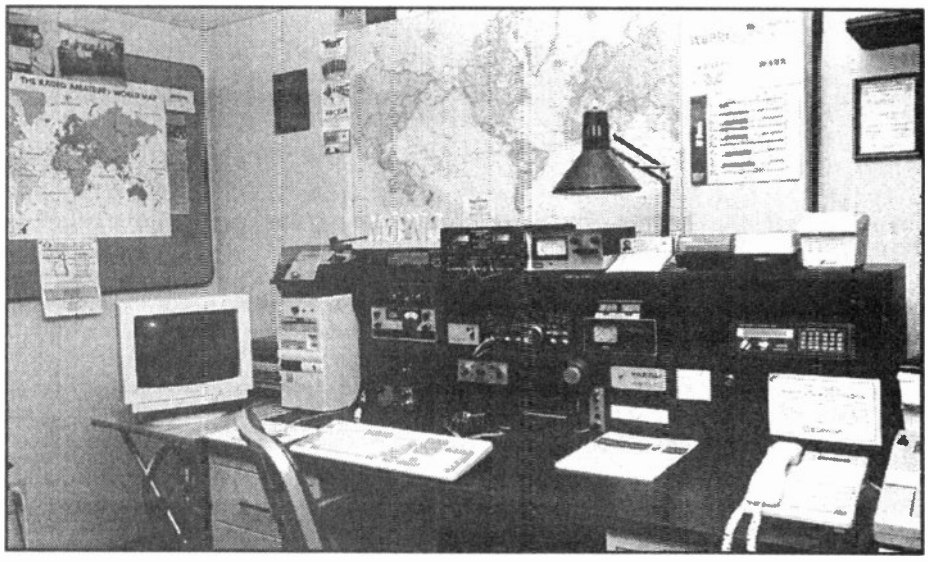
World Radio History

Station Appearance

Glen Gercken, NØPNQ

*Send **Worldradio** a picture of your shack and the staff will choose a winner to receive a free one-year subscription to **Worldradio**!*

Stations will be judged by neatness (wires tucked away, etc.) and accessibility of equipment. Monetary value of equipment is not a consideration.



My station shelf unit is covered with formica to match the walnut top desk. The back is also covered to hide the wires. The end of the desk was extended, for the computer, with a counter top cut-out for a kitchen sink.

Equipment top shelf left to right: AEA Pakratt 232, 35amp Pyramid Power Supply, CDE antenna rotor control.

Second shelf: Heathkit HW-8 QRP HF rig and power supply, MFJ 901B antenna tuner sits on top of that, Yaesu FT-757GX HF, MFJ 815B SWR/Wattmeter, and MFJ Dual Clock, computer speaker, Realistic Pro 2021 Scanner. Bottom: Kenwood TM 242A 2 meter rig on top of home brew, voice to packet switch box, computer speaker, Control head for GE Master Pro 440 (converted Police radio), cassette tape recorder, All A/C power strips are concealed behind the locked panel on the right.

I have been licensed since 1991 and am the president of the McDonnell Douglas now Boeing club in St.Louis, MO, for the past two years.

Amateur "Hi"

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

World's lowest power DX contact

JEFF GRUDIN, AC6KW

Back in December, there was a DXpedition to Mongolia. I tried hard to work them but failed. I knew I would have to work hard and long to try again to work that country. There are only a few active Hams there, so I would have to wait for another DXpedition.

The other day I had some time off work and decided to make a trip to HRO to check out some of the new rigs. I was sitting down at an IC756 and playing around on 20 Meters. The band conditions were terrible, with only a few signals on the spectrum scope. Tuning up and down the band I found mostly U.S. stations.

A guy sat down next to me to check out the new Kachina computer rig. After tuning around for a while, he told me that he was planning on buying a new rig to take home with him. He asked if I was a Ham, and for my call sign. I shook his hand and gave him my call.

Then he gave me his...JT1YB. he told me that he was part of the December DXpedition in his country.

I worked a Mongolian with 0 watts and an antenna the length of my arm. It was a fun QSO without the pressure of a pileup to deal with!

New North Texas SM

Donald Thomas, KA1CWM, of Coppell, Texas, has been appointed the new Section Manager of North Texas. Thomas replaces Robert Adler, N5NY, who has resigned. The appointment is effective 01 July. — *ARRL Letter*

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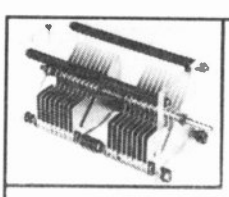

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World Radio History

Off the air

Where are the CW ops?

In the July 1998 issue of ***Worldradio***, Bill Mayers, KG2DI, asked, "Where are all the CW operators?" Many are on 20 Meters. To see how crowded the band is, pick a segment to monitor for several days, especially in the afternoons and weekends. For example, take between 14.055 and 14.057 MHz. This will give Bill and idea what the rest of the band must sound like. It really heats up when DX is coming in. In the evening try 40 Meters.

Ed Palagyi, KN4Y
Tallahassee, FL

DX on 600 Meters!

Boy! Your story "An Elegant Lady-of-the-Sea" certainly turned on some memories of GBTT, along with the other calls we heard yesteryear belonging to those greyhounds of the sea.

No, I'll not brag about being in constant communication with GBTT nor the others. As a matter of fact, I only QSO'd GBTT once, and that was back during the Christmas holiday of 1947 on the now almost-idle band of 600 Meters or 500 kcs as we young sprouts called it. At the time, I was the "Sparks" on the S.S. *Richard Yates,* KIWB, an EC-2 Liberty Ship. As it was my second ship in a seagoing career that lasted 45 years, nervousness was my constant companion.

We had cleared Genoa, Italy bound for Norfolk, Virginia a few days before and had just passed Gibraltar on Christmas Eve night. The days had been hectic as I had dozens of flower order radiograms along with several dozen QSPs from ships not equipped with high frequency rigs to deliver to WCC. Intership QSOs were certainly not high on my list of priorities.

Just before going off watch and still on a high from having done my job well, I was unable to settle down and be lulled to sleep by the gentle "whomp whomp" of the ship's three-cylinder expansion engine. A short time before, I heard GBTT on 500 kcs, so I switched on the Medium Wave rig and gave him a QRK? call. Although GBTT was about a thousand miles away, I had the surprise of a lifetime when he answered. Feeling foolish, I could only send "MRIXMS". he responded "2U2". It was then I really began to appreciate the International Calling and Distress frequency and started to chase DX on it, within the confines of the law.

In time clearing WCC, WSC and WSL while just to the west of the Azores became almost routine. years later, onboard the S.S. *Oremar,* KFKG, I cleared WCC from Cruz grande, Chile, and it remains my all-time DX on the 600-meter band.

Today, I chase DX on 30 Meters with my powerful 3-watt QRP rig and drive everyone nuts bragging about my QSOs with VK6HQ, ZL2AGY and not forgetting my latest, 9K2ZZ. So if I fail to QSO W6RO, maybe it's because the Queen Mary ain't GBTT anymore, it ain't 600 Meters and perhaps 3,000 miles just ain't DX enough. HA!

George W. Morgan, Jr.
W3MWY
Baltimore, MD

(Ed. - Thanks for the kind words, George. And for you maritime fans, standby, a story about the S.S. Lane Victory, *the last operational Victory ship is coming soon.)*

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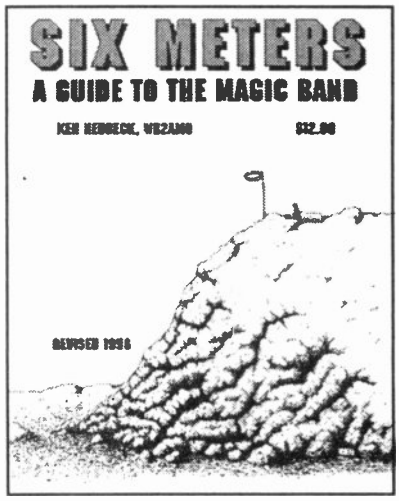

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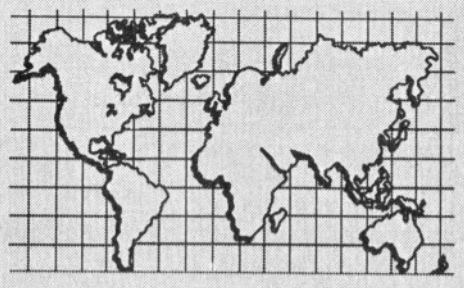

John F.W. Minke III, N6JM
• P.O. Box 310 Carmichael, CA 95609-0310 • E-mail: n6jm@pacbell.net •

W-100-N

Congratulations to the following DXer for successfully completing the requirements for ***Worldradio***'s Worked 100 Nations Award:

535. Don Bluford, N4GN All 20M SSB 25 Jun 98

Although Don provided in excess of the required confirmations we were able to offer him a single-band and mode endorsement. He had provided 121 contacts with 112 of them on 20 Meters, SSB.

We had to reject one application as there were several reciprocal calls listed, plus numerous non-nation contacts. Please read the rules and be aware W-100-N is not the same as DXCC. The rules are printed often in ***Worldradio***. *(see page 26.)*

CATZ

And we also had an application for ***Worldradio***'s CATZ Award. Congratulations to:

4. Jeffrey Spinler, N7VPN 25 Jun 98

Mauritius (3B)

The Daily DX reports that Jacky, 3B8CF, is planning to have a 160-meter sloper in use by this September. If you need Mauritius (AF-049) on the top band look for Jacky.

Rotuma Island (3D2/R)

According to the *Ohio/Penn DX Bulletin*, Roberto Gonzalez, EA4DX, will be active from Rotuma Island (OC-060) 29 August through 19 September signing with 3D2DX. Activity is to include multi-band operation, 10 through 160 Meters, including the WARC bands, on SSB and RTTY. He may also operate elsewhere in the Fiji Islands where he will be signing with 3D2DX/P.

Yemen (7O)

There is hope for this one. Zoli Szoke, HA5PP, contacted the Deputy Minister of Communications in Yemen and received a reply in the positive. Zoli offered to build four complete stations in Sana'a, Taiz and Aden, and also has offered to conduct Amateur Radio classes between 01 September and 01 December of this year.

Zoli has requested the calls 7O8DX and 7O8CW for the two stations in Sana'a, to operate during the educational period, and has requested the call 7O1A for Aden. No mention was made regarding the call of the fourth station.

Zoli was informed he would be the first foreigner to operate from Yemen, but only after an operation by a Yemen operator.

Australia (VM4AA)

Last issue I made mention of Keith "Macka" McCarty, VM4AA, the only Australian with that unusual prefix. Word comes that Macka died on 08 May 1998 at the age of 87. Sometimes news just travels slow as I'm sure he had already died prior to my column preparation.

Nepal (9N)

Charles Harpole, K4VUD, is back in Nepal, signing with 9N1UD from his location at Katmandu until about 05 December this year. Look for him near these frequencies specified by him: 14.195, 14.023, 21.295 and 21.023 MHz.

As things develop he may also be on 80 and 160 Meters.

Pakistan (AP)

Several DX news sources have noted the newly licensed Ham from Karachi in Pakistan. Amir Janjua, AP2AGJ, has been active on 17 Meters near 18.150 MHz. Look for this new DXer between 1500 and 1800 UTC.

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St. Paul Island (CY9)

The Daily DX reports that the CY9AA summer DXpedition to St. Paul Island (NA-094) by Mike Smith, VE9AA, has been cancelled.

Ethiopia (ET)

Steve Wilson, G3VMW, announces that he, along with two other British DXers, (Alan Ibbetson, G3XAQ, and Andy Chadwick, G4ZVJ), will operate from Addis Ababa between 18 and 27 September.

Activity from the club station of the Ethiopian Amateur Radio Society, ET3AA, will be on all bands, 10 through 160 Meters. Operation will be mainly CW, but there will be some SSB and RTTY if there is sufficient demand. They will be operating in the split mode, listening up 1 to 5 kHz. Look for them near the following frequencies: 1.829, 3.508, 7.008, 10.108, 14.026, 18.076, 21.026, 24.896 and 28.026 MHz.

During their visit Steve says he hopes they will be able to obtain personal call signs in readiness for a sustained two-week DXpedition in 1999.

Austral Islands (FO/A)

There was much RTTY activity during the month of June by two members of the Northern Ohio DX Association. These members, Bill MacCracken, W8JGU, and John Papay, K8YSE, went there specifically for that purpose. They signed with FOØMAC and FOØPAP, respectively, from Rurutu Island (OC-050). During this period, 8 through 12 June, they also managed to collect a good number of CW and SSB contacts.

Albert Durou, FO5JR, was scheduled to operate from Rimatara Island (OC- 050) the latter part of July with his activity concentrated on CW.

Marquesas Islands (FO/M)

This was a continuation of the Northern Ohio DX Association DXpedition by Bill and John. Here they operated from 14 through 18 June from Nuku Hiva Island (OC-027). At the time of this writing there still has been no action on the

World Radio History

addition of these two entities to the DXCC 2000 list.

S. Pierre et Miquelon (FP)

The Ohio/Penn DX Bulletin reports that the Prairie DX Group will be operating from Miquelon Island (NA-032) from 26 August through 01 September, signing with their club call appended/(FP/N9PD). They will be on all bands 10 through 80 Meters, and possibly 6 Meters. Their modes of operating will be CW, SSB and RTTY.

For island chasers this one counts the same as St. Pierre Island where a majority of the people live. This little French department (yes, part of France) in North America profited greatly during that famous American Prohibition from 1919 until it was repealed in 1933.

Malpelo (HKØ/M)

The 1999 Malpelo DXpedition is well underway, with a planned operation sometime between September and December of next year. The DXpedition will be supported by LCRA, Liga Colombiana de Radioaficionados, which is the Colombian Amateur Radio national society. For IOTA hunters this one counts as SA-007.

Fernando de Noronha (PYØF)

In June PYØFA signing from Fernando de Noronha (SA-003) showed on the bands and right away rumors were being spread that the station was Slim (a pirate operation). Apparently, the rumor was just a rumor. According to *The Daily DX,* PYØFA is a new Amateur Radio operator on the island, whose name is Alexandre. The information was supported by Andre Sampaio, PYØFF, and Fred, PYØZZ. Perhaps his slow operating on CW suggested that he must be a phoney. However, all of this is not true. He is for real!

Central African Republic (TL)

According to *The Daily DX* Alex van Eijk, PA3DZN, is currently working in the Central African Republic and has been issued the call TL5A. Initially, he was active only on 20 Meters SSB, but near the end of June he was active on other bands and modes. His plans include activity on all bands, 6 through 160 Meters. Alex will be there through the end of the year.

Brunei (V8)

Gary Shields, VK8GW, is currently in Brunei (OC-088) signing V8GTW and can be found most days near 14.320 MHz on the SEANet around 1200 UTC. According to *The Daily DX*, Gary says as of a year ago all calls will have the V8 prefix and no longer use the V85 prefix.

Lord Howe Is. (VK9L)

Nick Watchman, VK2ICV, is looking for two contest operators to join him to operate VK9LX from Lord Howe Island (OC-004) in the *CQ* Worldwide DX Contest this November. Nick says costs will be $1,000 per person, which includes air ticket between Sydney and the island, plus accommodations. The resort can handle nine to ten persons, so you are welcome to bring your wife or friend. Interested parties should contact Nick, and remember, this is a CW contest. Send an e-mail to him at watchman@tig.com.au.

Tristan da Cunha (ZD9)

Presently active from Tristan da Cunha (AF-029) is Ian, ZD9IL, who is the chief radio operator on the island. Very active on SSB, Ian can be found on 10, 15, 20, 12 and 17 Meters. He is on daily between 0900 and 1600 UTC.

Presently, he is using a dipole and needs a beam for these bands, and also needs an amplifier. Anyone who can help with these items please contact his QSL manager, Edwin Musto, ZS5BBO, at P.O. Box 211032, Bluff 4036, SOUTH AFRICA; or via e-mail at musto@icon.co.za.

IOTA

The Jiangsu DX Club in China activated another brand-new IOTA island for the IOTA chasers. The group signing BI4Q came on the air from Ping Island (AS-135) on 19 June for three days of operation. The team consisted of Jin, BA4TA, Deal, BA4TB, David Chen, BD4RF, Ken Wang, BD4RD, and others, and operated both SSB and CW.

The following is another selection of IOTA activity on the bands. There has been lots of activity on the WARC bands lately, so just don't hang out on the normal IOTA frequencies. Some of the reports do not include the island name as no other information is available. However, the name of the island group is available in your IOTA Directory, which you will need anyway to participate in the program. I was considering including times and frequencies in these reports, but found this unrealistic as many of these stations are normal DXers as they change bands and modes. Many of these were IOTA DXpeditions.

AF-010 3C5DX	Bioko Island	30 Jun
AF-045 6W1QV/P	Goree Island	01 Jun
AN-006 EM1LV	Galindez Island	10-26 Jun
AS-005 RAØBY	Dickson Island	13 Jun
AS-008 7K3EOP/1	Miyake Island	21-23 Jun
AS-015 9M2TO	Pinang Island	07-23 Jun

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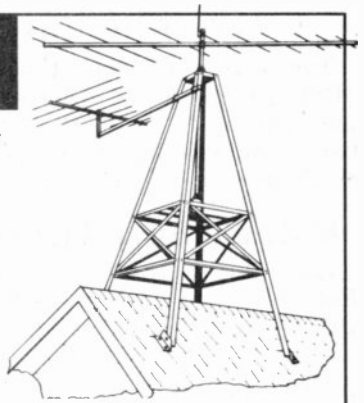

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AS-017 JR6EA	Okinawa Island	03-20 Jun
AS-017 JR6AP	Okinawa Island	06 Jun
AS-024 JS6PMR	Yonaguni Island	27 Jun
AS-028 UAØQMU	Kotelney Island	10-29 Jun
AS-053 E21AOY/8	Phuket Island	07 Jun
AS-053 HSØ/IK4MRH	Phuket Island	19-20 Jun
AS-058 9M2/G3LIV	Langkawi Island	05-12 Jun
AS-079 JA5CKD/6	Miyako Island	02-30 Jun
AS-102 BO2YA	Kinman Island	06 Jun
AS-117 JI3DST/3	Honshu's Coastal Isls	13 Jun
AS-135 BI4Q	Ping Island	18-20 Jun
EU-010 GM4CXH/P	Outer Hebrides	26-30 Jun
EU-008 MMØBGQ/P	Ascribe Isles	27 Jun
EU-008 GM4CHX/P	Soay Island	16 Jun
EU-009 GM4DZX	Orkney Islands	06 Jun
EU-009 GM4EWZ	Sanday Is. (Orkneys)	07 Jun
EU-010 GB2OYC	Mingulay Isle	16 Jun
EU-012 GM4LBE	Shetland Islands	19 Jun
EU-016 9A6KZK/P	Drvenik Island	13-14 Jun
EU-016 9A4RU	Brac Island	07-14 Jun
EU-016 9A2GF	Brac Island	09-13 Jun
EU-017 ID9/DL3AO	Stromboli Island	08-13 Jun
EU-020 SM1CQA	Gotland Island	09 Jun
EU-029 OZ1CQX	Falster Island	10 Jun
EU-029 OZ7MW	Samso Island	18 Jun
EU-030 OZ/DL8HBJ	Bornholm Island	25 Jun
EU-031 IC8/IZ8AMY	Pietrarossa Rock	06 Jun
EU-032 F/ON4ZD/P		12-14 Jun
EU-032 FBC5MRP/P	Fort Enet Island	13 Jun
EU-033 LA/DH7VK/P	Vesteralen Islands	24 Jun
EU-034 ES1QD/Ø	Muhu Island	12-16 Jun
EU-034 ESØNW	Hiiumaa Island	03-21 Jun
EU-037 SM7CRW	Oland Island	01-19 Jun
EU-037 SM7DLZ	Oland Island	06-29 Jun
EU-038 PA2JJB	Texel Island	27 Jun
EU-041 IMØ/IK2MRZ	Maddalena Island	25-27 Jun
EU-042 DK8OL/M	Sylt Island	06-19 Jun
EU-043 SM3TLG/6	Orust Island	21 Jun
EU-044 LA2NK	Mageroya Island	07 Jun
EU-045 IBØ/IK8BIZ		27-28 Jun
EU-047 DL6CGC/P	Baltrum Island	01 Jun
EU-049 SV8DTP	Lemnos Island	02 Jun
EU-049 SV8/DJ2GM/P		02-13 Jun
EU-049 SV8CRI	Lesvos Island	19-20 Jun
EU-049 SV8DCY	Lesvos Island	10 Jun
EU-049 SV8DTD	Lesvos Island	06 Jun
EU-049 SV8/DL2ARL/P	Samos Island	18 Jun
EU-052 SV8/DL1KK		03 Jun
EU-052 SV8/DL8YRM	Corfu Island	10-16 Jun
EU-055 LA7QIA	Karmoe Island	13 Jun
EU-055 LA4C		02 Jun
EU-057 DLØTHR/P	Unmanz Island	01 Jun
EU-061 LA4B	Seilo Island	06-07 Jun
EU-061 LA/SM3CVM/P		18-30 Jun
EU-062 LA4GY	Donna Island	20 Jun
EU-064 TM5YEU		07 Jun
EU-067 SV8/DF6MS/P	Antiparos Island	07 Jun
EU-067 SV8CEI/8	Sifnos Island	23-25 Jun
EU-067 SV8/DF6MI/P	Antipan Island	03 Jun
EU-067 SV8/G3SWH	Mykonos Island	13-16 Jun
EU-071 TF7/DL6DQW/P	Westman Islands	05-06 Jun
EU-072 SV8/DL8MCA	Skiathos Island	18-30 Jun
EU-074 F5VCR/P	Riom Island	20 Jun
EU-076 LA/DF8YO/M	Lofoten Islands	22-27 Jun
EU-077 ED1INO	Noro Island	26-28 Jun
EU-082 U1ZA/A	Kildin Island	06 Jun
EU-083 IA1/IK1QBT	Gallinara Island	07 Jun
EU-083 IA1/IK1ZOZ	Gallinara Island	07 Jun
EU-084 SMØMC		15 Jun
EU-084 SMØOIG/5	Roslagen Island	09-22 Jun
EU-093 ED5DX		20 Jun
EU-096 OH1LU/P	Eprosaari Island	20 Jun
EU-096 OH1SR		20 Jun
EU-096 OH1LEG		13 Jun
EU-103 EJ7NET	Great Saltee Is.	25-28 Jun
EU-109 GØKJW/P	Farne Island	20 Jun
EU-113 SV1TP/8	Elafonisos Island	16-19 Jun
EU-113 SV8/DL1BKK/P	Elafonisos Island	15-16 Jun
EU-120 GB5LI	Lundy Island	14-19 Jun
EU-121 EJ/DL8AAV/P	Irish Islands	07-16 Jun
EU-123 GMØHLV/P	Rabbit Island	13 Jun
EU-123 MMØBCR/P	Rabbit Island	13 Jun
EU-124 GWØMOI	Anglesey Island	30 Jun
EU-131 IK3PQH	Lido Island	02-29 Jun
EU-131 IL3/IK2PZG	Motta Bombae	06 Jun
EU-132 3ZØI	Wolin Island	08-13 Jun
EU-133 R1ASP	Kotlin Island	20 Jun
EU-135 SM/DK4UN/P	Vasterbotten Dist.	27-28 Jun
EU-135 SM/DK4WD/P	Vasterbotten Dist.	27-28 Jun
EU-136 9A/DF9NW/P	Pag Island	05-09 Jun
EU-136 9A4A	Pag Island	01 Jun
EU-136 9A9JH	Rab Island	24 Jun
EU-136 9A/OE5BBL	Cres Island	24 Jun
EU-139 SM/DK4WD/P	Seskaroen Island	29-30 Jun
EU-139 SM/DK4UN/P	Seskaroen Island	29-30 Jun
EU-149 ES2RW/3	Osmussaar Island	19-21 Jun
EU-158 SV3/DL1BKK/P		19-20 Jun
EU-158 SV1TP/3	Satszkin Island	20-22 Jun
EU-158 SW8LTI	Little Turtle Is.	26-28 Jun
EU-165 IMØ/IKØMHR		28 Jun
EU-165 IMØ/IK2AEQ		28 Jun
NA-001 C6A/DL1YMK	Paradise Island	19-21 Jun
NA-014 KL7MS	Baranof Island	13 Jun
NA-019 KF9GO/KL7	Kodiak Island	16 Jun
NA-036 VE7ZO	Vancouver Island	06 Jun
NA-036 VE7IU	Vancouver Island	04-08 Jun
NA-041 KL7KG	Blind Island	25 Jun
NA-041 KL7USI	Alexndr Archipelago	6-10 Jun
NA-047 VE8TA	Baffin Island	23-25 Jun
NA-048 C6AKA	Bimini Islands	01-06 Jun
NA-051 VE7QCR	Queen Charlotte Is.	28 Jun
NA-055 AK1L	Vinylhaven Island	16-30 Jun
NA-057 N7QXQ/HR6	Rotan Island	30 Jun
NA-062 N1WON	Howell Key	13 Jun
NA-068 VE2NA/VE9		13-14 Jun
NA-110 K9JWV	James Island	13-22 Jun
NA-110 WB4WTY	James Island	16 Jun
NA-110 KB4GYT	James Island	07 Jun
NA-110 AA4V/P	Isle of Palms	02 Jun
NA-112 N4VRR/P	Topsail Island	22-23 Jun
NA-113 C6AKA	Crooked Island	10-18 Jun
NA-134 OX3LG	West Coast Group	02-11 Jun
NA-198 VO1XC/P	Puffin Island	15-16 Jun
NA-199 FS5PL/P	Tintamerre Island	28 Jun
OC-046 FO5BI	Tahiti Islnd	18 Jun
OC-130 DU8DJ	Mindanao Island	29-30 Jun
OC-011 V63KU	Moen Island	02-29 Jun
OC-022 YC9BU	Bali Island	01-30 Jun
OC-027 FO5QB	Marquesas Islands	06 Jun
OC-027 FO5QG	Marquesas Islands	01-27 Jun
OC-046 FO5JV	Tahiti Island	19-25 Jun
OC-059 V63AO	Kosrae Island	16-30 Jun
OC-066 FOØHAR	Rangiroa Island	18-20 Jun
OC-067 FO5NL	Raiatea Island	02-11 Jun
OC-070 YC8VIP	Ambon Island	02-30 Jun
OC-083 ZK1EHH	Aitutaki Island	04-09 Jun
OC-129 DU6BG	Panay Island	03-10 Jun
OC-130 DU9HKD	Mindanao Island	09-26 Jun
OC-137 VK4LV	Bribie Island	01-10 Jun
OC-143 YB5QZ	Sumatra Island	06-30 Jun
OC-143 YC4JIM	Sumatra Island	08-29 Jun
OC-146 YC8NLF	Sulawesi Island	10 Jun
OC-148 YC9MKF	Timor Island	08-30 Jun
OC-151 YC9LQA	Flores Island	01-30 Jun
OC-154 VK8AN/6	Broughton Island	01 Jun
OC-169 A35RK	Ha'apai Island	15-25 Jun
OC-226 V63RL/P	Mwoakilloa Island	01-05 Jun
SA-008 CE8ABF	Terra del Fuego	29 Jun
SA-008 LU8XW	Terra del Fuego	13 Jun
SA-026 PP5JD	Santa Catarina Is.	26 Jun
SA-026 PP5BRV	Santa Catarina Is.	03-29 Jun
SA-026 PP5OW	Santa Catarina Is.	07 Jun
SA-086 CE1LDS/2	Damas Island	10-14 Jun

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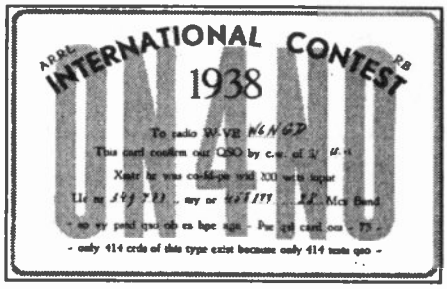
Antique QSL Department

Our selection of antique cards comes from the collection of Lew Wilhelm, W7TB, most of them from his college days when he operated as W6NGD from his dorm room at Arizona State University at Tempe. Lew says he made most of his contacts with a 53 tube oscillator/doubler and a 46 tube amplifier at 20 watts. That 46 is a type of tube — not 46 tubes! He later added a 210 tube and doubled it for 10 Meters.



The card for ON4NO is unique and I assume it is for Belgium. However, it could also be the Belgian Congo. Note the small print at the bottom: only 414 cards of this type exist because only 414 test QSOs. This was for the ARRL International Contest in March 1938 where Lew exchanged contact data with ON4NO on 10 Meters. Lew sent 349777 and received 458777 (or at least it looks like 777). It was none of this 599 business!

The second card is from U1AD of Leningrad for a contact made in 1937. This particular card has been represented twice before, in 1979 and 1985. The call and map are in red with black printing and highlighted with gold for the arc at the lower left and USSR. Lew worked this one on 20 Meters.

As for XU8UX, this operator apparently prefers large-sized cards.

World Radio History

DX Prediction — September 1998

Maximum usable frequency from West Coast, Central U.S. and East Coast (courtesy of Engineering Systems Inc., Box 939, Vienna, VA 22183). The numbers listed in each section are the average maximum usable frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa—Kenya/Nairobi, Asia—Japan/Tokyo, Oceania—Australia/Melbourne, Europe—Germany/Frankfurt, and South America—Brazil/Rio de Janeiro. Smoothed sunspot number = 79. Chance of contact as determined by path loss is indicated as bold ***MUF** for good, plain MUF for fair, and in *(parentheses)* for poor. UTC in hours.

CENTRAL U.S.A.

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	18	*(12)*	***22**	*(12)*	***18**
10	*(22)*	11	***20**	*(11)*	***19**
12	33	***16**	***17**	20	23
14	***38**	17	21	***24**	***31**
16	***37**	15	19	***23**	***36**
18	***37**	*(14)*	*(16)*	21	***38**
20	***30**	24	30	*(15)*	***38**
22	25	26	***36**	13	***40**
24	***22**	23	***39**	*(12)*	***33**
2	***19**	19	34	11	***28**
4	***19**	16	***31**	***14**	***23**
6	19	14	26	***13**	***20**

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(14)*	***16**	***23**	*(11)*	***20**
12	*(19)*	***15**	***20**	*16*	*(16)*
14	27	***18**	***17**	22	28
16	30	16	19	23	***35**
18	***31**	14	*(16)*	21	***38**
20	***30**	***23**	29	16	***39**
22	25	***30**	***36**	13	***40**
24	22	***32**	***39**	*(12)*	***33**
2	***19**	***30**	***39**	11	***28**
4	***19**	***25**	***36**	***15**	***23**
6	*(16)*	***21**	***33**	13	***20**
8	*(15)*	***18**	***27**	12	***18**

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	18	*(12)*	***22**	11	***19**
9	20	***11**	***19**	16	***19**
11	***32**	***16**	***17**	***22**	22
13	***37**	*(14)*	22	***25**	***31**
15	***37**	*(12)*	20	***24**	***36**
17	***37**	*(11)*	*(18)*	***23**	***38**
19	***33**	*(16)*	*(25)*	***19**	***38**
21	***27**	22	34	13	***38**
23	***23**	23	38	***12**	***37**
1	***20**	*(19)*	34	***11**	***30**
3	***16**	15	31	***11**	***25**
5	***20**	*(13)*	28	***12**	***22**

The card is printed in black with the Chinese flag in full color. The hand written data appears to be gold ink. The date of this contact was 24 April 1936. C.T. Chao was the operator and was located at the YMCA at Hangchow.

Florida DXpedition Group

There is a new DX club in northeastern Florida, the Florida DXpedition Group, consisting of DXers interested in DX, DXpeditions and contests. They have just submitted the proper paperwork to become affiliated with the League. They are looking for interested members who have a General Class license or higher. If interested just send an e-mail to: dxpg@ac4et.ampr.org. Subject should say Attn: Secretary. If you have no e-mail capabilities, the source of this comes from Bill Gallier, W4WX. His address is: 4094 Sandy Run Dr., Middleburg, FL 32068.

New officers

New officers for the Long Island DX Association include: Martin P. Miller, NN2C, President; Pat Masterson, KE2LJ, Vice President; Ed Whitman, K2MFY, Secretary; and Russ Lusterman, AA2LC, Treasurer. Also elected as directors were Lou Dietrich, N2TU; Marv Fircklas, W2FGD, and Lenny Zuckerman, KB2HK. The term of office for these DXers extends to 2000.

QSL Information

Fred Laun, K3ZO, pleads that he is not the QSL manager for 5H3TW, operated by Tom Warren, K3TW. Only Tom can answer those requests, who is presently signing with DL8WTA. This also includes Tom's other calls: 5HØT, D68TW, J2ØTW, 5H1TW, K3TW/4S7, and VU2TJW.

Fred also says that he is not the QSL manager for CU3URA either and has no idea who the QSL manager is. He suggests you send your requests to the operator directly as his address is in the Callbook.

There have been reports of a 3AØFC who gives his QSL manager as G4IUF. This is activity by Slim again, so don't waste your time. Also, W8CNL is not the QSL route for KHØ/AF4FL.

Thanks go to the following contributors for this month's column: BA4TB, G3VMW, VK2ICV, ZS5BBO, K2MFY, K3ZO, K4VUD, W4WX W7TB, W8CNL, K8YSE, Northern Arizona DX Association (W7YS), WebCluster (OH2AQ), *425 DX News* (I1JQJ), *DX News Letter* (DJ5AV), *The OPDX Bulletin* (KB8NW), *Internet DX Mailing List* (VE7TCP), *The Low Band Monitor* (KØCS), *Island/DX News* (N5VL), *The Daily DX* (W3UR), *QRZ DX* (N4AA), and *DX News Sheet* (G4BUE).

Did you get out on Field Day? This yearly event seems to be the only activity many Hams participate in. It is also amazing how many amateurs do not understand the geographical breakdown of California. I'm sure many of you worked us as WR6WR from an ideal location for DX. We were at the top of a small hill with an unobstructed view of 360 degrees. Armond's V-beam seemed to work very well. And that was 500 feet on each of the two legs. We had fun with a maximum of six operators. And we had Murphy too. Armond's radio quit and Rick's wouldn't work on CW. That's why WR6WR was never heard on CW. 73 de John N6JM.

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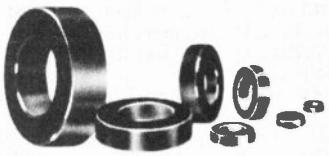

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World Radio History

QSL managers

The majority of the QSL routes this month were taken from *425 DX News*. All corrections would be appreciated.

3D2CT	SM6CAS
3D2CU	SM6CAS
3D2DX/P	EA4DX
3D2KK	SM6CAS
3D2QB	SM3CER
3D2RW	ZL1AMO
3D2XR	SM6CAS
3DA5A	JH7FQK
3G1X	XQ1IDM
3W7TK	OK1HWB
3XY6KR	DL8BAX
3ZØAU	SP6CZ
3ZØEMC	SP6ECA
3ZØI	SP6ZDA
3ZØMM	SP4KIE
4A1AC	XE1BEF
4F3CV	HB9CXZ
4JØIO	TA2IO
4K8ØADR	4J9RI
4K9W	DL6KVA
4KA5CW	4J9RI
4LØCR	IK7JTF
4L4MM	ON4CFI
4L7FO	TA7A
4N4AE	YU4WU
4N9AT	YT1AT
4S7BRG	HB9BRM
4S7YSG	JA2BDR
4U1WB	KK4HD
4X/SM7PKK	SM6CAS
4X6UO	WB3CQN
4Z1GY	NF4W
5B4/RA3CW	YL2KL
5B4/RZ3BY	YL2KL
5B4/RZ4HF	YL2KL
5B4/T93Y	W6MD
5B4/T97M	K2PF
5B4ADA	9A2AJ
5B4AGC	G3LNS
5B4EZ	OE3EPW
5H3RB	LA4DM
5K1WC	HK3SGP
5NØOK1AUT	OK1AUT
5N1SYT	IKØPHY
5N3BHF	OE6LAG
5N7YZC	WA1ECA
5N9KWO	NØUN
5W1HK	SM6CAS
5W1SA	JH7OHF
5X1DK	KD4UDU
5X1LH	GM4DMA
5X1M	ON5NT
5X1T	ON5NT
5X1Z	SM6CAS
5Z4RL	N2AU
6KØT	DS4CNB
6K985BF	HL5AP
6W1/N2WCQ	UT4UZ
6W1QV	F6FNU
6W1RD	6W1QV
6W1RE	6W1QV
6Y5/WH6X	JG3KIV
6Y5A	JE3MAS
6Y5XX	JG3KIV
6Y6A	JG3KIV
7J1AZL	OK1FWQ
7J6ADC	KB8RTW
7Q7EH	AA9HD
7Q7LJ	KA9LFX
7Q7RM	GØIAS
7Q7SB	AB4IQ
7S5BE	SM5BE
7XØAD	EA4URE
7X2RO	OM3CGN
7X4AN	DJ2BW
7Z5OO	N2AU
8P6AZ	KU9C
8P6DA	KU9C
9AØC	9A2KL
9A7C	KA9WON
9A9JH	DL9JH
9G1BJ	G4XTA
9G1MR	IK3HHX
9G1TM	G4XTA
9HØA	LA2TO
9H3AY	G3SDG
9H3UT	DL9GDB
9J2BO	W6ORD
9J2TF	JA2BOV
9K2MU	WA4JTK
9K2RR	KU9C
9K2SS	KB2MS
9K2ZZ	W8CNL
9M2/G3LIV	G3LIV
9M2KU	JH2OJS
9M2NK	JE1JKL
9M2PS	HB9AAP
9M2RY	N4JR
9M2TD	JR4PDP
9M2TO	JAØDMV
9M6AAT	UA9CI
9M8DX	DL4DBR
9N1FP	RU6FP
9N1UZ	UT4UZ
9Q5TR	4Z5DP
9V1XX	7K3CKK
9V1YC	AA5BT
9V1ZB	JL3WSL
9Y4SF	WA4JTK
A25/ZS6PDX	ZS6RVG
A35KK	SM6CAS
A61AD	N1DG
A61AN	WA2JUN
A61AS	YO3FRI
A71BY	F5PYI
A92FZ	W3HC
A92GD	K1SE
AP2WAP	IK4ZGY
AZ4F	LU3FP
BI4Q	9A2AJ
BI4Q	BY4RSA
BNØA	JH3DPB
BPØRIW	JA1JKG
BV5BG	IK7JTF
C31SD	CT1AMK
C4ØM	5B4AFM
C46A	9A2AJ
C4CQ	YL2KL
C4W	5B4WN
C6AHR	N8PR
C6AKA	DL7VOG
C91W	W8GIO
CE6TBN	CE6TC
CK3MP	VE3CPC
CK7U	VE7UBC
CM2KC	HI3JH
CO2CI	KA4KLU
CO8HF	CT1ESO
CP6AA	LU9AUY
CP8XA	DG9NB
CQ7ELP	CT1ELP
CQ98BM	CT3BM
CT98AAM	CT1AAM
CT98AOZ	CT1AOZ
CT98ARL	CT1EWA
CT98BOH	W3HNK
CT98CJJ	CT1CJJ
CT98DVV	CT1DVV
CT98ELP	CT1ELP
CT98EXPO	CT1REP
CU3T	CU3URA
CX/LU2CP	CX6FP
CX5X	W3HNK
CX9AU	KA5TUF
CYØDX	VA3RU
CY7A	VE7SV
D2AI	CT1EGH
D2BB	W3HNK
D2M	OH3LQK
DN2LG	DK6HD
DU/HB9CVN	HB9CXZ
DU1ODX	NHØD
DU3NXE	W4NXE
DU8ARK	I2YDX
E21AOY/8	7L1MFS
E21CJN	W3PP
EA1CIL/P	EA1AAA
EA8/DJ9HD	DJ9HD
EA8ZS	EA8ZS
EA9LZ	EA7JB
EA9PY/P	EA9PY
ED1INO	EA1GA
ED1SCR	EA1EAU
ED1TFB	EA1EC
ED2SCL	EA2CBY
ED2UDF	EA2ICA
ED3TCB	EA3RCL
ED5FV	EA5FV
ED5MUC	EA5VM
ED6IDA	EA6ZX
ED7LCN	EA7URG
ED7PFP	EA7ANC
ED7TCM	EA7URM
EF1TFB	EA1EC
EGØMCP	EA7URM
EH5VD	EA5VD
EI9FN	G3YOG
EJ2IM/P	W4ZYT
EJ7NET	EI2GX
EK6DO	K6EID
EK6GC	W3HNK
EK6LF	IK2QPR
EK6OCM	K6EID
EK7DX	DL1VJ
EK8WB	IK2QPR
EL2DT	IKØPHY
EM4U	UT4UZ
EO5U	UT4UZ
EP2MKO	UA6HCW
EP2P	EP2HMR
EP3HR	I2MQP
ER3R/p	ER1DA
ER5AA	I8YGZ
ES2RW/3	ES2RIQ
ES5Q	ES5RY
EU3FT	W3HC
EW1NY	N8LCU
EW3LB	W3HNK
EW6CM	EU6TV
EX8A	RW6HS
EX8ML	W3HNK
EX8MLE	IK2QPR
EY1ZA	W3HNK
EY8CQ	DJ1SKO
EY8YW	DJ1SKO
EZ8AI	W3HNK
F1CYB	FA1ICZ
FBC/FB11PH	FB11PH
FBC2FZ	F2FZ
FBC2YT	F2YT
FBC5ASB	F5ASB
FBC5ASD	F5ASD
FBC5AUI	F5AUI
FBC5BMK	F5BMK
FBC5BZB	F5BZB
FBC5CWU	F5CWU
FBC5KAC	F6JSZ
FBC5LJA	F5LJA
FBC5LSF	F5LSF
FBC5MFU	F5MFU
FBC5NBX	F5NBX
FBC5OQL	F5OQL
FBC5PEZ	F5PEZ
FBC5SIH	F5SIH
FBC5TBA	F5TBA
FBC5TJC	F5TJC
FBC5TVG	F5TVG
FBC6AUS	F6AUS
FBC6AXP	F6AXP
FBC6CTL	F6CTL
FBC6CUK	F6CUK
FBC6DWB	F6DWB
FBC6EJI	F6EJI
FBC6FHO	F6FHO
FBC6KUQ	F6KUQ
FBC6OYU	F6OYU
FBC8CHO	F8CHO
FBC9RM	F9RM
FG/DJ6SI	DJ6SI
FG/JA2EZD	XU2C
FG/JA2EZD	7L1MFS
FK8HC	VK4FW
FM5DN	KU9C
FM5GU	WA4JTK
FOØHAR	K8VIR
FOØMAC	K8OU
FOØPAP	K8OU
FO5BI	F6HSI
FO5QE	F5GSK
FO5QG	XE1L
FP/W8MV	W8MV
FP5EJ	K2RW
FS/F2HE	F2HE
FS/JA2EZD	XU2C
FS5HI	WA4JTK
FT5XN	F6PEN
FT5ZI	F5PFP
FW/SM7PKK	SM6CAS
GBØBTC	GIØVAB
GB2OYC	MØBGS
GC4BRS/MM	GWØANA
GI6YM	K1TRS
GI6YM	K1WY
GMØKJW	GØKJW
GMØPNS	G3LWM
GM3AKU/P	G3AKU
GM3BQA/P	GMØAXY
GSØFRC/P	GMØVYI
GS2MP	GM2MP
GXØSTH/P	G4DIY
H2ØA	YL2KA
H24LP	5B4LP
HA/WØYR	AA9DX
HBØ/DF6VI	DF6VI
HBØDL1FDH	DL1FDH
HBØDL2JRM	DL2JRM
HBØDL4OCM	DL4OCM
HBØHB9LEY	JH1BSE
HB5CL	HB9CXZ
HB5H	HB9CXZ
HB5NE	HB9CSM
HB5RL	HB9CXZ
HB9CL	HB9CXZ
HB9H	HB9CXZ
HB9RL	HB9CXZ
HC6CR	NE8Z
HC8/N5KO	AA5BT
HFØPOL	SP3BGD
HG1S	HA1KSA
HG3O	HA3UU
HG4I	HA5LN
HG8EXP	HG8KWG
HI8/DL8UD	DL8UD
HP1DSD	F6FNU
HP3XUG	KG6UH
HP4/HP1DSD	F6FNU
HQ6DX	HR2JPQ
HSØJR3XMG	JG3AVS
HSØVK3DXI	DL4DBR
HS1RU	JG3AVS
HZ1AB	K8PYD
IA1/I1WNB	I1WNB
IA1/IK1QBT	IK1QBT
IA1/IK1RAR	IK1RAR
IA1/IK1YEK	IK1YEK
IA1/IK1ZOZ	IK1ZOZ
IBØ/IZØIIA	IZØIIA
IC8/IK8GCP	IW8EHA
IC8/IK8TWX	IW8EHA
IC8/IK8YWL	IW8EHA
IC8/IW8EAG	IW8EHA
IC8/IW8EHA	IW8EHA
IF9/I1SNW	I1SNW
IG9/IK3LYP	IK3LYP
IIØN	IZØAEH
IIØN	IKØAEH
II1ARI	I1JQJ
II1H	I1HJT
II3T	IV3TAN
IL6/IK6PTH	IK6PTH
IL6/IK6QRH	IK6QRH
IMØ/IKØMHR	IKØMHR
IMØ/IK2MRZ	IK2MRZ
IMØ/ISØIGV	ISØIGV
IMØ/ISØJLJ	ISØJLJ
IQ6T	IK6SNQ
ISØ/DL2SBY	DL2SBY
ISØ/DL4YAJ	DL4YAJ
IYØTC	IØKHP
IZ5BTC	UAØZBK
J28FA	F5MXH
J45KLN	SMØCMH
J49IL	DJ5IL
J6/JA2EZD	7L1MFS
J69TV	N4TV
J79KV	W6JKV
JD1YBJ	JL1KFR
JT1T	JT1KAA
JU1T	JT1KAA
JW1ZDA	LA1ZDA
JW4WAA	LA4WAA
JW7VK	LA7VK
JW9PJA	LA9PJA
JX7DFA	LA7DFA
JY8YB	DL5MBY
K1WY	IA5/IZ5BTC
K5P	NA5B
KG4FD	W4WX
KHØ/AF4FL	JQ6NVE
KHØ/AF4IN	JA6AGA
KHØAC	K7ZA
KHØN	JA6CNL
KH2/NH6D	N6FF
KH2D	K8NA
KH6/JR1SDS	JR1SDS
KH6/KB6JOX	K6JOX
KH6/SM7PKK	SM6CAS
KH6X	N2AU
KH8/N5OLS	N5JA
KH8/N5OLS	N5JA
KH8/SM7PKK	SM6CAS
KP2/K7JI	K7JI
KP4IX	WP4MIM
L5ØI	LU4IC
L5ØV	LU5VC
LTIF	LU1FKR
LXØSAR	DL5UU
LX8DL	LX1DA
LY/AC6WL	LY6URO
LY1TR	LY1BD
LY5A	LY2ZZ
LY5W	LY1DR
LY6M	LY1DS
LY7A	LY2ZO
LY8X	LY3RM
LY98BA	LY3BA
LY98BK	LY3BK
LY98BLQ	LY2BLQ
LY98DR	LY1DR
LY98FW	LY1FW
LY98TZ	LY2TZ
LY98ZZ	LY2ZZ
LZØA	LZ1KDP
LZØB	LZ1KCP
LZ8A	LZ1JY
LZ9A	LZ2KTS
M8T	G3XTT
NP4A	W3HNK
NP4Z	WC4E
OA4DHW	N5FTR
OD5PI	IK7JTF
OD5PN	LX1NO
OG5F	OH1VR
OHØAAQ	OH2NRV
OHØBCI	OH3BCI
OHØCW	OH2KMF
OHØEA	OH2KMG
OHØHAC	DL9FAZ
OHØJWL	DL5FF
OHØKCB	OH3KCB
OHØLQK	OH3LQK
OHØM	OH3LQK
OHØMEP	OH3LQK
OHØMMF	OH3KCB
OHØW	OH2IW
OH2BU/MVI	OH2BU
OH3RM	OH3KCB
OH7WW	OH3LQK
OL3A	OK1AY
OL4M	OK1ARN
OL5KLD	OK2KLD
OM5M	OM3KFF
OM8A	OM3RM
OM9X	OM2DX
ON5ØLUS	ON4LCV
ON5ØNOL	ON6NL
OT8A	ON7LR
OT8T	ON4UN
OX3LG	OZ2ELA
OY/DL9YBY	DL9YBY
OZ1RDP	DL9BCP
OZ7MW	F5OIH
P29VR	W7LFA
P38M	YL2KL
P3A	W3HNK
P3A	UA9YAB
P4/N4BWS	WB4CKO
P49V	AI6V
PA6F	PA3GFH
PA6WPX	PA3CAL
PQ5L	PP5LL
PR5L	PP5LL
PU2WIF	PY2EYE
PYØFA	PY4KL
RØ/UR8LV	UR7LD
RØ/US3IU	US3IZ
R1MVI	OH2BU
RA2FBC	DF4BV
RA3ATX	DF1EW
RK1B/P	RV1CC
RK3AWL	W3HNK
RM6A	RN6BN
RNØA	UAØAGI
RN3R	RW3RQ
RO3A	RX3APM
RSØF	W3HNK
RU1POL/Ø	UAØKCL
RX1OX/FJL	DL6YET
SØ7WW	ON5NT
SM/DK4WD	DK4WD
SNØAK	SP7PFD
SNØBAR	SP3KRF
SNØSTE	SP2PHA
SNØSZ/P	SP1RWK
SNØZDH	SP5ZDH
SN5N	SP5KP
SO2DBO	DL5DBO
SPØDKI	SP2DKI
SU1AH	N6TJ
SV5/DL6NBR	DL6NBR
SV5/G4SMK	G4SMK
SV5/I2YYO	IK2MYX
SV5/I3BQC	I3BQC
SV5/VE3EXY	VE3EXY
SV8/G3SWH	G3SWH
SV8LTI	SV1ATV
SV9/DF9OX	DF9OX
SV9/SM7PKK	SM6CAS
T32RT	W6UC
T32Z	N7YL
T33CS	SM6CAS
T33KK	SM6CAS
T88HC	JO1IAF
T88JA	JA6BSM
T88TT	7M1STT
T88X	JA6BSM
T91S	DL4SEM
T94GB	W3HC
T99T	9A2AA
TA2DS	WA3HUP
TA2IJ	DJ9ZB
TA4/DK5IM	DK5IM
TE5T	TI4SU
TF/DL2NWK/P	DL7DF
TF/DL7BO/P	DL7DF
TF/DL7BY/P	DL7DF
TF/DL7DF/P	DL7DF
TF/DL7UFR/P	DL7DF
TF4/SM7PKK	SM6CAS
TF4WW	SM6CAS
TF8GX	K1WY
TG9NX	N4FKZ
TK/IK1VCA	IK1VCA
TK/IZ1BWC	IK1VCA
TL5A	PA3DMH
TMØCMF	F5KKD
TM1CMF	F6KRD
TM2CMF	F6ITD
TM2OO	F5KQN
TM3CMF	F2VX
TM4CMF	Bureau
TM5CMF	F5PYI
TM6ACO	F6KFI
TM6CMF	F5ITL
TM6J	F5EJC
TM7CMF	F6IGF
TM8CMF	F5NBA
TM9C	F5IN
TM9CMF	F5PIQ
TO5F	FG5FY
TO5G	FG5BG
TO5G	FG5BG
TR8IG	F5IN
TR8KPJ	F6CDK
TT8JE	F6FNU
TT8ZB	IK3ERN
TUØD	TU2CI
TX8A	FK8HC
UØJE	UAØJB
UAØDC	K1WY
UAØKCL	RA3DEJ
UAØQMU	UA4SKW
UA9FAR	W7YS
UA9XOM	RV9XF
UD6M	RU6LWZ
UEØSIO	UA4HUR
UE1QAA	RZ1QZZ
UE9ARK/P	RA9APZ
UK8IZ	IK2QPR
UK8OM	IK2QPR
UN3F	UN7FJ
UN5G	UL8GWJ
UN7LG	KU9C
UR4LQA	UR4LWC
UR4LWY	UR4LWC
UR4WWT	WR3G
US9D	UT4UZ
UT5UDX	UT3UA
UT7L	UR4LWC
V31DL	WI9H
V31HE	DL1DA
V31LL	N7TLL
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VK8AN	VK4AAR
VK8AN	VK4AAQ
VK8AN/6	VK4AAR
VK9XU	DL4DBR
VP2EY	HB9SL
VP2VDX	K6CT
VP5/K2DO	K2DO
VP5/K5YG	K5YG
VP5/N2GA	N2GA
VP5GA	N2GA
VQ9GB	K7GB
VQ9VK	N1TO
VQ9ZZ	NS1L
VR98BG	VS6BG
VU2ABE	JA4DOB
VU3MCV	ON7LX
VX6JO	VE6JO
VX7KDU	VE7KDU
VX9HF	VE9HF
W7A	KQ7K
WH2/N2NL	W2YC
WH8/SM7PKK	SM6CAS
WL7E	KL7GNP
WP3A	W4DN
XE1RGL	N2AU
XE1VIC	KV8U
XK3NJ	VA3NJ
XL1GO	VO1GO
XO1CWI	VE2CWI
XR1X	XQ1IDM
XUF2B	N4JR
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XW3Ø	SMØAGD
XW3ØA	SMØAGD
XX9TSS	JK2PNY
YC8FI	IKØZKK
YJØAIO	DL7VRO
YJ8PU	KF4VPU
YM2ZW	OK1TN
YR2R	YO2DFA
YTØA	YU1EXY
YT4AY	YU4WU
YZ4ED	YZ7ED
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7X4AN — Mohamed Boukhiar, P.O.Box 30133, E-08080, Barcelona, Spain

AP2AGJ — Amir Gulistan Janjua, House No 56, Chaklala 1, Rawalpindi, Pakistan

BD4DC — Ralph Chian, 573 Fu-Xing-Zhong-Lu, Shanghai 200025, China

BY4RSA — Jiangsu DX Club, P.O.Box 538, Nanjing, China

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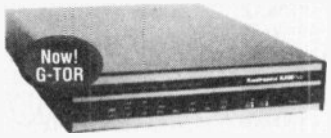

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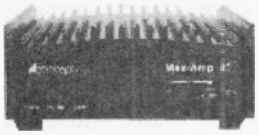

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Human exposure to RF fields — the simple explanation

It's no secret that most Hams really do not understand the new FCC rules regarding human RF exposure limits to electromagnetic fields. You need only bring the subject up on your local repeater to find numerous radio amateurs freely admitting they don't understand the new regulations nor are they adept at making the necessary calculations even if they did.

I was involved in a telephone discussion of this problem with my friend Roy Neal, K6DUE. Both of us realized the government has mandated that Hams comply with the new regulations and has made a lot of good data available to the Amateur Radio community. We also realized that without mandatory retesting in the area of these new regulations of every currently licensed Ham probably would not take the time to locate, and read — let alone understand the new laws.

I was talking about the situation with some Amateurs very knowledgeable in the area of human RF exposure limits at work, when it occurred to me that there might be a person who could shed some simple, non-bureaucratic words on this matter. Robert Gonsett, W6VR, is the president of an internationally recognized and well-respected broadcast consulting firm called Communications General Corporation located in Fallbrook, California.

Bob is the son of the late Faust Gonsett, the man considered the father of VHF transceiver technology. The senior Gonsett was responsible for such legendary pieces of Ham gear as the Gonsett Communicator I and II with their ever-watchful "green magic eye" tuning indicators; the Communicator III (the East-Coast Ham community nicknamed the "gooney-box") the powerful- for-its-time G-50 6M VFO controlled home station, plus myriad other gear that we Hams of the late '50s though the early '70s used and enjoyed.

More important, one of the things that Bob Gonsett does quite well is to "communicate" with those around him. To assist in that mission, Bob writes and publishes a weekly (sometimes twice weekly) e-mail newsletter known as the CGC Communicator. Not a week goes by when I do not find an item of importance in the CGC Communicator.

After discussing this matter a second time with Roy, I wrote a quick note from both of us to Bob asking if he could use his technical writing skill to help defray the Washington bureaucratese with some simple and sound advice. I shipped the note via cyberspace, and in short order I received the following response:

"A short story for human exposure to radio frequency electromagnetic fields caused by Ham radio operations might go like this:

(1) Are you delivering less than 50 watts PEP to your antenna? If so, you almost certainly comply with the FCC's new human exposure to radio frequency electromagnetic field rules, also known as the "REF Rules." 50 watts is the magic number determined by the FCC.

(2) If you put more than 50 watts PEP into your antenna, your operation will probably still comply with REF Rules if it fits within the power limits of Table 1 of Supplement B of FCC publication OET-65. This table, widely available to Hams, permits up to 500 watts PEP on some HF Ham bands and as little as 50 watts PEP on others. Check the chart to see just where you stand.

(3) If your operation is beyond what is permitted by the chart, it might still comply, but expert help is sometimes needed to make this determination. You've got to consider things like the height and type of antenna, the antenna's proximity to people in worst-case situations, the type of modulation and the duty cycle of the transmitter. Tap the Ham resources in your community for help.

Remember that RF waves are like heat waves. It is the combined "heating effect" from all RF sources that counts, not the effect of your operation alone. For example, if you live next door to a high power operator, some of the "warming effects" of his signal will add to the warmth of your signal. People standing on the ground in just the right places could be overexposed and that could lead to legal trouble.

The bottom line is this: If you put less than 50 watts of peak power into your antenna, you will almost always comply with the REF Rules even if you have a "big gun" station next door. If you run more than 50 watts and especially if there are other strong transmitters nearby, check the FCC publications or ask the experts in your area for help.

Most Hams already comply with the REF Rules but simply don't know it. Keeping your power below 50 watts is one quick and easy way to comply.

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6 Meter DX season is here

It was Alaska to California on 6 Meters when the band opened on 26 May at 0230UTC. About three hours later around 0530UTC Dave Booth, KC6WFS, located in Santa Clarita California heard several locals calling for KL7NO. Dave knew that the KL prefix meant Alaska and sure enough, there rising out of the noise came the voice of Albert Noe, KL7NO in Fairbanks going QRZed.

Booth gave him a call and nabbed him just before KL7NO faded back into the noise with many locals still

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calling. But here is the kicker — KC6WFS was running a thirty-year-old Swan 250 tube-type transceiver that he recently restored. An article on this restoration appeared in the July issue of *CQ VHF* magazine. His antenna is a Cushcraft 5-element beam. No word on what gear the Fairbanks station was using.

While Booth was busy working up toward the Arctic Circle, Ed Rodriguez, WP4O reported via the "VHF Reflector" (remailer) that both he and KP4EIT had worked Portugese station CT1DNF. The contact took place at 1130UTC on 04 June.

Ed says that KP4EIT also worked several OZ stations and at least one more CT before the band went dead. Ed notes that KP4EIT lives at a location thats about 2,000 ft higher than his QTH. This gave Jose the advantage of hearing signals a bit louder than at WP4O.

And then it was Larry Filby's, K1LPS, turn to make news. According to Filby's posting to the "VHF Reflector," he has worked two stations in Spain on what many call the Magic Band. Both contacts took place on 06 June at about 1200 UTC. The first station contact was EH7KW followed ten minutes later by a QSO with EH7AH. Filby, who lives in Saint Johnsbury, Vermont, says that both stations had signals of S9+ and he didn't hear them working anyone else except W1AIM, whom he alerted.

And from across the Atlantic pond comes word from Geoff Brown, GJ4ICD, on 07 June 3C5I added six new countries to his log, including Moldova. Stations in England made contacts with TR8CA, TR8XX and TR8CA. Geoff says signals both ways were reported as many decibels over S9.

This means the long-awaited age of VHF international DX has arrived. It also means that almost anyone, with even the simplest of 6M radios and a modest antenna should be able to enjoy the thrill of contacts like these. As the summer and the solar cycle continue to grow, you can expect 6 Meters to more than live up to its nickname as "The Magic Band," where almost anything can happen and usually does.

Low-power 6 Meter DX calling frequency

Not long ago, Phil Krichbaum, NKØE, posted the following note to the aforementioned VHF Reflector:

"Last summer I heard someone calling CQ on 50.125 but announcing where he was listening for calls. I effectively used this method during the SMIRK contest to move people above 50.200... With a 2 VFO radio this is a piece of cake. I'd announce where I was listening while CQing on 50.125 or 50.200. When I ran out of callers I'd repeat the process."

For some time there has been a move to expand 6 Meter DX up the band, possibly by moving the domestic U.S. "calling frequency" to 50.200 MHZ. While this has gotten vocal support from some quarters and an equal amount of vocal opposition in others, to date it's been all words and little more.

But Phil's words gave me another idea. Simply, how about establishing 50.200 and, possibly 144.250 MHz as "QRP DX Calling Frequencies?" The idea here is to separate the "big guns" with their dedicated VHF DX stations from the peanut whistle operations that might be running 10 watts SSB or CW into a halo or dipole antenna.

We all know that there is really no way for a guy with a two-watt FT- 690R and an "AEA Halo" to compete on 50.125 against a station operating at the legal limit to a pair of stacked 6- or 8-element beams atop a hundred-foot tower. If the 'peanut whistles" QSY up to a far-removed frequency of their own, its logical that these low power stations would make many more QSOs and would be having lots more fun.

New TechAmerica policy on Amateur Radio ads

Tandy Corporation's TechAmerica says it will place disclaimers on all advertising for Amateur Radio equipment stating that the purchaser must possess a valid FCC license before transmitting. This policy statement comes amid a furor on several Amateur Radio Internet remailers after Techamerica mailed out a flyer featuring a brand new Alinco 2M handheld at a bargain price.

Unfortunately, the ad did not have the usual disclaimer attached. Making matters worse in the eyes of Amateur Radio operators was another ad in the flyer for a business band radio that did have such a disclaimer.

While many on the remailers ruminated that this omission would spell an end to all values that Amateur Radio operators hold dear, one Ham, Dave Donnelly, took a far more positive approach. Dave wrote a short note to TechAmerica commenting on the recent flyer using the e-mail link at the TechAmerica customer support website. And it did not take long for Donnelly to receive following reply:

"Dear Mr. Donnelly,

Thank you for your comments concerning our special Alinco DJ 190 TD flyer and your concern that no Amateur Radio licensing notice was listed on the same page. We agree with you, in fact, as you noted, we post an Amateur Radio Licensing notice in most advertising including the communications section of our full line merchandise catalog. The item of your concern was a special front cover item and in the excitement of offering such a special price, we did not run the notice.

Our management team has reviewed this issue and we intend to run an Amateur Radio licensing disclaimer in ALL future advertising

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media where Amateur Radio products appear including our web ads, magazine ads, catalogs and flyers. Many of our TechAmerica team, including myself, are active Amateur Radio operators and we want to support this hobby and help in its growth. Please accept our apologies and we hope you will continue to be a valued TechAmerica customer."

The letter was signed — "Sincerely, Alan Benoit, WQ5W, Communications Buyer for TechAmerica.

Promoting human values at VHF and UHF

As regular readers know, I am one of those people who believe that all Hams are created equal, regardless of the class of license that they hold, or if they can or cannot understand the Morse code. The reason for this dates back to a rather sour experience I had some thirty-seven years ago as a fairly new "coded" Tech class Ham who has passed a 5 WPM code test and had been assigned the call sign WA2HVK.

Several of us "Techs" were regulars on a local Civil Defense net. In fact, our "teen Tech brigade" was the majority on the net. The number of General, Advanced and Extra could be counted on a hand and a half.

Back then in New York City, "CD" was strictly an Amateur Radio undertaking. Candidly speaking there was really little interest in what we were doing on the part of either the city or the state. We were just another part of one of those countless agencies that the bureaucrats in City Hall and up in Albany paid little attention to.

One day someone said on our net that the city would be presenting certificates to those members who had been week-to-week participants for at least a year. About the only ones who fell into that category were the gung-ho young Technicians. In short order, the envelopes from the city went out, but none of us Techs got one. After a few weeks of waiting and several inquiries, one of the "Tech brigade" hit paydirt. He was told that we were not really a part of the RACES team. Other Hams involved with the operation had told them " that Techs really did not count. Only Generals Advanced and Extra were Hams."

Making matters worse, the small number of higher class license holders supplied a list of about a dozen names, their names, stating who should receive certificates. Having no way to check on 'who was who,' the city followed what was on the paper.

Eventually, those responsible were confronted on the air. Instead of denials and excuses, the ring leader responded (paraphrased): "...What's the matter techie-poos? Think you are as good as we are?"

I think that was the moment that I coined the expression "license class bigotry." I quickly started to use it in a number of QSOs to "get back" at those who had berated me and my fellow Techs. I know that I have used it many times since then to describe my disdain for people who rebuke and mock others based on what level of proficiency a person has shown on an "exam score sheet" or at a telegraph key.

When the codefree Technician class came into existence, so did a new form of license class bigot. These are the Hams who have passed anything from the most basic telegraphy exam up to and including the Extra class 20 wpm exam. They view the Morse code as a "religion" and worship it as if their universe centers around each dot and dash. And based on that alone all these people do all in their power to berate any Ham who chooses not to learn a dit from a dah.

As far as I am concerned it is these people who are responsible for fracturing Amateur Radio to a point that may well be beyond repair. They hate others based simply on a cipher that was developed over a hundred years ago and that means little in today's modern "high tech" society.

I recently came across a posting on one of the VHF interest remailers from Dave Bostedor, N8NQS. Dave's words made me realize that I am not alone. Unlike me, he does not bother trying to change bigots into Samaritans. Rather, he is a very positive person who writes to the masses with what is almost a Amateur Radio prayer of hope and forgiveness.

I was so taken by his words that I immediately e-mailed him asking his permission to reprint his posting. He agreed and here it is:

"Greetings and welcome to all of you who have entered the hobby by the No-Code Technician route.

"It's only been a half dozen years since the FCC eliminated the requirement of CW proficiency to allow entry into one of America's most exciting hobbies. Since then, many have upgraded to the top, and some have found that they can get all they want at their present license level. To all of you, let me say that you're welcome here.

"I can't speak for everyone, because there are some who made a considerable investment in time and effort to enter the hobby when CW was required. They are the Patriarchs. They paved the way for the rest of us, and made this great hobby attractive for those of us who came in at a later time.

"Some of them feel cheated that they had to achieve certain skills that we didn't. They are to be admired for that. I can tell you from my observation that the bitter are few. They do not represent the majority. In fact, except for their nearsightedness, they are very good people.

"Experienced Hams should be admired. When they vent, let them. Don't get to feeling that you are less, or even that there are many who think you are less, because you elected to enter without the code.

"I would encourage you to upgrade. The most difficult of 'weak signal' contacts are almost easy with CW. It can be debated, but I feel that CW will do more for you than doubling your power, adding 20 extra feet to your tower, and using feedline that is 1 or 2 dB less per 100 ft.

"Chin up! Keep studying! Keep Rovering! Keep putting on the rare grids! Don't be ashamed of your ticket! You don't know, and some won't admit to the truth, that the no-code ticket was good for the VHF and UHF bands.

"Good DXing during this, your first solar cycle on the bands."

To which this writer can only add the word "amen."

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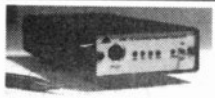

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SAREX Principal Investigator Matt Bordelon, KC5BTL, reports the number of U.S. astronauts with Ham radio tickets has risen to 82. — *ARRL Letter*

World Radio History

Visit Your Local RADIO CLUB

ARIZONA

Arizona Repeater Association. P.O. Box 35758, Phoenix, AZ 85069-5758. Operates 20 VHF & UHF rptrs. in AZ. Meets 4th Thurs./monthly, 7:30 p.m., APS Bldg., 21st Ave. & W. Chery, Phoenix. Info: (602) 849-0851. 9/98

Cochise Amateur Radio Assn., (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. K7RDG/R 146.76(-) rptr PL162.2. 5/99

Old Pueblo Radio Club, (OPRC). P.O. Box 42601, Tucson, AZ 85733. Meets 2nd Wed./monthly, 7:15 p.m., Tucson Med. Cntr., Grant & Beverly St. in the AZ Rm. of the Volunteer's Bldg. (1st bldg. on the left going north off Grant). 2/99

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 2nd Sat./monthly, 7:15 p.m., Dept. of Emergency Mgmt., 130 W. Congress. Net Thurs. 7:30 p.m. 146.82(-), 146.88(-), 147.08(+), 448.550( ) & 145.15 Packet. 3/99

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Thurs./monthly, 7:30 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835(-). 3/99

Beach Cities Wireless Society. P.O. Box 4016, San Clemente, CA 92674. Meets 2nd Thurs./monthly, 7:30 p.m., Ole Hansen Beach Club, 103 W. Avenida Pico, San Clemente. Rptr. 146.025(+) PL 110.9. 8/99

Coachella Valley ARC. Box 11092, Palm Desert, CA 92255-1092. Meets 2nd Wed./monthly, 5:30 p.m., Portola Com. Cntr., 45480 Portola, Palm Desert. Info: Bill Dews, (760) 346-8611. Net Thurs. 7 p.m. 146.025(+) PL 107.2. 5/99

Contra Costa Communications Club, Inc., WD6EZC/R. P.O. Box 20661, El Sobrante, CA 94820-0661. Meets 2nd Sun./monthly (except May & Dec.), 0630, Baker's Square Restaurant in Richmond, CA. Info: Ed Caine, KA6OFR, (707) 996-0962. 1/99

Downey Amateur Radio Club Inc., W6TOI. Meets 1st Thurs./monthly, 7:30 p.m., So. Middle School cafetorium, 12500 S. Birchdale, Downey, CA VHF net W6GNS rptr. 146.175(+) Thurs., 7:30 p.m. 5/99

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 7:30 p.m., Albany Sr. Cntr., 846 Masonic Ave., Albany, CA. Info: S. Primbsch, (510) 741-8227. 145.11(-) MHz. 11/98

Fresno Amateur Radio Club. Meets 2nd Fri./monthly, 7:30 p.m., Ernie Pyle School, 4140 N. Augusta, Fresno, CA. 146.94(-) 223.94(-). 11/98

Garlic Valley Amateur Radio Club (GVARC). Meets last Sat./monthly, 8:30 a.m., Gavilan Restaurant near Monterey exit, hwy 101, Gilroy, CA. Info: Hal, AC6LK, (408) 779-7787. Net Tues., 7:30 p.m. Club rptr. K6THR, 147.825(-). 9/98

Golden Empire Amateur Radio Society, (VEC). P.O. Box 508, Chico, CA 95927. Club call WERHC, rptr. 146.85(-). Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Rm. 101, Chico. 10/98

Golden Triangle Amateur Radio Club. P.O. Box 1335, Wildomar, CA 92595. Meets 4th Mon./monthly, 7 p.m., Sharp Health Care, 25500 Med. Cntr. Dr., Murrieta, CA 92562. Rptr: KE6UES 146.805(-) PL 100. Info: Norb Dean, AD6F, (909) 767-0449. E-mail: norbjudy@pe.net 7/99

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12(+). For info: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 846-6513. 1/99

Marin Amateur Radio Club (MARC). W6SG. Box 9456, San Rafael, CA 94912-9456. Meets 1st Fri./7:30 p.m., Kaiser Hosp., Bldg. 2, Terra Linda, CA. (except Dec.; Sun. a.m. Club at Alto Bldg., 27 Shell Rd., Mill Valley. 9/99

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Lake View Cafe, 2099 E. Orangethorpe, Placentia, CA, at 91 Fwy/Lakeview. Info: Ray Davis, KD6FHN, (714) 551-1036 or (714) 551-2010. 3/99

Mount Diablo Amateur Radio Club. P.O. Box 23222, Pleasant Hill, CA 94523. Meets 3rd Fri./monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Lane, Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+) PL 100Hz. Info: (510) 932-6125. 8/99

Nevada County ARC. Meets 2nd Mon./monthly, 7 p.m., Salvation Army Bldg., 10725 Alta St., Grass Valley, CA. Net Tues. 7 p.m. 147.015. Contact Linda Johnson, KE6HWE, (530) 273-2008. donandlinda@telis.org 8/99

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress, Carmichael, CA. Nets 8 p.m. Tue., Wed.,Thur., 145.190(-) PL 162.2 and 224.400(-). Contact: Bob, AC6HF, (916)966-3654. E-mail: ac6hf@juno.com or http://www.ns.net/~NHRC 3/99

Sierra Foothills ARC. P.O. Box 1005, Newcastle, CA 95658. Meets 2nd Fri./monthly, 7:30 p.m., Auburn Library (Beecher Rm.), 350 Nevada St. Thurs. nets 7:30 p.m. 145.430(-) PL 94.8, Sun. net 7:30 p.m. 28.415. 3/99

South Bay ARC. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Memorial Hosp., 3330 Lomita Blvd., Torrance, CA. Talk-in on WB6MYD rpt. 244.38(-). Info: (310) 328-0817. 8/99

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8:00p.m., 50.150. FM Rpt. Net Thurs., 7:30 p.m., 52.86/52.36 tx. FM Smptx, call freq. 50.300. Net Sun., 10 a.m. 50.40. 4/99

Southern Sierra ARS. Meets 2nd Thurs./monthly, 7 p.m., Veteran's Hall, 125 East F St., Tehachapi, CA. Contact: Caroline, KD6KMN, (805) 822-5995. 147.06(+), 224.42(-), 145.090(S) Packet. 1/99

Stanislaus Amateur Radio Assoc., Inc. (SARA). P.O. Box 4601, Modesto, CA 95352. Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus Co. Admin Bldg. 145.39(-) PL 136.5, 224.14, 440.225 PL 136.5. 3/99

Tri-County Amateur Radio Assoc. P.O. Box 75, Claremont, CA 91711-0075. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, CA. 1/99

Trinity Country ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, County School Adm. Bldg. in Weaverville, 7:30 p.m., Rptrs: WA6BXN 146.73(-) PL 85.4, W6HOR 146.925(-) PL 85.4. 10/98

This month ... Cochise Amateur Radio Association, from Sierra Vista, AZ, has won an MFJ Antenna Analyzer to share with its members. The club's name was selected at random from our "Visit Your Local Radio Club" listing.

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m., Orange County Red Cross, 601 N. Golden Circle, Santa Ana, CA. 146.550. Contact Bob Buss, KD6BWH, (714) 534-2995. 2/99

Poinsettia ARC. Meets 1st Thurs./monthly, 7:30 p.m., First Christian Church, Telegraph Road. & Telorna Drive, Ventura, CA. For info: George Myers, KA6WZR, (805) 644-1131. 4/99

River City A.R.C.S. Meets 1st Tues./monthly, 7 p.m., SMUD Bldg., Don Julio at Elkhorn, Sacramento, CA. License classes offered. For info call: (916) 483-3293. 9/99

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. & Stockton Blvd., Sacramento, CA. Info net at noon on rptr. W6AK/R 146.91(-). Steve Cates, KC6TEV, (916) 391-7341 or Les Ballinger, WA6EQQ, (916) 393-4775. 2/99

Sacramento "Old Timers" Amateur Radio Society and Sacramento Valley Chapter #169 QCWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Lyon's Restaurant, 1000 Howe Ave. For info contact Paul Wolf, W6RLP (916) 331-1830. 12/98

Santa Clara County Amateur Radio Assoc., (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets 2nd Mon./monthly, 7:30 p.m., Hewlett-Packard, Bldg., #48, 19483 Pruneridge Ave., Cupertino. Net all other Mon., 7:30 p.m. W6UU/R 146.385(+), 442.425(+) PL 107.2. 5/99

Shasta Cascade Amateur Radio Society, (SCARS). 2124 Airstrip Rd., Redding, CA 96003. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm. Grape St., near Parkview Ave., Redding, CA. Net 146.64, Wed., 8 p.m. 10/98

United Radio Amateur Club, K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly (except Dec.), 7:00 p.m. Monitors 145.52 Simplex 10 a.m.—5 p.m. 8/99

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7:30 p.m. (Board mtg., 7 p.m.) Vaca Fire Dist. Stn., Vine St. in Vacaville, CA. Rptr. WD6BUS 145.47(-) PL 127.3. Gerald Grossardt, (707) 447-0869. 5/99

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tues./monthly, 7:00 p.m., Presidio Recreation Cntr., 11100 Apple Valley Rd., Apple Valley, CA. Talk-in 146.94(-), PL 91.5. Net Sun. 7 p.m. 146.94(-). 2/99

West Coast Amateur Radio Club, (WCARC). P.O. Box 2617, Costa Mesa, CA 92628. Meets 3rd Thurs./monthly, 7 p.m., Fountain Valley Sch. Dist. office, 17210 Oak St., Fountain Valley, CA. 145.440(-) PL 136.5. For info: Jane, KD6ODV, (714) 531-6707 10/98

Westside Amateur Radio Club. P.O. Box 11092, Marina del Rey, CA 90295. Meets 4th Tues./monthly, 7:30 p.m., West Dist. Red Cross Bldg., 11355 Ohio Ave., W. Los Angeles, CA (VA Cntr. grounds). Net every Tues., 8 p.m. 146.67(-) except mtg. night. Website: http://www.qsl.net/warc Voice mail: (310) 917-1100. 7/99

Willits Amateur Radio Society, (WARS). 1712A South Main St., Ste. 73, Willits, CA 95490. Meets 4th Mon./monthly, 7 p.m., Brooktrails Fire Dept. (northwest of Willits). Talk-in: 145.13(-), PL 103.5. 9/98

Yolo Amateur Radio Society. Meets 1st Tues./monthly, 7:30 p.m., Denny's Restaurant, 4120 Chiles Rd., Davis, CA. Contact Dave Nishikawa, KC6YFG, (916) 756-6375/ Talk-in 144.430. 10/98

Yuba-Sutter Amateur Radio Club, (YSARC). P.O. Box 1169, Yuba City, CA 95992. Meets 2nd Wed./monthly, 7 p.m., The Mall at Yuba City, 1215 Colusa Ave., Yuba City. 2/99

COLORADO

Bicycle Mobile Hams of America. 46 states/6 nations membership. Annual Forum at Hamvention. Net: 14.253, 1st & 3rd Sun., 2000 UTC. Info, sample newsletter: SASE to BMHA, Box 4009-W, Boulder, CO 80306. 2/99

Bolder Amateur Radio Club (BARC). Meets 3rd Tues./monthly, 7:30 p.m., NIST Bldg., 325 So. Broadway, Rm 1107, Boulder, CO. Talk-in: 146.70(-) & 100Hz CTCSS. Info: (303) 380-6540, www.thisistrue.com/barc.html, or e-mail: BARC@pobox.com 8/99

CONNECTICUT

Tri-City Amateur Radio Club. P.O. Box 686, Groton, CT 06340-0686. Meets 2nd Tue./monthly, 7 p.m., St. Lukes Lutheran Church of Gales Ferry on Rt. 12. Info: Bob Dargel, KA1BB, (860) 739-8016. 11/98

Western CT. DX Club. Meets 1st Tues/monthly, 8 p.m., Brookfield Com. Cntr. (on Pocono Rd. across from Brookfield P.O.) Info: contact Victor at: victoras@EROLS.com 2/99

FLORIDA

Gulf Coast ARC. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., 3852 Prime Place, New Port Richey. WA4GDN rptrs. 146.67(-) & 145.33(-), serving all of Pasco County. 10/98

Indian River ARC, Inc., (IRARC). P.O. Box 579, Cocoa, FL 32926-0579. Meets 1st Thurs./monthly, 7:30 p.m., Community Church of the Nazarene, 400 Crockett Blvd., Merritt Island, FL. 3/99

Port St. Lucie ARA. Meets 1st Fri./monthly, 7:30 p.m., St. Andrews Church, Prima Vista Blvd., Port St. Lucie, FL. Contact: Roy Cox, KT4PA, (561) 340-4319. Call in 146.955(-). 11.98

Vero Beach ARC, W4OT. P.O. Box 2082, Vero Beach, FL 32961. Meets 2nd Thurs./monthly, 7:30 p.m., Emerg. Mgmt., Indian River County Adm. Bldg., 1840 25th St. Net Mon., 7:30 p.m. 146.64. 2/99

GEORGIA

Dalton Amateur Radio Club, Inc., (DARC). P.O. Box 143, Dalton, GA 30722-0143. Meets 4th Mon./monthly, 7:30 p.m., Magistrate Court Bldg., corner of Waugh St. & Thornton Ave., Dalton, GA. Info: Harold Jones, N4OTC, 706/673-2291. 4/99

Gwinnett Amateur Radio Society, (GARS). P.O. Box 88, Lilburn, GA 30048. Meets 3rd Thurs./monthly, 7:30 p.m., Gwinnett Central Baptist Church on Gwinnett Dr., Lawrenceville, GA. 147.075+ PL 82.5. Contact: Mike Swiderski, K4HBI, (770) 449-0369. 8/99

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets 2nd Sat./monthly, 2 p.m., Keaau Community Ctr., behind Fire Station on Old Volcano Rd., Keaau. Talk-in on 146.88(-). Lunch, 11 a.m. Fridays, Pizza Hut, Puainako Twn. Ctr. 7/99

Emergency Amateur Radio Club, (EARC). P.O. Box 30315, Honolulu, HI 96820-0315. Meets 4th Thurs./monthly, 7 p.m., Lincoln Elem. Sch., 615 Auwaiolimu, Honolulu. Nets: nightly 7:30 p.m., 146.88 & 146.80. Rptrs: 146.76(-), 146.80(-), 146.88,146.98(-), 146.94(-). Info: (808) 833-6944, WH6CZB. 11/98

Koolau Amateur Radio Club, (KARC). 45-145 Mikihilina St., Kaneohe, HI 96744. Meets 2nd Sat./monthly, 9:30 a.m., Hoomaluhia Pk., Kaneohe, HI. 8/99

World Radio History

ILLINOIS

Chicago FM Club Inc., (CFMC). P.O. Box 1532, Evanston, IL 60204. 146.76(-) PL 107.2/224.10/224.18/443.75 PL 114.8. Ham help line: (773) 262-6773. Info net Tues., 9 p.m. on 146.76(-). Meets 3rd Wed./monthly, 8 p.m. 8/99

Dupage Amateur Radio Club. (DARC). P.O. Box 71, Clarendon Hills, IL 60514. Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Church, SE corner of Cass & Richmond, Westmont, IL. Net Sun., 9 p.m. on 145.25. W9DUP repeaters 145.25(-) 107.2PL, 442.55(+) PL 114.8, 224.68(-). Info: (630) 985-9256 6/99

Fox River Radio League. P.O. Box 673, Batavia, IL 60510-0673. Meets 2nd Tue./ monthly, 7:30 p.m., Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. 8/99

Hamfesters Radio Club, W9AA. P.O. Box 42792, Evergreen Park, IL 60805. Meets 1st Fri./monthly, 8 p.m., Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.65 MHz. Info: (312) 974-3291. 1/99

Peoria Area Amateur Radio Club, (PAARC). P.O. Box 3508, Peoria, IL 61612-3508. Meets 2nd Fri./monthly, Red Cross Chapter House, 311 W. John Gwynn Jr. Ave., Peoria, IL. Voice mail: (309) 692-3378. Rptrs: 147.075(+) & 146.85(-). 6/99

Schaumburg ARC. P.O. Box 68251, Schaumburg, Illinois. Meets 3rd Thurs./ monthly, 7 p.m., Rec. Center, Bode and Springinsguth Roads. (630) 612-9446. http:/ /members.aol.com/sarcradio 10/98

The Starved Rock Radio Club, W9MKS. P.O. Box 198, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7:30 p.m. Rptr. net 7 p.m. Wed./wkly., 147.12(+). 1/99

Wheaton Community Radio Amateurs, (WCRA). P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of DuPage, Wheaton, IL. Rptrs: 145.39(-) (107.2), 224.14(-), 444.475(+) (114.8). Info: Ron Hensel, K9ZZE, (630) 365-0213, k9zze@aol.com 8/99

INDIANA

Land of Lakes ARC. Meets 4th Tues./ monthly, 7 p.m., Steuben Co. Annex Bldg., Angola, IN. For info: Theresa J. Limestahl, KB9NNR, (219) 495-5403. Call-in 147.180 PL 131.8. E-mail: llarc-k9hd@yahoo.com 7/99

LOUISIANA

Baton Rouge ARC. Meets last Tue./ monthly, 7 p.m., Catholic HS cafeteria, 855 Hearthstone Dr., Baton Rouge, LA. Club rptr. 146.79(-). Info: Russ Allor, N5ADF, (504) 927-6290. E-mail: W5GIX@aol.com 10/98

MAINE

Androscoggin Amateur Radio Club. Meets 1st Wed./monthly, 7 p.m., Auburn Police Station, 1 Minot Ave., Auburn, ME. Info: (207) 782-8699. 11/98

MASSACHUSETTS

Quannapowitt Radio Assoc., Inc. 6 Savin St., Burlington, MA 01803. Meets 3rd Fri./monthly, 8:00 p.m. at Lynnfield-Wakefield-Lynnfield Methodist Church, Vernon St., Wakefield. Info: Jim Chamberlain, N1AKG, (781) 944-5098. 3/99

MICHIGAN

Adrian Amateur Radio Club, W8TQE. Box 26, Adrian, MI 49221. Meets 1st Fri./monthly, 7:30 p.m., Civil Air Patrol Bldg., Lenawee Co. Airport, Cadmus Rd., Adrian. ARES net Sun., 9 p.m. 145.37(-). Info: Mark Hinkleman, NU8Z, (517) 423-5906. 4/99

Genesee County Radio Club, Inc. Meets 3rd Tues./monthly, 7:30 p.m., Genesee Area Skill Center, Torrey Rd., Flint, MI. (810) 655-4360. 3/99

MINNESOTA

Viking Amateur Radio Society (VARS). Meets last Tues./monthly, 7:30 p.m., basement EOC, Waseca, MN. Call-in 146.94(-). 10/98

St. Cloud Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Radio Club Bldg., 401 4th St. N., Waite Park, MN 56387. Info: (320) 255-1410, 146.94 or 147.015 or www.wØsv.org/ 2/99

MISSISSIPPI

Jackson Amateur Radio Club, Inc. Meets 3rd Thurs./monthly, 7 p.m., Am. Red Cross Bldg., Riverside Dr., Jackson, MS 39202. 11/98

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 2nd Sat./monthly, bkfst. mtg. 8 a.m., Country Inn, SE cor. W. Sunset, Valle Verde, Henderson NV. Club info: Jim Frye, NW7O, (702) 456-5396 or Bill Scarborough, WA6ASI, (702) 269-9551. 8/99

Wide Area Data Group, Inc. P.O. Box 3132, Sparks, NV 89432. Meets 1st Sat./ monthly, 8:30 a.m., Bonanza Casino/Restaurant, 4720 N. Virginia, Reno. Info: (702) 356-8200. Call on 147.30(+) MHz. 5/99

Sierra Intermountain Emergency Radio Assoc., (SIERA). Meets 2nd Tues./monthly, 7:30 p.m., Carson Valley United Methodist Church, 1375 Centerville Ln., Gardnerville, NV. Contact: George Uebele, WW7E, (702) 265-4278, 147.330 MHz. 11/98

NEW HAMPSHIRE

Great Bay Radio Association, WB1CAG. P.O. Box 911, Dover, NH 03820. (603) 749-2970/332-9107. Meets 2nd Mon./monthly, 7 p.m., Rochester Community Ctr. Talk-in: 147.57. 1/99

NEW JERSEY

Bergen Amateur Radio Association, (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, New Milford Elks Lodge, Patrolman Ray Woods Dr., New Milford, NJ 07646. Nets: 28.350 Mon. 9 p.m., 146.79(-) 9 p.m. Wed. 6/99

The Garden State Amateur Radio Assoc., (GSARA). P.O. Box 34, Fair Haven, NJ 07704. Meets twice monthly/1st & 3rd Wed., 8 p.m., Bicentennial Hall, Cedar Ave. (off River Rd.) Fair Haven, NJ. Contact: Bob Buus, W2OD, (732) 946-8615. 12/98

South Jersey Radio Assoc., (SJRA), K2AA. Meets Jan.-Oct., 4th Wed./monthly, 7:30 p.m. (Nov.-Dec. 3rd Wed), Bloomfield Fire Hall in Pennsauken, NJ. Talk-in: 145.29(-) rptr. 8/99

NEW YORK

Amateur Radio Association of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./ monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Company, 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955(-) rptr. W2PVL. 11/98

Genesee Radio Amateurs, (GRAM). N.Y.S. Civil Defense Ctr., State St., Batavia, NY 14020. Meets 3rd Fri./monthly, 7:30 p.m. 147.285(+) W2RCX. 1/99

Hall of Science Amateur Radio Club. P.O. Box 150131, Kew Gardens, NY 11415. Meets 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park, 7:30 p.m. Info: Voice mail (718) 760-2202. 2/99

PROS, Pioneer Radio Operators Society. Meets 1st Wed./monthly, 7 p.m., Sardinia Town Hall, Savage Rd., Sardinia, NY. Net 9:15 a.m. Thurs. 3853 MHz. 3/99

The Radio Club of J.H.S. 22, N.Y.C., Inc. WB2JKJ. P.O. Box 1052, New York, NY 10002. 24-hr. hotline: (516) 674-4072. Fax: (516) 674-9600. Non-profit org. using Ham Radio to enhance the education of youngsters, nationwide. Join us — "Class-room Net," 7.238 MHz, 7 a.m. E.S.T. PSE QSL! 10/98

Suffolk County Radio Club, (SCRC). Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Way, Bohemia, NY. Talk-in: 145.21(-) rpt. Info: W.S. Black, KB2YAP, (516) 289-5587. 4/99

Westchester Emergency Comm. Assoc., (WECA). Meets 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains, NY. Contact WECA INFO LINE (914) 741-6606 for details. Talk-in WB2ZII/R 147.06(+) PL 114.8/2A. 11/98

Yonkers Amateur Radio Club, (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-1021. 146.865(-), 440.150(+). 10/98

NORTH CAROLINA

Cape Fear Amateur Radio Society. Meets 3rd Mon./monthly, 7:30 p.m., Methodist College, Fayetteville, NC. Talk-in 146.91/31. Info: Kelly Kanode, N4EWG, (910) 867-4300. 4/99

Stanly County Amateur Radio Club. Stanfield, NC. Meets 4th Thurs./monthly, 7 p.m. Talk-in 146.985(-) for location. Wed. net 9 p.m. 146.985(-). Fri. tech net 9 p.m. 147.390(+). Phone: (704) 888-4815. 5/99

SOUTH CAROLINA

Sumter Amateur Radio Assoc., Inc. (SARA) P.O. Box 193, Sumter, SC 29151-0193. Meets 3rd Mon./monthly, 7 p.m. Central Carolina Tech. College, Rm. 102, 506 N. Guignard Dr. Contact: Dee, NØZTV, (803)499-6315. E-mail: deebrown@sumter.net. Talk-in 147.015. 9/98

OHIO

Ashtabula County ARC. Ken Stenback, W8KS (964-7316). County Justice Ctr., Jefferson, OH. Meets 3rd Tue./monthly, 7:30 p.m., County rptr., 146.715(-). 10/98

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35(-) and 442.625(+) MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS. 3/99

Greater Cincinnati Amateur Radio Assn., (GCARA), W8DZ. ARRL SCC, meets 4th Wed./monthly, 7:45 p.m., Brusman's Hall, 4813 Vine St., St. Bernard. Nets: Mon. 145.27-, Thurs. 1.936 MHz, 9 p.m. Info: http:/ /w3.one.net~rkuns/gcara.html, K8JE (513) 825-2868, W8XS (513) 474-0287. 12/98

Lake Erie Amateur Radio Assoc., (LEARA). Meets at Dimitri's Rest., (Mid-Town Shopping Ctr.), Snow & Broadview Rd., Solon, OH, last Tues./monthly. Dinner at 6:30, mtg. at 7:30 p.m. (R.S.V.P. to Marv Grossman 440/349-8398 for dinner by 11 a.m. day of mtg.) 4/99

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697; (419) 243-3836. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. 147.270(+) Net every Sun. 8:30 p.m. 2/99

Van Wert Amateur Radio Club, Inc. P.O. Box 602, 1220 Lincoln Hwy., Van Wert, OH 45891. Meets 1st & 3rd Sat./monthly, 8 p.m. Call-in: 146.85(-). 2/99

Western Reserve Radio Assoc. P.O. Box 81252, Cleveland, OH 44181-0252. Meets 2nd Wed./monthly, 7:30 p.m., Jenkins Communications Cntr., Main St., Olmsted Falls, OH. Info: B. Beckman, N8LXY, Pres., 146.73(-), 444.900(+) MHz. 8/99

OREGON

Central Oregon Coast ARC. P.O. Box 254, Florence, OR 97439. Meets 2nd Sat./monthly, & every Wed./weekly, 9 a.m. for breakfast at Lovejoy's/Pier Point Inn. Net Wed. 7 p.m., 146.80(-). Info: 997-2323 or 997-4074. 1/99

Keno Amateur Radio Club. P.O. Box 653, Keno, OR 97627. Meets 3rd Thurs./monthly, 7 p.m., Keno Fire Stn. Rptr. 147.32(+) K7ENO. For info: Tom Hamilton, WD6EAW, Telephone/FAX: (541) 883-2736. wd6eaw@cdsnet.net 11/98

Umpqua Valley Amateur Radio Club, Inc. P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Court House, Rm. 310, Roseburg, OR. Info: W6VDF/R 146.90(+) or (541) 673-2747. 6/99

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tues./monthly, 7:30 p.m., Boy Scout Cntr., 830 Morton Rd., Butler, PA. Call-in W3UDX/ R 147.36(+). Net 10:10 p.m. nightly. 11/98

Mercer County Amateur Radio Club, W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly, 7:30 p.m., Shenango Valley Med. Ctr, Farrell, PA. Net, Thurs. 9 p.m. on 145.35(-) W3LIF, Digi. 145.01. 3/99

TEXAS

Brownsville ARC (CHARRO). Meets 2nd Tue./monthly, 7:00 p.m., Confederate Air Force Hangar, Brownsville Airport in TX. Coffee mtg. Sat./weekly, 10 a.m., Days Inn, Hwy 83 & Price Rd. Talk-in on 147.040(+). 4/99

VIRGINIA

Southern Peninsula Amateur Radio Klub, W4QR (SPARK). Meets 1st Tue./ monthly Salvation Army Community Bldg., Hampton, VA. Repeaters 146.73(-), 449.55(-). VE Exam Info: (757) 898-8031, W4RTZ. 2/99

Virginia Beach ARC. Meets 1st Thurs./ monthly, 7:30 p.m., St. Andrews United Methodist Church, Tucson & Princess Anne Rds., Virginia Beach, VA 23462. 2/99

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m., Salvation Army Renton HQ., 720 Tobin St., Renton, WA. Talk-in on 146.82(-) (103.5 CTCSS) rptr. Doors open at 9:30 a.m. 5/99

WEST VIRGINIA

Jackson County Amateur Radio Club. Meets 1st Thurs./monthly, 7:30 p.m., Saint John Episcopal Church of Ripley. Net Mon. 9 p.m. on 146.67(-) WD8JNU/R. For info: D. Tennant, N8ZYB, Rt. 1, Box 188, Mt. Alto, WV 25264. 7/99

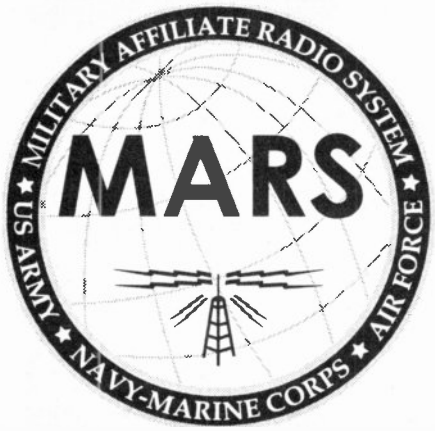
Tri-State Amateur Radio Assn. Meets 3rd Tues./monthly, 7 p.m.,The American Red Cross, 111 Veteran's Memorial Blvd., Huntington, WV. 5/99

WISCONSIN

Central Wisconsin Radio Amateurs, Ltd. Meets 2nd Wed./monthly, 7:30 p.m., UWSP Science Bldg., A107. Info: Al Mallek, N9WBS, 246 Georgia St. North, Stevens Point, WI 54481. Call in on 146.985 or 146.670 5/99

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

World Radio History



Lorraine S. Matthew, N4ZCF
MARS Call AAA9PR
E-mail: Lorimatt@aol.com

"My resent Ham call is N7UZY, and I have been a MARS member for the past thirty-six years. This is my ninth year as Chief, Army MARS and I can tell you it continues to be an honor and a privilege to represent the approximately 4,000+ dedicated Army MARS military and volunteer members.

"One of our objectives and intent this morning is to share with you what MARS is, what it has accomplished, validate the continuing need for MARS, and, more importantly, where MARS is going.

"Additionally, it is our intent to recruit other Amateur Radio operators who are willing to become part of a growing team, and, as part of a winning team, help us to build MARS of the future."

With these words, Chief, Army MARS Robert Sutton opened the combined MARS forum at the Dayton Hamvention. With these words, he set the tone for the entire MARS effort at Dayton and the tone for MARS efforts throughout the system.

The teamwork for Army MARS includes an increase in the interoperability with the other service MARS organizations, an increase in the operational relationships with federal agencies and an increase in the cooperation with emergency communications groups such as ARES and RACES. With this combination of elements, together, we will build "an increased volunteer emergency communications posture second to none."

Army MARS continues to base its operations upon the basic radio modes since these modes are the LEAST LIKELY to become inoperable in a crisis. The radio mode is augmented by the wide use of e-mail, fax, and other modes considered modern technology. Indeed, EEI reports and other highly time sensitive messages are mandated to be sent via e-mail and/or FAX. Much experience in real emergencies has shown failure in such systems as cell phones (fatally impacted) and other non-radio modes.

In a message entitled "Galaxy 4 R.I.P." a close friend sent me information about how pagers work. As many of you will remember, when the G4 satellite failed, most of the pagers in the U.S. failed with it. "When a page is entered by phone, computer, or Internet, it goes to a paging terminal where the message and telephone number are encoded into a paging data stream that is sent to all the high-powered paging transmitters in the coverage region the owner of the pager is paying for. This paging stream used to be sent to the transmitters via phone lines or by a broadcast link transmitter. The paging data are now sent via satellite, mostly Galaxy 4, and are received at each paging transmitter site on a one meter or so dish antenna."

Some of the older paging companies have retained elements of the multi-mode page transmission system and they were able to adjust their services very quickly. The newer paging companies, however, felt secure in setting up their links solely via satellite. These are the companies that were most severely affected by the failure of Galaxy 4.

This is but one example of why Army MARS has chosen to remain not only multi-mode but based upon a mode that is not wired to any other fallible feature. Through the airwaves, Army MARS members can get the information through. There may be some far out relays necessitated by some propagation conditions, but the information will get through. There are very few other modes, if any, that are so flexible and so independent of the need for supporting modes.

Armed Forces Day also occurred during the Dayton Hamvention on Saturday, 16 May. An ARRL special event station was operational at Dayton and a number of Hams took the opportunity to participate in Armed Forces Day.

Overall, the results of the Army MARS stations' contacts were most indicative of the continuing interest in cooperative operations between amateur and military stations. A total of 585 QSOs were reported by the five Army MARS military stations involved in the day's activities. With approximately 30,000 Hams at Dayton, the number of contacts made by the amateur community at large is impressive. Again, this year, Army MARS had the only afloat MARS military station utilizing the Corps of Engineers vessel on the Mississippi River.

Initial reports about the reception of the digital transmission carrying the message from the Secretary of Defense also indicates a most successful operation. It is too early to estimate the number of submissions of the message by the amateur community, but the number submitted thus far appear to be ahead of the number submitted last year.

The combined MARS Field Day coordination was finalized at Dayton and resulted in an expanded area of opportunity for all MARS members of all three services. This is an exciting trend which in no way impacted negatively on the Amateur Radio community and its Field Day operations. It may have even increased participation, with the growing interest in emergency operations and the opportunities for practicing various setups for Field Day. We in the MARS community look forward to such operations being coordinated throughout the future.

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World Radio History

Search And Rescue Communications

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Salt Lake City, UT 84147
jw@desnews.com

On an Internet search and rescue discussion group, some-one asked what type of communication various groups used during events and what frequencies worked best. It was with great pleasure I noted many (all but one that I recall) mentioned Amateur Radio as a primary or perhaps co-primary means of communications. In an age where many agencies have complex systems online and satellites circle the Earth, it is a compliment to a great number of dedicated Amateur Radio volunteers to be named as the primary link during emergency events.

In the past couple of weeks I've listened in on several local events and I'm impressed (as always) at the efficiency and willingness of many operators to offer their time, equipment, talent, and expertise. And then they do it all again several days later. During a Scout camp, I was impressed at the number of licensed amateurs that noticed my call sign license plates and stopped by to chat. Many were at the camp as staff members, thus donating their time and non-radio talents as well.

A wise person once wrote that the best way to avoid having your words repeated was to say something nice about your neighbor. It seems that we are inundated by stories that tell about the darker side of human nature, and few concerning the good. In your next radio contact, I hope you'll take time to say thanks to your fellow operators (and also give yourself a pat on the back) for all the time spent in service to others. These efforts seldom make headlines, but when public safety groups were asked who provided communications, Amateur Radio was at the top of the list. From where I sit at my station, I salute all of you who willingly and pleasantly serve.

Repeating the signal

One element of emergency response is not knowing where you'll next be deployed. You might have repeater coverage, you might not. You might have a packet node, and you might not.

In the public safety realm, it's often difficult for an agency to have a portable repeater licensed and available for immediate use. Not only are frequencies difficult to obtain and coordinate (especially in high population areas), many agencies do not have technical staff who can deploy to a remote area to set up a relay station.

This is one key area for Amateur Radio. We have the ability to quickly put together a temporary repeater and can obtain coordination usually with a quick phone call. We can put together a cross-band link — VHF to UHF to VHF with a couple of radios. A packet node can be quickly put together and placed atop a ridge to link two canyons. Phone patches, while not as popular as years past, are still possible.

When you undertake exercises and practice drills, create scenarios that require links into remote areas. You might want to have a cross-band link from a basement emergency operations center to a local repeater. A possible scenario involves failure of a repeater and setting up an alternate repeater on battery power. If you've got mountain terrain nearby, plan an event that requires several packet nodes at temporary locations atop ridges or mountains. A good challenge is to select a site that requires hiking and packing in the battery, radio, node controller, and antenna. It's amazing what goes wrong even when you plan in advance and think you've covered all the potential problems.

In response to a reader query concerning portable repeaters, simplex repeaters, portable packet nodes, and cross-band, I would encourage simplicity. If you can avoid complex controllers or linking devices, you'll discover "simple" works better. There is less setup and less user instruction needed. I've also learned that "simple" setups often require less power and fewer parts to pack into the site.

With regard to simplex repeaters, remember, there's an interesting learning curve. A simplex repeater essentially stores what you said into memory chips and then repeats your message when you let up on the microphone. It's strange to hear your own voice talking to you when you release the key and it takes time to get used to. Remember that a simplex repeater is a time-delay system and not in real-time. There's often a time limit on how long you may transmit so you must get your message composed and presented effi-

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ciently. Some simplex systems are voice actuated so long pauses are interpreted as the end of your message, even though you're not done speaking.

Before you try a simplex repeater system on an actual event, I'd recommend practicing a couple times so you'll use it effectively.

Plan on slack time

Another reader commented that during a recent event in support of a weather-related emergency, he was surprised there was not more "action." He's experienced one of the first lessons in emergency response — it's not like the 30-second TV news item or as exciting as the 30-minute television show. There's often excitement, but as a general rule, it's not end-to-end action. You'll experience times of heavy traffic loads and times when you wonder if the outside world still exists.

Plan on times of quiet. Bring a book to read, bring a checkers game, or write an article for ***Worldradio***, but plan on slack time. I've been involved in events that did keep me busy for an entire shift, but those seem to be intermingled with many events that were less active from a radio perspective.

Remember that even though your radio may be quiet, you're still a critical link for those units on your frequency! When they call, you must be ready to service their messages. I recall one seemingly quiet air search mission as the aircraft were returning from their assigned sorties when the radio crackled with "this is 5415 Bravo, and we've lost all electrical power." For the next 30 minutes or so, I relayed approach and landing instructions from the airport tower to the aircraft on Civil Air Patrol frequencies. It was fortunate the pilot had his hand-held radio in his flight bag. His engine was working, but he had no landing lights, no instruments, no transponder, and no aircraft radios. All worked out well but it was somewhat tense for a few minutes as I realized the importance of this link.

You never know what's going to happen so be ready — even if it's seemingly slow. When things go wrong, it happens quickly.

Common connectors

My wife's radio quit working minutes before she left on a trip. She wanted to keep in touch via a linked repeater system and didn't have time to have me put in a temporary radio. Her radio was receiving fine, so the microphone became the first suspect. If you've taken apart one of today's microphones, you have discovered there are a number of wires and that they usually break where they enter the plug that connects to the radio.

Janet (my wife, K7UTE) has an Icom in her car, while I have a Kenwood. Out of the box, none of these microphones are interchangeable. However, I've taken the time to rewire all of our gear to a standard 8-pin configuration. This means that I can grab the microphone off any radio in the house and use it on any other radio. Sometimes the bell-and-whistle goodies don't work, but the basic push-to-talk and audio does.

Janet was on her way quickly with a replacement microphone and I could repair hers later when I had time to do it properly and not attempt a quick fix. I stand on the soap box yet again to plead for common microphone, antenna, and power connections. I would also urge you to adopt common packet connections so terminal node controllers (TNCs) can be swapped easily.

Huddle within your local groups and work on interconnectivity. It saves you time, and time is what's important when you are responding to an emergency event. We cannot afford a huge spare parts inventory, but common connections allow us to have spare parts courtesy of others in our group. Believe me, the investment in time and connectors up front is critical in the middle of the night when things break.

A national standard would be great but has been the subject of endless debate. Far better is that your local group adopt a standard and do it. You can work with other area groups for a common scheme, but the key is commonality between stations and people who most often work together and that you do something other than debate the issue.

Off to the wilderness

I write this as I prepare for my second youth camp of the year in as many weeks. With luck, I'll be chatting on 40 and 20 Meters as a battery-powered portable station by noon tomorrow. Last week a number of Scouts had fun listening and talking to many of you as determined by propagation. It's fun to have someone be excited by Amateur Radio and it's great when an old-timer takes time to chat with a kid at a camp station. When you hear someone calling "CQ" take the opportunity to answer. You never know you may be helping get someone new introduced to the hobby.

A friend sent me a comment from a safety message for an upcoming field exercise: "Accidents provide a negative motivation, which is detrimental to reaching our intended learning objective, and therefore will be avoided."

I heartily agree! Best wishes from Salt Lake City!

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World Radio History

The Club Huddle

Mike Flaherty
WA6UBW

P.O. Box 189490
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Following the lazy, hazy days of Summer, Fall should be a busy time of year for Amateur Radio clubs. By now club officers should be lining up programs for the next several meetings and preparing publicity for release to the press and TV/radio stations.

During early summer many club meetings focused on planning for Field Day. Meetings following Field Day mostly served as a time to critique and relive the experiences of the weekend.

Several clubs, including the **Fox River Radio League** of Batavia, IL, bragged about how well the club generator(s) worked this year. Jim Clark, KO6HV, wrote in the *Sierra Wavelength* about an unusual problem which faced the **Calaveras Amateur Radio Society** of Hathaway Pines, CA. The club could not use the same Field Day location as last year at Lake Alpine. Seems there was too much snow and mud to use the site. Can you say *"El Nino"*?

Mark Hinkleman, NU8Z, president of the **Adrian (MI) Amateur Radio Club** says it all for everyone who participated in Field Day. He writes in the "From The Prez" column in *The Tickler,* "Well, I just returned from our 1998 Field Day site at Ramsdale Park and I'm a bit on the wiped-out side of things." He continues, "So if this article does not make any sense, that is the reason why..."

Here's a good meeting idea which made money for the **Westside Amateur Radio Club** in Marina Del Rey, CA. Club president Hank Miller, AA6IR, suggested in *Wavelength* that those who attended the May club auction had a real treat.

Hank said, "Auctioneer Alan Corlin, AA6DW, kept us entertained and laughing as he kept upping the bid like a real pro." Best news is that WARC netted over $1,000 for the evening. The club will consider another auction later this year or early 1999 if enough members come forward with more equipment to sell.

While some home-brew projects cause yawns and drowsiness as the presentation drones on, the **Lake Erie Amateur Radio Association** has the right idea for a great program. *The Spirit of '76 and '88* asks members if they have ever taken the time to roll up their sleeves, get their hands dirty, and build something they were proud of? It then encourages them to strut their creative abilities and maybe even walk off with a little something for their efforts.

The article's final sentence says, "Pull out those home-brew kits (liquid varieties, while not eligible for the prize, will certainly not be turned away for testing purposes) and creations culled from junk boxes everywhere, and plan to join us for a night of creative genius." Nobody should sleep through that meeting.

LEARA offered attendees at the May meeting a free checkup of their amateur equipment. Ray Bayun, N8NAP, and Bryan Torok, N8OOF, brought their test equipment to the meeting and performed the testing as a courtesy to members.

A club offering a series of informational meetings is the **West Coast Amateur Radio Club** in Orange County, CA. In May, Corky Corcorran, W5BYG, the Orange County Amateur Radio Emergency Service (ARES) District Emergency Coordinator, spoke about what ARES is, what it does, and how it differs from the Radio Amateur Civil Emergency Service (RACES).

The following month WCARC presented Joe Selikov, KB6EID, of Orange County RACES, who spoke on search and rescue in the local mountains. Later meetings will feature Joe Saddler, WA6PAZ, on the subject of amateur microwave activity in Southern California; Art Goddard, W6XD, talking about DXing in New Guinea; and April Moell, W6XD, on the North Pole Network.

Michiana Amateur Radio Club

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World Radio History

(South Bend, IN) members recently saw a presentation by Noel Kindt, W9EFL, on how to determine if an Amateur Radio station is within the limited radiation requirements being imposed by the FCC. Noel used a videotape and computer program to explain and demonstrate the process used to confirm if a station is in compliance.

So how did the **Brazos Valley Amateur Radio Club** of Missouri City, TX, encourage members to attend meetings? It appeals to their tummies in a big time way. *The B-VARC Bulletin* exclaims HOT Dawg! "Hot Dogs and Drinks for Members — FREE! Come one, come all to the B-VARC monthly meeting and join us for hot dogs and soft drinks. Visit with your friends and enjoy a hot dog and drink on the club."

At the June B-VARC meeting Dave Scott, WD8RZA, gave a practical demonstration on direction finding, including sharing some of his tricks on how to find a hidden transmitter. He then invited members to participate in a hidden transmitter hunt on the grounds of the civic center.

Heard about the **International Association of Airline Hams**? This specialty Amateur Radio group formed during 1978 in Chicago and rapidly grew in size. IAAH says it is a central source of information and activities geared toward members' interest in Aviation and Amateur Radio. Contact IAAH at P. O. Box 70 in Lovejoy, GA 30250 for further information. (Note: I wonder if my Cherokee Arrow time qualifies me for membership?)

The **Pioneer Amateur Radio Club** in Fremont, NE, started a Greeters/Treaters group. Each meeting two families bring treats for the meeting and greet members and guests as they arrive. Seems like a friendly thing to do, and the refreshments surely must hit the spot.

One of the busiest persons in many clubs is the newsletter editor. To highlight their effort, The Club Huddle will mention two or three newsletters in each column. It's not a contest, but an opportunity to single out a few of the more interesting and aesthetically pleasing newsletters.

The June issue of *Nuts and Volts* from the **San Francisco Amateur Radio Club** has a bold first page featuring the upcoming Field Day activities. Editor Mike Millard, N6BWS, even includes a San Francisco cable car in the masthead.

A real standout with a 3-column picture of last year's Field Day on page 1, the **Ottawa Amateur Radio Club** *Groundwave* is enjoyable and informative reading. Newsletter staff includes editor John Senez, VA3JBS; graphic designer Maria Townson, VE3KIP; and production committee leader Paul Campbell, VE3PC.

The **Olympia (WA) Amateur Radio Society's** *Watts News* under the editorship of George Lanning, KB6LE, offers a newsy layout using two and three column pages. George thoughtfully includes an OARS Membership Application on the back page for prospective members.

Inside Amateur Radio

The following story has been excerpted from Inside Amateur Radio, *by the late Lenore Jensen, W6NAZ. The book can be purchased from Worldradio Books, P.O. Box 189490, Sacramento, CA 95818. Price is $9.00 plus $2.00 shipping and handling. CA residents please add 70¢ sales tax.*

Special Delivery

LENORE JENSEN, W6NAZ

The yearly thrills of the Baja-to-California auto races are greatly assisted by the hams of the Baja Radio Racing Association.

Chuck and Froma Reiter, WA6IWS and WA6LWT, have been members for several years, manning an isolated checkpoint to relay times and vehicle number to the Net control station in Ensenada, Mexico.

Froma remembers, "This time, we were stationed some 500 miles south of the border. But on the way down, we had serious trouble with the hose to the transmission cooler of our car. No replacement was available, so Chuck cut off the defective part. We were temporarily mobile, but it was not safe.

"Another amateur in our convoy, Bill Moody, WB6JJS, had a long-range rig in his car. He was able to contact Gary Holubeck, WB6GCT, in Fullerton, California. Gary was coming to Ensenada. From there, he promised he would give a new transmission hose to one of the racers who would be coming through our checkpoint.

"Once the excitement of the race had begun, with cars whizzing by and our Amateur Radio responsibilities, we forgot about our car problem. Already we had worried enough and done all we could; we just hoped the temporary hose arrangement would last so we could drive to a civilized area.

"Suddenly, a car rapidly approached, the driver flung a hose out of his window and yelled "Merry Christmas!" as he sped away. It had been brought from Fullerton, about 700 miles away, given to one driver who was out of the race, and passed on to another.

Russia will auction radio spectrum

Russia has decided to follow the lead of the FCC. Its telecommunications authority has been told to auction off radio spectrum and this could be bad news for Amateur Radio operators.

The Russian government decided to charge mobile communication companies for the use of radio spectrum as a way to generate some cash for its strapped space program. Two government decrees, released on 25 June, listed the communications services for which providers will have to pay for use of radio frequencies. The decrees set rules for holding auctions to determine who gets the licenses for cellular telephone systems in Russia.

The Russian government indicates that it will also sell off part of its reserved spectrum for licensed civilian operations. It says it will review current usage of all other spectrum used for any purpose with an eye at generating even more revenue. This might even include some of the bands now used by Russian Hams. — *Newsline*

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World Radio History

Quarter Century Wireless Association

Jack Kelleher, W4ZC

Fred Link, ex-W2ALU; QCWA Life Member #10,510

Fred Link became a Silent Key 18 June at the age of 93. Fred's pioneering in mobile FM hastened the advent of amateur VHF FM mobile operations. W2ALU was a member of QCWA, the Old Timers Club, the ARRL and the Radio Club of America. Here are a few personal recollections concerning Fred's activities just before and in the early stages of WWII.

A Special ARRL Bulletin dated June 26 said in part:

"Two-way radio pioneer Fred M. Link, ex-W2ALU, of Pittstown, New Jersey, died 18 June. He was 93. Link was best known for his role as a maker of two-way radio gear used extensively by police departments and public services and by the Armed Forces during WWII."

Fred was not merely "a maker of two-way radio gear," as is evident from the words on a plaque in Connecticut State Police Headquarters which reads, "A major advance in police radio occurred in 1940, when the Connecticut State Police began operating a two-way, frequency-modulated (FM) system in Hartford. The statewide system developed by Daniel E. Noble of the University of Connecticut and engineers at the Fred M. Link Company greatly reduced static, the major problem of the amplitude-modulated (AM) system. FM mobile radio became standard throughout the country following the success of the 'Connecticut system.'" *(An excellent summary of the project appears in reference 1.)*

This event did not go unnoticed by U.S. military communicators. Prior to 1940 U.S. military tactical radio sets used AM equipment operating at HF, which were subject to the vagaries of ionospheric propagation, atmospheric noise, and additional noise when installed in vehicles. Several Signal Corps officers and civilian engineers went to Connecticut to see for themselves. The look strongly favored FM. Next, the Signal Corps Laboratories ran tests of their own late in 1940. FM was confirmed as more efficient and more effective in mobile radio. (The writer was a participant in those tests, which were occasionally witnessed by Link, his chief engineer Fred Budelman, by Major Edwin H. Armstrong, and by Professor Dan Noble from the University of Connecticut. In later years Noble would become associated with Motorola, and a major figure in Motorola's design of VHF FM mobile equipment).

In late 1940 and early 1941 it was decided that new military mobile radios would be VHF FM. Meanwhile, the Link police radios were accepted for limited military use in 1941 as the SCR-293 (transmitter and receiver) and SCR-294 (Receiver only), pending availability of the military spec equipment being manufactured by Western Electric for the Infantry, Armored Force and Artillery. The Link equipment was not designed to meet military requirements. Nevertheless, the SCR-293 and -294 not only got to North Africa first but were also the first FM radios anywhere in tactical use *(see references 1 & 3)*.

Another military application of commercial VHF FM equipment occurred in North Africa in 1943 *(reference 4)*. In this case the Link commercial equipment was a single-channel precursor to the military AN/TRC-1, -3 and -4 which were a VHF (70-100 MHz) alternate for military spiral-four cable. These sets had an audio frequency bandwidth of 12 kHz and operated with the spiral-four terminal apparatus. *(An account of these activities appears in reference 4.)*

For those interested, there is an excellent story of activities in the Link manufacturing facility in downtown Manhattan by John Balint, who worked for Link at that time. *(see reference 5. For more information on tactical radio developments, see references 6 & 7.)*

Fred Link was in on the ground floor of the transition from HF AM to VHF FM for mobile use, and continued to be a guiding light in this field throughout his career. Fred was well known for his dynamic leadership as President of the Radio Club of America from 1968 to 1992. He was elected a Fellow of IEEE in 1973 "for contributions to mobile radio communications", and was a founding member of IEEE's Vehicular Technology Society.

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5. Balint, John, *Squelch*, Proceedings of the Radio Club of America, Spring 1996.

6. Kelleher, John J., "VHF and Microwave Military Communication Systems"; *SIGNALS*, Journal of the Army Signal Association, March-April 1947.

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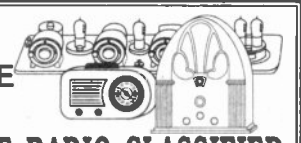

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Changes at Cushcraft

Cushcraft antennas has announced that Ed Hammond, WN1I, will be the company's new Amateur Marketing and Sales Manager. Hammond,who has worked at Cushcraft previously, replaces Amateur Radio Product Manager Art Hambleton, K1ART. — *ARRL, Newsline*

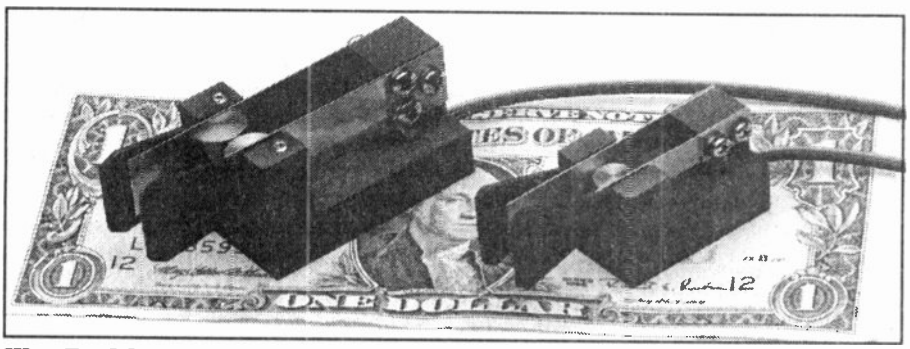
World Radio History

Product Review

The Paddlette

"ACE" JANSEN, N3AHA

With band conditions improving, are you thinking of installing an HF radio in your car? Are you considering operating CW from your car? To many mobile CW operators, picking the right paddle is a matter of taking what's used at the base station and installing it in the car. For me that was installing a Bencher paddle. Although the Bencher has a heavy base to keep it from moving around, the disadvantage of a Bencher is that it has a large base so it needs a large flat area and the individual paddles can disengage. Often I have bumped a single paddle knocking it loose and have difficulty fixing it while driving (this makes for an interesting QSO). Enter the Paddlette as a solution to these problems.



The Paddlette and Backpacker: Small paddles; Big Performance!

The Paddlette is a small paddle and the Paddlette BP (Sub-miniature Backpacker — I'll call it BP for short) is even smaller (see picture). Each has a very small footprint; the Paddlette is only 1" x 1 3/4", weighing just 1.5 ounces; and the BP is 3/4" x 1 1/4", weighing a mere 0.9 ounces. I demo'd the Paddlette for this review and can't imagine the BP at almost 50% smaller. This was a paradigm shift for me, being accustomed to a larger paddle.

Since the paddles are smaller, a smaller installation area is required. The paddle has a magnetic bottom plate and there are two choices for installation each involve placing an adhesive-backed magnet in either a more permanent location or on a knee mount (the Paddlette is shipped with three adhesive-backed magnets). I tried both!

I've always heard of strapping a paddle or key on your knee, but never tried it before. The knee mount features a contoured mount, 1" elasticized strap and a quick release plastic buckle. I liked it and didn't like it. Although I found the knee mount comfortable enough (and the strap/buckle worked fine), I didn't like having the paddle cable near my leg (I felt like I had an IV connected). I also had difficulty trying to write, since I use the steering wheel or my legs as a foundation and since I'm righthanded, my pad of paper or my arm was hitting the paddle and sending code. I believe it really just takes some getting used to.

So, I settled on a more permanent location. I mounted the Paddlette very close to my gear shift. With the base of my radio between the seats, it is a perfect arm rest to comfortably use the Paddlette. So, all the area where I had the Bencher before is now free space. If you don't have an appropriate place to mount the paddle, the knee mount is a great option.

Each paddle is designed for foolproof operation and only has one moving part per paddle. No longer would I bump a single paddle and be out of operation until I could pull the paddle back on. The Paddlette's contact gap is factory set at 3 mils (.003"), but can be adjusted with the supplied Allen wrench from 0-12 mils (a 20-degree rotation equates to about 1 mil gap change). The 3 mil setting was much tighter than I was used to with my Bencher, but I quickly appreciated the effortless sending.

The Paddlette is shipped with a 3" strain-relieved cable. This is okay, but more than likely you will need a longer length of cable, especially if you have one of the new remoted face-plate radios. You can make a custom-length cable or go to Radio Shack and pick up a 20-foot length of headphone cable. I only needed another two feet of cable, but that was the shortest cable available at Radio Shack. For a backpacking operation, three feet is probably long enough, but for most mobile installations, a cable from 4-6 feet would be more appropriate. The 20-foot extension cable from Radio Shack is perfect for those installing part of their radio in the trunk and detaching a face plate. The thinness of the cable also concerns me a little. I would prefer a thicker wire or shrink tubing to protect the cable better. The Radio Shack cable is about 3-4 times the thickness of the Paddlette cable.

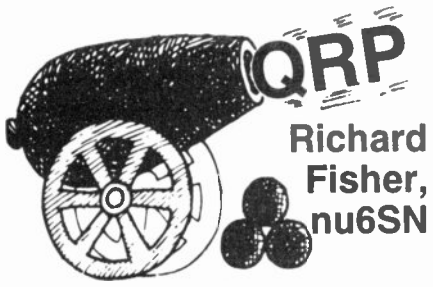
The BP really would be perfect for someone backpacking to a remote spot to do a little QRP CW operation. Although I did not demo this product, I trust that the BP is of the same quality as the Paddlette, just a lot smaller. It certainly wouldn't break a back to carry this little gem along for some remote CW QSOs. The BP comes with a knee mount and a polypropylene case (total weight 3.2 ounces!).

So what changes have I made to my mobile station? Well, I've removed the Bencher and have the Paddlette permanently installed. It's working great! What a space saver! What a performer! I'm really enjoying it. It's a valuable addition to my shack on wheels. The knee mount is currently taking a leave of absence in the glove compartment.

The Paddlette is the brainchild of retired Flute engineer, Bob Hammond, KI7VY. I find the Paddlette and BP very reasonably priced. The Paddlette is $38.50 (including shipping and handling), the knee mount is $9.50 or the combination is $44.95. The BP comes with the knee mount and carrying case and costs $49.95. I recommend you order immediately as Bob is considering raising the prices soon.

To order one of the Paddlettes, give Bob a call at 425/743-1429 or write P.O. Box 6036, Edmonds, WA 98026.

World Radio History



Richard Fisher, nu6SN

1940 Wetherly Way, Riverside, CA 92506
e-mail: nu6SN@aol.com

The plus side of SW-40

Dave Benson, NN1G, has spent a good chunk of his professional life showing the QRP community that high-performing transceivers needn't be expensive or particularly difficult to build.

Historically, his designs have included the famed NN1G Transceiver which was widely duplicated after appearing in QRP Amateur Radio Club International's *QRP Quarterly* magazine several years ago.

He's also father of the popular NE 40-40 transceiver, offered as a kit by the QRP Club of New England and reviewed in July 1994's ***Worldradio*** QRP column.

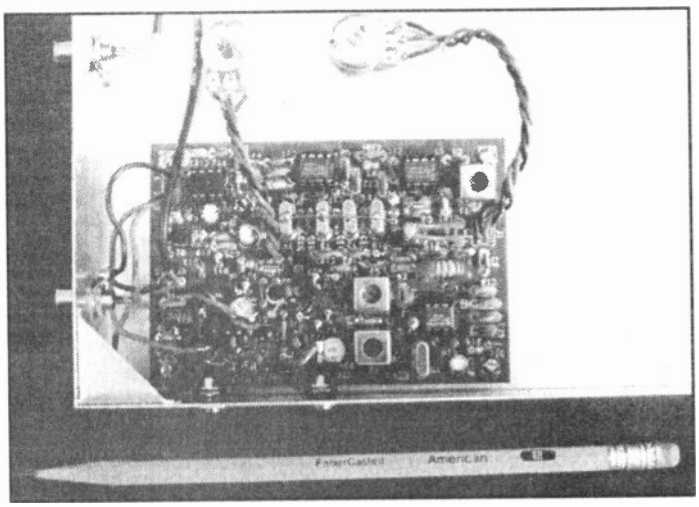
Since striking out on his own as a commercial kit vendor with the Newington, CT, based Small Wonders Labs, Benson has periodically brought new kits to the QRP scene. His Green Mountain low power CW transceivers have been on the airwaves from around the world. He's also broken new ground with innovative designs such as the low-cost White Mountain QRP SSB transceiver kit series.

So, when people on the QRP-L Internet Mail Group were looking for a kit to use in an on-line instructional program they were developing called Elmer 101, Small Wonders stepped forward with the SW-40+ transceiver, an updated and improved version of its SW-transceiver series, itself an outgrowth of the original NE 40-40 design.

The SW-40+ is a solid state superhet QRP transceiver capable of delivering more than two watts of RF across any 35 kHz portion of 40Meters. Benson took the old SW-40 and made some significant improvements, resulting in a kit that's very easy to build and a real pleasure to operate.

Among the updates the '40+ touts over the original '40 design:

- A receiver front end redesigned to eliminate the multiple-winding inductor found in the original circuit.
- An L-C T/R switch configuration, replacing the diode bridge in the original design. The new switch design drops the resting supply current from 22 to 16 milliamperes and improves image rejection.
- The addition of a protective power supply reverse polarity diode.
- A three-crystal Cohn filter with a grounding point added to the kit's PC board to help eliminate dreaded "blow by."
- A fixed value capacitor in the local oscillator, replacing a trimmer capacitor and offering better stability. An assortment of capacitor values is provided with the kit, so by referring to an alignment chart in the manual the builder can easily customize the rig's frequency range.
- A transmitter bandpass filter utilizing commercially-produced IF transformers allowing use of an NE612's differential outputs. Also, the filter bandwidth has been considerably increased when compared to the original design.
- A transmitter power amplifier that is now a widely-available transistor in a TO-220 configuration delivering higher output.
- The option of ordering an enclosure and board-mounted headers with pre-assembled harnesses for quick and easy interconnects.



Small Wonders Labs' SW-40+ is simple to build and operate, and has proven to be a great CW transceiver.

At nu6SN, kit construction was started on a lazy Sunday morning. By evening it was producing 2 watts of CW on 7 MHz and receiving DX signals into the night.

By current industry standards, the SW-40+'s dual-sided, plated-through, silkscreened PC board is spacious, measuring approximately 3 inches by 4 inches. Solder pads and traces are close, but not too close for the beginning builder. While there are several toroids to wind, only one has more than a single winding. This inductor's secondary calls for only one turn. Piece of cake!

In keeping with Small Wonders' tradition of top quality, the SW-40+'s components are first class, and all parts were present and accounted for at nu6SN inventory.

A nicely-written and thoroughly illustrated 20-page manual accompanies the kit. A full schematic is included, as well as a page devoted to the trace pattern of the solder-side of the PC board. A second view of the schematic shows voltage readings at critical points in the circuit.

These graphics might come in

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handy when you're looking for solder bridges or troubleshooting a problem area.

The builder needs to provide a handful of off-board components to complete the kit, including two potentiometers (one for tuning; the other for receiver gain), and jacks for a key or keyer, 12-volt DC power, headphones and antenna. They're all available from Radio Shack. If you don't order an enclosure, you'll need to find a box to put the SW-40+ in, too.

There are step-by-step instructions for soldering components on the PC board, toroid winding, completing off-board wiring and troubleshooting.

Transmitter and receiver alignment is fully explained and very simple, taking about five minutes and requiring no special test gear.

The manual also devotes a section to the rig's theory of operation.

For builders interested in an indepth examination of SW-40+ circuitry, how it works and why, a wonderful tutorial on this radio circuit is as close as your Internet-savvy computer.

The Elmer 101 site, hosted by Mike Maiorana, KU4QO, of Palm Harbor, FL, gives a component-by-component look at the SW-40+'s design, offering details of every part and sub-circuit and the role they play.

If you'd like to get into the nitty-gritty of transceiver design, this is the place to be: http://www.qsl.net/kf4trd/

Elmer 101 is the result of a tremendous effort by Maiorana and QRP-L, and although you don't really need to purchase the SW-40+ kit to follow along, building the transceiver while referring to the Elmer 101 tutorial is an excellent way to learn transceiver design theory.

In the end, too, you'll have a nice QRP transceiver that you can troubleshoot, modify and improve with the knowledge gained from Elmer 101.

The SW-40+ at nu6SN puts out a solid 2+ watts without even warming the rig's husky 2SC2078 final transistor.

A 100K linear taper potentiometer tunes the rig via varactor diode from 7.021 to 7.056 MHz, but other builders may prefer different coverage. A variety of fixed capacitors is provided to give the option of other 35 kHz portions of 40 Meters. If you'd prefer working in the Novice portion of the band, the SW-40+ will go there, too.

There is a ton of audio, more than enough for headphones, and plenty to drive a small speaker.

The rig's QSK is fast, smooth and thumpless. And the CW note is clean and crisp.

On-air reports show that the SW-40+ is extremely stable and pleasant to copy.

Although the circuit does not offer receiver incremental tuning (RIT), it can be added later. I've found, however, the SW-40+'s offset is just right. Indeed, being RIT-less hasn't been a problem.

True: the SW-40+ may be viewed by some as a "bare bones" transceiver, but in many hours of operation at nu6SN, it is every bit as good, if not better than transceiver kits in its price range on today's QRP market.

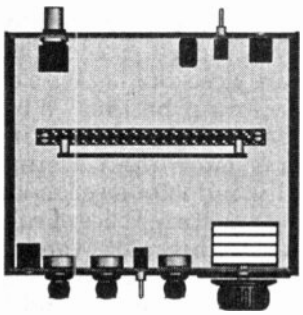
The SW-40+ is $55, plus $3 shipping in the U.S., $5 DX. There is also a 30-meter version of the kit. However, the Elmer 101 tutorial is based on the 40-meter version.

To order, or for more information, write to: Small Wonders Labs, 80 East Robbins Ave., Newington, CT 06111. E-mail: bensondj@aol.com

Small Wonders Labs' web page is: www.fix.net/~jparker/sml.html

In many ways, the SW-40+ is a two-for-one special: coupled with QRP-L's Elmer 101, it's a great learning tool and a beautifully performing QRP transceiver.

The Sierra



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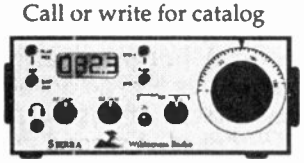

The Sierra is the only compact, low-current, multiband QRP transceiver available. It uses plug-in modules to cover all HF bands. There's no chassis wiring--all components, controls and connectors are mounted on a single board. The superhet receiver has 5 poles of crystal filtering, RIT, and AGC, yet only draws 35mA! Power out is 2 to 3 watts, with fast QSK and no relays. The prototype Sierra is featured on the cover of the 1996 ARRL Handbook, and lab test results can be found in the June, 1996 issue of *QST*.

New KC2 LCD Counter/Keyer/ S-Meter/Wattmeter $75

The KC2 is our newest QRP accessory, packing a 4-digit freq. counter, memory keyer, bar-graph S-meter and digital wattmeter into a 1"H x 3"W module! It's the ultimate add-on accessory for the Sierra and other QRP rigs. Draws only 7mA.

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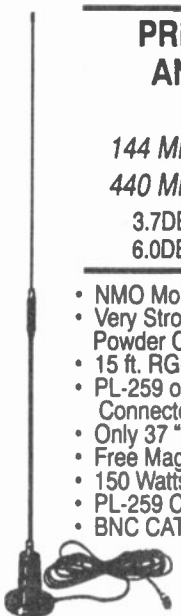

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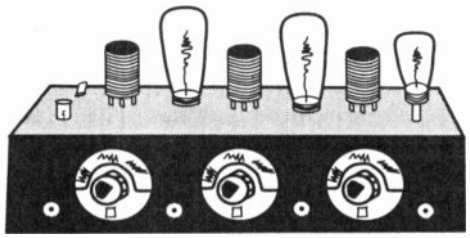

ROD FITZ-RANDOLPH, N5HV

As a nine-year-old, in 1940, I was given my first radio by my parents, a cast-off, commercially made, two-headset, catwhisker galena crystal set. I was amazed that I could pick up different stations, some close, some distant, by simply repositioning the catwhisker on the crystal. I was especially intrigued when, lying in bed on the screen porch one night in San Antonio that I was able to pick up and hear perfectly WBBM, in the Wrigley Building, Chicago, Illinois! I learned that the announcer was Jay Andrees and he hosted the "Music to Dawn" program. It was beautiful music and I listened in rapt attention.

How could it happen? This little crystal set, with no electricity? How could I hear that distant station? This began my love affair with radio and with listening to distant stations. There was magic to it — and there still is!

Later, in my early teens, I was listening to another of my parents' cast-off radios, a Philco desk set with the standard AM band and short wave radio bands up to 18 MHz. One night, tuning around 14 Mcs., I heard W5AHA, Joe Phillips, in my at-that-time hometown of Starkville, Mississippi, talking to Eva, CN8MM (known as CN8 Mickey Mouse) in Morocco. This was in the days of AM Amateur Radio transmitters and receivers, and I could hear both of them perfectly on my Philco. Eva spoke flawless English. I was enthralled. How could a voice be sent so far with such clarity? How did Joe, W5AHA, do it? I had to find out.

I contacted Joe and told him I'd heard him talking to Eva and he invited me over to his shack to witness it firsthand. Joe used a Hallicrafters SX-28A receiver and a war surplus Collins ART-13 transmitter. One of the most intriguing aspects of the whole station was the 866 mercury vapor rectifiers he used in the homebrew power supply. As Joe spoke into the D-104 microphone, the mercury glowed more intensely. It was as spellbinding as the fact that Joe, with that relatively modest station (100 watts on AM) could talk to people all over the world. I was hooked. I had to become a Ham operator. I wanted to talk to Germany, Morocco, Afghanistan, to everywhere! I had to be a Ham!

I built a 117L7GT single-tube regenerative receiver with coils wound on the liberated bases of octal socket tubes. I found I could hear Argentina on 10 Meters with it! I shall never, to my dying day, forget the thrill of that moment.

I built a 6J6 (war surplus) single tube oscillator using a hairpin loop for the coil, and tested its frequency with a set of lecher wires that I had constructed on a two-by-four. I used a single-edged razor blade to determine the half-wavelength distances. An NE2 attached to the hairpin loop glowed purple but went out as I coursed the lecher wire pair to each halfwave node, and I found it was oscillating at 600 Mcs. I could not believe the success of that simple little oscillator.

I set about building a two-tube transmitter: 6C4 xtal oscillator feeding a 6AQ5 final. It would light up to full brilliance a no. 47 light bulb. Oh, how I wanted to get on the air. But I had no license.

I "hung out" at the 25 Ham shacks in my home town of Starkville, Mississippi. I helped them with antennas when I could. The Hams would let me use their rigs. They gradually came to know that I knew protocol perfectly and so they came to let me use their rigs anytime, whether they were there or not. I meticulously filled out their logs and used their names and made sure I stayed in the bands. They encouraged me to get my license but I was having too much fun building rigs and modifying SCR-522s to work on the above-2 Meter CAP frequencies and other rigs I've long since forgotten. I was in hog heaven but the building and modification of rigs occupied my time. I spent too much time building a 2 x 1S4 regenerative portable receiver (in a cigar box with the coil wound around the outside) and other fun projects, to be confined to the earphones listening to Hams talk on CW at speeds too fast for me to copy.

I had difficulty with code (mostly because of my unwillingness to stick to practice religiously and so it was some years later that I obtained my license, a Novice call of WN5HVV, that took only 5 wpm instead of the previously unattainable 13 wpm. I had previously built a 6AQ5 oscillator/807 final CW rig on an upside down cigar box. I used the ceramic coil forms that came from ARC-5 Command transmitters and some-

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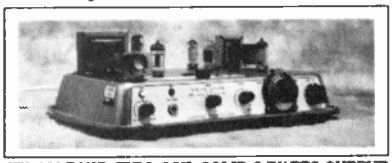

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where I had accumulated two minature meters that fit the side of the cigar box. I ran the screen of the 807 too hot and they continued to get gassy and had to be replaced until I finally ran out of 807s. But I had 1625s! I changed the filament transformer and cut 10" lengths of zip cord and stuck them through the socket holes and soldered them to the socket. I soldered the other ends to the proper pins on the 1625s. I laid the 1625 horizontal on the top of the cigar box.

One night, I simply had to find out: I picked up the 1625 gingerly by the phenolic(?) base and waved it around in the air while transmitting CW on 40 Meters. Not much sense, but I sure had fun. I wish I had kept that cigar box transmitter now. It was the best darned TV eliminator in Starkville.

Within three months, my code speed was up to a solid 15 wpm and I went to Mobile, Alabama (the closest Radio Inspector) to successfully pass my General class license. The RI was a kindly old Choctaw Indian named Joe Lightfoot. I didn't drive back to Starkville, I floated!

When the General license arrived in the mail, I raced upstairs and called CQ on 15 Meter phone using my Harvey Wells TBS-50 Bandmaster transmitter and listened for an answer on my National NC-57 receiver. I couldn't believe my ears but I heard Captain Kurt "Stay-put" Carlsen, W2ZXM/MM of *Flying Enterprise II* fame call me. I had read all about how he had ordered his crew to abandon ship but refused to leave his *Flying Enterprise* so that the salvors couldn't lay claim to the foundering ship. He was almost to England and had heard my signal that was catapulted into the ether by a vertical dipole. I was ecstatic. I floated 15 feet off the ground for a week. The die was cast. How could I ever have been so stupid as to not get my license before?

To send your voice or code signal halfway around the earth; to work a Ham in Mongolia that is working with a home-made CW or SSB transmitter and a 30-year old receiver; to work JY1, Alhussein Ibn Talal (King Hussein of Jordon); to talk to Curtis E. LeMay and Butch Griswold during their famous air trip around the world aboard a converted tanker so that they could test the effectiveness of SSB for the Air Force; to talk to UZ6AZW in Russia the day after the three-day coup d'etat attempt and to find out that he had communicated with the Russian Parliament via Amateur Radio during the coup d'etat and had fed them information regarding the Red Army tanks: where they were, how many and how fast were they coming; to chat with Barry Goldwater, K7UGA, on backscatter from Tucson to Phoenix; to operate as VP7ND from Grand Bahama for three months; from Grand Turk as VP5RR for 11 months; from Thailand as HS3VV for 21 months; from England as G5AVW for 18 months! That was Ham radio! It has been a thrill unlike any other I can imagine!

Building a one- or two-tube receiver, a one-tube transmitter, to talk with someone else that has built a one- or two-tube receiver and one-tube transmitter brings back the early period thrill of my Ham radio experience. Using the latest and greatest transceiver to work someone in a distant land offers a thrill of a different nature but a thrill nevertheless. I share my time back and forth between the Glowbug/Boatanchor mode and the "hard and fast DXer" mode now. Both are so enjoyable. While waiting for Bhutan or North Korea to come online, I listen for W7EKB, W7ZFB, W7QQQ, K5DOA, and others on 7050, 7120, or 3579 Kc. It's a wonderful life!

Ethereal signals, sometimes coming over the pole with that typical wavery or watery sound, sometimes just above ESP in the static crashes, sometimes booming in signal strength, sometimes coming from the opposite or long-path or sometimes skewed direction rather than the direction the great circle maps would indicate, but always bringing signals from faraway lands with the voice of people whom we will may never see in our lifetime but with whom we may become fast friends.

Which is better? Glowbugging? Boatanchoring? Contesting? DXing? I can answer that: they are all wonderful and I love them all and participate in them all as often as I can. I switch from my FT-1000MP to my DX-60B/HG-10B or TBS-50D and NC-57 and back and forth. That has been and is Ham radio for me! It has been and is a thrill unlike any other I can imagine for almost half a century!

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World Radio History

propagation

Carl Luetzelschwab, K9LA
1227 Pion Rd. • Ft. Wayne, IN 46845
e-mail: k9la@gte.net

Every once in a while an interesting article catches my eye, and I file it away for future reference. One such article was "The Enhancement of HF Signals by Polarization Control" by G2HCG in the November 1990 issue of *Communications Quarterly*.

G2HCG built a crossed-Yagi array using two 3-element 10M Yagis with phasing lines that allowed switching between horizontal, clockwise circular, vertical, and counterclockwise circular polarization. He then observed arriving 10M signals on an oscilloscope, which was set up to visually show the polarization via the resulting trace.

One of G2HCG's conclusions caught my eye. His observations led him to conclude the polarization of the received signal at his QTH was solely determined by the last encounter with the ionosphere. The polarization of the antenna at the transmit end appeared to have nothing to do with the polarization received at his location.

About a year ago, because of my quest for 160M DXCC and at the urging of my predecessor, NM7M, I began reviewing magneto-ionic theory. This is the theory of propagation of electromagnetic waves under the influence of a magnetic field (what happens in our real world). At higher HF frequencies (above 4 MHz or so), the magnetic field can be and usually is ignored. But starting on 80M, and especially on 160M, the magnetic field has to be taken into account to properly address the refractive index, absorption, and polarization.

In the course of this review I found a technical paper in the January 1965 *Proceedings of the IEE* (the British equivalent of our IEEE) by two BBC engineers, Phillips and Knight. Their paper was titled "Effects of polarisation on a medium-frequency sky-wave service, including the case of multihop paths." The highlight of the paper was a figure that showed the axial ratio M of the polarization ellipse and the orientation PSI of the polarization ellipse for the downcoming wave based on where on earth the last encounter with the ionosphere was and the magnetic heading of the downcoming wave at that point.

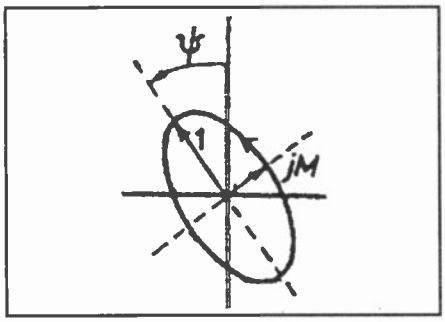

Figure 1. Polarization ellipse

Quick review, Figure 1 is a polarization ellipse with M and PSI shown. When M is Ø, the polarization is linear, and PSI indicates vertical (PSI = Ø), horizontal (PSI = 1), or anywhere in between. When M is 1, the polarization is circular. When M is in between Ø and 1, it's elliptical.

The data in the BBC figure was calculated for medium frequencies near the gyrofrequency, and treated only the ordinary wave — the extraordinary wave was ignored, as it was considered to be heavily attenuated at these frequencies due to the effects of magneto-ionic theory in relation to absorption. Since this was for medium frequencies, it is applicable to 160M. Figure 2 is a reproduction of the BBC figure.

When you think about it, this is a pretty handy figure. It tells 160M operators what polarization they should be using based on where they are in the world and from what direction they want to hear signals. All they need to know is their magnetic dip angle D (found in most ionospheric books) and the magnetic heading PHI-sub-m of the downcoming wave into their QTH.

In essence, when operating on 160M, the antenna and the ionosphere can be viewed as a system, with a resulting coupling loss. The coupling loss is due to the polarization mismatch between the wave at the exit point of the ionosphere and the antenna. For example, if at the ionospheric exit point vertical polarization is dictated by the figure, then not much energy will be coupled into a horizontal antenna.

Let's take a look at two specific examples. The first is for those of us in North America. Using an average magnetic dip angle D of about 70° North (from the map of Figure 3.21 in McNamara's book *Radio Amateurs Guide to the Ionosphere*), Figure 2 says M will be close to Ø for most incoming directions PHI-sub-m. This means linear polarization. And PSI will essentially be 0° for any incoming direction, too. Thus vertical polarization is the way to go on 160M for those of us in North America.

The second example is for a station or DXpedition near the magnetic equator (PY, 9L, 5U, VU, 9V, KH8, etc). With the dip angle 0°; M will be 1 for signals coming from the

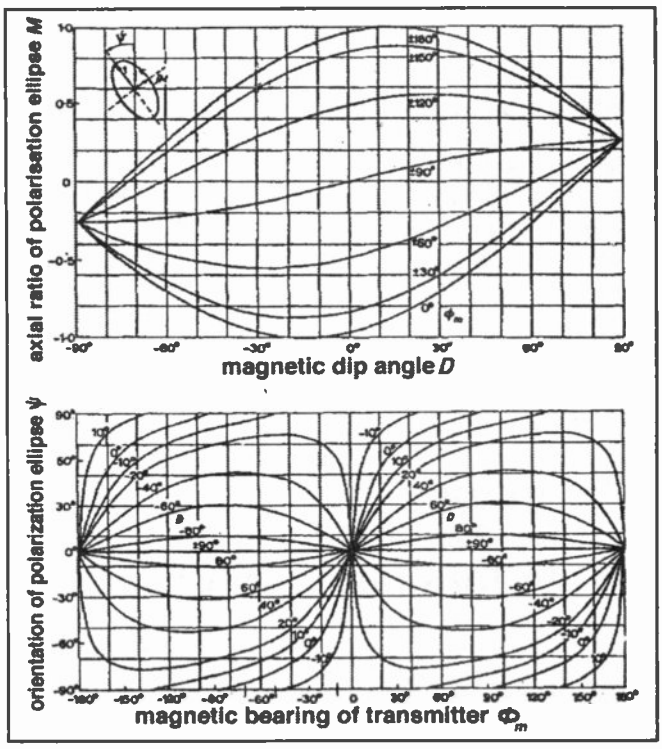

Figure 2. Polarization characteristics of downcoming waves.

World Radio History

north, –1 for signals coming from the south, and Ø for signals coming from the east or west. PSI will be 0° for signals coming from the north and south, –90° for signals coming from the west, and 90° for signals coming from the east. Translating all that says vertical polarization is best for north-south propagation, and horizontal polarization is best for east-west propagation. Most people have trouble getting just one 160M antenna up — now you tell me I may need two if I'm near the equator!

Figure 3 shows this equatorial predicament visually. It's a plot of the amount of downcoming energy coupled into a vertical antenna near the equator without magneto-ionic theory taken into account (which ends up as the classical omni-directional pattern of a vertical antenna) versus a plot of the same vertical with magneto-ionic theory taken into account. The coupling loss depending on arrival direction is rather obvious — the use of a vertical for east-west propagation when you're near the equator isn't too good. The signals coming from the north and south are down 3dB for the case when magneto-ionic theory is taken into account because the downcoming wave is circularly polarized — this results in a 3dB coupling loss to the linear vertical antenna.

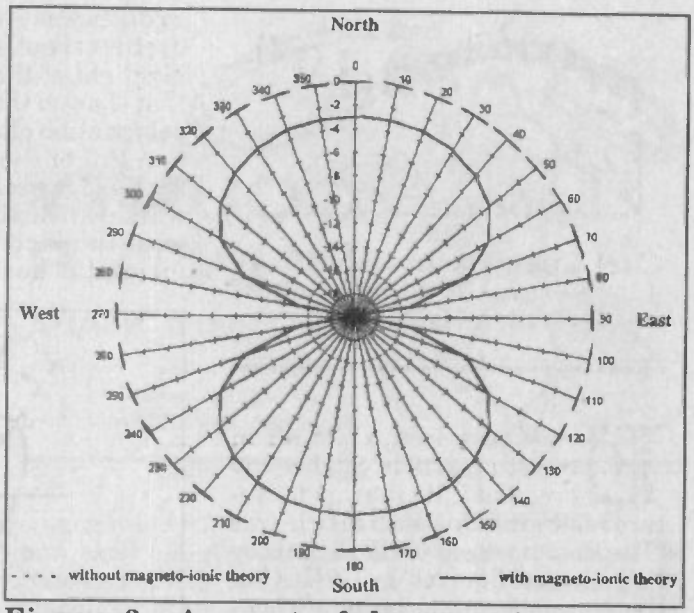

Figure 3. Amount of downcoming energy coupled into vertical antenna at equator

In summary, the Earth's magnetic field plays an important role in propagation down on the low bands. A little understanding of it may just help your 80M and 160M efforts.

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COUNTY HUNTER

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What's a County?

I enjoyed learning about Alaskan "counties" for my May 98 column and found some interesting feedback on the internet after some county hunters read the column. It turns out this topic has been discussed before, but county hunters still attempt to contact the four Alaskan Judicial Districts instead of the 16 Alaskan boroughs.

I learned from David Weitzel, KFØLZ, that there are additional sources for determining counties. The "Red Book" is lingo used to describe the yearly *Municipal Year Book*, a hardcover book sponsored by the International County and City Managers Association (ICMA) and authored by Evelina Moulder. It is full of information on all of the 83,257 (1987) units of local government. It refers to itself as "the authoritative source book of urban data and developments" (*Muni Year Book 96*).

Dave also answered a much-asked question, "What is a county?" by stating counties are the primary political administration divisions of a state. The Red Book equates Louisiana parishes and Alaskan boroughs to counties. Counties tend to have services oriented toward the state such as courts, jails, tax collections, surveying and mapping of parcels of property, county-wide law enforcement for unincorporated areas, and disaster recovery.

Cities on the other hand "are political subdivisions within which a municipal corporation has been established to provide general local government (and services) for a specific population concentration in a defined area" (*Muni Year Book 96*). Cities, in addition to providing for, in most instances, policing and courts for municipal law violations, tend to get into services such as electricity, water, wastewater, and trash collection.

Using the ICMA criteria, how many counties are there? Dave has not totaled them, but from a table, ICMA counts at least 12 for Alaska (there are 16 boroughs now) and 135 for Virginia (this would include independent cities and counties), as well as 64 for Louisiana. Kansas as of 1996 had 105, but one has been dissolved and ICMA may not show it in future editions. After 22 years of service as a County Manager as well as a City Manager, Dave has strong opinions on the issue of what is a county and what is not. What Dave believes would be devastating to county hunters would be to change boundaries and rules yearly due to the extensive investments in software and maps that county hunters have.

Cliff Taylor, WB4FBS, also threw in his two cents. Cliff challenged his local paper, the *San Antonio Express-News* to research the number of counties in the U.S. The response from the local paper was the following:

"We appreciate your letter. 'Action Express-News' always wants to make sure we print current information. The source of information was a study conducted by the federal government for the Small Business Administration. The study said there are 3,085 counties. Just to make sure, we called the National Association of Counties in Washington, D.C. They said there are 3,040. When we asked them how there could be such discrepancies, a spokesman explained it this way. The number 3,040 is the number of county governments in the United States.

For instance, Loving County, near the New Mexico border, is the only Texas County without a county seat. Not every county has a county government, however, as in some New England States. He said there are areas where boundary lines look like they are setting off counties, but it might not actually be the case. The number 3,040 includes the parishes of Louisiana which are the same things as counties. 'Action Express-News' sticks with the 3,085 figure from the latest government study."

USA-CA 2000

So, it seems like we have lots of sources and lots of opinions on the subject. What's a county hunter to do? I sent a copy of my May 98 ***Worldradio*** column to the USA-CA Custodian and called for an independent team to review the rules for what is considered a county for USA-CA. ARRL's DXCC program went through a similar exercise and published the DXCC 2000 rules for what is considered a DXCC entity or "country." I believe County Hunters need something similar apply some consistency to our methodology of counting counties.

Within a week, Ted Melinosky, K1BV, sent the following note on the county hunter internet reflector: "Fellow County Hunters: The USA-CA program may need a tune-up to reflect changes in the makeup of U.S. counties over the past few years. Please refer to the official *CQ* rules which are available on-line at: http://members.aol.com/cqmagazine/usacarul.htm.

"There are also some proposed changes by the previous custodian which were never implemented which may need to be clarified. I am soliciting changes to the program from active county hunters in the following areas:

"1. Do you have knowledge of any new U.S. counties formed, deleted or combined with others since the last revision of the rules which are dated 01 March 1997?

"2. USA-CA rules Section C. COUNTY IDENTITY paragraph 4 states: In the case of cities, parks or reservations not within counties proper, applicants may claim any one of the adjoining counties for credit (once). [I read this as meaning if you contact a station in such an area, that you may choose to count ANY adjoining county which touches the boundary of the entity. Any subsequent contacts with that station cannot count for another county.] Is this clear enough?

"3. Are there any other changes needed to improve or bring the USA-CA program up to date?

"Please communicate your input to K1BV at my e-mail address

World Radio History

[k1bv@top.monad.net], or in writing to: 65 Glebe Road, Spofford, NH 03462-4411. Your help would be appreciated. Ted Melinosky K1BV USA-CA Custodian."

Several county hunters responded to Ted's request and then posted their responses on the county hunter forum. One county hunter said it this way: "You know, we don't actually work all counties, anyway — we work designated land areas. There are NO counties in CT and MA is about to abolish all counties and use judicial districts." I have not responded to Ted's request although I have strong opinions on the topic...guess I'm just lazy.

30th Annual MARAC Convention

The Mobile Amateur Radio Awards Club and County Hunters' Convention took place 01-04 July in San Antonio, Texas. 146 people attended this year's convention, including 97 county hunters. Activities included a tour of San Antonio and dinner at the Alamo Cafe for early arrivals on Wednesday. On Thursday, a couple of forums were offered; CW operations and procedures, antenna theory, and computer logging. A tour of the LBJ Ranch and Fredericksburg was also available. Friday's activities included antenna theory, an auction, computer logging, CW operations and procedures, and a CW County Hunters meeting. Saturday's events included an Awards Committee meeting, a MARAC Executive Board meeting, a General Membership meeting, a group picture, and the convention banquet. At the banquet, emcee Gene Tyree, N4ANV, presented the annual MARAC awards.

County Hunter of the Year for SSB was Jim Grandinetti, KZ2P, and for CW, Howie Clarke, WA4KER. Mobile of the Year for SSB was Bob Voss, N4CD, and for CW, Jeff Bechner, W9MSE. No triple crown for KZ2P or WA4KER, but close!

MARAC Merit awards were presented to Vern Olson, WAØRJJ; Joe Parsons, W5UJO; Dave Manescu, W6CCM, Joyce Boothe; WB9NUL, Barry Boothe, W9UCW; Carol Morkrid, KIØJD; Harry Ward, W6PTC; Don McMinds, K7DM; Bill Nash, WØOWY; and Cliff Taylor, WB4FBS.

The President's Award was presented to Joe Parsons, W5UJO, and Donald Simmonds, N5XG. The Cus-

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todian Award was presented to Van "Pete" Peterson, K4QFK, and James Grandinetti, KZ2P.

New MARAC officers include President: Jim Glasscock, WØFF; Vice President: Ed Brown, WØWYJ; Secretary: Mike Leahy, NØDIA; Treasurer: Roy "Silver" Glasscock, KCØJG; Directors: Gerald Grasso, WWØG, Frank Tissot, KEØAY, and Bob Roth, W7LQT, Pacific Director: Ken Williams. Roger Purdy, W2NWL, continues as Awards Custodian and Cliff Taylor, WB4FBS, continues to edit the *MARAC Newsletter*.

At the convention, USA-CA Awards Custodian, Ted Melinosky, K1BV, announced he has opted to count judicial districts as Alaskan counties due to rapid changes in borough boundaries caused by the census. He has also opted to go with rules as they now stand regarding independent cities; a contact with an independent city can be counted one time for any adjacent county.

W9UCW antennas

Without a doubt, active county hunters are familiar with Barry Booth, W9UCW, and his antennas he manufactured under the name of Custom Enterprises — Mobile Antennas. W9UCW's antennas were very popular with county hunters; resonators provided broad frequency response, low wind resistance, and up to 1000 watts PEP. After six or seven years of hectic growth, Barry announced in the fall of 1997 that he would cease manufacturing his antennas. It was never his intent to be so busy making antennas — after all, he was retired.

Barry's interest was antenna research and he's written several papers. He also gave antenna forums and seminars all over the country for 20 years. As of 01 August 1998, Barry transferred the business to Alan Fischer, K8CW, a 44+ year amateur extraordinaire. Alan has contacted almost all DXCC countries, operated on several DXpeditions (including Heard Island), and contacted all USA counties four times. He is a professional engineer with a Masters in mechanical engineering. He has built many mobile antennas including the popular screwdriver antennas. Alan says the antennas he will manufacture are the same design as Barry's antennas and will optimize efficiency and windloading. Alan was unsure of pricing and did not have brochures when I talked to him, but he did say he will also manufacture many different antenna mounts. If you are interested in high-power, multiband resonators, contact Alan Fischer by mail at 259 W Cook Rd, Mansfield, OH 44907, or call 419/756-7777. I'm looking forward to trying one of Alan's new antennas soon. Good luck Alan!

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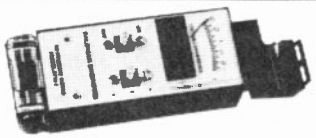

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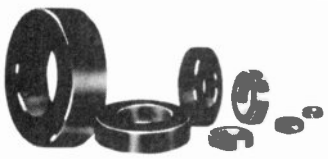

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County Hunter information packet

Once upon a time if you wanted an information packet you had to send an SASE to the MARAC Secretary. Actually, that route still exists. If you would like you can send an SASE to MARAC Secretary, Donald Simmonds, N5XG, 5709 Azteca Drive, Fort Worth, TX 76112-3021. The alternative is to get the information from the internet. The same information is available online at the following web site; http://www.countyhunter.com/marac_information_package.htm.

MARAC awards

As mentioned in a previous column, MARAC offers many awards, 36+ I believe. A county hunter can qualify for these awards regardless of their participation in *CQ* magazine's USA-CA. You can send an SASE for the MARAC awards information packet to Awards Chairman, Roger Purdy, W2NWL, P.O. Box 270, Whiting, NJ 08759-0270. If you have internet capability, the same information is available online at the following web site: www.countyhunter.com/marac/frames11.htm.

Internet help

As you can tell from the above, Dennis Hall's, KK7X, web page, County Hunter Dot Com (www.countyhunter.com) has some good help for county hunters. . Other internet resources are Don Flynn's, K3IMC, site, The County Hunter Web, which includes the very popular on-line forum: www.delve.com/ch/. There's also an internet spotting page, similar to DX packetcluster spotting. This was added by Kyle Chavis, WA4PGM. This is good for real time spotting as well as answering, "Who ran that county?" queries. The County Hunter Web Cluster is available at www.coastals.org/cluster/cluster.html. If you find other interesting web sites related to county hunting, please send me an e-mail with the path. Thanks!

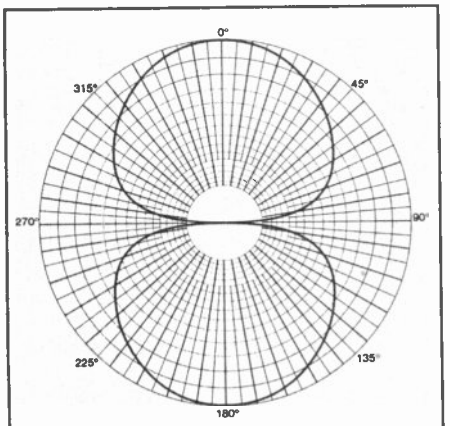
Aloha, a hui hou aku

Next time, I hope to have tested a screwdriver antenna by Nott Ltd. (TJ Antenna Company) and demo'd KJ4EJ's QUIKLOG Plus county hunting program. So for now, may the sun be full of spots and may your log be full of needed counties. Until November, happy hunting! 73, Ace, N3 aha!

KH6HME 2 mtr and 70 cm heard in California

The 2 meter and 432 MHz KH6HME propagation beacons have been intermittently heard in California. Paul Leib, who owns the Hawaiian beacons bearing his call would like to hear from anyone if the band opens up. If it does and if he has the time, he is willing to drive to his 8000 foot perch on the volcano and try for stateside contacts. — *VHF Reflector, Newsline*

World Radio History



AERIALS

Kurt N. Sterba

A tip of the Kurt white cap to Clem Small, KR6A, who, in the June issue of *Monitoring Times* wrote: "Radiation resistance and impedance are not the same thing." Which is, of course, quite correct and puts *Monitoring Times* a big notch above a major hammag which botched that very same thing in a recent issue. And, they never corrected the mistake in a later edition, just letting their readers go on blissfully in the dark.

And then, taking one's sanity at risk we can delve into *23 Skidoo*. To quote: It's been known for years that the optimum angle for the elements of an inverted vee should be 45 degrees from vertical." This was for "optimum performance." Alas, really for "optimum performance" you want to get those wire angles as high as possible. In "reality land," the inverted vee is down the gain ladder from a horizontal dipole.

There is plaintive cry uttered by newcomers. It seems that they cut a new antenna exactly to the book lengths and then wail that the SWR is high or that the resonant frequency is way off.

We'll try to help solve their dilemma. Again, it's Uncle Kurt to the rescue. First, wire size differences can make a difference. The book figures are based on a very thin wire in free space. Second, there will be a difference whether it is bare wire or wire with insulation. The difference can be quite a bit.

Say you are aiming for 14.200 MHz and the shift is four percent. That antenna will now be resonant at 13.632 MHz. Or four percent the other way from 14.200 MHz will be 14.768 MHz.

Then there is another, often overlooked factor. Let's say you have miraculously come up with the perfect dipole. The length is absolutely exact, not a micron too short or too long. It is at the perfect height for a dipole, not a millimeter too high or too low. Perfection. For a 72-ohm antenna. Hooking up 50-ohm coax to it will give a 1.44:1 SWR.

But probably the biggest factor is the environment. Are there power lines running along your back yard? Is there a wheelbarrow under the antenna? Are you holding up the insulator at the end of the dipole with more wire instead of some non-conducting line? (You have a big capacitor at each end of the dipole?) Is there an automobile in the garage, over which part of the antenna runs? And, just how high is it above ground?

Are you at .35 WL above ground where the dipole's resistance is about 100 Ohms. With that 50-ohm cable you'll have a 2:1 SWR. Nothing is easy.

Others may have a difficult time getting their tuner to operate correctly. Here's the proper way. First, position both the transmitter and antenna capacitor indicators at 12 o'clock. That is, pointing straight up. Then slowly adjust the inductor to bring in a signal, or band noise, to the loudest value.

Now is the time to adjust the two capacitors for lowest SWR, jockeying back and forth. If the tuner is not adjusted properly, maximum power transfer will not occur. This is an occasion where that great instrument, the Field Strength Meter, can come into play, in order to be certain.

Sometime back I poked fun at a mobile antenna manufacturer that claimed that their antenna system would, and I quote exactly, "beat any other 1.8-30 MHz mobile antenna by 20 dB."

Tell you what, if they show up at one of those 75-meter mobile shootouts and beat the best other antenna entered by 20 dB, I'll donate $1,000 to the charity of their choice. I'll even

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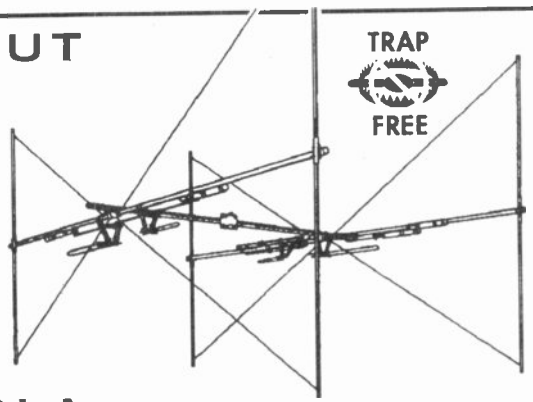
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be big-hearted and make it that they only have to win by 10 dB. Oh, what the heck, if they even show up I'll donate $500. Fair enough?

One fine Kurt pal wore his White Hat to a hamfest and said that only two others there knew what it was.

Of course! This is not a cap for the common folk. I'll subtly mention that those who have not yet joined the higher society may do so by sending in $8 and $2 for postage. Californians add 62 cents tax.

And *AERIALS III* has gone to the printer. This is a collection of our columns over the past five years. This is a thick book for only $14 and $2 for postage. Californians add $1.08 for the tax man. Cash, Check, Money Order, American Express, Visa, Mastercard to the ***Worldradio*** international headquarters at 2120 28th St., Sacramento, CA 95818. Thank you.

One fine reader asked what antenna books, and as he put it, "After *AERIALS*, *AERIALS II* and *AERIALS III*" I would recommend. Of course, *The ARRL Antenna Book*, truly a great one for the dollar. To get really serious stuff there is one that is almost the bible for many, *Antennas* by John Kraus, Ph.D. The late Henry Jasik's *Antenna Engineering Handbook* now authored by Richard Johnson is a most valuable text. A highly serious tome is *Antenna Theory* by Constantine Balanis.

If you can find a copy of Walt Maxwell's *Reflections* you'll have a real prize indeed. If more people would read and believe what W2DU says I wouldn't get so many nutty letters.

Then there is the excellent, and I mean excellent, *Low-Band DXing* by John Devoldere, ON4UN, published by the ARRL. Lil also praises it for the "clarity of writing." Even if the low bands are not your forte, or you don't have the room, the ideas presented can be scaled up for the higher bands. It is an immensely practical book. He even warns about something seen in other books, the one-wavelength triangle antenna. He admonishes one to NOT feed it at the lower corner but instead to feed it at one-quarter wavelength down from the apex.

Presented now are the starting figures for a wire 20-meter Yagi. This will radiate with every bit as much signal as a store-bought aluminum version. Wooden cross sections at the ends can be tied to trees, houses, whatever.

Reflector: 36 ft. 5 and 3/16 inches.

Driven El.: 33ft. 6 and 11/16 inches.

Director: 31 ft. 3 and 9/16 inches.

Element Spacing: Reflector to Driven: 9 ft .exactly. Driven to Director: 18 ft., 4-3/8 inches.

Split the Driven Element exactly in the center and feed with 50-ohm cable. Yes, if you wish, a 1:1 balun would prove helpful.

You should see about 6 dB gain over a dipole and about 15 dB Front-to-Back ratio.

And yes, of course, it will all be effected by height above ground, and nearby objects.

To help you to bring it all in together, the Reflector is 7.9 percent longer than the Driven Element and the Driven Element is 7.8 percent longer than the Director.

Or, the Director is 0.927 as long as the Driven Element and the Driven Element is 0.926 as long as the Reflector.

Aim to maintain the 50-ohm feedpoint impedance. Most likely there will have to be some juggling back and forth to compensate for your particular and unique situation.

Oh, Yukko! A sharp-eyed Kurt pal sent in a page from a magazine in which the formula for the quarter-wavelength vertical was given as, and I quote, "Length in feet = 234 divided into the frequency." That's a big oucho! They even went on to give an example, and did it wrong. The exact opposite is true. For any who may have fallen under the spell of the other (seeing it in print and believing it), here is the correct version. It is indeed: 234 divided BY the frequency — believe me.

Next month: How to get a full-size 80-meter dipole into a smaller space. And soon an antenna called the "Texas Ranger."

And, a big Kurt Brooklyn Raspberry to the company, who in their catalog, (sent to me by a Kurt pal) claimed for their 20M, 3-element Yagi on a 26-foot boom: "Forward Gain: Greater than 25 Dbd @ 132 Feet over average ground." First, all the rest of the antenna world calls it dBd and second, ahhhh, that's so bad it's not even worth discussing.

(Show some class, buy a Kurt White Hat.)

Contests

Dave Goodwin
VE2ZP/VE9CB

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packet: VE2ZP@VA3TCP.#EON.ON.CAN.NOAM

Contest Expeditions

Some contesters never operate from home. Instead, they travel to rare or favored spots in hopes that they can exploit some advantage and make a better score. Many others go on expeditions once or twice in their contesting career. Either way, they can be a lot of fun, because when you're on an expedition, you make yourself the center of attention and you will learn what it means to handle a pile-up from the DX end. Expeditions take many forms, depending on the contest, and if you plan and execute an expedition well, you'll have a ball.

What makes an expedition? Your trip should really be to some hard-to-work multiplier, and what constitutes a hard-to-work multiplier varies from contest to contest. In DX contests, it could be a country with a very small Amateur population. In domestic contests, it could be a U.S. state, ARRL section or Canadian province or territory where there are few active contesters, or few participants in your favored contest.

Here are a few examples: In the ARRL DX Contest each year, several American contesters will travel to the islands of the Caribbean or the countries of central America. In that contest, DX stations work Amateurs only in the continental USA and Canada. The Caribbean and central America are close (within one or two F-layer hops), and lie generally to the south, so propagation is quite reliable. As well, there are relatively few local Hams who are keen contesters, so anyone who operates from any country in the Caribbean basin can feel quite certain that they will be one of very few, perhaps the only station active in the contest

World Radio History

from that country. Therefore everyone will want to work you to make sure they have your multiplier in the log. It's a bit like having an 18th century spice monopoly — but it lasts just 48 hours.

In the *CQ* WW contests, not only do DXCC and WAE countries count as multipliers, so do WAZ Zones (see January 1998 ***Worldradio***). Another little wrinkle is that contacts between different continents are worth more (three points per QSO) than contacts within a continent (contacts between different North American countries are worth two points per QSO).

In the *CQ* WW contests, the most desirable locations are in countries and on continents with small amateur populations, but within easy reach of Europe and North America, with their large numbers of amateurs. West Africa and northern South America are the plum spots, and the overall winners are often Europeans or North Americans on contest expeditions to those places. Only slightly less desirable are the very small countries of the Caribbean, Central America, Asia and Oceania, and after that, hard-to-work WAZ zones.

In domestic contests, such as ARRL Sweepstakes, there are some ARRL sections from which there are very few participants, and if you traveled to one of the smaller states of New England, West Virginia, Wyoming or Northern New York (a new ARRL section), you could enjoy a lot of attention. Traveling to most parts of Canada is a good bet, too, as with the exception on Ontario (VE3) and British Columbia (VE7), as there aren't many SS devotees in my country. The U.S. islands of the Caribbean are also prime spots, such as the U.S. Virgin Islands or Puerto Rico and these have the advantage of reliable north-south propagation.

In state QSO parties, a rare county may be the best place for you to go, and in VHF contests, a trip to a rare grid square may make a lot of people happy, including you. These events often have special "rover" categories for those who can move from county to county, or grid square to grid square.

Should you decide to go on a contest expedition, choose a location where you will be rare and sought-after. You should also choose a spot where you will have minimum trouble getting on the air. The best way to go can be to simply borrow the station of a Ham in the place you want to go. Club stations may also be a good resource. The less equipment and antennas you have to take, the better, especially when passing through customs.

A few enterprising folks own holiday homes in exotic locations, and will rent their radio-equipped and antenna-festooned cottages to you for a fee. If you can afford it, this may be the best way to go on your first expedition. Look for the "Ham Vacation Rentals/Property" section of the classified ads in *QST*, or other magazines, including ***Worldradio***. You might even combine a contest expedition with a family holiday.

If you can't arrange to borrow or rent an existing station, you'll have to build your own. For that, you'll need a site and permission to erect antennas. Some holiday resorts are well-acquainted with visiting contesters and will welcome you with open arms. Others are too well-acquainted with Amateurs and will greet you with a shotgun. It would be best to prepare well in advance, and discuss with the hotel manager or property owner exactly what you intend to do.

Another important issue is licensing. While your U.S. Amateur license is good for any U.S. territory, and by virtue of an automatic reciprocal operating agreement, you may also operate anywhere in Canada, you will need formal written permission well in advance from the authorities in any other country you might visit. ARRL can be a great help here. Contact them early, indicating which country or countries you intend to visit and they will send you the most up-to-date information they have on how you can obtain a reciprocal license. You have to apply for permission yourself, but ARRL can tell you how.

Many people who go on contest expeditions do so as part of a group, intending to operate as a multi-operator single-transmitter (multi-single) or multi-operator multi-transmitter (multi-multi) entrant. These larger operations require much more equipment and antennas, but with more people, you can pool your resources and energy. While many hands can make for light work, many egos can make for hot tempers. One advantage of conducting a solo expedition is that you can't have an argument with yourself, and your host, whether a fellow Ham or a hotel, may be happier to see one person than many.

I have only been on two expeditions, and in both cases, I never left my own country. In the *CQ* WW DX contests, WAZ zones count as multipliers. One of the rarest zones is Zone 2, which includes northern Quebec (VE2), Labrador (VO2) and the eastern Northwest Territories (VE8). This is the world's least populous zone, and when I went there, it was home to less than 100 Hams. A friend from my university days, Kent Chown, VE2LJ, had moved to a very remote fishing village in northern Quebec in 1985 and became quite active. Kent erected a small tower, triband beam and wire antennas for the low bands, and did his best to make Zone 2 very available. In 1989 and 1990, I borrowed Kent's station for the *CQ* WW DX SSB contest in October. The pile-ups were fierce, and I made many more QSOs from Kent's modest station than I could have ever expected to make from home in garden-variety Zone 5 (southern Quebec, Atlantic Canada and the U.S. east coast). In the 1989 contest, I made over 4,700 contacts during the 48 hours of the contest and placed eighth in the world in the Single Op, All Bands category. The following year, I managed a mere 3,800 thanks to an auroral disturbance, despite the time I spent improving Kent's antennas. Those two expeditions stand out among my best contesting experiences. What made it easy for me was that I had a station in place, ready to use. Sadly, Kent has since left Zone 2, and my next contest expedition may not be so easy to arrange.

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Contest	Date/Time	Bands	QSO points	Multipliers	Exchange	Entry Categories	Entries
All Asia SSB (Japan)	0000z 5 Sep 2359z 6 Sep	160-10m SSB	1pt/20-10m QSO 2pt/80m QSO	Asian prefixes worked on each band 3pt/160m QSO Work Asia only	RS Age (YLs may send 00)	Single op: All bands, Single band Multi-op: Single or Multi-tx	30 Sep Box 377 Tokyo
LZ DX (Bulgaria)	1200z 5 Sep 1200z 6 Sep	80-10m CW	6pt/LZ 3pt/DX 1pt/NA	ITU Zones worked on each band	RST ITU Zone	Single Op: All bands, Single band Multi-op, single tx SWL	1mo. Box 830 1000 Sofia
North American Sprint CW (NCJ)	0000z 5 Sep 0400z 6 Sep	80-20m CW	1pt/QSO	Canadian Call areas, US States, other NA countries	Ser# Name Prov	Single op all bands only Entrants may combine their scores to form a "team".	1mo. N6TR
European DX SSB (Germany)	0000z 12 Sep 2359z 13 Sep	80-10m SSB	1pt/Eur 1pt/QTC QTC: reports of previous QSOs Time:Call: Ser#	x2 on 10/15/20 x3 on 40m x4 on 80m	RST Ser#	Single Op: All bands, Single band Multi-op: Single or multi-tx All entrants may use PacketCluster	15 Oct Box 1126 D-74370 Sersheim Germany
North American Sprint SSB	0000z 13 Sep 0400z 13 Sep	80-20m SSB	1pt/QSO	Canadian Call areas, US States, other NA countries	Ser# Name Prov	Single op all bands only Entrants may combine their scores to form a "team".	1mo. K7GM
Scandinavia CW	1500z 12 Sep 1800z 13 Sep	80-10m CW	1pt/QSO	Work JW JX LA OH OJ OX OY OZ SM TF Scandianavian prefixes worked on each band	RST Ser#	Single Op: All bands, QRP Multi-op single tx	31 Oct EDR
Atlantic QSO Party (Canada)	0000z 20 Sep 2359z 20 Sep	160-10m CW and SSB	1pt/QSO NB/NF/NS/PEI work everyone; other work only Maritime ctys and NF	Maritime counties and Newfoundland federal ridings. Mar and NF stations also count Provs/Terrs, US states and DXCC countries once, regardless of band.	RST QTH	Single op High Power: Mixed Mode, CW only, SSB only Single op Low Power: Mixed Mode, CW only, SSB only Multi-op High Power: Mixed Mode, CW only, SSB only Mutli-op Low Power: Mixed Mode, CW only, SSB only	30 days LCARC, Box 6552 Stn.B Saint John NB E2L 4R9 CANADA
CQ WW DX RTTY	0000z 26 Sep 2359z 27 Sep	80-10m RTTY	1pt/VE 2pt/NA 3pt/DX	DXCC + WAE Countries + Canadian Provs, Terrs, Labrador + US States	RST Prov CQ Zone	Single Op: All bands, Assisted, Single Band Multi-op: Single or multi-tx	1 Dec POBox DX Stow MA 01775 USA
Scandinavia SSB	1500z 26 Sep 1800z 27 Sep	80-10m SSB	1pt/QSO Work JW JX LA OH OJ OX OY OZ SM TF	Scandianavian prefixes worked on each band	RST Ser#	Single Op: All bands, QRP Multi-op single tx	31 Oct EDR
RSGB 21/28MHz SSB (UK)	0700z 3 Oct 1900z 4 Oct	21.2-21.35 28.45-29.1	3pt/QSO Work UK stations only	UK counties UK stations will send a 3-letter county abbreviation	RST Ser#	Single op, Single op QRP Multi-op single tx	14 Nov G3UFY
VK/ZL/Oceania SSB	1000z 3 Oct 1000z 4 Oct	80-10m SSB	3pt/10m 2pt/15m 1pt/20m 5pt/40m 10pt/80m work Oceania only	Oceania prefixes on each band Score each band separately, then sum scores from all bands.	RST Ser#	Single op all bands Multi-op all bands SWL	6 weeks ZL1AAS (even) VK3APN (odd)
European Autumn Sprint SSB	1500z 3 Oct 1859z 3 Oct	80-20m SSB	1pt/QSO	None	your call, other stn's call, Ser#, name	Single operator only	15 days I2UIY
California QSO Party	1600z 3 Oct 2200z 4 Oct	160-2m CW & SSB	2pt/SSB 3pt/CW Work CA only	California Counties (58)	RST Ser# Prov CA sends county	Single Op, All bands Multi-op, single tx	15 Nov Box 853, Pine Grove CA 95665
VK/ZL/Oceania CW	1000z 10 Oct 1000z 11 Oct	80-10m CW	3pt/10m 2pt/15m 1pt/20m 5pt/40m 10pt/80m work Oceania only	Oceania prefixes on each band Score each band separately, then sum scores from all bands.	RST Ser#	Single op all bands Multi-op all bands SWL	6 weeks ZL1AAS (even) VK3APN (odd)
European Autumn Sprint CW	1500z 10 Oct 1859z 10 Oct	80-20m CW	1pt/QSO	None	your call, other stn's call, Ser#, name	Single operator only	15 days OK2FD
Worked All Germany	1500z 10 Oct 1500z 11 Oct	80-10m CW & SSB	3pt/QSO Work Germany only	German districts (first letter of DOK) on each band	RST Ser# DLs send DOK	Single Op: Both or single mode, QRP Multi-op, single tx SWL All entrants may use PacketCluster	1mo. Box720 427 D-10123 Dresden
Pennsylvania QSO Party (USA)	1600z 10 Oct 2200z 11 Oct 05-13z Off time	160-10m CW & SSB	1pt/SSB 1.5pt/CW 2pt/160, 80m CW 200pt/QSO with W3YA Work Penn. only	Pennsylvania counties (67) Penn. stations will send a 3-letter county abbrev. x2 if you are QRP	RST Prov	Single op: High power, 100w, QRP Multi-op: Single tx, multi-tx	15 Nov Box 614 St.College PA 16804 USA
Ibero-America Contest (Spain)	2000z 10 Oct 2000z 11 Oct	160-10m SSB	3pt/Ibero-Am. 1pt/others	CE CO CP CR CT CX C3 C9 DU EA HC HI HK HP HR KP4 LU OA PY TG TI XE YN YS YV ZP 3C + their DXCC dependencies on each band	RS Ser#	Single op: all bands, QRP Multi-op single tx SWL	30 Nov Conception Arenal 5 08027 Barcelona
RSGB 21/28MHz CW (UK)	0700z 10 Oct 1900z 11 Oct	21-21.075 28-28.075	3pt/QSO Work UK stations only	UK counties UK stations will send a 3-letter county abbreviation	RST Ser#	Single op, Single op QRP Multi-op single tx	14 Nov G3UFY

Addresses: CQ - 76 N Broadway, Hicksville, NY 11801 USA; ARRL - 225 Main St, Newington, CT 06111 USA; Call sign - Callbook Address; Bands: The 30, 17 and 12M bands are never used in any contest. Official forms and complete rules may be available from me. Please send SASE for details. For more listings check the contest page on the **Worldradio** web site: www.wr6wr.com

World Radio History

or even as a once-in-a-lifetime boondoggle, expeditions can be a great deal of fun. You'll come away with some personal satisfaction, you'll have seen a little more of the world, and you will have made a lot of other people happy by making a needed multiplier available.

Contest of the Month — All-Asia SSB

0000 UTC Saturday 05 September to 2359UTC Sunday 06 September 1998. (PDT: 5 p.m. Friday 04 September to 5 p.m. Sunday) (EDT: 8 p.m. Friday 04 September to 8 p.m. Sunday)

The All-Asian Contest has been around for many years. Sponsored by the Japanese Amateur Radio League (JARL), the national organization of Radio Amateurs in Japan, the "All-Asia" encourages contacts between Amateurs in Asia and those in other continents. Most of the activity comes from Japanese Amateurs, for whom this contest is their equivalent of the ARRL DX Contest. The rules use the rules of the International Amateur Radio Union's (IARU) Worked All Continents (WAC) award to determine what Asia is. Under those rules, Asia includes everything from Turkey, Cyprus, Israel and the Arabian peninsula, Siberia and the Russian Far East (UA9 and UAØ) to Japan (JA) and Malaya (9M2).

In this contest, the overwhelming majority of your contacts will be with stations in Japan, however you will also run across a number of Russians and Central Asians, and often something rarer will pop up. 7Z5OO was a regular in this contest for a few years, and provided many with an opportunity to work sometimes-rare Saudi Arabia. Given the preponderance of Japanese stations you will work, it's a good thing that the multiplier is the number of call sign prefixes you contact. Unlike the WPX contest, each prefix you work on each band counts as a separate multiplier. What counts as a prefix, however is identical to the WPX rules. You might want to read the "Contest of the Month" section in the March column to refresh your memory with what counts as a prefix.

One unusual feature of this contest is that the exchange includes your age. As well, the rules include a provision that allows women to evade the issue: if they choose, women operators may send "00" in place of their age. I think this may be a bit of misplaced chivalry — I think just as many men are sensitive about their age as women, but that's another debate. The whole age business can be quite illuminating. If you harbor a pet theory about the graying of the hobby, you can either validate or discard it based on your All-Asian log. Keep an ear cocked for the youngest and oldest Hams you can find — a few years ago, one JA gave his age as 101!

A typical All-Asian Contest SSB contact might sound like this:

Station 1:**"CQ Asia CQ Contest, Victor Echo Nine Charlie Bravo."**

Station 2: **"Japan Alpha Seven Yankee Alpha Alpha"** (JA7YAA replies by sending his call sign once.)

Station 1:**"JA7YAA, you're five nine three eight"** (VE9CB sends JA7YAA a signal report, the universal 59, and his age, thirty-eight. Dave then listens for JA7YAA's reply.)

Station 2:**"Roger, five nine two seven"** (JA7YAA replies with a signal report and his age, twenty-seven.)

Station 1: **"Thank you, Victor Echo Nine Charlie Bravo"** (VE9CB thanks JA7YAA for the contact, and is standing by for other stations to call him. If he gets no response, he'll call CQ again.)

Your log

Official forms are available from JARL, should you decide to log on paper. CT is the only software I am aware of that directly supports the AA, but you should be able to press NA or TR-log into service, and handmark the resulting output with correct score information. A couple of years ago, a few narrow-minded folks at the JARL contest committee disqualified some high-scoring entrants for using the wrong-sized paper (their rules specify a certain size sheet not normally available in North America. Rightly pilloried for their excessive zeal, JARL has pulled in its horns on this issue. So if you hear rumors of pedantic log-measuring practices at JARL, they were true, but they are no more. Send in your entry without fear to the address indicated on the calendar.

Other September contests

September features a real mix of contests: for RTTYers, the *CQ* WW RTTY is the premiere RTTY contest of the year, and a great chance to pick up some new countries for your DXCC on that mode. The National Contest Journal runs its fall Sprints, a real challenge to your operating skills. See this column for February for some hints on how the Sprints work. In my homeland of Atlantic Canada, the Atlantic QSO Party has its second running, and you may work more VE1s, VE9s, VOs and VY2s than you have ever heard before. The SSB version of the European DX Contest happened in September — the CW event was featured as "contest of the month" in August. As well, the venerable Scandinavian Activity Contest and the LZ DX Contest should be prime opportunities to work stations in Northern Europe and Bulgaria.

I recently learned that ***Worldradio*** often arrives late in Hawaii, so starting with this issue, the calendar will overlap slightly into the following month. Thanks to Greg, WB6FZH/KH6, for this suggestion.

73, and good luck in the contests.

Dave, VE2ZP/VE9CB.

1998 USAF QSO Party

The AF Anniversary QSO Party will be held from 0001UTC 19 Sept.-2359UTC 20 Sept. Full rules are at The Razorback Radio Club web site: http://ourworld.comp userve.com/homepages/k5xs

PURPOSE: The purpose of the annual event is gathering on the air as many active and former members of the Air Force as possible.

POINT IDENTIFIERS: Point identifiers will be used to identify participants' Air Force experience. The point values will be determined by subtracting the year the participant entered the Air Force from the year 1998. For example, people who joined in 1947 will have a point value of 51 (1998-1947=51) and will identify "/AF51" on CW or digital modes, and "Air Force Fifty-One" on voice. People who joined in 1988 would have a point value of 10 (1998-1988=10) and will identify as "/AF10" or "Air Force Ten." Participants without Air Force experience will identify as "/AF1" or "Air Force One."

Participants may use experience in any Air Force component (active, Air National Guard, or Air Force Reserve) to determine their point identifier. Members of our Air Force auxiliary, Civil Air Patrol, may use point identifiers based on when they joined CAP as

World Radio History

a cadet or senior member. Previous members of our parent organization, the Army Air Corps, may use a point identifier of "AF51."

MULTIPLIERS: If you work four stations with point identifiers of "AF8," "AF22," "AF8," and "AF4," you determine your final score by first adding together all of the point identifiers (8+22+8+4=42) and multiply that number by three (since you worked three different point identifiers: AF8, AF22, and AF4), for a total of 126 (42x3=126). (Note that you can count each identifier only once for the multiplier. In this example, you can count "AF8" only once as a multiplier, even though you worked two "AF8" stations.)

BONUS STATIONS: We will be awarding point bonuses for working stations operating from Air Force installations worldwide. All stations (club or individual) operating within the boundaries of an Air Force base will identify the name of the base they are on. For example, K5TYP (the Mississippi winner for 1997) will identify "K5TYP, Air Force 51, Keesler Air Force Base." Our Razorback Radio Club station on Hickam Air Force Base will identify "K5HOG, Air Force 24, Hickam Air Force Base." For each of those stations you work (even if more than one are on the same base), not only will you count their usual point identifiers (and use them to compute the multiplier above), but you will also earn a bonus of 100 points per station added to your final score.

A score calculation worksheet is available for download on The Razorback Radio Club web site.

CLUB STATIONS: Clubs may use as their club point identifier the point identifier of any bona fide club member.

CQs: Contest CQ calls to be given as "CQ AF" on CW and digital modes, and "CQ Air Force" on voice.

Stations may be worked once per band/mode.

FREQUENCIES: Operation is allowed on any authorized frequency, but we will encourage the following frequencies ending in "47" (to celebrate 1947, the year of our formation as a separate Service) as meeting places (e.g.-3547, 3947, 7047, 7247, 14047, 14247, 21047, 21347, 28047, 28447). Exchanges should consist of call sign with point identifiers and signal reports. (E.G.-CW/Digital: "K5HOG/AF24 DE K5XH/AF1 599 K" Voice: "K5HOG Air Force Twenty-four this is K5XH Air Force 1, you are five by nine, over.")

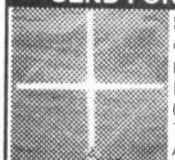
LOG SUBMISSIONS: Log submissions for awards must include: the call sign of the station worked, its point identifier, date, time, frequency, and mode. Each page must have point identifiers totaled at the bottom of that page. Each log submission must include on the final page the following: 1. The total of all point identifiers. 2. The multiplier claimed. 3. Bonus points claimed for working stations which are operating from the premises of a U.S. Air Force installation worldwide. 4. Total points claimed. 5. A declaration as to whether the station is competing as a single operator station or a multiple operator station. 6. Signature of the licensee or other participant.

Logs must be received by The Razorback Radio Club not later than 15 October, 1998, for award consideration. Logs may be submitted by e-mail (ASCII text file only) to k5hog@aol.com.

AWARDS: Awards for 1998 will include plaques for overall worldwide single and multiple winners, and certificates for high single and multiple operator stations in each country, state, and province.

Contact us (e-mail k5hog@aol.com or k5xs@compuserve.com) or by mail at: The Razorback Radio Club 604 Julian Ave., Honolulu, HI 96818.

SEND FOR FREE CATALOG!



SLR RECEIVER KITS: 30M 40M OR 80M **VERY** SENSITIVE (NO HURT FEELINGS!) HAS HIGH IMMUNITY TO LOCAL AM BROADCAST AND QRN EASY TO ASSEMBLE COMES WITH ANTENNA SEE QST, 10/97.....$101.50 PP

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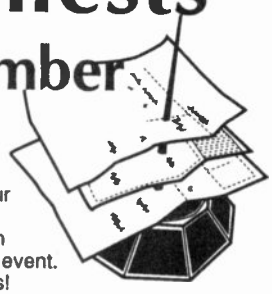
Titanic call sign fever

Mark Richards of Littleton, Massachusetts, has a new vanity call sign. It's K1MGY. "As you know, MGY was the call sign of the Titanic," he writes. "I am pleased to carry this fine call sign." *(Let's hope Mark doesn't feel compelled to go down with the ship—Ed.) — ARRL Letter*

Hamfests

September



Do you have a hamfest coming up? Send your information to our 28th St. office at least 2 months in advance of your event. We'll send prizes!

ALASKA

Anchorage Amateur Radio Club ARRL Alaska State Convention Saturday, 19 Sept., 10 a.m.-5 p.m., and Sunday, 20 Sept., 10 a.m.-3 p.m. at Kincaid Park Outdoor Center. From the corner of Jewel Lake and Raspberry Road, turn west on Raspberry and go all the way to the end. Commercial vendors $35 flat table rate. Ham vendors $10 per table. Admission is $3 adult, $2 13-17 (12 and under free). Guest speakers, VE exams, demonstrations, auction, raffles and door prizes. Talk-in on 147.90/30 or 146.34/94 (PL of 100 Hz or 141.3 Hz). For information, contact Lillian Marvin, NL7DL, 1030 Denali, Anchorage, Alaska 99501; 907/277-6741; email: rlment@alaska.net

CALIFORNIA

Sonoma County Radio Amateurs Swapmeet 19 Sept., Holy Ghost Hall, 7960 Mill Station Rd., Sebastopol, CA (just north of Sebastopol on Hwy 116). Setup 6:30 a.m. Open 7:30 a.m. Admission & parking are free. Spaces are $10. Tables provided indoors. Breakfast/lunch, VE sessions, radio clinic, Foxhunt, Raffle and Auction. Talk-in: 146.73. For information: Colleen Dean, KF6DHA, 5324 Huckleberry Way, Santa Rosa, CA 95403; 707/578-4098; email KF6DHA@cds1.net; www.cds1.net/1scra.

COLORADO

BARC's 45th annual swapfest 1998 Colorado District ARRL Convention Sunday, 27 Sept., 8 a.m. to 2 p.m. at Boulder County Fairgrounds. The theme is "Youth and Amateur Radio." A youth forum will be featured and the forum moderator will be Rosalie White, WA1STO, head of the Education Activities Committee from ARRL HQ. Meet your Rocky Mountain ARRL representatives.

Admission $4 at the door. Children under 12 are free and young adults, 12 - 18, are $2. Table reservations are $10/each prepaid (includes one free admission) or $15/each at the door. There will be 4 HTs given away as door prizes.

For information and/or reservations,

World Radio History

call the BARC 24 hour HotLine at 303/380-6540 or email: BARC@ pobox.com Reserve your tables on the BARC website at: www.thisistrue. com/barc.html

CONNECTICUT

Western CT Hamfest 20 Sept., 9 a.m. to 2 p.m. (set up 7 a.m.) at Edmond Town Hall, Rt 6 in Newtown. Exit 10 on I84. Talk-in on 147.12/.72. New Equipment dealers, flea market, tailgating, electronics, computers, refreshments. Tables $10, tailgating $6 (each includes 1 admission). Admission $4 (under 12 free). Reservations and info: Ken Weith,KD1DD, Box 3441, Danbury, CT 06813-3441; 203/743-9181.

FLORIDA

ERARA and **DBARA** hamfest 27 Sept., on the Embry-Riddle Campus located on Clyde Morris Blvd., just south of International Speedway (U.S. 92) 8:30 a.m. Talk-in 147.150 +600. Coffee and donuts 9 a.m-11 a.m. Lunch provided by Embry-Riddle student organizations.

Admission $5. For advance tickets send check or money order along with a SASE to DBARA-HAMFEST, P.O. Box 9852, Daytona Beach, FL 32120 before 10 Sept.

This is an indoor air-conditioned event with acres of paved parking. Tail-Gate area is paved. ARRL exams for all classes.

Drawings for prizes throughout the day, ending at 3 p.m. Foxhunt with $50 cash prize. Email: munseyj@worldnet.att.net; Web page: http://www.america.com/-dbara/ or write DBARA-HAMFEST, P.O. Box 9850, Daytona Beach, FL 32120-9852.

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The **Suncoast ARC** Hamfest and Computer Show on Sunday, 27 September from 9 a.m.-3:30 p.m. at the New Port Richey Recreation Center. (Take US 19 to Main St. in New Port Richey, east 1.5 miles & left [north] on Van Buren. Recreation Center is on east side .5 miles north of Main.)

Admission $5 (under 12 free). Tables $15 (includes chair, table and admission for one, electricity $5 extra). Talk-in: 145.35 and 147.15. For information: Chuck, KU4EV, at 813/937-2540; email: cfowler995@aol.com

ILLINOIS

Peoria Area ARC 1998 Superfest 19-20 Sept., at Exposition Gardens on Northmooor Road in Peoria, IL. Guest is Wayne Green, W2NSD/1, editor/publisher of *73* magazine. Wayne will lead two forums, "New Paradigm" and "Catastrophe in the Millennium?" He will be the featured speaker at the Banquet, 19 Sept. His topic will be "Secret Guide to Health and Wealth."

Advance $5 each with two prize stubs until 5 Sept. After that tickets will have one stub. For information contact: Superfest 1998, PO Box 3508, Peoria, IL 61612-3508; web:www.w9uvi.org; voice mail: 309/692-FEST(3378).

KENTUCKY

Greater Louisville Hamfest/ARRL KY. State Convention will be held on 19 Sept., at Kentucky Fair & Exposition Center. Tickets $6/advanced, $7/at the door. Walk-in VE testing. Advanced tickets with SASE. Mail requests for tickets or information to P.O. Box 34444-N. Louisville, Kentucky 40232-4444. Information for Commercial spaces call 812/282-7007, or 812/948-0037; Flea market spaces 502/935-7197 or 606/284-9090; www.the point.net/~GLHA/

MICHIGAN

The **Adrian ARC** Hamfest and Computer Show on Sunday, 20 Sept., 8 a.m., Lenawee County Fairgrounds in Adrian, Michigan. Tickets $4/advance, $5/at door.

Trunk sales, VE testing. Contact Brian J. Sarkisian, KG8CO, 517/265-1537 or kg8co@lni.net. AARC Web Site: www.LNI.net/w8tqe

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The **Grand Rapids ARA** Super Ham Swap on 19 September at Caledonia High School (10 miles south of Grand Rapids on M-37. Turn west at the light to the school). Set up at 6 a.m., doors open 8 a.m. Tickets $5, tables $8.

For reservations, contact Jim Van Malsen: GRARA Super Swap, P.O. Box 3282, Grand Rapids, MI 49501; tel.: 616/887-8673 or 616/887-2937; email: barbv@voyager.net

MINNESOTA

Lake of The Woods Repeater Association, Inc. Hamfest 19 Sept., at Warroad Area Community Center; 222 Virginia Ave. NE, Warroad, MN 56763 (handicapped accessible). Setup 10:30 a.m. open 1 p.m., banquet & program 5 p.m. VE tests at 11 a.m., walk-ins O.K.; bring original and photo copy of current license photo ID, check for fee. Refreshments. Talk-in 147.090+ & 147.000(–). Adm Hamfest & Banquet $12; Hamfest only $5 Banquet limited to 100 plates, reservations suggested. Seminars, ARRL display. If reserved in advance, dealer and flea market tables are no charge w/pd adm. Send check and table reservation to David Landby, KBØEAP, Rt. 3, BX 10, Warroad, MN 56763; Ph: 218/386-1092. P/U tickets & table nos at door. Arriving early? Join us for 9 a.m. breakfast at the Patch Restaurant, Highway #11 W, Warroad.

MISSISSIPPI

Greenville Repeater Association, Inc. and **Delta Amateur Radio Association** Greenville Hamfest '98, 11-12 Sept., at Washington County Convention Center in Greenville, MS. Admission: $4 advance, $5 door. Table price: $10 advance, $15 door. VE testing, Entergy's Arcs and Sparks display. Talk-in frequencies: 147.345+, 444.675+ . Hours: Fri., 6-9 p.m. Sat., 8 a.m. to 4 p.m. Setup: Fri., 8 a.m. to 5 p.m. Directions: Take US HWY 82 East to Raceway Road, go south 3/4 mile, hamfest on left. Information contact: Paul S. Serio, N5PS, P.O. Box 6015 Greenville, MS 38704; 601/334-1500 days, 601/332-7668 nights. Email: pss@tecinfo.com

NEW JERSEY

South Jersey Radio Association Hamfest 19 Sept., Mt. Holly Armory Route 38, Mt. Holly, NJ. No overnight set ups.

Tailgaters $5 per space. Inside tables $20, $25 with electricity. Vendor spots do not include Gate Ticket. Gate Ticket $5. Set up 5 a.m. Open 8 a.m.-2 p.m. Rain or shine.

Information and map at: www.sjra.org or contact N2XYZ 609/268-2135 or N2XYZ@juno.com. Talk in SJRA repeater 145.29(–) and simplex 144.465.

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Delaware Valley Radio Association Hamfest 26 Sept., at Tall Cedars of Lebanon picnic grove, Sawmill Rd, Hamilton Twp, NJ (I-95 North to I-295 South; exit 60A to I-195 East; Exit 2 to Yardville; South Broad St to end, approx 3.7 miles; left at Yield; next right onto Sawmill Rd; site 1.1 miles on right). Open 8 a.m., setup 6:30 a.m. Admission $5. (Non-Ham spouses/children free.) Free parking. Refreshments. ARRL table, tailgating space $10 includes one admission. Covered table space $15, includes one table and one admission, some electricity, advance covered space reservations available. Talk-in on 146.67– Info: Hamcomp '98, DVRA, P.O. Box 7024, West Trenton, NJ 08628; 609/882-2240 or www.slac.com/w2zq.

NEW YORK

Amateur Radio Association of the Southern Tier Annual Elmira International Hamfest-Computerfest on Saturday, 26 Sept., Chemung County Fairgrounds, Horseheads, New York, 6 a.m. to 3 p.m., FCC exams starting at 9 a.m. Talk-in will be on 147.360.

Dealer displays of new equipment, and large flea market area. Breakfast and lunch available. Admission $4 advanced, and $5 at the gate.

World Radio History

For more information contact: VE Testing, John, 607/565-4020; Dealer Inquiries, Gary, 607/739-0134; Ticket Inquires, Dave, 607/589-7495.

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Metro 70cm network electronic flea market on 27 Sept., Lincoln H.S. Yonkers, NY. Vendors, 7-9 a.m. Buyers, 9 a.m.-3 p.m. VE session, 9-11 a.m. Free parking, free coffee, hourly door prizes, grand prize 1 p.m. Refreshments, talk-in: 440.425 pl 156.7, 146.910. Admission $6, under 12 free. Tables $19/1st, $15/ea. additional. For information or registration call Otto Supliski, WB2SLQ, 53 Hayward St., Yonkers, NY 10704; 914/969-1053.

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The **Saratoga County RACES Association, Inc.** Hamfest '98 will be held on Saturday, 12 September, 7 a.m.-3 p.m. at the Saratoga County Fairgrounds, Ballston Spa, New York. Admission $4 (include 1 tailgate spot). Inside tables $5. Talk-in: 146.40/147.00 and 147.84/147.24, WA2UMX. For information or reservations contact: Darlene Lake, N2XQG, 314 Louden Road #84, Saratoga Springs, NY 12866; tel.: 518/587-2385; email: lake@capital.net.

OHIO

The Greater Cincinnati Amateur Radio Assn, Communications Expo will be held 20 Sept. at the Kopling Center (off U.S. 127 north of Cincinnati and south of !-275). Forums, VE exams, prizes and free parking. Open 8 a.m.-5 p.m. For information: http://w3.one.net/~rkuns/expo98/, or Jim Weaver, K8JE, 513/825-2868.

PENNSYLVANIA

Annual York Hamfest & Computer Show 20 Sept., York County Area Vocational Technical School, 500 yards off I-83, Exit 6E. Admission $5, tailgating $3 (with paid adm), indoor tables $15 (advance), over 350 tailgating spaces, 160+ indoor tables, QRP & ATV Seminars, free VE testing on site. Talk-in: 146.97, Website: www. yorkhamfest.org; email: w3sst@juno. com; 717/764-8193; York Hamfest, P.O. Box 351, Dover, PA 17315.

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The **Butler Co ARA** Hamfest and Computer Show on 13 September from 8 a.m.-3 p.m. at the Butler Farm Show Grounds. Rt. 68 West of Butler. Admission $5 (under 12 free). Flea market tailgaters $2 per set-up. Indoor vendors $15 per 8-ft. table. Plenty of free parking. Talk-in on 147.36 on Special Event Station N1H. Contact W3DMB 724/282-6777; Email: W3DMB@aol.com; website: www.nauticom.net/www/cliff/bcara/hamfest.html.

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Uniontown ARC Gabfest on 05 Sept., at club grounds located on Old Pittsburgh Rd. just north of the intersection of Rts 51 and 119. Start 8 a.m. Free parking & tailgate space with registration. Checkin on 147.045+ and 147.255+. Table space available. For info contact Carl (WA3HQK) or Joyce (KA3CUT) Chuprinko, Rt. 6 Box 231-CC Morgantown, WV. 26505; 304/594-3779.

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The **Radio Association of Erie** Hamfest will be held on 12 September, 8 a.m.-2 p.m. at the Franklin Township Firehall. (From I-90, take Exit 4 and drive 6 miles South. Hamfest on your left. From I-79, take Exit 38, and Route 6N West for 2.5 miles, and North on Route 98 for 2.8 miles. Hamfest on your right.) Admission $4/advance, $5/at the door. Outdoor tailgating and flea market $1. Tables $8 with electricity avail. Refreshments and snacks. Handicapped accessible. VE exams 9 a.m. (w/i ok). Talk-in: 146.610 (–). Free parking, test bench available and lots of prizes.

For information contact: Matthew Steger, N3NTJ, 814/864-5093; Radio Assn. of Erie, P.O. Box 844, Erie, PA 16512; email: n3ntj@erie.net; web: www.erie.net/~n3ntj/hamfest.html

RHODE ISLAND

The **Rhode Island Amateur FM Repeater Service, Inc.** Fall Flea Market and Auction at VFW Post 6342, Main Street, Forestdale (No. Smithfield), RI on Saturday, 19 September. Take the Forestdale exit off Route 146 in No.Smithfield; take a left at the end of the ramp and go six-tenths of a mile to the Post on your right just before the Village Haven Restaurant. Please observe parking instructions.

Flea Market open 8 a.m., spaces $5 each. Some spaces are available under the pavilion on a first come, first served basis. Auction begins at 11 a.m. Food and beverages are all available. Talk-in 146.76. For information contact Rick Fairweather, K1KYI, 106 Chaplin Street, Pawtucket, RI 02861, k1kyi@juno.com, or call 401/725-7507 between 7-8 p.m. only.

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SOUTH DAKOTA

Huron Amateur Radio Club Amateur Electronics Swapfest on 26 Sept., 8 a.m.-3 p.m. Women's Building, SD State Fairgrounds, in Huron, SD. VE testing (9 a.m.), flea market (setup: 7 a.m.).

Eyeball QSOs, lunch available. Tables: $10, Adm: FREE, Talk-in on 147.09(+). Contact: Lloyd Timperley, WBOULX, PO Box 205, Huron, SD 57350; phone: 605/352-7896 eves. Email: wbØulx@santel.net

VERMONT

The **Central Vermont ARC** Hamfest will be held on Saturday, 19 September from 8 a.m.-3 p.m. in Randolph, Vermont, in the Judd Gymnasium of the Vermont Technical College.

Admission $4, tailgating is included in admission. Tables $5 (includes 1 admission). Flea market, forums, VE exams at 12:30 p.m., snacks, lunch, door prizes and raffle.

Talk-in 146.625 and 147.09. For info/tables contact: Bill Kenefick, AD1I, Vershire Heights, Box 32, Vershire, VT 05079.

VIRGINIA

The Virginia Beach Hamfest and Computer Fair will be held on 19-20 September at the Pavilion Convention Center. For information email: hamfest@exis.net; web: www.vahamfest.com.

WASHINGTON

The **W7DP Walla Walla Valley ARC** Hamfest will be held 26-27 September at the Community Building (505 Ward Street, Milton-Freewater, OREGON). Open Saturday 8 a.m.-4 p.m.; Sunday, 8 a.m.-10:00 a.m. Set-up 6-8 p.m. Friday, 7-8 a.m. Saturday. Admission $5 (under 16 free). Tables $10.

For information: W7DP, P.O. Box 321, Walla Walla, WA 99362, or contact: Denise Hebel, KC7ORO, 509/527-0411; email: dhebel@bmi.net.

WEST VIRGINIA

Triple States ARC Hamfest on Saturday, 12 Sept., 8 a.m-3 p.m. at Wheeling Park, Wheeling, WV (off I-70, Exit 4 or 5). Admission $4 (under 12 free). Talk-in: 146.91. 6 Mtrs Operators Get-Together, Room 1; 2 flea markets, 2 restaurants and Bar-B-Que tent on grounds; 40,000 sq ft dealer under cover display area; overnight free RV parking; handicapped parking; setup 6 a.m.; QSL drawing: park facilities for women/children. Contact TSRAC, 2011 St., Hwy 250, Adena, OH 43901; call 740/546-3930; FAX 740/546-3685; or k8an@aol.com

World Radio History

New Products

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

MFJ's ClearTone Amplified Speaker

MFJ's deluxe ClearTone Communications speaker is an excellent 1-watt amplified speaker for QRPers, base station HT users or for mobile operation with transceivers requiring more volume.

Superb loud, powerful ClearTone audio comes from a 3-inch speaker. Its volume is adjustable from barely audible to high volume (it'll blow you out of the room).

Rugged all metal cabinet is sturdy and compact with rubber feet and vinyl clad case measures 3½"H x 1¾"W x 4½"D.

The deluxe ClearTone Amplified Speaker is $39.95. It has on/off button, uses 9 volt battery (not included) or 120 VAC with optional MFJ- 1312B, $12.95. A free mono-to-mono cable is included for connection to your receiver, transceiver or other electronic device. Order today and enjoy loud, crystal clear audio!

To order or for your nearest dealer, call 800/647-1800, FAX 601/323-6551; e-mail: mfj@mfjenterprises.com; or check out dealer and ordering information on our fantastic web site: http://www.mfjenterprises.com.

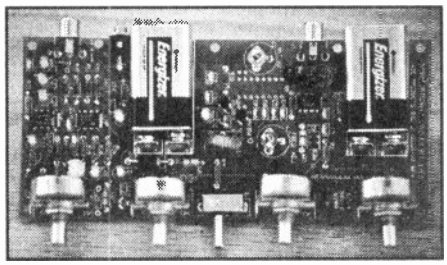
Jade OCR receiver kit

Jade Products, Inc. announces its first all-mode (AM CW and SSB) 40M receiver. Designed by N1BYT, this OCR is a high performance regenerative receiver. A fiber-optics coupler in the front end allows smooth regeneration control, virtually no radiation, and excellent selectivity. The OCR's stability is excellent for both SSB and RTTY reception and provides excellent SWL coverage of the AM activity in the 40M broadcast band.

The 6.6" x 3.0" circuit board has two ICs, a voltage regulator, a FET and the HP opto-coupler. Two 9V batteries power the entire receiver; one is used as bias for the front end and lasts practically as long as its shelf life. The other is the main power battery and draws 10 mA at high audio levels. This receiver makes an ideal portable unit.

Assembly is easy, taking the average builder about 2.5 hours. All parts necessary to build the kit are included, except for batteries. The receiver has four controls, Audio, Fine Tuning, Main Tuning and Regeneration control. There is etch on the circuit board to build a muting circuit for those builders who want to use this receiver with a transmitter.

Performance:
CW Sensitivity < 1 uV
AM Sensitivity < 2.5 uV
Tuning Range ≈ 500 kHz at 7 MHz
Modes: AM, FM, CW, RTTY, SSB



Ordering Information: The kit is $84.95 plus $7.00 S & H. You can order by phone, mail, email or Fax. We accept MasterCard, Visa, Novus, Money Orders and personal checks. JADE PRODUCTS, INC., PO BOX 368, East Hampstead NH 03826- 0368; Phone: 800/JADEPRO, Fax: 603/329-4499; Email: jadepro@jade prod.com; www.jadeprod.com.

Datamatrix Prolog98

Datamatrix announces the availability of ProLog98 for Windows. This highly accurate and comprehensive database listing of over 65,000 QSL routes is now coupled with the point-and-shoot convenience of Windows95. All operational functions are conveniently located on pushbutton's accessible with a single click or through the use of keyboard shortcuts. ProLog98's built-in text editor makes it easy to add new, or modify existing route information. ProLog98 supports all of the major CD-ROM callbook databases including Flying Horse, Buckmaster, SAM and QRZ with the ability to transfer the information from those sources directly into the ProLog98 database or to print an address label. ProLog98's exclusive categorized database indexing permits the grouping and display of records with a common call sign or category. For example, the user can display all of the stations associated with a given QSL manager, a complete list of Bureau addresses, reported pirate stations, DX net frequencies and much more. The built-in DXCC prefix database provides information on the DX station's continent, CQ Zone, ITU Zone, Third Party restriction status, bureau availability and beam headings/distance from the users QTH. The DXCC prefix database is easily edited using the ProLog98 prefix editor. ProLog98 supports the printing of QSL route information, address labels and return address labels using continuous or sheet style labels. Datamatrix is located at 5560 Jackson Loop NE, Rio Rancho, NM 87124. Additional information and technical support is available at the company's technical support line 505/892-5669 or their website www.qth.com/prolog where detailed screen shots are provided. ProLog98 is priced at $26. Datamatrix also offers a one-year (6 issues) QSL database update subscription service for an additional $36. A special pack-

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age price of both products is offered at $58. Shipping and handling is included. Orders may be placed at the company's toll free order line 800/373-6564.

MFJ's Code Practice Oscillator

MFJ's new Code Practice Oscillator was designed for demanding classroom use and abuse. It's a professional quality product built from the highest quality materials to last a lifetime.

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Photography Contest

You've seen the photographs appearing in ***Worldradio*** and other Amateur Radio magazines. How many times have you said to yourself, "Self, I have better photographs than that!" Well, now is your chance to showcase your talents to the world.

We are looking for your excellent photographs. We will pick 6 winners, and those photographs will be featured on the cover of ***Worldradio***, starting with the January 1999 issue. As with any contest, there are some rules to follow.

Rules:

1. The contest is open to any ***Worldradio*** subscriber or reader.
2. Each photograph submitted must have an Amateur Radio theme. (Your tower falling over, the sunset as seen through your massive DX antenna complex, your station setup, the shack burning down due to the fire started by your soldering iron, etc.)
3. Anyone appearing in the photograph must be identified by first and last name, and call sign (if applicable).
4. Photographs submitted must be original, previously unpublished (other than your local club newsletter) in a print media.
5. Photographs must be sent by mail only (Sorry, no electronic submissions).
6. Multiple entries are encouraged.
7. If possible, original negatives or slides are preferred (they are much easier to work with) however, we can use prints. Prints must have a glossy finish (Matte finish doesn't scan very well).
8. If you want your prints/negatives/slides returned to you, you must enclose a self-addressed, stamped envelope with your entry.
9. The deadline for submissions is 16 November 1998.

Prizes:

Each winning entry that is selected as a cover photograph will be awarded a 3-year subscription to ***Worldradio***. In the event that the winning entry is submitted by a Lifetime subscriber, the Lifetime subscriber will be awarded his/her choice of ***Worldradio*** merchandise (books, hats, coffee mugs, etc) up to $45.00 value.

Send your entry to: Worldradio Photo Contest, 2120 28th Street, Sacramento, CA 95818

World Radio History

VE exam schedules

As a service to our readers, ***Worldradio*** presents a feature listing of those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for December, please have the information to us by mid-September. ***Worldradio***, 2120 28th St., Sacramento, CA 95818. Please mark the envelope "VE Exams." List the location (City), any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information. Examinees should bring their original license (along with a photo copy), two forms of identification (at least one should be a photo), and required fee.

p/r pref=pre-register preferred but w/i OK
p/r=pre-register only—no w/i
w/i=walk-in only
w/i pref.=w/i preferred to p/r

State	City	Contact	Notes
Arizona			
9/12/98	Tucson	Joe, K7OPX 520/886-7217	w/i
California			
9/08/98	Arcadia	Denny, W6VRK 818/358-1480	p/r pref.
9/24/98	Colton	Harold, AB6RN 909/825-7136 days or 909/685-6073 eves	p/r pref.
9/26/98	Culver City	Scott, K6PYP 310/459-0337 or Dave N3BKV 818/559-2572	w/i
9/05/98	Culver City	Clive, AA6TZ 310/827-2538	w/i pref.
9/12/98	Cypress	Harrison, AC6TI 714/952-6114	w/i
9/26/98	Escondido	Harry, WA6YOO 760/743-4212	p/r
9/01/98	Fremont	Dennis, K6DF 510/791-0914	w/i only
9/12/98	Harbor City	Elvin, N6DYZ 310/325-2965	p/r
9/26/98	Lake Isabella	HOTLINE 760/379-2947	p/r pref.
9/28/98	Montclair	Steve, 909/597-2249	w/i pref.
9/06/98	Oakland	Vern, AA6YE 510/233-4504	p/r pref.
9/19/98	Pablo Verdes	Paul KITKL 310/644-2271	w/i
9/19/98	Redwood City	Joe, KB6OWG 408/255-9000	w/i only
9/13/98	Sacramento	Dick, N6DK 916/383-2113	p/r
9/12/98	San Pedro	Elvin, N6DYZ 310/325-2965	p/r pref.
9/12/98	San Rafael	Steve, AJ6Y 415/898-8123	p/r pref.
9/12/98	Sta. Barbara	Nancy, WR6V 805/967-4473	p/r pref.
9/19/98	Santa Rosa	Recording, 707/579-9608	
9/19/98	Sebastopol	Recording, 707/579-9608	
9/19/98	Stockton	Mark, W6DKI 209/465-7496	w/i
9/12/98	Sunnyvale 1	John, KG6XF or Gordon, W6NW 408/255-9000	w/i only
9/26/98	Upland	Warburg, WA6HNC 909/949-0059	p/r
Colorado			
9/12/98	Denver	Glenn, WØIJR 303/366-0155	w/i pref.
Florida			
9/19/98	Melbourne	Bill, WB9IVR 407/724-6183	p/r pref.
9/15/98	Middletown	Paul Lux, K1PL 860/635-1742	p/r pref.
Georgia			
9/05/98	Ellijay	Hugh, W4HFB or Dorothy, N4DTC 706/276-6660	w/i
9/19/98	Gainsville	Terry, K4FB 770/967-6364	
Idaho			
9/12/98	Boise	Lem, W7JMH 208/343-9153	w/i pref.
9/23/98	Grangeville	Larry AB7GY 208/983-2163	w/i pref.
Illinois			
Anytime!	Burr Ridge	Arbonne RC Deni, W9DS 630/986-0061	p/r
9/15/98	Dekalb	Lynn, AA9NA 815/824-2942	no pref
9/12/98	Oak Forest	David, NF9N 708/448-0580	p/r pref.
Indiana			
9/12/98	Indianapolis	Ray, K1HG 317/788-7448 or Mark, W9MAM 317/788-7448	p/r
Kentucky			
9/14/98	Hazard	John, K4AVX 606/436-5354	w/i
9/12/98	Irvine	Dwaine, W4AIA 606/723-4500	w/i
9/12/98	Radcliff	Rick, AD4SM 502/352-2361 or Harold, AI4HB 502/352-0825	
Maryland			
09/19/98	Manchester	Ed, 410/239-8488	p/r pref.
Massachusetts			
9/19/98	Melrose	Scott, WB1F 617/665-7654	p/r pref.
Minnesota			
9/05/98	St. Paul	Ed, WØVC 612/636-0108	p/r pref.
Michigan			
9/12/98	Marquette	Richard, N8GBA 906/249-3837	p/r pref.
Missouri			
9/19/98	St. Louis	Ron, KBØDIY 314/510-3223	p/r
Nevada			
9/19/98	Minden	George, WW7E 702/265-4278	w/i pref.
New Jersey			
9/17/98	Bellmawr	Diane, N2LCQ 609/227-6281	w/i
9/12/98	Cranford	24-hour hotline 973/377-4790	w/i pref.
9/12/98	Pennington	Don, AA2F 609/737-1723	p/r pref
New York			
9/08/98	Bethpage	Bob, W2ILP 516/499-2214	w/i pref.
9/12/98	Long Island	Al, W2QZ, 516/623-6449	w/i
9/06/98	Yonkers	Emily, AC2V 914/237-5589	w/i ok
North Carolina			
tba	Brevard	Harrison, KO4RV 704/877-4757 or 704/883-9096	
9/19/98	Concord	Bobby, AE4ZQ 704/932-9430	
9/12/98	Leicester	Larry, WB4PLA 704/683-1400	w/i
9/5&6/98	Shelby	Norman, N4NH 828/253-1192	
Ohio			
9/05/98	Cincinnati	Herb, WA8PBW 513/891-7556	w/i pref
9/01/98	Clyde	John, N8RFK 419/684-7822	p/r pref.
9/26/98	Van Wert	Robert, KA8IAF 419/795-5763	p/r pref.
Oregon			
Tuesdays	Bend	Bill, K7ZM 541/389-6258	p/r only
9/16/98	Florence	Hal, N7NNA 541/997-2323 or Bob, KH7VA 541/997-1222	p/r pref.
9/11/98	Grants Pass	Clyde, AA7WC 541/474-0205 or Gary, KB7CFI 541/474-7974	p/r pref.
9/26/98	Klamath Falls	Brad, KG7OK 541/883-1737	p/r pref.
Pennsylvania			
9/05/98	Erie	Norma, W3CG 814/665-9124	w/i only
9/03/98	Philadelphia	Dusty, ND3Q 215/879-0505, 215/482-0386, 215/448-1139(tape)	p/r pref.
9/21/98	Telford	Joe, W3PNL 215/723-6697	p/r pref
Puerto Rico			
9/26/98	San Juan	Victor, KP4PQ 787/789-4998	w/i
Rhode Island			
9/10/98	Providence	Judy, KC1RI 401/231-9156; Al, NN1U 401/454-6848	w/i pref.
South Carolina			
9/12/98	Greenville	Sue, N4ENX 864/967-0001	w/i ok
9/19/98	Sumter	Dan, WB5SGH 803/775-9106	w/i ok
Tennessee			
9/26/98	Greeneville	Abner, KC4YVR 423/639-6495	
9/12/98	Henry County	Mackie, W4MG 901/247-5489	
9/17/98	Jasper	Edgar, KF4CJ 205/597-3863	
9/19/98	Knoxville	Ray, W4CPA 423/687-5410	
9/07/98	McMinn Cnty	Evan, WA4PNI 423/263-9300	
9/19,26/98	Memphis	Stan, AC4CQ 901/758-0661	
9/19/98	Morristown	John, AD4JB 423/581-4227	
Texas			
9/19/98	Austin	Jim, AB5EK 512/327-6184	w/i pref.
9/26/98	Brownsville	Bob, K5VC 210/542-7449 (days) or 210/546-4779 (eves)	p/r pref.
9/05/98	Harlingen	George, K5MRT 210/797-1762	w/i ok
9/08/98	Houston	Harold, ND5F 713/464-9044	p/r pref.
Virginia			
9/10/98	Chesapeake	Pat, KE4URC 421-9598	p/rf
9/26/98	Gloucester	Harry, N4THN 804/642-3517	p/r pref.
9/20/98	Virg. Bch	Ed, W4RTZ 804/898-8031	p/r pref.
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WEST VIRGINIA'S LARGEST HAMFEST-COMPUTER SHOW, Saturday, September 12, Wheeling Park, Wheeling WV. Dealers, refreshments, fun, 6 Mtr Reunion, women-children 12 free, 8 am to 3 pm. Admission $4. Info: TSRAC, 2011 State Hwy 250, Adena, OH 43901; phone: 740/545-3930, fax: 740/546-3685; e-mail: k8an@aol.com. 8-998

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New satellites in orbit

Two new satellites of interest to Ham radio operators are now in space. The TMSAT 1 micro-satellite and the TechSat 1B satellites were successfully launched from the Russian Baikonur Cosmodrome on 10 July.

TMSAT 1 was switched on and began sending data on its downlink frequency of 436.925 MHz. Current output power is approximately 2 watts. Chris Jackson, G7UPN, who is the command station for this new bird says that the satellite is transmitting VLSI telemetry in an asynchronous format.

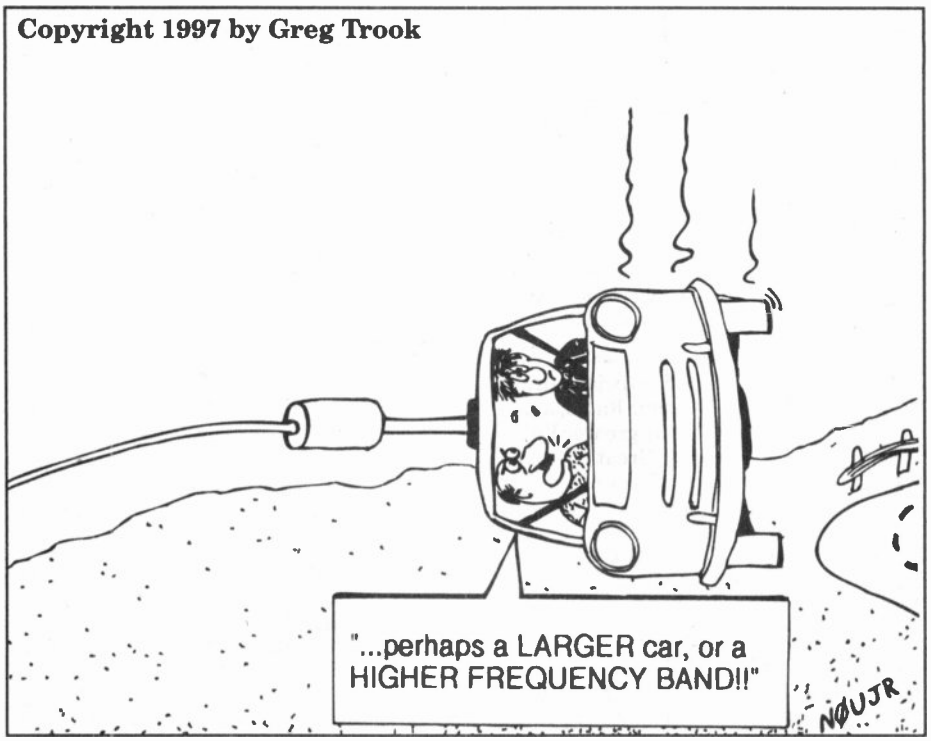
The Israeli built TechSat 1B satellite is a bit different. Assi Friedman, 4X1KX, says that the satellite does not have a continuous beacon. Rather, it transmits a 9600 baud data burst every 30 seconds. Each burst lasts about 3 seconds.

Richard Limebear, G3RWL reports receiving some preliminary information about the spacecraft from Shlomo Menuchin, 4X1AS. Shlomo says that the satellite appears healthy and is currently being stabilized after experiencing cold temperatures during its launch. — *AMSAT-NA, Newsline*

RAC staff to attend IARU conference

Radio Amateurs Canada will attend the IARU Region 2 conference in Venezuela as the representative of Amateur Radio in Canada. The Canadian delegation will be headed by Jim Dean, VE3IQ, Vice President, Government Affairs.

IARU Region 2 covers most countries in North and South America and the Caribbean. — *Newsline*



ADVERTISERS' INDEX

Alternative Arts — 51
Antique Radio Classified — 46
Battery-Tech — 27
Bilal Co. — 64
Buckmaster Publishing — 28
Butternut Antennas from Bencher Inc. — 57
Caps Unlimited — 12
Courage Center — 45
Cubex Company, Inc. — 17
Davis RF Company — 11
Electric Radio — 26
Embedded Research — 13
Emtech — 48
Engineering Systems, Inc — 16
EQF Software — 20
Falcon Watch Co. — 53
G4ZPY Paddle Keys International — 48
Gem Quad — 32
GGTE — 23
Glen Martin Engineering — 31
H. Stewart Designs — 6, 13
Ham Radio Outlet — 35
IMRA — 42
Jade Products — 62
Kilo-Tec — 28
KO6YD Designs/Confluent Designs — 36
Lakeview — 43, 49
License Certification Service — 24
Marcum's QSL's — 32
MFJ Enterprises, Inc. — 14, 15
NiCd Lady, The — 37
Norm's Rotor Service — 11
Omega Electronics — 6, 18
One of a Kind Custom Jewelers — 12
Paddlette Company — 10
Palomar Engineers — 7, 21, 33, 56
PC Electronics — 25
Petersen Radio Co., Inc. — 2
PROLOG/Datamatrix — 59
QCWA — 29
QSLs by W4MPY — 22
Radio Engineers — 42
RF Parts — 19
Rotor Doctor — 65
Spectrum Electronics — 38
Stephen D. Carver, Ltd. — 50
SultanTronics — 41
T.J. Antenna Co./Nott LTD — 26
Universal Radio, Inc. — 51
Van Gorden Engineering — 7
Vintage Radio Kit — 50
VIS Study Guides — 8
Visit Your Local Radio Store — 44
W9INN Antennas — 10, 30
Wilderness Radio — 49
Worldradio Books, Hats & Mugs — 29, 70, 71
Yaesu — 5

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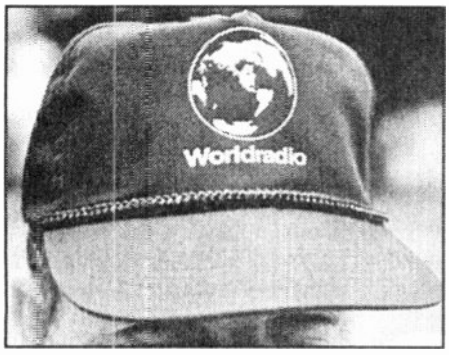

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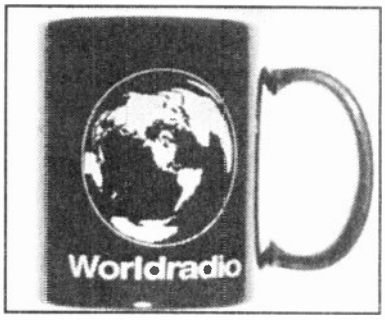

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ARRL asks FCC for license restructuring

RICK McCUSKER, KO6DJ

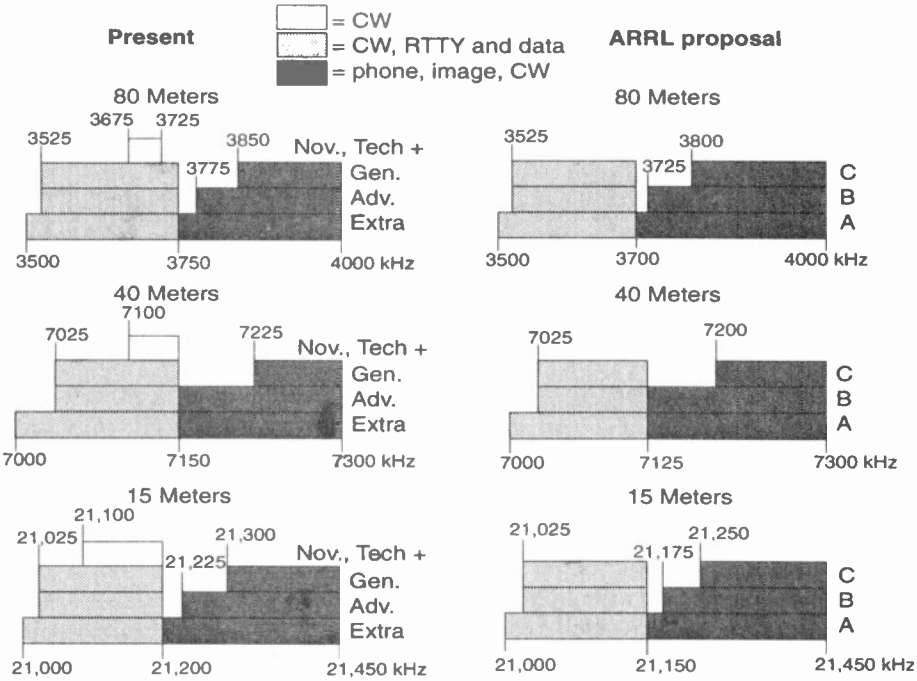
The ARRL has issued a proposal to the FCC to restructure the Amateur Radio license classes. The proposal first appeared on the ARRL webpage on Monday 20 July.

If adopted, the license structure would be:

Now	CW	Proposed	CW
Amateur Extra	20	Class A	12
Advanced		Class B	
General	13	Class C	5
Tech Plus	5	Class C	5
Novice	5	Class C	5
Technician		Class D	

General, Technician Plus and Novice licensees would be grouped under the new Class C license and would have HF privileges currently available to General class licensees.

In addition, several of the amateur bands would have extended phone portions. The proposed expanded phone bands would be:



Early results from several comments on various Amateur Radio webpages are evenly split for or against this proposal. For more information, go to the ARRL webpage at: http://www.arrl.org.

We would like to hear your comments on this proposal. To express your opinion, please leave your comments at the ***Worldradio*** webpage at: http://www.wr6wr.com

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