45241

Amateur Radio

http://www.cq-amateur-radio.com

COMMUNICATIONS & TECHNOLOGY

APRIL 2009

CQ

- *CQ Interviews:* **International Tennis Hall of Fame CEO Mark Stenning, AA1AC** p. 13
- **Bring Foxhunting to Your Town,** p. 24
- *CQ Reviews:* **TAK-Tenna Mini HF Antenna,** p. 44

On the Cover: Mike Davidson, N5MT, "foxhunting" with the Pearland, TX Amateur Radio Club. Details on page 92.

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Never before has a compact HT offered as many features, and such high powered performance as the TH-F6A. Arm yourself with one today and gain your own airwave superiority.

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- FM/FM-W/FM-N/AM plus SSB/CW receive
- Bar antenna for receiving AM broadcasts
- Special weather channel RX mode
- 435 memory channels, multiple scan functions
- 7.4V 2000mAh lithium-ion battery (std.) for high output[2] and extended operation
- 16-key pad plus multi-scroll key for easy operation
- Built-in charging circuitry for battery recharge while the unit operates from a DC supply
- Tough construction: meets MIL-STD 810 C/D/E standards for resistance to vibration, shock, humidity and light rain
- Large frequency display for single-band use
- Automatic simplex checker
- Wireless remote control function
- Battery indicator • Internal VOX • MCP software

[1]Note that certain frequencies are unavailable. [2]5W output

TH-F6A
TRIBANDER

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Self-supporting -- no guys required . . . Remarkable DX performance -- low angle radiation, omnidirectional . . . 1500 Watts . . . Low SWR . . . Aircraft quality aluminum tubing . . . Stainless steel hardware . . . Recessed SO-239 connect . . . Two year limited Warranty . . .

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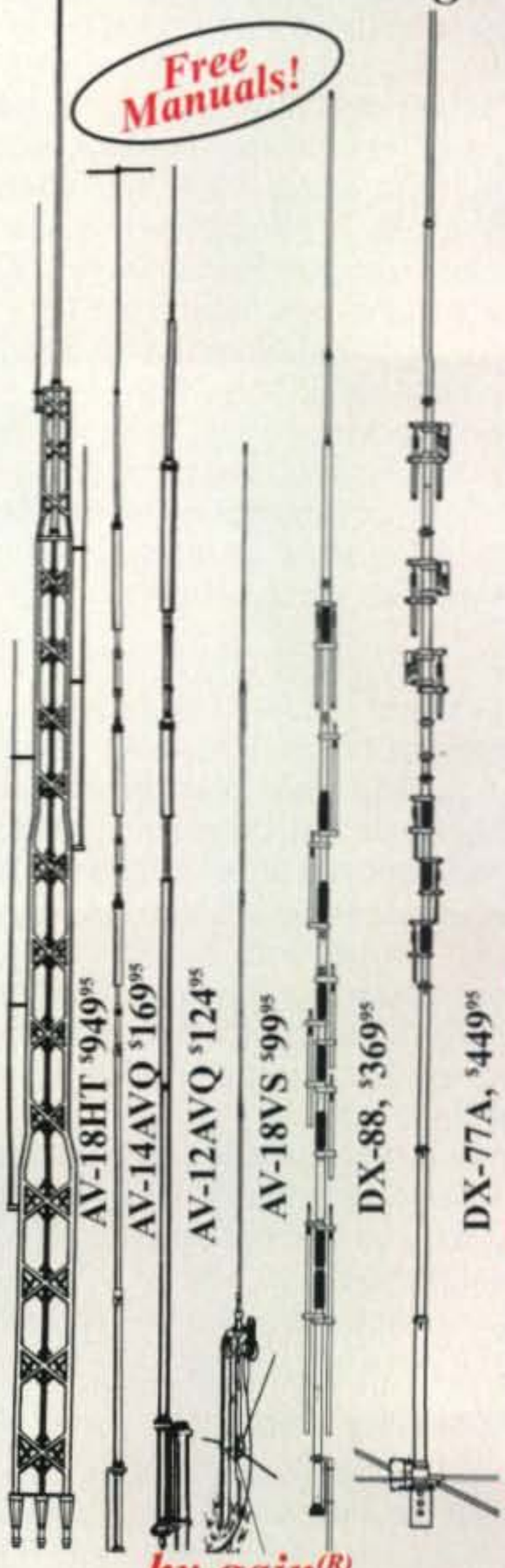

hy-gain(R)
Classics

***All** hy-gain multi-band vertical antennas are entirely self supporting -- no guys required.*

They offer remarkable DX performance with their extremely low angle of radiation and omnidirectional pattern.

All handle 1500 Watts PEP SSB, have low SWR, automatic band-switching (except AV-18VS) and include a 12-inch heavy duty mast support bracket (except AV-18HT).

Heavy duty, slotted, tapered swaged, aircraft quality aluminum tubing with full circumference compression clamps is used for radiators. Includes all stainless steel hardware. Recessed SO-239 prevents moisture damage. Hy-gain verticals go up easily with just hand tools and their cost is surprisingly low. Two year limited warranty.

AV-18HT, $949.95. (10,12,15,20,40,80 M, 160, 17 Meters optional). 53 ft., 114 lbs.

Standing 53 feet tall, the famous *Hy-Gain HyTower* is the world's best performing vertical! The AV-18HT features automatic band selection achieved through a unique stub-decoupling system which effectively isolates various sections of the antenna so that an electrical 1/4 wavelength (or odd multiple of a 1/4 wavelength) exists on all bands. Approximately 250 kHz bandwidth at 2:1 VSWR on 80 Meters. The addition of a base loading coil (**LC-160Q, $109.95**), provides exceptional 160 Meter performance. **MK-17, $89.95**. Add-on 17 Meter kit. 24 foot tower is all rugged, hot-dip galvanized steel and all hardware is iridited for corrosion resistance. Special tilt-over hinged base for easy raising & lowering.

AV-14AVQ, $169.95. (10,15,20,40 Meters). 18 ft., 9 lbs. **The** Hy-Gain AV-14AVQ uses the same trap design as the famous Hy-Gain Thunderbird beams. Three separate air dielectric Hy-Q traps with oversize coils give superb stability and 1/4 wave resonance on all bands. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

AV-12AVQ, $124.95. (10, 15, 20 Meters). 13 ft., 9 lbs. **AV-12AVQ** also uses Thunderbird beam design air dielectric traps for extremely Hy-Q performance. This is the way to go for inexpensive tri-band performance in limited space. Roof mount with AV-14RMQ kit, $89.95.

AV-18VS, $99.95. (10,12,15,17,20,30,40,80 Meters). 18 ft., 4 lbs. **High** quality construction and low cost make the AV-18VS an exceptional value. Easily tuned to any band by adjusting feed point at the base loading coil. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

DX-88, $369.95. (10, 12, 15,17,20,30,40,80 Meters, 160 Meters optional). 25 ft., 18 lbs.

All bands are *easily* tuned with the DX-88's *exclusive* adjustable capacitors. 80 and 40 Meters can even be tuned from the ground without having to lower the antenna. Super heavy-duty construction. DX-88 OPTIONS: 160 Meter add-on kit, KIT-160-88, $199.95. Ground Radial System, GRK-88, $99.95. Roof Radial System, RRK-88, $99.95.

DX-77A, $449.95. (10, 12, 15, 17, 20, 30, 40 Meters). 29 ft., 25 lbs.

No ground radials required! Off-center-fed Windom has 55% greater bandwidth than competitive verticals. Heavy-duty tiltable base. Each band independently tunable.

Model #	Price	Bands	Max Power	Height	Weight	Wind Surv.	Rec. Mast
AV-18HT	$949.95	10,15,20,40,80	1500 W PEP	53 feet	114 pounds	75 MPH	------
AV-14AVQ	**$169.95**	**10,15,20,40**	**1500 W PEP**	**18 feet**	**9 pounds**	**80 MPH**	**1.5-1.625"**
AV-12AVQ	$124.95	10,15,20 M	1500 W PEP	13 feet	9 pounds	80 MPH	1.5-1.625"
AV-18VS	**$99.95**	**10 - 80 M**	**1500 W PEP**	**18 feet**	**4 pounds**	**80 MPH**	**1.5-1.625"**
DX-88	$369.95	10 - 40 M	1500 W PEP	25 feet	18 pounds	75 mph w/ guy	1.5-1.625"
DX-77A	**$449.95**	**10 - 80 M**	**1500 W PEP**	**29 feet**	**25 pounds**	**60 mph w/ guy**	**1.5-1.625"**

Hy-Gain 160-6 Meters Self-Supporting Vertical

Full 1500 Watts, 43 feet, includes base mount

New! AV-6160 **$399.95** UPS SHIPPABLE

Operate all bands 160-6 Meters at full 1500 Watt with this self-supporting, 43 feet high performance vertical! It assembles in less than an hour and its low profile blends in with the sky and trees -- you can barely see it . . .

Exceptional Performance

The entire length radiates to provide exceptional low angle radiation 160-20 Meters and very good performance on 17-6 Meters. You can shorten it by telescoping it down for more effective low angle radiation on higher bands.

Just talk with automatic tuner!

A wide-range automatic or manual antenna tuner *at your rig* easily matches this antenna for all bands 160-6 Meters. There's no physical tuning adjustments on the antenna -- you simply put it up!

An optimized balun design allows *direct coax feed* with negligible coax loss (typically less than 1/2 dB 60-6 Meters and less than 1 dB 160-80 Meters with good quality, low-loss coax).

Extremely low wind loading

With just 2 square feet wind load, the AV-6160 has the lowest wind-loading and lowest visibility of any vertical antenna! The key is a six foot section of tapering diameter *stainless steel* whip that flexes in strong wind instead of stressing the bottom sections. Its 2-inch O.D.and .120 inch thick walled tubing bottom section makes it incredibly strong.

Just 20 lbs., uses super-strong *6063 aircraft aluminum tubing.* Stainless steel hardware.

Assembles in an hour

Ground mounting lets you hide antenna base in shrubbery. Requires ground system -- at least one radial. More extensive ground work better.

Stealth Operation

Low profile. Hide behind trees, fences, buildings, bushes. Use as flagpole. Easily telescopes down during the day.

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ham radio news

Laura Smith Named to Succeed Hollingsworth at FCC

Laura Smith—an attorney, ex-FCC official, ex-lobbyist, and magazine columnist—has been appointed as the FCC's next Special Counsel for Amateur Radio, according to the ARRL. Smith worked at the FCC from 1990 to 1998, rising to become Deputy Division Chief of the Public Safety and Private Wireless Division of the Wireless Telecommunications Bureau. She left the FCC to work for the Industrial Telecommunications Association, which she was leading by 2001. More recently, she has been working as a communications lawyer with a Maryland law firm. At press time, her appointment still had not been formally announced by the FCC. See this month's "Washington Readout" on page 50 for more details.

Richard Garriott, W5KWQ to Highlight Hamvention®

Richard Garriott, W5WKQ, the most recent private citizen to fly in space and talk back to Earth via ham radio, will be a speaker and featured guest at the 2009 Dayton Hamvention®, which will double this year as the ARRL National Convention. Garriott is the son of former astronaut Owen Garriott, W5LFL, the first ham to operate from space in 1983. His flight aboard the International Space Station last year coincided nearly exactly with the 25th anniversary of his father's inauguration of ham radio in space.

According to the ARRL, the younger Garriott will be a guest of both the ARRL and AMSAT, will be a forum speaker, and will spend time at the ARRL Expo area, talking with hams and signing autographs.

VK9NS, K3TUP, Silent Keys

Two prominent amateurs became Silent Keys in the February. Well-known DXer, DXpeditioner, and author Jim Smith, VK9NS, passed away at his Norfolk Island (Australia) home on February 10 after a short illness. He was 80. Jim had just published his ham radio memoirs, *The Old Timer*. He was a member of the CQ DX Hall of Fame.

Contester and cancer-fighter John Kanzius, K3TUP, succumbed to the disease himself on February 18. Kanzius used his ham radio knowledge to invent a new treatment that has the potential to revolutionize cancer treatment (see interview, January 2009 *CQ*). Work on his procedure will continue.

ARRL Adopts CQ Guidelines on Skimmer

Newsline reports that the ARRL's Program and Services Committee has approved the use of the CW Skimmer and other multi-channel decoders in its contests, but only in the assisted and multi-operator categories. (At press time, the committee reports submitted to the ARRL Board of Directors prior to its January meeting had not yet been made public.)

The CW Skimmer program monitors the full bandwidth of the user's receiver and decodes and types out Morse code characters from multiple stations within the passband. Last year, the CQ World-Wide Contest Committee voted to permit the use of Skimmer-like technology in *CQ*-sponsored contests, but only in multi-op and assisted categories. The ARRL committee's decision means that the same basic rule now applies to all major contests.

Round-the-World Sailor S52YS Presumed Dead

Maritime officials say that Jure Sterk, S52YS, is presumed dead after his yacht was found abandoned off western Australia. Sterk, 72, from Slovenia, was attempting to become the oldest man to sail around the world in an unpowered vessel. He had been keeping the world posted on his progress via ham radio contacts. According to the South African Independent Online news site (iol.co.za), the Australian Maritime Safety Authority reported that his last contact was made in early January from about 1900 km (1140 miles) off the Australian coast. The shiptrack.org website showed its last report from Jure on January 1. In late January, according to iol, a merchant vessel spotted Jure's yacht, apparently abandoned and badly damaged, and without its lifeboat. The AMSA reported that its medical experts advised it that there would be no way that Sterk could have survived so long on the open sea since his last radio contact, and that he should be presumed dead. Sterk had sailed around the world once before, a three-year voyage ending in 1994.

New Faces at IARU

The International Amateur Radio Union has two new leaders and two new members. The *ARRL Letter* reports that Tim Ellam, VE6SH, has been elected to a five-year term as IARU President, beginning in May. Ellam, from Canada, has been the organization's vice president since 2004. Succeeding Ellam as Vice President will be Ole Garpestad, LA2RR, from Norway. He has represented IARU Region 1 (Europe and Africa) on the IARU's Administrative Council since 2001, and has been Chairman of the Region 1 Executive Committee since 2002.

In addition, the member societies voted to admit the Emirates Amateur Radio Society and the Kazakhstan Federation of Radiosports and Radioamateur to IARU membership. The total number of national amateur radio societies represented by the group is now 162.

Scott Redd, KØDQ Awarded National Security Medal

Retired Vice Admiral Scott Redd, KØDQ, who stepped down last year as Director of the National Counterterrorism Center, was presented with the National Security Medal by President George W. Bush just before his term ended. Redd was recognized for "his more than 40 years of exceptional service to the Nation, strengthening its intelligence capabilities and improving national security." The medal is the highest award given to members of the national intelligence community. Others recognized the same day included John Negroponte, then Deputy Secretary of State and the first Director of National Intelligence (DNI); outgoing DNI Michael McConnell; outgoing CIA Director Michael Hayden; and current CIA Deputy Director Stephen Kappes.

Redd, an active ham and contester throughout his long career in government service, is a member of the CQ Amateur Radio Hall of Fame. He was interviewed at length in the February 2008 issue of *CQ*.

Additional and updated news is available on the Ham Radio News page of the CQ website at <http://www.cq-amateur-radio.com>. For breaking news stories, plus info on additional items of interest, sign up for CQ's free online newsletter service. Just click on "CQ Newsletter" on the home page of our website.

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The Biggest and Smallest Amps in the Industry!

Available Now with 12m & 10m Built-In

HL-2.5KFX

Legal Limit 1.5kW HF Amplifier

NEWEST and MOST POWERFUL Full Legal Limit!

The HL-2.5KFX is the lightest and most compact self-contained 1.5kW output HF LINEAR amplifier in its class. The amplifier's decoder changes bands automatically with most modern ICOM, Kenwood, and Yaesu HF transceivers. It also has a built-in AC power supply – selectable for 220/230/240/250 VAC input, 3kVA max, and a multifunctional LCD display for instant readout of operating parameters. The HL-2.5KFX is equipped with a control cable connection socket for the HC-1.5KAT, automatic antenna tuner by Tokyo Hy-Power Labs for seamless auto tuning operation.

Specifications

SOLID STATE
Freq. Band:
1.8~28 MHz all HF amateur bands
Operation Mode:
SSB, CW, RTTY
Exciting Power (RF Drive):
100W max. (85W, typical)
Output Power (RF Out):
1.5kW min. SSB/CW
(1.2kW on 28MHz)
1kW RTTY (5 minutes key down)
Auto Band Set:
With most modern ICOM, Kenwood, Yaesu HF Transceivers

Antenna Tuner:
Compatible with external Tokyo Hy-Power HC-1.5KAT
RF Power Transistors:
ARF 1500 by Microsemi x 2
Antenna Relay:
QSK (Full break-in compatible)
Power Supply:
Built-in 220/230/240/250VAC, 3kVA max.
Dimension and Weight:
12.8 x 5.7 x 15.9 inches (WxHxD),
Approx. 57.3lbs.

To go with the popular Yaesu FT-817 series.

NEW!

Compact 45W Power Amp.

HL-45B

HF/50MHz 45W Linear Power Amplifier

Features

- HL-45B is a solid-state HF/50MHz band linear power amplifier with the maximum output power of 45W. Designed RF drive power is 5W.
- This amplifier is particularly designed for the use with popular portable radio of YAESU FT-817. When combined with FT-817, you can enjoy a unique and very comfortable feature of automatic band selection as well as send-receive switching, by connecting the amp and radio with the supplied special control cable.
- LED power level meter will always indicate the relative output power level for the convenience of the operator.

Specifications

Frequency:
HF Band (1.8 ~ 28MHz and 50MHz Amateur Bands)
Mode: SSB(A3E), CW(A1A), FM(F3E)
RF Output Power:
SSB (PEP)/CW 45W
RF Drive Power: 5W max.
DC Power: DC 13.8V, 8.5A max.
In/Out Impedance: 50Ω
In/Out Connectors: SO-239
Major Circuits and Functions:
1. Class AB wide band linear power amp
2. Automatic/manual switching output low pass filters
3. WARNG (Protection circuit) for over-voltage and over-drive
4. LED meter for indicating transmitting power level
5. Send-receive switching remote terminal
6. ALC
Final RF Power Transistor:
RD30HVF
(by Mitsubishi Electric) x 2
Accessory Parts:
DC Power cord (Red/Black) x 1
Coax jumper cable with PL-259 connectors x 1
Remote control cable for FT-817 x 1
Spare fuse 10A x 2
Dimensions:
150(W) x 47(H) x 211(D) mm
(5.9 x 1.9 x 8.3 inches)
Weight:
Approx. 1.6kgs. (3.4lbs.)

More Fine Products from TOKYO HY-POWER

HC-1.5KAT
HF 1.5KW Auto Tuner

HL-1.5KFX
HF/6m 1kW Linear

HL-1.1KFX
600W Out Lightweight HF Amp weighing only 22.5lbs.

HL-1.2KFX
750W PEP HF Desktop Linear

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CQ contents

APRIL 2009

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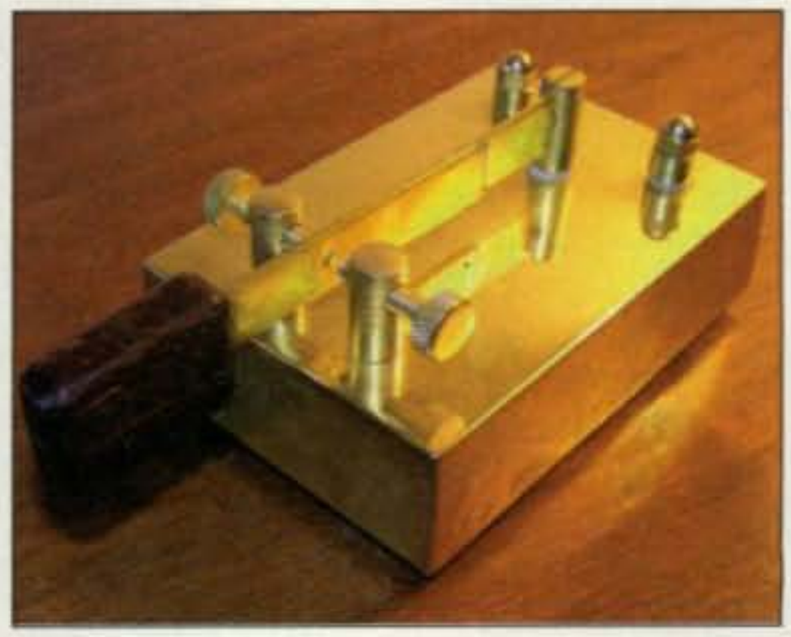
features

Vol. 65 No. 4



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departments

FLEX-5000A
HF-6M Transceiver

- Two Displays... One Screen
- See the weak ones before you hear them
- Point click tuning (faster than tuning with a knob)
- Find that clear frequency during split-operation
- Hop on the frequency of the last station heard in a flash
- See who is splattering and who is not

See it, work it, log it...
On your FlexRadio.

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Imagine the Future of the Mobile Radio ... It's Now All Yours ! ... YAESU FTM-10SR

IP57 Submersible 3 feet for 30 min Body/Front panel

Great New Features to Support Outdoor Motor Sports Activities Mobile Transceiver... Great Appearance ... Easy to Operate

IP57 Submersible 3 feet for 30 min Front panel

Bluetooth (Optional Bluetooth unit required)

DUAL BAND

10 W 2 m/70 cm* Dual Band FM Mobile
FTM-10SR *70 cm 7 W

50 W 2 m/70 cm* Dual Band FM Mobile
FTM-10R *70 cm 40 W

Get "Back to Basics" with YAESU's FM Dual Band Moble One-Touch Operation/Wide Receiver Coverage Included

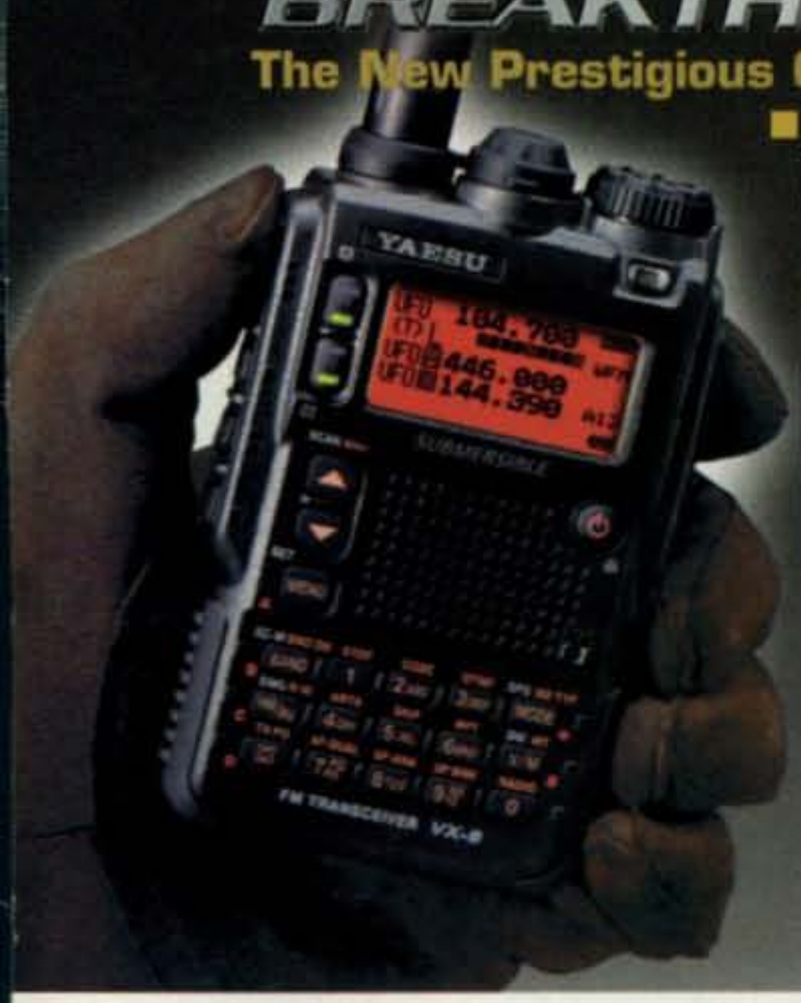
DUAL BAND

50 W 2 m/70 cm* Dual Band FM Mobile
FT-7800R *70 cm 35 W

A TECHNOLOGY BREAKTHROUGH

The New Prestigious Compact – VX-8R

- All-in-one High-performance Tri-Band Transceiver with GPS/APRS® Operation*1



•Position/Distance/Direction of the APRS station picked up from the list

▲Attached to the radio (microphone input) using the optional GPS Antenna Adapter CT-136

•The optional GPS Antenna Unit FGPS-2 attached to the optional Speaker-Microphone SM-74

*1 With optional accessories
* APRS® is a registered trademark of Bob Bruninga WB4APR

Bluetooth (Optional Bluetooth unit required)

5 W Submersible
6 m/2 m/70 cm Tri-Band
FM Hand held (222 MHz: 1.5 W)
VX-8R

IPX7 Submersible 3 feet (1m) for 30 min.

6 m / 2 m / 70 cm Tri-Band

QUAD BAND DUAL RECEIVE

50 W 10 m/6 m/2 m/70 cm*
Quad Band FM Mobile
FT-8900R *70 cm 35 W

DUAL BAND DUAL RECEIVE

50 W 2 m/70 cm* Dual Band FM Mobile
FT-8800R *70 cm 35 W

50 W 2 m Ultra Rugged VHF FM Mobile
FT-1802M
2 m Band

65 W 2 m Rugged FM Mobile
FT-2800M 2 m Band

IPX7

5 W Ultra-Rugged, Submersible
6 m/2 m/70 cm Tri-Band FM Hand held
VX-7R/VX-7RB
(220 MHz: 300 mW)
6 m / 2 m / 70 cm Tri-Band

IPX7

5 W Heavy Duty Submersible
2 m/70 cm Dual Band
FM Hand held (220 MHz: 1.5 W)
VX-6R
2 m / 70 cm Dual Band

5 W Heavy Duty 2 m/70 cm
Dual Band FM Hand held
FT-60R
2 m / 70 cm Dual Band

(8 key)

IPX7

(16 key)

1.5 W Ultra Compact 2 m/70 cm
Dual Band FM Hand held
VX-3R
2 m / 70 cm Dual Band

5 W Heavy Duty Submersible
2 m FM Mono Band Hand Helds
VX-120 (8 key Version) **VX-170** (16 key Version)

70 cm FM Mono Band
Hand Helds
VX-177 (16 key Version)

2 m / 70 cm Mono Band

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2 m FM Hand helds
VX-150
2 m Mono Band

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Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

Introducing the Yaesu FT-950 transceiver for DX enthusiasts
Superb receiver performance
Direct lineage from the legendary FT DX 9000 and FT-2000

HF/50 MHz 100 W Transceiver

FT-950

- Triple-conversion super-heterodyne receiver architecture, using 69.450 MHz 1st IF
- Eight narrow, band-pass filters in the RF stage eliminate out of band interference and protect the powerful 1st IF
- 1st IF 3 kHz Roofing filter included
- High-speed Direct Digital Synthesizer (DDS) and high-spec Digital PLL for outstanding Local Oscillator performance
- Original YAESU IF DSP advanced design, provides comfortable and effective reception. IF SHIFT / IF WIDTH / CONTOUR / NOTCH / DNR
- DSP enhancement of Transmit SSB/AM signal quality with Parametric Microphone Equalizer and Speech Processor
- Built-in high stability TCXO (±0.5 ppm after 1 minute@77 ° F)
- Built-in automatic antenna tuner ATU, with 100 memories
- Powerful CW operating capabilities for CW enthusiasts
- Five Voice Message memories, with the optional DVS-6 unit
- Large Multi-color VFD (Vacuum Fluorescent Display)
- Optional Data Management Unit (DMU-2000) permits display of various operating conditions, transceiver status and station logging.
- Optional RF μ -Tune Units for 160 m, 80/40 m and 30/20 m Bands

Shown with after-market keyer paddle, keyboard, and monitor (not supplied).

"The Best of the Best Just Got Better"

Introducing the new FT-950 Series with PEP-950 (Performance Enhancement Program)

Compact size : 9" X 3.3" x 8.5" and Light weight : 7.9 lb

COMPACT HF/50 MHz TRANSCEIVER WITH IF DSP

A superb, compact HF/50 MHz radio with state-of-the-art IF DSP technology configured to provide YAESU World-Class Performance in an easy to operate package.

New licensees, casual operators, DX chasers, contesters, portable/field enthusiasts, and emergency service providers - *YAESU FT-450...This Radio is for YOU!*

HF/50 MHz 100 W All Mode Transceiver

FT-450 Automatic Antenna Tuner ATU-450 optional

FT-450AT With Built-in ATU-450 Automatic Antenna Tuner

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zero bias — a CQ editorial

BY RICH MOSESON,* W2VU

A Change in the Wind?

Things are changing at the Federal Communications Commission, starting at the top, and there is reason to be hopeful that at least some of those changes will be beneficial to amateur radio. As our "Washington Readout" editor Fred Maia, W5YI, reports in detail in this issue, President Obama has named FCC Commissioner Michael Copps Acting Chairman and is widely expected to nominate Julius Genachowski as the new permanent Chairman. They succeed Kevin Martin, who resigned as Chairman and as a Commissioner on President Bush's final day in office.

You may recall that back in December (Zero Bias, "A New President, But No New Sheriff"), we took the FCC to task for its failure to name a replacement for amateur radio enforcement "czar" Riley Hollingsworth, K4ZDH, who retired last July, and for its failure to initiate a single amateur-related enforcement action in that timeframe. We were concerned that the FCC was reneging on its promise made a decade ago to never again leave our self-enforcement efforts without backup from the Commission for those cases in which enforcement action with teeth was required.

It soon became clear, though, that the problem may not have been a lack of good intent on the part of the Enforcement Bureau, but rather one of bureaucratic bottlenecks at the very top of the Commission organization. In February, W5YI reported on a stinging staff report issued by a Congressional committee, blasting Chairman Martin's administration of FCC affairs. One of the big problems cited was that absolutely everything had to be routed through the Chairman's office, that virtually nothing could be done without his personal approval, and that, as a result, very little was getting done—including the filling of staff vacancies.

The scope of Martin's mismanagement was made clear in the days immediately following his departure, in public comments and an exchange of open letters between Acting Chairman Copps and Commissioner Robert McDowell, currently the FCC's lone Republican member. In those open letters, McDowell called on Copps to quickly initiate a wide variety of organizational reforms. It appears that Copps was already on the same page, particularly if you read between the lines of his remarks to the FCC staff just after his appointment as Acting Chairman.

"I am troubled that our lines of communication, both internal and external, seem to have frayed," he told the staff, announcing several moves intended to increase openness and accountability. One particularly telling remark confirmed the charge in the Congressional staff report that Chairman Martin had effectively cut off the other commissioners' access to the FCC staff. "I also want to ensure that my Commissioner colleagues have unfettered access to the Bureaus, with the presumption being that requests for information will be honored," said Copps, adding, "I realize this is not a bureau-created problem but, beginning now, requests from Commissioners' offices—not just the Chairman's Office—should be answered directly and as quickly as possible, just as if the Chairman's Office is asking for it and without the need for running those requests through the Chairman's Office first…"

Copps also reminded the FCC staff that its "stakeholders … include not just the industries we regulate but, more importantly, all citizens. … The spectrum is theirs and the rest of us are stewards."

A few days later, Commissioner McDowell told the Federal Communications Bar Association that he had "sensed an immediate boost in morale" among the FCC staff since Copps took over. And he made it clear that he supported Copps's early moves. "I share and applaud Chairman Copps's view that we delegate some authority back to upper and mid-level management. We ought to have the confidence in our deputy bureau chiefs and division chiefs to handle routine matters … and generally discuss their subject areas with anyone, including commissioners, without prior approval from the head of the agency."

McDowell also alluded to the growing domination of FCC staff by lawyers. "I am hopeful," he added, "that we will make more efficient use of non-attorney professionals, such as engineers and economists. For example, there is no reason why we cannot use engineers to help investigate complaints and petitions that involve technical and engineering questions." Hallelujah! And remember, he said this to a group of communication lawyers!

A New Sheriff

These words were accompanied by actions. One of the Commission's first moves under Acting Chairman Copps was to reverse a rather bizarre chain of events in a proceeding on TV program carriage rules (whether cable systems had to carry certain programming). Initially, last October, the Media Bureau combined a half dozen complaints and designated them for hearing before an Administrative Law Judge, a rather routine action. But less than two months later, the Media Bureau issued a series of three follow-up orders saying that the judge's authority to hear the cases had expired and that the bureau would resolve them on its own … presumably with the decisions coming straight from the Chairman's Office. One week after Chairman Martin left, the remaining three commissioners reversed those orders. "On our own motion," their order read, "we conclude that the factual determinations required to fairly adjudicate these matters are best resolved through hearings before an Administrative Law Judge, rather than solely through pleadings and exhibits as contemplated by the Media Bureau. Accordingly, we rescind in full the (three orders and) hereby reinstate the presiding Administrative Law Judge's delegated authority…"

Plus, one of the first signs that the personnel logjam was breaking was the ARRL's announcement on January 26 that it had learned the FCC had named Laura Smith, an attorney and former lobbyist with significant prior FCC staff experience, to fill Riley's old job as Special Counsel for Amateur Radio. At press time, there had been no formal announcement from the Commission or indication of when Ms. Smith would begin work, but W5YI was able to confirm that the report is accurate.

We applaud the FCC's new direction at the top, and hope it will continue once Mr. Genachowski is formally nominated and confirmed. We also applaud Ms. Smith's appointment as the new ham radio "sheriff" and we look forward to renewed enforcement activities on the amateur bands.

Bumper Satellites

A closing note … as you may have read in the news (and can read about in more detail in this month's VHF-Plus column), two communications satellites collided in early February, destroying both of them. Our very modest Professor Emil Heisseluft, whose latest treatise appears in this issue, reminds us that he warned of such a possibility 12 years ago in his article "Little LEO's Dirty Secret," which predicted the potential for catastrophic collisions among Low Earth Orbiting satellites. The good professor, once again, was well ahead of his time.

73, W2VU

*e-mail: <w2vu@cq-amateur-radio.com>

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announcements

URE 60th Anniversary Contest – Sponsored by the Union de Radioaficioados Espanoles (URE), all licensed amateur radio stations can participate. Dates: 0000Z April 11 to 2359Z April 12 on 10, 15, 20, 40, 80, and 160 meters according to the IARU Region 1 band plan. Mixed mode; only single operator multiband. Exchange: Spanish stations RST + province code; DX stations RST + serial number starting with 001. Foreign stations transmitting from the Spanish territory will be considered as EA stations. Logs must be sent via e-mail in Cabrillo format only to <60anniversario@ure.es> and received no later than April 30, 2009. For futher details go to <www.ure.es/>.

The following special event stations are scheduled for April:

W1L, celebrating the 150th anniversary of Mount Saint Joseph Academy and the 10th anniversary of its robotics team, "The Firebirds," Flourtown, Pennsylvania; 0000–2100Z April 4–5 on 3.850, 7.250, 14.250 MHz and 446.000 simplex, PSK available on 20 meters. For certificate send QSL and SASE to Chris Brady, N3CB. <www.msjacad.org>

K4S, from the Venice Sharks Tooth Festival, Venice, Florida; Tamiami ARC; 1300–1700Z April 17–19 on 21.313, 18.153, 14.236 MHz. For QSL send QSL and SASE to Jack Sproat, W4JS, 1419 E. Manasota Beach Rd., Englewood, FL 34223-6341.

Z30MCWG, the special callsign of the Macedonian Telegraphic Group; February 20 to December 31, 2009 mostly on CW on all HF bands. QSL via Vladimir Kovaceski, Sava Kovacevic 47 g / 55, Skopje 1000, Republic of Macedonia.

The following hamfests, etc., are slated for April:

April 7, Lansdale, Pennsylvania licensing exams, Lansdale Library, 7 PM. Register by contacting Olaf N. Markert, W3PA, e-mail: <w3pa@arrl.net>, phone 610-517-5074. (Further exam dates schedule: May 5, June 2, July 7, August 4, September 1, October 6, November 3, December 1.)

April 11, **Raleigh (NC) Hamfest, NCS ARRL Convention & Electronics Fleamarket**, Expo Center Building, NCS Fairgrounds, Raleigh, North Carolina. Contact Steve Ferrarini, KJ4BX, e-mail: <steve.kj4bx@gmail.com>, phone 919-247-8690; <www.rars.org/hamfest>. (Special event station N4C; exams call WA4GIR at 919-387-9152)

April 17–19, **60th Annual International DX Convention**, Holiday Inn, Visalia, California. Sponsored by the Northern California DX Club. For details go to: <http://dxconvention.org/>.

April 18, **HamEXPO**, Bell County Expo Center, Belton, Texas. Sponsored by the Temple ARC. Contact Mike LeFan, WA5EQQ, e-mail: <expo@tarc.org>; telephone 254-773-3590; <www.beltonhamexpo.org>. (Talk-in 146.820, 123.0; exams)

April 18, **Red River Radio Amateurs Hamfest**, Red River valley Fairgrounds, West fargo, North Dakota. For more information go to: <http://www.rrra.org>. (Talk-in 145.35–, 123 Hz PL; exams)

April 24–26, **Idaho State Convention**, ARRL sanctioned, Holiday Inn – Boise Airport, Boise, Idaho. For details go to <www.voiceofidaho.org/>. (Exams)

April 25, **Valley of the Moon ARC (W6AJF) ARRL Hamfest**, Sonoma Valley Veterans' Memorial Building, Sonoma, California. For more information contact Darrel, WD6BOR, e-mail: <wd6bor@vom.com>, phone 707-996-4494; <www.vomarc.org>. (Talk-in 145.35, –600, PL 88.5; exams 9 AM)

April 26, **Athens (OH) County ARA Hamfest**, Athens Community Recreation Center, Athens, Ohio. For details contact Drew McDaniel, W8MHV, e-mail: <mcdanied@ohio.edu>, phone 740-592-2106. (Talk-in 145.15, –600; exams, advanced registration required, contact Allen Sellers, KB8JLG, e-mail: <asellers@greenapple.com>, phone 740-654-8167)

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Brake Power	**450 in.-lbs.**
Brake Construction	Disc Brake
Bearing Assembly	**Dual race/12 ball bearings**
Mounting Hardware	Clamp plate/steel bolts
Control Cable Conductors	**5**
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Control Cable Conductors	**7**
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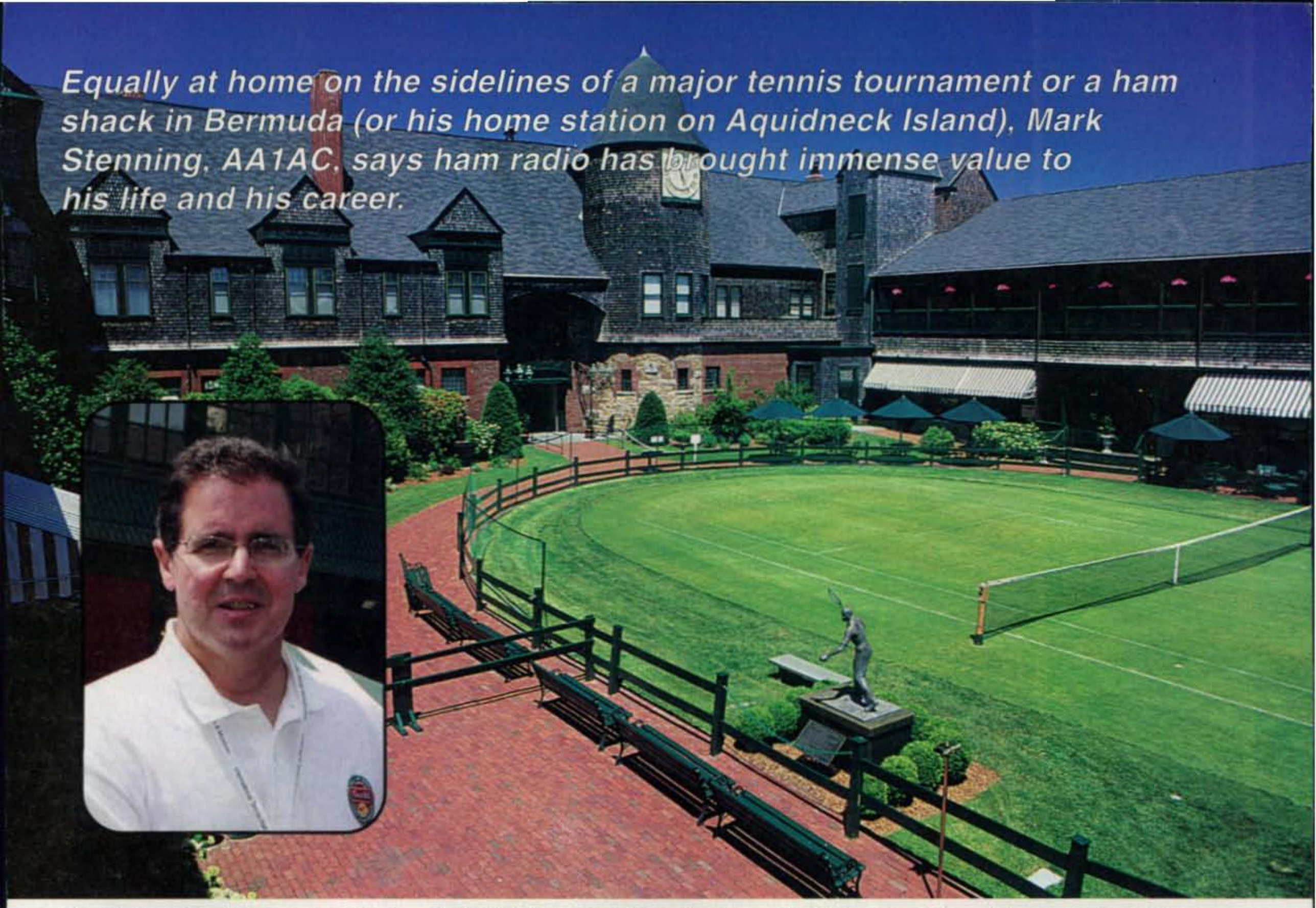
Equally at home on the sidelines of a major tennis tournament or a ham shack in Bermuda (or his home station on Aquidneck Island), Mark Stenning, AA1AC, says ham radio has brought immense value to his life and his career.



Wouldn't you like to have your office here? AA1AC does. Mark Stenning is the Chief Executive Officer of the International Tennis Hall of Fame in Newport, Rhode Island. (All photos courtesy Mark Stenning and/or the International Tennis Hall of Fame)

CQ Interviews:

Mark Stenning, AA1AC
CEO, International Tennis Hall of Fame

BY RICH MOSESON,* W2VU

There's a world of difference, it would seem, between the world of amateur radio and the world of professional tennis. Not so, says Mark Stenning, AA1AC, who straddles the two worlds as both an active DXer and DXpeditioner and as Chief Executive Officer of the International Tennis Hall of Fame in Newport, Rhode Island.

The worldwide nature of both amateur radio and tennis is helpful to him in dealing with players and officials from other countries. He says international tennis is "very similar to the ARRL or the ITU (International Telecommunication Union), and there are direct analogies in the tennis world ... (T)here's something called the International Tennis Federation which represents (205) countries worldwide, and for example, when I meet a representative of Ghana who's representing the tennis federation there, I know where Accra is. I know what goes on there, because I remember speaking with some Dutch amateurs down there who were very kind to me and telling me all about (it). They were there to work in a hospital. And places like Equatorial Guinea, as obscure as they might be on the world stage, may be less obscure now. The fact is that my ham radio background gave me access, or required me

*Editor, CQ
e-mail: <w2vu@cq-amateur-radio.com>

to have access, to learning more about geography, learning about different languages, different customs."

A Ham Radio Incubator

Mark says he's active on all bands from 160 to 10 meters, operating mostly CW and a little bit of phone. He has 344 DXCC entities confirmed, and has operated from the Bahamas, Bermuda, and 4U1ITU in Vienna. Another of Mark's major ham interests is the Islands On The Air, or IOTA, program—perhaps due to spending his entire life living on NA-031, Aquidneck Island in Narragansett Bay, the island on which Newport is located. He's been a ham since 1967, starting out as WN1IJB before graduating to WA1IJB, KD1EV, and finally, AA1AC.

"I was lucky enough to grow up in a very benevolent, let's call it an incubator, environment," he explains. "My father was a ham radio operator, WA1HXK. My best friend who lived directly across the street (I was WN1IJB and he was WN1IJC) remains active and one of my best friends today, and *his* father was WA1HXJ. So it was the conversation, the camaraderie, the fraternity, which at a very young age was always there. Monday nights were reserved for the Newport County Radio Club, and there are friendships and contacts that I've had for the entire 40 years of my operating life that are some of the strongest friendships I've ever had."

Mark says he was bitten early and hard by the DX bug, helped along by some very high-profile contacts. "I was probably 12 or 13 and I had just gotten my General license," Mark recalls. "I remember 15 meters just fading out in the evening and working Tom Christian, VR6TC, and having my father explain to me the whole *Mutiny on the Bounty* and the Fletcher Christian connection, (and another time) contacting JY1, King Hussein of Jordan at the time, and what a thrill that was, and going to the globe and learning more about that whole thing. ... When I first started, you were lucky to get a card back from Russia, and all of the geopolitical changes that take place in the world actually first became evident to me through ham

The grass court at the International Tennis Hall of Fame is host to the annual Campbell's Hall of Fame Tennis Championships, the only professional tournament in the U.S. still played on grass.

The International Tennis Hall of Fame

The International Tennis Hall of Fame was founded in 1954 with three main goals:

- honoring the heroes and heroines of tennis, including players, coaches, behind-the-scenes people, and even tennis writers;
- preserving the history of the sport; and
- inspiring and encouraging junior tennis development.

It is located in a Newport, Rhode Island mansion known as the Casino, which was built in 1880 and which, in 1881, was the site of the first U.S. National Tennis Championships. In later years, this competition moved to New York City and became the U.S. Open. The hall of fame includes exhibits on early tennis and a library decorated in late 19th century tennis style. The hall hosts the annual Campbell's Hall of Fame Tennis Championships, the only remaining professional tennis event in the United States played on a grass court (Mark is Tournament Director), as well as the annual Gibson Guitar Champions Cup. It also sponsors events in conjunction with major tennis competitions around the world.

The International Tennis Hall of Fame is open to the public. It is located at 194 Bellevue Avenue in Newport, and information may be found on the web at <http://www.tennisfame.com>.

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The hall of fame includes a museum area. This photo shows a display of early tennis equipment and clothing.

radio. You know, when Czechoslovakia split, we all eagerly anticipated it, less for the political changes there and more for the fact that there was going to be one more DXCC entity! It just gave me much more of a global viewpoint, or perspective, at a (much younger) age than I think most kids would have, by virtue of the fact that I was not only speaking with these people but corresponding with them by virtue of QSL cards. I don't know what my postman thought, Rich, when I was 14 years old, getting letters from Russia and eastern European countries and all these different places around the world, but it certainly broadened my perspective big time."

Getting into the Tennis "Racket"

As noted above, Mark grew up in and around Newport and is a 1978 graduate of Rhode Island College in Providence, where he majored in psychology. He went to work for the International Tennis Hall of Fame in 1980 as Assistant to the Executive Director, a post

The hall of fame's library is furnished as it might have been by a wealthy tennis fan or player in the late 1800s or early 1900s.

he held for 16 years. "Quite honestly, I didn't know what I was getting myself into at the beginning," he told *Tennis Week*'s Steve Flink in 2003, describing the job as "like taking a drink from a fire hose" because then-Executive Director Colonel Bob Day gave him a lot of responsibility very quickly. "Less than 60 days from when I started working at the Hall of Fame," he said, "we had our induction ceremonies and I was asked to pick up Lew Hoad at the airport. I was learning quickly on the job and it was all so fascinating and mysterious at the same time." Lew Hoad, one of the hall's 1980 inductees, was a two-time

Here's Mark in a more relaxed setting—operating from Bermuda as VP9/AA1AC in the ham shack of his host and good friend Ed Kelly, VP9GE.

Wimbledon champion in 1956 and '57, also winning the Australian and French Opens in 1956.

Stenning learned his job well. In 1996, he was named Executive Vice President and Chief Operating Officer, and has been the International Tennis Hall of Fame's CEO since 2000. He is responsible for the hall's $8-million annual budget, its staff and events, including the annual enshrinement ceremony and the Campbell's Hall of Fame Tennis Championship, for which he is also Tournament Director. He serves on the boards of several Rhode Island companies and agencies and is a member of the United States Tennis Association's Davis Cup and Fed Cup committees. In 2007, he received the Charles B. Willard Achievement Award from Rhode Island College (his alma mater), and the Schroeder Award for Distinguished Service from the International Sports Heritage Association.

In his acceptance speech for the Schroeder Award, Stenning commented on "the camaraderie, friendships, and relationships that, to me, are really the 'magic' of this organization." In our interview, I mentioned that it sounded like he was describing ham radio.

Boy, does it ever, does it ever," he replied. "In fact, the first e-mails I got this morning were from a fraternity. In Rhode Island there's a handful of very avid DXers and the first e-mail I got this morning was talking about how 15 meters was wide open on Saturday during the (CQWW CW) contest, and I can't tell you what a great feeling that is. There were a number of people in my community whom I had never met, and that I would have never met, (except) as a result of all of a sudden hearing these 60 dB over 9 signals and saying, 'Hmmm, that guy must be pretty close.' Then you drive down the road and all of a sudden you see a 60-foot tower there and you say, 'Geez,' and I've made a number of very lasting relationships as a result of the ham fraternity."

Mark noted that being a ham can sometimes be an even better conversation-starter than working with tennis stars. "I spend a lot of time on airplanes," he noted, "and it's amazing, a couple of months ago now, I started speaking to some guy and we were talking about his line of work. He said he was in the Navy, and I came to find out that the guy is a former astronaut and had held a KC5 call. He was able to talk about that, and I was able to talk about the MIR spaceship and about ... Chuck Brady, W4BQW, who was an astronaut and who was very active on numerous DXpeditions. It just opened up a whole new plane of conversing with this guy. ... I'll meet people and like I said before, with the amateurs in Accra, for me to tell somebody 'I know where that is' or 'I know where all of these little things are' ... there's just so much value through this hobby to my life as far as what's going on in the rest of the world, something bigger than Rhode Island or North America. It's the same kind of exposure that I get through my tennis connections, where, you know, this coming weekend, I'll be in Portland, Oregon, for the finals of the Davis Cup, which is an international men's team competition, and it's U.S. vs. Russia. I always think that my prolonged exposure to ham radio has given me a great deal of value in learning about other peoples at a very young age." (The U.S. defeated Russia, 4 to 1.)

Explaining a little more about the hall of fame *(also see sidebar—ed.)*, Stenning said, "It's a not-for-profit organization, but we also have a number of international activities. I think when you and I first touched base, I was in Madrid. ... We have activities in conjunction with the Australian Open in Melbourne, and then hopefully the month after that we'll go to Buenos Aires. Still no luck in convincing people that we should go to Spratly Island for a dinner, or Geyser Reef, but it's still in my dreams."

Mark says he also hasn't had much luck working ham radio into his many trips to DX locations. "You know, I always dream that I'm going to," he says. "When I operated as 4U1ITU, it was just when I happened to be close enough to Geneva (that I could) head over there. Most of the time, unfortunately, virtually all of the time, it's just pretty packed with business. I report to a board of 80, so it can be intense at times, but hopefully in 10 years or 15 years, when I'm retired, I'll revisit those trips with my TS-570 or whatever else is in tow at that point."

"But it's interesting," Mark continued, "in that the hobby of ham radio has brought so much value, believe it or not, to my profession and to my life, from a variety of standpoints, from a geographical standpoint. When people talk about San Marino, I know where that is, and I can remember the first time I worked Tango-7-7-Charlie ... just to have a general sense of the world at large, it was all as a result of being active from such a young age on ham radio. I mean, honestly, I knew where Geyser Reef was probably before I could identify where Russia was on a map. You know, the travels of Don Miller and the Colvins and Gus Browning and Martti Laine for all these years brought so much excitement and a real sense of magic to my life that it was kind of like, I'm a little too young to remember 'where's Danny?' but quite often it's 'where's Gus going to show up from?' Or this Russian guy, Vlad, who's been operating. The whole DX thing still creates a tremendous amount of excitement in my life."

Tennis and Ham Radio

I asked Mark if he sees any parallels between a sport like

tennis and ham radio, particularly the more competitive aspects of ham radio like contesting or DXing. His answer surprised me somewhat, since it focused on technology, which is not the first thing that comes to my mind when I think about tennis.

"In the last 15 or 20 years," Mark responded, "in both the sport of tennis and the hobby of amateur radio, (there have been) fairly dramatic technological advances. Twenty-five years ago, John McEnroe and Bjorn Borg were playing with wooden rackets with small heads on them … now you can get rackets with all sorts of composites and oversize heads, (a) dramatic change. And I see the same thing in ham radio, where 15 years ago, the thought of me having a DX Cluster on my computer 24/7 that'll tell me when the E4 shows up, and exactly what his frequency is and what the beam heading is, is pretty amazing, the quick change of technology in both tennis and ham radio, and I have not yet completely embraced all of the technological upgrades. I still enjoy using my electronic keyer, and there are so many more things I could do on the ham radio side to become more technologically adept, but it's changing and I'm sure that in another five years if we were to have this conversation, it would have changed at just as quick a pace if not faster."

Interestingly, it's ham radio that takes center stage in his personal life, not tennis. "I'm a much more active amateur radio operator than I am a tennis player," says Mark. "I run a lot, I bicycle, but I guess it's like shoes on the cobbler's kids or whatever. I'm just so immersed in the sport that if I get a chance to go for a good long run, Rich, I'll do it. But I do not actively play tennis."

I also asked Mark if he could use any of his experience in the tennis world to offer suggestions for making ham radio more attractive to young people today.

"Well, I know that the League is doing a lot to try to expose the hobby to a younger bunch," he responded. "At the same time I also know that they are being wooed by the many more … I won't call them more interesting, but the volume of electronic things. I mean, by the time my son was 11 or 12, he had an internet-active computer in his room, he had all of the game devices, he also had 155 channels available to him on our cable TV; and when I try to explain to him that when I was a kid we had three channels, and that's if the rabbit ears were working properly—I just think it's a challenge."

However, he says tennis can offer ham radio some pathways. "The sport of tennis quite often starts out as a family involvement, and I have two children who I exposed to ham radio more than probably I should have. … I think that amateur radio is a very noble venture for a youngster in that much more can be gleaned from ham radio activity as far as, again, the whole almost geopolitical view of the world, not to mention the history and just the pure geography of 'What is this world really made up of?' 'What do people do?' 'How do they speak?' As a young person, I was able to pick up some phrases in other languages just from hearing the Ukranians or hearing the Italians speak. … I just think that, as in tennis, exposing the children at as young an age as possible to the benefits of ham radio (is key), again recognizing the fact that there are a million other things out there that are wooing them for their attention and that are on TV two or three times an hour in the form of a commercial.

Be the DX

Finally, I asked Mark if he had any suggestions for *CQ* readers. His answer: Be the DX. "I would certainly encourage (that), for those who travel or have the ability," reflecting on his many visits to Bermuda and his long friendship there with Ed Kelly, VP9GE. "I can't tell you how much joy that's brought to my life, the ability to get on a plane in Providence and a couple of hours later be operating at his ham shack in Bermuda, which I have done a couple of times a year for many, many years."

"I started visiting the island back in 1993," he recalled, "and then I became acquainted with Ed and he was in the process of building a station there. … One of the real joys of my life has been not only operating as VP9/AA1AC but getting to know (Ed), getting to know his family. I descend upon them a couple of times a year, and then pay for it six months later when my bureau shipments start coming in. I've still got one sitting on my kitchen table at home. So the DX bug bit me young and hard, and remains to this day."

Mark concluded, "Again, I know I started out with this, the whole history of DX, the Colvins and Gus Browning and Martti Laine and Don Miller. It's just—to me—very, very magical. I think there are times when my family wishes I would grow out of it, Rich, but at age 52, I'm afraid it's with me for life."

Packet, it seems, is back. As "old-time" packet radio experiences a rebirth as a reliable tool in our emergency communications arsenal, KB2SCS has developed Windows®-based software to make sending packet mail—and files—as easy as sending e-mail.

EcomScs and GateWayScs

Easy-to-Use Packet Radio Software for Emergency Communications

BY JOHN BLOWSKY,* KB2SCS

Several months ago, I was listening to a repeater while driving and thought I had driven into a time warp. Two stations were discussing the procedures for making packet connections, connecting to a packet bulletin board, and sending messages over the network to remote BBSs. I thought I'd gone back in time 20 years (without getting any younger in the process). As far as I knew, traditional packet radio (except for DX Clusters) was dead and buried. Apparently not. I discovered that packet is alive and well in the emergency communications arena, at least in the New York City metro area. I asked CQ Digital Editor Don Rotolo, N2IRZ, to do some digging, and then this article from KB2SCS came across my desk. This article, along with Don's column this month, spotlight the rebirth of packet radio on the ham bands.

—W2VU

How many times in your ARES or RACES career have you heard the following on the net frequency? "Net control, could you please tell the Shelter One packet station to disconnect from the EOC mailbox? I have messages waiting for over twenty minuets or more."

Having to make such a request is a waste of the net control's and the net's valuable time. However, it illustrates an all-too-common problem with using packet radio in emergency communications. Acutally, it is a three-part problem:

First, many (if not most) users do not know how to send and receive BBS (bulletin board system) messages.

Second, many users do not know how to send and receive binary files. Binary files are a problem because users have to know how to make their software perform one of the many packet radio binary file transfer protocols. Both stations have to use the same protocol. In day-to-day usage, this is a problem. During an emergency, it is worse.

Third, many users tie up the EOC (Emergency Operating Center) packet mailbox by composing their messages while connected to it, forgetting or not realizing that only one station at a time may be connected to a BBS.

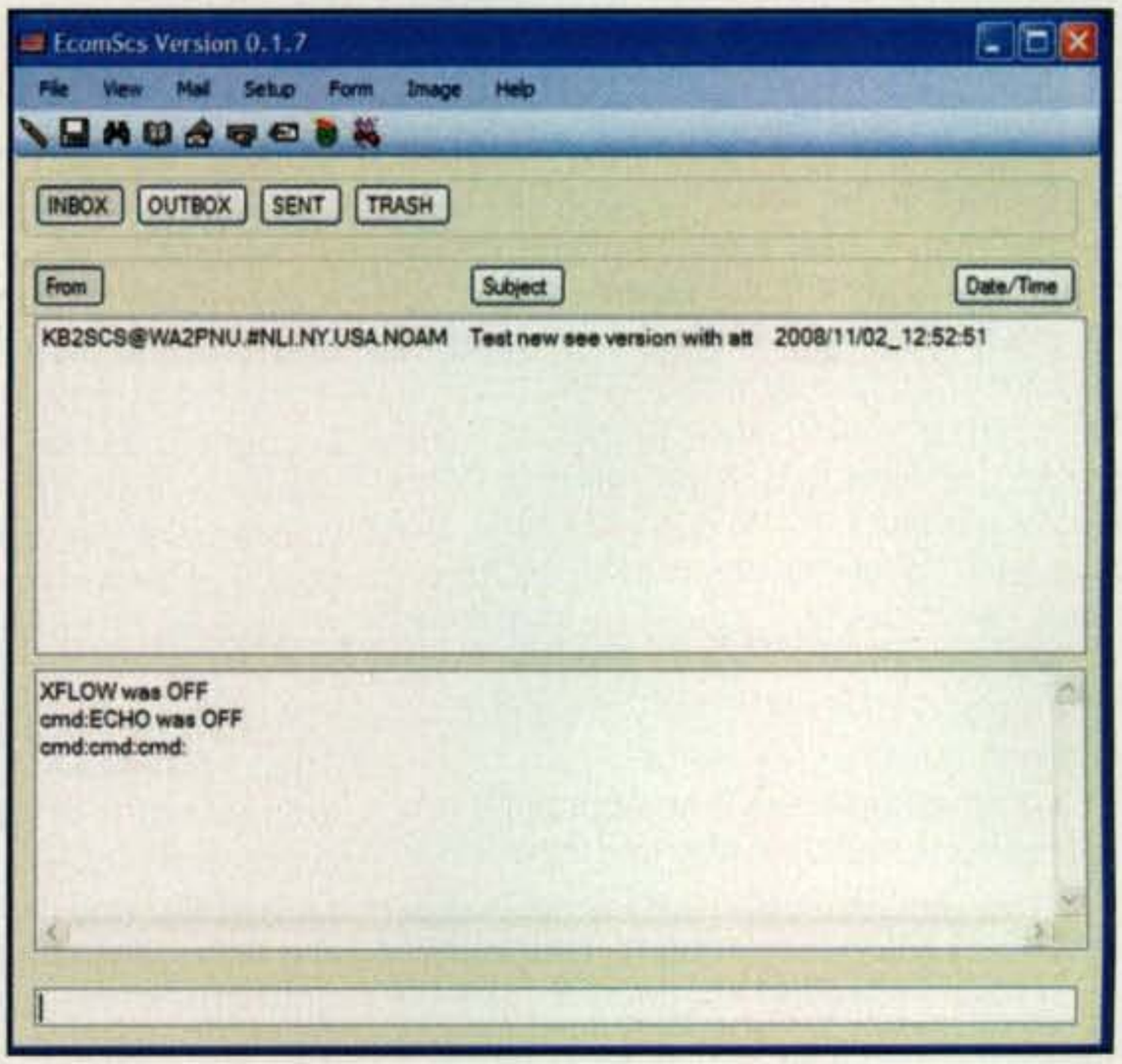

Fig. 1– EcomScs main form.

Enter EcomScs

What most people *do* know is e-mail, so I wrote a program called "EcomScs" (fig. 1), which solves these problems.

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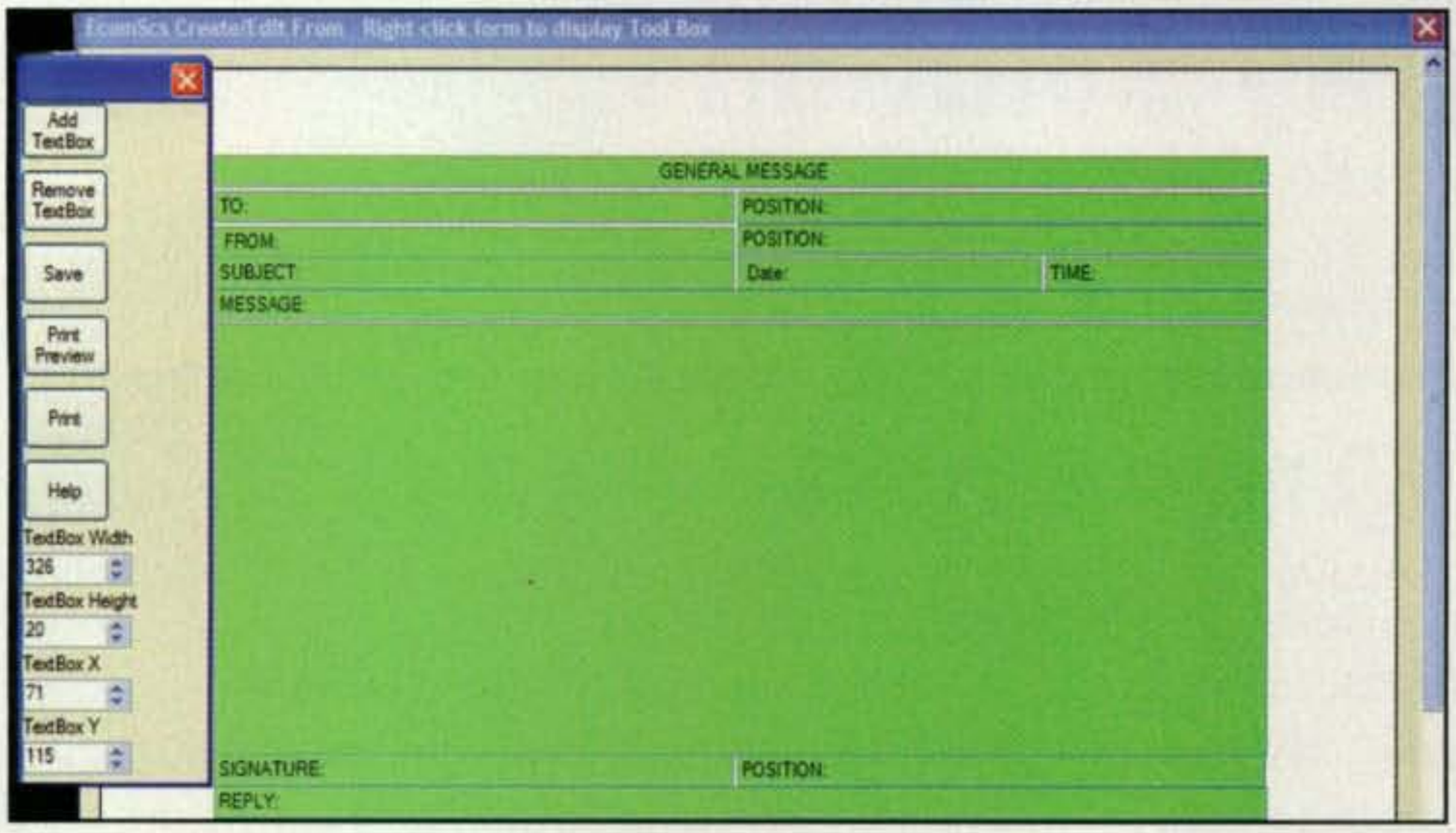


Fig. 2– Example of user-designed forms. This is the Incident Command System ICS-213 general message form.

EcomScs is a packet radio e-mail client. The user interface looks and acts like every internet e-mail client out there (such as Outlook Express® or Eudora®). There is no learning curve in the operation of EcomScs.

The software operates all automatically. EcomScs messages are all composed off line. If the user connects to a FBB BBS, then EcomScs will automatically send and receive messages without any user intervention. The first problem solved.

EcomScs can send and receive any type of file, whether binary or text. The messages EcomScs sends and receives are Mime-compliant. In other words, EcomScs messages are internet e-mail messages. The sending and receiving of binary files is trivial. If you have sent or received an e-mail containing an attachment using your internet e-mail client, then you already know how to send or receive an e-mail containing an attachment using EcomScs. EcomScs sends attachments by first encoding the files into Base64. Base64 is the same type of coding system that your internet e-mail program uses to send and receive its attachments. Once a file is encoded into Base64, then that file is now ASCII text. Packet radio does not need any special protocol to send ASCII text files. Second problem solved.

Fig. 3– Example of a 39-kb .jpg file of Horton's Point Lighthouse reduced to a little over 4 kb. (Editor's note: This does not look good in print because of its size, but will easily be transmitted over a 1200-baud packet connection.)

After the user clicks on the send and receive button, EcomScs sends and receives its messages automatically. This means that EcomScs connects to the BBS, receives its messages, sends its messages, and then disconnects. This is a very efficient use of the packet radio frequency. No time is wasted by composing messages online or forgetting to disconnect. You connect, do what you have to do, and then disconnect. The EOC mailbox is not tied up because it is not used. The EOC sends and receives its messages from the same FBB BBS that everyone else is using.

This way, the packet radio operator at the EOC can send and receive the EOC packet messages when it is convenient. Third problem solved.

EcomScs Features

Besides the features mentioned earlier, EcomScs can send and receive messages formatted like ARRL NTS messages as attachments. EcomScs has the ability for the user to make his/her own forms, such as the ICS-213 General Message Form (fig. 2) used when operating under the Incident Command System. The making of these user-defined forms is done interactively by

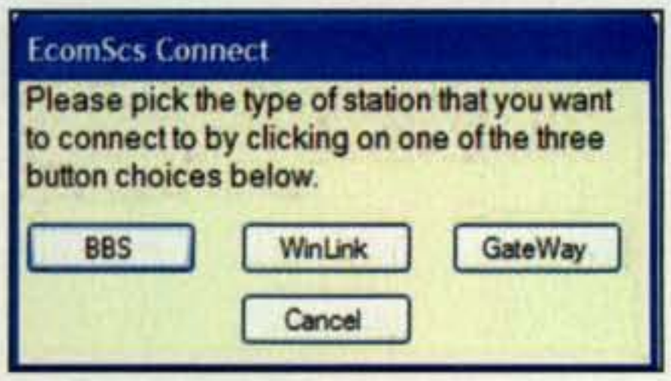


Fig. 4– EcomScs connect dialog. Select the type of relay station you are planning to use to send your message.

the user dragging and dropping text boxes on a virtual 8.5" × 11" piece of paper. The form design is a "WYSIWYG" ("what you see is what you get") when printing the forms on your printer. These user-defined forms can be sent and received as attachments.

EcomScs has the ability to take any image file (.jpg, .gif, .bmp, .tif) and reduce its file size to a more realistic size for sending as an attachment over 1200-baud packet radio (fig. 3).

EcomScs also has a packet radio terminal program built in. Thus, keyboarding between stations is possible for those times when a short message will work better than an e-mail.

Receiving and Sending E-mails

There are three ways that EcomScs can send and receive its packet radio e-mails:

1. By connecting to a FBB BBS;
2. By connecting to a Winlink node, and
3. By connecting to a GateWayScs station (more on this in a bit).

The user's outgoing e-mails are stored in the EcomScs Outbox directory. Five e-mails could be going via a FBB BBS; three messages could be going via a Winlink node; and four e-mails could be routed through a GateWayScs station.

When a user clicks on the send and receive button, the EcomScs Connect dialog is displayed (fig. 4). The user can then select which type of station he/she wants to connect to—a FBB BBS, a Winlink node, or a GateWayScs station. For example, if the user selects the Winlink node, then EcomScs will automatically connect to the Winlink node and interact with it by sending Winlink commands and reacting to the Winlink node prompts. This interaction will cause the Winlink node to send any messages it has for this EcomScs station. The EcomScs station will then send the three Winlink node messages that are in its outbox . Again, this all happens without any user intervention

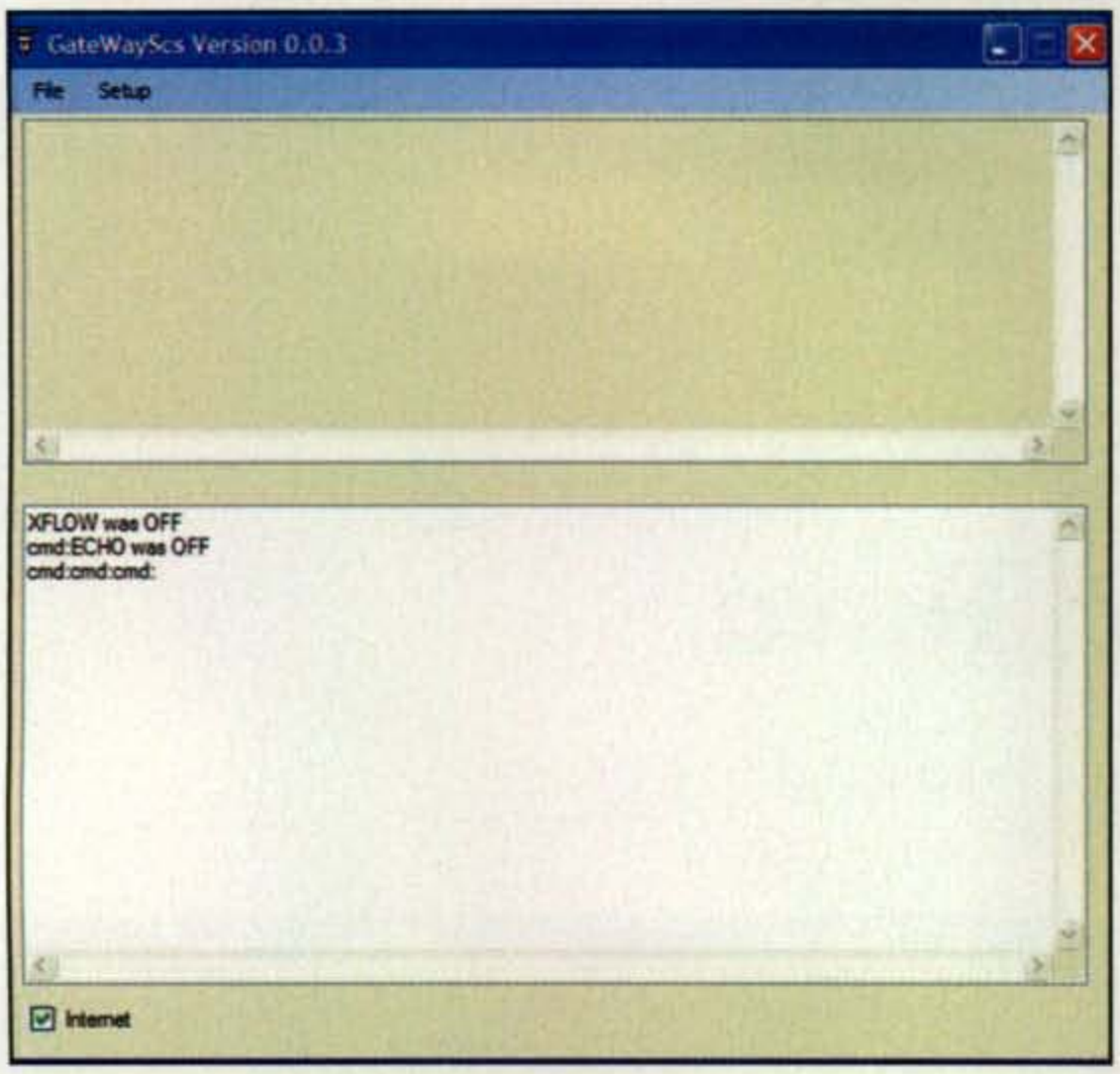


Fig. 5– GateWayScs main form.

other than starting the process by clicking on the send and receive button.

GateWayScs

GateWayScs is an internet e-mail gateway (fig. 5). There are two ways to set up a GateWayScs station. One way is as an internet gateway station; the other is as a packet radio mailbox. To better explain I will use the following example:

A hurricane has devastated the communications in your county. You are given the task of providing local and internet-based packet radio communications for the EOC. In the beginning of this disaster, the local BBSs are down. The dedicated BBS sysops will have the BBS system up and running as quickly as possible, but in the meantime you set up an EcomScs station at the EOC. Meanwhile, another member of your ARES group sets up a GateWayScs station on a high point in your county. This GateWayScs station does not need or use an internet connection. It is there to provide a local packet mailbox. EcomScs stations that send their e-mails to this GateWayScs local mailbox station will have those e-mails stored on its hard drive.

Note there is no mail forwarding performed by this GateWayScs local mailbox station. Its purpose is not to replace the BBS system, but to provide a temporary mailbox for EcomScs stations to send and receive their local packet mail until the normal BBS system is restored. At this point, you have completed the first part of your mission to provide local packet communications for the EOC.

The second part of your mission is to provide internet e-mail communications for the EOC. This being a hurricane example, the ARES groups in surrounding counties that were not affected as badly as yours are wondering how they can *help your devastated county.*

Before this emergency (because you are prepared and practice regularly), you have programmed your radio with the all of the repeaters that are used by the ARES groups in the surrounding counties. You contact someone on one of these repeaters. Let's call this gentleman Joe. Where Joe lives, the internet is doing just fine. Over the repeater, you give Joe the URL (web address) from which he can download GateWayScs. Joe downloads and sets up GateWayScs at his home. Over the repeater, the two of you work out a packet simplex frequency to use for this circuit. If your EcomScs station at the EOC can reach Joe's GateWayScs station either direct or through packet nodes, then you have completed your second mission to provide internet *e-mail* for the EOC.

Does the hurricane example sound far-fetched? It is not. Why? Because EcomScs and GateWayScs are very easy to install and set up. The install program for each one is nothing more than a program that creates directories and copies files to those directories. Neither the EcomScs nor GateWayScs install programs make any changes to your PC. Uninstalling either program is simply a matter of deleting the EcomScs or GateWayScs directory. Setting up EcomScs and GateWayScs is also very simple. If you have ever set up an internet e-mail client, then you already know how to setup EcomScs and GateWayScs. EcomScs and GateWayScs are "come as you are to the disaster" programs. If you already have a packet radio station (TNC, transceiver, and PC) then all you need to do is download the software, install it, and set it up.

I hope this article has given you food for thought on a better method for the use of packet radio during a disaster. You can obtain EcomScs and GateWayScs from <http://www.qsl.net/kb2scs>. The programs are free. There is also an EcomScs GateWayScs users' group at <http://groups.google. com/group/ecomscs>. If you need more information, you may contact me at <kb2scs@arrl.net> or better yet, by packet radio at <kb2scs@wa2pnu.#nli.ny.usa.noam>.

(Note: The current version of EcomScs will work both with a traditional TNC and the AGWPE sound-card simulator. See the "Digital Connection" column elsewhere in this issue for more about AGWPE.—ed.)

This year's CQ World-Wide Foxhunting Weekend will be a prelude to USA's national championships of ARDF. Why not use it to get the locals ready to take on the nation?

Bring Radio Foxhunting To Your Town

BY JOE MOELL,* KØOV

A fellow ham has put one or more transmitters on the air—somewhere. He or she is not telling where, but there might be a set of boundaries for the hunt. Your mission is to find the "fox" or "foxes." Other hams will be looking, too, with radio-direction-finding (RDF) equipment that might be similar to or quite different from yours. Could this be the most fun you can have on the ham bands without transmitting?

To win the contest, you must get to all those foxes first, or do it with least mileage added to your odometer. The winning criterion depends on the local hunt rules, and so does the reward. You might win the job of transmitting for the next hunt, but that can be just as much fun! Will you find the perfect hiding location to keep the mobile hunters driving for hours?

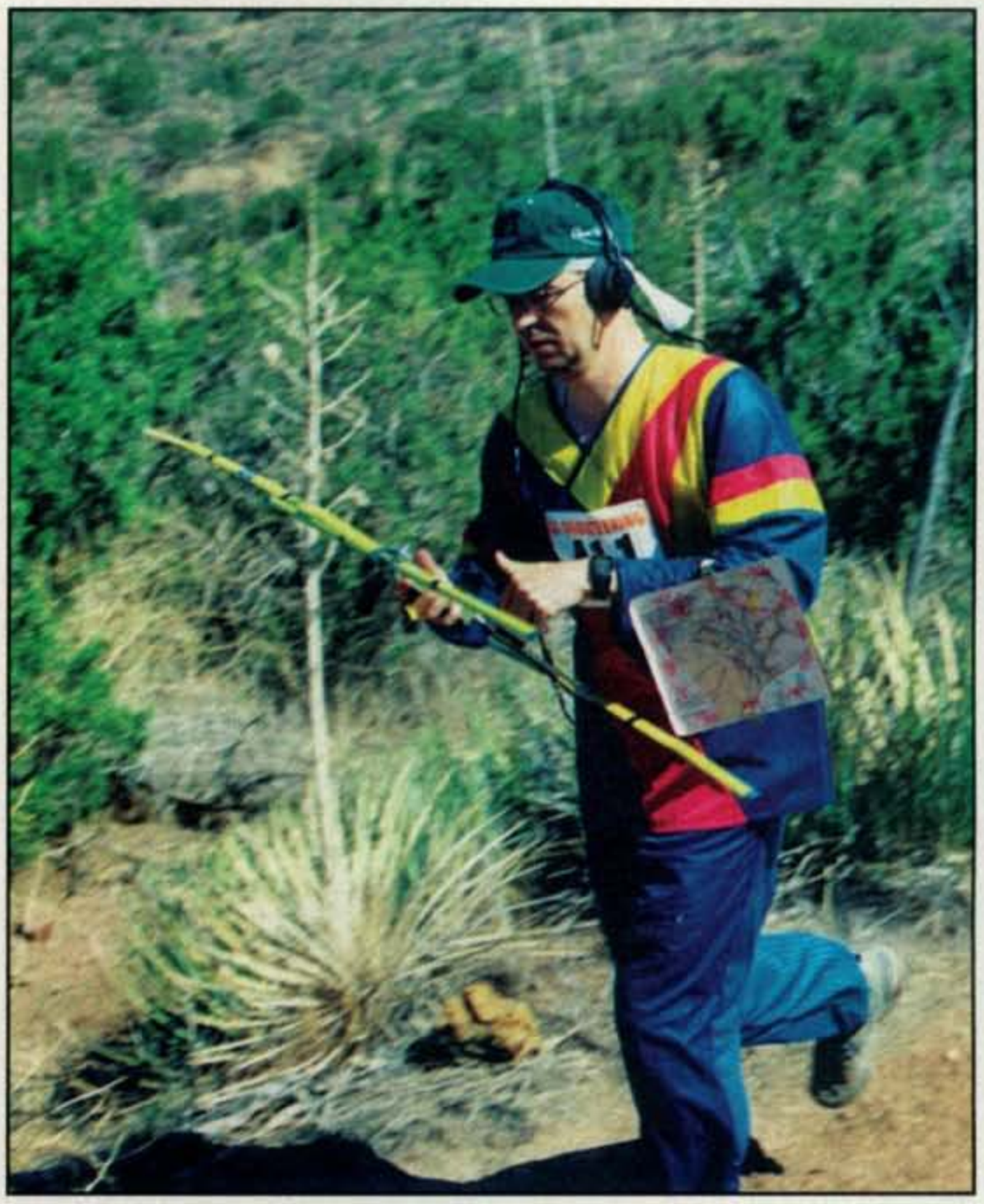
Hidden transmitter hunting tests your equipment, challenges your mind, and may even improve the fitness of your body. For some hunts, athletic ability is an advantage. The little rigs are in a big park and the only way to find them is on foot. They might be cleverly concealed under rocks or up in trees. Maybe one is inside a fake boulder or a tree limb.

In another kind of on-foot foxhunting, everyone follows an internationally agreed-upon set of rules that require the transmitters to be set up in a special orienteering course with orange-and-white flags, unique registration punches, or electronic scoring. See the sidebar for more about this organized world-wide sport.

As warm weather returns to most parts of the country each spring, *CQ* encourages hidden transmitter hunting by sponsoring its annual World-Wide Foxhunting Weekend. This year, it will be May 9–10. For many clubs, this kicks off a season of regular transmitter hunts. For others, it's a once-a-year event, like Field Day. A picnic or barbecue is often included to get everyone in the family involved.

CQ doesn't impose any rules or offer any prizes for the NFW. That's up to you and your fellow hometown hams. You don't even have to schedule it on May 9–10. Any weekend in the spring will be fine!

Some hams prefer formal transmitter hunts with carefully crafted boundaries, specifications for signal parameters, time limits, and so forth. Others are completely content just by having one or more signals to hunt—no need for any regulations, they say.



Vadim Afonkin is setting out on the 2-meter course at the 2004 USA ARDF Championships in California, on his way to a gold medal. He will be host and will set the courses for this year's championships near Boston. (All photos by Joe Moell, KØOV)

Prepare for the Championships

Last year's Foxhunting Weekend coincided with USA's national championships of international-rules on-foot transmitter hunting. The 2009 championships won't be on Foxhunting Weekend, but I expect that on May 9 and 10 there will be many RDF sessions in parks around the country. They will introduce hams to the sport and help competitors get ready to travel to Massachusetts four weeks later.

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Visitors from all over the world are welcomed at USA and IARU ARDF championship events. A dozen radio-orienteers from China attended the USA Championships in Albuquerque, New Mexico and were greatly interested in these ammunition-box transmitters.

This year, for the first time, foxhunters in northeastern states will be within a day's drive of the USA championships. The site will be the Blue Hills Reservation, which straddles Interstate 93 about 10 miles south of downtown Boston. This 7000-acre venue is the largest conservation land within a major metropolitan area. It has 125 miles of trails that go through forests, marshes, swamps, and meadows, as well as an Atlantic white-cedar bog.

Beginners and experts will gather on Friday, June 5 for practice and equipment checks. Next will come two days of intense competition, Saturday on 2 meters and Sunday on 80 meters. Awards will follow each event.

The host for this year's USA championships is Vadim Afonkin, KB1RLI, who learned the sport as a youth in his native Russia. He knows how to set challenging courses, because he has competed and won medals at national and inter-

Getting RDF equipment installed in the family vehicle for mobile T-hunting takes some planning. Now is the time to start, so you will be ready for Foxhunting Weekend.

national events for many years. Most recently, he took fifth in his age category among foxhunters from around the world at the 2008 ARDF World Championships in South Korea.

Our national championships are open to anyone who can run or walk through the forest while carrying RDF gear for 5 to 10 kilometers. A ham license is not a requirement. Expect to meet beginners and experts from all over the world, because these USA championships are being combined with the biennial championships of International Amateur Radio Union Region 2 (North and South America). Visiting competitors from all countries are welcome. Registration forms are available for download at the event website.[1]

Get Started Now

At the start of every year, the officers of radio clubs in my area poll their members to find out what programs and activities are of greatest interest. If that's true where you live, it's your opportunity to get hidden transmitter hunting onto the front burner. Talk it up on the local repeater so that others will help to put it at the top of the list of things to do.

If you promote it, don't be surprised if you are asked to be Foxhunting Chair for the club. Don't worry. Planning hunts and building gear can be almost as much fun as the actual transmitter tracking. There are plenty of resources to help you including a book,[2] an instructional DVD,[3] and lots of websites with photos and videos. *CQ* and *CQ VHF* magazines have featured transmitter hunting on a regular basis over the years, so dig into that stack of back issues.

Start your search at my website,[4] which has the announcement of this year's Foxhunting Weekend, an article on mobile T-hunting that you can put in your club's newsletter, and ideas for equipment that will make a foxhunter out of anyone with a 2-meter handi-talkie.

Every member of your club is a potential participant in Foxhunting Weekend. Better yet, include the whole community, especially young people. Invite a Scout troop to experience on-foot transmitter tracking or to ride along with the mobile hunters. Look for opportunities to incorporate foxhunting into Scout activities such as Camporees, Scout-O-Ramas, and Jamboree-On-The-Air. Other youth groups, such as 4H and Indian Guides, may also be interested.

Whatever your club's RDF contesting style, be sure to keep safety in mind. Don't put transmitters where someone might get hurt getting to them. Make sure that all transmitting and receiving

Measuring-tape Yagis and active attenuators are easy to build and are all that is needed for on-foot foxhunting with a 2-meter hand-held. Mary and Mike Cegelski, KC8YLC and K8EHP, are practicing for an ARDF championship event in the California desert.

ARDF Rules: A Quick-Start Guide

Around the USA and the world, there are wide differences in the guidelines and rules for transmitter hunts in vehicles. Each group develops the kind of mobile contests that suit the skill and temperament of the local T-hunters, as well as the geography and climate of the region.

"Roll-you-own" rules won't work when radio-orienteers gather from all parts of the country and the globe to test their skills on foot in the forest. As interest in ARDF spread through Europe three decades ago, a committee of the IARU was formed to standardize the rules. That made it possible to hold the First World ARDF Championships in 1980. As the sport has grown in popularity, the rules have kept up. Their purpose is to ensure that winners have the ideal combination of direction-finding skill, orienteering ability, and physical stamina.

Starting on 80 meters with just a few age categories, championship ARDF now has five age categories for men and four for women, with two more to be added before the next world championships in 2010. Now 60-year-olds don't have to compete against 40-year-olds. Having more categories means that more gold, silver, and bronze medals are available to be won.

At national and world championships, there are separate hunts during separate days on 80-meter CW and 2-meter AM. Each takes place in a large forested area. Five transmitters are on the air with distinct identification. Fox #1 is on for 60 seconds, then it goes off and #2 comes on for a minute. The cycle continues until #5 has finished, at which point #1 begins again.

Competitors receive a detailed, color orienteering map of the forest just before they set out on the course. They must navigate from the starting corridor to each of the required fox transmitters (five, four, or three, depending on category) and then to the finish line using the map and their own RDF gear. Scoring is done first by number of transmitters found and then by elapsed time. There is a time limit, usually about three hours. If you stay out in the forest longer, you are disqualified.

During championship foxhunts, each person competes as an individual. No teaming or human assistance is permitted on the courses. GPS help for navigation isn't allowed, either. Competitors may not make transmissions except in emergencies.

Nowadays, the ARDF World Championships take place every even-numbered year in a country that is selected by the ARDF Working Group of IARU. Each participating country may send three competitors in each of the age/gender categories. The next World Championships will be in Croatia during 2010.

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FBA25A AA Battery case..... 21.95
MH34B4B Speaker Mic 33.95
VC25 Vox Headset..... 62.95

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SMABNC SMA-BNC Adapter 3.50
ADMSVX170 Software and cable..... 43.95
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FBA25A AA Battery case..... 21.95
MH57A4B Speaker Mic 27.95
VC27 Earpiece Microphone..... 27.95

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FT817ND

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FNB72 Ni-Cd Battery Pack 59.95
MH36E8J DTMF Mic 56.95
YF122S 2.3 kHz SSB Filter..... 164.95

antennas are eye-safe. Always be mindful of your own physical limitations and never take chances behind the wheel or in the forest.

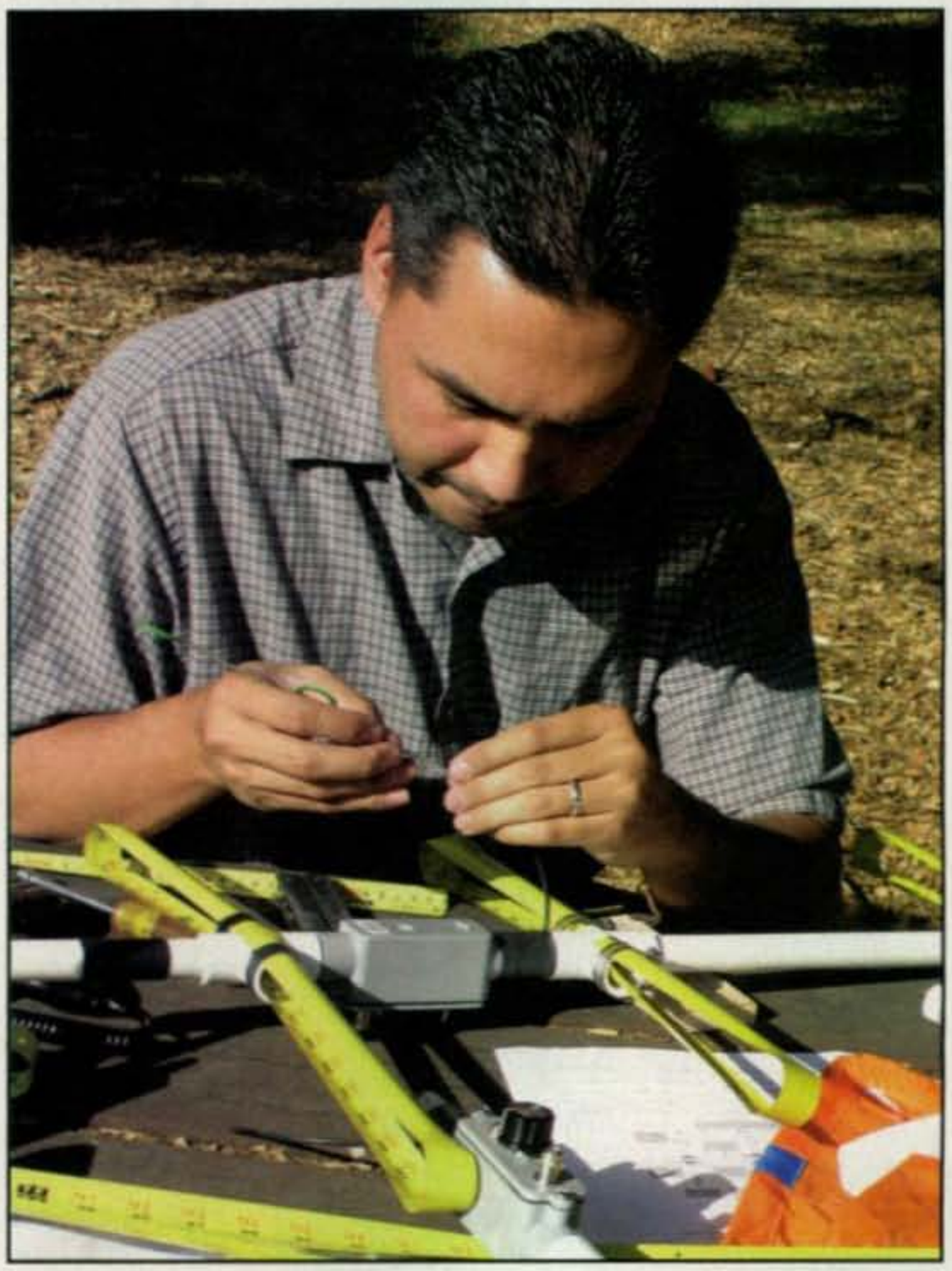
Afterwards, write up the results and send to me. The list of information in a complete CQ Foxhunting Weekend report is posted with the announcement at my website. We need details of date, location, hiders, and winners. Readers also want to know what was unique about your hunt and what lessons (positive and negative) you learned from it.

Take lots of photos for your club newsletter and please send some to me for a follow-up article. Although digital files are best, sharp 5" × 7" prints might be usable. Resolution of 640 × 480 is the bare minimum. A camera of at least four megapixels will give images that will make the editors much happier and will be more likely to be used.

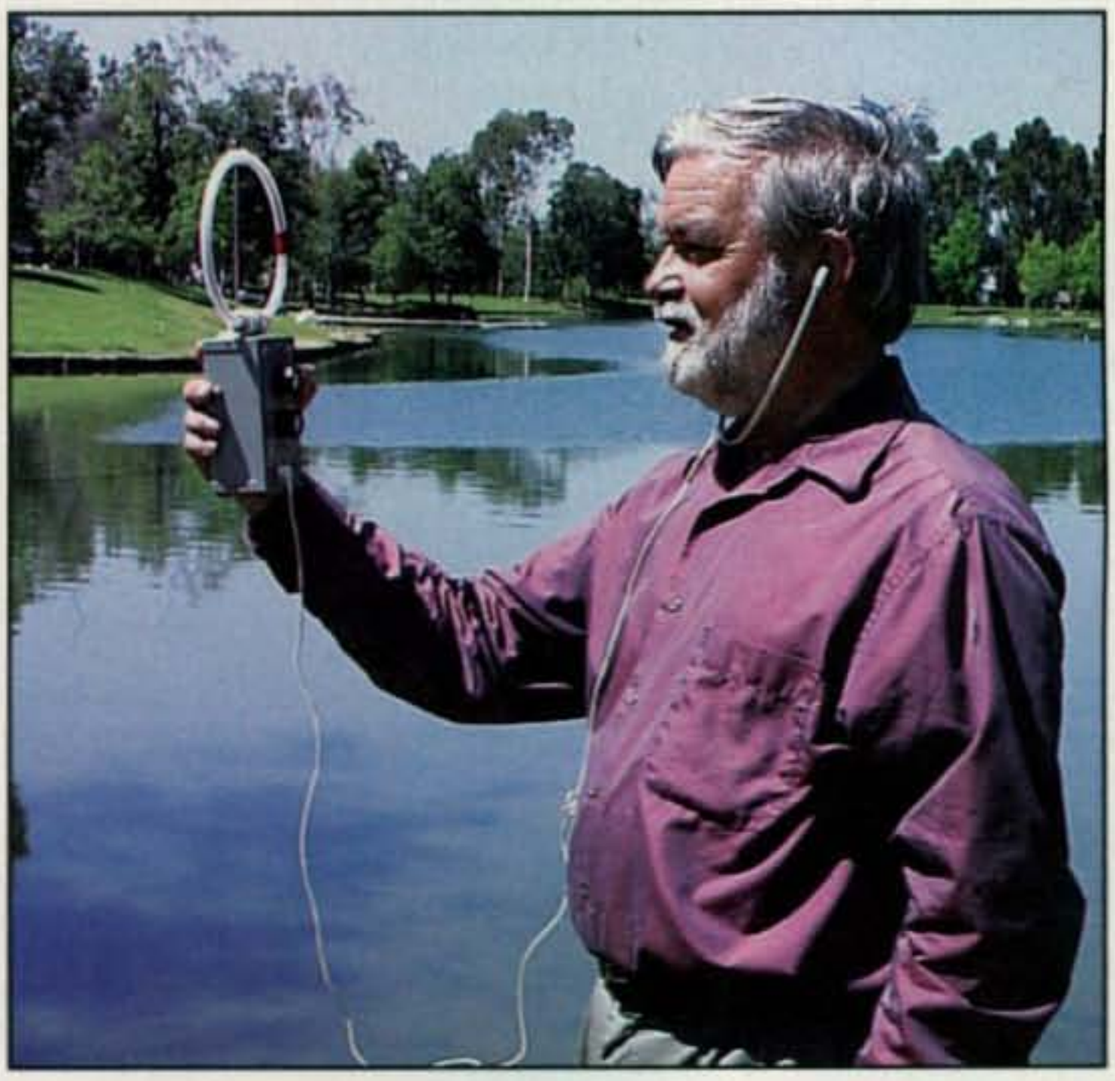
In next month's *CQ*, I will be back with stories and photos from last year's Foxhunting Weekend. That will give you plenty of ideas for challenges and inventive hunts of your own. Meanwhile, start talking up the CQ World-Wide Foxhunting Weekend and making plans for your club's participation.

Notes

1. <http://www.bostonardf.org>
2. <http://www.homingin.com/THRDFSinfo.html>
3. <http://www.arvidnews.com/ardf/index.html>
4. <http://www.homingin.com>



How about a clinic for building and testing foxhunt Yagis and attenuators at an upcoming club meeting? Or you could have the clinic in a park, followed by a hunt. B. B. Odenthal, KG6YGC, is finishing his antenna at an ARDF session near Santa Barbara, California.



ARDF receiver/antenna sets for the 80-meter band are small and easy to carry. Plans and parts are available for home construction. Marvin Johnston, KE6HTS, tested this unit at a hunt in Placentia, California.

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The Lauton Institute, already a pioneer in the development of stealth and cloak technologies, reveals the latest application of those technologies to invisible antennas.

A CQ Exclusive:

The Use of Invisibility Shields to Hide Entire Contest Station Antenna Farms

BY PROFESSOR EMIL HEISSELUFT*
LAUTON INSTITUTE, GROSSMAUL-AN DER DONAU, AUSTRIA

It was more than 25 years ago, April 1981 to be exact, when Professor Heisseluft stunned the scientific world by revealing that the Lauton Institute had experimented with stealth technology as early as the late 1940s … almost 30 years before the U.S. defense community announced the "discovery" of this critical technology. In his landmark article on the subject, the good professor not only described how his optics professor, Dr. Jerzy Ostermond-Tor, D.O.S.E. (ex-YM4XR),[1] asked for help in creating hidden antennas for his station after WW II, but also how he chose to use a technique based on multiple reflections from a plane-parallel film to produce the first stealth aircraft. In this year's revealing article, Professor Heisseluft updates us on the Lauton Institute's latest research in cloaking technology and on how he applied it to hide an entire antenna farm belonging to one of the largest multi-operator, multi-transmitter, high-frequency DX contest stations on the East Coast of the United States. — W2VU

In the pages of April 1981 *CQ* magazine, dear readers, I revealed for the first time that the Lauton Institute had been working in the area of stealth technology almost since the late 1940s. The work primarily centered on the use of coated surfaces that were created through the deposition of two thin, transparent films of differing indices of refraction. By choosing the correct indices of refraction and thicknesses for the films, it was possible to create a situation in which destructive interference occurred for wavelengths near, but slightly below, the middle of the visible spectrum. In this way, the light reflected from the film was predominantly blue … blue enough so that the film could not be

Fig. 1– Artist's concept of the Blohm and Voss P209.[6]

**e-mail: <heisseluft.emil@mashuga.orf.ar>*

Professor Heisseluft is currently in the United States, where he is consulting with Duke University on the fabrication of artificially structured materials called "metamaterials" for use in cloaking research. Mail may conveniently be sent to the professor c/o CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801.

seen against a blue sky! The technology first was tried on a 5-element Yagi-Uda array mounted on a 16-meter boom erected on a 22-meter tower, itself mounted on the roof of Dr. Ostermond-Tor's apartment building in the center of Grossmaul-an der Donau, Austria. From the street, it was totally impossible to see the antenna, something that was absolutely necessary, given that the building's management had refused permission for Dr. Ostermond-Tor to erect even a dipole on the roof!

Based on our success, and as described in the 1981 *CQ* article, we immediately briefed personnel of the Austrian Defense Ministry on this new technology. At that time, the ministry was conducting tests on an experimental swept-wing aircraft similar to the Blohm & Voss P209 developed by the Germans during WW II.[2] (See fig. 1.)

It was agreed that the institute would treat the experimental airplane using our newly developed stealth technology. The result, as expected, was impressive. The airplane, shown in fig. 2, flew numerous missions around the world without ever being detected, and it was the forerunner of Rockwell International's Sabrebat aircraft. Regrettably, after its 10th mission, a flight to Tel Aviv, Israel, the pilot of the experimental Austrian stealth airplane forgot where he had parked the craft, and it never was seen again.

The Latest Developments in Cloaking Technology

Buoyed by the unprecedented successes achieved using the dual thin-film approach to stealth technology, the Lauton Institute continued to press forward with research that had commercial as well as defense-related applications. For example, our laboratory's work on thin films led directly to an Austrian patent for coating lenses to reduce the loss of light by reflection. This technique produces lenses that exhibit a purplish hue. We also started to work collaboratively with the Russians on the idea of a *superlens* that would be characterized by having a negative refractive index. The idea of a perfect lens, or superlens, really came from my good friend Russian physicist Victor Veselago, who was the first to speculate the existence of negative index materials. This was in the late 1960s, if you can believe that! If such a superlens could be fabricated, it would be possible to actually "cloak" objects and mask their presence.

It wasn't until 2000 that John B. Pendry of Imperial College London in

Fig. 2– The Austrian stealth aircraft on its last test flight to Tel Aviv, Israel. (Copyright Arun Kulshreshtha[7])

England introduced the idea of using a microscopically thin film of metamaterial or plasmonic material to create an invisibility zone. According to Peter Weiss of Science News Online[3], "Anything placed close to either side of the film would disappear from view." Scientists subsequently demonstrated that a plasmonic film of silver only a few nanometers thick can serve as a superlens. Others, including the Lauton Institute, have created an invisibility cloak using concentric rings created in a thin, transparent acrylic plastic layer on a gold film.[4] Just as is the case with noise-cancelling earphones, a superlens works because at some distance from the lens, light that bounces off it cancels out with light reflecting off the superlens, and the object becomes "invisible."

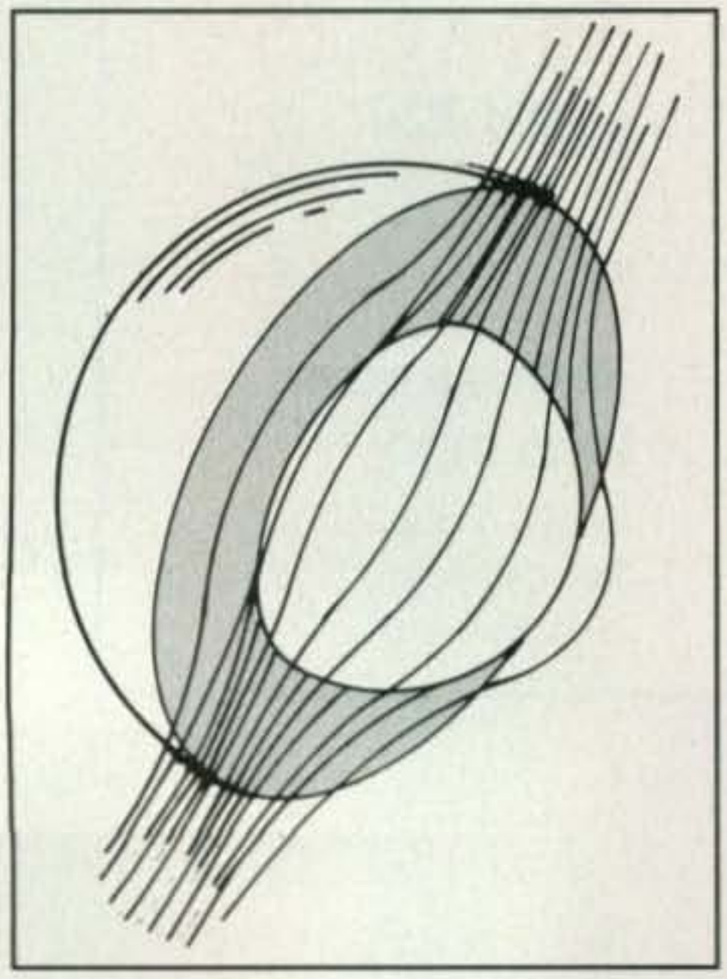

Fig. 3– A shell filled with a metamaterial (not shown in diagram) may render invisible a spherical region (inner ball)—and whatever's in that region. The hypothetical shell forces light rays (dark lines) to detour around the cloaking region, but they then resume their paths as though nothing had blocked them. (After Pendry, Schurig, and Smith/Science; see note 5)

As was reported in *Science*[5] magazine last year, at least two research teams fabricated arrays of nanosize gold particles that exhibited the type of electromagnetic behavior needed for visible-light cavity shielding (see fig. 3). According to Pendry, et al., such shielded cavities theoretically could be of any size. They could enclose objects of any dimension, shape, or substance — even a human being. However, a person concealed within such a "cloak" would no more be able to see out than would someone be able to see in. This does not diminish the potential for the use of this technology, as we shall see below.

Hiding A Complete Multi-Operator, Multi-Transmitter HF DX Contest Station

As an extreme demonstration of cloaking, the Lauton Institute approached one of the largest contest stations on the East Coast of the United States and offered to cloak all of their antennas at no expense to the station owner. The only precondition we asked was that Institute personnel be allowed to make the optical measurements necessary following the completion of the work to acquire the data required for the many scientific papers we intended to publish in the archival literature. The owner of the station, however, requested that the first paper be published in *CQ* magazine, given that journal's preeminent position in the amateur radio world, and the Institute acceded to his wishes.

The contest station of interest has the following complement of antennas:

- 160 meters: 4 full-size quarterwave vertical elements
- 80 meters: 8 elements on 4 booms
- 40 meters: 8 elements on 2 booms
- 20 meters: 42 elements on 8 booms
- 15 meters: 60 elements on 14 booms
- 10 meters: 80 elements on 20 booms

There are 10 towers, 8 rotators, 10 Beverage listening antennas, and 8 spotting verticals.

Fig. 4– Cloaked antenna farm of one of the largest multi-operator, multi-transmitter, high-frequency DX contest stations on the East Coast.

We elected to use an invisibility cloak comprising concentric rings created in a thin, transparent acrylic plastic layer on a gold film. This was a more expensive option, but one that we also found to be more effective. The work took the Institute's research staff, largely comprised of teaching and research assistants, the better part of the summer of 2008. Fortunately, we also had the assistance of the whole contest station team's staff, which disassembled, and then reassembled, the entire complement of antennas.

The results, as shown in fig. 4, were absolutely astounding. It is virtually impossible to see anything but the terrain and the sky in this photo, taken early on a summer afternoon with the camera facing south. Completely invisible to the naked eye are all of the towers, verticals, Yagi-Uda arrays, and Beverage antennas, among other antennas and accessories! There is nothing whatsoever to be seen on the land except the natural vegetation and forest.

Summary

New advances in cloaking technology employing concentric rings created in a thin, transparent acrylic plastic layer on a gold film have been demonstrated to completely hide an entire antenna farm of a major East Coast amateur radio contest station. The application of this technology to other commercial- and defense-related challenges continues to capture the attention of major laboratories across the world, with the Lauton Institute in the forefront of this exciting field.

Notes

1. The claims of former U.S. Vice President Gore notwithstanding, it is Dr. Ostermond-Tor who is recognized universally as the Father of the Internet. In his seminal article "Special Subscriber Service: The Telephone Company's Answer to Amateur Radio" (*CQ*, April 1967, pp. 24–26), Professor Ostermond-Tor presented the essential elements for what we know today as the Internet.

2. See, for example, *Die Deutschen Flugzeuge*, 1933–1945.

3. Science News Online, Week of July 15, 2006; Vol. 170, No. 3.

4. 2-D Invisibility Cloak Technology Also Used In Superlens Microscopy Technology, 01 Jan 2008, <http://www.medicalnewstoday.com/articles/92264.php>.

5. <http://www.sciencenews.org/view/access/id/29714/title/a7470_2292.jpg>.

6. <http://www.europa1939.com/luftwaffe/proyectos/p209.html>.

7. <http://en.wikipedia.org/wiki/Image:Above_the_Clouds.jpg>; licensed via Creative Commons>.

It's been over ten years since WB2UDC coordinated a contact with the Space Shuttle Columbia for a group of children in New York City, and six years since he joined the CQ "family" as a regular contributor with an article about that experience. Last summer, we asked Bob to cover another kids-to-space contact for us from his perspective as a space-contact "veteran."

Believe in Your Dreams
Anatomy of an ARISS Contact

BY BOB HOPKINS,* WB2UDC

In the summer of 2007, *CQ* visited and reported on the Berkeley Heights (NJ) Summer Playground Camp where the New Providence Amateur Radio Club (NPARC) set up a ham station, N2XJ, and allowed kids to get on the air[1]. Now in its fifth season, NPARC added a new twist to an already well-run and engaging program—an ARISS contact. We thought we would come back for another look.

ARISS, Amateur Radio on the International Space Station, is a NASA-, ARRL-, and AMSAT-sponsored educational program. The goal is to have students, with the help of the ham radio community, plan and carry out a ham radio contact from Earth to space. I know first-hand that setting up something like this can be a whole lot of fun, and a whole lot of work, and I can tell you that with success also comes great satisfaction. However, this summer's visit was my first experience as an observer[2].

See the box for the announcement that was passed out to the program's participants. On the eventful day, I was totally prepared to witness the excitement. To completely identify myself as a ham, I donned my NASA T-shirt, callsign badge, and callsign baseball cap, and I put my HT on my belt (did I mention that I also have a callsign belt buckle?). I left early. To further immerse myself in the space experience, I programmed my GPS satellite navigation device to direct me, turn by turn, to the event site. The location was about 40 minutes from my home and I wanted to arrive a couple of hours before everything got hectic. I needed time to talk with the members of NPARC and with the children in the program.

Berkeley Heights Recreation
Summer Playground
Talks to an Astronaut!
Wednesday, August 13
11:30am – 12:15pm

The NPARC Amateur Radio Club of the Watchung Hills area in cooperation with the Berkeley Heights Recreation Commission has been selected to organize and mentor a Ham Radio conversation between children attending the Summer Playground Camp and Astronaut Greg Chamitoff, who is on board the International Space Station (ISS) and currently orbiting the Earth.

I'm not one to be too superstitious, but there were many mysterious signs that things would go well. That morning, I'd read in *The Star Ledger*, our local newspaper, that on Aug 13th in "1960: The first two-way telephone conversation by satellite took place with the help of Echo 1." Also, on my way to camp, as I passed a local bank after getting off the interstate, I noticed that the time/temp on its digital clock was 9:15 AM, with a temperature of 73 degrees! Another good sign. Unfortunately for me, there was construction on the most direct route to the site and my GPS went a bit crazy and directed me in circles for a moment or two. I know it is not the case, but sometimes I think the GPS's tone of voice gets more irritated when I do not follow its directions.

The day camp was in a small park adjacent to a middle school. There were a little over 100 children and about 20 adults in the area. It was easy to spot where the contact was going to take place, because the first thing I noticed was a very interesting antenna—two beams, one mounted vertically and the other horizontally. Between them was a boom made out of PVC with a rotator for elevation. The boom was then set on a tripod with another rotator for directionality. All of this was fixed to a pad made out of ten 4-by-4-by-6 foot pieces of lumber (see photo A). For transmitting and receiving, they had a Yaesu multi-mode 2-meter transceiver driving a 100-watt VHF amplifier, and then hard-line coax feed to the antenna farm. I instantly got the impression that these folks were very serious about their Earth station. Even the microphone was set up with an extra long cable so that it could easily be moved up and down the length of the 20-foot table (photo B).

The first individual I found was Barry Cohen, K2JV (photo C). Barry filled me in on the details, showed me the equipment, and then told me, "It's all about the kids, you know." And he really meant it! The entire ARISS contact was

*e-mail: <bob@cooper.edu>

Photo A– The New Providence Amateur Radio Club's space-contact "antenna farm." See text for details.

going to be run by the kids! The control operator, Vaani Nanavaty, KC2SPJ, entered the seventh grade this September, the antenna operator was another youngster (assisted by one of the senior members of NPARC), and the "head" of the entire operation was Nick Esposito, KC2ONP, a fine young high school sophomore. This was Nick's fourth ARISS QSO; he's been a member of NPARC since 2005 and has a General Class license. He's also a Boy Scout close to completing his journey to Eagle Scout.

Barry, K2JV, is well known for his ham radio philosophy and he freely shares it with anyone who will listen. He's been a ham since 1946, and I suspect he's forgotten more ham radio and electronic theory than I'll ever know. The summer ham radio program is his philosophy in action. He champions the often-discussed question "Why don't we have more kids in ham radio?" and brings it up every chance he gets. He stresses that action on the local level usually has the most impact.

When I met Lena Bendush, Program Director for the Berkley Heights Recreation Department, she could not say

Photo B– The radio setup for the contact with the International Space Station. Note the very long mic cable which allowed the mic to be taken to each child with a question.

Photo C– Event coordinator Barry Cohen, K2JV (left), and control operator Vaani Nanavaty, KC2SPJ, with one of the questioners. The entire contact was run by young hams.

enough nice things about NPARC and Barry. She praised the summer radio program as a unique and educational part of what the department can offer children. She also spoke with me about NPARC's role with respect to many other municipal functions, such as its annual parade. NPARC offers communication support at every opportunity.

The Main Event

The camp had a large open pavilion. In the front were a screen and projector connected to a laptop. The computer was running an application that would display a Mercator projection of the world map with the icon of the ISS in its current position (photo D). We all could view the progress of the station's orbit. The evening before, the ISS had its orbit boosted, presenting a slight change in the time for signal acquisition, and

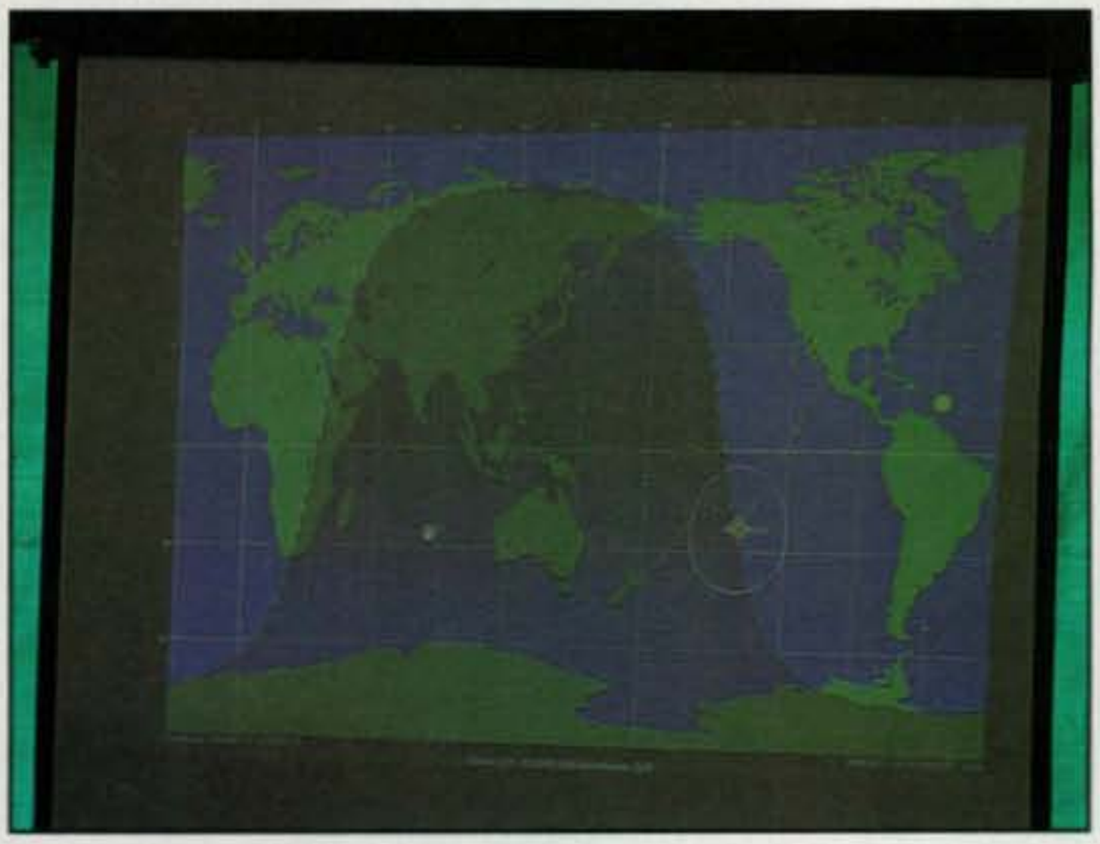

Photo D– A large world map projected on a screen showed the location of the International Space Station as it orbited the Earth.

Photo E– NPARC members use their handhelds to track down the source of noise on the downlink frequency. It turned out to be an overheating power supply for the antenna control system display. It was quickly replaced by a 12-volt battery pulled out of the club president's Elecraft K2 transceiver!

a slight adjustment to the parameters for tracking with the antenna.

10:15 AM

A little under two hours before contact, all equipment was tested. Good thing, as there was a buzz on the downlink frequency! The interference was very strong. The noise would stop and start at random intervals. The team of hams quickly took out their HTs and started to hunt for the source (photo E). There was no panic, but it did get a bit exciting when someone decided to start throwing circuit breakers one by one to see if the source of noise might disappear. When they inadvertently shut down the entire station, there was a collective gasp from the team. Ultimately, the source was found to be a small transformer used to supply 12 volts to the antenna control system display. It was overheating. It was really warm to the touch, and once they pulled it out the buzz was gone. What to do? Jim Kern, KB2FCF, president of NPARC, opened up his briefcase and pulled out an Elecraft K2 transceiver and screwdriver. He opened the top of the K2 and extracted its 12-volt battery. He then took the battery and connected it in place of the malfunctioning wall wart! Talk about being prepared! Good thing he built the K2, as he's really good at taking it apart and putting it back together.

11:00 AM

The original start-of-contact time, 12:09 PM, had shifted slightly due to the orbit boost of the ISS. It was now set for about 12:12 PM.

11:37 AM

Excitement began to mount and the pavilion started to fill up (photo F). There would be nine campers, each with

Photo F– The crowd of campers, parents, hams, and other guests gathers for the big moment.

his/her own question to ask the astronaut. Their parents and other campers were starting to gather. Even some of the spectators were involved in their own form of digital communication (photo G)

11:45 AM

Barry got the show on the road by giving an introduction: "I'm Barry Cohen, and you don't have to know that! This is all about the kids. They worked very hard on preparing for this contact." Barry and his team had made this a totally kid-run event. While NPARC did the major setting up of the Earth station, all operation would be done by the youngsters.

11:50 AM

The ARISS control team called on the cell phone. Nick, KC2ONP, told them that we're going for a contact!

11:54 AM

The ISS saw sunrise as it crossed from night into day as displayed on the big screen. The control op, Vaani, KC2SPJ, has been an active ham since 2007. Vaani is a member of the NPARC. She was 11 years old when she got her Technician Class license.

12:02 PM

The radio footprint of the ISS was now crossing into Mexico.

12:04 PM

As we watched the ISS fly over the state of Texas, Barry took a few questions from the audience.

12:08 PM

Everyone noticed the approach of the ISS on the big screen: four minutes to go! At this point, Barry walks to the back of the pavilion. It is clear this is the kids' show!

12:11 PM

The static from the radio filled the area. Vaani picked up the mic and...

"NA1SS this is N2XJ over."

... still static ...

"NA1SS this is N2XJ over."

... then loud and clear the reply:

"N2XJ here is NA1SS calling on schedule."

The voice of Greg Chamitoff, KD5PKZ, had broken through and the entire audience was captive to the event.

One by one, each of the participants asked their questions. The questions varied from the experiments that Greg was performing on the station to what an eclipse might look like from the outpost. Greg talked about the importance of young people following their dreams. If they wanted to be in the space program, he said, they should by all means go for it. He stressed the importance of doing your best in school, and of the study of math and science. "Believe in yourself and believe in your dreams and do the best that you can do," Greg said.

Photo G– Ham radio was not the only form of wireless communication in use at the event!

The quality of the audio and strength of signal was impressive! Vaani went to each of the kids with the radio's mic and the mic for the public-address system (photo H). These kids were very well-rehearsed. They spoke clearly and their questions were excellent. They had even been coached as to how far away from themselves to hold the mic. At one point, when asked what it was like to

Photo H– Control op Vanni, KC2SPJ, holds the mic for kids asking questions of Astronaut Greg Chamitoff, KD5PKZ, aboard the International Space Station.

walk in space, Greg said he hadn't done that yet, but his commander, Sergei Volkov, would like to answer that question. A booming voice speaking English with a Russian accent came through the speakers, stating that it was "outstanding because you are able to see much more outside than you can from within the station." He told the kids that the view was spectacular and the spacesuit was very comfortable. Volkov is a second-generation space traveler, the first in history. *(The second second-generation space traveler briefly joined Volkov on the ISS in October. Richard Garriott, W5WKQ, son of ham-in-space pioneer Owen Garriott, W5LFL, visited the station as a "space tourist" and made many ham radio contacts. — ed.)*

"Can you see both the northern and southern auroras from the space station?" Greg said he had not seen them himself, but hoped to take some pictures and post them on the Expedition 17 website. Greg even predicted that in the future, children will live in space and perhaps even be born in space.

Greg was asked if he would be able to vote while in space, and he answered that he indeed would be able to vote in the November election. I'm sure some sort of absentee ballot would be provided.

As the window of contact started to close, three of the participants, who just happened to be triplets, wished Greg a safe return to Earth.

Closing the contact, Vaani returned to the mic and invited Greg to Berkeley Heights for a visit after he returned home.

NA1SS this is N2XJ over.

Excitement and Awe

There have been many ARISS and SAREX (Shuttle Amateur Radio EXperiment) contacts over the years. Each group, I'm sure, takes back with it a bit of the excitement and awe provided by the space travelers—the heroes up in orbit, isolated from their families, yet dedicated to doing a job they believe will serve humanity. There are also those dedicated amateur radio operators who give up their time to provide a wonderful experience for the community. It is clear that NPARC has created an educational and engaging program.

NPARC has some young members. The club provides the new hams with enough encouragement and equipment to get on the air. More importantly, it provides a setting where these new hams can connect and grow. The club also supports a young person's net on the local repeater. It is often said the hobby needs young people to continue to thrive. This is a good example of how to attract and keep young folks in the fold. What is learned is not just "talking on the radio," which is great, but also how to work with others on technical tasks, how to take part in public-service events, and how to talk to adults and to each other. We all have our stories to tell. I hope the young members of the NPARC team share their story about their chat with Greg and Sergei.

Notes

1. Moseson, D., "Take Your Ham (Station) to Camp," October 2007 *CQ*.

2. Bob's first article for *CQ*, back in 2003, described his own experiences facilitating a school contact with an astronaut aboard Shuttle Columbia in 1997. See "The Nine-Minute QSO: Ham Radio Brings Space Down to Earth," March 2003 *CQ*.

What You've Told Us...

Our September survey continued August's theme about perceptions of technical skills among today's hams, in addition to your thoughts on amateur radio's inclusion in a list on America Online of "Top 25 Things Vanishing from America." Among the readers who responded to the survey, 59% disagreed with our hobby's inclusion on that list, while 23% agreed and 18% were not sure. Asked for your view of the current state of amateur radio in the United States, just more than half of you (53%) described it as "stable but static," while 23% found it "healthy and vibrant." On the negative side, 22% feel ham radio is on a downslope, and 1% feel it is "irretrievably sinking into oblivion."

Just under half of you (49%) see the current state of amateur radio technology as "state of the art," while another 15% view it as cutting edge. Nineteen per cent responded "a mix of new and old," while 16% feel ham technology is "somewhat behind the leading edge" and 4% view it as "far behind the leading edge."

Asked for your perception of technical knowledge and skills among your fellow hams, 36% rated it as good, while 33% said mediocre, 14% saw a mix of skill levels, 9% rated it as poor, and 8% said "excellent." Asked how your own technical knowledge and skills compare with those of other hams, 20% of you said you know more than *most* hams you know; 35% said you know more than *some* hams you know; 27% said you know about the same amount, 13% feel they know less than most other hams, and 4% believe they know less than everybody else.

Finally, we asked what you have done in the past year to help keep ham radio viable and growing. Responses were as follow: Improved my own knowledge and skills, 68%; held a leadership position in a club or other ham organization, 37%; helped train one or more new hams, 37%; helped recruit one or more new hams, 36%; invited others to my shack to visit or operate, 36%; demonstrated ham radio to members of the public, 35%; presented a program at a club meeting, 27%; other, 20%; wrote an article for a magazine or newsletter, 18%; and nothing, 8%.

This month's free subscription winner is George Schomberg, K2YLH, of Emerson, NJ.

Reader Survey April 2009

We'd like to know more about you—about who you are, where you live, what kind(s) of work you do, and of course, what kinds of amateur radio activities you enjoy. Why? To help us serve you better.

Each time we run one of these surveys, we'll ask a few different questions and ask you to indicate your answers by circling numbers on the Survey Card and returning it to us. As a bit of incentive, we'll pick one respondent each month and give that person a complimentary one-year subscription (or subscription extension) to *CQ*.

This month, we'd like to get a snapshot of how you get your information about what's happening in ham radio.

Please answer by circling the appropriate numbers on the reply card.

1. Which, if any, of the following sources do you use to keep up on what's happening in ham radio? (Circle all that apply)

Audio news services....29
Club newsletters....30
Fellow hams....31
Internet....32
Magazines....33
Other....34
None....35

2. Which of these sources is your *primary* source of ham radio news and information? (Circle only one)

Audio news services....36
Club newsletters....37
Fellow hams....38
Internet....39
Magazines....40
Other....41
None....42

3. What is your primary source of information about ham radio equipment and accessories?

Club newsletters....43
Fellow hams....44
Ham dealers....45
Hamfests....46
Internet....47
Magazines....48
Other....49
None....50

4. Which of the following radio publications do you read regularly? (Circle all that apply)

CQ....51
CQ VHF....52
DX Magazine....53
Monitoring Times....54
National Contest Journal....55
Popular Communications....56
QCWA Journal....57
QEX....58
QST....59
WorldRadio Online....60

Thank you for your responses. We'll be back with more questions next month.

MFJ-259B Antenna Analyzer

The world's most popular antenna analyzer gives you a complete picture of your antenna performance 1.8 to 170 MHz. Super easy-to-use -- makes tuning your antenna quick and easy. Read antenna SWR, complex impedance, return loss, reflection coefficient. Determine velocity factor, coax cable loss in dB, length of coax and distance to a short or open in feet. Read inductance in uH and capacitance in pF at RF frequencies. Large easy-to-read two line LCD screen and side-by-side meters clearly display your information. Built-in frequency counter, Ni-Cad charger circuit, battery saver, low battery warning and smooth reduction drive tuning.

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MFJ *Weather-Proof* Antenna *Feedthrough* Panel

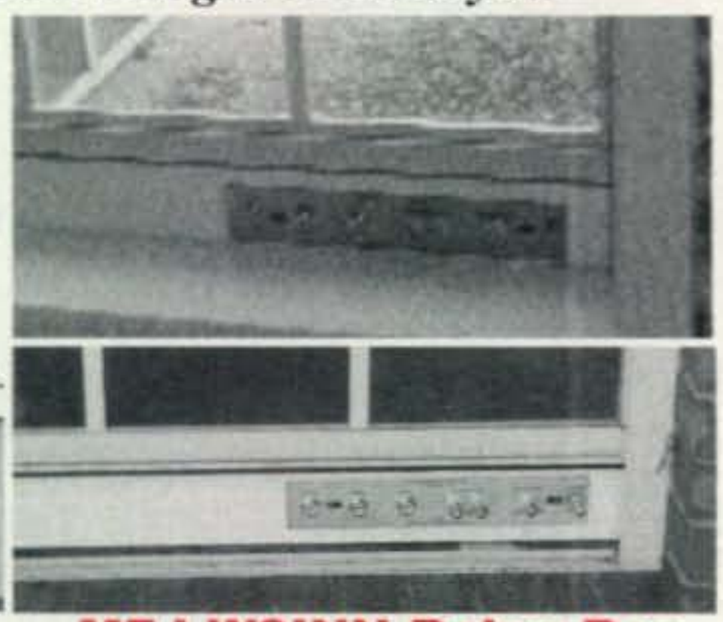
Bring three coax-fed HF/VHF/UHF antennas, balanced line, random wire and ground into your hamshack without drilling through walls . . . ***New!*** MFJ-4602 **$69.95**

MFJ's Weather-proof *Antenna Feedthrough Panel* mounts in your window sill. Lets you feed three coax-fed antennas, balanced line, random wire and ground without drilling through walls.

Simply place in window sill and close window. One cut customizes it for any window up to 48 inches. Use horizontally or vertically. High-quality pressure-treated wood with excellent 3/4 inch thick insulating properties is painted with heavy coat of white outdoor enamel paint. Edges sealed by weather-stripping. Seals and insulates against all weather conditions. Gives years of trouble-free service. 3/4Dx3 1/2Hx48W in.

Inside/outside stainless steel plates bond all coax shields to ground. Stainless steel ground post brings outside ground connection inside. 3 *Teflon*® SO-239 coax connectors, *ceramic* balanced line/randomwire feedthru insulators.

Stainless Steel Bonding Plate



Current Balun/Center Insulator

MFJ-918 **$24.95**

True *1:1 Current Balun/Center Insulator* forces equal antenna currents in dipoles. *Improves all dipoles/doublets!* Reduces coax feedline radiation, field pattern distortion, TVI, RFI, RF hot spots. SO-239. 1.8-30 MHz, 1.5kW. Stainless steel hardware. *Direct* wire connection to antenna. 5x2 inches.

MFJ-915 RF Isolator

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MFJ-915 *RF Isolator* prevents unwanted RF from traveling on the outside of your coax shield into your transceiver. Clears up RFI. Eliminates painful RF "bites" on your rig or microphone. Keeps your transceiver and vehicle displays and settings from locking up. Plugs between coax and transceiver. 5x2 inches. 1.8-30 MHz, 1.5 kW.

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Antenna Switches

MFJ-1702C **$39.95**

MFJ-1704 **$79.95**

MFJ-1702C 2 position antenna coax switch. Exclusive lightning arrestor and center pos. ground, lightning arrestor. 2.5 kW PEP, 1 kW CW. Loss below .2 dB. 50 dB isolation @ 450 MHz. 50 Ohms. 3x2x3".

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MFJ-1775W, $249.95. WARC band version for 12, 17, 30, 60 Meters only.

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Huge 3" meter. Telescoping ground-independent *dipole*. .1-500 MHz. Sensitivity control. Remote sensor, MFJ-802R, $34.95.

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MFJ-802 **$49.95**

Clamp-On RF Ammeter

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Clamp-On RF Ammeter snaps over cables up to 1/2 inch diameter. Measure RF currents in antenna elements, radials, ground wires, coax shield. Five *calibrated* ranges to 3 Amps. 1-30 MHz. 2 1/2Wx5 1/2Hx1 1/2D inches.

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160-10 Meters with tuner. 102 foot.1.5 kW. Use as Marconi on 160 Meters with tuner/ground. Ladder line/SO-239.

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33 foot super strong fiberglass *telescoping* mast collapses to 3.8 feet, weighs 3.3 lbs. Huge, strong 1 3/4 inch bottom section. Flexes to resist breaking. Resists UV. Put up *full size* inverted Vee dipole/vertical antenna in minutes and get *full size performance!*

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What can you do to get on the air on HF when there's not enough space for an antenna? Well, if you have even just a little bit of room, you can try the TAK-tenna spiral dipole. It puts you on 40 meters in 1/60th the space you'd need for a standard dipole.

CQ Reviews:

TAK-tenna Mini HF Dipole Antenna

BY GORDON WEST,* WB6NOA

The TAK-tenna kit I tested is a great option for hams with antenna restrictions, as well as those amateurs interested in learning how a 40-meter half-wave dipole operates at 1/60th size, only 26 inches long, with 32-inch diameter spiral radiators! (The company has models for other bands, too.) After quick assembly and precise tuning, we made some *amazing* contacts on HF.

The TAK-tenna kit offers good high-frequency performance for those hams living in an antenna-restricted zone. The small size (photo A) allows for permanent attic installations, concealed balcony installations, and covert backyard HF operation just a few feet off the ground. If your community does not allow ham high-frequency antennas, the TAK-tenna can get you on the air!

The developer of the TAK-tenna is Steve Tetorka, WA2TAK, licensed since 1964. "I am, by no means, the inventor of this kind of spiral antenna, but what I have done is improve upon previous art, as stated in my patent pending application," he comments.

The antenna features 1/4-wavelength spider webs on each end that you wind yourself with the supplied proprietary 14-gauge copper-jacketed alloy wire into pre-slotted cross arms (photo B). Steve offers the single-band TAK-tennas, custom prefabricated, for about $129 to $169, the higher price for the lower bands needing more copper wire windings.

Photo A– The TAK-tenna can get you on the air from some very tight places, such as apartment balconies or campsites. This 40-meter antenna is only 26 inches from end to end, and the spiral elements are just 32 inches in diameter. (Photos by the author)

Everything is supplied for the band you select: four slotted end support tubes; one boom tube; two each pre-measured copper-plated wires for the coils; 14-gauge connector wires with alligator clips which you solder; mast-mounting bracket materials; coax-connection screws and bolts (you supply the coax); 100 black nylon ties; safety glasses; and instruction manual.

"All TAK-tennas are supplied in kit form, with assembly taking less than 90 minutes," adds Steve, noting, "We have had a blind gentleman, a senior person with only one hand, and one 12-year-old lad assemble a TAK-tenna."

Steve suggests that customers first check out his company's website at <http://www.TAK-tenna.com> to glean ideas and photos from successful as-

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semblies of the antenna and suggested mounting ideas. There are also many positive TAK-tenna testimonials that can be found at <http://www.Eham.net/reviews/detail/6775>.

Assembly

We brought in the 40-meter and 20-meter kits, and first assembled the 40-meter antenna. A minimum of tools (see below) got everything together in *less* than the advertised 90 minutes assembly time.

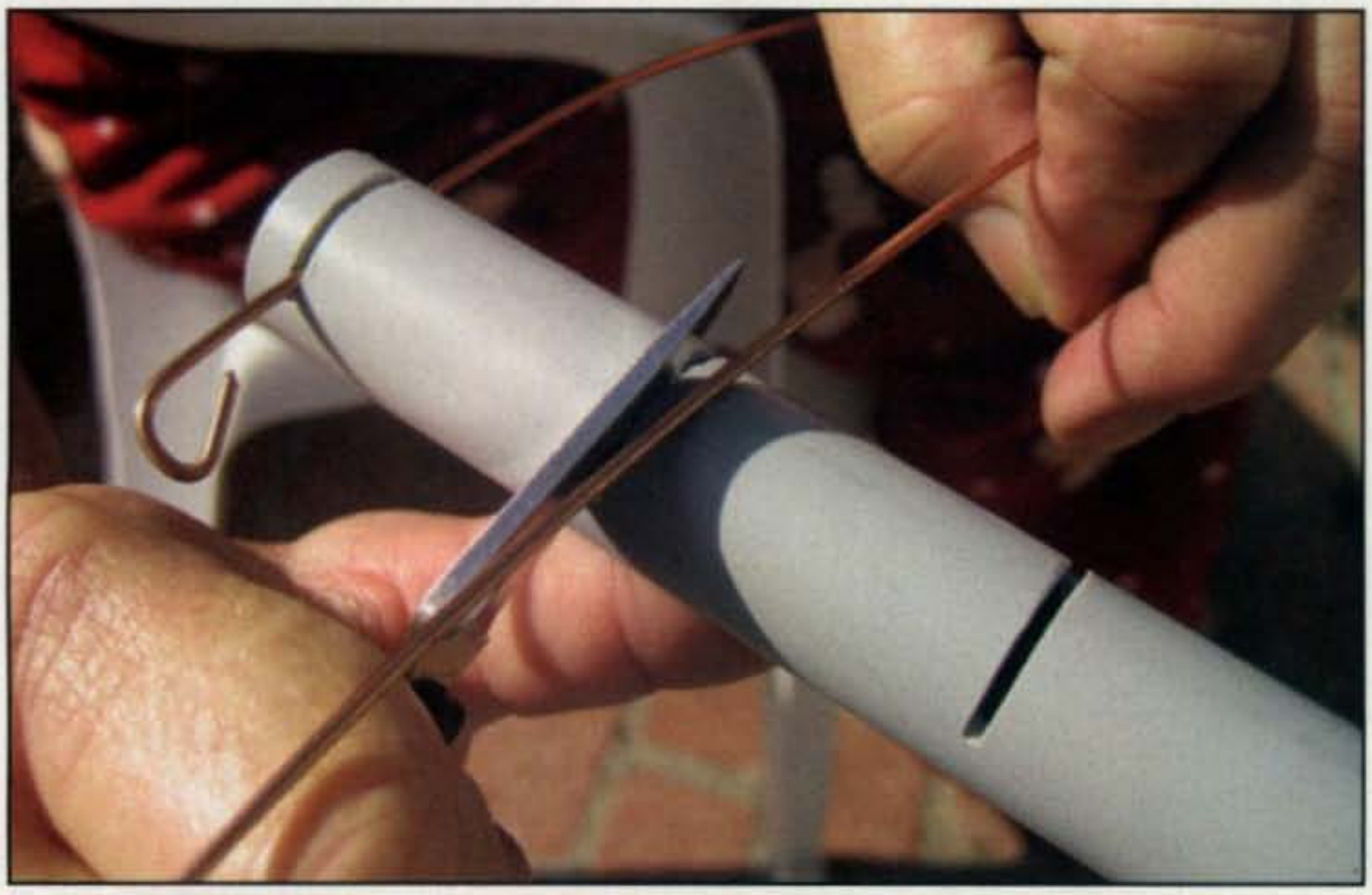

Photo B– Wires for the spiral elements are placed in precut slots in the PVC tubing supports.

Photo C– Black plastic cable ties (provided) hold the wires in place.

Minimum tools needed: wire cutters; soldering iron and solder; small wrench or pliers; and wire stripper.

The spiral wire windings fit into notches that face away from the center of the boom. Simple black nylon ties (photo C) keep the PVC sections aligned. Per the instructions, wind the wire *clockwise.* Start from the outside notch and work in.

"I refined my winding several times," comments Dick Bruno, N6ISY, who acknowledged all the good effort that Steve puts in on the phone helping his customers achieve resonance with the new antenna (more on that in a moment). Dick is a well-known HF operator, president of the local chapter of Sam's Radio Hams, and explains the benefits of precisely tuning the antenna for best performance before he heads out on Sam's Radio Hams RV adventures, quickly setting up the pre-assembled and pre-tuned antenna between RV spaces.

"Don't wind the wire too tight. The outside should end up looking like a lazy circle, and the inside windings look like a square," says Dick (and the instruction manual).

The coil windings are referred to as "hot" and "cold," where an alligator clip from coax shield goes to the "cold," third winding out, and the "hot" lead wire, from coax center, goes to the second winding out (photo D). For 40 meters, this will get you near 7200 kHz at approximately 20 feet elevation.

Getting Resonant

The TAK-tenna is a resonant dipole for the specific band that you order. The characteristics of the patent-pending spiral technology will almost always lead to antenna resonance, with minor adjustments necessary to compensate for the surroundings. The beauty of the spiral taps is that they allow plenty of latitude to balance both sides of the dipole within arm's reach! Unlike a full-length dipole in the attic, you won't need to crawl out 32 feet in each direction to fine tune the dipole. With the TAK-tenna, the convenient clip leads give you effortless fine tuning without all the attic crawling!

I was not successful in achieving perfect self-resonance on my first assembly try. Additional photographs in the instruction manual could have cleared up my confusion on how to dress the lead wires from the coax cable, and precisely how to terminate each end of the wire coils. An additional photograph would make all the difference for me!

"We recommend that TAK-tenna be resonated, as a resonant dipole, to provide maximum performance," adds Steve, WA2TAK. I absolutely agree. Gettiing *any* dipole to naturally resonate at 1/2 wavelength delivers all of the power into the antenna, with nothing getting lost in an antenna tuner.

However, Steve notes that "about 75% of our customers do not resonate the TAK-tenna." I wondered why a ham antenna experimenter wouldn't match the antenna perfectly by fine tuning the alligator-clip points to the spiral elements. Steve suggested that there are

several reasons, from varying skill levels and availability of test equipment, to the fact that using an external antenna tuner may allow the antenna to work well without going through the sometimes time-consuming resonating process. However, there is no question that the antenna will be most efficient when it is properly tuned to resonance.

The recommended way to do this is to use an antenna analyzer to locate the SWR minimum, and then plot what happens when the alligator clips are moved around each spiral.

I started out by "rough tuning." On 40 meters it is relatively easy to *hear* antenna resonance simply by moving the alligator clips around the spirals for maximum noise. I demonstrated this for a licensing class using wood clothes pins added to each clip to minimize my fingers detuning the feedpoints.

Then I switched from rig receive, over to the antenna analyzer, and after jockeying between "hot and cold," I went back to the rig and found the best receive hot spot for a combination of positions on the hot and cold taps. To me, this was fun. Others, using only the SWR analyzer, may find this frustrating and become part of the 75% who do not resonate.

I found that measuring SWR with an SWR analyzer is the best way to approximate where the clip leads should go on each coil. However, there is good reason for the emphasis in the instructions on doing the tuning from your shack rather than the feedpoint. I found that what the analyzer would read as an SWR minimum at the feedpoint might be as much as 200 kHz different when I substituted the rig. Likely, the larger rig with extra wiring to a small battery upset the "balance" between the twin spirals, so an additional ultra-small adjustment to the hot-clip tap point was necessary. This is no big deal, and if you go into the project with enthusiasm for learning the ins and outs of a sensitive dipole, all is well. If you expect the antenna to magically self-resonate right out of the box, you again will learn all the variables that hams work with when assembling any wire antenna system.

Photo D– The key to resonance is the exact placement of clip leads between the feedline and the antenna elements.

Photo E– The completed TAK-tenna. Note the clip leads that connect the feedline to each element.

On the Air

At resonance I could work most strong stations that I could hear, and there were *plenty*! A switch to a resonant *full-length* 40-meter dipole would bring several weaker stations well up to solid copy, but the little 1/60th-size 40-meter TAK-tenna did a great job for its tiny size (photo E). Plus, it was a kick spending a day playing around with spiral-element resonance!

The antenna may also be used boom-vertical, yielding omni-directional performance. In horizontal, there indeed were some directional peaks and nulls, but they were not quite as predictable as some other operators have found.

I tested the antenna in the vertical plane, the spider "webs" horizontal to the ground. On 40 meters it was interesting to hear background noise signal strengths rapidly disappear when the antenna was less than 6 feet off a damp lawn. However, at 10 feet elevation signals were then coming in omni-directionally, and performance was good, but less than the capability of my five-band trap vertical as a comparison. Then again, though, the little TAK-tenna can perform well on 40 meters in the back yard, while a five-band trap vertical usually will require roof mounting for best performance.

I wanted to better understand the inductance and capacitance of the jazzy-looking spirals, but Steve said his pending patent application made it im-

possible for him to discuss the electrical characteristics of the spider winding in any detail.

From my own analysis, I have concluded that the spiral itself offers inductive reactance because it is indeed a large coil. The capacitive reactance is likely achieved by the unique way each coil winding is formed and the distance between the windings. The spirals themselves constitute an RF radiator that develops good field strength coming off each spiral. The spirals did not seem much affected by surrounding objects, nor were they "touchy" on how precisely they were formed into each notch. However, placement of the alligator clips made a profound change in spot-on resonance. This is a positive indication for any antenna system with good Q.

As with any type of balanced antenna system, such as a dipole, increased performance is usually achieved by resonating the dipole through the suggested antenna tuning process. Although any dipole antenna may be "force tuned" by a manual or an automatic antenna tuner, antenna experts always encourage resonating at the antenna itself rather than inserting a tuner system in series with the coax. Steve also points this out in his instructions, and since each spiral is within arm's reach, resonating the antenna is the best way to maximize radiation capability.

Inexpensive SWR analyzers allow you to stay put at the feed point and eliminate the need to hang a steady carrier on the air as someone else up at the antenna makes small clip adjustments. (However, as the instructions indicate, prepare to make additional small adjustments when you hook up the rig and feedline from the shack.) The SWR analyzer will also give you a feel for antenna Q and allow you to work the two clip leads for optimum resonance and a good feedpoint impedance match. Also, as I indicated before, in the classroom, moving the clip around the spirals with an insulated clothes pin gave the students a real heads-up on the increase of background white-noise reception when that magic spot was found.

Is the TAK-tenna as good as a full-length dipole? If you *don't* have 64 feet to string up a full-length 40-meter half-wave dipole, it will be even better!

Some Suggestions

Finally, some ideas to perfect your investment:

- Substitute stainless-steel hardware for outside mounting.
- We would like to see more photos and diagrams in the printed instructions.
- Earth-ground your rig, and temporarily earth-ground your SWR analyzer to minimize false resonant readings.
- Clear-spray the wires to keep the copper spirals looking gee-whizzy to other hams.
- Use a tall, non-conductive pole for horizontal mounting to minimize coupling to a vertical mast.
- Use a snap-on ferrite choke on the mic cable to minimize RF feedback on transmit audio.

Conclusion

I can see this antenna as a "natural" if you are launching a signal from a balcony or are restricted to a non-visible backyard HF antenna installation.

Take your time when assembling the TAK-tenna, and enjoy the process of developing resonance and a good amount of signal strength with a spiral dipole that may be the perfect answer to any homeowners' association restricting ham antennas in view. Put it out on the patio, or on a porch, or run it vertically in an attic, and enjoy compact performance with some amazing signal reports. For more information, visit <http://www.tak-tenna.com>

math's notes

BY IRWIN MATH,* WA2NDM

Free Power

We are certainly well aware of the credit crunch and the rising general costs of our daily lives. We are also aware of the various recent interest in methods to "harvest" normally wasted power, so we thought it would be a good idea to try to save a few dollars and at least attempt to operate our amateur radio station at no cost. I think that what we came up with is quite clever and should certainly be of interest to most readers.

To begin with, we had to find a source of free power. Solar batteries would be a great choice, but what about a cloudy day or at night? The solution was based on a column we wrote a while ago concerning free power. In this scheme we rectified the residual RF all around us to provide enough power to drive a small transistor radio. Although this method is free (for us), it is actually paid for by some utility or other local RF provider. The solution is based on this principle, but on a somewhat larger scale.

Fig. 1 is the overall schematic of the free power source. RF from an untuned antenna is applied directly to a voltage doubler circuit configured from two low forward drop Schottky diodes. The use of these diodes assures the maximum recovered DC, even from low-level RF signals. Since the antenna is untuned, any RF from a residual 60-Hz (50-Hz in Europe, etc.) field well up into the MHz region can be received and rectified. In fact, the only losses are the various stray resonances in the input circuit and the frequency limitations of the diodes used. The values of C1 and C2 shown in the schematic should be optimized for the frequency range anticipated. The values shown, however, are fine for RF from 1 MHz up to about 20–30 MHz. For lower frequencies simply increase the value of these two capacitors. At 50- and 60-Hz frequencies you may have to go as high as several hundred microFarads for reasonable power, while at VHF frequencies a few hundred picoFarads might be fine.

Regardless of the actual frequencies chosen, though, the resulting DC is then used to drive a unique low-voltage step-up DC/DC converter made from a common CMOS version of the popular 555. The CMOS version was selected, by the way, because it will operate at very low voltages. The output of the converter portion of the circuit is a higher voltage that is actually used to charge a couple of super capacitors. These then are connected to a bank of rechargeable batteries with a super capacitor in parallel. The series current-limiting resistor is used to set the optimum charging rate of the batteries and is a function of how much voltage is actually developed at your particular location.

The amount of DC produced by the above circuit might be small, but keep in mind that it is being produced continuously 24 hours a day, or at least as long as the initial RF source is in operation. If it is a broadcast station or power-line source, then it is continuous for all practical purposes. Since the amount of time usually spent on the radio is not continuous (unless you are a crazy, driven individual), there is really plenty of time to renew the charge on the batteries. When operating CW, the super capacitor across the battery bank provides the peak power pulses necessary for each dot or dash. When operating SSB, the super capacitor/battery bank provide both the peak and continuous power required. The result of all of this is that

*c/o CQ magazine

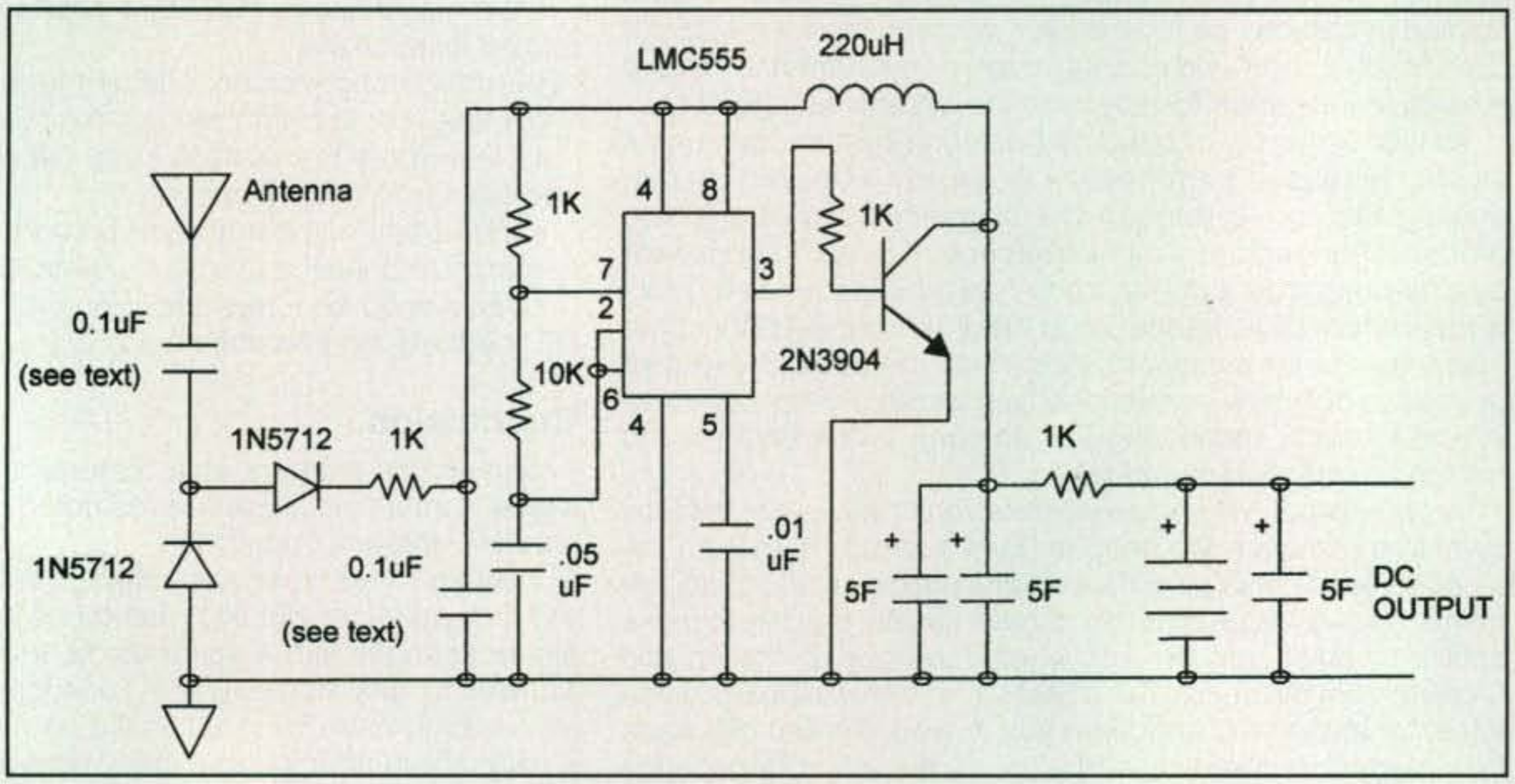

Fig. 1– "Free power" power supply.

any time you wish to operate power will be there.

In looking for components, we were lucky enough to find ten 5-Farad super capacitors and 20 NOS (new old stock) lead-acid gel-cells from a surplus source. Our total outlay, therefore, was well under $100. Construction was quite simple, and the entire power supply was enclosed in a wooden box that doubled as an end table in the shack.

In actual operation (after a 24-hour initial "break-in" period) we found that we could run a small 10-watt QRP SSB transceiver for up to 6 hours before external recharging was necessary. CW operation (at the 5-watt level) could be maintained almost twice as long. Since our normal mode of operation is just a few hours here and there, you could say that after the initial expense of building everything we will never incur any additional cost operating our station.

It is very important to point out, though, that the only real problem we did find with the above scheme was that we could only transmit and receive properly on April 1st. It seems that on all other days there was some sort of bug in the system. However, when it does work (even if for only one day a year) it is free! 73, Irwin, WA2NDM

BY FREDERICK O. MAIA,* W5YI

President Obama to name Julius Genachowski as FCC Chairman

Democratic officials say President Barack Obama's choice to lead the Federal Communications Commission is Julius Genachowski, 46, an adviser on technology issues and longtime friend (At the time of this writing, there had been no official announcement). Both attended New York's prestigious Columbia College (he graduated in 1985) and Harvard Law School. Genachowski has a huge mix of experience in law, business, politics, communications, and the new media. He was also a major fund-raiser for the Obama campaign.

After graduating from law school in 1991, Genachowski was a law clerk to two U.S. Supreme Court Justices, David Souter and William J. Brennan, Jr. (ret.), and to Chief Judge Abner Mikva of the U.S. Court of Appeals for the D.C. Circuit. Genachowski also worked in Congress on the staff of the Select Committee investigating the Iran-Contra Affair and for then-U.S. Representative (now New York Senator) Charles E. Schumer. In 1994 he became Chief Counsel to Reed Hundt, FCC Chairman during the Clinton administration's first term, and has a good working knowledge of FCC affairs.

Genachowski also has an extensive background with internet-based companies. From 1997 to 2005 he served in senior executive positions at IAC/InterActiveCorp. Mr. Genachowski joined IAC shortly after it was founded by Chairman and CEO Barry Diller, and was a key player in IAC's growth to become a multi-billion dollar global e-commerce and media company. IAC has a large stable of well-known e-commerce websites including Expedia, Hotels.com, Hotwire, TripAdvisor, Ticketmaster, HSN, LendingTree, Match.com, Citysearch, Ask.com, and others. He co-founded Rock Creek Ventures in 2005 and LaunchBox Digital in 2007. Both are Washington venture-capital firms which fund digital media and e-commerce firms.

Genachowski, the son of Eastern European Jews who fled during the Holocaust, is married to the documentary filmmaker Rachel Goslins. She has worked on productions for National Geographic, Discovery, PBS, A&E, and the History Channel, among others. Her latest film, "Bama Girl," documents the 2005 homecoming queen contest at the University of Alabama. They have three children.

Genachowski will replace former FCC Chairman Kevin Martin, who resigned from the Commission effective with President Obama's inauguration.

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Julius Genachowski reportedly has been chosen by President Obama as the next FCC Chairman. (Photo courtesy of Rock Creek Ventures)

The Role of the FCC Chairman

Only three of the five FCC commissioners may be members of the same political party. None of them can have a financial interest in any Commission-related business. Historically, to facilitate party goals, the Chairman is normally a member of the same political party as the President. Each commissioner must be confirmed by the Senate. The president designates one of the commissioners to serve as Chairman.

As the chief executive officer of the Commission, the Chairman delegates management and administrative responsibility to the Managing Director. The Commissioners supervise all FCC activities, delegating responsibilities to various staff offices and seven different bureaus which are organized by function.

The Wireless Telecommunications Bureau (WTB) regulates stations serving the communica-

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MFJ-962D *compact* kW Tuner

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MFJ-969 300W *Roller Inductor* Tuner

MFJ-969
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Superb *AirCore™* Roller Inductor tuning. Covers *6 Meters* thru 160 Meters! 300 Watts PEP SSB. *Active* true peak reading lighted Cross-Needle SWR Wattmeter, *QRM-Free PreTune™*, antenna switch, dummy load, 4:1 balun, Lexan front panel. 3½Hx10½Wx9½D inches.

MFJ-949E *deluxe* 300 Watt Tuner

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More *hams use MFJ-949s than any other antenna tuner in the world!* Handles 300 Watts. Full 1.8 to 30 MHz coverage, custom inductor switch, 1000 Volt tuning capacitors, *full size* peak/average lighted Cross-Needle SWR/Wattmeter, 8 position antenna switch, dummy load, *QRM-Free PreTune™*, scratch proof Lexan front panel. 3½Hx10⅝Wx7D inches. **MFJ-948, $139.95.** Economy version of MFJ-949E, less dummy load, Lexan front panel.

MFJ-941E *super value* Tuner

MFJ-941E
$139.95

The most for your money! Handles 300 Watts PEP, covers 1.8-30 MHz, *lighted* Cross-Needle SWR/Wattmeter, 8 position antenna switch, 4:1 balun, 1000 volt capacitors, Lexan front panel. Sleek 10½Wx2½Hx7D in.

MFJ-945E HF/6M *mobile* Tuner

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Extends your mobile antenna bandwidth so you don't have to stop, go outside and adjust your antenna. Tiny 8x2x6 in. *Lighted* Cross-Needle SWR/Wattmeter. Lamp and bypass switches. Covers 1.8-30 MHz *and* 6 Meters. 300 Watts PEP. **MFJ-20, $6.95,** mobile mount.

MFJ-971 *portable/QRP* Tuner

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MFJ-901B *smallest* Versa Tuner

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MFJ-902 *Tiny Travel* Tuner

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$99.95

Tiny 4½x2¼x3 inches, full 150 Watts, 80-10 Meters, has tuner bypass switch, for coax/random wire. **MFJ-904H, $149.95.** Same but adds Cross-needle SWR/Wattmeter and 4:1 balun for balanced lines. 7¼x2¼x2¾ inches.

MFJ-16010 *random wire* Tuner

MFJ-16010
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Operate all bands anywhere with MFJ's reversible L-network. Turns random wire into powerful transmitting antenna. 1.8-30 MHz. 200 Watts PEP. Tiny 2x3x4 in.

MFJ-906/903 *6 Meter* Tuners

MFJ-906
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MFJ-906 has lighted Cross-Needle SWR/Wattmeter, bypass switch. Handles 100 W FM, 200W SSB. **MFJ-903, $69.95**, Like MFJ-906, less SWR/Wattmeter, bypass switch.

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MFJ-921 covers 2 Meters/220 MHz. **MFJ-924** covers 440 MHz. SWR/Wattmeter. 8x2½x3 in.

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Eliminates RF hot spots, RF feedback, TVI/RFI, weak signals caused by poor RF grounding. Creates artificial RF ground or electrically places far away RF ground directly at rig. **MFJ-934, $209.95**, Artificial ground/300 Watt Tuner/Cross-Needle SWR/Wattmeter.

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tions needs of businesses, individuals, non-profit organizations, and state and local governments. Its responsibilities include processing applications for licenses and other filings. The Amateur Radio Service is handled by this bureau.

The Enforcement Bureau ensures that the various telecommunication services comply with the Communications Act, statutes and FCC rules, orders and policies.

The other five bureaus are the Consumer & Governmental Affairs Bureau, the International Bureau, the Media Bureau, the Public Safety & Homeland Security Bureau, and the Wireline Competition Bureau.

Changing of the Guard

Former FCC Chairman Kevin J. Martin used his last agency meeting as Chairman in January to announce that he would not be staying on as a Commissioner in the Obama administration. It was not unexpected. Most FCC chiefs move to the private sector when their chairmanship is up.

"It's been a particularly important time, a time of tremendous change," Martin said at the meeting. "There is a lot to be proud of." He said his philosophy during his tenure at the FCC "has been to pursue deregulation while paying close attention to its impact on consumers and the particulars of a given market, to balance deregulation with consumer protection."

Martin departed on January 20 and immediately became a Senior Fellow at the Aspen Institute, a well thought of "think tank" in Washington, D.C. Martin is the fourth consecutive FCC Chairman to accept this fellowship. The Aspen Institute conducts leadership seminars where speakers reflect on what they think makes a good society.

President Obama has already designated Democrat Michael Copps as acting FCC Chairman, pending the Senate confirmation of Genachowski. That could take months to happen. FCC chairman Reed Hundt wasn't seated until November 1993, 10 months into President Clinton's first term.

Eventually, Obama will also need to name a replacement for Republican Deborah Taylor Tate (whose term expired at the end of 2008) on the five-member commission. By law, Obama is allowed to have up to three Democrats in the FCC. Since Adelstein, Copps, and Genachowski are Democrats, and Commissioner Robert McDowell is a Republican, Tate's seat must be filled by a Republican as well.

New FCC Direction

Julius Genachowski will likely bring a new direction to the FCC. Rather than traditional telecommunications, his background is primarily in innovative digital media companies. He also is the architect of Obama's successful online campaign strategy, which exploited the internet to spread his campaign message and raise record campaign contributions.

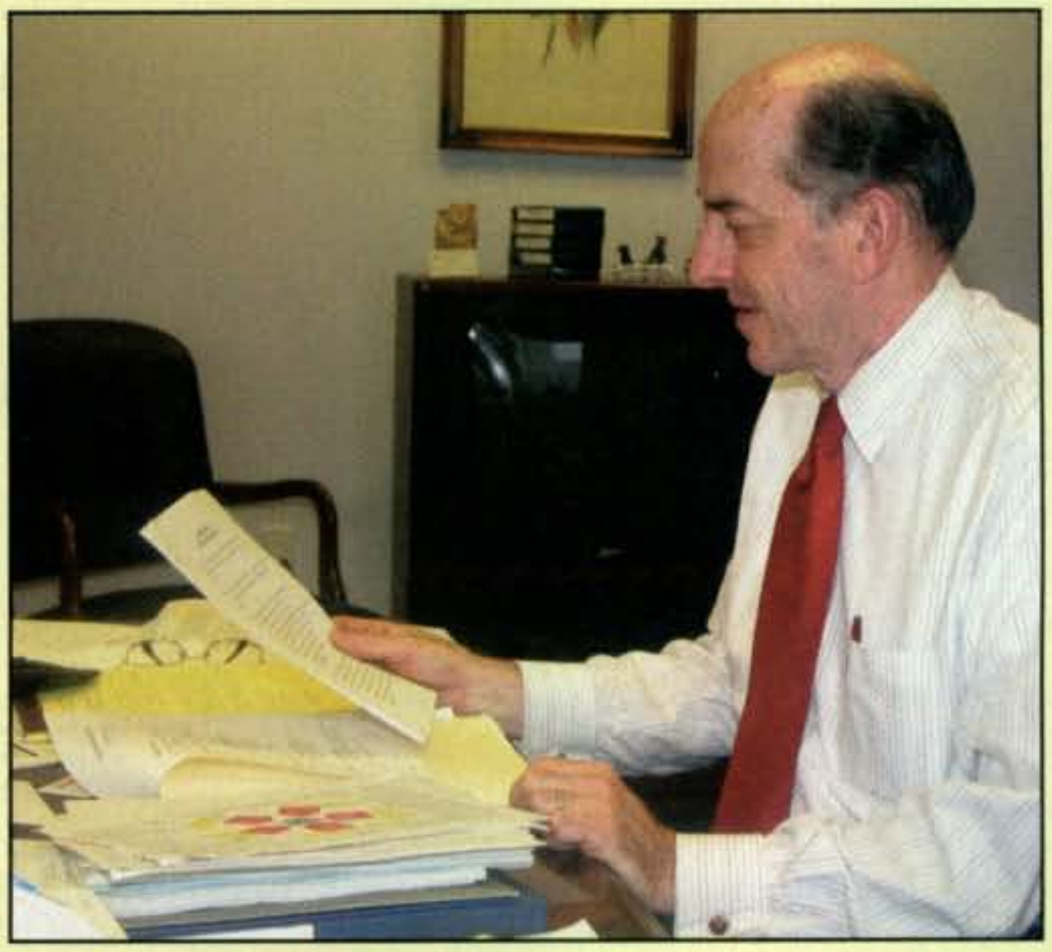
Once he is confirmed, the regulatory environment appears certain to shift from large telecoms—such as cable, wireless, and telephone companies—to new technology entrants and other nontraditional media firms such as Google, Yahoo, and eBay.

Support for Genachowski's appointment is coming from industry and advocacy groups alike. Those who know him predict that he will bring a major change in policy and style to the FCC. They say Genachowski is not just a professional public servant; he knows the FCC, the internet, and the President very well and will be able to carry out his technology policies, policies he helped form.

Genachowski has hands-on experience in several businesses and knows how to manage. For one thing, FCC policy offices are expected to be more decentralized and have far greater authority to make decisions. Details will be left to senior FCC officials. They will not be micromanaged by the Chairman's office, a common complaint of the Martin FCC. Acting Chairman Mike Copps is already working in that direction (see sidebar).

The United States ranks poorly among the developed nations of the world in high-speed internet adoption. President Obama has made universal broadband deploy-

Acting Chairman Copps Tells FCC Staff to Communicate



Acting FCC Chairman Michael Copps. (Photo courtesy of the FCC)

Acting Federal Communications Commission Chairman Michael Copps spoke via closed-circuit television with Commission staff on Monday, January 26, soon after his appointment as Acting Chairman by President Obama. His primary focus was on "communications." He said he was "... troubled that our lines of communication, both internal and external, seem to have frayed" and that "change needs to occur" at all levels.

Copps said he expected a new Chairman would join the FCC shortly and that "It is my goal, with your help, to hand over an Agency that is more open, more transparent, and more vibrant than it is today—one that is prepared to serve the many and diverse interests of the American people. ..." To succeed, Chairman Copps said, the Commission must "utilize its resources—especially its human resources—smartly and inclusively."

He asked Bureaus and Offices to collaborate. Copps announced that he will hold a weekly Chairman's Office Briefing with Bureau and Office chiefs, as well as representatives from each Commissioner's office.

He impressed upon the staff the importance of the upcoming transition to Digital TV, which he called "an urgent priority." He said so much needs to be done "... from the how-to of converter boxes, to educating people about antennas and scanning, to getting the word out about the variables and peculiarities of digital signal coverage. ..." He asked for "additional FCC volunteers to come forward and help. ..."

He also called for a update of the Commission's website to make it more user-friendly. "The Commission has a wealth of resources on its website. Some of it is easy to find and use; much of it is, unfortunately, difficult to locate and even more difficult to use—for us at the Commission, and worse, for the public at large." <http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC288096A1.pdf >

Laura Smith Named New FCC Amateur Enforcement Chief

The ARRL reported in late January that Laura L. Smith of Pennsylvania had been named by the FCC to fill the vacancy created when Riley Hollingsworth, K4ZDH, retired last year as Special Counsel for Amateur Radio in the FCC's Enforcement Bureau. While no formal announcement had been made by the Commission as we went to press in mid-February, we have been able to confirm that the League's information is correct and that Ms. Smith—who is not a licensed amateur—will work out of the FCC's Gettysburg, Pennsylvania, office as did Hollingsworth.

According to the ARRL, Smith previously worked at the FCC, serving in both the Mass Media Bureau and the Wireless Telecommunications Bureau. She rose to the position of Deputy Division Chief of the Public Safety and Private Wireless Division before leaving the FCC in 1998 to become Executive Director of Governmental Affairs for the Industrial Telecommunications Association (ITA), now the Enterprise Wireless Alliance. In that role, she monitored FCC and legislative proceedings and participated in all regulatory proceedings relevant to the private wireless industry. In 2001, Smith became ITA's President and Chief Executive Officer. She moved from there to the Maryland law firm of Shulman Rogers, where she dealt with telecommunications matters. She has also served as an industry consultant and written columns for a variety of trade publications including *Mobile Radio Technology* magazine and *The Private Wireless* magazine.

Last December, *CQ* publicly called on the Commission to move swiftly in naming a successor to Hollingsworth, citing growing numbers of reports of deteriorating behavior on the ham bands during the months since his retirement.

ment a cornerstone of his plan to boost U.S. competitiveness, and it figures prominently in his massive economic stimulus package. Genachowski is expected to lead the campaign to expand faster, affordable broadband internet access, especially to underserved areas.

Over the last decade the Chairman of the FCC has played an important economic role, since its spectrum auctions have raised billions for the U.S. Treasury. With the new administration plan to make the expansion of broadband and internet services a goal, Genachowski, with his close ties to Mr. Obama, could have a larger role in shaping economic policy than many of his predecessors.

Besides supporting rollout of higher speed broadband, he also is an advocate of "net neutrality" and understands the importance of the open internet and the need to encourage and support innovation. Net neutrality is a concept that bars internet service providers from favoring, slowing, or blocking some content on their networks and giving preferential sites a faster path to consumers.

Switch to All-Digital Television

As we go to press, the Obama administration is dealing with an inherited DTV transition that is not going well. The FCC must oversee the nation's change-over to digital TV transmission ordered by Congress four years ago in order to free up spectrum for public safety and other uses. The switch, originally set for February 17, was extended by Congress to June 12. That's when virtually all television stations must stop broadcasting traditional analog signals.

For those TV viewers who own new digital-ready TVs or subscribe to cable or satellite television, the switch is a non-issue. However, according to recent surveys, millions of viewers still receive over-the-air TV using a roof-top antenna or "rabbit ears." Many are not prepared for, or do not even know about, digital television. They will need a digital-to-analog converter box, which costs about $50, for each television set they own.

To help, the US Government established a coupon rebate program under which households are eligible to receive up to two "price-off" coupons worth $40 each. However, the NTIA (National Telecommunications and Information Administration), which oversees the coupon program, said that it has run out of subsidy money to fund the coupons. As a result no coupons are going out to consumers.

The coupons, purchased from a DTV website, expire after 90 days. Reportedly, many consumers who received $40 coupons in the early days of the program found that the converter boxes were not available in their area, or had sold out, and the deadline for using their coupons had expired.

The NTIA and FCC are now waiting for already-issued coupon expiration dates to run out on converter boxes not purchased so they can re-issue them. Meanwhile, digital TV is fast approaching. Right now NTIA has a huge backlog of households that are waiting for their coupons and it is high-

ly unlikely that the 2-million requests will be fulfilled anytime soon.

It is estimated that as many as 10-million households may need the converter box coupons. To pay for them, $650 million is earmarked in Obama's massive federal stimulus package (officially called American Recovery and Reinvestment Act of 2009) working its way through Congress.

Even with the four-month delay, it is likely that some people still won't be ready when the "big switch" is thrown in June. The FCC did approve the temporary (30 day) use of traditional (analog) television channels at certain stations for a so-called "Analog Night Light" consumer information service after the switch to digital television. Under FCC regulations adopted Thursday, January 15, households that are not prepared to receive digital signals will see a notice for a month on their screen in English and Spanish providing a phone number for more information and assistance. The "Analog Night Light" tells consumers that the new TV technology is digital, and that they need a converter box for free TV on that set.

Public Safety Interoperable Communications

Once the pressure from the digital transition subsides, the FCC faces another dilemma. That is the lack of nationwide interoperable communication networks for public safety officials over which different public safety agencies can talk with one another.

Members of public safety are well aware that communications interoperability has been a documented problem for decades. Congress and the FCC agree such a network is needed to facilitate emergency communications during catastrophic events such as rescue efforts after the September 11 attacks and Hurricane Katrina.

The FCC allocated the so-called 700-MHz "D block" segment (10 MHz at 758–763 and 788–793 MHz) to a public/private network that would be built without cost to taxpayers. The frequencies were carved out of spectrum vacated by the transition to digital television.

The 2007 "D Block" auction was supposed to attract bidders willing to share this spectrum with an interoperable public safety communications system made available to the nation's police, fire, and emergency service providers. The public/private network model would provide both commercial broadband service and a state-of-the-art public safety communications and operate on a for-profit basis.

While the 700-MHz auction raised a record $19.6 billion in total, prospective bidders balked at creating a nationwide wireless network that police and firefighters would share with commercial users. No one bid the $1.3 billion minimum price for the public safety D block.

Former FCC Chairman Martin said he regretted that he was not able to persuade any private sector companies to bid on the D block. "The Commission either put too many burdens on that auction, and/or was too vague on what those burdens would end up being," Martin said. "Either way, there was no one on the private side who was willing to take on the responsibility of trying to build out a nationwide interoperable public safety network. And I think that is certainly the biggest thing left undone [during my tenure]."

The FCC could try to re-auction the D block spectrum that failed to attract a buyer, possibly with more favorable terms or relaxed build-out requirements. Or perhaps, Congress itself should just fund the public safety network. 73, Fred, W5YI

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BY BOB JOSUWEIT,* WA3PZO

New Year Sounded a Call for Hams

January proved to a busy month for hams as they and thousands of others battled cold temperatures, large crowds, and infrastructure interruptions. This month we'll take a look at a few of the events that called hams into service.

A new president being sworn into office and anticipation of record-size crowds in the Washington, D.C. area prompted local emergency management officials in Maryland and Virginia to request the help of Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES) members.

The planning for transition of power involved numerous local and federal government agencies, as well as many private organizations. The hams were asked to assist with several local and short-distance communications activities. At the state level Carl Clements, W4CAC, the ARRL Virginia Section Manager, and Virginia Section Emergency Coordinator Ron Sokol, K4KHZ, tapped Assistant Section Emergency Coordinator Bruce Freund, K7BC, to be their representative for this regional project comprised of ARES-RACES groups from two sections and eight counties/cities. Freund's area of responsibility covers two VA ARES Districts,comprised of 14 cities and counties along the western border of the District of Columbia. These districts are managed by Howard Cunningham, WD5DBC, and Tom Lauzon, KI4AFE. According to Joe Safranek, K4JJS, they had to ensure that their jurisdictional Emergency Coordinators and members accomplished the mission objectives received from event officials. It required ham radio operators from across the region to make the ham radio support a success. Howard, WD5DBC, adapted the District 2 mailing list and files repository for this event by expanding the membership to the Maryland participants and also including non-ARES ham leaders as well.

Plans not only had to be established for areas in Maryland and Virginia, but hams had to ready to respond to the District of Columbia if mutual aid was requested. Maryland/District of Columbia ARRL Section Manager Jim Cross, WI3N, and Section Emergency Coordinator Steve Beckman, N3SB, were involved with the planning from the beginning. They also worked closely with DC Radio Emergency Associated Communications Teams (REACT).

The Marine Corps Marathon is the major regional amateur radio event in the metropolitan DC area. The experience gained from working with local officials during the marathon aided in the planning of the ham deployment for the event. Since the marathon uses the Incident Command System (ICS) structure, much of the planning for that event provided a "running start" for inauguration support activities. A previously developed communication plan assisted planners in being better prepared for this event. Jeff Wilson, AI4IO, Fairfax County EC/RO, led a field test of the repeaters planned for use for the primary Regional Coordination Net more than a week in advance to ensure all of the EOCs planning to activate would be able to operate cleanly through the selected repeaters. The conducting of field tests is a key lesson learned from the marathon and identified necessary changes to the communication plan.

While no unusual or unexpected help was needed, Howard Cunningham, WD5DBC, the District Emergency Coordinator for District 2 in Virginia, prepared a staffing approach for mutual assistance, if needed, that would rely on the on-call ARES/RACES organizations in Loudoun, Prince William, and Fauquier counties to supplement the activated groups in Arlington, Alexandria, Falls Church, and Fairfax. Many, many hams were involved in this project yet remained on-call only.

A complete toolkit of communication media were relied on. They used a combination of many systems to be able to move information quickly and efficiently. This included the NERA (Network Engineers Repeater Association) UHF linked repeater system, which supported the primary Regional Coordination Net. Local group operations used other VHF and UHF repeater systems,

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e-mail: <wa3pzo@cq-amateur-radio.com>

President Barack Obama signs an Emergency Declaration for the State of Arkansas on Wednesday evening, January 28, 2008 in the Oval Office. He also signed a Declaration for the Commonwealth of Kentucky. (White House photo by Pete Souza)

Winlink, and packet. It also included the use of a D-STAR VHF/UHF voice and data system. Some operators monitored the "Old Dominion Emergency Net/Alpha" on 3947 kHz.

Army MARS member Bruce Freund, K7BC, served as a net control station on the MARS frequencies during the event. Army MARS HQ, located at Fort Huachuca, Arizona, put out a directive stating an Actual Incident net would be established, the type of MARS coverage that would be required, and how Region 3 in the DC area would have liaisons from other regions available to pass any necessary traffic. The ARRL monitored both ham radio and MARS frequencies. Many EOCs and hospitals were staffed by hams as well. In Maryland hams were active in other areas, including several stationed at RFK Stadium to assist with the visitors from 1200-plus buses parking at that location.

Freund commented that although it was a lot of hard work and effort by many people, one thing that did help them immensely was their regional use of ICS structures. Joe Safranek, K4JJS, Virginia Section Public Information Coordinator, said that supporting a major event such as the USMC Marathon has given them a lot of practice working large events, and much of the planning was already on paper and easily adapted to this particular activation. Freund said, "Working together with our friends from DC and Maryland, folks we have known for a long time, made this event so much easier to work. We brought together, again, operators from various areas and were able to blend them into one large team. These are a great bunch of people who performed their duties in a positive, professional manner."

Ice Storm

This past winter's ice storms added to the importance of emergency communications. Many ham radio operators responded to the real emergency of power outages, no heat, no phones, no cell phones, no cable or TV. Hot water or just having *any* water became important. The need for food, fuel, gas, diesel, and kerosene became important as shortages spread across many areas.

In January at least 68 counties and 36 cities in Kentucky were operating under states of emergency as ice dragged down power lines and branches clogged many roadways. Over one-half million people were without power, the second-largest outage in Kentucky's history. Many cities struggled to find generators to keep water and sewage plants operating, and thousands of others warm in 91 shelters.

In news reports, Buddy Rogers, a spokesman for the Kentucky Division of Emergency Management, said emergency efforts were particularly difficult in western Kentucky, where ice had knocked out power, phone lines, and cell-phone towers. Even the state emergency management office lost its e-mail capabilities for about an hour, he said. "Ham radio operators have been essential for communication," said Rogers. "We've also taken several satellite phones from the (Kentucky) National Guard to western Kentucky."

FCC Calls on Amateur Radio Help with Digital TV Conversion

Last December the FCC contacted the ARRL to ask it members to provide technical education in their communities about the mandated digital TV conversion that is now scheduled to take place in June. Although ARRL Media and Public Relations manager Allen Pitts, W1AGP, stressed that hams should not make house calls, at least one FCC office suggested that local hams work with a city-sponsored "Converter Box Installation Team." The city would then send two people to the caller's home to assist in the installation of the digital converter box. That two-person team would go into the homes of the residents and connect the DTV converter boxes and assist with any reception issues. The amateur would be providing the technical expertise, while the volunteer from the local community organization would be providing a "comfort factor" for the resident who needs assistance.

Many amateur radio clubs around the country answered the call to help. In Hawaii hams indicated that they developed a good working relationship with the FCC. If the opportunity comes up between now and the June conversion date, consider providing an educational form of public service. In Philadelphia, members of the Holmesburg Amateur Radio Club helped staff a call center at KYW-TV. There were questions about the coupon program for the digital converter boxes, poor reception in fringe areas, and how to hook up a converter box. Several members indicated it helped having the experience of working with a converter box prior to staffing the call center and knowing what reception off the air was like.

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NEW! Z-100Plus

LDG's popular Z-100 economy tuner is now the Z-100Plus. Still small and simple to use, the Z-100Plus sports 2000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds.

Suggested Price $159.99

NEW! Z-817

The ultimate autotuner for QRP radios including the Yaesu FT-817(D). Tuning is simple; one button push on the tuner is all that is needed - the Z-817 takes care of the rest. It will switch to PKT mode, transmit a carrier, tune the tuner, then restore the radio to the previous mode! 2000 memories cover 160 through 6 meters. The Z-817 will also function as a general purpose antenna tuner with other QRP radios. Just transmit a carrier and press the tune button on the tuner. Powered by four AA internal Alkaline batteries (not included), so there are no additional cables required. A coax jumper cable is also induced for fast hook up. ***Suggested Price $129.99.***

AT-200Pro

The AT-200 features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 watts SSB or CW on 1.8 – 30 MHz, and 100 watts on 54 MHz (including 6 meters). Rugged and easy-to-read LED bar graphs show power and SWR, and a function key on the front panel allows you to access data such as mode and status. All cables included. ***Suggested Price $249***

NEW! KT-100

LDG's first dedicated autotuner for Kenwood Amateur transceivers. Easy to use - just right for an AT-300 compatible Kenwood transceiver. The KT-100 actually allows you to use the Tune button on the radio. The LEDs on the front panel indicate tuning status, and will show a match in seconds, or even less of you've tuned on or near that frequency before. Has 2,000 memories for instant recall of the tuning parameters for your favorite bands and frequencies. If you have an AT-300 compatible Kenwood radio, you can simply plug the KT-100 into your transceiver with the provided cable; the interface powers the tuner, and the Tune button on the radio begins a tuning cycle. The supplied interface cable makes the KT-100 a dedicated tuner for most modern Kenwood transceivers. ***Suggested Price $199.99***

See AT-1000Pro Review in Nov. '08 CQ

AT-1000Pro

Building on the success of the AT-1000, LDG Electronics has refined and expanded its 1KW tuner. The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. All cables included. ***Suggested Price $599***

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A warranty is a promise, a promise of quality and service life. The #1 line of autotuners in the industry now comes standard with a no-questions-asked 2-Year Transferable Warranty.

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Our customers tell us we do the right things to meet their support expectations. Customers feel good about owning LDG products because service life and support is something they can count on - even when they are ready to sell a unit to another ham.

Now With 2 Year Transferable Warranty!

AT-100Pro

This desktop tuner covers all frequencies from 1.8 – 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch, allowing you to switch instantly between two antennas. The AT-100Pro requires just 1 watt for operation, but will handle up to 125 watts. All cables included.
Suggested Price $219

radio not included

AT-897 for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897 Autotuner mounts on the side of your FT-897 just like the original equipment. We even added the ability to mount the "feet" on the side of the tuner so when you're transporting your rig by the handle, you can safely set it down and not worry about scratching the case. The AT-897 takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier. ***Suggested Price$199***

radio not included

FT Meter

LDG's new version of its popular FT-Meter presents a lush, highly readable 2.5" meter face with calibrated scales for signal strength and discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu. On/Off switch for the light. • LED back-illuminated in cool, high-visibility blue.• Calibration adjustment is on the back of the unit; makes it easy to calibrate.• Backlight brightness adjustment is also on the back of the unit; so you can set the backlight to your desired level brightness. The FT-Meter comes fully assembled and ready to go; just plug it into the radio and you're in the picture like never before.
Still Only $49

Z-11Pro

The original portable Z-11 was one of LDG's most popular tuners, accompanying adventurous hams to their backyards, or to the ends of the earth. Now meet the Z-11Pro, everything you always wanted in a small, portable tuner. Designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters.

"With 8,000 memories in LDG's exclusive "3-D Memory" array, the Z-11Pro uses LDG's state-of-the-art processor-controlled Switched-L tuning network. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. All cables included.
Suggested Price $179

NEW! IT-100

The Icom IC-7000 remains one of the most remarkable radios ever marketed. This small, do everything, go anywhere rig sent shock-waves through the ham community when it was introduced, and continues to be a best-seller. Always looking to make our products better and more useful, LDG's popular AT-7000 tuner made to compliment the IC-7000 (and other AH-3 and AH-4 compatible Icom radios) has been upgraded to the IT-100. Still matched in size to the IC-7000 and IC-706, the IT-100 now sports a front panel push-button for either manual or automatic tunes, and status LEDs so you'll know what's going on inside. You can control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. It's the perfect complement to your Icom radio that is AH3 or AH-4 compatible.
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LDG

All units of the Kentucky National Guard were activated to assist with storm cleanup and repairs. Amateur radio handled some communications between units in Tennessee and Kentucky. (Photo by Cadet Bryson Perry, 201st Engineer Battalion, KYNG)

Many officials acknowledged the work of ham radio operators. Princeton Electric Plant Board General Manager John Humphries described communication issues in the wake of the storm as "a major problem." Most cell-phone and two-way-radio services used by first responders, utility crews, and emergency officials were out after the storm. With no means of getting immediate information to the public, the police often used public-address systems to deliver information. At a Princeton, Kentucky city council meeting, council member Richard Blackburn said the county's amateur radio operators had been set up to provide communications but needed more assistance. "This town needs ham operators bad."

Kentucky Division of Emergency Management spokeswoman Monica French said a satellite phone can cost $1000 or more, plus $50 a month for a subscription, plus per-minute airtime costs of up to $10. "They're very expensive," French said. "That's going to be a county issue in terms of what that county can afford." In the meantime, Kentuckians should be grateful to ham radio operators who stepped forward to link western Kentucky to Frankfort, French said. Those volunteers are actually an important part of the state's emergency-response strategy, she added. "We've talked about and prepared for a New Madrid earthquake," Rogers said. "This is the New Madrid ice quake. This is catastrophic."

One person posted the following comments on a regional emergency communications list server . . . that the emergency is not totally over yet but the need to go forward with our mission is as great as ever. All emergency communicators came out early and stayed late during this emergency. Volunteer communicators responded on the first day, supplying much-needed links to other areas and state EOCs where operating. Ham radio even put counties together across state lines for food-kitchen and food-service provisions. Donations from local corporations to volunteer soup kitchens were abundant and hams were right there to help.

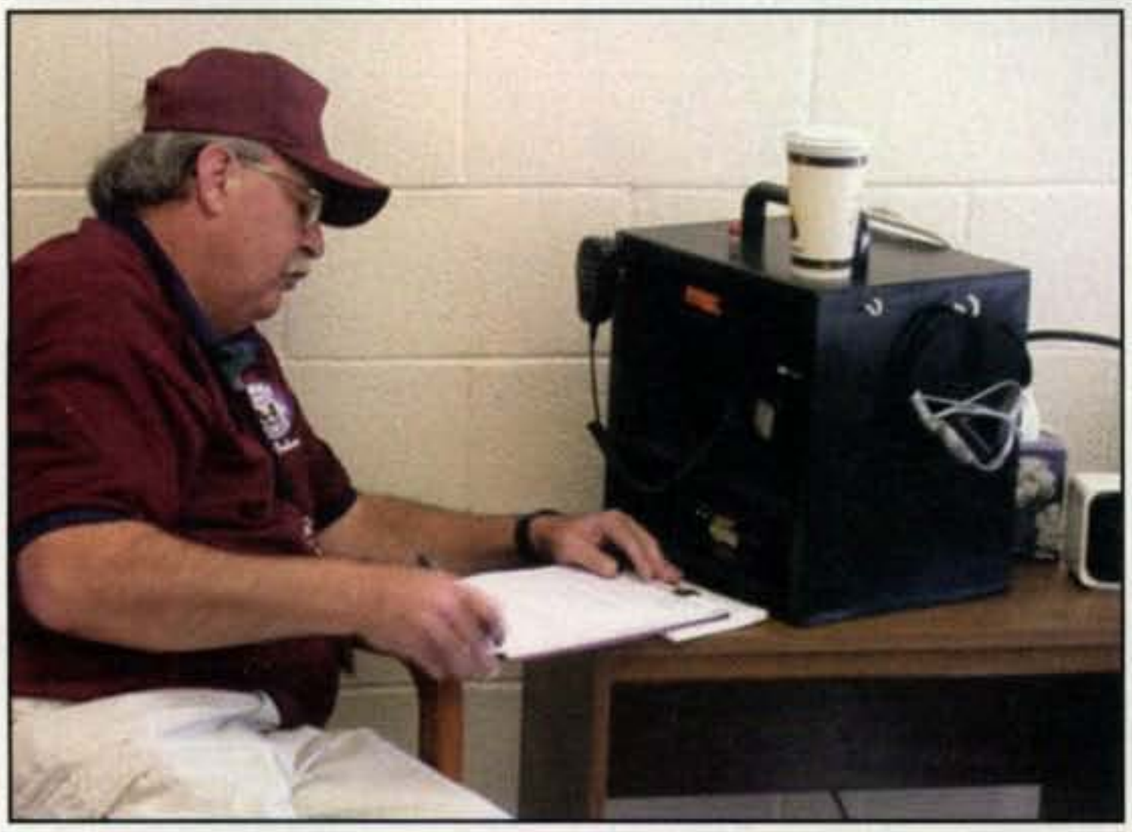
The State Emergency Operations Center in Frankfort, Kentucky utilized ham radio operators and the MARS system to reach out and assess the damage. No phones, no cells, the state radio system was malfunctioning, and even the satellite radio system was unreliable to reach the disaster areas.

Patrick Compton, KF4FMZ, who is the ARES District 14 Emergency Coordinator and the Kentucky Army MARS Emergency Operations Officer, told *CQ* that beginning on "Wednesday Jan 27th we found 3960 to be the only clear channel of all the Kentucky ARES 80-meter frequencies and found many Kentucky stations were up rag-chewing about the storm. Some stations started to show up in the disaster area in western Kentucky and established contact with the State EOC (KY4EOC/AAN4EKY). A few third-party comms from officials were conducted as well as a flood of requests for generators, water, food, heaters, cots and blankets, fuel, and law enforcement. Some National Guard traffic was also passed between Kentucky and Tennessee."

Operations at the EOC ran from 8 AM until 8 PM. At times hams and MARS members were relaying traffic on two HF radios, and three VHF radios. Kentucky Joint MARS members activated and merged with Tennessee MARS running HF and VoIP emergency radio nets. Compton said, "Most stations operated with both MARS and ARES hats, picking up traffic on ham nets and sending on MARS nets. MARS stations also maintained the Kentucky National Guard HF net during deployment of troops to western Kentucky."

The radio traffic coming into the EOC was heavy enough on the 28th and 29th that a request was made for Tennessee hams and MARS operators to stand in for KY4EOC on HF and relay information back to the EOC via e-mail, landline, or VoIP. By the 30th most western Kentucky counties were linked up by local hams and could communicate with KY4EOC and local EOCs. The station was also visited by the Lt. Governor, and he was very satisfied and impressed with the ham/MARS radio support around Kentucky.

Compton said, "This is the worst wide-spread disaster to hit the bluegrass, but for the many hams/MARS



John Ciaccia, KB3MNL, was one of the Pennsylvania operators deployed to the Atglen Fire Department to assist with communications during the telephone outage. (Photo courtesy of Lor Kutchins, W3QA)

operators that provided hours of critical communications. The ice can't stop our 'UNBRIDLED SPIRIT'."

Phone Service Out

The Chester County (PA) Amateur Radio (CCAR) group was activated during the same ice storm when a telephone outage occurred in one telephone exchange in the western party of the county. Nine amateur radio operators responded to the call, staffing the County Emergency Operations Center and the Atglen Fire Department, which was located in the outage area. The outage lasted about three hours. Several members of the Chester County Department of Emergency Services expressed thanks and remarked about the exceptional reliability of CCAR. One 9-1-1 supervisor said "If we did not call you guys out, the outage would have lasted until past midnight, guaranteed! Thanks!"

Ed Atkins, Director of the Chester County Department of Emergency Services, expressed his appreciation to CCAR for their response: "Your willingness and ability to respond on a frigid Tuesday afternoon is just one reason I count on CCAR when the worst occurs. The expertise, dedication, and continued support of the men and women of CCAR is truly an asset to the citizens of Chester County."

He continued, "I realize that many things go on behind the scenes to make this program a success and I appreciate the hours of planning and training you have dedicated. I have no doubt that CCAR was prepared for a protracted deployment, and, had it been required, you would have staffed additional fire stations. I appreciate the dedication of the CCAR members who respond in adverse conditions to protect the citizens. And I fully understand how fortunate we in Chester County are to have CCAR."

This month we covered ham radio operators providing a public service in the beginning of the year. We appreciate the information provided by Joe Safranek, K4JJS; Bill Sexton, N1IN; and Patrick Compton, KF4FMZ. Do you have a story to tell? Drop us a note. Until next time . . .

73, Bob, WA3PZO

world of ideas

BY DAVE INGRAM,* K4TWJ

Keys 2009: Return of the Cooties

We know them as Sideswipers, Cootie keys, Double Action keys, and Slap keys, and they could soon become an endangered species of amateur radio accessories. Realizing that fact, this year's keys columns are dedicated to rescuing them from extinction (oh, them golden Cooties!). What are these mysterious CW items, why do we affectionately refer to them as Cooties, and what are their socially-redeeming attributes? Might they add new-found bliss to your own amateur radio life? I may be slightly over enthusiastic here (*QST* called it my "sideshow barker mode"), but I say—Yes! Absolutely! Gear up with three or four of the little gems and live a little!

Webster's 20th Century Dictionary defines Cootie as a slang name for the Polynesian Kutu, a small parasitic insect of unknown origin, and we are unsure how such a designation became associated with Morse keys. They (the keys, not the insects) came on the scene during the 1880s, probably as an aid to minimizing carpel-tunnel syndrome, and they were also the first form of "speed key." They were upstaged by Martin's famous bugs during the 1900s, but they have always been and continue to be special treats among CW enthusiasts who appreciate unique keys, amateurs on a very low budget, and ship radio officers.

A Sideswiper (formal name) or Cootie key (informal nickname) looks similar to a single-lever paddle, but its left and right contacts are connected together rather than routed to separate (dot and dash) posts. There are also two general types of

*3994 Long Leaf Drive, Gardendale, AL 35071
e-mail: <k4twj@cq-amateur-radio.com>

Photo 1– One of the most accurate and authentic examples of a genuine Sideswiper or Cootie key is this "Kungsimport" made in Sweden during the 1980s. Note the wood base, twin angle brackets supporting an honest-to-goodness hacksaw-blade lever (with cutting teeth intact!), and single-piece wood knob. What a heartthrob! (Photos of Kungsimport via N1EA)

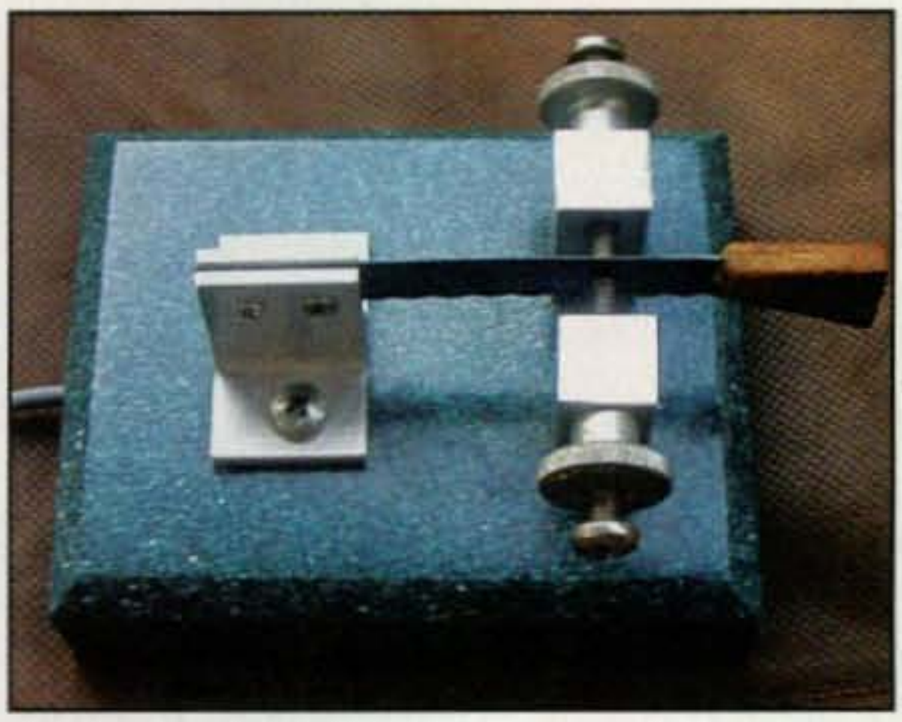


Photo 2– It is difficult to visualize a Kungsimport looking better than the original shown in photo 1, but David Ring, N1EA, disassembled his pride and remounted all its parts on this beautifully painted blue metal base. Awesome!

Cooties: One uses a hacksaw blade as its main lever, and the other uses a solid arm as its main lever. Some diehards may disagree, but I see a special attraction here: Cooties are easily modified to produce good single-lever paddles, and single-lever paddles are easily modified to produce good Cooties. Need a positive-acting and error-mini-

Photo 3– Original 1980s advertisement of the Kungsimport Sideswiper. Try to resist studying this sketch too long, or you surely will become bitten by the bug (Cootie?) and found digging through screws, thumbnuts, and angle brackets at the nearest hardware store. Don't look to me for rescue. I have become a Cootie addict, too!

mizing paddle for bicycle or vehicle mobiling on rough roads? Do you have twitchy fingers? Two left thumbs? Arthritis? A single-lever paddle is the answer. Why? The arm on a single-lever paddle (or a Cootie modified to a single-lever paddle by insulating one or both contacts from ground) can move in only one direction at a time, so it helps you send good code.

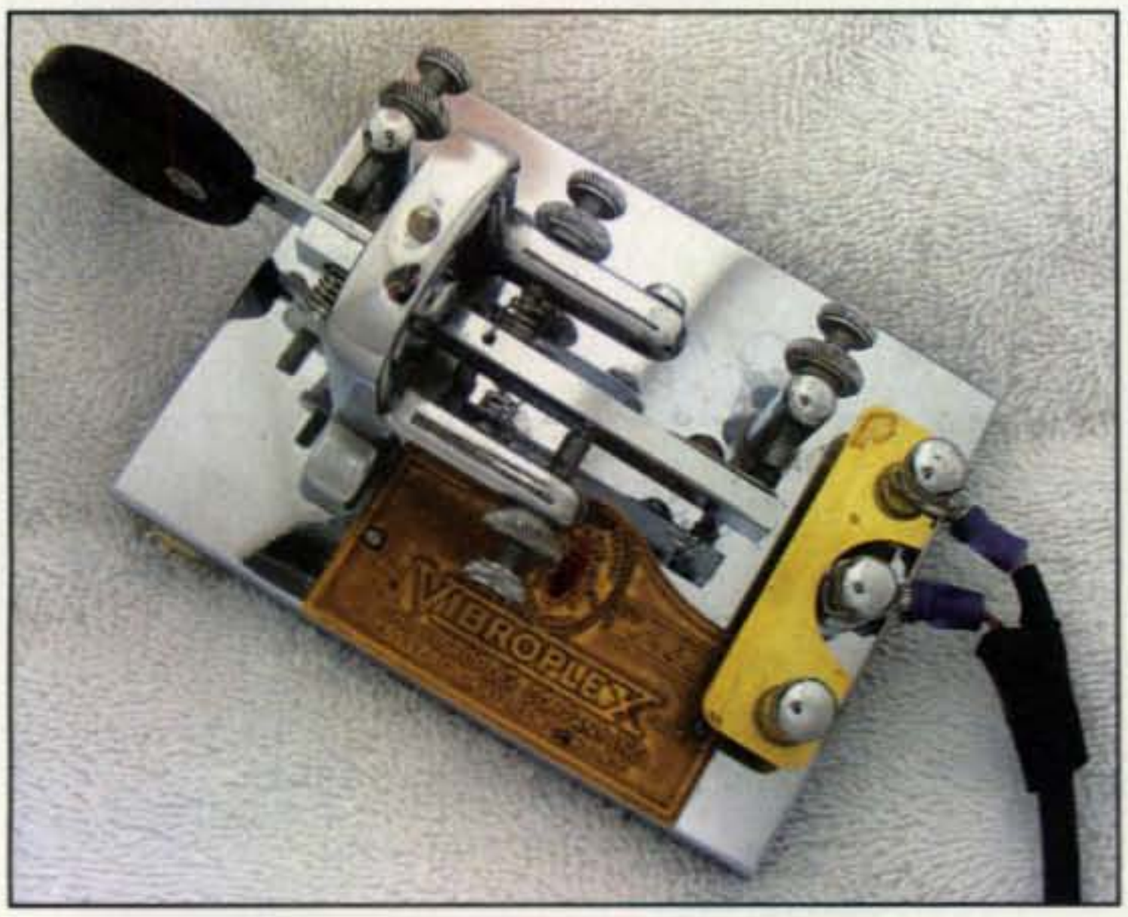


Photo 4– N1EA also converted his Vibroplex single-lever paddle to a Sideswiper by adding a brass jumper plate between its rear dot and dash contacts. Topping it in style, he replaced its standard fingerpieces with a single ebony equivalent. Nice!

You can even send accurate CW while wearing gloves, whereas accidentally bumping both levers of a dual-lever key is easy and unavoidable (sound familiar?).

How often have you called a DX station three or four times, received a QRZ or a reply with only half of your call letters and a question mark? You are straining at maximum power and need just a touch more "oomph," right? By quickly changing from keyer to "Cootie-key mode," you can manually control dot/dash length, spacing, and weight and reap the effects

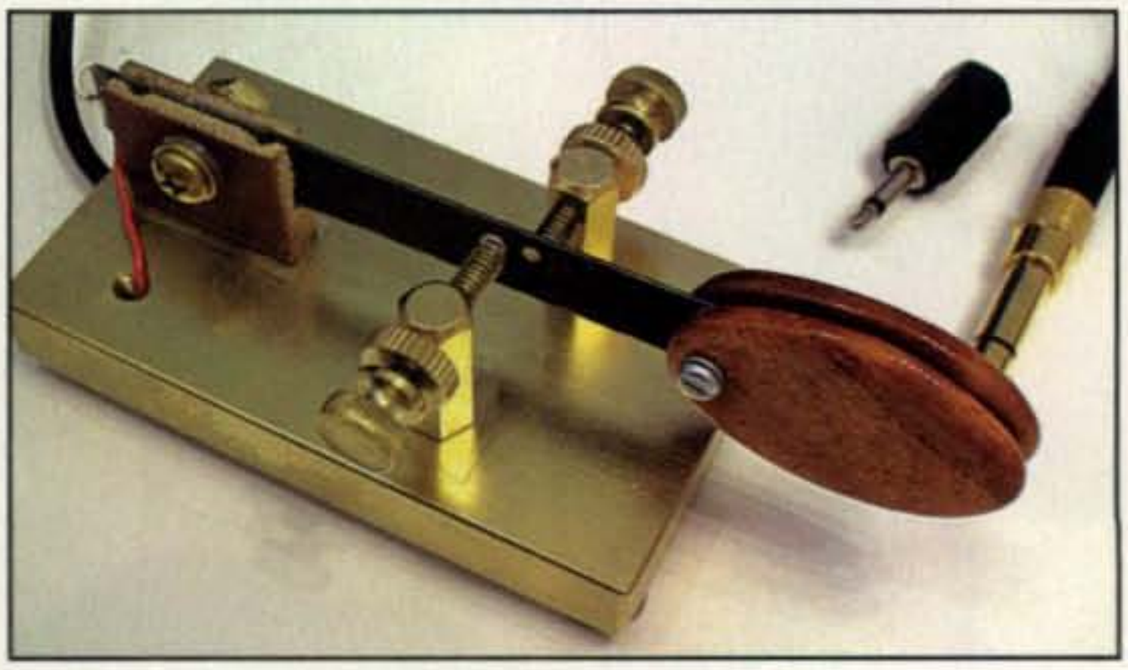


Photo 5– Tom Desaulniers, K4VIZ, makes this good-looking brass-base Cootie key, and it handles very well. I added a pair of custom fingerpieces from Gregg, WB8LZG, plus insulated the left contact from the base with a tiny piece of clear plastic, and it can now change from Cootie to single-lever paddle function in a snap. More details on the Cootie at <www.vizkey.com>.

of a four or five dB boost. Victory snatched from the jaws of defeat, thanks to a sweet little Cootie!

The Fine Art of 'Swiping

Is sideswiping for you? The most logical answer to that question is to test it with one of your own keys in your own shack right now and decide for yourself. If you have a bug, use a rubber band to secure/stabilize its pendulum so moving its fingerpiece left or right only produces a solid key connection or a dash. Carefully instigated, readjusting the bug for Sideswiper operation should not be necessary. If you have a single-lever paddle, use a clip-lead jumper to connect its left and right contacts together or add a stereo-to-monaural adapter to its plug for your rig. Then menu switch your transceiver from normal keyer to straight-key operation. (*Note:* To avoid a potential rig/keyer problem, *do not* jump/short dot/dash connections until switching to straight-key mode.) Some operators set their paddles for a very light touch, and sideswiping requires more wrist action, so resetting dot/dash gaps wider and cranking in more tension should get you going in high style. Think of it like belly dancing with your fingers. That should work.

With respect to use, a proficient 'Swiper would send "OH" as three long left-right-left lever moves followed by four short right-left-right-left lever moves. You can change speed, weight, and spacing with simple wrist movements, like you do when using a straight key. I could not master the technique, but I could not say no to a sweet little Cootie, so I use a quasi-swiping technique. I send dashes with my finger (like using a bug) and only send a leading and/or trailing dot in a "string of dots" with alternating finger/thumb. Old pros may chuckle and say that is improper, but it works for me (and you too?), and quickly changing to single-lever paddle mode when the old fist is not into 'swiping is another option I use as necessary.

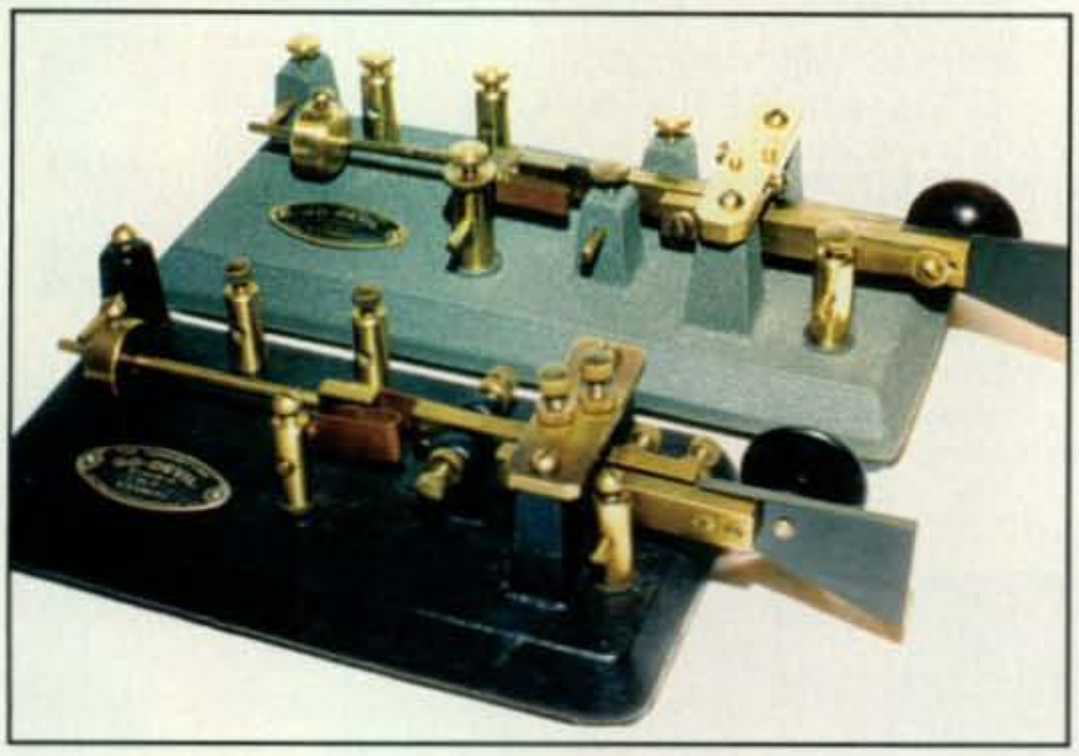


Photo 6– A. H. Emory of Poughkeepsie, New York made approximately 400 of these marvelous "Go Devil" bugs during eras past, but the whereabouts of less than 200 are known today (sigh!). The Go Devil's big attraction is its rear damper rod; it is slightly curved so it can be turned to lock the pendulum for Sideswiper use. A similar pendulum locking scheme can be used with other bugs.

Photo 8– A different-angle view of the Begali HST for closer study. The little treat measures 6.2 by 3.0 inches, weighs 4 pounds, and sports a black wrinkle base with silver/aluminum arm and hardened stainless-steel contacts. More details at <www.i2rtf.com>.

Photo 7– Bruna Begali, daughter of Pietro Begali, I2RTF, proudly introduces the newest member of their keys family: the HST. This is a combination Sideswiper and single-lever paddle that is fully adjustable, good for slow- and high-speed CW, and a true joy to use. (Photo courtesy Bruna Begali)

Photo 9– One of the first U.S.-made Sideswipers and a true collector's piece is this classic J. H. Bunnell made during the late 1800s.

You surely have a number of questions, and I will strive to answer all as we progress through both this month's and next month's column. Meanwhile, let's thank this month's contributors—K4VIZ, I2RTF, W9OK, NJ8D, K8OMO, and W4OA—and turn our focus to the Cooties!

Cooties, Cooties Everywhere!

Some readers may be unfamiliar with Sideswipers and Cooties, so I included a wide variety of styles. Even squeezing for space considerations, they overflowed into (and are threatening to overfill) next month's column. As a result, some descriptions are necessarily short, but the photos tell the stories.

A classic and very traditional style of Sideswiper or Cootie (and one you might replicate from hardware-obtained pieces) is shown in photo 1. This is the Kungsimport made in Kunsbacka, Sweden during the 1980s. Its authentic hacksaw-blade arm is 3.75 inches long. It is sandwiched between two 1-inch high rear supporting angle brackets that, along with 1.25-inch high left and right contacts and supporting posts, are mounted on a wood base. The base is 3.5 inches wide by 4.5 inches long and appears to use stoppers for feet. This little beauty is owned by David Ring, N1EA, a professional Maritime Radio Officer involved in answering an actual SOS and the associated rescue of many passengers aboard a sinking ship a few years ago. I understand he may relate the full story in *CQ* or *Popular Communications* soon. Watch for it.

Remember the all-brass Cootie key made by Tom Desaulniers, K4VIZ, and highlighted in our December column? It looks good and handles well (particularly mobile), but I could not resist adding a couple of frills to it (photo 5). Four coats of fingernail polish plus a tiny sheet of plastic insulated one contact post and screw from ground, and then the key's supplied cable was reconfigured to produce a single-lever paddle. Terrific! I complemented it with 3.5-mm and .25-inch stereo-to-monaural plug adapters, and it now performs as a Sideswiper or a single-lever paddle.

What is the difference between a Sideswiper and a Cootie? They are basically one and the same, but I informally visualize the super-fancy types as Sideswipers and the "down-home" types as Cooties. Enough said? Bugs also make good Cooties (sounds like an insect rally, doesn't it?), and nothing drives home that fact better than the rare and marvelous-looking A. H. Emory Go Devils in photo 6. Look at those bases, those arms, those fingerpieces . . . those fingerpieces! In particular, notice how their curved rear damper rod can be turned to hold or stabilize their pendulum so the dot contact only "makes" rather than produces a string of dots. A similar stabilizing scheme works with other bugs. Try it. One additional point: Change the fingerpiece. Sideswiping calls for a single, thin fingerpiece.

New Begali Key

From the machining facilities of Begali keys in Italy comes details of a brand-new key called the HST, a combination Sideswiper and single-lever paddle of unique design (photos 7 and 8). First, a small switch on the upper right side can be user-wired for instant mode changes. Second, the long rear-pivoting arm with hardened stainless-steel near-fingerpiece contacts produces a quite responsive and agile feel. A tension adjustment (in the base, directly below fingerpiece) controls whether that action is light/loose or heavy/tight. I find the tensioning mechanism quite impressive. Whether set heavy or light, it basically eliminates overshoot or contact bounce. I frequently give the HST

Photo 10– Don Whitaker, K8OMO, knew exactly what to do when he discovered an old arm with molded-on fingerpiece from a Bunnell Sideswiper. He collected a few pieces of hardware, mounted all on a marble base, and now has a nice homegrown Cootie. Rewording one of the singing group Alabama's songs, "If ya wanna play on CW, ya gotta have a Cootie in da bunch."

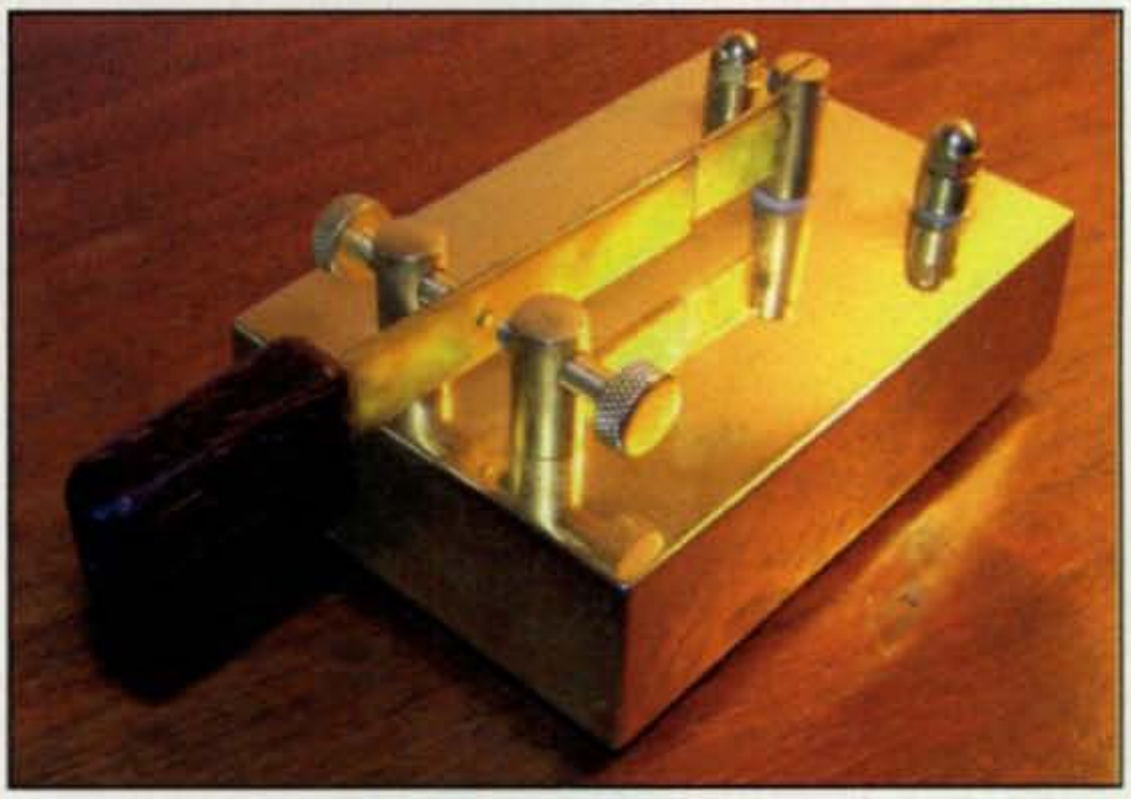


Photo 11– Heads up, James Bond, here comes the Golden Cootie! John Myers, W9OK, made this "Glamour key" by first gold-plating its brass base. Then he laminated spring brass to produce a just-right-feeling arm secured to the base with support posts from an old hand key. The finishing touch is a square-shaped rosewood knob force-fit to the arm. Now this is doing CW in high style!

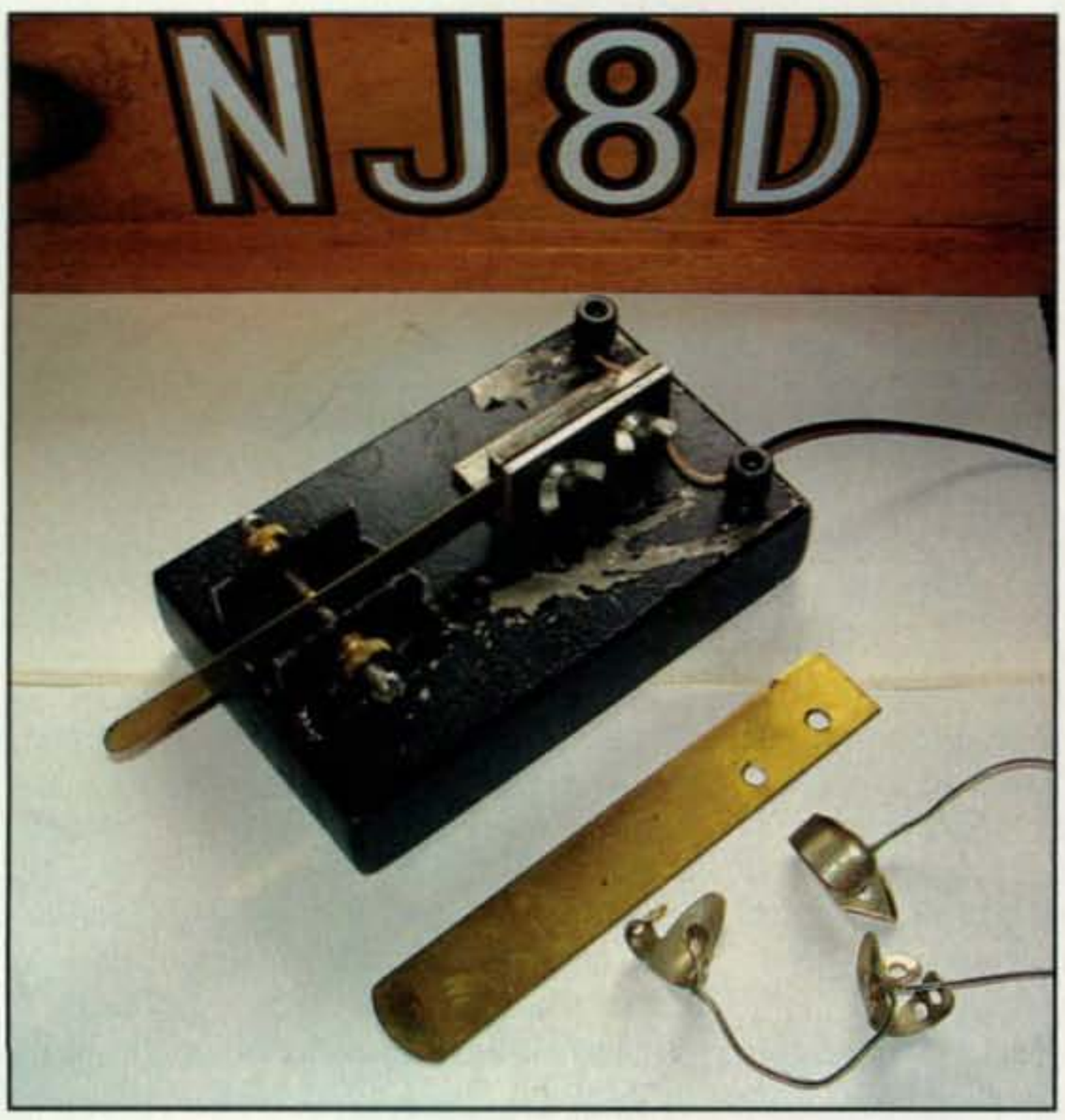


Photo 12– During an on-the-air QSO, Tom Stewart, NJ8D, mentioned using a Cootie, and I asked to see a picture. When he replied it was well-used and worn, it became even more enticing. The base is 1.25-inch thick steel. The arms, one thick, one thin, interchange for a light or heavy feel. The thimble things by the Cootie are a "finger key."

Photo 13– While recently browsing through a hamfest flea-market, Vibroplex owner Felton Mitchell, W4OA, found this little orphan Cootie which he added to the Vibroplex Foundation's key collection. The Foundation is a non-profit organization devoted to preserving amateur radio's proud history for many years hence. Can anyone identify this Cootie?

a good workout, sending CW at 4 or 5 wpm (in Swiper mode) and at 40 to 45 wpm (in single-lever mode), and it performs beautifully. This is one of the highest speed keys I have used. The HST is a "keeper," although I must admit I had to practice using it off the air for several hours before it changed to sending my CW in English rather than translating it into Italian. Would Dr. Dave jest? More details at <www.i2rtf.com>.

More Charming Cooties

Our study of Cooties continues with views of some home-grown samples I am sure you will find interesting (photos 9, 10, 11, and 12). Folks go wild over Bunnell keys of any style or shape, even to the point of rebuilding them from scratch. K8OMO is a good example of that fact. He basically remade his Sideswiper from a Bunnell arm. Impressive! NJ8D actually did make his little Cootie from scratch, all salvaged pieces of metal, and it sounds good on the air to boot. We must admit, however, the gold-plated marvel made by W9OK beats it by 10 or 20 dB in desk appeal. Finally, Vibroplex Company owner Felton Mitchell, W4OA, shares views of an apparently homemade but unique-design Cootie he rescued from extinction and added to the Vibroplex Foundation (photo 13). The foundation is a non-profit division of Vibroplex devoted to preserving keys and other CW artifacts so our proud history and legacies live on throughout the annals of time, a most commendable endeavor.

That totally overflows available space. Watch for Part 2 next month, and remember to share pictures of your CW joys with me for the next "Keys Special." 73, Dave, K4TWJ

Modernize Your Old Heath HM-102 Wattmeter

BY JACK WERTHMAN,* KØØT

the weekender

If you're like me and a lot of other hams, you can't bear the thought of spending big bucks on a new piece of equipment when a few dollars and a little time could upgrade an oldie but goodie to the same functionality. Such is the case with the venerable Heathkit HM-102 HF watt/SWR meter.

Thousands of these meter kits were constructed before the Heath Company got out of the kit business. It is a very functional meter, with reasonable accuracy, and easy to calibrate, with a large, easy-to-read meter. It works quite well for measuring power output under key-down carrier conditions—i.e., tune-up, AM, or FM operation. These are modes for which average power measurement is useful. However, the HM-102 is less useful for measuring SSB power output, where peak envelope power (PEP) is needed to properly monitor transmitter output. No peak-reading circuits were included in the meter's design.

Fortunately, adding a peak-reading circuit to the HM-102 is a relatively simple and inexpensive project for just about any ham. A handful of parts and a little time with the trusty soldering iron and you can rejuvenate that old meter into something really useful for SSB operation (see photo A) and feel good about it at the same time.

A Little Background

The basic problem with a normal meter, such as the HM-102, is that the meter movement is a relatively slow-moving device that requires some time to display the full value of a signal applied instantaneously to the meter input. You can test this easily by comparing the reading on your meter for a key-down condition versus the reading for a short CW pulse or series of CW dots. For example, if your meter reads 100 watts output for a key-down condition, the reading will only be a fraction of that for a single, short CW pulse. A series of CW dots will read higher than for the single pulse, but will still be far less than the continuous key-down reading. Why? Because for the short-duration pulses, the meter simply cannot move quickly enough to reach the true output. The meter is actually displaying the average value of the output. For the continuous key-down condition, the average and peak values are the same. However, for the pulsed conditions the average power is substantially less than the peak.

A very similar situation exists when trying to measure an SSB signal. The RF output of your transmitter is varying from zero to the PEP output at a *rate* corresponding to your voice input at the microphone. Your average-reading meter cannot respond quickly enough to indicate the peak of your voice-modulated RF signal. Instead, it reads the average of your voice-modulated output waveform, which for the typical human voice is approximately 30 to 50 percent of the peak output. This is why your HM-102 meter will read 100 watts at key-down and only 30–50 watts when operating SSB with 100 watts PEP output.

What is needed is a way to capture the peak of the rapidly changing RF output and hold it long enough for the average-reading meter to catch up. A parallel RC circuit is the simple solution to this problem. The capacitor charges to the peak of the waveform and discharges slowly enough through the resistor that the meter can reach the peak value. In practice, a few more components are necessary to make this circuit work properly, but the lowly RC circuit provides the magic.

The Peak-Detector Circuit

The schematic in fig. 1 shows the existing HM-102 power meter and the addition of the new peak-detecting circuit. The new circuit consists of an inexpensive LM2904 dual-operational amplifier and a few supporting components. The first stage of the op-amp serves as the peak detector, in conjunction with C19 and R12 at the amplifier output. Diode D4 prevents the capacitor from discharging through the low-output impedance of the op-amp. The small forward voltage drop of D4 is compensated for by the basic operating principle of the op-amp in this configuration—i.e., the output of the op-amp will adjust itself to force the inverting and non-inverting inputs of the amplifier to be equal. As a result, the voltage at peak-holding capacitor C19 will always follow the non-inverting input to the op-amp.

Photo A– The venerable Heathkit HM-102 SWR/Wattmeter modified for reading peak as well as average power. The only evidence on the outside is a new toggle switch and dry transfer lettering added to front of the meter base assembly, directly underneath the meter. (Photos courtesy of the author)

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e-mail: <jwerthman@aol.com>

The second stage of the op-amp is a unity gain buffer to isolate the RC circuit from the meter and scaling resistors. This permits the time constant of the circuit to be controlled solely by R12 and C19. The extremely high input impedance of the op-amp prevents it from affecting the time constant.

The LM2904 is designed to operate from a single power supply with a voltage range of 3–26 volts DC. A single 9-volt battery can be used if only the 200-watt range of the meter is needed. However, if the 2000-watt range is required, two batteries are necessary to provide sufficient voltage to drive the meter to full scale. A wall-wart transformer with an output of 18 to 26 volts DC can also be used in lieu of batteries, if desired.

The additional ceramic disc capacitors are used to bypass the inputs to the op-amp to keep out RF. Resistor R13 was added during the prototyping phase to keep a reference on the non-inverting input of the first amplifier stage. Op-amps don't like floating inputs, and the amplifier tended to go to saturation during some of my testing. The resistor may not be necessary in the final design after the input is permanently connected to the existing

Parts List

(Designations were chosen so as not to duplicate those on the original Heath schematic)

U1: LM2904 dual op-amp. Available from Jameco Electronics (Cat. #121005CJ) or as part of an experimenter's kit from Nightfire Electronic Kits.

R12: 100 k ohms, 1/4-watt resistor

R13: 1 M ohms, 1/4-watt resistor

C19: 6.8 µF, 35 V capacitor

C20, C21, C22, C23: 0.022 µF, 50 V ceramic disc capacitor (values from .01 to .022 are suitable)

D4: 1N4001 diode (Radio Shack #276-1101. Any silicon or germanium diode rated 35 volts PIV or more is suitable)

S4: Miniature center-off DPDT toggle switch (Radio Shack #275-620A)

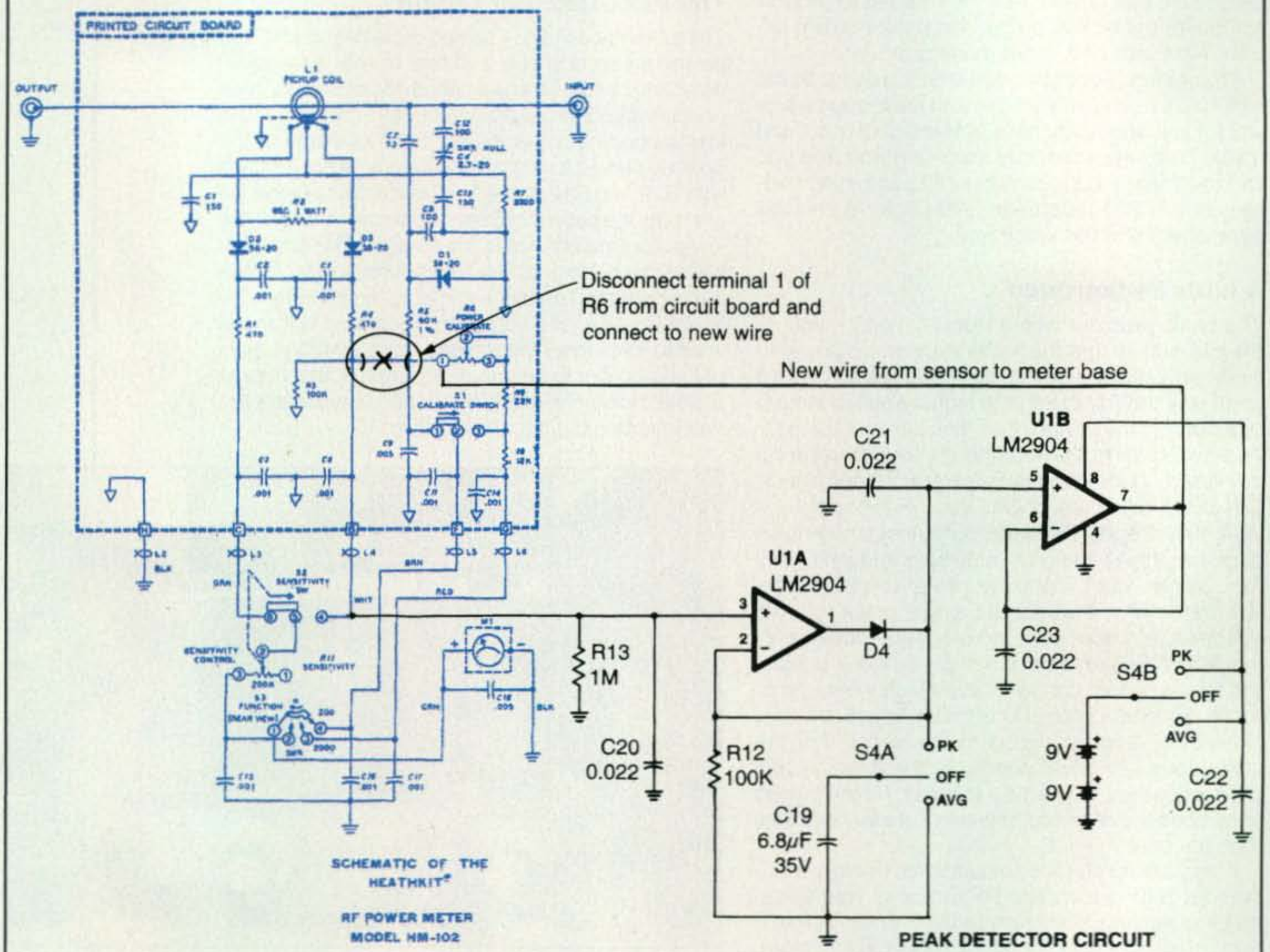

Fig. 1– Schematic of the new peak-detector circuit added to the existing HM-102. All components are readily available and most can be purchased as an experimenter's kit (LM2904 DIP Kit) from Nightfire Electronic Kits. None of the component values are critical, and junk-box substitutions can certainly be made. However, changing the value of R12 or C19 will affect the time constant of the circuit.

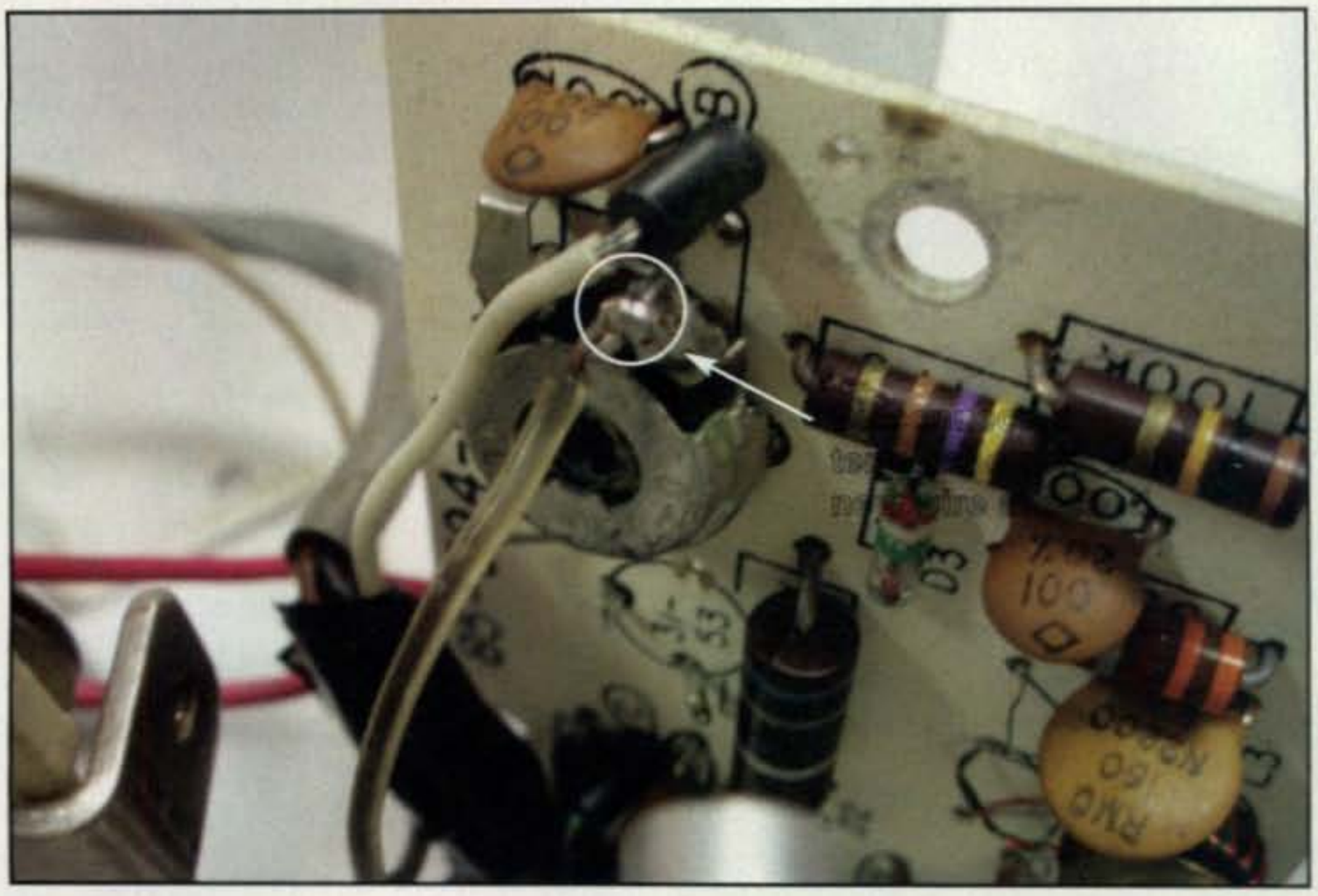

Photo B – One prong of R6 is unsoldered from the PC board in the HM-102 remote sensor box, benback slightly, and soldered to the new return signal wire from the peak-detector circuit.

metering circuits, but I left the resistor in just to be safe. It doesn't affect the normal operation of the circuit.

Finding Parts

All of the components for this project should be readily available from a number of sources. However, you can get almost all of them in one shot from Nightfire Electronic Kits <http://www.vakits.com>. It sells a number of experimenters' kits, including one for about $8 that includes four of these great op-amps, plus countless resistors, capacitors, and other goodies, including the small circuit board that is shown in these photos. The only parts for this project that weren't in the kit were the toggle switch (available from RadioShack), the diode (practically anything will work), the batteries, and one battery clip (one is included in the kit, but you'll need two). If you buy the kit, you'll still have a lot of parts left over for the next project.

Construction Details

As shown in fig. 1, the existing metering circuit must be broken just ahead of the calibration potentiometer, R6 (also see photo B). The PC board in the remote sensor must be detached temporarily from its mounting studs in order to get access to R6. The new peak-detector circuit board is mounted in the meter base so that only one additional wire is necessary between the meter base and the

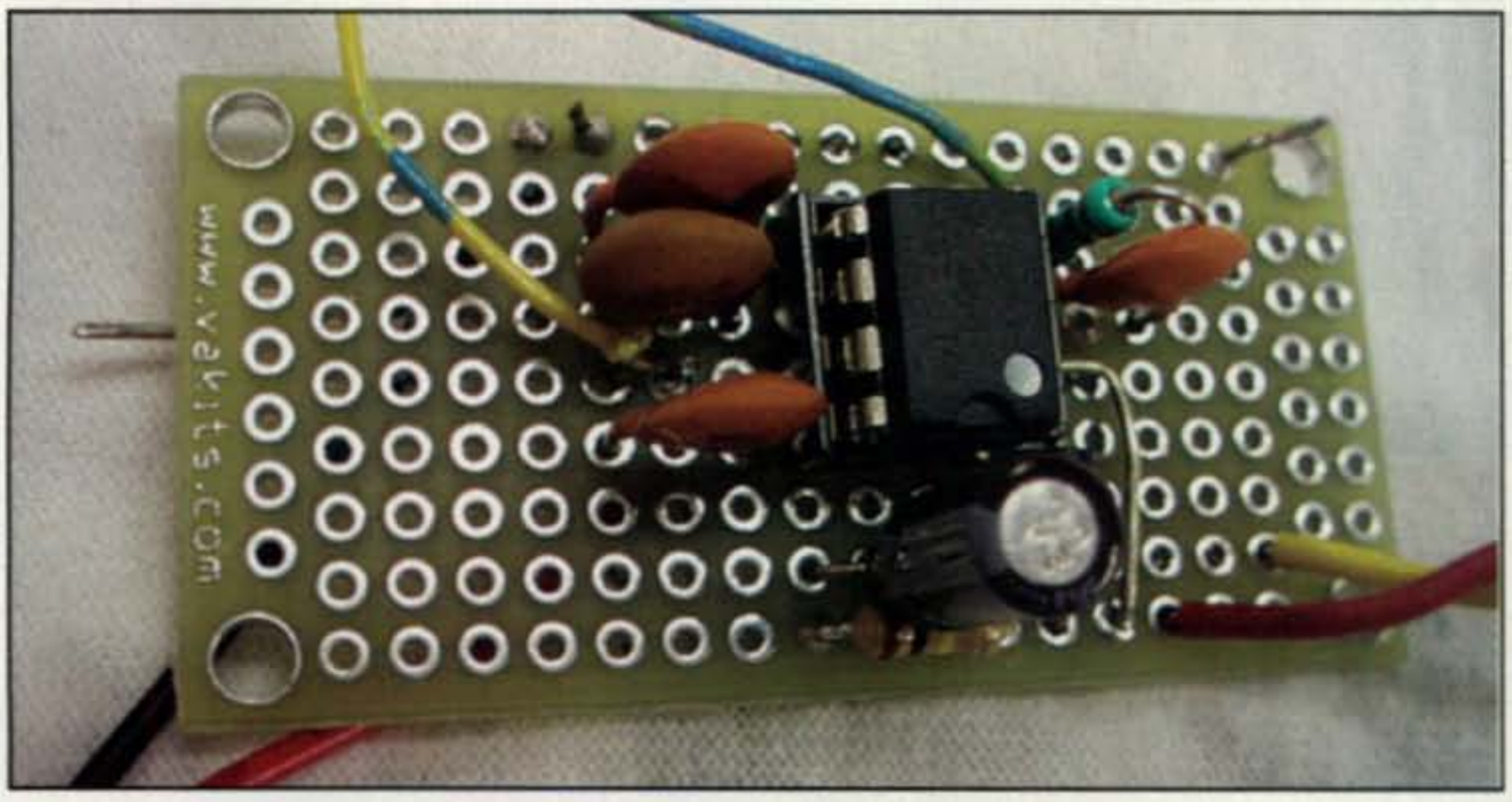

Photo C– Top side of new peak-detector circuit board. This is the board included in the kit package from Nightfire Electronic Kits.

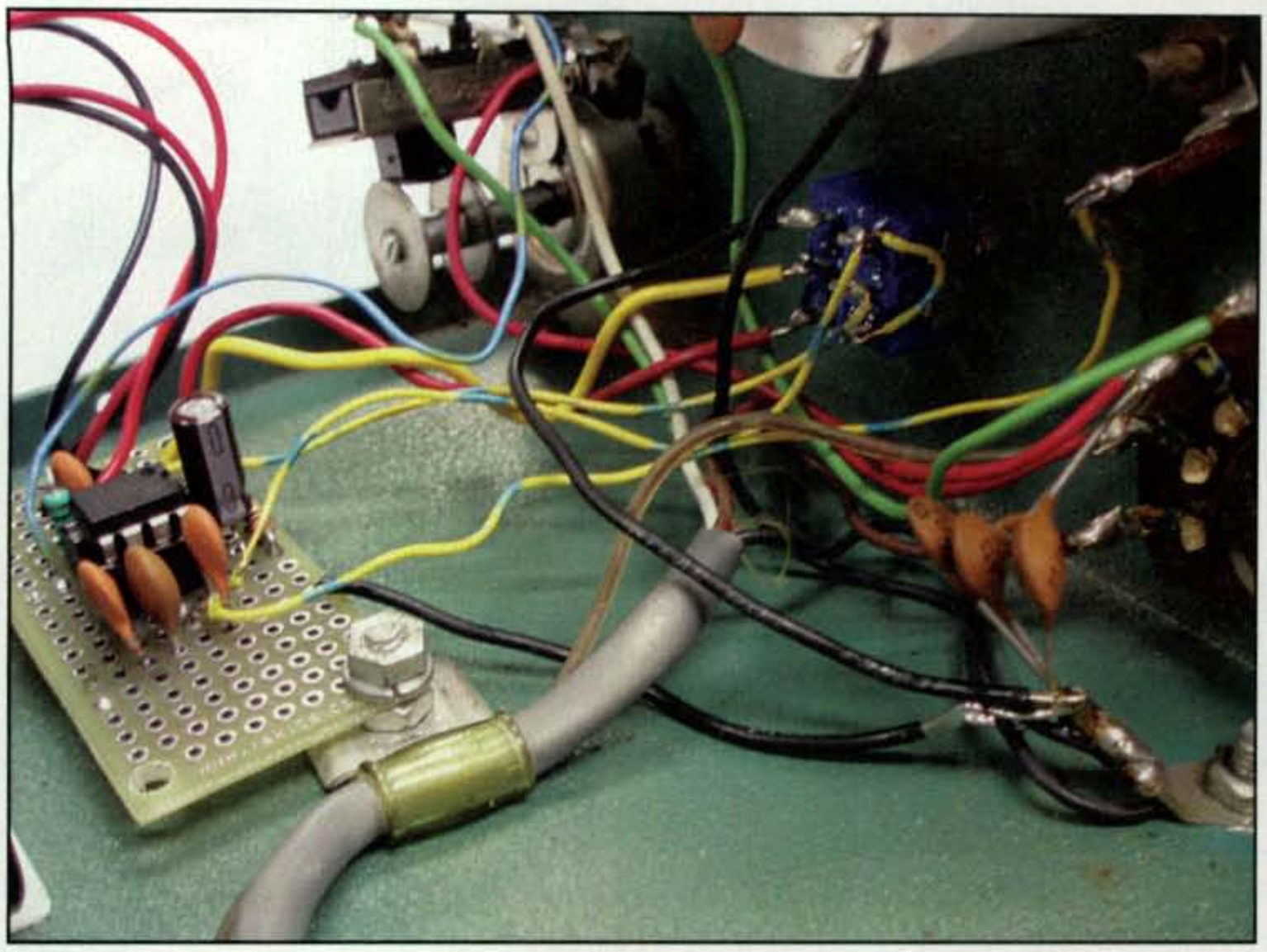

Photo D– New circuit board mounted in the meter base assembly (left) and the new miniature toggle switch mounted on the front of the meter base (right center).

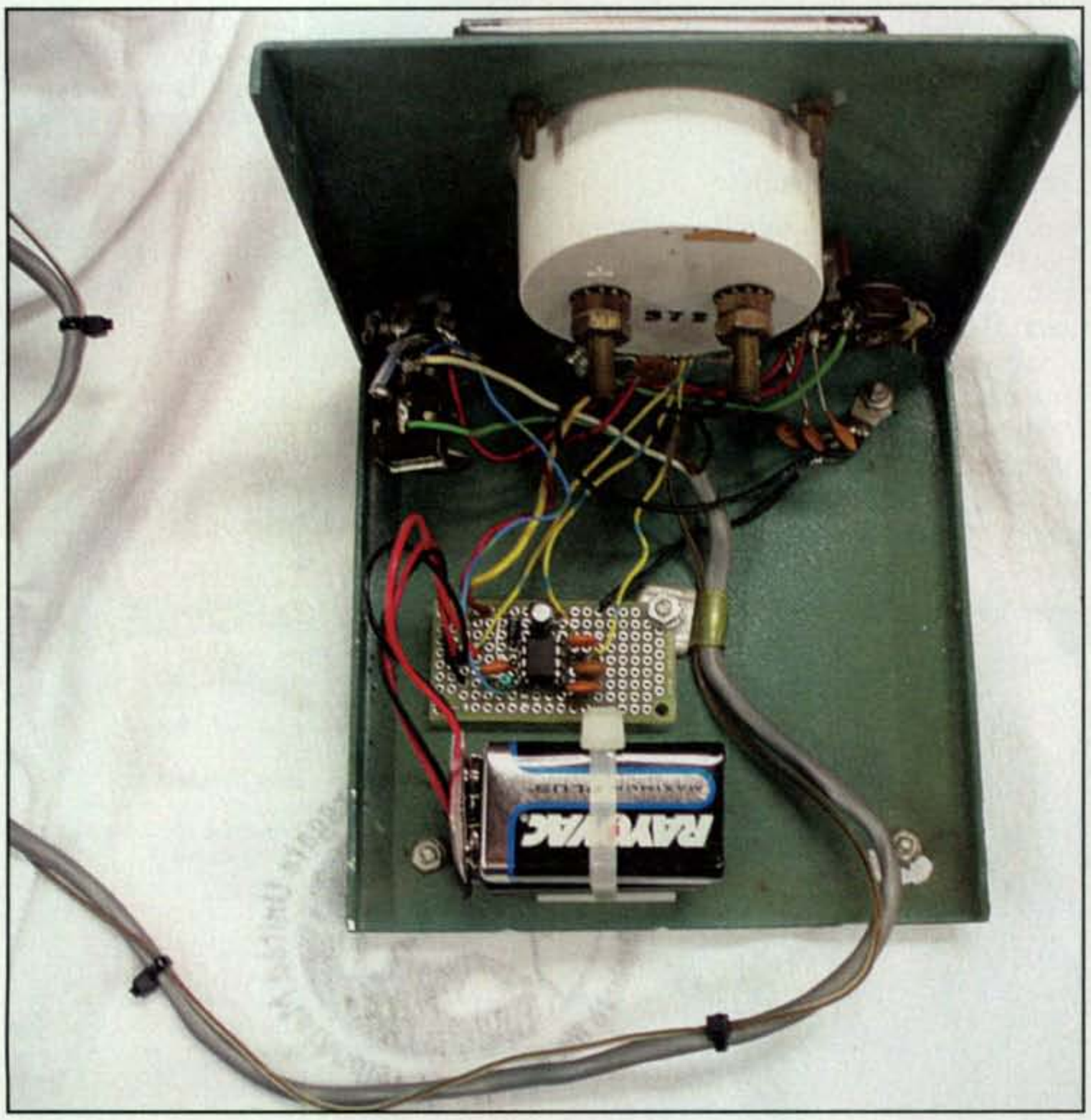

Photo E – New circuit board and batteries mounted in the meter base assembly. Note the added wire from the remote sensor is tie-wrapped to the existing 5-conductor cable. You may also substitute a new 6-conductor cable (but that's a lot more work!).

remote sensor box. Route the new wire through the cable grommet on the sensor box and either tape or tie-wrap it to the existing multi-conductor cable going to the meter base. As an alternative, the existing 5-conductor cable could be replaced with a 6-conductor cable for a somewhat cleaner look, but I elected to add the single wire.

All of the components of the new peak-detector circuit (except the batteries and toggle switch) are mounted on a small perforated circuit board, shown in photo C. The connections on the bottom side of these types of boards are not pretty, but they are easy and functional. If you have the time and facilities, a nice printed circuit board could be designed to mount all of the components.

As shown in photos D and E, the new wire from the remote sensor box was routed through the cable clamp with the original multi-conductor cable to secure it. A new terminal strip was attached to one of the meter mounting studs to provide a connection point for the new wire. The wire could be soldered directly to the new circuit board, but it was easier to build the circuit board complete with pigtails for all the external connections prior to mounting it in the meter base assembly. The batteries were mounted to a self-adhesive cable support and secured with a tie-wrap.

Calibration and Operation

Recalibration of the power meter is necessary after the peak-detector circuit is added. Fortunately, Heath designed a calibration circuit into the original meter and the new peak detector does not affect that circuit. Tune your transmitter to 40 meters and connect a dummy load to the antenna jack. Set the new toggle switch to the "AVERAGE" position. Set the CALIBRATE switch on the remote sensor box to the "CAL" position and set the range switch on the meter to "200." Adjust your transmitter output to approximately 100 watts. The actual value is not critical, but note the reading on the power meter. Now, set the CALIBRATE switch to the "NORM" position. Adjust R6 so that the meter reads the same value as noted in the "CAL" position. Switch back and forth a couple of times and tweak R6, if necessary, to make sure the readings are the same in both positions. When satisfied, leave the CALIBRATE switch in the "NORM" position. If you have another high-accuracy RF power meter, you could also use that to recalibrate the HM-102.

The SWR function of the meter is not affected directly by the new peak-detector circuit. However, because the circuit

board in the remote sensor unit was removed to get access to R6, the movement of the wires in the box could affect the null calibration of the SWR meter. It would be a good idea to go through this null adjustment procedure (outlined in the manual) just to make sure nothing has changed drastically. Simply adjust the SWR NULL capacitor C4 for minimum SWR indication. If you haven't done an SWR null calibration for a while, it's probably time for a check anyway.

Now let's find out if the new circuit actually works. With the new toggle switch in the "AVERAGE" position, generate a few CW dots from your transmitter. The meter should move up scale, but well short of the full output, and then it should rapidly drop back to zero, as in the earlier tests. This is the same operation as the original meter circuit. Now put the toggle switch in the "PEAK" position and try the same thing. The meter should rise to the full output of the transmitter and slowly decay back to zero. This is the action of the peak detector holding the voltage long enough for the meter movement to catch up. The voltage decays according to the time constant of the RC circuit.

Now let's try the same thing on SSB. Place the toggle switch in the "AVERAGE" position and speak into your microphone. As in the previous tests, the meter will only read approximately 30 to 50 percent of the actual transmitter PEP output. Now put the switch into the "PEAK" position and speak into the microphone. *Voilá!* The meter should be peaking at or close to the actual output of your transmitter and then slowly decaying to zero when you stop talking. Congratulations on a mission accomplished!

It's A Wrap

Well, you now have a true PEP RF output meter at a fraction of the cost of a new one ... and had a lot of fun, too, I'll bet. If you're new at building and experimenting with electronic circuits, don't stop here. Op-amps are really quite ingenious and versatile devices and they can be used as the basis for many very practical circuits. Use some of the extra parts and try another simple project.

Finally, the concept of this circuit is applicable to almost any RF power meter, with some modifications to fit the particular meter circuit details. If you have another older meter that you want to upgrade, don't be afraid to try your hand at adapting this project to your meter. Happy building!

73, Jack, KØJT

magic in the sky

BY JEFF REINHARDT,* AA6JR

Ain't No Fool!

It's sometimes a challenge for a writer to create appropriate material for an April publication. To commemorate a single day of mirth-making in a manner that's worthy of month-long reading requires one to dive deep into the pool of lasting thought. If you write long enough for a monthly publication, you eventually come to realize that *your* particular column is probably not the first thing every reader turns to . . . or perhaps your mom is an avid reader of everything you write.

Very few readers go through a magazine cover-to-cover in one sitting and in page order from front to back. Then you realize that (ahem) sitting is what most readers are doing as they work through a publication an article at a time, often one a day. (It's no accident that *Reader's Digest* has the same number of articles as there are days in a particular month.) Sometimes more than one story is read each day, and that may be lucky for a writer.

Therefore, here's my attempt at getting you to chuckle in an April Fool's manner, but maybe on the 13th or the 14th of April. I sure hope it's not the 15th. There's nothing funny about the 15th, unless you work for the IRS, in which case, it's "payday." Maybe that's when you will read "Math's Notes," as it seems appropriate for a numbers guy to be read on the 15th, eh? So if it's the 16th and you're reading this, I'm cool with that. If it's the 29th, all I can say is, hey, I think I'm one up on reading the classified ads placed at the end of the magazine, but that's my bad ego saying that.

My Better April Pranks

Toss the squirting flower, as that's chump stuff and not at all recommended as a prank to pull on a lady. Petroleum jelly on the doorknob is old school, not to mention messy, and it's too easy to find the slimy-handed perpetrator. Clear plastic sandwich wrap stretched tightly over the toilet only works in a location frequented by men. Short-sheeting the bed is becoming a lost skill, although grape jelly in the bottom third of a bed once generated an interesting reaction from a college roommate. However, the suction-cup chrome faucet stuck on an office desk was a winner, especially when I poured some water on the floor beneath it.

Leaving one of those pink "while you were out" call message slips for my administrative assistant was a "home run" because it instructed her to call and ask for Mr. Lyons, and the phone number was for the local zoo. My assistant was only the 450th person to call the zoo that day. She even thought it was funny once she caught on, but the zoo operator was nearing the end of her patience. Maybe that's why they now have a boring automated answering system. As a result, the next year I got a different assistant to call Mrs. Katz and the number was for the local animal shelter. (Stick with a winning formula, eh?) My very serious and dedicated assistant was quite persistent in wanting to speak to Mrs. Katz, as the message slip was marked "urgent." It took her a while, but eventually grim reality began to sink in. The animal shelter operator apparently had been through this one before.

One of my bosses never did figure out how the rear license plate on his car got mounted upside down, but the police officer who called it to his attention was at least sympathetic. One other employee suggested there may have been some utility in that, figuring if the car ever flipped over, the person reading the plate would not have to strain his or her neck to read it. I, of course, was consoling and empathetic, expressing dismay that some misguided vandal could do such a thing.

Going back some and delving into the world of electronics, our high school physics teacher was fond of going out for a smoke while we were conducting our lab experiments. His mistake was doing that one day while we had access to the Van de Graaf static generator. Our experiment verified that a static charge generated on the inside portion of a doorknob can be received by a person attempting to use that same doorknob from the outside. It is highly recommended that you don't do that particular prank, particularly if the recipient is in a position to grade your performance. There's another universal truism that now makes this kind of activity out of bounds: Shocks can be dangerous. Second, no one likes them. However, in a display of solidarity that was admirable, not even the brainy girl who went on to become a doctor squealed. One way I knew she was brainy was discovering that she wouldn't go to the movies with me. She did, however, have very clean hair, as every time I asked her out, she said she needed to wash it that night.

If you believe in karma, or at the very least that turnabout is fair play, a fiendish chief engineer at a radio station I worked for took great pride in charging capacitors and sliding them onto the DJ's chair. At that particular station, it was a rule that you stood when you were speaking "live" on the air, but you could sit when playing music or recorded commercials. I learned three lessons that day: (1) a relatively small capacitor can pack a wallop; (2) cotton-blend slacks are not that great when it comes to providing insulation; and (3) always look at a chair prior to placing one's posterior at rest, especially when you're the new guy on the staff. Also, refer back to the truisms listed in the above paragraph.

Another radio prank I managed to do was on a snowy April 1st in Buffalo (yeah, trust me, it can snow in Buffalo in April). I read a weather forecast from the previous August, predicting a temperature in the mid 80s with humidity to match. I actually got a few "thank you" calls for that one.

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Here's a good ham radio prank. Wait for your friend who's always wearing the 2-meter radio on his hip to go into the crowded rest room at a hamfest. You get "extra points" if it's Dayton. Once you're sure he's unable to, uh, reach for his radio, call him by name and tell him his wife called and wants him to stop at the drug store and pick up a few items. Then name some, uh, *items.* As "icing on the cake," ask for confirmation.

I'd ask for some of your favorite April pranks, but two things temper my request. It will be at least a year before they are published, and W2VU will probably pull a prank of his own and shift the column to May. One learning experience that rose from my foolish trick-filled past is that when you challenge authority, not only does authority respond, it usually wins! Thus, I've reformed. Really. OK, mostly.

The Internet to the Rescue!

As we celebrate April, I can't believe how the internet has changed my life. Just last week I won the U.K Lottery, The Microsoft Lottery, I was notified FedEx has free gift packages headed toward me from all over the world, and the World Bank is holding $30 million in my name. If I only pay a fee to some nice government agent in Nigeria, he'll release $800,000 in cash to me, and the Bank of Ghana wants to send me $3.37 million. Maybe I should tell them to get lost, until they at least match the $30-million offer? I mean $3 mil is barely worth getting out of bed for in this marketplace. The note I just received from a nice lady purportedly from the Ivory Coast is for $16 million, so at least someone understands what it takes to compete for my attention.

My suggestion to bail out Wall Street is to have all of us forward these e-mails to the big brokerage and banking houses that are in trouble and let them get to work hauling in that money. I can be kind and generous in this way, because I'm told my proceeds from the Lichtenstein Lottery are in the mail. I'm so lucky; I didn't even have to buy a ticket to win. See? Problem solved!

The nexus for all of this is simple: No one's ever tried to defraud me in ham radio, although the "candy store" does pose a legitimate threat to my savings account, but at least the withdrawals are made with my consent.

Some More Serious Stuff

OK, time to wipe that silly smile from your face. The Dayton Hamvention® is coming in May, and unlike last year, fuel prices look like they may be at least somewhere in the "affordable" range. I'm guessing there may still be some opportunities to find a decent hotel room and line up a friend or two to make the pilgrimage to ham radio's Mecca. A "road trip" is very affordable when the costs are split two or three ways, and it can be downright fun. I've made two road trips from the West Coast, and chances are you're much closer to Dayton than I am in Los Angeles.

If you haven't been to Dayton, you need to do so at least once. If you have been to the Hamvention®, you don't need me to explain that it's nearly impossible to take it all in with a visit of just one day. It's fun, exciting, entertaining, and stimulating. Besides, you now have to try the hamfest prank mentioned above. What better place than Dayton?

From the fleamarket bargains to the informative forums and seminars, and of course the vendor displays (don't forget the *CQ* booth!) featuring the latest gear, Dayton is one of those few events that is greater than the sum of its parts. Better yet, it symbolizes so many of the reasons we, as hams, take great pleasure in placing some Magic In The Sky.

73, Jeff, AA6JR

digital connection

BY DON ROTOLO,* N2IRZ

Sound-Card Packet

Packet radio isn't dead yet. It's not even on life support. In fact, AX.25 networks seem to be experiencing somewhat of a rebirth. Although not quite to the level of packet's heyday of the late 1980s, just before the internet, there is more activity out there than you might think.

The Automatic Packet Reporting System ("APRS," a trademark of Bob Bruninga, WB4APR) today consumes a significant portion of the bandwidth being used for AX.25 packet. As a tactical system, it can't be beat, as evidenced by its staying power after some 17 years. If you want to track assets or exchange small amounts of data such as weather reports or short messages, it is an excellent tool. It has proven its value in emergency communications as well.

There are still several large networks out there running FlexNet, TheNET X1J, FPAC, and even ROSE, in many cases supplemented by internet connections via AMPRnet or similar tunneling systems. These networks carry traffic from keyboard-to-keyboard enthusiasts, the Bulletin Board System (BBS) for moving e-mail, and a few chat nodes for online meetings. Most networks also support TCP/IP traffic, allowing for seamless integration with the internet and the resources it offers, particularly software such as MS Outlook® for e-mail.

While many of these networks still run at 1200 baud, sometimes with backbones at 9600 baud, they may be slow but they seem to be a lot more robust than the hastily planned and implemented proliferation of nodes that sprung up 20 years ago. I had written about planning and building networks for reliability and performance, and it seems that these universal lessons learned by commercial network builders has finally caught on with our wireless systems. It's either that, or the effort involved is sufficiently high that people are starting to think carefully about how to best use the limited resources at hand.

One last area where packet is still seeing considerable use is in emergency communications (EmComm). While the very first responders to a disaster can accept lossy communications paths —that is, methods that do not absolutely guarantee error-free communications, such as voice, CW, or even PSK31—after the initial efforts start to solidify into a larger, more coordinated activity, the need for lossless communications (for e-mail, image or data files, and the like) becomes more and more important. PACTOR and the WinLink2000 system are great resources for this, but some are unable to afford a PACTOR III modem, so they turn to AX.25 packet instead. For one approach to using packet effectively for EmComm, see the article "EcomScs and GateWayScs: Easy-to-Use Packet Radio Software for Emergency Communications," by John Blowsky, KB2SCS, elsewhere in this issue.

In the past, when a typical home PC used an 80486 processor running at 33 MHz, packet could only be done with a dedicated piece of hardware known as a Terminal Node Controller, or TNC. Mostly based on the Tucson Amateur Packet Radio (TAPR) TNC-2 implementation, there were several TNCs on the market, all costing about $100 to $150. Today, you can buy a new TNC in some form or another from several companies—including Kantronics, MFJ, PacComm, Coastal Chipworks, Timewave, and Symek (in Germany) —for prices from under $50 (for a kit) to over $200.

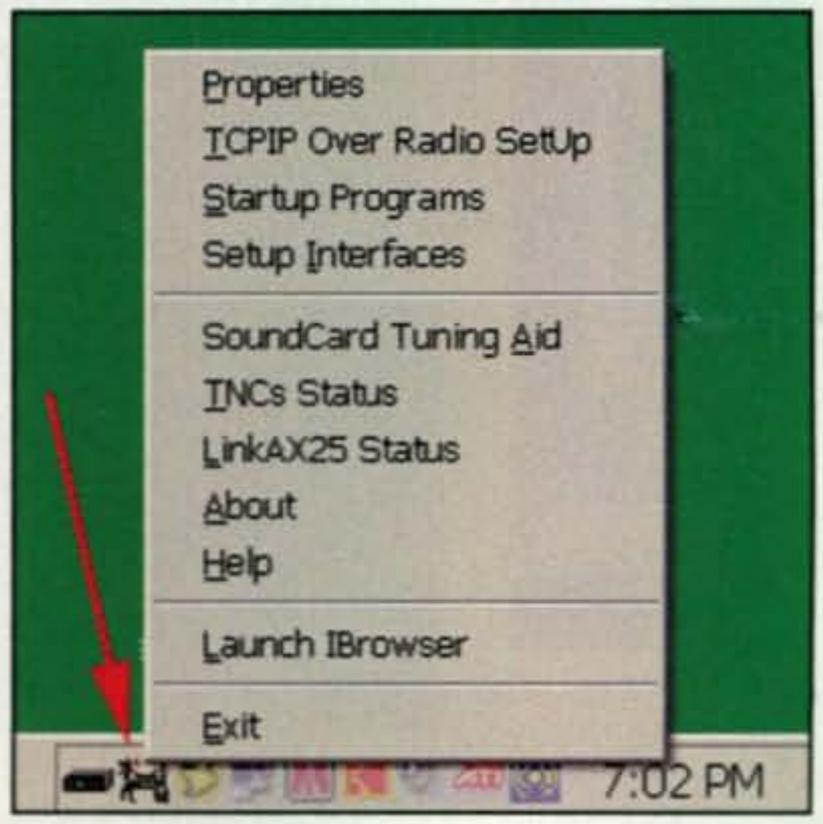

Fig. 1– Once installed, AGWPE drops an icon onto the Windows® system tray, two tiny radio towers connected by a TNC. Right or left clicking this icon brings up a menu, which is used to set up and control the application. Remember that AGWPE is just "middleware," filling the gap between a host program and your radio with a "virtual" TNC, which handles the AX.25 protocol and your sound card. The icon to the left shows up once a virtual TNC is configured.

Today, with multi-GigaHertz processors the norm, we can utilize the power of the personal computer and sound card to replace the hardware TNC. The hardest part is usually the interface between the sound card and the radio, but several companies (such as West Mountain Radio) offer ready-built interfaces from a few dollars and up, or you can build one with components from your junkbox or at most for just a few dollars at RadioShack. More on that in a moment.

If you want a hardware TNC, you can check eBay for used ones (I have seen them sell for as little as $50) or visit your local hamfest (winter is finally over!) and ask around. I'd be surprised if someone there didn't have one gathering dust that they were willing to let go for cheap.

The way I see it, there are four groups of users out there: Those who have tried packet and still use it; those who have tried it but are not active today; those who have never tried it but might like to, and those simply not interested. The remainder of this month's column is for that third group: Here is a way to get on packet and see what the mode has to offer, for cheap. Of course, if you

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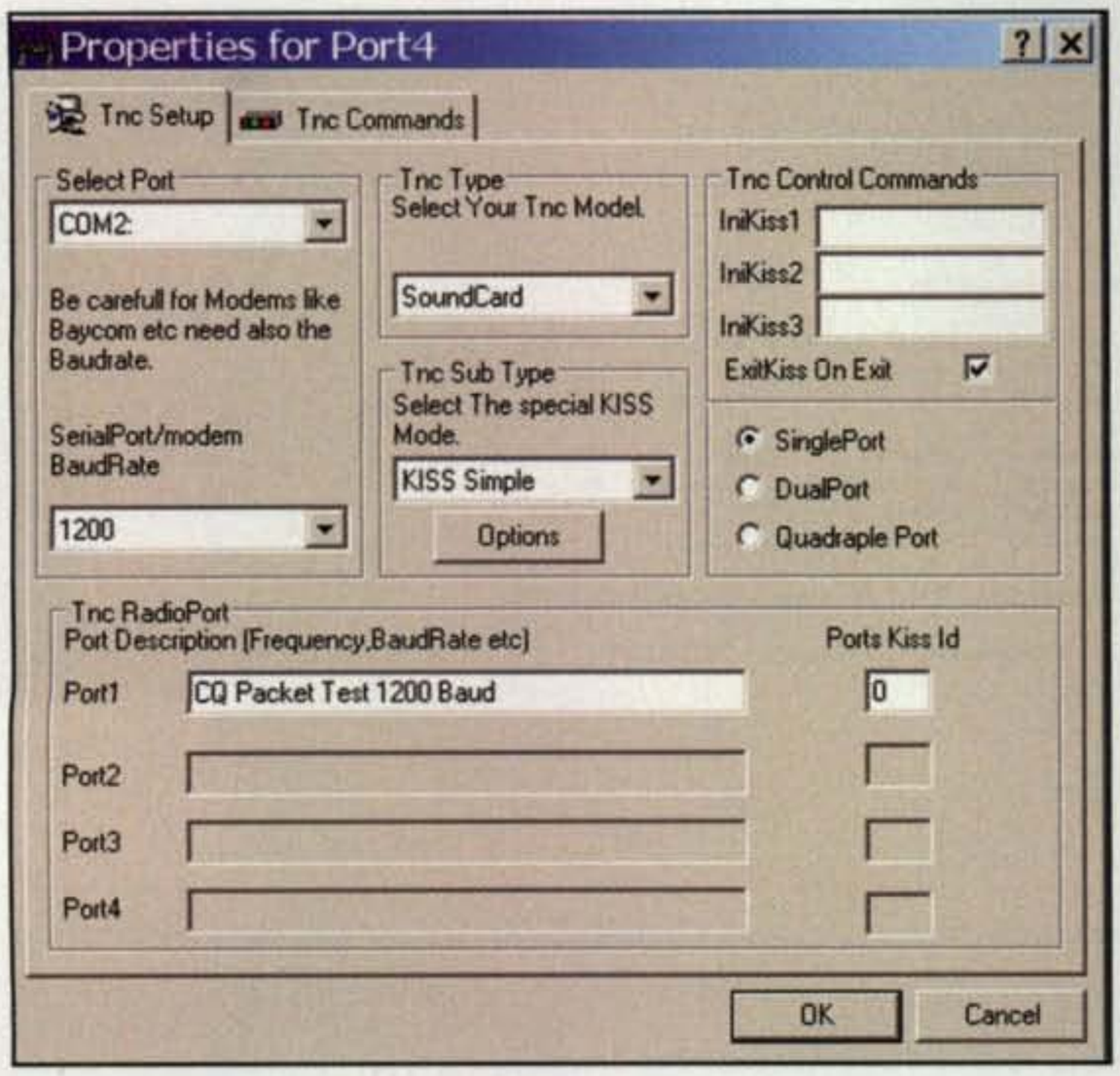

Fig. 2– Each port must be configured before it can be used. Here we see the New Port TNC Setup dialog window. What's important here are the settings for the computer port (here COM1), TNC Model, baud rate, and "Single Port" operation. See the text for details.

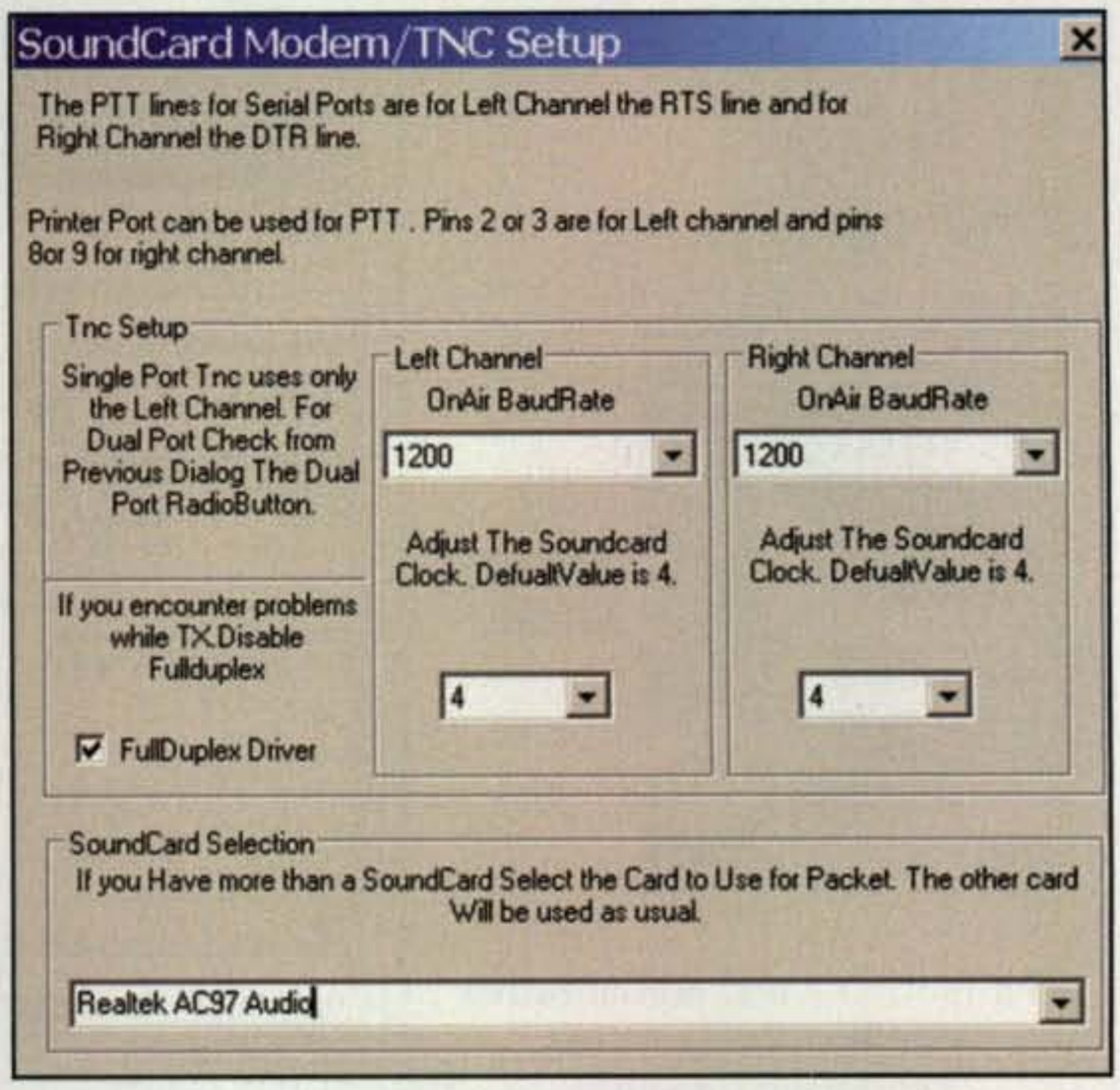

Fig. 3– As soon as "sound card" is selected for TNC type, this window opens. What's important here is the on-air baud rate for the left channel, and that your correct sound card is shown at the very bottom. Once this window is configured, return to the TNC setup window of fig. 2, finish setup, and restart AGWPE to complete setup.

used to operate packet, I also encourage you to either dust off that old TNC and see what's out there, or just follow along to learn more about the sound-card method. Remember, half the fun of packet is operating; the other half is making it work and learning something.

Sound-Card Packet

There are a few pieces of software available that allow you to use your PC and sound card to operate AX.25 packet (*Note:* Some applications may require the use of a hardware TNC). In my December 1999 *CQ VHF* "Digital Data Link" column, I republished an article by John Hansen, W2FS, about using PC/FlexNet's sound-card utility. It also appeared during 1999 in the TAPR *Packet Status Register,* but unfortunately that info isn't available on the internet as far as I can tell. (Note that John is the fellow behind the TNC-X, available from Coastal ChipWorks). A visit to <http://www.afthd.tu-darmstadt.de/~flexnet/> will allow you to download all the files and instructions to make this happen, but just be advised that it is like using a bazooka to kill a fly, as FlexNet is a serious network application,and using it for its TNC emulator is a bit of overkill.

A web search brings up a few other entries, but the uncontested leader in this area is AGWPE, the AGW Packet Engine written by George Rossopoulos, SV2AGW. This is not a full TNC in itself, as it requires a user interface (such as a terminal emulator or other "host" application). There are several such applications available, ranging from the Sproul Brothers' WinAPRS <http://www.winaprs.com/> to Roger Barker's, G4IDE (SK) WinPack and UI-View <http://www.apritch.myby.co.uk/uiv32.htm>, as well as several other applications such as DX Clusters, digipeaters, network nodes, and more. I'll explain where to find these applications in a moment.

Let's just take a quick look at getting, configuring, and using the software, and then learn about an excellent online resource with far greater detail on these topics.

There are five basic steps to using AGWPE: Download the software; configure it; buy or build a radio sound-card interface; set up your sound card; and set up some kind of "host" program. Once complete, you can also configure AGWPE for TCP/IP operation, as well as for a second radio on the same sound card.

You can download the free AGWPE software at <http://www.sv2agw.com/>, where you can also find a link to the PacketEngine Pro version which offers several advantages over the free program, including a setup wizard, more efficient operation, a better user interface, and several new features such as radio port sharing and alternative KAM-style tones for HF packet. It comes with a 30-day free trial, after which a registration fee of $49 is necessary. We'll stick with the free version this month.

Installation is as simple as unzipping the downloaded file. Double-click the "AGW Packet Engine.exe" file that unzips, agree to the license, and the AGWPE icon will appear on the system tray. In the future, you may want to add an icon to your desktop, but most host applications automatically call up AGWPE as necessary.

Configuring the free AGWPE software is not difficult either: Right- or left-click on the icon in the system tray and select "Properties" and then click on the "New Port" button. Click OK (but ignore for now) in the window reminding you to restart the program, and then select the serial or parallel port which will be used to control the radio's Push-To-Talk (PTT), for example COM1. (If you want to operate in receive only, without PTT control, you may select a nonexistent parallel port .) Next set the on-air baud rate to 1200. For "TNC Type" select Sound Card, and in the window that immediately opens verify that channel 1 is set to 1200 baud and your sound card is

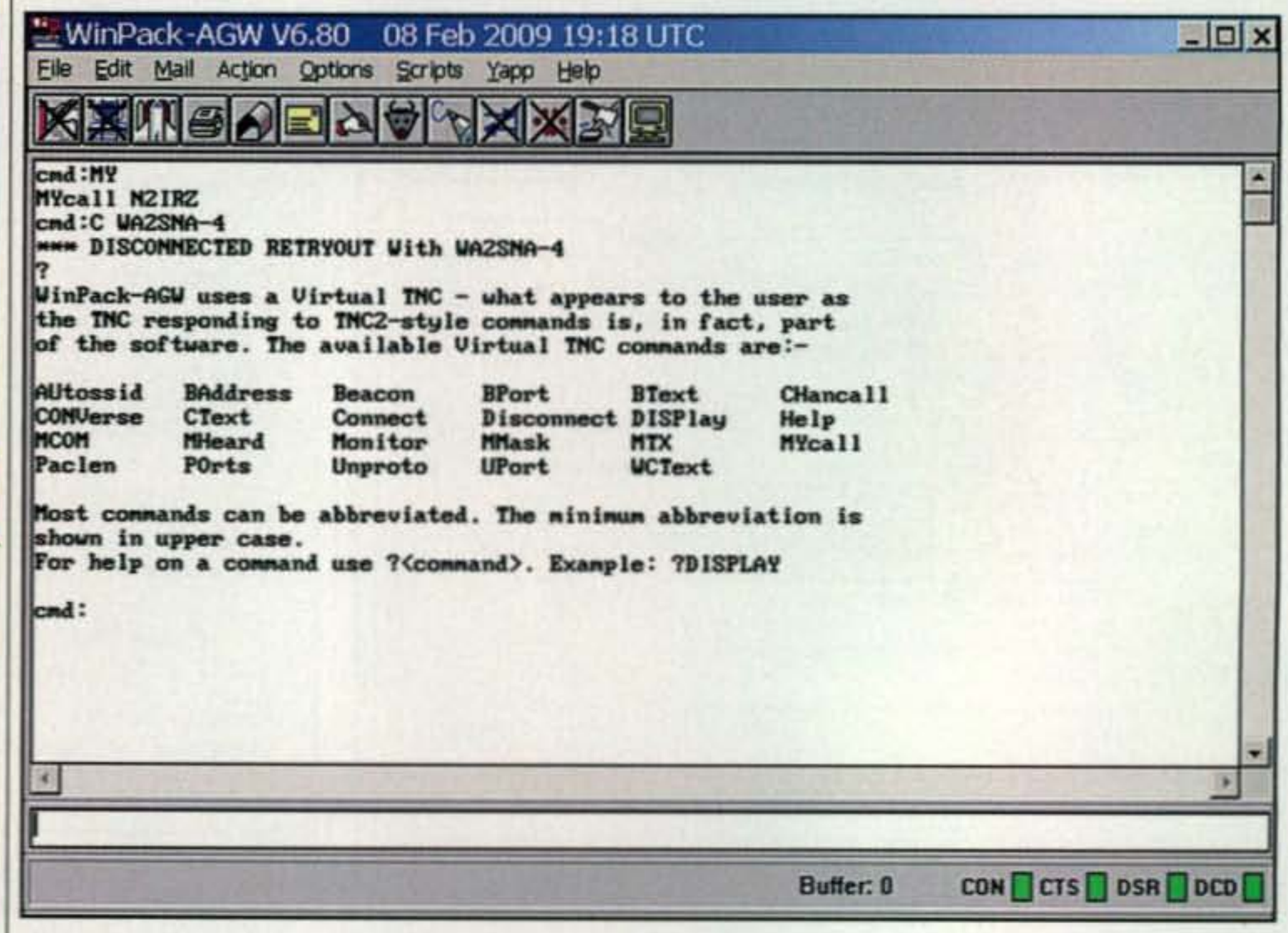

Fig. 4– The main screen of WinPack, a typical "Host Program" that utilizes AGWPE. There are several other such host programs available, including WinAPRS and more specialized applications such as DX Clusters, network nodes, and more. Here I issued the commands to verify my callsign setting, and attempted to connect to a local Bulletin Board system WA2SNA-4 (which timed out) and the WinPack help file.

listed. If you have more than one sound card, select the one you want to use here and then click OK. With the TNC setup window open again, click on the "Single Port" setting and give the TNC/Radio Port a helpful description.

Now exit AGWPE before doing anything else. If you don't, the software may behave erratically or shut down unexpectedly. Restart AGWPE to continue.

Note that you can also set up AGWPE for two radios, even operating at different baud rates, if you have a stereo sound card (and who doesn't?). In this case, the left channel is for one radio and the right channel for the other. That's a task for later, once the first port works properly.

You may already have a sound-card-radio interface, used to control the radio's PTT and get the audio to and from the radio, and if so it will work fine with AGWPE. As an alternative, an interface can be built for a few dollars from commonly available parts, or you can buy one for a reasonable price. Take a look at the RigBlaster line from West Mountain Radio <http://www.westmountainradio.com/>; the Rascal GLX from BuxComm <http://www.packetradio.com/>; The SignaLink from Tigertronics <http://www.tigertronics.com/>; MFJ's 1273, 1275, and 1279 interfaces <http://www.mfjenterprises.com> (look under "Computer Accessories"), and the MixW RigExpert <http://www.mixw.net/> (look toward the bottom of the page).

For those who prefer to build their PTT interface, visit the MixW web page mentioned above or <http://www.w5bbr.com/soundbd.html> for simple circuits you can build. You may also need two 3.5-mm phono "patch" cables, such as RadioShack #42-2387 or similar for the transmit and receive audio. Connect the sound-card interface according to the instructions.

Now you should configure the sound-card audio levels. The Receive Audio (RXA) from the radio going in to the sound card needs to be connected to Line In. Then you need to set the audio level so the AGWPE software is decoding it happily, somewhere around one-third full volume, using the Sound Card Tuning Aid. If you must use a different sound card input, then you'll have to set the RXA level using the Windows® sound-card settings window—double click on the speaker icon in the Windows system tray.

The Transmit Audio (TXA) from the sound card to the radio input is a critical setting. If it is even slightly too "loud," your packets will not be readable by other stations. It is better to set TX Audio too low than too high. If possible, listen to the transmitted audio on another radio, and set the audio so the packet

tones sound musical and not at all harsh or raspy. If you have a deviation meter, the ideal is 3.5 kHz peak deviation. Again, use the AGWPE Sound Card Tuning Aid and transmit into a dummy load for this step.

Last, we need to select a Host application and set it up. I downloaded and installed WinPack <http://www.apritch.myby.co.uk/uiv32.htm>, which offers a decent terminal emulator. Note that registration is optional. After running the self-installer and starting the application, I selected "Comms Setup" from the Options menu and set the Host Mode to "AGW" and then I completed my Personal/BBS Info to set my on-air callsign. Assuming that AGW is properly set up, you should start seeing monitored packets appear on the screen (try around 145.01/.03 or 144.39 to see activity). Try connecting to a station that you hear (indicated on the screen by an asterisk) by typing "C N2IRZ" (substitute the call you hear for mine), and see what happens. If it is a live person, he or she can see your messages and respond; if it is an automated station, typing "?" will usually bring up a help file. For an application such as EcomSCS (see elsewhere in this issue), the connection to the local mail server/BBS is automated.

The above description is admittedly somewhat general and abbreviated, so you will almost certainly have to think a little about what you are trying to accomplish and set about the task accordingly. This process is similar to other digital sound-card modes, such as PSK31, so I am hoping it is at least familiar to you. For a very detailed, step-by-step guide to setting up AGWPE and some troubleshooting tips, visit the Sound Card packet web page built by Ralph Milnes, KC2RLM, at <http://www.kc2rlm.info/soundcardpacket/>. This is an excellent resource and the basic reference I used to learn about AGWPE when preparing this column. It also covers setup for TCP/IP operation, which I was unable to try. This website covers in great detail all the aspects of using AGWPE and a host program, so I urge you to visit and see what is there.

I hope this brief introduction piques your interest in packet radio. If you have any questions, please feel free to write and ask. CQ's "Getting Started in Packet Radio" video is still available as part of the "VHF Specialty Pack" DVD (call or visit the CQ store online). You can also ask around locally to learn what network facilities are available, or scan the internet for info. I hope to see you on the air! Until next time . . . 73, Don, N2IRZ

BY DAVE INGRAM,* K4TWJ

Dinking with Alternative Energy

Looking at the world around us can easily lead one to assume bigger is better—bigger cars, bigger homes, bigger meals, and bigger bills to match them all. As QRP continuously proves, however, smaller is more manageable, more convenient, and it also has its own special rewards. How so? The reduced size and elegant simplicity of QRP gear gives us the flexibility to enjoy hamming from almost anywhere—indoors, outdoors, and in the most restricted spaces imaginable. It is just plain fun, and as we point out this month, dinking with milliwatt-level gear and unusual power sources is a unique pursuit everyone can join without concerns of high costs or intense RFI.

Before discussing milliwatting however, Russ Peecook, AG4RJ, has a neat built-from-scratch transceiver we are sure you will find interesting (photos A and B). The rig is built in an old World War II test oscillator case, giving it real "spy radio" flavor. It covers approximately 20 kHz on 40 meters using two crystals in a switched VXO arrangement. The receiver section is an expanded "two chipper" using an NE602 and LM358 complemented with an LM741 preamp. The transmitter section uses a Ramsey kit exciter driving a homebrew mini amplifier with dual MOSFETs and delivers 3.5 watts output. We caught up with Russ a short time after he built his "spy rig" using a dipole up 20 feet to make several good QSOs on 40 meters. He probably will be romping the band in high style by the time this story appears in print. Listen for him around 7.040 MHz.

Looking further, Pierre Desjardins, VE2PID, shows us how he works QRP portable (photo C). First he travels to an electrically quiet countryside location, and then he quickly erects a ladderline-fed inverted-Vee attached to a 30-foot telescoping fiberglass mast. The rig, complete with stand-alone 12-volt lead acid battery, is then laid out on the front passenger's seat for all day hamming. The nice aspect here is regardless of how many hours the rig is used, one tap of the vehicle's starter is all that's required for heading home. I worked VE2PID portable two-way QRP while he was using his portable in-car setup and was rather surprised to hear his rig was a KX-1 running 3 watts. Impressive!

Photo A– It looks like a World War II spy radio, but it is actually a 40-meter QRP transceiver Russ, AG4RJ, built in an old-time test-oscillator case. Putting together fun rigs such as this continues to be one of the top attractions of QRP. What a doll! (Photo courtesy of AG4RJ)

Wind-Up QRP

Have you noticed those hand-crank LED flashlights and emergency radios being sold at variety stores nationwide? Have you also considered reworking one to field-power a QRP or milliwatt rig? The idea seemed good to me, so I purchased one (new) for $5.00 at a recent hamfest. After returning home, I took a screwdriver, pliers, and can opener to the little tyke (photo D). Inside I found some step-up gears between the hand crank and a small slot-car motor. Interesting items, those slot-car motors. Apply a small DC voltage to them and they turn. Apply some turns to them and they produce a small DC voltage. The voltage is then directed to a simple three-pin regulator circuit (LM317 or similar) set to clamp at approximately three volts output. That voltage is then directed to a rechargeable lithium coin cell such as the popular CR-2032 (3 volts at 200 ma), which powers three high-intensity LEDs. Looking closer, I realized the regulator prevented overcharging the coin cell by blocking current flow (from the slot-car motor) when coin-cell voltage was 3 volts or greater. Current-limiting resistors were also connected in series with the LEDs to avoid burnout. By Jove, that's enough energy to power a milliwatt transmitter (3 volts x 200 ma x 50% key-up/key-down duty cycle = 600 mw for 2 hours).

What kind of milliwatt transmitter will operate with only 3 volts? My little "Hamfest Buddy" described in the August and October 2005 *CQ* magazine "QRP" columns is a good candidate. In fact, it will operate reliably down to 2.4 volts with a simple modification: Just connect a second 100-

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e-mail: <k4twj@cq-amateur-radio.com>

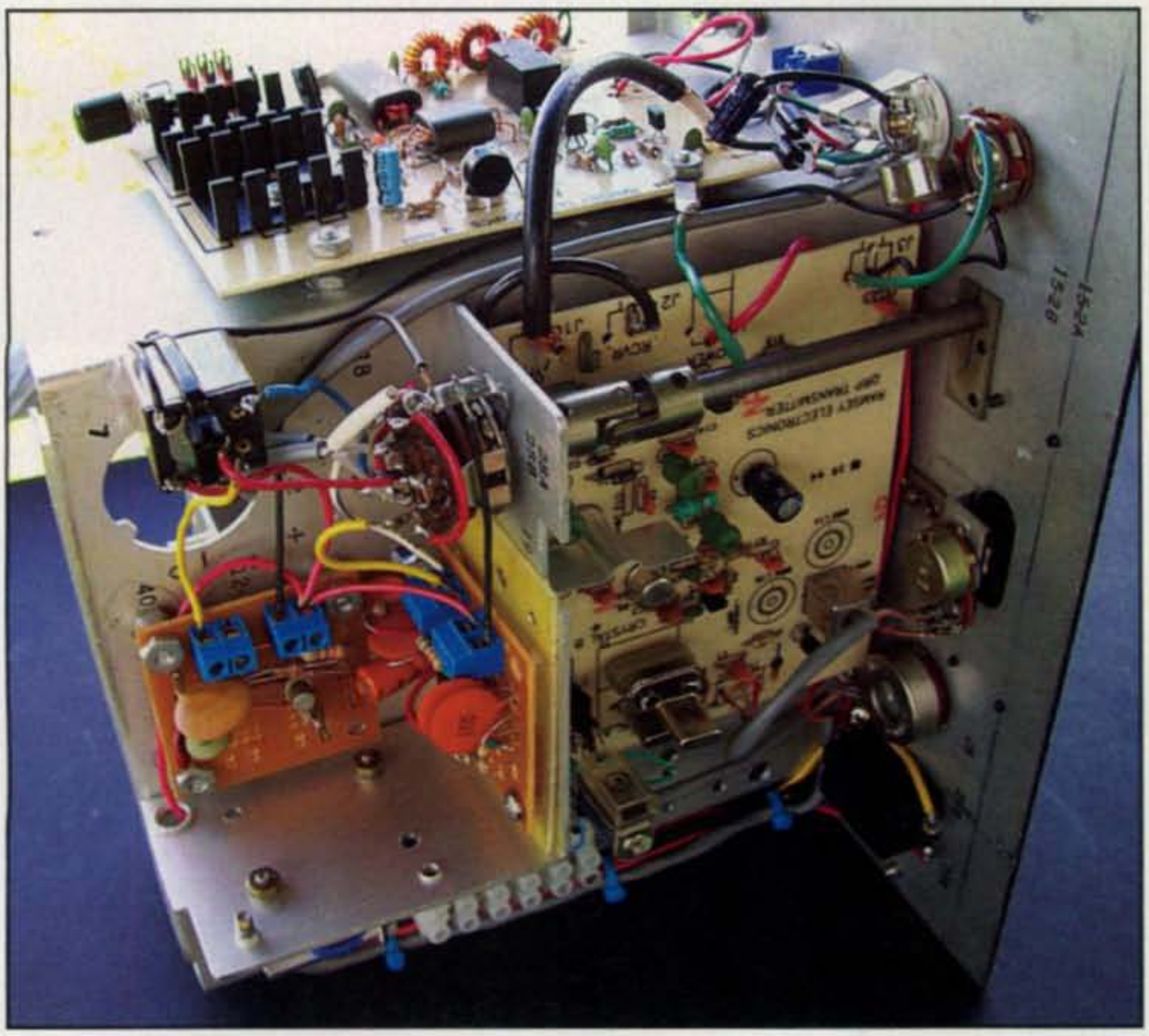

Photo B– Interior view of the 40-meter QRP transceiver built by AG4RJ. The receive section (rear area) is direct conversion, and the transmitter section (right and top area) uses a Ramsey kit driving a homebrew amplifier with dual MOSFETs (note the heatsinks). This little delight produces a clean 3.5-watt signal.

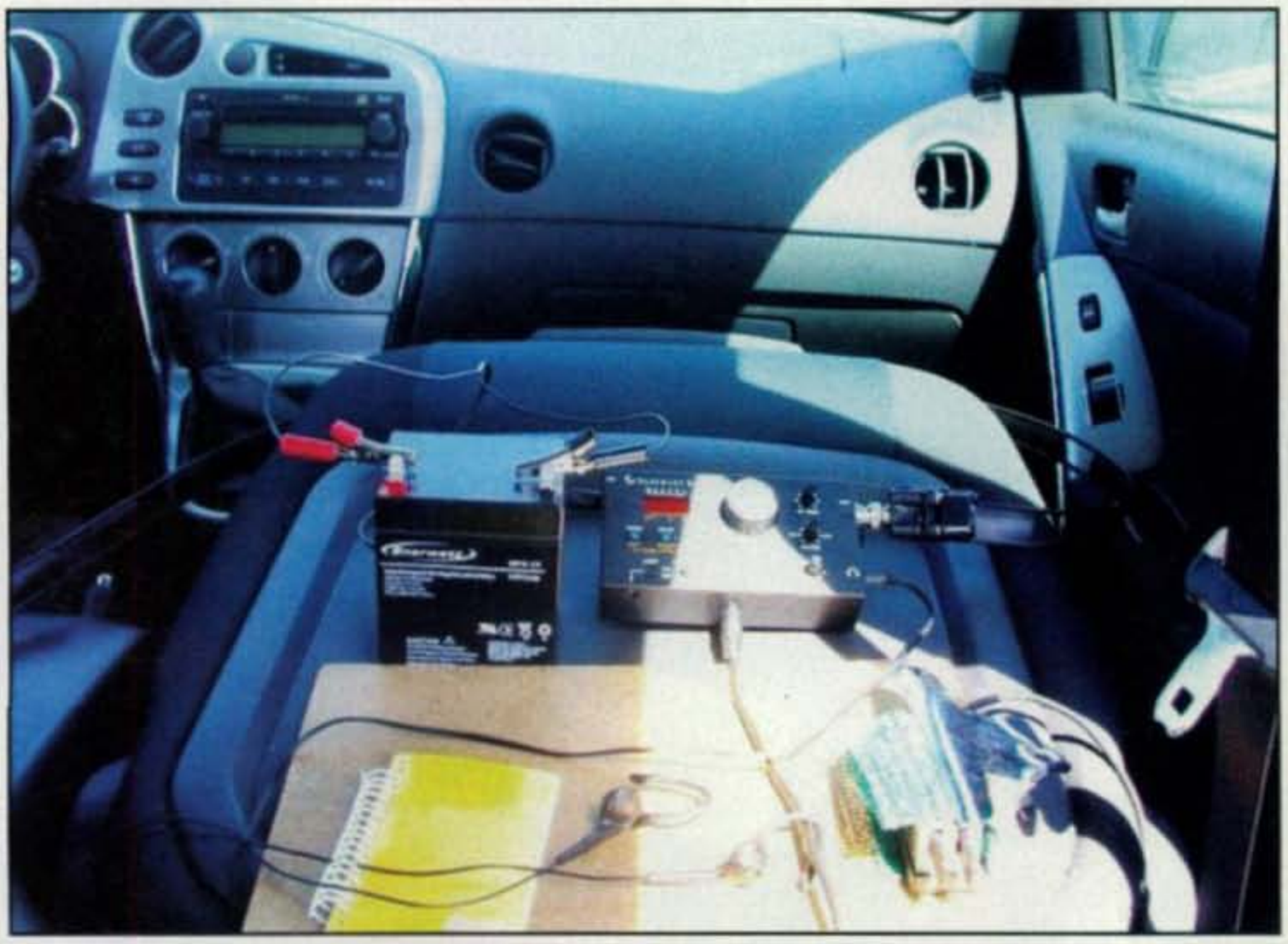

Photo C– Pierre, VE2PID, shows us his portable "Have QRP will travel" setup for hamming from almost anywhere. His Elecraft KX-1 is fitted with an internal antenna tuner and powered by a 12-volt/7-amp battery on its left side for all-day/all-weekend operation. Ladderline connects on the right side and snakes its way outside to an inverted-Vee on a telescoping mast. Home is where the ham gear is located! (Photo via VE2PID)

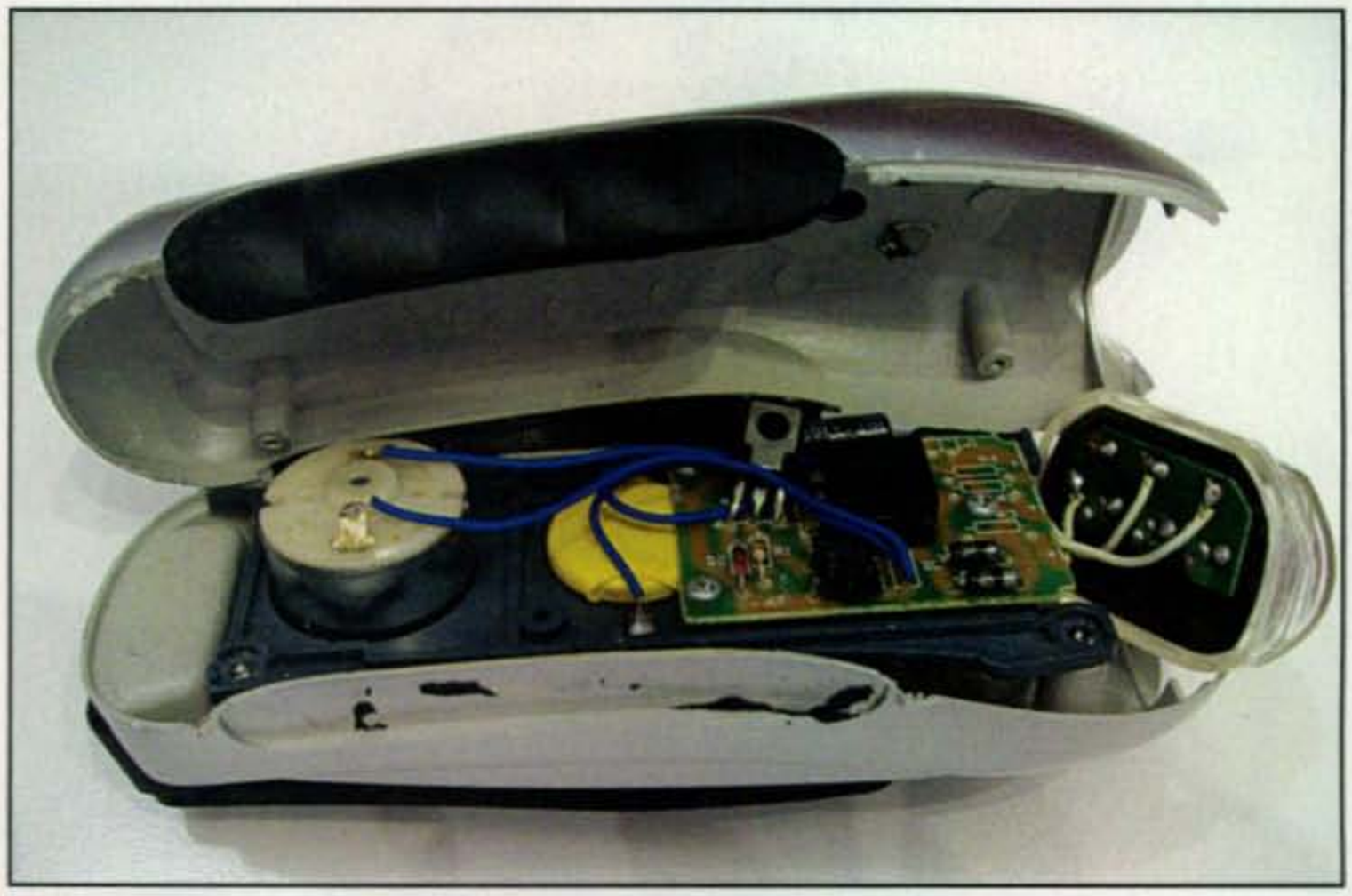

Photo D– Taking a quick peek inside this wind-em-up LED flashlight reveals a small gear-driven slot-car motor being used as a generator to charge a 3-volt lithium coin cell (near middle, in yellow wrapper). A simple regulator circuit on a PC board prevents overcharging and reverse-current discharging. The flashlight is a convenient energy source for a QRPp rig. (See text.)

ohm resistor in parallel with its existing 100-ohm emitter resistor (photo E and fig. 1). I have a small supply of Hamfest Buddy kits available today. They are $19 including postage and come with a crystal for 7.040 or 10.108 MHz. You can order one directly from me, Dave Ingram, K4TWJ, 3994 Long Leaf Drive, Gardendale, AL 35071.

Another good candidate is the one-transistor transmitter from way back in the days of Don Stoner, W6TNS's Semiconductor Space Spanner and 2N370/2N371 transistors (fig. 2). Those point-contact-type transistors may be difficult to find at the present time, but almost any generic equivalent should make a suitable substitute. The collector coil (22 turns, No. 20 or 22 wire wound on a 1-inch diameter pill bottle, wood dowel, or similar form for 40 meters) is paired with a 350-pFd or 365-

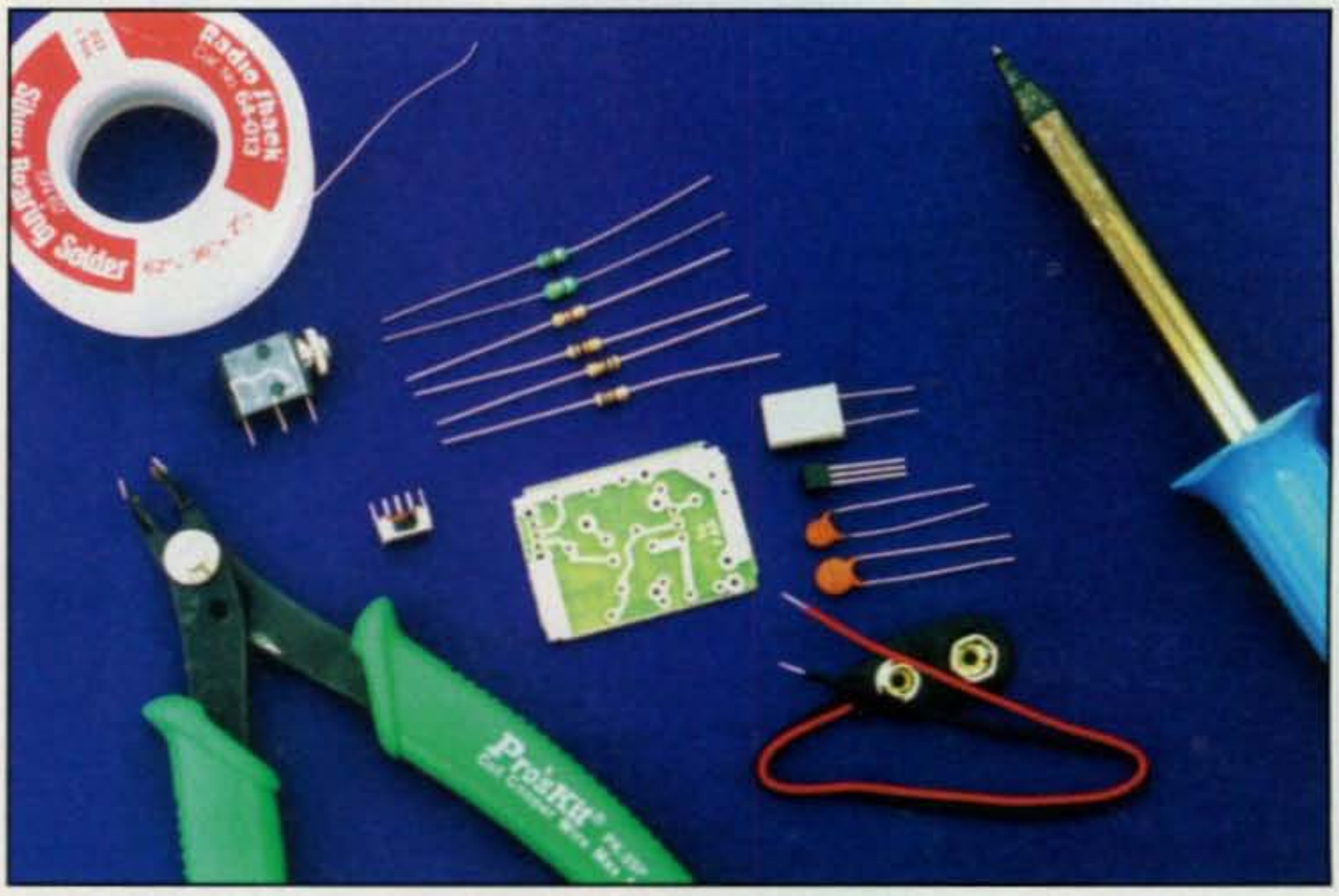

Photo E– A Hamfest Buddy kit laid out and ready for assembly. The small-parts count equates to short build time and ensures first-time success. More details at <www.k4twj.blogspot.com>.

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MODEL SS-12IF

SPECIAL FEATURES:

- HIGH EFFICIENCY SWITCHING TECHNOLOGY SPECIFICALLY FILTERED FOR USE WITH COMMUNICATIONS EQUIPMENT, FOR ALL FREQUENCIES INCLUDING HF
- HEAVY DUTY DESIGN
- LOW PROFILE, LIGHT WEIGHT PACKAGE
- EMI FILTER
- MEETS FCC CLASS B

PROTECTION FEATURES:

- CURRENT LIMITING
- OVERVOLTAGE PROTECTION
- FUSE PROTECTION.
- OVER TEMPERATURE SHUTDOWN

SPECIFICATIONS:

INPUT VOLTAGE: 115 VAC 50/60HZ
OR 220 VAC 50/60HZ
SWITCH SELECTABLE

OUTPUT VOLTAGE: 13.8VDC

AVAILABLE WITH THE FOLLOWING APPROVALS: UL, CUL, CE, TUV.

MODEL SS-18

DESKTOP SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-10	7	10	1⅛ x 6 x 9	3.2
SS-12	10	12	1⅜ x 6 x 9	3.4
SS-18	15	18	1⅜ x 6 x 9	3.6
SS-25	20	25	2⅞ x 7 x 9⅜	4.2
SS-30	25	30	3¾ x 7 x 9⅜	5.0

MODEL SS-25M

DESKTOP SWITCHING POWER SUPPLIES WITH VOLT AND AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-25M*	20	25	2⅞ x 7 x 9⅜	4.2
SS-30M*	25	30	3¾ x 7 x 9⅜	5.0

MODEL SRM-30

RACKMOUNT SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25	20	25	3½ x 19 x 9⅜	6.5
SRM-30	25	30	3½ x 19 x 9⅜	7.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3½ x 19 x 9⅜	6.5
SRM-30M	25	30	3½ x 19 x 9⅜	7.0

MODEL SRM-30M-2

2 ea SWITCHING POWER SUPPLIES ON ONE RACK PANEL

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3½ x 19 x 9⅜	10.5
SRM-30-2	25	30	3½ x 19 x 9⅜	11.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3½ x 19 x 9⅜	10.5
SRM-30M-2	25	30	3½ x 19 x 9⅜	11.0

MODEL SS-12SM/GTX

MODEL SS-10EFJ-98

CUSTOM POWER SUPPLIES FOR RADIOS BELOW

EF JOHNSON AVENGER GX-MC41
EF JOHNSON AVENGER GX-MC42
EF JOHNSON GT-ML81
EF JOHNSON GT-ML83
EF JOHNSON 9800 SERIES
GE MARC SERIES
GE MONOGRAM SERIES & MAXON SM-4000 SERIES
ICOM IC-F11020 & IC-F2020
KENWOOD TK760, 762, 840, 860, 940, 941
KENWOOD TK760H, 762H
MOTOROLA LOW POWER SM50, SM120, & GTX
MOTOROLA HIGH POWER SM50, SM120, & GTX
MOTOROLA RADIUS & GM 300
MOTOROLA RADIUS & GM 300
MOTOROLA RADIUS & GM 300
UNIDEN SMH1525, SMU4525
VERTEX — FTL-1011, FT-1011, FT-2011, FT-7011

CIRCLE 134 ON READER SERVICE CARD

NEW SWITCHING MODELS

SS-10GX, SS-12GX
SS-18GX
SS-12EFJ
SS-18EFJ
SS-10-EFJ-98, SS-12-EFJ-98, SS-18-EFJ-98
SS-12MC
SS-10MG, SS-12MG
SS-101F, SS-121F
SS-10TK
SS-12TK OR SS-18TK
SS-10SM/GTX
SS-10SM/GTX, SS-12SM/GTX, SS-18SM/GTX
SS-10RA
SS-12RA
SS-18RA
SS-10SMU, SS-12SMU, SS-18SMU
SS-10V, SS-12V, SS-18V

*ICS – Intermittent Communication Service

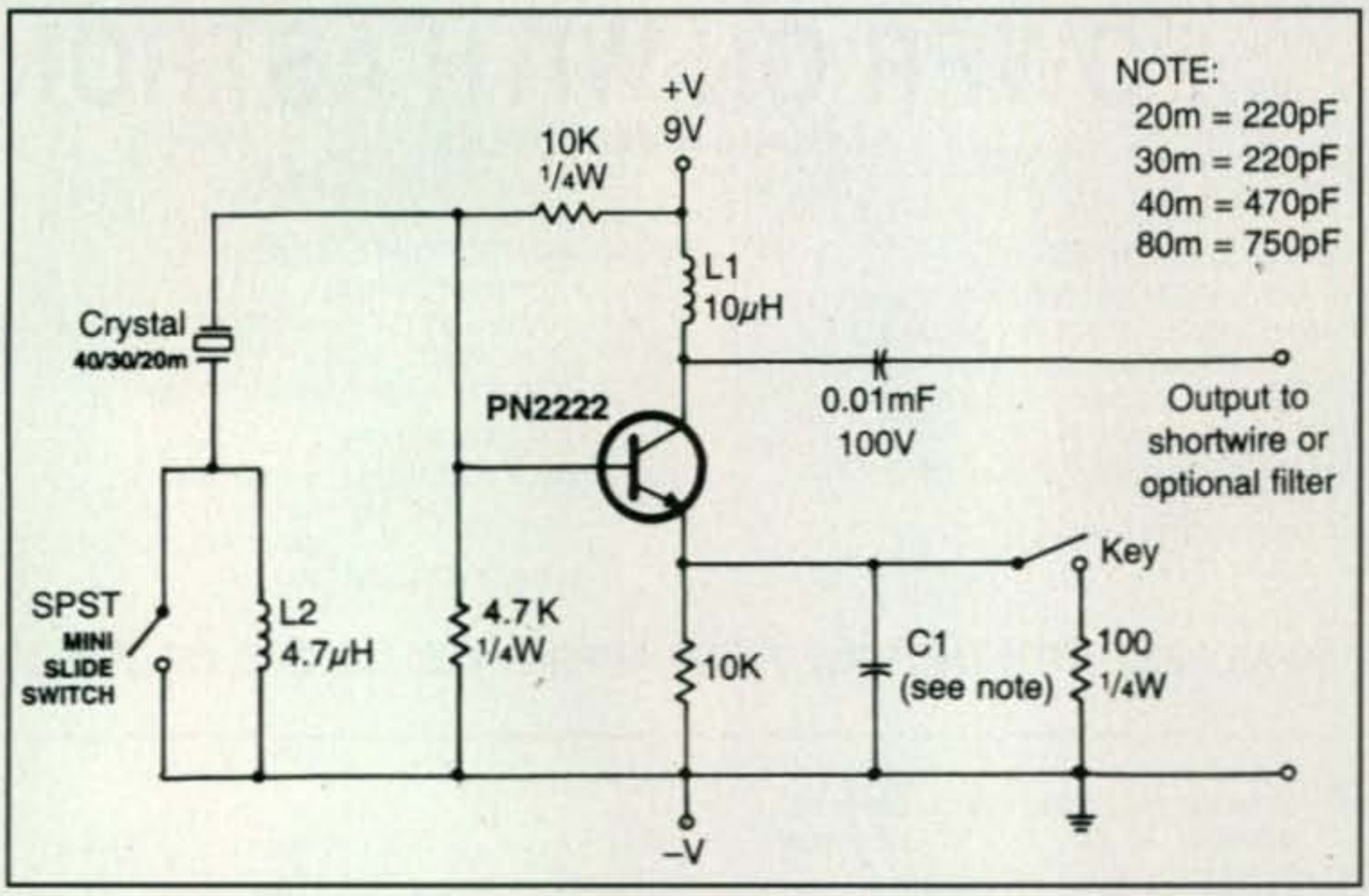


Fig. 1– Circuit diagram of the Hamfest Buddy, a one-transistor QRPp transmitter and wireless BFO converter for a low-cost AM shortwave receiver. The little gem will operate with only 2.4 volts or power. Kits are available; details in text.

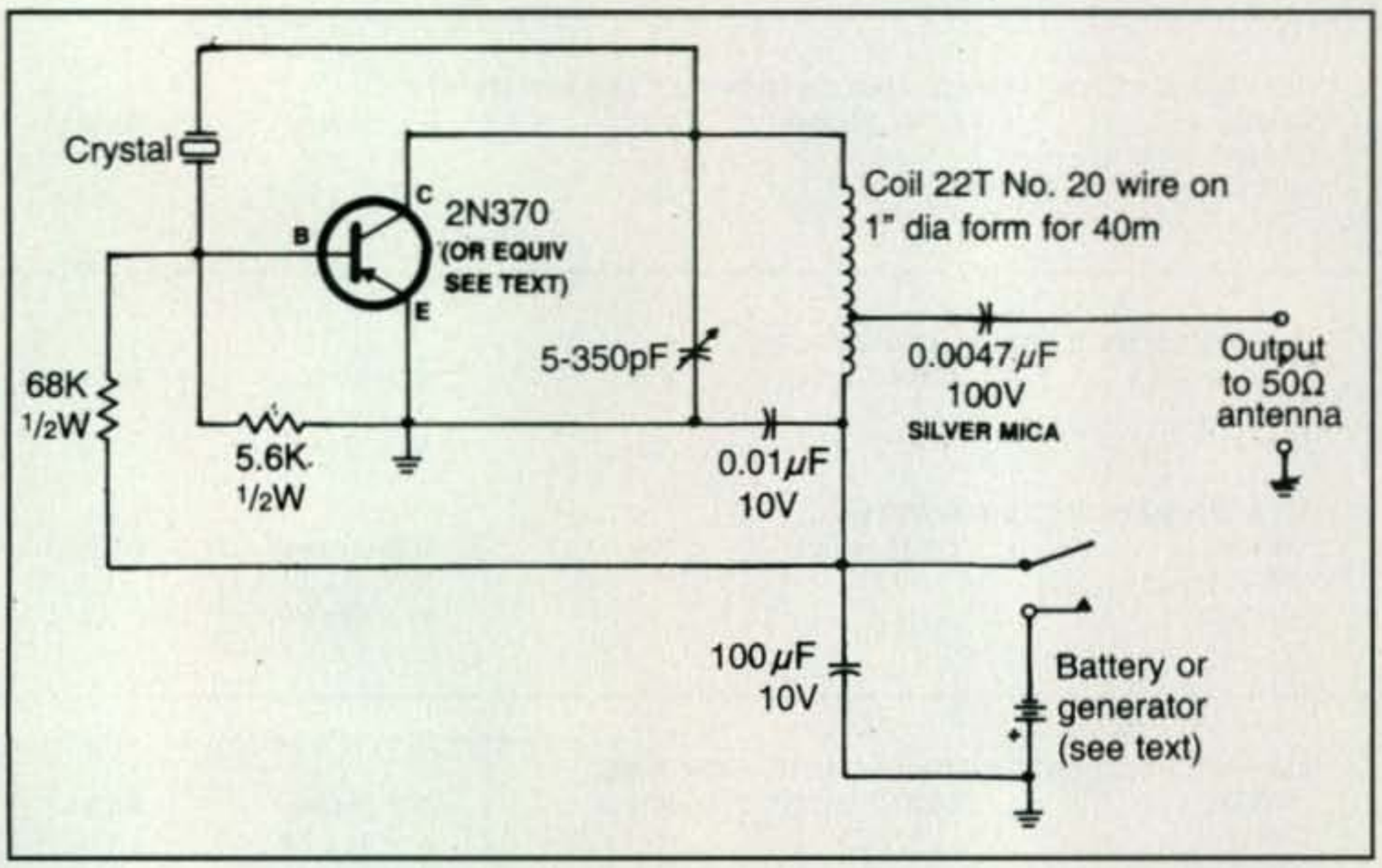


Fig. 2– Circuit diagram of a "Golden Oldie" transmitter built around a classic 2N370 PNP (or modern equivalent) PNP transistor. This circuit also works well with only 2 volts of power. (Discussion in text.)

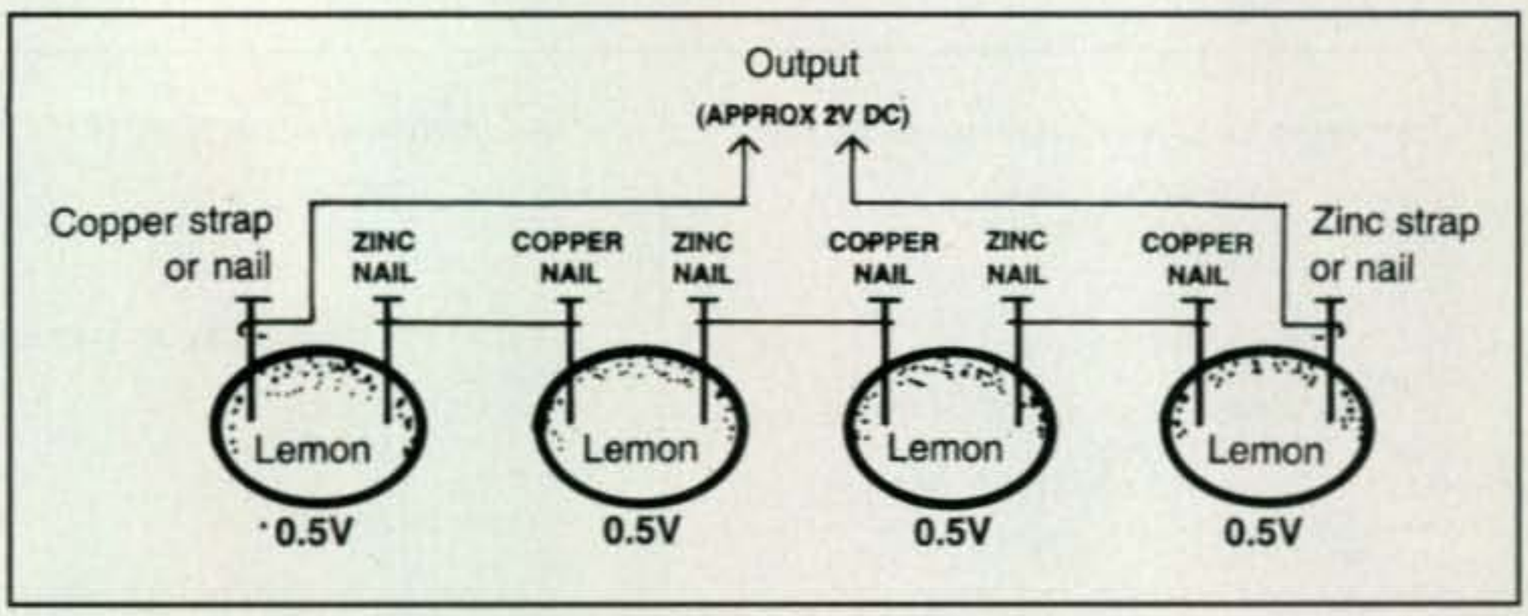
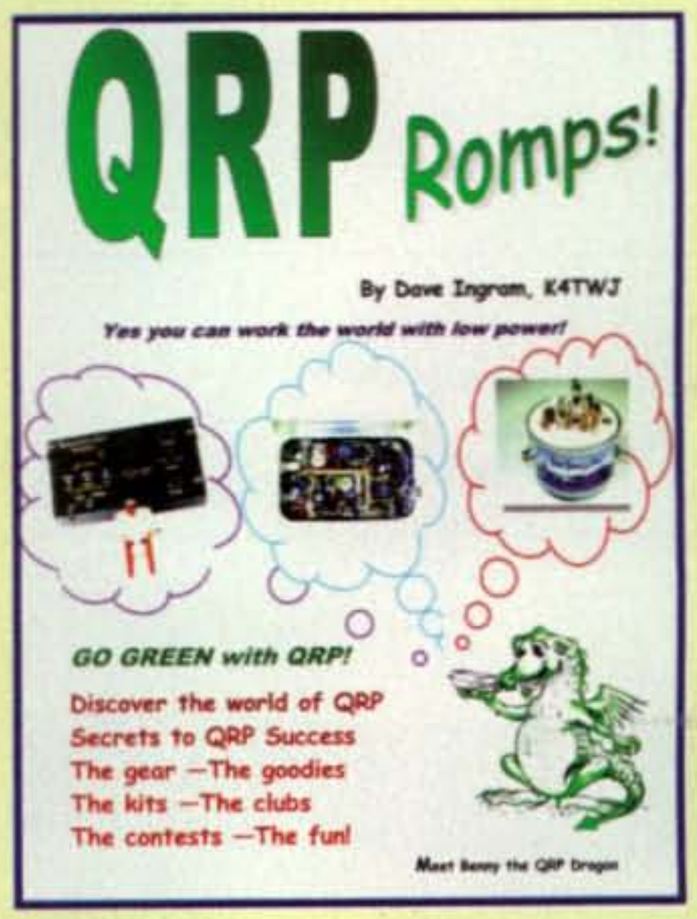


Fig. 3– Need emergency power? A group of lemons fitted with zinc and copper nails or strips can get you going. Each lemon is good for approximately .5 volt, and the more lemons, the more the voltage.

pFd tuning capacitor. That item may also be somewhat elusive, but you can substitute a small, plastic-case variable such as those used in transistor radios.

Taking a more conventional approach, you might connect several 3-volt CR2032 or similar coin cells in series to acquire 6, 9, or 12 volts of energy at approximately 200 ma (pick the cells with pre-welded positive and negative terminals to make it easy). In this case, the battery of cells can power a Rockmite or even a KX-1 at reduced output. We obviously have moved past the 3-volt crank-um-up flashlight at this point, but the concept remains the same. Use a slot-car motor (or equivalent) as a generator, a small rechargeable cell or battery to store energy, and



New QRP Book Arrives:

QRP Romps!

New to QRP or just been busy with life's little diversions and need up-to-date details on what's hot and happening in QRP gear, goodies, on-the-air activities, clubs, and conventions? Check out my new book *QRP Romps!* and you will be "in the know like an old pro" quick as a flash. Various chapters highlight commercially made gear, kits of all types, antennas large and small, and pocket-size transmitters and receivers you can home-assemble in two or three hours. In particular, the chapter on operating strategies and secrets for successful DXing is beneficial to high- and low-power operators alike—and easily worth three times the book's cost.

If you are interested in QRP to any extent, you will surely find *QRP Romps* delightful. It is $18.00 plus $3.00 postage (U.S.) direct to you from me: Dave Ingram, K4TWJ, 3994 Long Leaf Drive, Gardendale, AL 35071, or pick up a copy from Universal Radio at the Dayton Hamvention® next month. More details at <www.k4twj.blogspot.com>.

Photo F– Check out this trio of 40- and 20-meter Hamfest Buddies Larry Johnson, WB4LKI, built and installed in a 3-inch by 5-inch pocket tin. Using the minimitters at 50 to 60 milliwatts output and an inverted-Vee antenna, Larry has worked 8 states—and is still going. (Photo courtesy of WB4LKI)

a three-pin regulator (or at least a zenier diode to prevent over-charging and/or reverse current discharge). Think creatively and dink, dink, dink!

If our previous ideas seem appealing, you may be asking where you can find 3-, 6-, and 12-volt motors, coin cells with attached leads, and regulators or zeniers. I found all of those items and more available at quite affordable prices from <www.allelectronics.com>, telephone 1-800-826-5432.

Yet another idea worthy of consideration is using a small steam engine to turn a slot-car motor/generator (steam-powered QRP!). Suitable tiny engines can be fired using anything from a couple of candles to a small propane gas tank, and when equipped with a fair-size boiler can run a surprisingly long time between "fill ups." Hobby shops are a good source of small steam engines.

Fruit-Powered QRP

Do you prefer the "MacGyver approach" to QRPp power? If you missed seeing the particular TV episode of interest, Mac was stranded in the desert with a radio and a fuel-starved vehicle. He pushed a couple of wires into a cactus and acquired enough energy to power the radio—at full volume, no less. The scenario was slightly exaggerated (naturally, as that's TV), but there is some reality beneath the fiction. The main ingredients comprising a voltaic cell or battery of cells are some form of acid for the electrolyte and two dissimilar metals for the electrodes. Tomatoes are rich in acid, as are lemons. The acid may be citric rather than sulfuric and resultant current may be low, but it works for QRPp—and knowing how to make and use said battery could prove beneficial if caught stranded on a deserted island.

Inserting a copper nail and a zinc nail into a tomato or lemon typically produces around .5 volt output. Wires twisted around the nails near their heads make convenient output leads. Replacing the nails with zinc and copper strips 0.25 or 0.5 inch wide increases available current, and connecting lemons or tomatoes in series increases total output voltage. While writing those facts, I noticed my XYL WB4OEE starting her day with a bowl of orange slices. Judging by the way oranges eat my stomach, I would guess there is enough acid in five slices to power a K-3 or FT-817. Sandwich a few orange slices between strips of zinc and copper, stack a bunch in series, and they should produce enough energy to throw sparks!

Amateurs inclined to experiment are probably now thinking of connecting a bunch of lemons or oranges in series-parallel for increased voltage with increased current, and the idea holds merit. Just remember that electrolysis and oxidation start soon as electrodes are inserted in fruits, so use them when first made and *never consume the fruit after inserting anything in it.* Again, enjoy experimenting and dink, dink, dink.

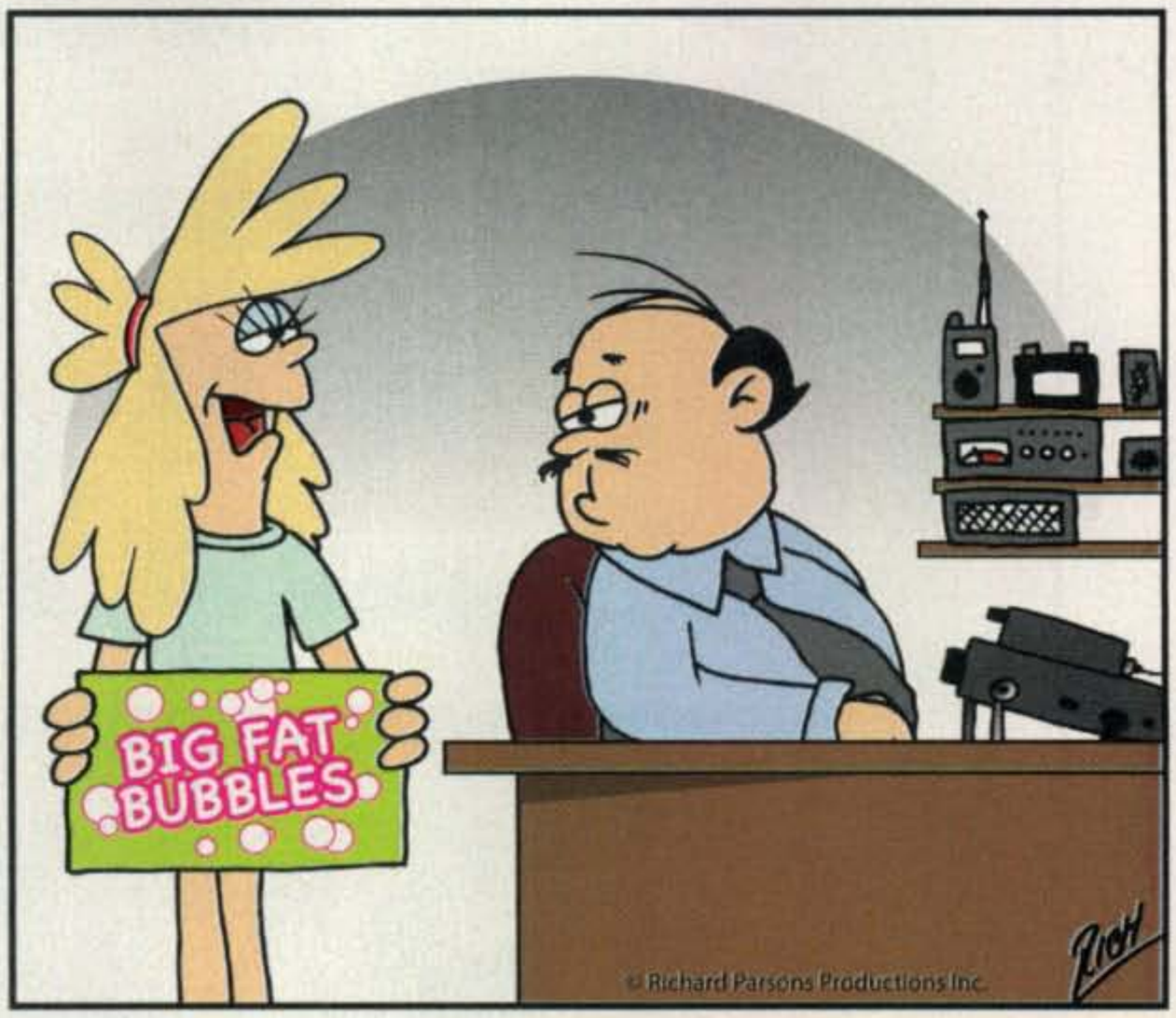
Wrap-Up

In closing, we would like to recognize Larry Johnson, WB4LKI, and his work building and installing two Hamfest Buddies and its predecessor, a Micronaut, in a small metal tin from Cracker Barrel (photo F). Larry has worked several states with these QRPp mini rigs, proving milliwatts really do reach out and the operator rather than the rig makes the big difference in QRP success. Good show, Larry!

Now let's hear from you, dear readers. What are you building, using, and or working with QRP? Share a picture of your setup, too, and here's hoping we meet on 30 meters one night soon.

73, Dave, K4TWJ

SUCH A HAM



I though this soap box might come in handy for your "NET" tonight.

what's new

BY ANTHONY A. LUSCRE,* K8ZT

HF Amplifier, Communications Receiver, RF Speech Processor, and more

This month, although I am dyed-in-the-wool QRPer, we are going QRO. First we take a look at a new high-power HF amplifier and then a company that can provide the parts to build your own amplifier. Next are an RF speech processor to pump-up your signal and a commercial-quality receiver. Our last product is a nifty panadapter to see signals across the band. Finally, we visit The Amateur Radio Website of the Month.

Alpha Power AP8410 Amplifier

Alpha Radio Products LLC recently announced its new AP8410 HF amplifier (photo A). The AP8410 is the latest in the line of legal-limit (1.5-kilowatt output) tetrode amplifiers from Alpha Power.

Alpha included several features to enhance operating performance, including improved screen-grid regulation, simplified AC line-voltage tap selection, and provision of a USB interface for remote monitoring and limited control. "The new amplifier retains all of the rugged dependability and functionality of the familiar two-tube tetrode design that was first introduced as the Alpha 91ß."

The amplifier uses the Alpha Power brand VTX-X118 tubes—ceramic, external-anode, indirectly-heated tetrodes that are qualified to handle the grid current that might be experienced in the AP8410. Alpha Senior Engineering Manager Brad Focken, who oversaw the new amplifier's 18-month development, is very pleased with the result: "This has been a great opportunity to engineer the product to use modern components and assembly techniques. We considerably simplified the wiring harness and used surface-mount parts wherever possible. We expect to be able to produce this amplifier for many years to come."

The AP8410 joins the AP9500 1.5-kW auto-tune amplifier and the AP2100 legal-limit dry dummy load, along with other high-power RF products in production at Alpha. Price is $5,395.00 plus shipping and handling. For more information, contact Molly Hardman, telephone 303-473-9232, or visit <www.alpharadioproducts.com>.

QRO-Parts.com

QRO-Parts.com is a source for a large variety of parts for homebrewers or repairers of high-power amplifiers and other equipment, including tubes and sockets, capacitors, resistors, switches, and relays. QRO-Parts describes its products as "... never used nice quality parts from old Soviet and Russian warehouses." The website, available in three languages, can make it easy for international shoppers to find that special part they may need. For more information or to order visit <http://qro-parts.com>.

Ten-Tec Speech Processor

Ten-Tec recently announced the new model 715 RF Speech Processor (photo B). The model 715 is a high-performance true RF-type speech processor designed to operate with most modern

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e-mail: <k8zt@cq-amateur-radio.com>

Photo A– Alpha Radio Products new AP8410 HF amplifier.

Photo B– Ten-Tec's model 715 RF Speech Processor.

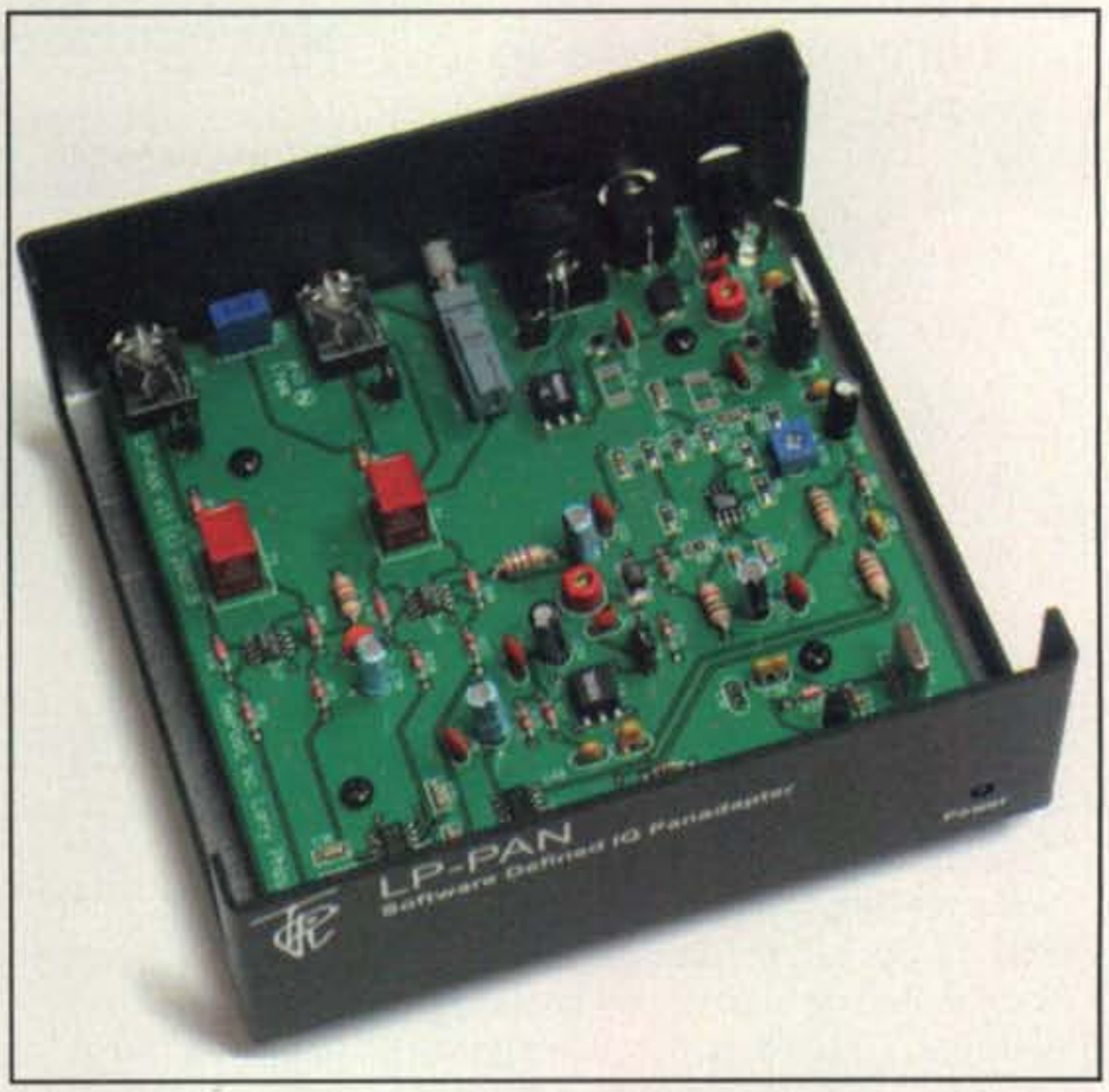

Photo D– Rear and top view of the LP-PAN panadapter.

Photo C– The Ten-Tec RX-400 HF/VHF/UHF Receiver.

HF amateur radio transceivers. Ten-Tec describes it as follows: "RF speech processing is a superior system to the traditional AF clipping, AF compression, or RF compression found in a typical HF transceiver for achieving the highest ratio of average-to-peak power from an SSB transmitter."

Features include average SSB power output increase of up to 6 dB and enhanced readability by stations hearing your signal, all in an easy to install and operate unit. "This power increase, coupled with the ability to tailor the speech passband, can mean the difference between a signal buried under band noise or an intelligible, copyable signal," according to Ten-Tec.

The unit is installed between the microphone and the microphone jack on your transceiver. Two inputs for microphones are provided: a conventional 8-pin microphone connector that is wired the same as the 8-pin microphone input on the Omni-VII and Orion II transceivers (also wired the same as 8-pin Yaesu connectors), and a second 1/8-inch input used for direct connection of microphones or headsets such as those made by Heil Sound and others. The output connector is a 1/4-inch stereo connector. Output cables are available for 4-pin Ten-Tec, 8-pin Ten-Tec (also used by Yaesu), 8-pin ICOM, and 8-pin Kenwood (also used by Elecraft).

AF clipping or compression processors found in a typical HF transceiver can create distortion consisting of harmonics and IMD products. An RF speech-processing system converts the input audio signal to an RF SSB signal. It is then clipped, fed through a ceramic filter, and returned to audio, effectively removing harmonic distortion that would have been present in an AF system.

The 715 takes the input audio signal, converts it into a 455-kHz DSB signal, removes the opposite sideband, and limits distortion products with filtering before returning the resulting signal back to audio for output to your transceiver.

The model 715 RF Speech Processor is priced at $249.00 plus shipping. The price includes one of the output cables mentioned above (your choice). Additional output cables are available at $35 each. For more information or to order visit <http://radio.tentec.com/accessories/715>.

Ten-Tec RX-400 HF/VHF/UHF Receiver

Ten-Tec is now shipping the new RX-400 HF/VHF/UHF Receiver (photo C). This latest addition to Ten-Tec's product line provides real-time DSP in a COTS (commercial-off-the-shelf) package that delivers the performance of a mil spec and tactical receiver in a lower price range. Receiver tuning range covers 2 MHz to 3 GHz, with detection bandwidths up to 300 kHz, and can scan 100 channels/second. The user can program mission-specific AGC characteristics. Wideband IF output provides 6 MHz of bandwidth.

Control interfaces include both TCP/ IP and RS-232. The unit is designed to occupy a compact one-half rack of space. This new model joins HF receivers already in 24/7 operations in government/commercial service worldwide. For more information, visit <http://radio.tentec.com/commercial/receivers/RX400, or call Tom Salvetti direct at 304-884-7601.

LP-PAN Panadapter

Tele-Post and Larry, N8LP, have recently introduced the LP-PAN Panadapter (photo D and fig. 1). The LP-PAN is designed to work with Elecraft's K3, but models are also available to work with other radios. LP-PAN is a software-defined IQ direct-conversion receiver with integrated SDR (software-defined-radio) application to provide a high-quality panadapter for rigs with IF output jacks. The unit uses a combination of SMT and through-hole technology, a custom aluminum case with powder-coated finish, and silk-screening. Pricing for an assembled and tested unit is $225.00 plus ship-

Oops...

In February's "Weekender" column—"Plumber's Special: A 20-Meter Ground Plane with Weatherproof Feed"—the caption for photo A incorrectly stated that the photo was taken before the top hat had been installed. Author K3KR informs us that it was indeed there, but too small to make out in the photo.

Looking Ahead in CQ

Here are some of the articles we're working on for upcoming issues of *CQ*:

- Results, 2008 CQ WW RTTY DX Contest & 2008 CQ WW Foxhunting Weekend
- JY6ZZ – On the Air from Jordan, by C. Stewart Gillmor, W1FK
- An Invisible Mobile Installation, by Scott Williamson, VY1SW
- Your Next Mobile Rig May Be Your Cell Phone! by Bill Kearns, WB6JAR

Do you have a ham radio story to tell? See our writers' guidelines on the CQ website at <http://www.cq-amateur-radio.com/guide.html>.

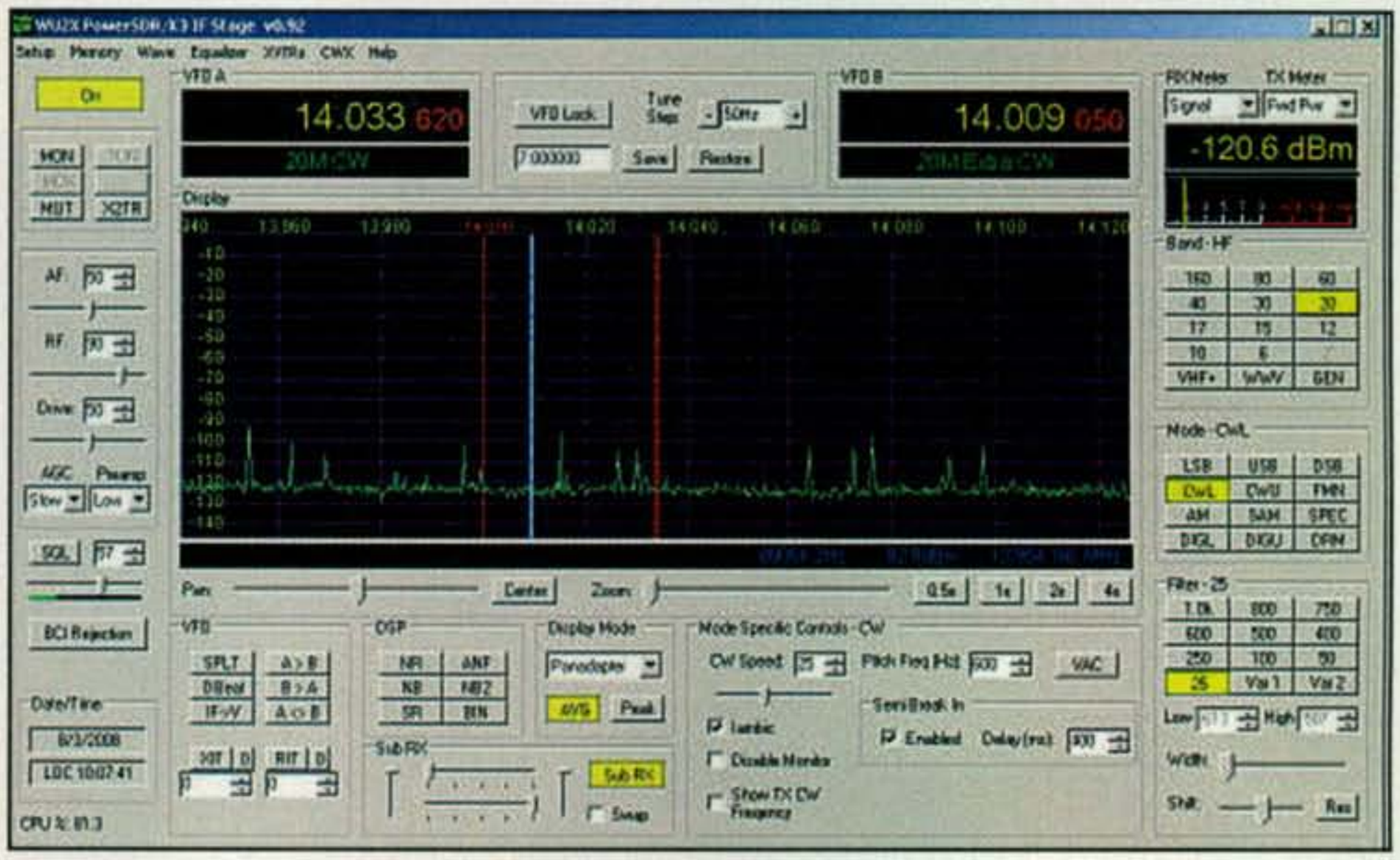

Fig. 1– Screen-shot the LP-PAN panadapter feeding PowerSDR software.

ping. A kit is available for $175.00 with SMT parts pre-installed. Larry says the kit takes an average builder about 2 hours to complete, plus another few minutes to adjust the front-end filter. The standard 8.215-MHz IF model is designed for the Elecraft K3. With optional IF frequencies, LP-PAN can also be used with many earlier Kenwoods (8.83 MHz) with IF output jacks as well as the Ten-Tec Orion (9.00 MHz) or the Elecraft K2 (4.915 MHz) when modified to bring out the IF signal.

Current features include: crystal-controlled local oscillator for low phase noise and a switching quadrature detector for high dynamic range, strong buffer amp with very high LO isolation to protect the K3, and ground isolated inputs/outputs with mil spec audio output transformers.

The LP-PAN can display a band segment up to 192 kHz wide on your PC (sound-card dependent). Point-and-click frequency control is available by using a variety of free/Open Source software programs including PowerSDR/IF Stage (http://code.google.com/p/powersdr-if-stage), LP-Bridge (www.telepostinc.com LPB. html) or Ham Radio Deluxe (www.ham-radio-deluxe.com.) In addition, LP-Bridge allows sharing of K3/LP-PAN with almost any logger, PSK program, CW-Skimmer, etc. The free LP-Bridge software can also be used without the LP-PAN to provide sharing of the one serial com port between multiple software programs.

Some of the performance specifications are sound-card dependent. In addition to a suitable sound card and computer, the unit also requires 11–16

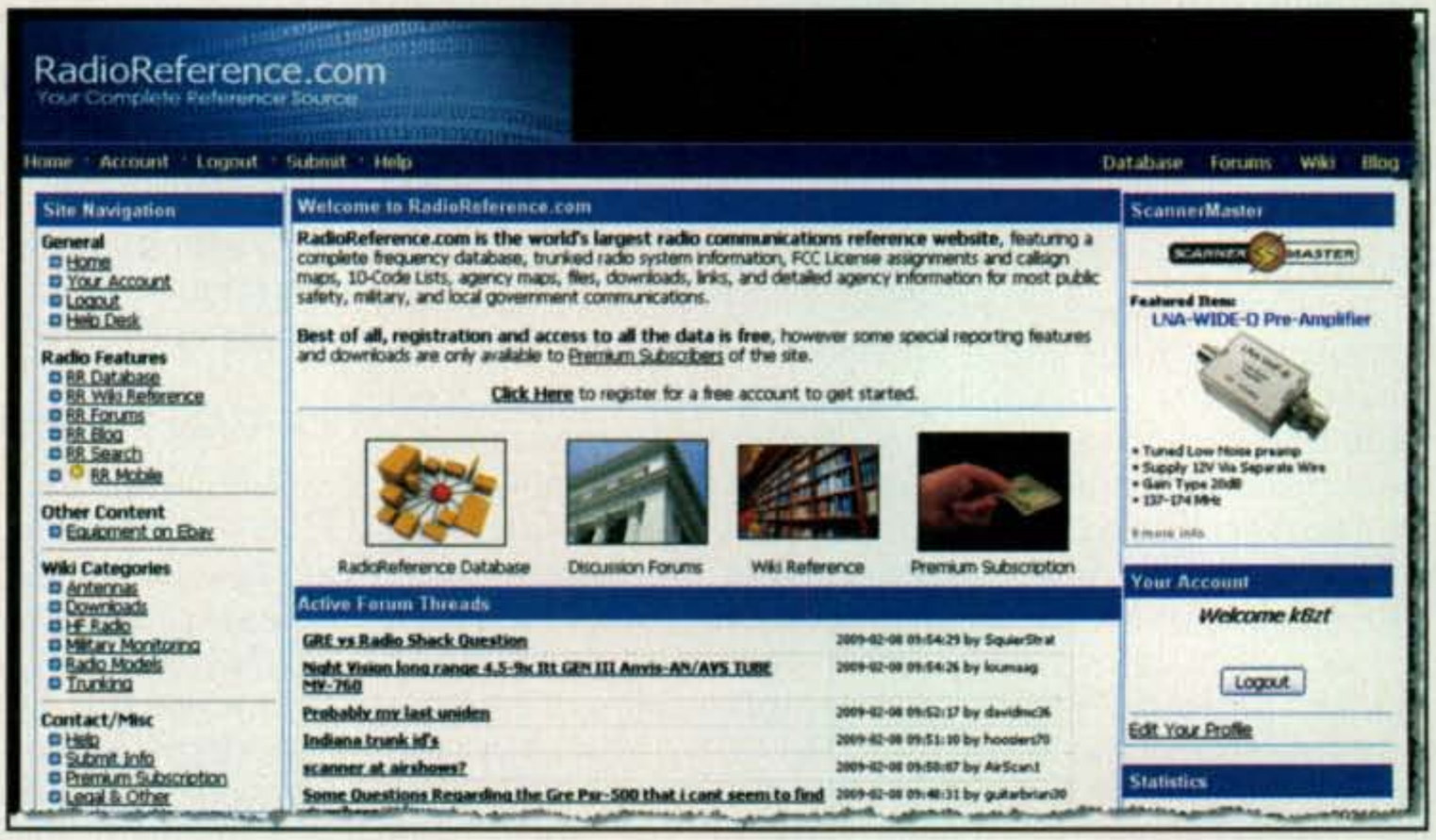

Fig. 2– Screen-shot of this month's Amateur Radio Website, RadioReference.com.

VDC @ 55 ma. For more information or to order, visit <www.telepostinc.com/LP-PAN.html>.

The Amateur Radio Website of the Month

This month's Amateur Radio Website, RadioReference.com (fig. 2), is intended for the radio listeners and scanner enthusiasts among the ham population. According to the site's own description, "RadioReference.com is the world's largest radio communications reference website, featuring a complete frequency database, trunked radio system information, FCC license assignments and callsign maps, 10-Code lists, agency maps, files, downloads, links, and detailed agency information for most public safety, military, and local government communications."

Registration and access to all the data are free. However, some special reporting features and downloads are only available to Premium Subscribers of the site.

For those obsessed with monitoring almost any type of radio communication, the frequency listings on the site are a great resource. Just to give you an idea of the tremendous scope of listings, here are some of those available: AM/FM/TV broadcasters, police, fire and safety, airports, railroads, military, sports (baseball, football, basketball, hockey, soccer, motor racing, and lacrosse), and marine. There also is a wealth of information on how various communication technologies work, including trunking, sub-audible tones, etc. There are reviews of a wide variety of receivers, scanners, and software.

Wrap-up

That's all for this month's column. Remember, I welcome your feedback, questions, and/or comments. If you are a producer of a new product for amateur radio, feel free to e-mail me or use the snail-mail address on the first page of this column. Until next month . . .

73, Anthony, K8ZT

Note: *Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.*

beginner's corner

BY WAYNE YOSHIDA,* KH6WZ

The Guest Operating Experience

One of the great things about earning a ham license is it is a key that can open many doors of opportunity, including the ability to operate station equipment that does not belong to you. This is why you actually have *two* licenses when you earn a callsign—a station license and an operator license. Also, just like the fictional character James Bond has a license to kill, radio hams have a license to operate two-way radio communications equipment on a varied selection of frequencies and modes.

Think about what this means for a second. By borrowing someone else's station, all you need to do is sit down, turn on the power, aim the antenna if necessary, and start making contacts. Everything is right there waiting for you.

The first place to seek access to a station is your radio club. Many radio clubs have established stations with their own callsigns, such as W6YRA, the University of California, Los Angeles (UCLA) ham radio club, or have ham gear to loan. Additionally, there may be club members who are willing to share their station with other operators. This is quite common for radio contests such as the CQ World-Wide DX Contest in the "multi-single" (multiple operators and single transmitter) or "multi-multi" (multiple operators and multiple transmitters) categories.

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Guest Operating Etiquette For Guests and Hosts

The first rule when using anything is to respect the property and its owner. Do not abuse the radio(s), and if you are not sure how to operate anything in the station, ask for help and do not guess. Also, since many ham shacks are in family homes, it is a good idea to respect the privacy of the other occupants of the house.

In addition, it would be a good thing to consider giving something back to the club, or the individual, that makes the "loaner program" possible. This can take the form of volunteering for events, becoming a Volunteer Examiner for the club's testing program, performing antenna work for the station owner, and a whole lot of other things.

This is exactly like the concept of "sweat equity" that is sometimes mentioned in the Public Television show "This Old House." The benefactors pay the program back in the way of labor to the remodeling or building project.

For the station hosts, it would be a good idea to let your guests know about any rules and how to operate the station equipment before the operation starts. Typical rules may include no smoking in the shack, which bathroom to use, and what areas are off limits. Discussing the rules of the

If you are visiting the Los Angeles area, bring your ham license along and visit the beautiful Queen Mary *hotel. You can ask any crew member where the ham radio station is, the* Queen Mary *staff is very helpful, and everyone knows where the station is located.*

Guest Operating at W6RO

The Associated Radio Amateurs of Long Beach (ARALB) manages the W6RO club station aboard the ocean liner *Queen Mary* in the Wireless Room located on the Sport Deck, Queensway Bay, Long Beach Harbor, Long Beach, California. The Wireless Room features a ten-position radio station. Volunteer hosts operate and assist W6RO visitors from 9 AM to 9 PM daily. Be sure to bring your current FCC amateur license or a photocopy so you can operate this world-famous station and generate a pile-up!

house before station operating begins will avoid any regrets and can save friendships.

Interesting Destinations

There are also prominent ham stations that allow guest operations, such as W6RO aboard the *Queen Mary* in Long Beach, California, and W1AW at the American Radio Relay League headquarters in Newington, Connecticut. Operating these famous stations is great fun, because thousands of hams worldwide recognize the callsigns, and when they go on the air, everyone wants a chance to make contact. This is ham radio's version of a chance meeting with a famous movie or rock star, and seeking an autograph.

The Pile-up

This brings us to a ham radio phenomenon called the "pile-up." This is when a ham station from a rare place gets on the air, or, in this case, a famous station gets on the air. Everyone in the world wants to talk to you when you get on the air with a famous callsign. You are the center of attention.

This can be a good thing and a bad thing—good because this means that you will make a lot of contacts and everyone wants to talk to you, and bad because the very large numbers of people calling you creates a mess of noise that you have to sort out and talk to *one person at a time*.

Since you are the station being called, it is your responsibility to make sure people behave. This is called managing a pile-up. Because a pile-up, by definition, is a crowd, it is important to try to finish making your contacts as quickly and efficiently as possible so you can talk to the next station.

Although it is a good thing to have a very interesting and meaningful conversation with the ham operator on the other side of your contact, when a pile-up begins to form, you must decide what you want to do: Do you want to continue to have a nice, friendly, comfortable chat, focusing on one contact, or do you want to answer the many stations calling in?

There is no right or wrong answer to this, and there is no unwritten rule about this situation either. It is your responsibility to manage a pile-up. You can start or continue it, or stop it completely. If you decide not to initiate or encourage the pile-up, the procedure is simple. You can either turn off your radio, and the stations calling you will wonder if something wrong happened to you or your station, or you can announce that you are going to go off the air and clear the frequency. You can say something like this: "WA6NIA from W6RO, thank you for the nice QSO. Take care and have a great weekend. This is W6RO, clear."

Let's Play!

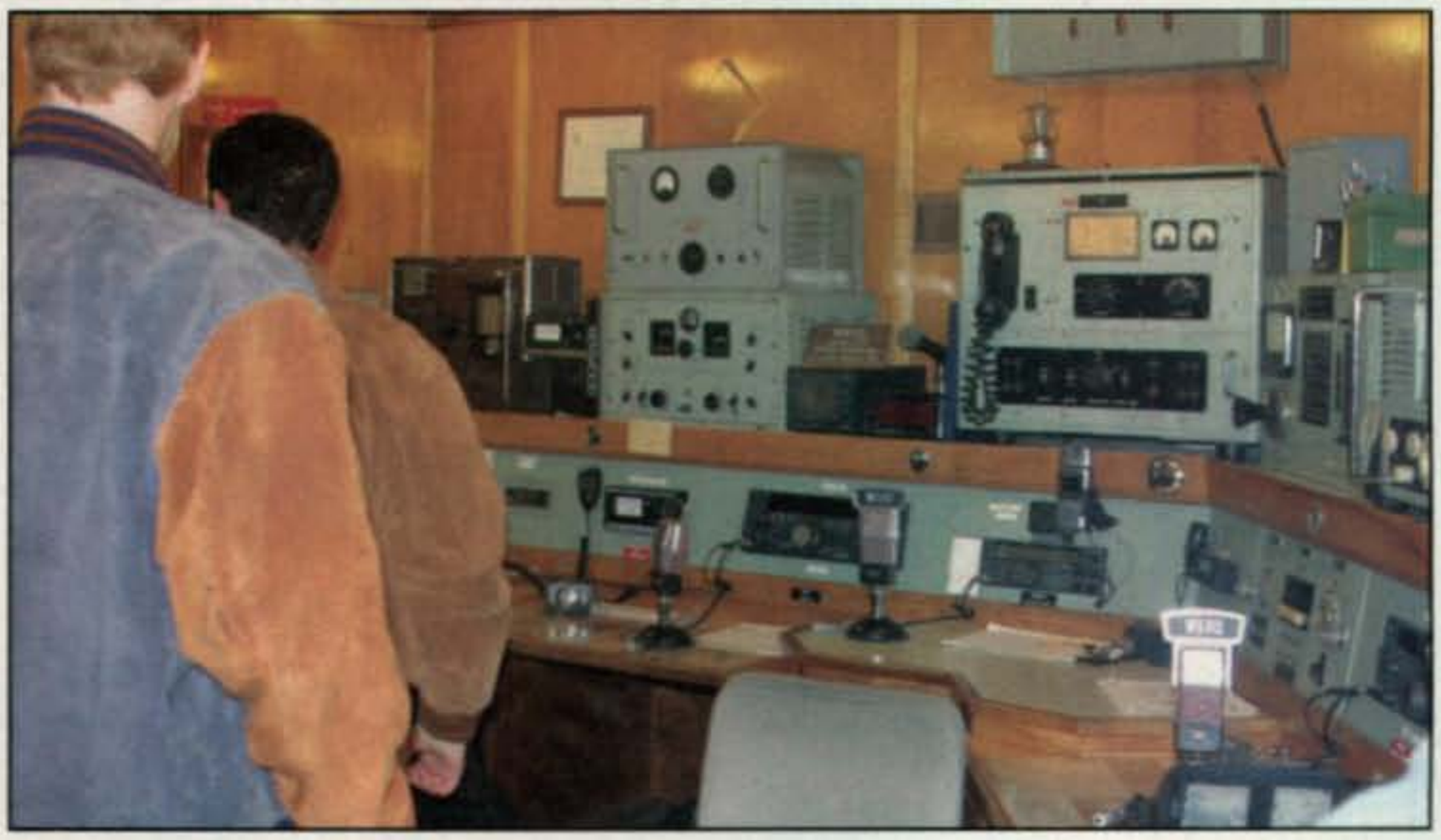
When I discover that a pile-up for the station I am operating is brewing, and if I have the time to take care of it properly, I opt to work the pile-up. This can be great fun, and a challenge to see how many stations I can contact in an hour of operating or after several hours of operating. It is fun to exchange contact

On the Cover

Mike Davidson, N5MT, of Houston, Texas, tracks down a "fox," or hidden transmitter, during a "foxhunt" with the Pearland, Texas, Amateur Radio Club. Mike, who's been foxhunting for about 25 years, says he normally uses a three-element 2-meter beam while driving to the general location of the "fox," adding attenuation as he gets closer, and then switches to the Doppler-equipped antenna system seen in the photo for zeroing in on the hidden transmitter. The system uses a null in the received audio to let him know that he's pointing directly at the "fox" transmitter.

Mike says each foxhunt is a learning experience for him, further sharpening his skills. "When you go to one of these things, you'll nearly always discover something unusual that you hadn't encountered before," he explains, noting that the toughest targets to find are "walking foxes," where the transmitter is on the move. Yet he says the ability to track down a moving target is important to helping public safety and other agencies locate unidentified transmitters, something hams with foxhunting experience are sometimes asked to do. To learn more about foxhunting and how you can get involved, see KØOV's article in this issue, "Bring Radio Foxhunting to Your Town," on page 24.

While very active as a foxhunter ("I'm probably the best hunter in Houston," he says), Mike is primarily a DXer, as you might gather from the Texas DX Society shirt he's wearing. He is a longtime member and past president of the society, as well as being the DX Editor for the 10-10 International News and manager of 10-10's country awards program. Professionally, he is a retired "computer guru," specializing in databases and disaster recovery. *(Cover photo by Larry Mulvehill, WB2ZPI)*



Guest operating can be a fun way to get on the air with equipment that isn't yours. This is a view of W6RO, the ham station aboard the Queen Mary. *Volunteer hosts explain the history of the Wireless Room and help you operate the station.*

information, and maybe know what the weather is like on the other station's location as fast as possible, but in most cases a "pile-up conversation" is simply an exchange of callsigns and signal reports. This might be considered a minimalist's idea of what a two-way ham radio contact would be like.

You may hear something like this in a typical pile-up on the HF bands in the SSB mode:

W6RO, aboard the Queen Mary:

"CQ, CQ, CQ, this is W6RO, Whiskey Six Romeo Oscar aboard the Queen Mary in Long Beach calling CQ, CQ, CQ."

The guest operator at the Queen Mary station is looking for contacts on the phone bands. CQ is a general call to any station listening.

After a few seconds, several stations respond to the call, all at the same time:

"W6RO, this is WA1POI, Whiskey Alpha One Papa Oscar India, WA1POI."

"W6RO from W6GOS, Whiskey Six Golf Oscar Sierra."

"W6RO, Whiskey Six Romeo Oscar, this is November Six Romeo Alpha Sierra calling."

". . . Echo Radio."

"Er. . ."

The last two lines are what the W6RO station operator heard, only a portion of whatever the other station transmitted. The W6RO operator must sort out all the callsigns and decide which station to talk to.

W6RO:

"WA1POI, this is W6RO, aboard the Queen Mary. Name here is Bob. Thanks for the call, your signal is very strong, the loudest on the frequency, a five and nine. There are many other stations waiting to call, so will turn it back to you for a quick signal report, and then I will work the other fellows on the frequency. WA1POI, this is W6RO, over."

Guest operator Bob at W6RO gives WA1POI a strong signal report, with a readability score of five out of five, and his receiver S-meter deflects to the right, at S-9. He tells the POI station (and others who are listening) that a pile-up has formed, so the contact must be cut short.

WA1POI:

"QSL. Name here is Broose, you are five and nine-plus, booming into my station, I am located near Hartford, Connecticut. Thanks and 73, WA1POI."

WA1POI, understands the situation, tells W6RO his name, gives a signal report and station location, and ends the conversation.

W6RO:

"W6GOS, this is W6RO, you are also five and nine, over."

Hopefully, W6GOS has been listening intently, waiting for his turn. Unfortunately, his cell phone rings, and he turns his receiver volume down and misses his turn. . .

W6RO:

"Nothing heard. QRZed?"

The *Queen Mary* operator forgot the N6RAS station was calling, and asks who else is out there by using QRZ, the Q-signal for "who is calling me?" By tradition, the British pronunci-

ation of the letter Z is used on the ham bands.

The cycle of a multitude of stations calling at the same time begins again, and the W6RO operator must listen and sort out the noise and pick one station to talk to. This can continue for as long as propagation conditions allow, or as long as the guest operator and the station gear are able to operate, or whichever is the first to happen to make the operating session end.

On the Other Side

In the ham radio world, it is usually better to be the one being chased, rather than the station doing the chasing. However, on the other side another human being operating another ham station is patiently waiting his or her turn to make contact. As the generator of a pile-up, it is your responsibility to understand this and maintain control. Because many stations are waiting in line, finish up each contact as fast as you can. Just as William Strunk advises in *The Elements of Style*, you must "omit needless words" when working a pile-up.

Here is what the contacts might sound like when applying this idea to pile-up contacts:

W6RO:

"N6RAS, W6RO. Five and seven, over."

N6RAS:

"QSL. Five and nine, 73. N6RAS."

In this example, the two stations omit needless chit-chat and pare the contact to the minimum exchange of a signal report and callsigns. Working stations this way can enable many contacts per minute on phone, adding up to hundreds of contacts per hour.

As a guest operator, you must always remember your manners. After all, you do not own the equipment, and someone else has made a substantial investment in time and money in creating the station you are using. In addition, if you are lucky enough to put one of the many famous callsigns on the air, it is your duty to treat any possible pile-up activity with efficiency and politeness.

There are many other tips, techniques, and etiquette in the world of ham radio pile-ups. This story only scratches the surface of pile-up operating. I suggest reading one of my all-time favorite ham radio books to learn more about this style of operating. It's called *The Complete DXer*, by Bob Locher, W9KNI (available through the CQ Bookstore).

73, Wayne, KH6WZ

BY JOE LYNCH,* N6CL

Satellite Collision

Writing for *Aviation Week*, Frank Morring, Jr. called the orbital collision of two commercial satellites at 1655 UTC on February 10, 2009 the worst ever. The non-operational Russian Kosmos 2251 satellite was involved in a broadside collision with the U.S. Iridium 33 relay satellite, owned by the Russian Space Forces and Iridium Satellite LLC, respectively. Records indicate that perigee for the Iridium satellite was 779 km and for the Kosmos satellite it was 778 km. The impact caused the destruction of both satellites.

At the time of the collision the Iridium satellite was operational. However, the Russian satellite had been out of service for a number of years. A NASA spokesman indicated that this was the first time that two intact satellites have collided. A Russian spokesman for the civilian space agency Roscosmos, Alexander Vorobyev, refused to confirm or deny that the satellite was out of control at the time of the collision.

Monitoring the aftermath of the collision, Nicholas Johnson, a NASA spokesman, stated that preliminary estimates indicated that the collision resulted in more than 500 fragments in the debris cloud. This estimate approaches the 2007 Chinese anti-satellite weapon test and the debris cloud it created. The U.S. Space Surveillance Network tracks more than 500 pieces of debris. With this collision, its job got a whole lot bigger.

Concerning risk of future collisions from this debris, the NASA spokesman stated that the risk to the International Space Station, which orbits about 430 kilometers (270 miles) below the collision zone, is low. Not so for the Chinese. Their scientists stated that the debris poses a threat to Chinese satellites in Sun-synchronous orbits.

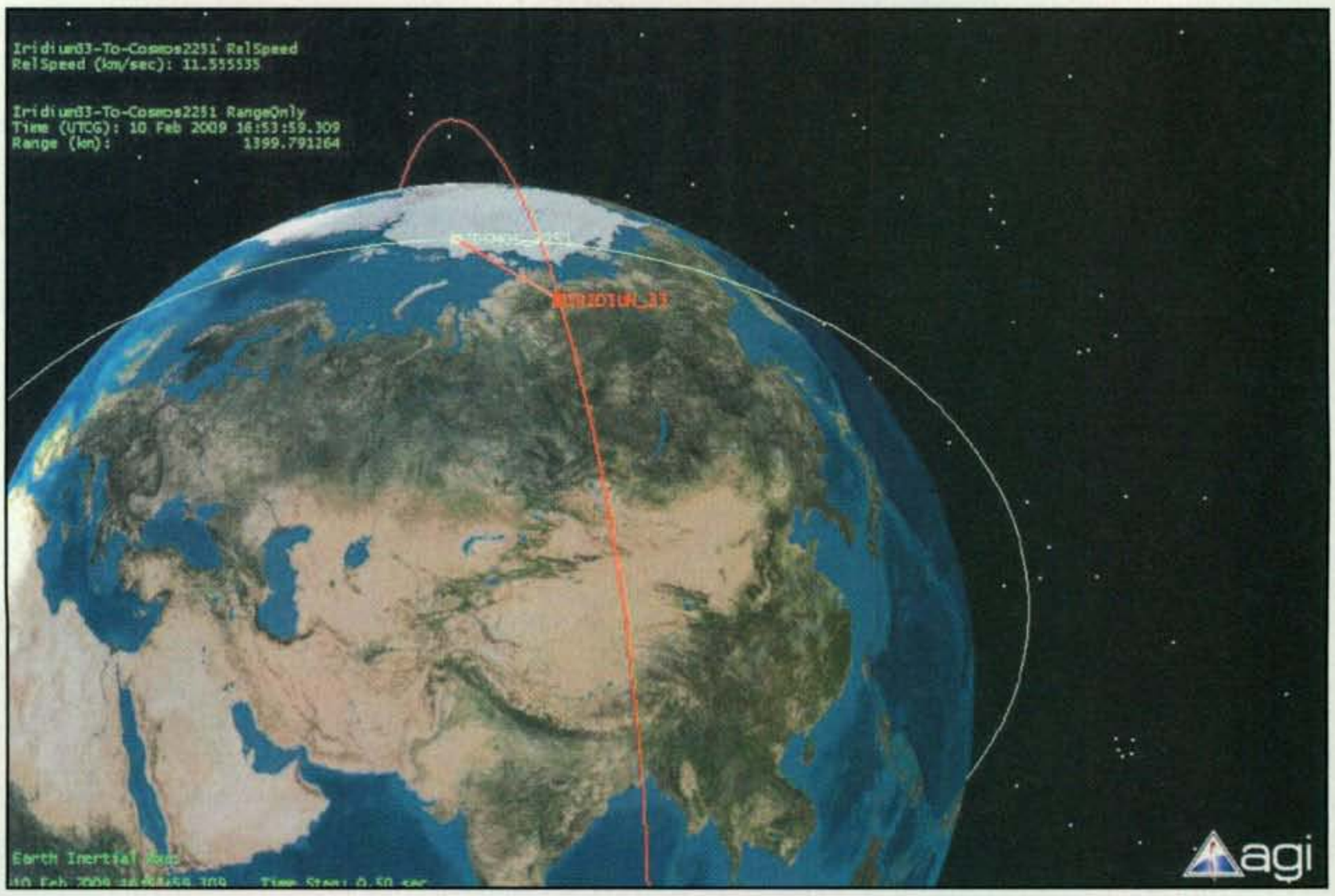
Other previous space collisions include the fol-

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

April 2	Moon perigee and Moon first quarter.
April 5	Excellent EME conditions.
April 9	Full Moon.
April 12	Poor EME conditions.
April 16	Moon apogee.
April 17	Moon last quarter.
April 17–19	Eastern VHF/UHF Conference. See text for details.
April 19	Poor EME conditions.
April 21	*Lyrids* meteor shower.
April 25	New Moon.
April 24–25	Southeast VHF Society Conference. See text for details.
April 26	Moderate EME conditions.
April 28	Moon perigee.

—EME conditions courtesy W5LUU.



From this artist's rendition of the collision of the Iridium 33 and Kosmos 2251 satellites, one can see the near-perpendicular intersection of the two satellites. (Illustration courtesy of Spaceweather.com)

lowing: The Chinese deliberate destruction of one of its weather satellites with an anti-satellite weapon; the DART satellite colliding with MUBLCOM; as well as three collisions involving the manned Mir space station during docking attempts by Progress M-24, Progress M-34, and Soyuz TM-17; and the Cerise satellite, which collided with space debris in 1996.

Speculation immediately increased among amateur radio operators concerning possible meteor-shower-caused propagation caused by the debris entering the Earth's atmosphere. Most agreed, however, that the re-entry was at too slow a speed to affect any propagation. Your editor would appreciate any reports of propagation that can be attributed to the debris cloud.

While no official word from AMSAT has been put forth as of the time of the writing of this column (mid-February), nevertheless, unofficial speculation concerning the effect of the collision on existing amateur radio satellites has also increased. Russian spokesperson Alexander Vorobyev stated that the collision scattered debris between 500 ands 1300 km. Your editor believes that concern for any object in orbit within that 800-km zone in the aftermath of the collision is warranted. Insofar as amateur radio satellites are concerned, AO-51's perigee is 801 km and KO-25's perigee is 797 km.

Soureces for this piece include AviationWeek.com, Associated Press, and spaceweather.com

VK3UM Spared Deadly Australian Fires

The following is from well-known EMEer Doug McArthur, VK3UM, via the Moonnet reflector:

Dear Friends,

This e-mail is being composed on Saturday, February 14, 2009, at 1230 EDST (0130 UTC), exactly seven days to the hour after it all began. The crisis has eased here considerably. We still have a lot of small spot fires and visibility is less than 100 meters with the smoke. We stink, in more ways than one, as mains power is still days away and a hot shower would be great. (There is less to wash, though, in the cold water!) It is an eerie sight and from this location we are a small island (hill) of unburnt ground surrounded by what can only be described as sheer and total devastation. We have lost ~20 homes, countless outbuildings, etc., but incredibly no fatalities. (That is a 10 kms radius of Glenburn/Murrindindi). Unfortunately, our adjacent hamlets of Kinglake, Flowerdale, Strath Creek, Hazeldene, Dixons, and Steels Creek have effectively been removed (temporarily) from the map. We are still trying to establish contact with friends and associates and things are grim. My wife Bev and I have avoided watching TV as much as possible, as reliving it again is not pleasant.

We were continually bombarded with ember attack (bark and leaves) that could be heard hitting the house roof (five nights and days of it). The sheds are full of ash and debris and the house reeks of smoke and fine ash. We are unbelievably lucky, and it is impossible to comprehend that the whole place is left standing. Containment lines have been carved through the bush 60 meters wide stretching from Strath Creek to our property here near Murrindindi. The "Pipe people" did it, and it is so enormous it may be possible to see it from the Moon! If we see pipes appear next along it , there will be real strife! They (The Alliance) have been just brilliant. Bev and I have received over 250 e-mails from concerned friends for which we are so grateful (almost making DXCC!) It will not be feasible to respond directly to you all in the near future. There is a huge amount to do around the district. We (our community) are overwhelmed with all the "stuff," from food (including dog, cat, horse, and bird seed), clothes, toiletries, etc., that have somehow appeared at our fire station. It is certainly being distributed to those who are in need, many who also are most reluctant to accept as "others are worse off." Thank you all, and thank you so much for you lovely messages.

73/88 de Bev and Doug

During the height of the crisis, Doug was manning fire tankers and Bev was assisting with local UHF CB communications.

Winter 6-Meter Propagation

Two days in January and February were very intense for 6-meter operators. On January 25, 2009, Ed Rodriguez, WP4O, in Tampa, Florida, reported working the following: YV4, HI8, and KP4s.

On February 7, 2009, Chip Margelli, K7JA, reported working XE1AY, DK79; XE1AO, DK89; XE2HWB, DL44; XE2ML, DL74; XE2YBG/P, DL94; XE2YW, DL82; XE2YWB, DL82; and YN2N, EK71. Arnie Coro, CO2KK, reported that Winston, CO2WF, worked about 40 stations from DM grid squares, such as Arizona. Truly, it was a widespread opening with extended hours.

First DL-SV 13 cm QSO

Guenter Koellner, DL4MEA, reported the following the moonnet reflector:

Today SV3AAF and I completed the first DL-SV on 13 cm. Quoting Petros's comment, under really difficulty conditions: "Winds at 80 kph kicking dish off target, bending dish's extension every few seconds. High libration according to almanac. High path loss. High sky noise. Low declination."

On my side I had to remove several liters of water from the TX cable, which is not waterproof. But at the moment my time for radio is very, very limited. But anyway, signals were 549/449 on both sides, so quite easy copy. To clarify all doubts, it was a CW contact.

The Big Digital Switch: Some Did, Some Didn't

With the postponement to June 12, 2009 of the switch to digital television being made optional, some station owners chose to switch on February 17, while others are choosing to wait until June 12. What this means for weak-signal operators is that it is best to wait until June 12 before celebrating the vacating of Channel 2 stations.

Some in the weak-signal community are hoping that when Channel 4 goes away the U.S. might get a 70-MHz allocation for across-the-Atlantic QSOs. According to Marshall Williams, K5QE, the Central States VHF Society's board of directors requested that the ARRL petition the FCC for such an allocation. Marshall stated that in response to the CSVHFS board's request, they received a letter from ARRL President Joel Harrison, W5ZN, in which he strongly discouraged any attempts to secure such an allocation at this time. Unfortunately, Joel, who is a weak-signal operator and a member of CSVHFS, finds himself in the awkward position of representing the League's opposition to the society's proposal.

Marshall's concern is that "if we cannot achieve a 70-MHz allocation somewhat in 'harmony' with the Region 1 allocations, then no QSOs can be made between the two Regions, which means that essentially, nothing useful will occur." Great Britain's 4-meter band extends between 70.000 and 70.500 MHz, with the CW and SSB calling frequency being 70.200 MHz.

While Marshall reported that Joel also discouraged the CSVHFS from independently pursuing a petition, it would seem to your editor that some sort of thin-slice experimental allocation might be able to be achieved in the short run. The success of the 60-meter channelized amateur radio allocation should provide an entrée for proposing such an arrangement for 4 meters.

Incidentally, Andy Kissack, GDØTEP, reports that 0135 UTC on February 14, 2009, he and Willem Badenhorst, ZS6WAB, completed the claimed first

Gene, WB9MMM (SK), publisher of ATVQ *magazine, shown here with his wife Shari, N9SH.*

EME QSO on 4 meters using JT65a. For certain, the proposal for a U.S. 4-meter allocation will be a topic of discussion at this year's CSVHFS conference, especially if Joel is in attendance.

Gene Harlan, WB9MMM, SK

The following excerpted obituary was written by Shari Harlan, N9SH, and appears in full in the Winter 2009 issue of *ATVQ* magazine. It is reprinted here courtesy of Bill Brown, WB8ELK, one of the new editors of *ATVQ*:

You could say that ham radio changed Gene Harlan's life. Gene always enjoyed every aspect of amateur radio. He attained his Advanced Class license so he could work slow-scan TV. One year I gave him a Sound Blaster for Christmas. The wheels in his head began to turn. He asked himself, "How can I use this with slow scan?" He started programming and after a while, with some errors of course, he came out with his Slow Scan with the Sound Blaster program. With that he was ready to start Harlan Technologies, not really knowing if the program would sell. His first trip to Dayton, Ohio was with this program and he was very excited to be able to speak at the Slow Scan forum. This started a long series of trips to the Hamvention®.

Gene always wanted to do a magazine and thought that the combination of ham radio and computers would be a great concept. At that time *ATVQ* was not available, so we launched the magazine *Cyberham*. Also at the same time we acquired *OSCAR Satellite Report*. These two publications kept us busy for a while. *OSCAR* was losing subscribers, due to the internet, and *Cyberham* just could not get enough advertising to keep it going. Just about the time we were ending *Cyberham*, Henry Ruh, KB9FO, called to ask Gene if he wanted *ATVQ*. After some discussion we decided to take it over. Gene's first issue was the Summer 1997 issue. Thus began a love affair with ATV. Gene liked every aspect of amateur radio, but this mode fast became his passion.

The magazine was a great joy to Gene. He always enjoyed getting the articles from the different writers and then laying out the magazine. He had plenty of articles and fillers thanks to all the ATV guys on the internet. He really liked to get that first box of magazines so he could open it and see the finished product. The advertisers were very loyal, as were the stores that carried the magazine.

Then came January 3, 2008, the day our lives were changed again. This was the day that Gene received the diagnosis of ALS. Never in a million years did we believe that the disease would move so rapidly. Gene tried to keep going as usual as the disease took its toll on his body. We made the trip to Dayton in 2008, but it was very hard. He could still walk with a walker, but Hamvention® would have been too much, so he rode around on a scooter. As the disease affected his right side it became too dangerous for him to drive. He began working at home for Arachnid by the end of June. We ordered his power wheelchair that month and by August he could no longer walk. We set up his "office" in the kitchen, where he was able to have his laptop.

He was able to continue e-mailing his friends and get articles for the Fall 2008 issue of *ATVQ*. I knew that the issue would be his last.

I am glad that Bill Brown, WB8ELK, and Mike Collis, WA6SVT, have stepped forward to take over where Gene left off. I am very proud of what the publication has become and proud of Gene for the job he did as publisher.

Gene died at 6 AM on November 26, 2008, eleven months after his diagnosis. His death has left a huge hole in the amateur radio community and he will be missed by everyone.

As Shari mentions above, Bill Brown and Mike Collis have taken over running *ATVQ*. Bill will continue to be a columnist for *CQ VHF* magazine, and occasionally each magazine will reprint articles from the other. Our deepest condolences go to Shari in her loss of Gene, and our best wishes go to Bill and Mike in their efforts to continue Gene's legacy.

Other Silent Keys

I regret to report the following other silent keys: **Gary Gompf, W7FG**, of Bartlesville, Oklahoma, and **Jim Smith, VK9NS**, of Norfolk Island. Gary, the owner of Vintage Manuals for many years, had a heart attack on the way from Bartlesville to Texas on January 22, 2009. Jim passed away in his home on Norfolk Island on February 10, 2009. (For more on VK9NS, see the DX column elsewhere in this issue.)

A New 2-Meter SSB Net

The following is from Dan Evans, K9ZF: Announcing a new 2-meter SSB Net. Operational since February 12, 2009, this net is on the air beginning at 7 PM ET on 144.250 MHz. The net control is Dan. The purpose of the net is:

1. To increase 2-meter SSB activity in the southern Indiana/northern Kentucky area, and beyond.
2. To give area operators a chance to test their stations and their capabilities.
3. To give area SSB operators a chance to meet other active stations in the area.
4. Last, but not least, *to have fun.*

Dan will start the net looking north from EM78el. After gathering check-ins from the north he will move the beam east, then south, then west. Most active SSB stations will be using horizontal Yagis, but don't let this discourage you if all you have is a vertical. Please give it a try with what you have.

Dan states that he has a very small station in EM78el, just east of Charlestown, Indiana. He has 150 watts and 10 elements at 25 feet. With that station, he will be depending heavily on the other stations to help relay check-ins.

Current Contests

European Worldwide EME Contest 2009: Sponsored by DUBUS and REF. The EU WW EME contest is intended to encourage worldwide activity on moonbounce. Information for this contest is available at the following website: <http://www.marsport.org.uk/dubus/EUEMEcontest2009.pdf>.

Spring Sprints: These short-duration (usually four hours) VHF+ contests are held on various dates (for each band) during the months of April and May. Please check the following website for more information: <http://www.sysadnet.com/vhfsprintrules.htm>.

Conferences

Eastern VHF/UHF Conference: Their 35th annual conference will be hosted in Enfield, Connecticut, April 17–19, at the Crowne Plaza Hotel, 1 Bright Meadow Blvd. (off Rt. 5), Enfield, CT 06082 (860-741-2211). For more information,

check the website: <http://www.newsvhf.com/vhfconf.html>.

Southeastern VHF Society: The 13th annual conference will be hosted in Charlotte, North Carolina, April 24 and 25. For information on registering for the conference, check the society's website at <http://www.svhfs.org/>.

Calls for Papers

Calls for papers are issued in advance of forthcoming conferences either for presenters to be speakers, or for papers to be published in the conferences' *Proceedings*, or both. For more information, questions about format, media, hardcopy, e-mail, etc., please contact the person listed with the announcement. The following organization has announced a call for papers for its forthcoming conference:

Central States VHF Society Conference: Technical papers are solicited for the 43rd annual Central States VHF Society Conference to be held in Chicago, Illinois on July 23–26. Papers, presentations, and posters on all aspects of weak-signal VHF and above amateur radio are requested. You do not need to attend the conference, nor present your paper, to have it published in the *Proceedings*. Posters will be displayed during the conference.

Non-weak signal topics, such as FM, repeaters, packet radio, etc., generally are not considered acceptable. However, there are always exceptions. Please contact the folks below if you have any questions about the suitability of a topic. Strong editorial preference will be given to those papers that are written and formatted specifically for publication, rather than as visual presentation aids.

Deadline for submissions: For the *Proceedings* June 1; for presentations to be delivered at the conference June 29; and for notifying them that you will have a poster to be displayed at the conference June 29. Posters should be brought with you on July 23–24. Contact information: Kermit Carlson, W9XA, via e-mail: <w9xa@yahoo.com>; or snail mail 1150 McKee St., Batavia IL 60510.

Submissions can be made via the following: Electronic formats (preferred)—via e-mail; uploaded to a website for subsequent downloading; on media (3.5" floppy, CD, USB stick/thumb drive). For more information, please see the website: <http://www.csvhfs.org>.

Meteor Showers

The *Lyrids* meteor shower will be active during April 16–25. It is predicted to peak around 1100 UTC on April 22. This is a north-south shower, producing at its peak around 10–15 meteors per hour, with the possibility of upwards of 90 per hour.

A minor shower and its predicted peak is *n-Puppids* (peak on April 23, at 1600 UTC). Other April minor showers include the following and their possible radio peaks: April *Piscids*, April 20, at 0900 UTC; and *δ-Piscids*, April 24, at 0900 UTC.

For more information on the above meteor-shower predictions please see Tomas Hood, NW7US's Propagation column elsewhere in this issue and visit the International Meteor Organization's website: <http://www.imo.net>.

And Finally . . .

That's a wrap for another column. For more in-depth coverage of the wonderful world of the VHF-plus frequencies, please look into a subscription to *CQ VHF* magazine. There are more than a dozen regular columns, plus features for almost any niche in the hobby.

Again, thank you very much for supporting this, your column. I look forward to seeing many of you in the near future. Until then . . .

73 de Joe, N6CL

awards

BY TED MELINOSKY,* K1BV

County Hunting and eQSL

In mid-January, *CQ* Editor Rich Moseson, W2VU, announced that *CQ* will accept for all of its awards contact confirmations made on the eQSL.cc electronic confirmation system. The first USA-CA award using these credits was issued on January 23rd to Donald R. Hinte, KA5EYH, whose application contained 480 eQSL confirmations and 20 traditional paper QSLs.

At present, eQSL confirmations are principally useful for fixed stations, and not mobiles, which has caused a certain amount of disappointment. We have been in contact with eQSL personnel responsible for programming, have outlined the issues involved, and await a resolution. Of course, this limitation does not affect the other CQ awards such as WAZ, WPX, and CQ DX, which rely on contacts with fixed stations.

All of the *CQ* awards program rules will have to be modified in order to accommodate this change. If you will be using eQSL confirmations in future USA-CA applications, you should log onto eQSL, choose USACA from the awards listing, and download the file that eQSL will make available to you. This file will contain all the contacts that the system thinks are valid for this award. The first files we reviewed showed errors that listed the county name as "USA," or "United States," or other invalid data. (Someone was not reading instructions.) Using a spreadsheet program (EXCEL or QUATTRO), you should delete all the lines that contain bad data. Print a copy of this listing, indicating which counties will be counted towards your certificate or endorsement. Most applications will include a mixture of confirmations from traditional QSLs and eQSL. You are still required to submit a complete list of counties being submitted, and this list should clearly show which contacts are from eQSL. I suggest a column with an "E" or "EQSL" header for these.

While there are limitations and problems, we're only beginning in this new era of electronic confirmations. Remember that eQSL is totally voluntary and that there will be a period of getting used to this change. When USA-CA began in the early 1960s, home computers did not exist. Today, ham radio and computer technology are merging and some of us old-timers sometimes wonder where this will lead.

Russian Robinson Club Awards

Probably the largest awards-enthusiast group in Russia is the Russian Robinson Club. Named after the famed fictional character Robinson Crusoe, the club promotes a very interesting collection of awards covering popular geographical and topical themes of interest to the awards community. I chose five of the most interesting for this column, but a visit to the club's website will make good reading and present you with further challenges.

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>

USA-CA Special Honor Roll

Michael Saccento, WA2DWP
USA-CA All Counties #1179
January 8, 2009

Billy H. Marshall, KD5YUK
USA-CA All Counties #1180
January 15, 2009

USA-CA Honor Roll

500

KM5W	3453
JT1BV	3454
KD5YUK	3455
KA5EYH	3456
7K3QPL	3457

1000

KM5W	1771
KD5YUK	2772

1500

KM5W	1487
WA2DWP	1488
KD5YUK	1489

2000

KM5W	1376
WA2DWP	1377
KD5YUK	1378

2500

KM5W	1294
WA2DWP	1295
KD5YUK	1296

3000

KM5W	1205
WA2DWP	1206
KD5YUK	1207

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is $6.00. For nonsubscribers it is $12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for $2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Melinosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.

General Requirements: Repeat QSOs/SWL contacts with the same "reference" are not allowed. There are no band/mode/time restrictions unless specified in the rules for the specific award. All QSOs/SWL contacts must be made from the same DXCC entity. When copies or scans of the cards are required, the award manager reserves the right to ask you to send any specific card for inspection. Please send your application as registered letter if it is mailed to Russia.

These are the award managers as referenced with the individual awards:

RU3GN, Victor Rochev, 398006, Lipetsk, P.O. Box 59, Russia; e-mail: <cjirb@yandex.ru>.

RA1QY, Alexey Morozov, P.O. Box 24, Cherepovets 162611, Russia; e-mail: <ra1qy@tchercom.ru>.

RZ3EC, Eugene Shelkanovtcev, P.O. Box 70, Orel 302028, Russia.

RN1CW, Petushkovu Andrey, P.O. Box 340, Sosnovy Bor, Leningrad Region, 188540 Russia; e-mail: <rn1cw@mail.ru>.

Internet site: <http://www.robinsons.ru/>.

Russian Baltica Award. The Russian Baltica Award is issued to any amateur radio operator or SWL who can provide confirmation of contacts with (or reports from) Russia's Baltic Sea Islands. Islands and groups of islands qualifying for the award are listed on the club's

The Russian Baltica Award offered by the Russian Robinson Club.

website. There are three classes listed with the corresponding number of islands needed:

Class 1: Europeans 15; Russians 12; all others 9.

Class 2: Europeans 11; Russians 9, all others 7.

Class 3: Europeans 8; Russians 6; all others 5.

The application must be based on the received QSL cards and be signed by two licensed amateurs verifying that QSL cards for all contacts as listed have been seen. The RBA manager reserves the right to request any specific cards to satisfy any doubt whatsoever. The application should be sent to RN1CW.

Certificate fees: Russians 100 rubles; CIS countries $US6; all others $US8.

Russian Lighthouse Award. Issued to any ham radio operator or SWL for QSOs with (or reports from) amateur radio stations operating from Russia's lighthouses. See the website for a complete list of valid lighthouses. A separate award is offered to stations who activate lighthouses. There are three classes of the award:

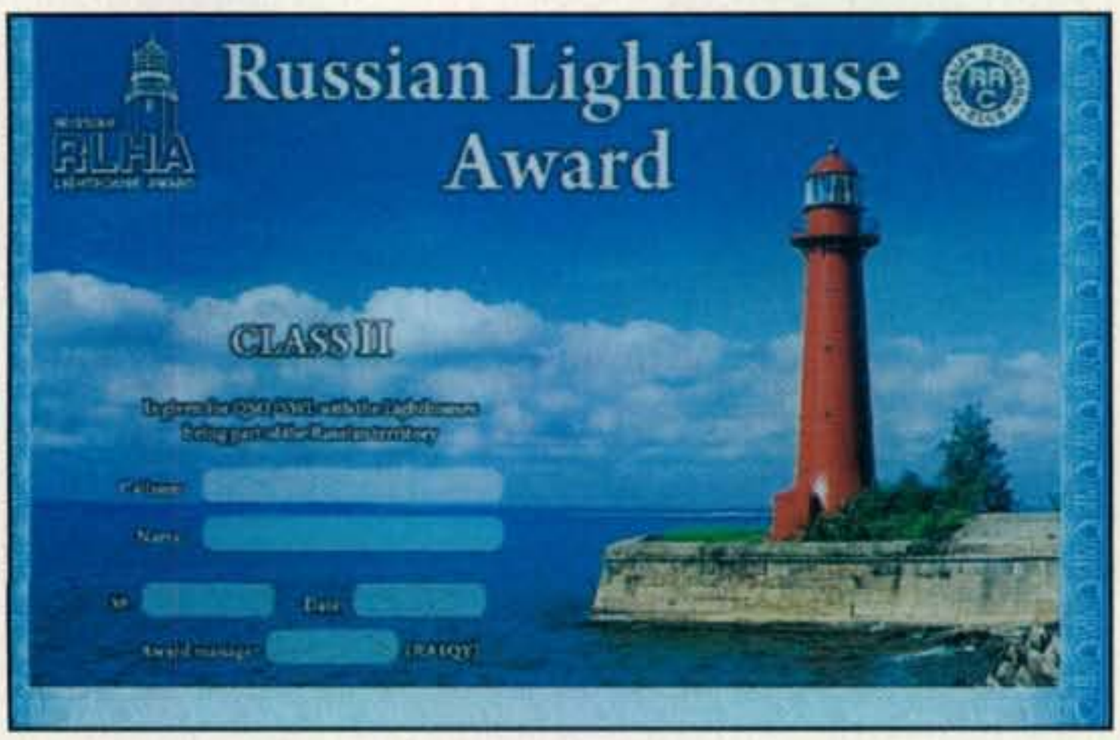
Class III: 10 lighthouses

Class II: 20 lighthouses

Class I: 30 lighthouses

RLHA Honor Roll: 50 lighthouses

RLHA Trophy: Work 75% of the total number of listed lighthouses.



The Russian Lighthouse Award is available for contacting or activating valid lighthouses in Russia.

Phillip L. Smith, AA9ZZ
USA-CA All Counties #1175, December 6, 2008

Phillip, AA9ZZ (left), USA-CA All Counties #1175, shown here with Jay, AA9KH.

I have been licensed since 1962. My previous calls were WN9CNC, WA9CNC, and KQ9O. I have enjoyed many aspects of ham radio. I was a DXer and QRQ CW op for many years. One afternoon, however, I was tuning the bands and heard a very strong signal; it almost had to be a local. I listened closely and heard Jay, AA9KH/M. I had a quick signal exchange with him and continued to listen as he gathered small pile-ups in different area counties. I e-mailed Jay later in Carroll County, Indiana for an eyeball QSO and to make the contact for my last county.

I have found county hunting to be a community where everyone helps each other and wants others to succeed, something quite different from the DX pile-ups. My group effort included help from AA9KH in getting me started and finishing. Others include WØQE, whose knowledge of antennas and all things ham radio helped me start operating mobile; N9JF, whose words of encouragement helped keep me going; N4CD, who gave me over 450 counties; N5UZW, whose wit and abilities help keep the 40-meter net going; WØGXQ, who served as an example of how one should operate and act; KZ2P, because when he is running the net more mobiles work more stations than with any other net control; and N9QEI and W9DP who both pushed me and helped me finish.

I know there are more out there who helped and in fear of leaving someone out, I am reluctant to list any. However, these are outstanding individuals and I feel I need to give them credit. Without the help of all these friends and more, including my wife Linda, who put up with my addiction for the last four years, I would not have been able to complete my goal of working all 3077 counties. County hunting is a great part of ham radio and is full of good people to work with. I am fortunate to have found AA9KH in his travels through my area.

When I first started, the thought of working all counties seemed monumental. I soon realized that this was one part of the hobby in which I didn't need a three-element 80-meter beam. I didn't need a 2-KW amp and the latest multi-thousand-dollar triple receiver rig with three bells and five whistles you need to really compete with the top DXers. All the mobile is using is 100 watts and a short antenna attached to the car. I found that with just normal wire antennas or a multi-band no-radial vertical, no amp, and a 15-year-old rig I could work them all.

When I am not giving out counties or hunting them, I am a Professor of Broadcasting and manage the radio stations for Vincennes University, a state college in southern Indiana. My home station consists of a Ten-Tec Omni VI and a 40–10 vertical. On the road I have an ICOM 706 and screwdriver antenna and run from a Chevy S-10 pick-up. My next goal is to do a little more traveling with my wife and give out counties for a while.—*73, AA9ZZ*

The Russian Robinson Award is for QSOs/SWL contacts with stations operating on Russian islands.

Application requires photocopies of QSLs. You may also e-mail scans of the QSL cards to the award manager. The manager is RA1QY for the certificate and RU3GN for the Honor Roll and trophy. Fees are the following:

Certificate: Russians 3 Euros; CIS 4 Euros; all others 7 Euros or 10 IRCs.

RRA Honor Roll: Russians $37; CIS $39; all others $42.

Russian Robinson Award. RRA is awarded for QSOs/SWL contacts with stations operating on Russian islands:

3rd Class: 20 QSOs with at least 10 different island references.

2nd class: 50 QSOs with at least 25 different island references.

1st class: 100 QSOs with at least 50 different island references.

RRA Honor Roll: 150 QSOs with at least 100 different island references.

RRA Trophy: 75% of the current total of activated islands.

The original QSLs are required for the RRA Honor Roll and RRA Trophy. Photocopies or scans of the QSL cards are accepted. The verification of QSLs can be made by local checkpoint. Apply to RZ3EC for the certificate and to RU3GN for the trophy. The following fees apply:

Certificate: Russian residents 100 rubles; CIS countries 120 rubles; all others 7 Euros or 10 IRCs. Endorsements: 1 IRC.

RRA Honor Roll Plaque: Russians 1100 rubles; CIS countries 1200 rubles; all others 37 Euros.

RRA Trophy: Russians 1300 rubles; CIS countries 1400 rubles; all others 42 Euros.

Franz Josef Land Award. "FJL" is awarded for QSOs/SWL contacts with radio stations located on Franz Josef Land in the Russian Arctic as follows:

3rd class: 5 QSO.

2nd class: 10 QSOs

1st class: 15 QSOs

Honor Roll: more than 15 QSOs

Repeat QSOs/SWL contacts are allowed on different bands. The application must be based on the received QSL cards photocopies of which must be sent along with the application. You may also email scans of the QSL cards to award manager. When applying for the Honor Roll Plaque, the original QSL cards have to be sent along with an application. Apply to RU3GN. Fees are as follows:

Certificate: Russians 100 rubles; CIS 120 rubles; all others 7 Euros or 10 IRCs.

FJL Honor Roll Plaque: Russians 1100 rubles; CIS 1200 rubles; all others 37 Euros.

Russian Antarctic Bases Award. The RABA award is given for QSOs/SWL contacts with radio stations situated on the territory of the ex-USSR and Russian Antarctic Bases as follows:

3rd class: 3 QSOs/1 Base

2nd class: 5 QSOs/2 Bases

1st class: 7 QSOs/3 Bases

Honor Roll: more than 10 QSO/3 Bases

A complete list of valid bases can be found on the club's website. Only QSOs with Soviet/Russian Antarctic Bases count for the award. The application must be based on the received QSL cards, photocopies of which must be sent along with the application. You may also e-mail scans of the QSL cards to the award manager. When applying for the Honor Roll Plaque, the original QSL cards have to be sent along with an application. Applications for awards should be sent to RU3GN. Fees are as follows:

Certificate: Russians 100 rubles, CIS 120 rubles, all others 7 Euros or 10 IRCs.

RABA Honor Roll Plaque: Russians 1100 rubles; CIS 1200 rubles; all others 37 Euros.

North Korea's All Provinces Award

Here's an award that will challenge even the best DX chaser. Famed raconteur, wine taster, and radio SWL Larson E. Rapp, WPEX-465, found this one on an obscure website which he asked to remain confidential.

Contact each of the 9 provinces and 4 municipalities of the Democratic Peoples Republic of Korea on or after April 1, 1950. Endorsements are available for All CW, SSB, or Digital Modes. SWL OK. Send copies of each of the 13 required cards plus a fee of 550 North Korean won (KPW), $US5, or 3 Euros to: Office of the Great and Heavenly Leader, Information Division, P.O. Box 355-A, Pyongyang, Democratic Peoples Republic of Korea.

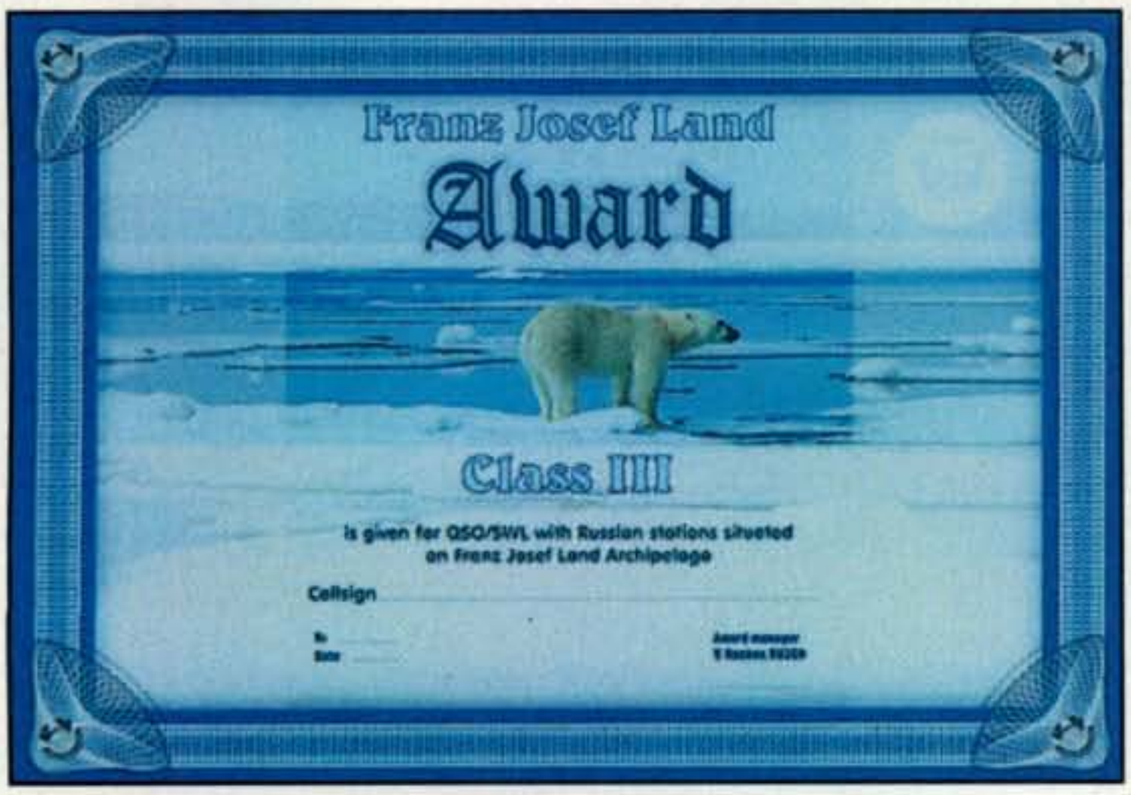
The 9 provinces and 4 municipalities for the award are:

Provinces: Chagang, North Hamgyong, South Hamgyong, North Hwanghae, South Hwanghae, Kangwon, North P'yongan, South P'yongan, Yanggang.

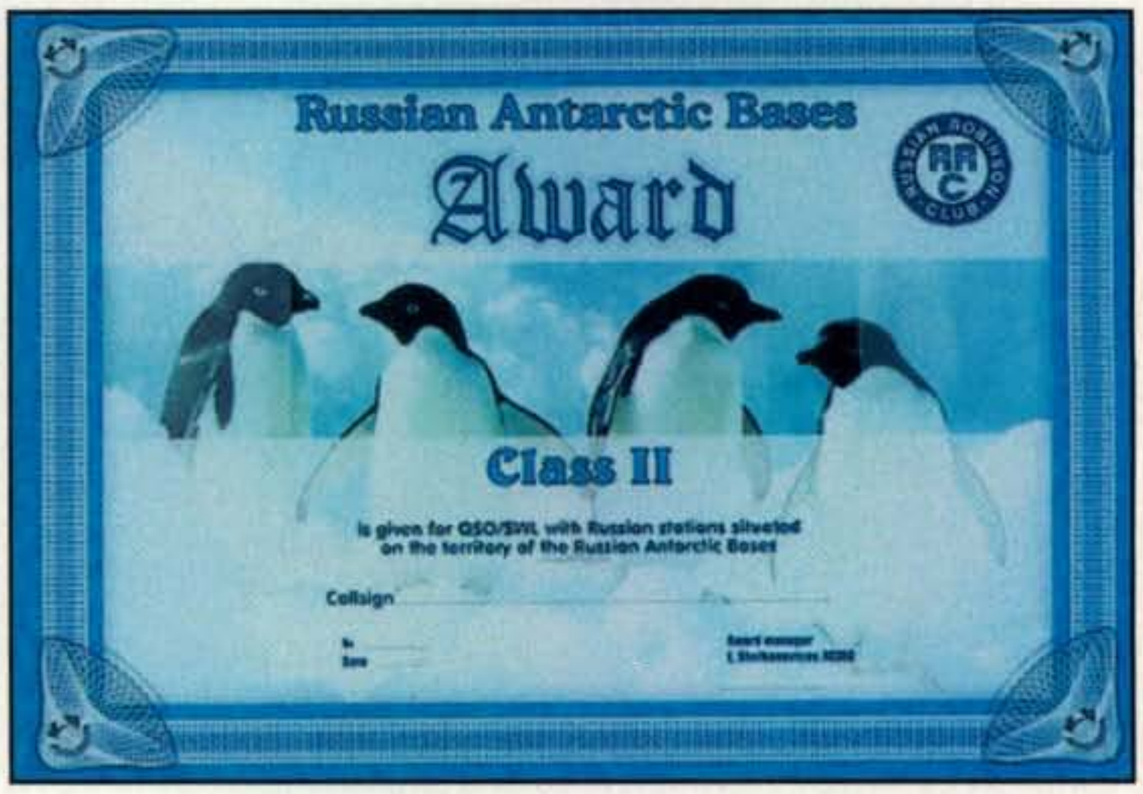
Municipalities: Kaesong, Najin-Sonbong, Namp'o, Pyongyang.

We're always interested in hearing from clubs, special interest groups, or individuals who sponsor awards. Please contact me at the e-mail address shown on the first page of this column.

73, Ted, K1BV



To earn the Franz Josef Land Award make contacts with (hear) stations in this part of the Russian Arctic.



The Russian Antarctic Bases Award is available for QSOs/SWL contacts with stations situated on the territory of the ex-USSR and Russian Antarctic Bases.

dx

BY CARL SMITH,* N4AA

VK9NS (SK), DXpeditions of Note, and Upcoming Events

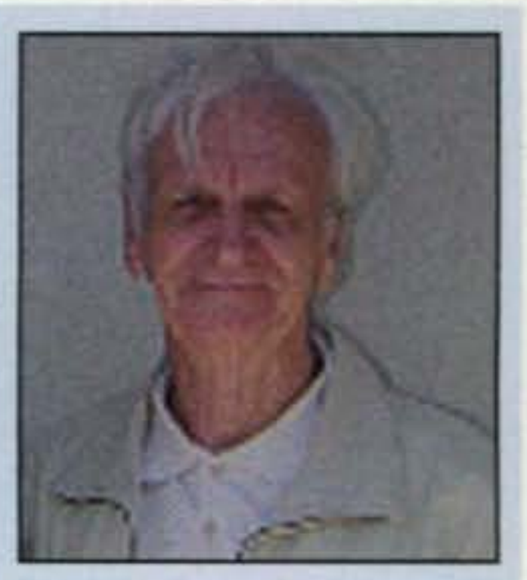
In mid-February as I write this, I sit here patiently awaiting the start of the K5D Desecheo DXpedition. I will have a rather long wait for a contact, though, since they won't be on the air for at least another 24 hours or so, and then, as usual, the bands will be bedlam for at least two or three days. By that time the pile-ups will have settled down to a dull roar and I may be able to get my contacts on 160, 17, 12 meters, and maybe at least one on RTTY. There isn't much point in my adding to the QRM on other bands, as I have that one confirmed on those from years past. Therefore, I'll just wait my turn and work K5D on the bands/modes where I need a confirmation.

Jim Smith, VK9NS, SK

This year started out to not be very kind to amateur radio. A number of Silent Keys have been reported in the past month or so. One announced on February 10th was Jim Smith, VK9NS. Not many DXers will fail to recognize that call. Jim had been on the air from Norfolk Island for decades . Then, too, he had been on the air from a lot of other places over the years as well: Macquarie, Bhutan, Temotu, and so many others I can't remember all of them. Jim recently published a book of his life. It is entitled *The Old Timer* and covers "60 years in the hobby of Amateur Radio." Jim wrote about everything from his early life in the UK right up to his life on Norfolk Island for the past 27 years. If you have not read it, it's well worth your time.

Many tributes to Jim passed over the internet in the days following the announcement. One came from our own Gail Sheehan, K2RED, at *CQ* and I offer it here:

> It was a sad day to hear of the passing of Jim Smith, VK9NS. I had the honor of meeting him in 2004 at the Dayton Hamvention®, and for a quiet luncheon courtesy of Steve, WB2ZHB (now N2AJ), and his wife Margaret, who hosted Jim at their home for a few days after the Hamvention® before his returning home.
>
> We kept in touch a bit in the years following, as he was intent on publishing a book about his ham radio life, *The Old Timer*. I am glad he was able to do that, a history of one of the DX community's icons. He also was a devotee of the history of ham radio, tube gear, including Collins, another venue through which we shared a common interest.
>
> To Kirsti, I wish her the knowledge that they were a team known throughout the world of ham radio and send her my deep condolences, as do many of the family of ham radio operators.
>
> May Jim rest in peace. If there is a DX passage from where he is and where we are, we will still hear him on the airwaves. Listen carefully . . . he has touched so many of our lives.



Famous DXer Jim Smith, VK9NS, SK.

N4AA to go on a DXpedition

I am pleased to tell my readers that for the first time in my 55 years of hamming, I will be going on a DXpedition. No, it's not Scarborough Reef, nor is it Yemen, as much as I wish it could be. I will be going to the Bahamas. My good friend Joe Pater, W8GEX, has been after me for a long time to go with him—somewhere. Conditions just never seemed to be right for me to make the commitment. Well, when Joe called and offered me the chance to go to the Bahamas with him; his wife Janet, W8CAA; their daughter Kelli, W8GEU; Joe Blackwell, AA4NN; and his wife Margarett, I was taken aback.

The timing was good. I will turn 69 on April 7th, and as I told my wife, "I may never have another chance to do this." Well, she wasn't too thrilled about it, mostly since she couldn't go, but finally she relented. Thus, from April 17th to the 24th I will be on the air from the Bahamas. Joe Pater has a call down there, C6DX, so we'll be using that call, but I also asked for one of my own. Nothing has been heard yet, so I may just have to use C6/N4AA for some contacts in my own log. You won't have any trouble finding me on CW; as for SSB it may be more difficult, but I'll try to do some of that, too.

Midway Island, KH4

Midway has not seen much activity in recent years. It is under the control of the US Fish and Wildlife Service, and it limits travel to the island. However, in early February an announcement came from USFWS. The following are pertinent portions of that announcement:

> The US Fish and Wildlife Service (USFWS) announced on Monday, January 26 that they would once again allow Amateur Radio operators the opportunity to operate from Midway Atoll. This the first time that USFWS has allowed amateurs to operate from the

*P.O. Box DX, Leicester, NC 28748-0249
e-mail: <n4aa@cq-amateur-radio.com>

The WPX Program

CW

3214 .....HA7LW

SSB

3030.....WA5UA
3031.....YO6HSU
3032 .....VK7ZE

Mixed

2025.....DK1AX
2026 .....K7UA
2027 .....EA4ZK
2028 .....K7EG
2029.....YO6HSU
2030.....PA8F
2031 .....KN3A
2032.....AA2NA
2033.....WD9DZV
2034.....W5VGR
2035 .....OE1HMC

Digital

25 .....WD9DZV

CW: 1200 N6QQ. 2650 S51NR.
SSB: 350 KJ4FSU. 400 WA5UA. 850 W8HGH. 1700 N6QQ.
Mixed: 450 YO6HSU, OE1HMC. 650 K7EG, PA8F. 1100 K7UA. 1350 WD9DZV. 2200 N6QQ. 2700 7K3QPL.
Digital: 500 WD9DZV, 900 N6QQ.

160 Meters: N9DI
80 Meters: N9DI
Africa: K5WAF, K9UQN
Award of Excellence: K5WAF
160 Meter Bar: K5WAF

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, IØJX, WA1JMP, KØJN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SMØDJZ, DK5AD, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SMØAJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, KBØG, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, 9A2NA, W4UW, NXØI, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWB, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DEØDAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, WX3N, HB9AUT, KC6X, N6IBF, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, WØULU, K9XR, JAØSU, I5ZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, WZ1R, CT4UW, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, OE1EMN, W9IL, I7PXV, S53EO, DF7GK, S57J, EA5BM, DL1EY, DJ1YH, KUØA, VE2UW, 9A9R, UAØFZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RAØFU, CT4NH, EA7TV, W9IAL, LY3BA, K1NU, W1TE, UA3AP, EA5AT, OK1DWC, KX1A, IZ5BAM, K4LQ, KØKG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, KØDEQ, DKØPM, SV1EOS, UAØFAI, N4GG, UA4RZ, 7K3QPL, EW1CQ., UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK.

160 Meter Endorsements: N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SMØDJZ, DK5AD, W3ARK, LA7JO, SMØAJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, KBØG, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, W4UW, NXØI, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JAØSU, I5ZJK, I2EOW, KS4S, KA1CLV, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KUØA, VR2UW, UAØFZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RAØFU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, IZ5BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, KØDEQ, DKØPM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, K2VV.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage if airmail desired) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will not accept prefixes/calls which have been confirmed by computer-generated electronic means.

*Please Note: The price of the bars for the Award of Excellence are $6.50 each.

The WAZ Program

40 Meter CW

266 .....W5QP

All Band WAZ

Mixed

8540.....LA4EI

CW

554.....JT1BH

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for all *CQ* awards is $6.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

5 Band WAZ

As of February 1, 2009, 762 stations have attained the 200 zone level and 1620 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:

None

The top contenders for 5 Band WAZ (zones needed, 80 or 40 meters):

S51U, 199 (27)
N4WW, 199 (26)
W4LI, 199 (26)
K7UR, 199 (34)
W2YY, 199 (26)
IK8BQE, 199 (31)
JA2IVK, 199 (34 on 40m)
IK1AOD, 199 (1)
WØCP, 199 (18)
GM3YOR, 199 (31)
VO1FB, 199 (19)
KZ4V, 199 (26)
W6DN, 199 (17)
W3NO, 199 (26)
RU3FM, 199 (1)
N3UN, 199 (18)
W1JZ, 199 (24)
W1FZ, 199 (26)
SM7BIP, 199 (31)
N4NX, 199 (26)
N4MM, 199 (26)
EA7GF, 199 (1)
N6HR/7, 199 (37)
JA5IU, 199 (2)
RU3DX, 199 (6)
N4XR, 199 (27)
HA5AGS, 199 (1)
VE3XN, 199 (26)
YU7GMN, 199 (10)
K7LJ, 199 (37)
RA6AX, 199 (6 on 10m)
RX4HZ, 199 (13)
KØGM, 199 (17)
S58Q, 199 (31)
WB9EEE, 199 (17)
KQØB, 199 (2 on 10)
K9OW, 199 (34 on 10)
EA5BCX, 198 (27, 39)
G3KDB, 198 (1, 12)
JA1DM, 198 (2, 40)
9A5I, 198 (1, 16)
K4CN, 198 (23, 26)
G3KMQ, 198 (1, 27)
N2QT, 198 (23, 24)
OK1DWC, 198 (6, 31)
W4UM, 198 (18, 23)
US7MM,198 (2, 6)
K2TK, 198 (23, 24)
K3JGJ, 198 (24, 26)
W4DC, 198 (24, 26)
F5NBU, 198 (19, 31)
OE2LCM, 198 (1, 31)
HA1RW, 198 (1, 31)
WK3N, 198 (23, 24)
W9XY, 198 (22, 26)
KZ2I, 198 (24, 26)
W7VJ, 198 (34, 37)
K9MIE, 198 (18, 21)
W9RN, 198 (26, 19on40)
W5CWQ,198 (17, 18)
I5KKW, 198 (31&23 on 20)
JT1BV, 198 (4, 11)
IV3MUC, 198 (1&31 on 40)

The following have qualified for the basic 5 Band WAZ Award:

JT1BH (161 zones)

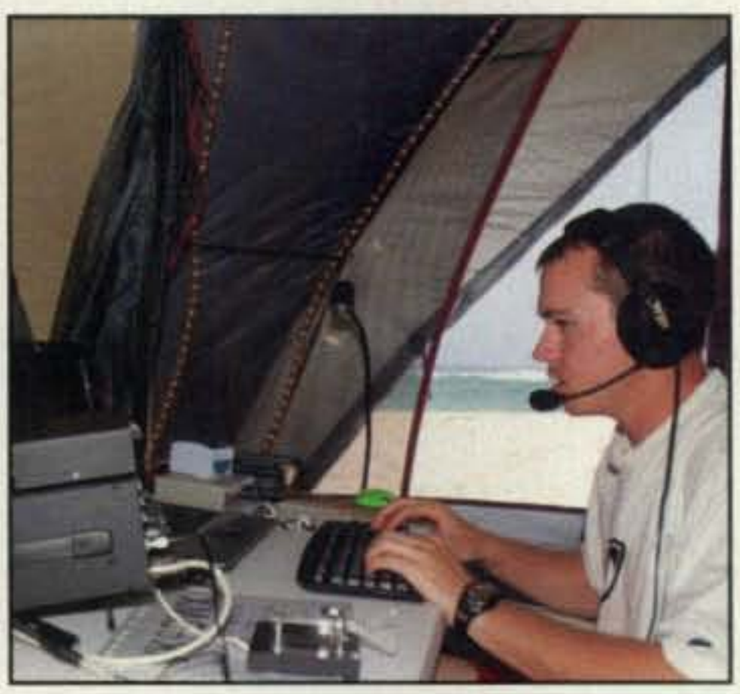
5 Band WAZ updates:

YU3AA (200 zones)

***Please note: Cost of the 5 Band WAZ Plaque is $100 shipped within the U.S.; $120 all foreign (sent airmail).**

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for the 5BWAZ award is $10.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $15.00 for nonsubscribers. An endorsement fee of $2.00 for subscribers and $5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

Rich, W4GKR, and his wife celebrated her birthday with a trip to Costa Rica. He took the Ten-Tec gear shown and left it for other hams who might stay at the hotel. (Photo courtesy of Rich, W4GKR)



Josh, W4WJF, operating from Willis Island as VK9DWX. Josh was one of two "young DXers" treated to a week on the island by the organizing team. (Photo courtesy of Josh Fisher, W4WJF)

wildlife refuge since 2002. . . . To ensure the safety of the wildlife on the Refuge, the USFWS said that Amateur Radio operations will be permitted for two weeks only, from October 5–19, 2009. "Radio operation will be allowed only within a designated area on the north side of Sand Island and the use of portable generators will not be permitted," said Midway Atoll Refuge Manager Matt D. Brown. "There is 120 V power available at the operation site."

"Although determined to be a wildlife-compatible activity," Brown said, "this [Amateur Radio] opportunity is being conducted on a trial basis." Brown has the authority to discontinue the activity at any time, based on wildlife protection and conservation goals.

Since there are minimal facilities on the atoll, Brown said that lodging availability is very limited and will be on a first-come, first-served basis. "All Amateur Radio operators on Midway must secure lodging reservations, as camping is not permitted," Brown said.

No sooner had the announcement been released when I got word that all of the available "slots" for the October time period had been filled. As of this writing, no further information is available on who the people are who "filled"

Elvira, IV3FSG/J20SE, from Djibouti. Lenny, K5OVC, worked Elvira to make 316 YL DXCC countries. YL DXCC Honor Roll, Lenny? (Photo courtesy of Lenny, K5OVC)

the slots or what plans they might have. When I hear more, I will let you know.

More DXpeditions

We are still hoping that our friends with the French military can arrange the long-delayed trip to Glorioso. They have been working on it for at least two or three years, and we continue to wish them well as they patiently wait for all the details to fall into place.

ZS8T from Marion Island finally showed up on the air. Petrus made some contacts, but has not been too active. The online log has been updated with the contacts he made and the QSL cards were printed and ready for the requests.

A major operation from Lord Howe Island (VK9LA) is scheduled to take place March 23 to April 3. Bill, VK4FW, is leading the group, and they may still

CQ DX Awards Program

SSB

2521.....5DØIPY

SSB Endorsements

330.....DL3DXX/339
330.....VE1YX/339
330.....VE2GHZ/338
330.....W4UW/337
330.....W2CC/336
330.....F6HMJ/333
320.....XE1RBV/321
310.....KU4BP/310
300.....XE1MW/309

CW Endorsements

330.....F3TH/338
330.....DL3DXX/338
330.....W4UW/331
320.....F6HMJ/328

The basic award fee for subscribers to *CQ* is $6. For non-subscribers, it is $12. In order to qualify for the reduced subscriber rate, please enclose your latest *CQ* mailing label with your application. Endorsement stickers are $1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Currently we recognize 338 active countries. Please make all checks payable to the award manager.

CQ DX Honor Roll

The CQ DX Honor Roll recognizes those DXers who have submitted proof of confirmation with 275 or more ACTIVE countries. With few exceptions, the ARRL DXCC Countries List is used as the country standard. The CQ DX Award currently recognizes 339 countries. Honor Roll listing is automatic when an application is received and approved for 275 or more active countries. Deleted countries do not count and all totals are adjusted as deletions occur. To remain on the CQ DX Honor Roll, annual updates are required. All updates must be accompanied by an SASE if confirmation of total is required. The fee for endorsement stickers is $1.00 each plus SASE. Please make checks payable to the awards manager, Billy F. Williams. All updates should be mailed to P.O. Box 9673, Jacksonville, FL 32208.

CW

NØFW.....338
WB4UBD.....338
K3UA.....338
K9MM.....338
W4OEL.....338
EA2IA.....338
OK1MP.....338
N7FU.....338
N4JF.....338
K4IQJ.....338
K2FL.....338
K4MQG.....338
W8XD.....338
K2TQC.....338
N7RO.....338
F3TH.....338
DL3DXX.....338
K9BWQ.....337
N4MM.....337
W7OM.....337
W7CNL.....337
WØJLC.....337
K4CN.....337
VE3XN.....337
K4JLD.....337
N5ZM.....337
N4AH.....337
K2OWE.....336
N5FG.....336
K9OW.....336
K8LJG.....336
N4CH.....336
K9IW.....336
W4MPY.....336
K5UO.....336
K7LAY.....336
N6AW.....335
KA7T.....336
PY2YP.....335
HB9DDZ.....335
K3JGJ.....335
K2JLA.....334
F3AT.....334
WA4IUM.....334
PA5PQ.....334
K2ENT.....334
NC9T.....334
W2VJN.....334
G4BWP.....334
W1JR.....334
I4LCK.....334
YU1AB.....334
G3KMQ.....334
K6LEB.....333
K5RT.....332
WA8DXA.....331
K8SIX.....331
W4UW.....331
W7IIT.....330
K1HDO.....329
K7JS.....329
W6OUL.....329
N7WO.....329
KE3A.....329
K6CU.....329
KA3S.....328
K1FK.....328
IKØADY.....328
F6HMJ.....328
SM5HV/HK7...327
W4LI.....325
YV5ANT.....324
KF8UN.....323
IKØTUG.....321
W3II.....320
WG5G/QRPp..320
F5OIU.....320
PY4WS.....320
OZ5UR.....320
CT1YH.....320
W9IL.....319
YT1AT.....317
RA1AOB.....317
EA3ALV.....316
W6YQ.....316
WA4DOU.....316
UA9SG.....310
ON4CAS.....304
WD9DZV.....304
N1KC.....302
VE7KDU.....300
KT2C.....300
KØKG.....300
G3DPX.....284
N2VW.....283
XE1MD.....280
W2JLK.....277
HA5LQ.....277

SSB

K4JLD.....339
EA2IA.....339
XE1AE.....339
IN3DEI.....339
NØFW.....339
DU9RG.....339
K3UA.....339
K6YRA.....339
IK1GPG.....339
DJ9ZB.....339
N7BK.....339
4Z4DX.....339
WB4UBD.....339
OZ3SK.....339
OK1MP.....339
K2TQC.....339
K4MZU.....339
N4JF.....339
W4WX.....339
K5OVC.....339
K4MQG.....339
N4MM.....339
K9MM.....339
OZ5EV.....339
VE2PJ.....339
K3JGJ.....339
N5ZM.....339
N7RO.....339
KE5K.....339
IØZV.....339
OE2EGL.....339
W4ABW.....339
DL3DXX.....339
I8KCI.....339
VE1YX.....339
K5TVC.....338
KZ2P.....338
W6BCQ.....338
W6EUF.....338
N4CH.....338
W7OM.....338
K9BWQ.....338
W8AXI.....338
W9SS.....338
VK4LC.....338
K7LAY.....338
WS9V.....338
EA3BMT.....338
W6DPD.....338
K4CN.....338
VE3XN.....338
K9HQM.....338
K2FL.....338
K4IQJ.....338
VE2GHZ.....338
XE1L.....337
OE3WWB.....337
K9OW.....337
N5FG.....337
PY2YP.....337
N6AW.....337
AA4S.....337
IK8CNT.....337
EA4DO.....337
CT3BM.....337
YU1AB.....337
K8LJG.....337
W3AZD.....337
KØKG.....337
W2FKF.....337
W7FP.....337
IKØAZG.....337
YU3AA.....337
W7BJN.....337
AB4IQ.....337
W4UNP.....337
W4UW.....337
K8SIX.....336
KE3A.....336
K9IW.....336
N2VW.....336
W2CC.....336
K2JLA.....335
OE7SEL.....335
ZL3NS.....335
K7JS.....335
PY4OY.....335
PA5PQ.....335
XE1VIC.....335
K2ENT.....335
IK6GPZ.....335
NC9T.....335
K1UO.....335
I8LEL.....335
DU1KT.....335
CT1EEB.....335
W1JR.....335
I4LCK.....335
ZL1HY.....335
K5UO.....335
WDØBNC.....334
WØYDB.....334
W4NKI.....334
WA4IUM.....334
K5RT.....334
W6SHY.....334
W5RUK.....334
EA3KB.....334
CT3DL.....334
VE7WJ.....334
WA4WTG.....334
ZL1BOQ.....334
N7WR.....334
K3LC.....334
HB9DDZ.....334
4N7ZZ.....333
W2JZK.....333
K8LJG.....333
VE4ACY.....333
VE2WY.....333
K9PP.....333
EA3EQT.....333
YV1KZ.....333
W9IL.....333
F6HMJ.....333
YV1AJ.....332
KSØZ.....332
LU4DXU.....332
VE4ROY.....332
CT1EEN.....332
YV1JV.....331
N5ORT.....331
CT1AHU.....331
EA3JL.....331
K1HDO.....331
K7HG.....331
N5YY.....331
K3PT.....330
N1ALR.....330
CT1CFH.....329
EA1JG.....329
KF8UN.....328
K4DXA.....328
LU5DV.....328
SV3AQR.....328
XE1MD.....327
CP2DL.....327
NI5D.....327
YV4VN.....326
KD5ZD.....326
WR5Y.....325
KC4MJ.....325
PY2DBU.....325
YT1AT.....325
KE4SCY.....325
W4MPY.....325
K6GFJ.....324
W6WI.....323
EA3CYM.....323
WN9NBT.....322
W6OUL.....322
XE1RBV.....321
VE7SMP.....320
N1KC.....320
W5GZI.....320
WØROB.....318
LU3HBO.....317
WB4GMR.....317
N8SHZ.....316
XE2NLD.....315
IZ6CST.....314
W6NW.....314
EA3ALV.....313
W7GAX.....312
KA1LMR.....312
ON4CAS.....312
RA1AOB.....312
KD2GC.....311
RW9SG.....310
IØYKN.....310
KU4BP.....310
XE1MW.....309
AA1VX.....308
4Z5FL/M.....306
K7SAM.....305
I3ZSX.....304
K3BYV.....303
JR4NUN.....303
YV2FEQ.....303
W4PGC.....302
EA8AYV.....302
N2LM.....302
4X6DK.....301
N5WYR.....300
YC9WZJ.....300
K7ZM.....300
W4EJG.....295
K7ZM.....295
XE1MEX.....293
K1RB.....292
WD9DZV.....292
W5PVE.....288
AD7J.....287
HB9DQD.....286
VE7HAM.....285
N8LIQ.....284
AE9DX.....282
W5GT.....276
HSØ/EA4BKA..276
K9DXR.....275

RTTY

WB4UBD.....337
NI4H.....336
K2ENT.....333
K3UA.....332
N5FG.....331
N5ZM.....330
OK1MP.....328
G4BWP.....320
EA5FKI.....319
PA5PQ.....311
K4CN.....303
K8SIX.....300
W4EEU.....297

QSL Information

4XØWFF via 4Z5KJ
5H1DF via DL7DF
5N9NDP via IK5JAN (direct only)
5Z4/RW1AU via K5XK
9M2TI via EA4ATI
CF7GO via VA7GO
CS6A via CT1GFK
CT7IOV via CT2IOV
CU5T via CT1GFK
DS1AFL via HL5FXP
EA6AM via EA6AZ
ES5/5B4AHS via RA3AUU
GB5OBH via G4STH
HBØLL via DJ9ZB
HZ1AN via DJ9ZB
HZ1PS via IZ8CLM
IP9IPY via IT9YMM
IQ9SJ/P via IW9HPE
J2ØSE via IK3GES
J47XCF via SV7FSK
J88XF via G3TXF
JW1MFA via LA1MFA
PX8AA via PT2AA
PY1AA via PU1KGG
RK9AX via UA9APA
SNØKURA via SP5HEN
SN9ØSW via SP9PSJ
TM9FL via F5KFL

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>; <http://golist.net/>.)

be on the air when you receive this issue of *CQ* magazine.

DX Presentations at Dayton

I am pleased to announce that ICOM America and *The DX Magazine* will be presenting a number of DXpedition presentations at the ICOM booth at the Dayton Hamvention® in May. These will be "mini" presentations for your enjoyment, and we invite you to come by and visit with the people who were "there."

This will include at least some of the K5D Desecheo team; Dave Anderson, K4SV, with the TO5DX operation from St. Barthelemy; and I will present a short program on my trip to the Bahamas. We will also have Frosty, K5LBU, talking about his safaris to Africa; Ed, KA5FVU, on the K5S IOTA operation from East Ship Island; Yuri, N3QQ, on another IOTA operation, KL7DX, Chuginadak Island; and a few others we are still working on.

New Postage Rates

U.S. postage rates will be going up again. They are now on an annual increase schedule. For mail weighing one ounce or less, on May 11th First Class will go from 42 to 44 cents and post cards will go to 28 cents. Airmail rates will go up as well: mail to Canada from 72 to 74 cents; to Mexico from 72 to 79 cents; and to all other countries the incease will be from 94 to 98 cents. Canada and Mexico used to be the same rate, but even that will change with this increase. There is a silver lining to this dark cloud, though, and that is the "Forever Stamp" for First Class postage. You can still buy those for 42 cents and they will be valid "forever," regardless of what future rates may go to. If you can afford to buy them now, it will save you some money down the road.

There will be other activities as the year goes on, and I'll do my best to make you aware of them. Earlier I mentioned the Dayton Hamvention in May, and of course there are a number of other DX gatherings around the country. Indeed, in April the International DX Convention takes place in Visalia. Later on we have the WØ-DXCC Convention in Minnesota in July and the W9DXCC Convention in Chicago, and the SEDCO gathering at Pigeon Forge, Tennessee takes place in September. Lots of places to go, so make your plans early.

Until next time, enjoy the chase, and Have Fun! 73, Carl, N4AA

Contesting

BY JOHN DORR,* K1AR

Contesting for the "Normal Ham"

April's Contest Tip

Many of us know the feeling of listening to another station calling CQ, only to hear a rare multiplier answer him (or her). When this happens to you, try moving up slightly and calling a few quick CQs. You may be fortunate to have that rare multiplier simply tuning the band and you're the next station he finds. Many rare stations are just handing out points and have no interest in generating a pile-up or running guys. Taking this approach is a simple trick to snag a needed multiplier with little time or effort. You'll know in a minute or two whether or not the tactic paid off!

The title of this month's column may seem to be a bit of an oxymoron. After all, at least in contest circles, I'm not sure that very many of us fit into the category of "normal hams" (some would argue that this apply may apply to regular life as well!). Nevertheless, as contest aficionados, our interest in ham radio generally requires an above-average financial and personal time investment to reach the top of the heap.

It's not a secret that the cost of entry into ham radio in general and contesting in particular has grown dramatically over the past decade. When you consider the cost of transceivers, amplifiers, computers, towers, antennas, coax, peripherals, and all the rest, it can be imposing indeed. As I look at the situation today, I'm not sure I could afford to do it all over again. Of course, having 40 years of contesting under my belt helps, but we'll discuss that later in more detail.

Should we have been lobbying the government for a ham radio contesting line item on this past winter's U.S. Economic Stimulus Package? I know for sure we need a solar stimulus, but I digress. We all know what is required for the basic components of an average ham station. The list is outlined above. However, what does one need to consider for the big leagues of serious contesting? Well, clearly *multiple* towers are in the mix, not just one. Also, who could possibly be competitive in today's game with just a single transceiver and amplifier? And can you imagine winning contests with a single beams and not the usual "4-stack" on 10, 15, and 20 meters and a full-size 40-meter Yagi?

A great deal of what's being described so far is what many individuals use to strengthen their argument regarding the lack of new blood in contesting. When looking at today's world of contesting, the financial barrier to entry can be very high indeed. Do these pundits have a point or not? Let's consider the facts.

Have Things Really Changed?

When I think about my start in ham radio nearly 40 years ago, I vividly remember how expensive things were in my mind as a teenager. Would I have preferred one of those fancy Collins S-Lines? Of course! But what did I settle for? A simple (and inexpensive) Swan 270 Cygnet (bonus points this month to readers who actually remember or owned that radio). Also, the notion of affording a $500 SB-220 was completely out of reach. So, the reality is that I don't believe it was any easier for young hams to purchase a complete ham station in 1970 than they can in 2009. To be fair, however, there is one key difference from a contesting perspective: When I consider the equipment demands of just 20 years ago, I recall the fact that single operators, including myself, were able to win many contests with a single radio, an SB-220, and one tower that had single beams on each band. That is hardly a monster station by today's standards. Were I to use the same station in today's competitive climate, it's unlikely that the same winning results would take place.

Calendar of Events

All year	**CQ DX Marathon**
Mar. 21–22	BARTG HF RTTY Contest
Mar. 21–22	Russian DX Contest
Mar. 28–29	**CQ WW WPX SSB Contest**
Apr. 4–5	QCWA QSO Party
Apr. 4–5	SP DX Contest
Apr. 4–5	EA RTTY Contest
Apr. 4–5	ARCI QSO Party
Apr. 4–5	Missouri QSO Party
Apr. 11–12	JIDX CW Contest
Apr. 11–12	Georgia QSO Party
Apr. 18	Holyland DX Contest
Apr. 18–19	Michigan QSO Party
Apr. 18–19	Ontario QSO Party
Apr. 18–19	YU DX Contest
Apr. 25–26	SP DX RTTY Contest
Apr. 25–26	Helvetia Contest
Apr. 25–26	Florida QSO Party (FQP)
Apr. 25–26	Nebraska QSO Party
May 2–3	7th Call Area QSO Party
May 2–3	Indiana QSO Party
May 2–3	ARI International DX Contest
May 2–3	New England QSO Party
May 30–31	**CQ WW WPX CW Contest**

Must All Winning Contesters be Rich?

That's as interesting question, to say the least. And while I haven't taken a financial poll of everyone I know in contesting circles, it's fair to say that many of them have been blessed financially. There is a legitimate comparison that can be made between successful contesters and their performance in real life. However, what follows is a key point that we often forget about in today's fast-paced, instant-gratification mindset.

Many winning contest station owners began their quest for equipment and towers a very long time ago. Put another way, the path to their big stations took place via a methodical but arduous plan executed over decades, using the techniques of collecting, trading, and the never-ending search for the next great deal. For many high-end contesters, eBay was and is their friend! Another point of proof is when I think about some of the successful contesters I know and what they do for a living. Here's

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just a sample: K5ZD (marketing manager), W1KM (Dept. of Social Security employee), K1TTT (engineer), N9RV (economist), N6TR (engineer), etc. The list goes on. It's not that I've just described unsuccessful people in their professional life; rather, I've mentioned normal folks who, like most of us, have not experienced the good life that comes from year-end multi-million dollar bonus checks. The simple fact is that most of the contesters on the scene today are working folks like you and me. More and more of them are actually retiring now (and yes, I'm jealous!). In fact, the track record of contesters who have come on the scene with lots of money has often resulted in little long-term interest or commitment to the sport, but rather a brief stopping point while en route to the next rich thrill in life.

So How Do They Do It?

As I've already pointed out, the best ally of a new contester is time. The old phrase that your mother taught you, patience is a virtue, is absolutely true in this context. The other secret is an unabashed desire to find the deal. It's a combination of:

- Ham flea markets
- Scouring the for-sale ads and the internet
- A willingness to ethically wheel and deal, trading excess items you own for others you need
- Taking the initiative of asking a cable TV installer where his company stores their CATV cable ends (which can often be hundreds of feet and are free for the taking)

The Bottom Line

There are a number of people (myself included for the moment) who view the challenge presented above to be achievable but not realistic when balanced against our busy lives. In my case, even if a truck drove up to my front door with all the components required to build a winning station, it would probably sit in my garage and gather dust. Thus, while it's certainly not a realistic goal for many (or perhaps most), the path to successful contesting requires patience, ingenuity, and more desire than ever before. With those elements in place, you can build a station that you can be proud of and want to show off to others. Let me know what you think!

Final Comments

Don't be discouraged when you look at the height of the mountain in front of you for building that dream contest station. Instant gratification in contesting only comes to lottery winners and the few wealthy hams among our ranks. For the rest of us, time is our ally. Fortunately, we can still have fun in contesting—even with an average station and just a few sunspots. If you've been around the block for a while, like me, take a look at your logs from the last sunspot peak. You'll be reminded of the fact that this game is going to be really fun again—even with an "average Joe" station and a few antennas in the back yard.

See you in the next contest!

73, John, K1AR

BY TOMAS HOOD,* NW7US

A Slow Rise in Solar Activity Observed

A Quick Look at Current Solar Cycle Conditions
(Data rounded to nearest whole number)

Sunspots
Observed Monthly, January 2009: 2
Twelve-month smoothed, July 2008: 3

10.7 cm Flux
Observed Monthly, January 2009: 70
Twelve-month smoothed, July 2008: 69

***Ap* Index**
Observed Monthly, January 2009: 3
Twelve-month smoothed, July 2008: 7

Solar scientists now report that the statistical and effective end of solar Cycle 23 occurred in August 2008. With a start month of October 1996, Cycle 23 lasted 11 years and 10 months. This is well within the range of the average 11-year cycle periods observed since the start of official sunspot records. Furthermore, since August 2008, the number of new-cycle sunspots (determined by their magnetic orientation as compared to the orientation of spots occurring during the last cycle) has been greater than the number of old cycle spots (see fig. 1).

It is also typical that old sunspot cycle spots occasionally occur for at least 18 months after a new cycle begins. Therefore, don't be surprised by the occasional sunspot that occurs close to the solar equator with a magnetic orientation consistent with solar Cycle 23.

What's good about current observations since August is that there appears to be a slight, yet true, rise in solar activity. The smoothed 10.7-cm flux readings generally are moving higher, although very slowly. In addition, the geomagnetic activity has been lower than during the last solar minimimum. We cannot deduce any significant trends from these lower *Ap* numbers, since we only have records of *Ap* trends for the last few cycles. Nev-

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e-mail: <nw7us@arrl.net>

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for April 2009

	Expected Signal Quality			
Propagation Index.....	(4)	(3)	(2)	(1)
Above Normal: 2-3, 6, 9, 12-17, 20, 24-25, 29-30	A	A	B	C
High Normal: 1, 4-5, 7-8, 19, 21-23, 26, 28	A	B	C	C-D
Low Normal: 10-11, 18	B	C-B	C-D	D-E
Below Normal: 27	C	C-D	D-E	E
Disturbed: N/A	C-D	D	E	E

Where expected signal quality is:
A—Excellent opening, exceptionally strong, steady signals greater than S9.
B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.

2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 2 will be fair (C) on April 1st, good (B) on the 2nd and 3rd, fair (C) on the 4th and 5th, etc.

3. As an alternative, the Last-Minute Forecast may be used as a general guide to space weather and geomagnetic conditions through the month. When conditions are Above Normal, for example, the geomagnetic field should be quiet and space weather should be mild. On the other hand, days marked as Disturbed will be riddled with geomagnetic storms. Propagation of radio signals in the HF spectrum will be affected by these conditions. In general, when conditions are High Normal to Above Normal, signals will be more reliable on a given path, when the path is ionospherically supported.

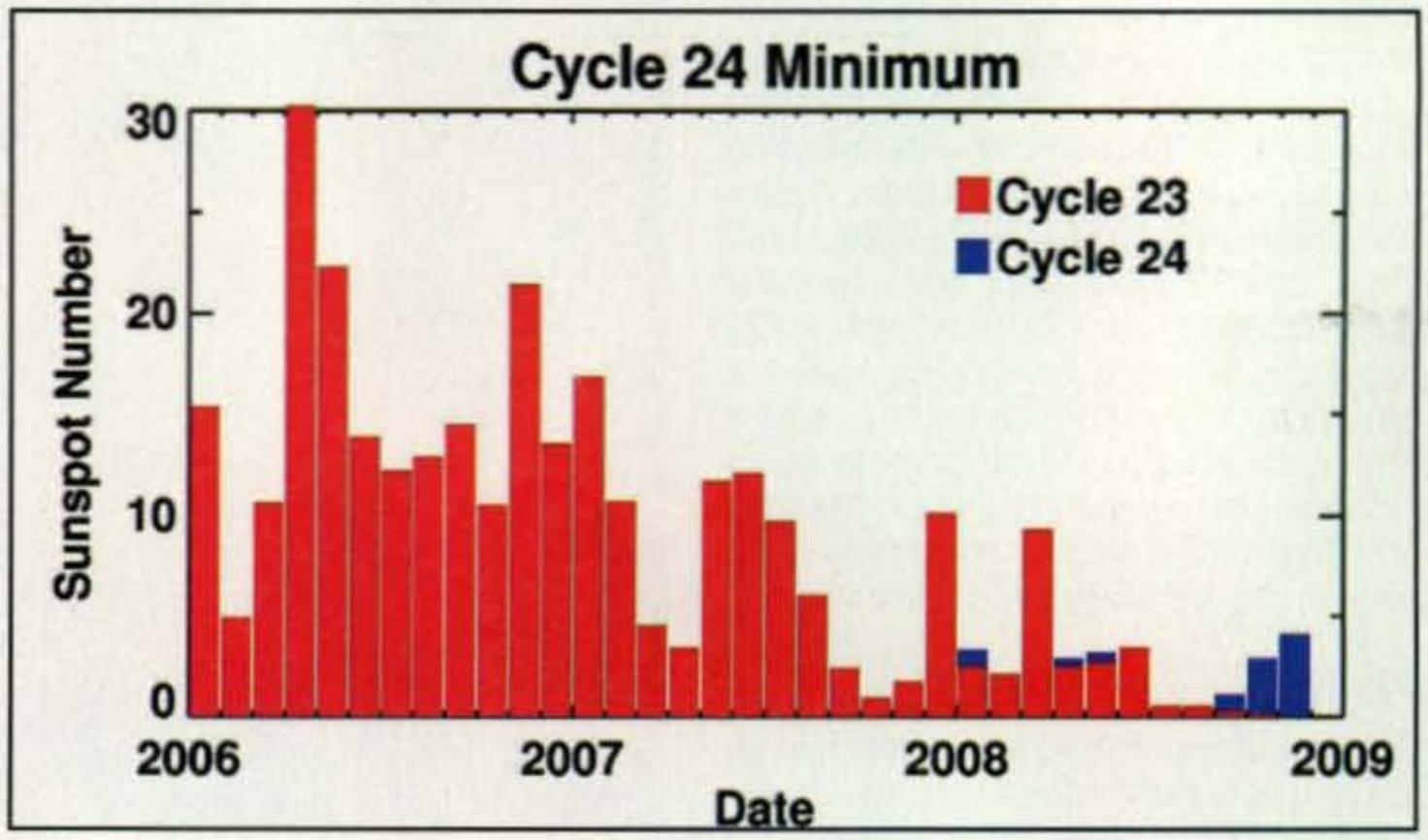

Fig. 1– August 2008 has been declared the current end of solar Cycle 23 and the start of Cycle 24. Since August the number of sunspots with a magnetic orientation consistent with the new cycle is greater than the number of "old" cycle spots (see text).

ertheless, this lower overall geomagnetic activity does appear to positively impact the propagation of HF signals, especially in the lower HF spectrum (and in the medium-wave spectrum). With such little solar activity, a quiet geomagnetic environment allows the ionospheric structures to remain well-defined and stable. This, in turn, results in stable and reliable communications by way of ionospheric propagation of our radio waves.

While the HF hobbyist enjoys the unique conditions of this quiet period, is there any excitement in store for VHF hobbyists? April is typically an exciting VHF month, because this is one of two times during the year when aurora are most likely to occur. However, during this period of lull in solar activity as well as prolonged geomagnetic quiet, will there be any auroral events this month?

Fig. 2– An artist's conception of the "ParketrSpiral" of the solar wind. As the solar wind expands away from the sun, sheets of solar plasma riding the wind form waves in the shape of this spiral (see text).

What is the Aurora?

Aurora is a direct result of solar plasma interacting with gasses in the upper atmosphere. It is common to see aurora during active to severe geomagnetic storms. Geomagnetic storms develop when strong gusts of solar wind carrying solar plasma, from coronal jets and coronal holes, or from coronal mass ejections (CMEs), interact with the Earth's magnetosphere in just the right way.

The Earth's magnetosphere is filled with electrons and protons that normally are prevented from escaping into space, or descending to the ground, by lines of magnetic force. The magnetic force is generated by the Earth, as the Earth is like a giant dipole magnet.

The impact of solar plasma breaks loose some of those trapped particles, causing them to rain down on the atmosphere. Gasses in the atmosphere start to glow under the impact of these particles. Different gasses give out various colors. Think of a neon sign and how the plasma inside the glass tube, when excited, glows with a bright color. These precipitating particles mostly follow the magnetic field lines that run from Earth's magnetic poles and are concentrated in circular regions around the magnetic poles called "auroral ovals." These bands expand away from the poles during magnetic storms. The stronger the storm, the greater these ovals will become. Sometimes they grow so large that people at middle latitudes, such as California, can see these "Northern Lights."

In the early 1970s scientists recognized a connection between the component of the interplanetary magnetic field (IMF) that lies along Earth's magnetic axis (known as B sub z [B_z]) and Earth's changing seasons: The average size of B_z is greatest each year in early spring and autumn. Why then do these storms increase in strength and number during spring and autumn?

As the sun rotates (one full rotation occurs about every 27 days), the plasma spewing out from the sun forms into a spiral shape known as the "Parker Spiral" (named after the scientist who first described it; see fig. 2). This solar wind carries with it an interplanetary magnetic field, which ever expands away from the sun in this spiral. Think of one of those rotating lawn sprinklers with jets of water shooting away from the center. You can see a bending, or curving, of the water lines. As the Earth moves around the sun, these spiraling solar winds sweep into Earth's magnetosphere. How the magnetic field lines in the solar wind interact with the magnetic field lines of the magnetosphere is the key to geomagnetic storms and aurora.

At the magnetopause, the part of our planet's magnetosphere that fends off the solar wind, Earth's magnetic field points north. If the IMF tilts south (i.e., B_z becomes large and negative), it can partially cancel Earth's magnetic field at the point of contact. This causes the two magnetic fields (Earth's and the IMF) to link (think of how two magnets link, with one magnet's south pole connecting with the other's north pole), creating a magnetic field line from Earth directly into the solar wind. A south-pointing B_z opens a window through which plasma from the solar wind and CME can reach Earth's inner magnetosphere, bombarding the gasses of the upper atmosphere.

Earth's magnetic dipole axis is most closely aligned with the Parker Spiral in April and October. As a result, southward (and northward) excursions of B_z are greatest then. This is why an aurora is most likely to occur, and why an auroral event is strongest during the equinoctial months.

When you see the solar wind speed increase to over 500 kilometers per second, and you notice that the B_z remains mostly negative (because the IMF is oriented mostly southward), expect an increase in geomagnetic activity. This will show up as a climb in the planetary *K*-index (*Kp*).

Look for aurora-mode propagation when the *Kp* rises above 4, and look for visual aurora after dark when the *Kp* rises above 5. The higher the *Kp*, the more likely you may see the visual lights. However, you don't have to see them to hear their influence on propagation. Listen on shortwave frequencies for stations located over the poles.

They will sound raspy or fluttery. Look for VHF DX stations normally not heard. Sometimes radio aurora will enhance a path at certain frequencies but not others only a few kilohertz away. At other times it will degrade the signals, like those in the shortwave band. Sometimes signals will fade quickly, and then come back with great strength. The reason for this is that the radio signal is being refracted off the more highly ionized areas that are lit up. These ionized areas ebb and flow, and thus the ability to refract changes, sometimes quickly. At the same time, some signals will be blocked by the *E*-region ionized cloud, when those signals are coming from the other side of a path making their way through the ionized patch. I've observed the effect of aurora and associated geomagnetic storminess even on lower HF frequencies, as well as on the medium-wave frequencies.

April Propagation

April is one of the most interesting months for propagation. The seasonal change plays out on HF with activity moving up from 40 meters and down from 10 meters.

Ten- and 15-meter propagation begins to suffer during April, as we start our yearly journey toward the summer season. This is due to the generally lower maximum usable frequencies (MUFs) in the Northern Hemisphere. The closer we are to the peak of summer, the later in the day that the day's peak MUF occurs.

At the same time, the MUF peaks are generally lower than the peaks of winter (due to summertime solar heating), which causes the ionosphere to expand in depth. An expanded ionosphere produces lower ion density, which results in lower MUFs.

Because of this, short-path propagation between countries in the Northern Hemisphere will drop out entirely. On the other hand, because 10-meter propagation peaks in the fall, and April is an autumn month in the Southern Hemisphere, long-path DX is possible. The question during this year's season is whether or not the sun is active enough to energize the ionosphere with the strength to support propagation of higher HF frequencies.

Short-path propagation to South America, the South Pacific, and other areas south of the equator will be strong and reliable when open. On the other hand, with the current solar cycle minimum, don't expect a lot from 10, 12, and 15 meters, except on short-path runs during periods of sporadic-*E* propagation.

From April to June, fair to good propagation occurs on both daytime and nighttime paths on the middle high-frequency bands. The strongest propagation occurs on paths that span areas of both day and night. During April, then peaking in May and June, the 17- and 20-meter bands may offer occasional 24-hour DX to all parts of the world. If you hear a lot of echo on a signal, you might be beaming in the wrong direction. Try the opposite azimuth. The 20-meter band is more stable at night, with propagation following gray-line and nighttime paths.

Low-band propagation is still hot on 40 meters, with Europe in the evenings and Asia in the mornings. Occasional DX openings will occur on 80 meters around sunrise. However, these bands are quickly being degraded by the seasonal increase in noise.

VHF Propagation

The *Lyrids* meteor shower occurs in mid-April (April 16 to April 25), peaking on April 22 at 1100 UTC. The hourly visual meteor rate is expected to be pretty low (18 per hour), with average meteor velocities of about 48 kilometers per second with broad outbursts. However, this shower's peak lasts for several days. Some predict that the shower could produce a rate of up to 90 per hour, so it is worth preparing for this one.

The debris expelled by comet Thatcher as it moves through its orbit causes the *Lyrids*. It is a long-period comet that visits the inner solar system every 415 years or so. Despite this long period, there is activity every year at this time, so it is theorized that the comet must have been visiting the solar system for quite a long time. Over this long period, the debris left with each pass into the inner solar system has been pretty evenly distributed along the path of its orbit.

This material isn't quite evenly distributed, however, as there have been some years with outbursts of higher than usual meteor activity. The most recent of these outbursts occurred in 1982, with others occurring in 1803, 1922, and 1945. These outbursts are unpredictable and one could even occur this year. The best time to work this shower should be from midnight to early morning.

The unpredictability of the shower in any given year always makes the *Lyrids* worth watching, since we cannot say when the next unusual return may occur. If this year's event is average or better, it should make possible meteor-scatter-type openings on the VHF bands.

A seasonal increase in sporadic-*E* ionization usually begins during April and continues through the spring and summer months. Expect an increase in short-skip openings on both 15 and 10 meters during April, as well as a possible occasional opening on 6 meters. While sporadic-*E* openings may occur at any time, they tend to peak between 8 AM and noon, and again between 5 and 9 PM local time.

Widespread auroral displays can occur during April, bringing with them unusual ionospheric short-skip openings on the VHF bands. The best times for these to occur are during periods of radio storminess on the HF bands. Check the Last-Minute Forecast at the beginning of this column for the days in April that are expected to be Below Normal or Disturbed. Don't forget to check out *CQ VHF* magazine for more details on VHF propagation and conditions.

Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for January 2009 is 1.5. The lowest daily sunspot value of zero (0) was recorded on January 1–8, 14–18, and 20–31. The highest daily sunspot count was 10 on January 11. The 12-month running smoothed sunspot number centered on July 2008 is 2.7. The forecast for April 2009 calls for a smoothed sunspot count of 9, reflecting a gradual start of Cycle 24.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 69.8 for January 2009. The 12-month smoothed 10.7-cm flux centered on July 2008 is 6.6. The newly released predicted smoothed 10.7-cm solar flux for April 2009 is 79.

The observed monthly mean planetary *A*-index (*Ap*) for January 2009 is 3, which is typical for the beginning of winter. The 12-month smoothed *Ap*-index centered on July 2008 is 6.6. Expect the overall geomagnetic activity to vary greatly from quiet to minor storm levels during April.

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may e-mail me, write me a letter, or catch me on the HF bands. Please come and participate in my online propagation discussion forum at <http://hfradio.org/forums/>. See you on the air!

73, Tomas, NW7US

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our readers say

Recording of KD5PCM

Editor, CQ:

My name is Scott, KD5OCK. My father was Mike, KD5PCM. He became a Silent Key in February 2008 and it was a shock to all of us and the ham radio community.

I am writing this with the hope that someone out there in the ham community can help me out. I know of some hams who record their QSOs for various reasons. I am hoping that someone may for whatever reason have a recording of my father's voice. I can still hear it sometimes and other times I forget what it sounded like. It would mean a lot to me if I could come across a recording of his voice, and the subject really doesn't matter. My father and I shared many things, but mainly ham radio. If anyone out there has a recording of my dad, KD5PCM, please contact me. I would be very grateful and thank you for your time.

Scott Hernandez, KD5PCK
e-mail: <kd5pck@gmail.com>

Short & Sweet

Editor, *CQ*:

The January issue, "Math's Notes" (on technology for technology's sake and America's cloudy future as a technology leader). On target. Thanks.

John Wilson

Cross-banding on .52

Editor, *CQ*:

I believe your comments ("Our Readers Say," February 2009) are way off the mark regarding the cross-band "repeater" operating in Canada. A remote base does not tie up 5+ frequencies in four states and one province from several transmitters while in operation. Living in eastern lower Michigan, I know first-hand exactly the negative impact this Canadian is causing. Both Canada and the United States consider 146.520 the "National SIMPLEX Calling Frequency." You establish contact then move off the frequency to continue the QSO. This station cannot move off frequency; instead it just takes over, pushing everyone else out of the way. Numerous times I have been on 146.520 trying to work some weak signals, when this station comes alive right on top of us. With the footprint this station has from antennas at 950+ feet above surrounding terrain, the operator knows beyond a reasonable doubt that the frequency is in use, but just continues operating anyway. This type of station should not ever be used on what has been allocated as the "National Simplex Calling Frequency." Your ending comment says, "Meanwhile, those other frequencies are available for your use as well, without having to compete with a strong signal from across the lake." It sure sounds like you are telling us to move off the frequency so he can have complete control over it. I bet if this was happening on one of your favorite frequencies, in your neighborhood, you would have a different outlook on its operation.

Tom Tincknell, N8ZI

W2VU replies: Tom, clearly I did not state strongly enough that this ham in Ontario should be strongly urged to move his remote base operation to a different simplex frequency. The point I was trying to make is that technically speaking, the operation is not a repeater and thus is not illegal in and of itself. And the band plans are voluntary. That said, if this system's operation results in interference to ongoing communications that should be audible by the operator, then the matter ought to be referred to regulatory officials for possible enforcement action. And without question, the gentleman should be strongly encouraged to QSY off 146.52.

A Good Marriage ...

Editor, *CQ*:

I have had a chance to review the February 2009 issue of *CQ* magazine and I like it very much. I also enjoyed the special down-to-earth issues of *WorldRadio* and find a similar pattern in *CQ*. I think you have made a good marriage with *WorldRadio* and the subscribers of *WorldRadio* should really like *CQ*.

Keep up the fine magazine and you will have me as a future subscriber. I also am a member of the ARRL and enjoy *QST*, but find the articles less interesting and I suppose more technical, which are not always practical. 73, Ron, W4EKE

Clarification

Contributing Editor Gordon West, WB6NOA, sends along the following with regard to February's "CQ Market Survey" article on handhelds:

Clint Bradford, K6LCS, brought to my attention that the ICOM IC-91AD is not a true full-duplex radio, as stated in the Market Survey. Clint is an area coordinator for AMSAT, the amateur radio satellite group, and he writes, "Although working the satellites in full duplex—where you can actually hear your downlink on one band as you transmit on another band—is preferable, it is not mandatory while working the FM birds. And there are no true duplex handhelds currently in production."

So, although a handheld radio may be "dual-receive" with independent VFOs, it is not necessarily "true duplex." I have checked with ICOM and they confirm that the receiver on the 91AD is muted when you are transmitting, even if you are receiving on a different band. By the way, Clint has an excellent tutorial on working amateur satellites with handheld radios at <http://www.k6lcs.com>.

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