NCJ

NATIONAL CONTEST JOURNAL

$4

September / October 2002

Volume 30 Number 5

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- Unlocking the Secrets of Success: WRTC-2002
- Contesting Events at Visalia and Dayton
- Station Profiles: VE6JY
- *NCJ* Profiles: K3LR

Top right: Handling 80 meter Yagis is not a problem for Don, VE6JY, shown with the crane he has for the task. Bottom right: Topping the field at WRTC-2002 were N5TJ and K1TO (center), RA3AUU and RV1AW (left) and DL2CC and DL6FBL (right).

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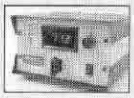

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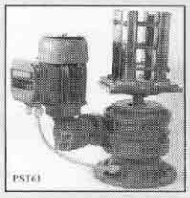

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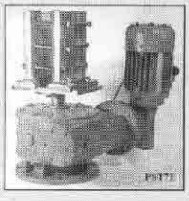

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The National Contest Journal
Volume 30 Number 5 September/October 2002

National Contest Journal (ISSN 0899-0131) is published bimonthly in January, March, May, July, September and November by the American Radio Relay League, 225 Main Street, Newington, CT 06111-1494. Yearly subscription rate is $20. Other rates are listed below. Periodicals postage paid at Hartford, CT and at additional mailing offices. POSTMASTER: Send address changes to: National Contest Journal, 225 Main St, Newington, CT 06111-1494

Publisher
American Radio Relay League
225 Main Street, Newington, CT 06111
tel: 860-594-0200
fax: 860-594-0259 (24-hour direct line)
Electronic Mail: *hq@arrl.org*
World Wide Web: *www.arrl.org/*

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NCJ subscription orders, changes of address, and reports of missing or damaged copies should be addressed to ARRL, 225 Main St, Newington, CT 06111 and be marked *NCJ* **Circulation**. ARRL members are asked to include their membership control number or their *QST* mailing label.

Letters, articles, club newsletters and other editorial material should be submitted to *NCJ*,
1227 Pion Rd, Fort Wayne, IN 46845.

The NA Sprint and NA QSO Parties are not sponsored by the ARRL.

Yearly Subscription rates: In the US $20
US by First Class Mail $28
Elsewhere by Surface Mail $32 (4-8 week delivery)
Canada by Airmail $31; Elsewhere by Airmail $40
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Editorial

WRTC-2002

I hope everyone enjoyed the special "pre-game" coverage of WRTC-2002 in the July/August issue. We delivered 300 copies of this special issue to OH-land, and a copy was put in each of the WRTC-2002 packages distributed to the competitors, the referees, the judges, other WRTC-2002 officials and the spectators.

I thoroughly enjoyed the WRTC-2002 activities. This was my first WRTC, and I commend the OH gang and everyone else involved for putting on such a great event. I'm already looking forward to the next one!

A group of us visited several competitors at their stations on Sunday while they were in action. We listened to the pileups, chatted with the host station owners, and spoke very briefly with the referees. It was very informative to get a first-hand view of the contest. You can see the pictures of the competitors and stations we visited at **www.ncjweb.com**.

The awards banquet was held Monday evening at a very elegant restaurant on an island in the Helsinki area. It was a top-notch event, with around 400 attending.

After the meal, the top ten finishers were introduced, starting with Number 10. The third place, second place, and first place teams accepted their medals and cups, and congratulations and pictures followed. NCJ extends its kudos to Jeff, N5TJ, and Dan, K1TO, for their three-peat. Eric, K3NA, analyzes the efforts of the top ten teams starting on page 4 of this issue and wraps up the story in the November/December issue.

Visalia/Dayton Contest Activities

Although Visalia is advertised as a DX convention, contesting was alive and well at this year's event. Rick, N6KI, and Ward, N0AX, team up to tell us about contest activities at Visalia.

Similarly, Doug, K1DG, and John, K1AR, relate what happened at the Dayton Contest Forum and Contest Banquet, respectively. We also have a few words on the Hospitality Suites and the CW Pileup Contest.

NAQP Awards Manager

I am delighted to announce that Shelby K4WW has stepped up to the plate to take on the job of NAQP Awards Manager. He will be responsible for getting the NAQP plaques as listed in the current rules to the deserving. This will help the NAQP Contest Managers focus on log checking and results reporting.

Your Opinion Requested

In each issue of NCJ we run the Contest Calendar column and the DX Contest Activity Announcements column. Both of these are readily available at the NCJ web site.

I'd like your opinion on whether we should continue to print these in NCJ. I'd appreciate it if you took a minute or two to drop me an e-mail at **editor@ncjweb.com**. Thanks!

SSB Sprint Errata

In the narrative of the SSB Sprint results in the July/August issue, we reported "K1HT and N7LOX both claimed their 8th Low Power Top Ten and are tied for second most Low Power Top Tens."

Oops. Actually there are three competitors with this distinction, not just two. Joining K1HT and N7LOX is WA7BNM. Sorry, Bruce.

A Look to the Future?

While reading my e-mail version of QRZ DX the other day, I started thinking about an electronic version of NCJ.

Right now each page of NCJ is sent to the printer as a PDF file. The July/August issue had 48 pages along with the colorful front and back covers. The total file size sent to the printer was around 75 MB. That's a mighty big file to be e-mailing, of course, but who knows what technology will bring in the future.

I'd love to hear your thoughts on this. My guess is this will not happen during my stint as Editor. Perhaps it will never happen. But nonetheless, it's an interesting "where are we headed?" concept to toss around.

Where Did Some of the Columns Go?

In order to fit the special features in this issue and work down the backlog of general and technical features, I asked our regular columnists for volunteers to skip their normal column in this issue. Several volunteered (Whew, at least all of them didn't volunteer!), and I thank them for that. They'll be back next month. This is a great way to give our columnists a break and work down the backlog every once in a while, so don't be surprised to see it happen again.

Our Cover

On the cover of this issue are the top three teams at WRTC-2002, accepting the victors' laurels. Also featured is Don, VE6JY, in front of his crane at this month's profiled multi-multi station.

—Carl Luetzelschwab, K9LA NCJ

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Contesting and QSL Volume

Below is an e-mail that I just sent to the DX4WIN reflector concerning the program's ability to find excess requests from stations worked in contests.

I have a question for the reflector audience. Contesting has opened the doors for a major headache for me in the amount of QSLs that I receive. I am making about 15K QSOs per year in contests and I am getting about 50% sending me a card for each of those contacts. This is not an insignificant amount of resources for me. I don't mind sending a card out for someone who needs Alabama or Marengo County, but how many times do you need a card from me for 10 mtr SSB QSOs?

I am not going to mention the station/country that has the record for getting the most of my cards on a single band/mode. I stumbled on to this one by accident: 11 cards! My question: Is there any way to get DX4WIN to show me the amount of cards per station per band per mode?

I will no longer send a card for third (two already sent according to log) or more QSOs/band/mode regardless of cards sent to me unless direct with SASE. I would like to create a list (blacklist if you please) of these stations to shorten my response time to the ones who really need it. I guess you could call it a QSL filter. I really would like an answer!

I would like to see some discussion within the contesting community in *NCJ* on how to best handle this. What do the other big dogs do? I would like to see some sort of site where one could list their preferences, such as 'please don't send a card unless you need one for something.' I just mailed 10 pounds of cards to the outgoing bureau and am working on the next 1000 cards. Thank goodness for labels! Am I by myself with this, or should we look closer?—Cort Judd, K4WI, Uniontown, Alabama NCJ

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Unlocking the Secrets of Success: WRTC-2002 Finland

Eric L. Scace, K3NA
k3na@arrl.net

The top three teams in WRTC-2002 fought a tight battle, with the final standings decided only in the last 45 minutes. How did these teams achieve a successful result? What lessons can we apply to improve our own contesting skills? Read on to learn the Secrets of Success of seven teams at WRTC-2002, and how comparing your log against others after any contest can reveal your own strengths and weaknesses.

We'll focus on the top five finishers listed in Table 1:

#1: Dan, K1TO, and Jeff, N5TJ, winning gold for the third consecutive time.

#2: Harry, RA3AUU, and Andrei, RV1AW, winning silver for the second consecutive time.

#3: Frank, DL2CC, and Bernd, DL6FBL, moving up from 31st and 6th respectively in Slovenia to take the bronze.

#4: Dan, N6MJ, and Dave, N2NL, a young team at WRTC for the first time.

#5: Bob KQ2M, and Danny, W7WA, moving up from 9th in Slovenia.

Computer log files, UBN reports, and Microsoft Excel spreadsheet software provide the raw ingredients for our analyses, supplemented by interviews with the teams, their on-site referees, and the judging committee. See the sidebar for details about producing the graphs in this article.

1. Rules

Each of the three previous WRTCs applied different rules to the competitors, and Finland was no different. Let's examine the basis for the team competition in Finland. As at all WRTCs, two contesters licensed from the same country formed a team. Fifty-two teams from 30 DXCC entities competed in Finland.

1.1 Team Score

The teams operated within the IARU contest (2002 July 13-14). Each team's score was calculated according to special WRTC rules, different from the IARU rules as follows:

- QSOs on either CW or phone were permitted only within specified subbands on 80-10 meters.
- Count 1 QSO point for each correct European QSO; count 2 QSO points for each correct QSO with any station outside of Europe. A station could be contacted once per mode per band for QSO points.
- Multipliers: DXCC countries and IARU HQ stations, counted once per band only. An IARU HQ station could count as both an HQ multiplier and a multiplier for that country.
- Score = total QSO points (less penalties) x Multipliers.
- Penalties: Invalid contacts (not in log of the other station and broken calls) were removed, and a further penalty of

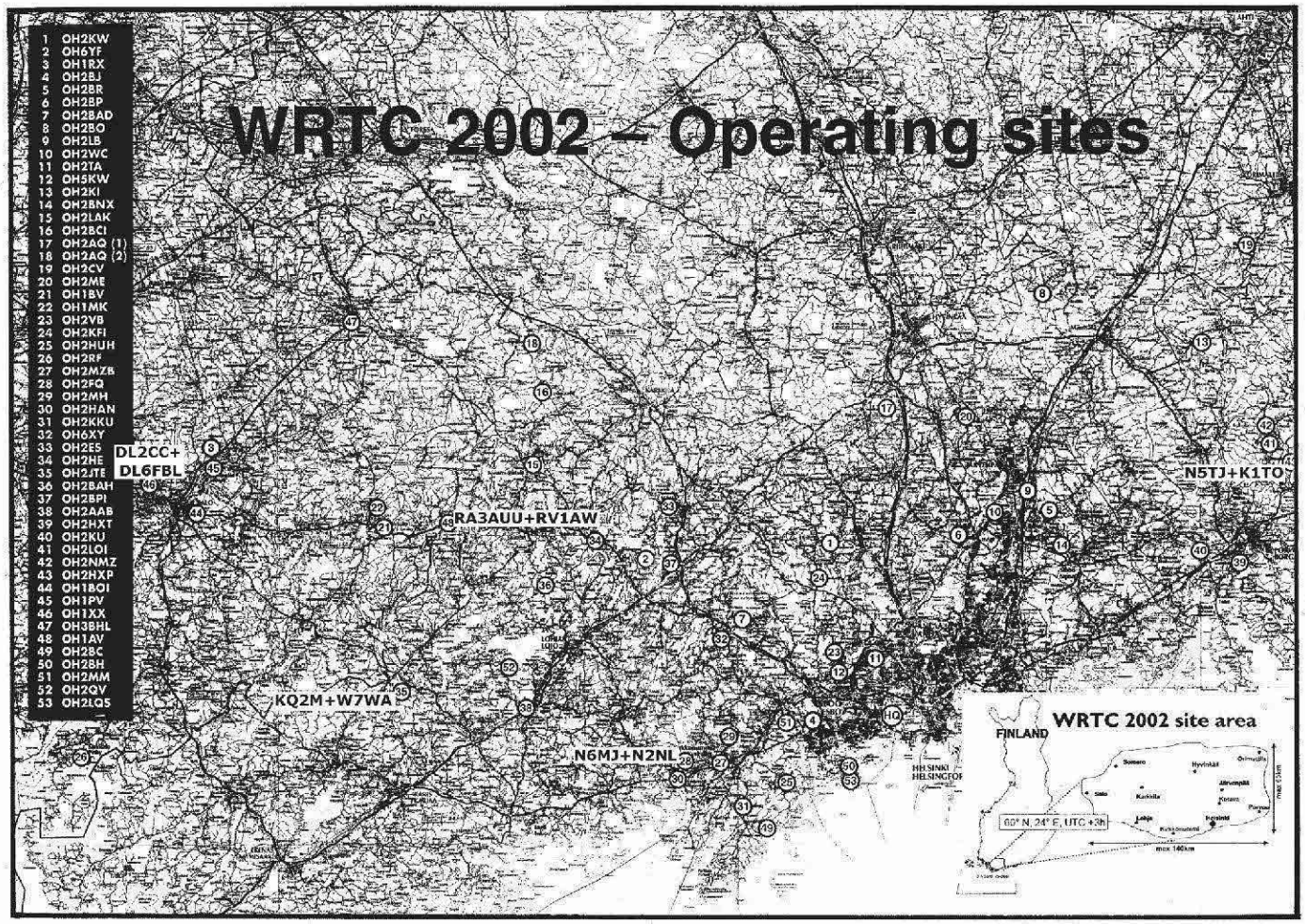

Figure 1—Station locations. Top teams featured in this article were spread throughout the contesting area.

twice the claimed number of QSO points was deducted. For errors in logging the exchange[1], the QSO was removed but no further penalties were assessed.

Unlike WRTC-2000 in Slovenia, WRTC-2002 required no mandatory time-out periods. Also unlike Slovenia, the teams were judged solely on the basis of the on-air competition; no points were awarded for a pileup tape competition.

As we will see, the winning teams formed their operating strategy with careful consideration of the characteristics of the scoring system, something every successful contester does in each contest.

1.2 Station Equipment

All 52 stations used identical antennas: a small tri-band Yagi on 20 through 10 meters, and a Windom antenna on 80 and 40 meters, mounted 12 meters high. The antenna configuration was essentially the same as used in Slovenia.

The sites were clustered in southwestern Finland (see **Figure 1**). Most locations were on flat or slightly rolling, wooded terrain. A few seaside QTHs are on the map, but none of the top five teams used a seaside location. The top teams were spread quite uniformly around the operating area.

The competitors provided their own radios, computers and ancillary equipment. While two radios were permitted in the station, only one radio was allowed to transmit during the contest. The second radio could only be used for listening. Accordingly, only one operator at a time was permitted to transmit. During the contest, the two team members could swap roles between listening and transmitting, typically by trading seats in front of the radios and computers. Two networked computers were permitted, but only one computer was attached to the transmitting radio. The second computer was not connected to the second radio. **Table 2** summarizes the equipment used by the top five teams.

Four of these teams used CT logging software. DL2CC and DL6FBL used WriteLog, an up-and-coming Windows-based contest logging package. Bernd, DL6FBL, walked into the WRTC competition having only used CT in the past, but Frank, DL2CC, was keen to give WriteLog a try. Frank and Bernd placed third, suggesting that CT operators can convert to WriteLog relatively easily.

1.3 Other Provisions

Each team was randomly assigned to a QTH and referee, chosen during a drawing held late Friday morning before the contest. The atmosphere became more serious and tense on Friday as each team's captain selected a numbered, sealed envelope containing its secret call sign. The number was read aloud, and the random assignment of a QTH and referee was made on the spot. The captain immediately surrendered the sealed envelope to the referee. Not only were the call signs assigned at random, but each team was prohibited from indicating in any way its nationality or members on the air. All teams were required to use only English and ordinary radio abbreviations during the contest.

In theory, these provisions kept each team anonymous behind its call sign. In practice, many (but not all) referees noticed that some other contest operators in the IARU competition deduced who was behind the calls by sound of voice, accents, operating style, etc within a few hours after the start of the contest. According to the referees, the occasional loss of anonymity had no impact on team performance.

2 Hourly Score Reporting

Each hour, each of the 52 referees reported his team's score via a cellular telephone messaging service to a central server. The hourly claimed scores were immediately posted on a website, ranking the actual team members—a first in amateur radio contesting!

Technically, the implementation of the hourly score reporting system was a complete success, and it was great fun for all the WRTC spectators. However, the claimed scores later proved to contain some subtle errors. These errors arose in part from variations in the country databases used by each team's software. Small bugs in some of the logging software packages added to the confusion in claimed scores. Further, the claimed score calculations by all the logging software packages included R1, R2, R3 and AC IARU staff positions as multipliers (as is done in the IARU contest), but on Thursday before the contest the WRTC rules were clarified to exclude these as multipliers in the WRTC scoring.

While contesters and others around the world frequently checked the website to view the competition, the teams maintained the traditional "in the dark" view of the contest. No team had any idea how it ranked, and to avoid giving any non-verbal hints to their team, almost all of the referees chose to remain "in the dark" as well. No QSOs occurred during the contest where the distant station disclosed competitive rankings.

Despite the errors in claimed score calculations during the contest, the vast majority of participants and spectators felt the on-line hourly reports added to the excitement of the WRTC.

3 The contest

The weather throughout Finland was excellent during the contest: clear skies and comfortable temperatures. Thunderstorms played no role in this WRTC. Very good, stable ionospheric conditions prevailed throughout Europe, with below normal auroral effects for such a northerly location. Most of the European teams felt the northern location had no impact on this particular contest, except for a general lack of Japanese stations in the log.

Each of the top three teams was in first place at some point in the contest. KQ2M+W7WA were third for a couple of hours in the middle of the contest, only to slip back into fifth for the last four hours. Although N6MJ+N2NL trailed the group for much of the contest, they clawed their way back into fourth (and, for a brief moment at 11Z, third) before the finish.

While these teams performed similarly at some stages, different performance occurred at other points. Let's step back in time to 1150Z, ten minutes before the contest begins. Each team stops transmitting. The referee tears open the envelop to reveal the secret call sign. No further transmissions are permitted until the contest began, but most operators begin programming their CW and voice keyers. The exception is KQ2M+W7WA, who suffered an electrical glitch that destroyed their computer-radio interface hardware, including the CW and voice keyers; they're reconfiguring equipment to get back on the air.

And although the station is ready, RV1AW is hurting. Earlier, while climbing down a tree after making a referee-approved adjustment to the Windom antenna, he cracked a rib. He will operate the entire contest without medication, remarking afterward, "Yes, it hurt—but it was only *one* rib."

3.1 The Opening: 12-14Z

The teams were quite close during the first two hours of the contest, with KQ2M+W7WA slightly trailing. The top three teams interleaved QSOs on other bands with the main, running band. For example, RA3AUU+RV1AW spendt the first 90 minutes running stations on 15 m CW, but also worked many 20 m QSOs. The second operator passed data about stations which he discoverd on 20 m to the running operator. When the run paused, the running operator quickly switched from 15 m to 20 m to work the spotted QSO, and then jumped back to 15 m to continue CQing.

In contrast, KQ2M+W7WA almost never interleaved QSOs. This team op-

[1]The team must log the exchange as received from the distant station, even if that station sent an incorrect exchange (wrong zone number, QSO number, etc). The referees noted these discrepancies.

erated 15 m CW until 1252Z, then was on 15 m SSB between 1256-1315Z, and then switched to 20 m SSB. Just three 20 m QSOs (all new multipliers) were interleaved into the 15 m SSB run around 1317Z. Without a functioning radio-computer interface, the transmitting radio's operator must manually enter frequencies into his second VFO for interleaved QSOs. (Under WRTC rules, the receiving radio operator can not touch the transmitting radio in any way.) To work around this problem, Bob and Dan accumulated lists of multipliers which they attempted to work in batches from time to time, rather than interleave as each station was discovered.

Similarly, N6MJ+N2NL rarely interleaved QSOs on different bands, focusing more on interleaving QSOs on the same band. Because the band map feature was not working correctly in their version of CT-Windows, Dan and Dave could not grab frequencies and stuff them into the transmitting radio electronically. The receiving operator scribbled down stations and frequencies on a paper pad, which the transmitting operator then keyed into the radio.

Interleaving QSOs on a different band/mode with an ongoing run is a complex contesting skill requiring considerable practice. The operator must manipulate the radio and computer flawlessly to switch frequencies, call the station at the correct time, log the QSO correctly, and switch back to the running frequency in a timely manner.

DL2CC+DL6FBL made most of their QSOs during this period on 20 m, with many additional contacts on 15 m and even some on 10 m. The other teams started their runs on 15 m, but switch to 20 m runs by 1315Z. Everyone worked at least one 10 m QSO, but DL2CC+DL6FBL are more attentive to 10 m. This showed after two hours, when DL2CC+DL6FBL had more multipliers than any other team: 9 multipliers ahead of RA3AUU+RV1AW, 11 multipliers ahead of N6MJ+N2NL, and 15 multipliers ahead of N5TJ+K1TO.

In contrast, KQ2M+W7WA's failure to interleave QSOs cost them many multipliers. At one point Bob and Dan were over 27 multipliers behind the other teams in this period, and they finished the first two hours of the contest well behind in multipliers. At 14Z, this team has 260 QSOs (excluding dupes), despite missing the first 9 minutes of the contest. N6MJ+N2NL also focuses on raw QSO rate, with 259 QSOs now. The Russians have just 238. But N5TJ+K1TO and DL2CC+DL6FBL each have 276 QSOs! We'll come back to the issue of rate and QSOs a bit later in the contest.

3.2 The First Breakaway: 14-17Z

During this three-hour period in the early evening hours, N5TJ+K1TO move 35,000 points ahead of the rest of their competitors—a huge lead early in the contest.

Jeff and Dan spend the 14Z hour running 20 m SSB, interleaving 15 m SSB QSOs. Their rate is somewhat better than the other teams: 454 total QSOs at 15Z, putting them at least 40 QSOs ahead. The extra QSO volume and careful attention to interleaving 15 m Qs allows them to chip away at their multiplier deficit, creating a slight 1,000 point lead at 15Z.

At 15Z, RA3AUU+RV1AW have a larger percentage of 2-point, non-European QSOs than any other team because they work many more North American stations on 15 m. N6MJ+N2NL and KQ2M+W7WA spent the contest's first hour on 15 m, but switched to mostly 20 m 1-point European QSOs starting at 13Z. This change, and the larger gap in multipliers due to a lack of interleaved QSOs, drags them to the bottom scoring position at 15Z.

During 15-17Z, N5TJ+K1TO make two strategic moves that open up a large gap in score. At 1525Z, they drop to 40 m for 5 minutes to run the first 40 m QSOs of the contest, collecting 10 new double-multipliers (new country and HQ stations). Everyone else loses ground quickly at this moment in relative multiplier counts as a result. At 1548Z, Jeff and Dan run 2-point North Americans

Table 1—Final Scores, WRTC-2002

Rank	*Call*	*Team Members*	*QSOs*	*Mults*	*Points*
1	OJ3A	N5TJ, K1TO	2,782	438	1,629,798
2	OJ8E	RA3AUU, RV1AW	2,627	426	1,619,226
3	OJ2V	DL2CC, DL6FBL	2,468	473	1,608,673
4	OJ3R	N6MJ, N2NL	2,705	436	1,560,008
5	OJ8K	KQ2M, W7WA	2,816	394	1,479,470
6	OJ5A	VE3EJ, VE7ZO	2,635	437	1,473,127
7	OJ1M	K5ZD, K1KI	2,519	457	1,469,255
8	OJ6E	UT4UZ, UT3UA	2,637	416	1,468,064
9	OJ5W	LY1DS, LY2TA	2,638	416	1,459,744
10	OJ5M	DK3GI, DL1IAO	2,534	440	1,456,840
11	OJ6W	OE2VEL, OE9MON	2,560	416	1,436,448
12	OJ6C	RW1AC, RW3QC	2,776	395	1,414,100
13	OJ5U	N6RT, N2NT	2,435	432	1,412,640
14	OJ8W	9A9A, 9A5E	2,778	373	1,405,837
15	OJ7M	SP3RBR, SP8NR	2,650	403	1,402,440
16	OJ2F	N6TJ, N6AA	2,428	397	1,391,088
17	OJ3T	RZ9UA, UA9MA	2,708	395	1,390,795
18	OJ2H	N5RZ, K2UA	2,559	410	1,388,670
19	OJ8A	K1AR, K1DG	2,382	432	1,382,400
20	OJ2J	HA1AG, HA3OV	2,602	408	1,368,432
21	OJ3N	N2IC, K6LL	2,513	405	1,355,940
22	OJ4M	K3LR, N9RV	2,642	366	1,347,612
23	OJ3D	W4AN, K4BAI	2,530	389	1,347,107
24	OJ2Y	UA2FZ, RW4WR	2,389	421	1,331,623
25	OJ4N	ON6TT, ON4WW	2,260	416	1,301,248
26	OJ2Q	YU7BW, YU1ZZ	2,743	381	1,300,734
27	OJ6X	OH1MDR, OH1MM	2,267	438	1,293,414
28	OJ7C	ES5MC, ES2RR	2,505	393	1,288,254
29	OJ2Z	G4PIQ, G4BWP	2,342	419	1,277,950
30	OJ6N	OK2FD, OK2ZU	2,446	379	1,274,577
31	OJ1S	SP7GIQ, SP2FAX	2,498	371	1,234,317
32	OJ5T	SM5IMO, SM3SGP	2,381	386	1,214,742
33	OJ7X	S50A, S59AA	2,542	379	1,210,147
34	OJ4S	JM1CAX, JE1JKL	2,289	392	1,205,008
35	OJ7N	YL2KL, YL3DW	2,392	382	1,196,424
36	OJ3X	5B4ADA, 5B4WN	2,310	386	1,186,950
37	OJ7S	N5KO, N1YC	2,177	389	1,142,882
38	OJ1X	K1ZM, N6ZZ	2,354	370	1,139,230
39	OJ5E	OH6EI, OH2XX	2,059	402	1,131,630
40	OJ1F	NT1N, AG9A	2,101	397	1,105,645
41	OJ5Z	F6FGZ, F5NLY	2,016	375	1,086,750
42	OJ8N	YT1AD, YU7NU	2,335	359	1,069,820
43	OJ7W	UA9BA, RN9AO	2,168	368	1,052,480
44	OJ6K	VE7SV, VE7AHA	2,257	351	1,045,980
45	OJ4A	DJ6QT, DL2OBF	2,166	347	1,005,259
46	OJ1C	LU7DW, LU1FAM	2,335	322	986,930
47	OJ7A	PP5JR, PY1KN	2,263	333	978,021
48	OJ1N	EA3AIR, EA3KU	2,140	340	954,380
49	OJ8L	S56M, S57AL	1,920	345	883,545
50	OJ1W	ZS6EZ, ZS4TX	1,723	369	880,065
51	OJ6Y	IK2QEI, I4UFH	1,921	339	878,349
52	OJ4W	UN9LW, UN7LAN	1,893	297	699,732

on 15 m, interleaving new multipliers on 20 m. During the 16Z hour, they also interleave 20 additional multipliers from 40 m and 80 m.

While Jeff and Dan are running 15 m, the other teams continue to get a larger percentage of 1-point European QSOs by staying on 20 m. All these other teams' point-per-QSO ratios drop compared to Jeff and Dan after their switch to 15 m at 1548Z. Jeff and Dan had a big multiplier lead at 17Z, and a corresponding big lead in score.

But it's a lead they would later squander…

3.3 The Clawback: 17-20Z

Although it is late evening, in Finland the sun continues to shine. It's early afternoon in North America. Everyone checks 10 m for a USA opening. Alas, no one works the USA on this band. There are plenty of multipliers, however, from Europe, Africa, South America and even the Caribbean. Ionization builds tantalizingly close to a big 10 m opening to the USA, but not quite enough! DL2CC+DL6FBL work Guantanamo Bay, just 100 km from Florida!

This German team, after missing some of those 2-point QSO runs on 15 m during 16Z, recovers substantial lost ground during the 17Z hour. Frank and Bernd work far more new multipliers than any other team, going from 16 multipliers behind the nearest competitor to 23 multipliers ahead in a single hour, and 35 multipliers ahead by 20Z.

Part of this multiplier recovery comes from 40 m. Recall that Jeff and Dan worked 30 new mults on 40 and 80 m during 15-17Z. Now Frank and Bernd pick up 40 new mults on 40 m during 17Z, along with 15 new mults on 10 and 15 m. During 18Z and 19Z, they continue to pick up more mults on 10 through 40 m. Not only do they lead everyone else in multipliers, but they will keep this lead for the remainder of the contest.

Like the other teams, DL2CC+DL6FBL also run 2-point QSOs on 15 m at 17Z. At 18Z, DL2CC+DL6FBL remain on 15 m to work the end of the North American opening. Most of the other teams move to lower bands for runs dominated by 1-point Europeans. Frank and Bernd's slower rate on 15 m is balanced by the higher per-QSO point values; the Germans neither gain nor lose ground in total QSO points during 17-20Z. Even though they are last, or next to last, in total QSO points, the high multiplier total puts the Germans in first place by 3,700 points (1.2%) at 20Z.

RA3AUU+RV1AW also recover during these three hours through a combination of small corrective actions and good moves:

• During 17Z, Harry and Andrei work a large North American run on 15 m, including some 15 m SSB. These 2-point QSOs enrich their point per QSO average. Their 139 QSOs this hour exceeds the 88 QSOs made by N5TJ+K1TO, and the Russians gain 13,000 points against Jeff and Dan.

• During 18Z, the Russians work 40 m for the first time, picking up new multipliers from a virgin band. Their CW run rates are higher than the run rates made by other teams. The Russians move up an additional 17,000 points against Jeff and Dan.

• During 19Z, the Russian raw QSO run rate drops, but the team works hard to collect multipliers on 40 m, 15 m and 10 m. By 20Z, the Russians are just 4 multipliers behind Jeff and Dan. The Russians are still 65 QSOs behind Jeff and Dan, but have more 2-point QSOs. The richer mix of 2-pointers is enough to put the Russians' score just 0.1% behind Jeff and Dan.

N6MJ+N2NL remain about 60,000 points behind the leaders throughout this period. They pick up many multipliers on 40 m and 80 m to catch up to everyone else (except the Germans). But Dan and Dave make a strategic error: at 1835Z they move to 40 m. The combination of 1-point European QSOs and slower rates during the 19Z hour offset the increase in multipliers, and they finish this period in fifth place.

KQ2M+W7WA run 15 m until 19Z, working 2-point North Americans. But when the band closes, they do not go to 20 m to work more 2-point North Americans. They go to 40 m, and are the last team to touch this band. Bob and Dan naturally gather a tremendous number of new multipliers on a virgin band, and have a good rate of 115 QSOs this hour. The extra multipliers boost them into fourth place overall, but the high percentage of 1-point QSOs keeps them more than 40,000 below the leaders.

At 20Z, three teams are nearly tied for first. DL2CC+DL6FBL are far ahead in multipliers, but are behind in QSO volume and points. RA3AUU+RV1AW have fewer QSOs than N1TJ+K1TO but a bigger percentage of 2-points QSOs. The other two teams have paid a big penalty for running 40 m instead of 20 m in the last hour, and are far behind.

3.4 The Twilight Duel: 20-01Z

Five hours of Finnish twilight: five hours of struggles between DL2CC+DL6FBL and N5TJ+K1TO. These two

Table 2—Equipment and Terrain at Top 5 Finishers

N5TJ + K1TO

Site:	Wooded. Flat in western hemisphere. 20 m ridge eastern hemisphere.
Radios:	2 FT-1000MPs.
Software:	CT-DOS.
Other Hardware:	2x bandpass filters, Top Ten controller. Antenna switch controlled by CT. W9XT voice keyer.

RA3AUU + RV1AW

Site:	Wooded hillside. Rising terrain to east; falling terrain to west down to a lake.
Radios:	FT-1000D (transmit), FT-1000MP (receive).
Software	CT-DOS.
Other Hardware:	Dunestar 6-band filter bank on receive radio with manual override of filter selection available for sub-receiver use. Independent footswitches for two VFOs.

DL2CC + DL6FBL

Site:	Flat, slightly wooded. Small hill 500m towards Japan, hills 1.5 km away towards USA.
Radios:	FT-1000MP with internal voice keyer (transmit), TS-850 (receive).
Software:	WriteLog.
Other Hardware:	2x Dunestar 6-band filter banks; Top Ten Devices switchers (automatic on the transmit radio; manual on the receive).

N2ML + N6MJ

Site:	Wooded. Slope towards west to lake. Gradual slope to south.
Radios:	FT-1000MP, INRAD filters, key click mod (transmit), FT-1000MP Mark V (receive).
Software:	CT-Windows 9.76.
Other Hardware:	Manual antenna switching. ZS4TX CW/voice keyer.

KQ2M + W7WA

Site:	Small hilltop about 10m high. Few meters rise to north and northeast. Swamp to east at foot of hill, otherwise flat.
Radios:	2 FT-1000MPs.
Software:	CT-DOS v9.79.
Other Hardware:	Mosquitoes, biting flies. No computer-radio interface or computer CW keying. DVK voice keyer.

teams swap the lead five times during the course of the "night".

DL2CC+DL6FBL begin with a slight lead which evaporates into a 15,000 point scoring deficit after just half an hour. N5TJ+K1TO have shifted to 40 m for their first run on the band. Previously Jeff and Dan have only search and pounced on 40 m multipliers, so they are fresh meat on a band which has been open to Europe for the past five hours. They get a good rate on 40 m CW, picking up more multipliers, and pulling into the lead.

But at 2036Z, DL2CC+DL6FBL hop down to 80 m for their first run on a new band and start harvesting many new multipliers. By 21Z, Frank and Bernd stand 49 multipliers and 7,000 points ahead of Jeff and Dan.

The situation reverses at 21Z: Jeff and Dan begin interleaving 80 m multipliers into their run on 40 m and 20 m. At 2140Z, they start running QSOs on 80 m, while interleaving 40, 20 and 15 m QSOs. They recover all their lost ground and then some, leading the Germans by 29,000 points at 2145Z. The combination of new multipliers and consistent interleaving technique keeps their QSO rate higher than any other team except the Russians.

The Germans, by focusing on 20 m runs, maintain a high points/QSO average, but their slower raw QSO rate causes them to fall far behind on QSO totals. Only the very high multiplier total keeps the German team in a solid #2 position.

At 22Z, N5TJ+K1TO shift from 80 m to 20 m, attempting some SSB running. DL2CC+DL6FBL are also on 20 m, but with a much faster CW run in progress. Once again the Germans climb back to take the lead briefly at 2240Z. Jeff and Dan, dissatisfied with their rate on 20 m SSB, switch to 40 m CW for 20 minutes, and then 20 m CW. Their slightly faster rate causes them to pull slowly ahead of the Germans by the time the clock shows 23Z.

At 2310Z, Jeff and Dan start an 80 m CW run. The additional multipliers that crop up on 80 m help them increase their lead over Frank and Bernd to 20,000 at 2320Z. Frank and Bernd move to 80 m CW as well at 2330Z and start recovering lost ground once more.

By 00Z, the two teams are essentially tied with a score difference of less than 0.1%. After 12 solid hours of operating, midway in the contest, Frank and Bernd have 1317 QSOs, 348 multipliers, and a score of 644,844. Jeff and Dan have 1507 QSOs, 321 multipliers, and a score of 645,531. Twelve hours averaging 125 QSOs/hour with 100 watts, a small tribander, and a Windom antenna. Wow!

Both teams pursue a common strategy for the 00Z hour: hopping rapidly between 80, 40, 20 and even 15 m in search of rate and multipliers. But Jeff and Dan struggle, with a six-minute gap containing NO contacts at all in their log. DL2CC+DL6FBL find 10 more multipliers than N5TJ+K1TO and pick up some extra 2-point USA QSOs on 20 m. As the sun starts climbing into the sky, the Germans stand 18,000 points ahead in first place.

During these twilight hours, these two teams demonstrate a preference for 20 m CW runs, with many interleaved QSOs on other bands and the occasional quick sprint on lower bands to boost multipliers.

But the other three teams followed different paths. Let's take a look:

RA3AUU+RV1AU: Harry and Andrei fall over 50,000 points behind during 20-22Z. Having already spent time on 40 m a couple of hours earlier, their move to 40 m and then 80 m during the 20Z hour does not provide the same kick to their multiplier totals that Jeff, Dan, Frank and Bernd receive. At 21Z Harry and Andrei return to 20 m CW, interleaving 40 m QSOs. Their QSO point totals stay close to Jeff and Dan throughout these two hours… but they continue to slide behind in multipliers.

At 22Z, Harry and Andrei hop down to 80 m for a 90-minute run. Their multiplier total recovers and they regain half of their lost ground. They spend the remaining time before 01Z running CW mostly on 40 m, with 20 m interleaved QSOs and some quick sprints on 80. They do not pick 20 m as their primary running band, as N5TJ+K1TO and DL2CC+DL6FBL did, and they lose ground as a result. At 01Z, Harry and Andrei are a distant third, 60,000 points behind the leaders, and about to slip into fourth place.

KQ2M+W7WA: Bob and Dan also struggle, dwelling largely on 20 m during 20-23Z, with two spells on 40 and a quick pass through 80 and 15 m. Their overall QSO rates lag the top teams. At 23Z, Bob and Dan stand 18 multipliers behind N5TJ+K1TO (and 46 multipliers behind DL2CC+DL6FBL), 84,000 points behind the leaders, and about to fall into fifth place. That multiplier deficit disguises an excellent run on 20 m CW during the previous hour, including 93 two-point QSOs. The investment in 2-pointers pays off quickly: at 2254Z, Bob and Dan drop to 80 m for a ten minute SSB run, then to 40 SSB and CW for a fifteen minute sprint filled with new multipliers, back to 20 for another fifteen minutes and then an 80 m CW run of 107 QSOs in 50 minutes. Another sprint through 20 m phone and 40 CW and—presto! At 01Z, this re-energized team leaps from fifth place to tie the Russians for third!

N6MJ+N2NL: Dan and Dave follow the same general strategy as KQ2M+W7WA, but with fewer band changes and more lingering on 40 and 80 m. Without an antenna switch, this team must physically change coax cables on the transmit radio whenever they switch between the Windom antenna (40 and 80 m) and the tribander. Their 20Z hour on 40 m keeps them in the multiplier race, but the rate lags as they had been on this band most of the previous two hours.

At 21Z they move to 20 m for an hour's run on CW. Three other teams were running 20 m CW in this hour, with different results:

- On 14008 to 14009 kHz, DL2CC+DL6FBL work 104 Qs (while interleaving QSOs on other bands).
- On 14012, N5TJ+K1TO run 56 Qs in 30 minutes.
- On 14051 (and, at the end of the hour, on 14046), RA3AUU+RV1AW run 95 QSOs (also interleaving Q's from other bands).
- On 14059, N6MJ+N2ML run 145 QSOs with no interleaved QSOs at all. This productive run helps catch up their QSO totals, but few multipliers enter the log.

Dan and Dave move down to 80 m for almost an hour at 22Z, and their score begins to recover as new multipliers accumulate. From 23Z to 01Z, the team changes tactics: rather than spending a hour running a specific band, they start sprinting quickly between bands. Their score makes a big recovery, gaining back almost half of the lost ground. At 01Z, Dan and Dave are right back in the thick of things—still in fifth place, but close to the fourth and third placeholders.

During this difficult twilight period, the better strategy appears to be to run mostly on the highest open band, with quick sprints through the lower bands to grab multipliers and the easy, fast rates that come with being new to the band.

In the Next *NCJ*...

Eric's analysis will continue as dawn breaks over Southern Finland. The OJ2V team of DL2CC and DL6FBL leads by 18,000 points, but there will be more lead changes—some of them dramatic—before WRTC-2002 comes to an end, 11 hours from where we now take a break.

Eric's analysis utilizes detailed charts generated from *Microsoft Excel* processing of the team's logs. Space constraints do not allow us to publish them in this issue, but they can be viewed at the *NCJ Web site*, **www.ncjweb.com**.

In addition to the next part of Eric's article, we will have more reports from WRTC-2002 participants, referees and observers.—*Ed.* NCJ

CQ WW SSB 2001 from the Cape Verde Islands

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The story of this successful effort goes back to September 2000. Alberto, IV3TAN, the real hero of this narrative, flew to the island of Sal in the Cape Verde archipelago for a one-week holiday. You could call it a "working holiday" since he went looking for a place from which to participate in the CQ WW Contest. He phoned Angelo, D44BS, who lives on the island of Sao Tiago. The outcome of this inter-island call was a very impressive, but stressful, operation as D4A in October 2000. Alberto sent some 500 pounds of radios and antennas by air cargo to Angelo, then installed everything in a couple of days. Without proper rest he still made 6000 QSOs in the contest.

I entered this story in late November 2000 when I flew from Sao Vicente Island in Cape Verde—after a few weeks of activity as D44CF—to Sao Tiago. The taxi from the airport took me to a small hotel in "downtown" Praia, the capital city. I checked in, took a shower and went out for a reconnaissance walk. I looked back to memorize the hotel location and I saw a triband antenna on the roof. What the heck? Is it for me? As if that wasn't enough, I saw a tower with more antennas on a house next door. I knocked on the door and a man looked out a window and said, "Come in, Henryk!" Angelo, D44BS, was expecting me. I still knew nothing about this contest plot until the next morning at breakfast when another European hotel guest responded with "Amateur Radio" to my question of what had brought him to this remote place. That was Giorgio, I2VXJ, who came for the CW weekend of the 2000 CQ WW Contest.

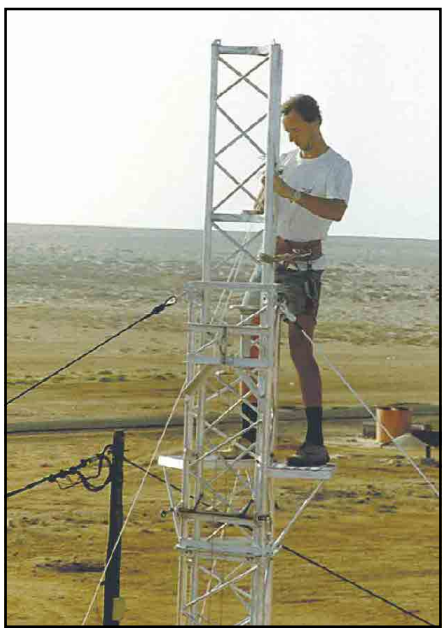
Building the Beverage antennas—Franco, I4LCK and Gabriele, IK4UPB.

December 2000, Fabio, I4UFH, a good friend and a contest companion of Alberto, IV3TAN, went to Coimbra in Portugal for the ARRL 10-Meter contest, guest operating from Santos, CT1DVV's station, better known as CT8T. Santos put the Italian group in touch with his friend Xara, CT1EKF, who was building a house in Santa Maria, Sal Island, Cape Verde.

Why Cape Verde? Alberto, IV3TAN, and his contest cohort strongly believe in this location being optimal for worldwide contests. Located in the Atlantic Ocean, about 500 km (300 miles) west of Senegal in West Africa, D4 is still in demand among many average DX chasers: it offers equatorial HF propagation conditions, it has favorable distances to both Europe and North America, and the islands have never had a permanent contest station. This is what the Italian team aims at—a permanent and competitive contest QTH.

Zero Hour Approaches

When I arrived on the island in the middle of the night, some 70 hours before the start whistle, Xara's house did not resemble a contest station. It was still under construction and all the towers and antennas were still boxed. I cautiously asked Alberto in the morning, "Are you going to erect three large rotary



Alberto, IV3TAN, the real hero of this story

The radio room. Vittorio, I4YSS, is soldering connectors; Gabriele, IK4UPB, checks one of the multiplier stations; Fabio, I4UFH (in white T shirt), discusses amplifiers with Franco, I4LCK (seated).

The second tower is being raised. On the left are Gabriele, IK4UPB and Xara, CT1EKF. On the right are Fabio, I4UFH and Vittorio, I4YSS.

Chasing multipliers: Gabriele, IK4UPB (white T shirt), Santos, CT1DVV (black T shirt), Franco, I4LCK, at the microphone (headset) and Fabio, I4UFH, eavesdropping.

The final touches on the permanent antenna. Gabriele, IK4UPB, is assisted by Santos, CT1DVV while Fabio, I4UFH, impatiently looks on.

beams, a number of wire antennas, some verticals and put it all to work in three days?"

"Yes", he answered and rushed away.

What I did not know at that stage was that the team members had a lot of experience and understood each other well. The towers, the antennas, and the operating positions were growing as if filmed in slow-motion, but shown at fast-forward speed. Alberto was everywhere and sometimes I thought he had an identical twin brother with him. I used to sip whisky to kill the African germs, so at times I blamed it on double-vision. But why only him? Alberto was faster than my camera shutter; hence he appears in only a few pictures (fewer than he really deserves).

However, all the team members were extremely proficient and consistent in building and then operating the station. As usual, I am an advocate of showing as much action as possible in pictures.

The oldest on the team, yet still going strong, was **Franco, I4LCK**. He is 60, licensed since 1960, fond of both CW and SSB in contests. Nowdays he prefers DXpeditioning to islands of Africa and the Pacific. He is a member of the Bolognia DX Gang, a strong group of 260.

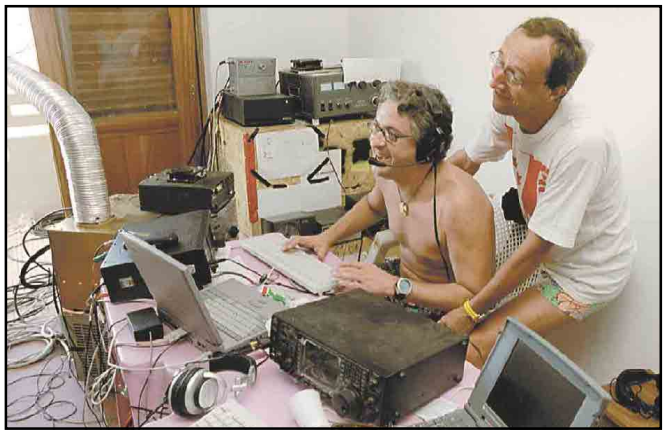
The youngest on the team was **Gabriele, IK4UPB**. He is 30 years old and one of the permanent members of the group, and also holds the call sign D44TA. He has been interested in radio since the age of 13. He is a professional telecommunications engineer and designs and builds circuits for switching and power splitting for the team and for his radio club IR4T. He prefers CW, but was willing to sacrifice by joining the SSB crew.

Another permanent member of the group is **Fabio, I4UFH**. Licensed since 1979 and now 41 years old, he is professionally engaged in computers and takes care of computing and networking in the group. He started contesting in 1980 and is the most experienced and enduring operator on the team. He lives in Bologna, but has modest antennas at home, so most fun and best scores have been attained in Lampedusa, Tunisia or on other contest excursions. In Cape Verde he holds the license D44TB.

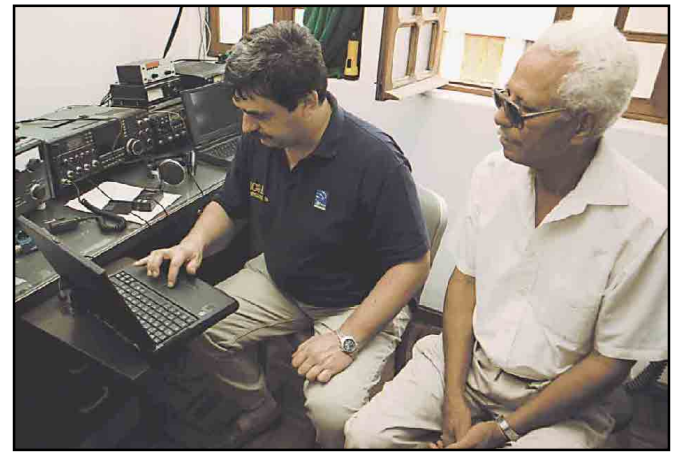
Alberto, IV3TAN, is 33 years old and received his license in 1987. His interest in radio started at the age of 12 in Trieste. Alberto was fortunate to receive good guidance from the local radio club and later by the famous Big Gun I3MAU in Padova. Alberto has in the past joined teams of IR4T, 4U1ITU and IG9A. He holds a couple of world records in CQ WW from Lampedusa. Expeditions to Lampedusa, a small island belonging to Italy, but located near Africa, gave him a lot of experience which was evident in Santa Maria, Sal Island. Alberto has the D44TC license.

Vittorio, I4YSS, is 45 and is a professional job recruiter. I had to press him really hard to get any information from him, as he is so quiet. Vittorio is responsible for the IR4T radio club license, and the famous "Mushroom" near Modena. Licensed in 1979, he has an impressive 6-meter stacked array on a 100-foot tower at home.

Santos, CT1DVV (alias CT8T) has a very impressive station in Coimbra, Portugal. I visited him a few years ago,



The run station—changing operators sometimes required The Force. Alberto, IV3TAN, persuades Matteo, IK2SGC, to keep the rate up.



Giorgio, I2VXJ and Angelo, D44BS, in Praia, Sao Tiago, Cape Verde.

After the contest everybody is shaved, fed, and rested. From left: Matteo, IK2SGC, Xara, CT1EKF/D44TD, Vittorio, I4YSS, Fabio, I4UFH, Alberto, IV3TAN, Gabriele, IK4UPB, Franco, I4LCK and Santos, CT1DVV.

but he was busy shouting "CQ contest" and I could only talk to his son, Antonio CT1ESV. Santos became interested in radio quite late, namely in 1987. Together with his son, they have built probably the best contest station in Portugal, often guest-operated. So when you hear CT8T in a contest, it can be Santos or a visitor.

Matteo, IK2SGC, was the first team member I ever met—at the airport of Lisbon, Portugal. We were waiting for the departure to Sal when a young man came up to me and asked, "Are you Henryk?" I can't lie, so I admitted it. He had been told by Alberto that I might be on the same flight, so it was not pure intuition. Matteo is 34, lives in the fashionable quarters of Milano, works in software, and nowadays prefers to go off-shore for contesting. He's been to VP5, EA6, KH6, and of course Lampedusa (IG9).

Choosing a team that needs no instructions and explanations is probably the most important factor. The second factor is choosing hardware that won't fail. But a good score is not possible without the myriad of Amateur Radio operators who participate in a contest, who will respond to your "CQ contest" calls. Without them and without their alertness and patience, a good contest score is not feasible.

Table 1
D44TC Multi-Single CQWW SSB 2001

Band (meters)	*QSOs*	*Points*	*Zones*	*Countries*
160	154	449	14	59
80	204	593	23	87
40	303	890	29	98
20	2436	7269	39	148
15	2481	7376	37	152
10	4324	12919	39	166
Totals	**9902**	**29494**	**181**	**710**

Claimed score: **26,280,936 points**

Results

The team's claimed score can be seen in Table 1.

Rates: The best rate occurred between 0100 and 0200Z on the first day—295 QSOs/hour. The second best rate was between 1100 and 1200Z—293 QSOs/hour. The worst rate took place between 0700 and 0800Z on the first day—133 QSOs/hour.

Country Breakdown: 4221 QSOs were with the USA, 755 with Germany, 544 with Italy, 365 with European Russia, and 313 with Canada.

Zone Breakdown: 2062 QSOs were with Zone 5, 2000 were with Zone 14, 1742 were with Zone 15, and 1685 were with Zone 4. Zones 23 and 34 only had 2 QSOs each.

The run station was an ICOM IC-756PROII transceiver with a 1500-W amp. It had switchable antennas: a Force 12 C4XL and a C19XR. Two operators listened on the same frequency on the two separate antennas, which were controlled by the transmitting operator. The listening operator only received.

The multiplier station was an ICOM IC-751A transceiver with three separate amplifiers (Alpha and Kenwood). It had a vertical antenna for 20-10 meters, one C4XL, a Titanex vertical for 160 and 80 meters, and Beverage wires for receiving.

The network used five laptop computers in a net, with the multiplier stations receiving only new multiplier infomation. The connection to DX Cluster was arranged temporarily by Xara, CT1EKF, but telephone line RFI precluded using the Internet during the contest.

The station is permanent and will be used by members of the group and their guests. Renting is not possible at this stage, but might become available in the future.

All photos by the author.

Log Analysis with Excel—Computing the Sprint Doofus Factor

H. Ward Silver, N0AX
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If you'd like to do a little "data mining" in your contest logs, you may have a very powerful pick and shovel on your computer already—a spreadsheet! See how Ward, N0AX, computed his Sprint Doofus Factor with common spreadsheet functions. This was presented at this year's Visalia DX Convention.

Introduction

There are a lot of interesting metrics that are provided by the authors of contest logging software: continental breakdowns, multiplier lists, rate. Yet every contester probably has at least one non-provided measurement that he or she would like to have. Writing one's own software to do the necessary analysis can be quite a job, even for those skilled in the art. Luckily, modern spreadsheet programs, such as Excel, can make the job a lot easier with their built-in functions, and are very common tools on the home computer.

In my case, I was interested in looking through Sprint logs to find ways to improve my score. As I have a fair amount of experience with Excel, I jumped in to find out whether I could use it as a log analysis tool. The answer was "yes", once I overcame several technical hurdles.

In this article, I'll describe the techniques you can use to get a useable log into spreadsheet format, work with time data, and show I computed my own personal metric—the Sprint Doofus Factor. This article is based on the use of Excel 97, TR-LOG DAT files, and Cabrillo-format log files, but the techniques should translate well to other spreadsheets and ASCII-type log data.

Getting the Log into the Spreadsheet

The first problem is how to get a contest log into a spreadsheet so that all the information is separated consistently into columns. It is not immediately obvious to the beginner that a spreadsheet can open anything other than a spreadsheet file—when you select the File menu and then the Open selection, the program only shows files it recognizes as spreadsheet data. To see all of the files—look for the "Files of type" option at the bottom of the Open File window. Change the file type from "Microsoft Excel Files" to "All Files" and browse to the directory with your log files in it (backup those files first to avoid any non-reversible edits on your precious logs!). You can now see log files and select one to be opened by Excel. The procedures in this article will only work on ASCII text files, so don't select a CT BIN file, for example. Have the logging program generate an ASCII formatted file first.

Opening the log file will activate a "Text Import Wizard" which has three major steps: selecting the right method of breaking up the file into columns, setting the column boundaries, and picking the right format for each column of data. As you make choices at each step of the way, the wizard also shows you how your data will look in the spreadsheet. This makes it very easy to import your data in just the way you want. For TR-LOG DAT files, select "Fixed-Width", and for Cabrillo, "Delimited".

Step 2 requires that you set the column boundaries to suit the data in each column. If you choose the Fixed-Width option, you'll have an opportunity to actually adjust each boundary on a space-by-space basis. The best thing is to place the boundaries at the right edge of the data column and let any empty space fall to the left of the data. If you choose the Delimited option, you should then select Space delimiters, which will automatically separate the data into columns based on the presence of spaces.

Step 3 is very important to being able to analyze the data properly with respect to time. Select the column containing the QSO date (not time) and apply the Date format. Select Finish to end the import process. Immediately change the name of the file (File menu, Save As selection) so that you don't overwrite the original data.

Now, like the butcher in the store, it's time to trim off the fat by removing all of the header and label rows. At the top of the file, you'll see some text rows that do not have QSO data in them. Highlight and delete them (Edit menu, Delete selection). If you started with a Cabrillo file, you're ready for some data manipulation. If you started with a DAT file, you have a file containing logged QSOs interspersed with additional page labels and column headers that must be winnowed out. You can do this by using the Sort function.

Select all of the data in the spreadsheet by either typing Control-A or using the mouse to highlight all of it. Then select the Data menu and the Sort selection. For the "Sort by" option, select the column containing Date. For the

Band	Date	Time	QSO #	Call	Exch #	Name	QTH	New Mult	QSO Pts
14	10-Feb-02	0:00	1	N5TJ	1	JEFF	Tx	Tx	1
14	10-Feb-02	0:01	2	W5KFT	2	ROB	Tx		1
14	10-Feb-02	0:01	3	W6EEN	4	DOUG	Ca	Ca	1
14	10-Feb-02	0:02	4	K8MR	6	JIM	Oh	Oh	1
14	10-Feb-02	0:02	5	K9AA	5	PAUL	Il	Il	1
14	10-Feb-02	0:03	6	K4BAI	7	JOHN	Ga	Ga	1
14	10-Feb-02	0:04	7	K0RF	7	CHUCK	Co	Co	1
14	10-Feb-02	0:04	8	N6ZZ	9	PHIL	Nm	Nm	1
14	10-Feb-02	0:05	9	N7FO	9	OZ	Az	Az	1
14	10-Feb-02	0:05	10	W7WA	8	DAN	Wa	Wa	1
14	10-Feb-02	0:06	11	K3AW	7	STEVE	Ca		1
14	10-Feb-02	0:06	12	N6XI	8	RICK	Ca		1
14	10-Feb-02	0:07	13	K1AR	11	JOHN	Nh	Nh	1
14	10-Feb-02	0:08	14	N4OX	7	JAY	Fl	Fl	1
14	10-Feb-02	0:09	15	W5TM	10	ED	Ok	Ok	1
14	10-Feb-02	0:10	16	N4ZR	12	PETE	Wv	Wv	1
14	10-Feb-02	0:10	17	N5UM	9	AL	Tx		1
14	10-Feb-02	0:10	18	W6UE	18	MIKE	Ca		1

Figure 1—Log data imported into a spreadsheet, sorted in date/time order, and ready to analyze. The labels were added for the reader's convenience.

COUNTA(I$1:I5)

Column I

14	10-Feb-02	0:00	1	N5TJ	1	JEFF	Tx	Tx	1
14	10-Feb-02	0:01	2	W5KFT	2	ROB	Tx		1
14	10-Feb-02	0:01	3	W6EEN	4	DOUG	Ca	Ca	2
14	10-Feb-02	0:02	4	K8MR	6	JIM	Oh	Oh	3
14	10-Feb-02	0:02	5	K9AA	5	PAUL	Il	Il	4
14	10-Feb-02	0:03	6	K4BAI	7	JOHN	Ga	Ga	5
14	10-Feb-02	0:04	7	K0RF	7	CHUCK	Co	Co	6
14	10-Feb-02	0:04	8	N6ZZ	9	PHIL	Nm	Nm	7
14	10-Feb-02	0:05	9	N7FO	9	OZ	Az	Az	8
14	10-Feb-02	0:05	10	W7WA	8	DAN	Wa	Wa	9
14	10-Feb-02	0:06	11	K3AW	7	STEVE	Ca		9
14	10-Feb-02	0:06	12	N6XI	8	RICK	Ca		9
14	10-Feb-02	0:07	13	K1AR	11	JOHN	Nh	Nh	10
14	10-Feb-02	0:08	14	N4OX	7	JAY	Fl	Fl	11
14	10-Feb-02	0:09	15	W5TM	10	ED	Ok	Ok	12
14	10-Feb-02	0:10	16	N4ZR	12	PETE	Wv	Wv	13

Figure 2—Cumulative totals can be created by using the COUNTA function as shown to create a column containing the total.

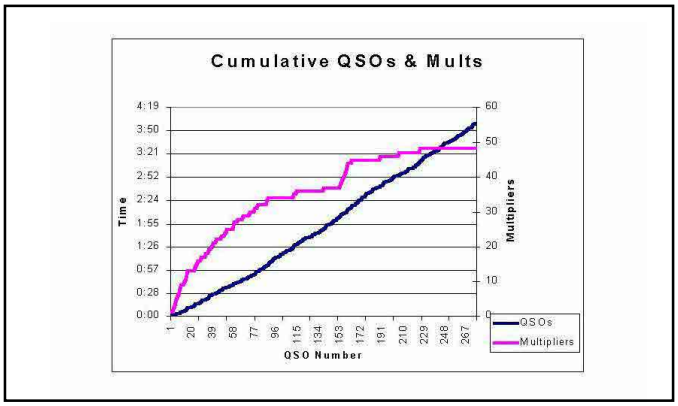

Figure 3—A cumulative QSO and Multiplier line graph made by using the COUNTA function to create the totals and the Chart Wizard to make the line graph.

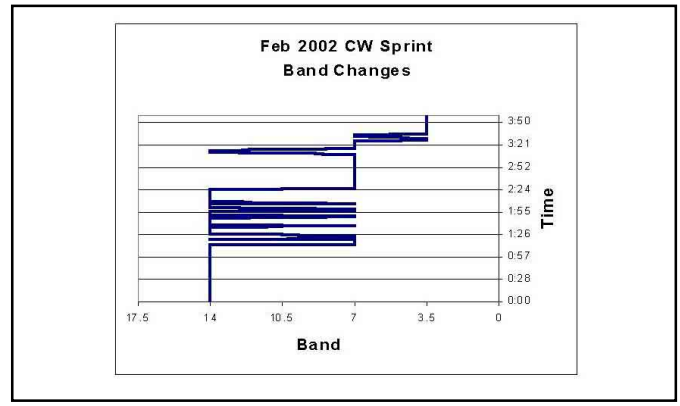

Figure 4—By plotting each QSO's time and band on a scatter plot, a nice chart of band changes can be created without any sorting or counting.

"Then by" option, select the column containing Time. Click on OK and the spreadsheet data will be arranged with each QSO in date-time order and all of the header, label, and blank rows at the bottom of the spreadsheet. You can either leave them alone or delete them—the remaining operations will ignore them.

This is the time to make any necessary tweaks. You might want to change the band data to frequency or wavelength ("14CW" to "14" or "20") so that you can sort numerically by band. You can rearrange or add columns, if you desire. Review the spreadsheet for anything "irregular"—like bad QTHs or erroneous multipliers—so that you can edit or remove it. The result should look like **Figure 1**. Congratulations—your log is now spreadsheet friendly! Save a copy with a temporary name and press on, remembering to save temporary copies before making any major changes.

Common Analysis Functions

Spreadsheets have several powerful functions that are very useful in log analysis, such as time sorting, value sorting, counting, and plotting. The automatic plotting functions make constructing a graph very straightforward. There are line and bar graphs, frequency distributions (also known as histograms), scatter plots, pie charts, and more. There is also a "Chart Wizard" that guides you through each step of creating the graph.

For example, using the Data menu's Sort selection, you can sort the log by name, frequency, band, exchange data, call, time—any distinct type of data. The three major counting functions (COUNT, COUNTA, and COUNTIF) can tally sections, countries, prefixes, and so forth. By using some math functions, you can create trend information such as cumulative QSO or multiplier totals.

Try this—create a file sorted by call and then by time to see how many times you worked each station. Access the Sort function through the Data menu. For the Sort By criterion, select the column containing the callsigns. For the first Then By criterion, select the column containing Date, and for the second, the column containing Time. Select OK and you have a sorted log. If you make a mistake, the Edit menu's Undo selection puts you right back where you started.

Here's another useful exercise. Create a cumulative count of your QSOs and multipliers by using the COUNTA function. If column I contains the new multipliers, then the function COUNTA(I$1:I5) entered into cell J5 will give a cumulative count of all the new multipliers from cell I1 to cell I5. By copying this formula into each cell of column J (and letting Excel adjust the cell references as it does so), column J will contain the cumulative multiplier total with each QSO as shown in **Figure 2**. The dollar sign in the formula keeps the cell at which the count starts fixed in the first row. You can do the same by counting QSOs and then use the line graph to create a neat chart of cumulative QSOs and multipliers as shown in **Figure 3**.

Figure 4 shows a nifty band-change chart that was created by telling the Chart Wizard to create a scatter plot using the band and time data. No additional sorting was required at all—just using the controls of the Chart Wizard.

I'm sure your fertile mind is already thinking, "Why, if I counted (blank) and sorted by (blank), I could compute (blank)!" Don't be afraid to experiment. As long as you keep a copy of the original log with a different name, you can't destroy any data. Excel has on-line help, so you can check out how to use each function. There are many tutorial and reference books available, as well.

Sprint Doofus Factor

As I mentioned at the head of the article, I got into this to look for ways to improve my performance in the Sprints. These are one of the most demanding, unforgiving contests of all. Even a momentary lapse can have significant effects on your score, so anything you can do to minimize them is a Good Thing. Because of the high rates of Sprint, it's easy to get "out of sync" and have short periods where you have trouble getting back in the groove—you feel like a "doofus". I knew that by minimizing these doofus periods, I would do my score big favors so I started looking for them. Once I found them, it was then useful to figure out how much of a doofus I was during any particular contest and those measurements became the Sprint Doofus Factor.

To compute the Sprint Doofus Factor I first found all of the QSOs in the contest during which the time it took me to complete a QSO exceeded the average time per QSO. The "Doofus Power" for that QSO was the extra time squared (in Watt-Me-Worry's, of course). For an average QSO-to-QSO time, the Doofus Power is zero. The worst (highest) Doofus Power in the log is my "Doofus PEP". The sum of all Doofus Power in the log is the Doofus Energy. These three measurements give me my Doofus Factor and the lower it is, the better I'm doing.

To compute the Doofus Factor, though, you have to be able to compute the difference in time between one QSO and its neighbors. This can be a bit of a hassle because Excel doesn't handle time as hours-minutes-seconds while contest logging software records QSO time as HH:MM. The internal representation of time is as a fraction of a day. Each minute is 1/(60*24) or 0.000694 of a day. If you select the TIME format for a cell, the data will be displayed as the familiar HH:MM, but the spreadsheet still stores it as a decimal fraction.

Figure 5 shows how Log Time (as

Log Time	QSO Time	QSO Time	QSO Time
	hh:mm	decimal	minutes
4:00	0:00	0	0
4:01	0:01	0.000694	1
4:03	0:02	0.001389	2
4:03	0:00	0	0
4:04	0:01	0.000694	1

THIS IS TIME CUT-AND-PASTED FROM THE LOG

CURRENT TIME - PRECEDING TIME = A4-A3 (TIME FORMAT)

DECIMAL EQUIVALENT (GENERAL FORMAT)

NORMALIZED TO 1 MINUTE AND ROUNDED OFF TO THE NEAREST INTEGER

=ROUND(C4/0.000694)

Figure 5—The various steps to being able to calculate the elapsed time for each QSO are required due to the way Excel stores time information.

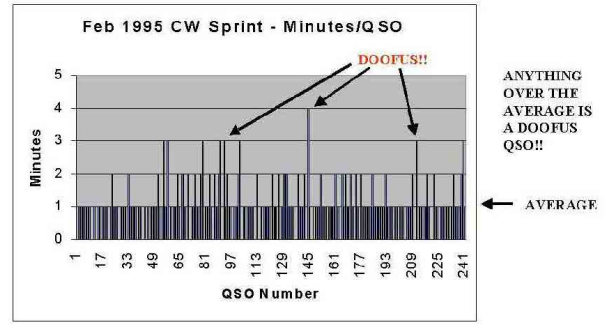

Figure 6—The Chart Wizard plots the Doofus Power for each QSO.

Log Time	QSO Time	QSO Time	QSO Time	Doofus	Doofus			
	hh:mm	decimal	minutes	Power	Energy			
4:00	0:00	0	0	0	0	Doofus Factor Calculations		
4:01	0:01	0.000694	1	0	0	One decimal minute	0.000694444	
4:03	0:02	0.001389	2	1	1	Average Min/QSO	1	
4:03	0:00	0	0	0	1	#Q's 2x as long	38	
4:04	0:01	0.000694	1	0	1	#Q's 3x as long	9	
4:04	0:00	0	0	0	1	#Q's 4x as long	1	
4:06	0:02	0.001389	2	1	2			
4:06	0:00	0	0	0	2	Doofus Avg. Power	0.33	
4:07	0:01	0.000694	1	0	2	Doofus PEP	9	
4:08	0:01	0.000694	1	0	2	Doofus Energy	80	

MINIMIZE THIS!

Figure 7 —With the Doofus Power and Energy computed at each QSO, a number of useful statistics can be easily computed.

available from the log data file in column A) is transformed into Elapsed Time in Column D. First, a column containing the time between QSOs is created in column B by subtracting the preceding QSO's Log Time from the current QSO's Log Time. For illustration, the data in column B is then copied to column C and the format changed to "General" so that we can see it in decimal form. Column D shows the result of dividing each value in column C by the decimal equivalent of a minute (0.000694) and rounding to the nearest integer with the ROUND function. Voila! Elapsed time in the number of minutes for each QSO! This makes computing the Doofus Factor easy. These extra columns of data can be either inserted into the main body of data or added at the left or right edges of the spreadsheet.

For starters, look through the log to get an idea of how much Doofus Power it contains. Figure 6 shows a bar chart created by using the Chart Wizard to plot the QSO's Elapsed Time vs. the QSO number. I created the Doofus Factor stats as shown in Figure 7 by counting functions that looked at each QSO's Doofus Power. Doofus Energy was totaled up with the SUM function. I want my log to have the minimum Doofus Power and Doofus Energy.

Conclusions

Does computing the Doofus Factor actually help? To a degree, it does. When I finish a Sprint, I usually have a strong feeling about whether I did better or worse. The Doofus Factor does give me a repeatable metric that I can use to qualify that feeling. In general, my Doofus Factors have gone down over the years and I am now working on minimizing Doofus PEP—which means fewer minutes with that "deer in the headlight" feeling. I can start to see the effect of consciously applying new strategies. This is useful because conditions vary strongly from Sprint to Sprint and raw QSO totals probably don't tell the whole story.

I hope you'll have thought up a couple of interesting measurements of your own during this article. I also hope you'll open your spreadsheet program and fiddle around to see if you can start generating your own log statistics. Spreadsheets have a lot of useful tools—sorting, counting, graphing—with which you can dig into log data. In addition, personal performance responds strongly to the right metrics—so this can be a useful way of assessing and improving personal performance. Finally, computing your own metrics is straightforward and costs little. What have you got to lose but your Doofus Factor? NCJ

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The Dayton CW Pileup Contest

Here's a quick summary of the famous Kansas City DX Club (KCDXC) CW Pileup Contest that is run at the hospitality suite hosted jointly by the Western New York DX Association and the KCDXC.

Ninety-five brave souls lined up outside the third-floor room where the Dayton 2002 CW Pileup Contest took place. There were participants who had been there many times in years past, as well as newcomers.

The table in the room accommodated 6 participants at a time. After getting settled in, each participant went through a personal ritual to get ready. The tape started with an introduction, and then it got right down to business.

The calls coming from the headphones were high-pitched, low-pitched, pure T9 tone, raspy, buzzy, drifting, slow, fast, etc. They weren't sequential, either — they came one at a time, two at a time, overlapping, and a bunch at a time. Hey, this is a CW pileup contest, isn't it? You name it, it happened.

After the dits and dahs stopped and the results tabulated, Yuri Onipko, VE3DZ, ended up on top with 56 calls correctly copied. The accompanying table shows how other participants did, down through fifteenth place. NCJ

CW Pileup Contest winner Yuri Onipko, VE3DZ, is on the far right on the near side of the table. Others in this session included (clockwise from Yuri) W9PJ, K1AR, KU8E, KC5R, and VE3XB.

Number of calls copied correctly	*Callsign(s)*	*Rank*
56	VE3DZ	1st
54	W9WI	2nd
52	VE3NE	3rd
51	N2AA	4th
50	N9RV	5th
49	9V1YC	6th
48	G3SXW	7th
47	K3ZO	8th
46	N2NC	9th

K1AR, K1DG, K9LA, S56A, K0VBU, K1VR, K5PI, N4JJ, W4DF, G4BWP, K9NW, K9WA, VE3XB, W3EF, W4PA, K0BJ

The first through ninth place finishers won prizes for their efforts. For the full results, visit **www.qsl.net/kcdxc/pileup.htm**.

Shorts

ARRL CONTEST RATE SHEET

◊ The ARRL Contest Rate Sheet is published every other Wednesday by the ARRL. It offers a useful source of timely information for both the active and casual contester. The Rate Sheet includes information about events during the following two-week period, time-sensitive news items, upcoming deadlines, and other news of interest to contesters.

The Rate Sheet is edited by frequent *NCJ* contributor Ward Silver, N0AX. The flavor of the publication is reflected in the summary of topics for the July 31, 2002 issue:

- Fall contest season kicks off with Worked All Europe CW on Aug 10-11
- Software available for SEANET and MD-DC QSO Party
- Early Bird WRTC log program a big success
- On-line Soapbox for ARRL contests a hit
- A big "Kiitos" to Finland from K1TO, WRTC co-champ with N5TJ

Also featured is a "Busted Calls" section, where last minute changes or corrections to contesting information can be distributed. Again, from the July 31 issue:

- Don Field, G3XTT reports that the email address for IOTA contest logs was incorrect in Contest Corral for July. The correct address is **iota.logs@rsgbhfcc.org**.
- Pierre, VE2PIJ, reports an error in the Web site for the New Jersey QSO Party rules. The correct URL is **http://pages.infinit.net/ve2pij/njqso.html** (i.e., no "www" preceding the rest of the address)

The Rate Sheet is available to ARRL members via e-mail free of charge. If you're not already registered on the Members Only Web Site, go to **www.arrl.org/members/** to register. Once registered, subscribe at: **www.arrl.org/members-only/memdata.html?modify=1**

Past issues of the Rate Sheet, dating to mid-March, are available at **www.arrl.org/rate-sheet/**.

ARKANSAS QSO PARTY TO MEMORIALIZE K5GOE

◊ Bill Smith, K1ARK, reports plans to continue the Arkansas QSO Party in memory of fellow University of Arkansas faculty member Woody Charlton, K5GOE, who died earlier this year. Charlton was instrumental in the staging of the event, and was a longtime driving force behind the student station at the University of Arkansas, W5YM.

The Arkansas QSO Party is scheduled between the two Sweepstakes, on November 9 and 10. Bill can provide more information at **bismith@uark.edu**.

2002 COLLEGIATE CHAMPIONSHIP

◊ Collegiate radio clubs around the United States will put their stations to the test on November's Sweepstakes weekends in the 2002 Collegiate Championship. Held concurrently with the ARRL Sweepstakes, the Collegiate Championship allows participation by all members of a collegiate radio club, including alumni. Teams may enter any class of the ARRL Sweepstakes and participate. While the School Club class of the ARRL event precludes alumni participation, alumni are welcome to submit a class A, B, Q, U or M entry to ARRL and simultaneously participate in the Collegiate Championship.

Past champions include Stanford University, W6YX, Caltech, W6UE, Penn State, K3CR, and Georgia Tech, W4AQL. Participating schools range from the large (e.g. Texas, N5XU) to the small and specialized (e.g. UConn Law, KB1GTB).

For rules and information, visit the Collegiate Championship web page at **www.collegiatechampionship.org**.

Contest Forum Roundup at the Dayton 2002 Hamvention

Doug Grant, K1DG
k1dg@contesting.com

In case you missed the Contest Forum at this year's Dayton Hamvention, here's K1DG's summary of this popular event

The 2002 Contest Forum covered a lot of ground. The first speaker was Bob Whelan, G3PJT, president of the Radio Society of Great Britain (RSGB). Bob is an experienced contester, and author of a recent book titled *Reflections in a Rose Bowl*, detailing the history of the Commonwealth Contest, probably the longest-running DX contest in the world. Bob discussed the RSGB's contest program, including the relatively new IOTA contest, which supports the IOTA award program, and the Commonwealth Contest. Now I don't know about you, but every spring I've been frustrated hearing all kinds of former British territories working each other in this contest, also known as the "BERU" (British Empire Radio Union, its old name) contest.

Somehow, the United States (also a former British colony) lost its eligibility to participate—probably around 1776. The eligible countries have prefixes all the way through the alphabet, including some really great DX. Anyway, Bob's big announcement was that the 2002 Commonwealth Contest would be open to all countries in honor of Queen Elizabeth's Golden Jubilee (the contest was held in early June, and it seemed to enjoy a lot more activity than previous years). Various special event stations will be operating throughout the year in honor of the Jubilee. God Save the Queen!

The next speaker was ARRL Membership Services Manager Wayne Mills, N7NG, filling in for Dan Henderson of the Contest Desk who was unable to attend at the last minute. Wayne gave an update on some of the news around the ARRL Contest program, and presented the SS Club Award gavels to the River City Contesters (Local), Mad River Radio Club (Medium), and for the second year in a row, the Society of Midwest Contesters in the Unlimited Category. Who would have ever imagined a Sweepstakes dynasty in the Midwest? Isn't SS a West Coast and Texas event?

Wayne also dealt with the issue of possibly-reduced contest coverage in *QST* that had sparked so much on-line controversy. Wayne explained that the goal of any possible change in contest coverage in *QST* would be to make the contest write-ups more appealing to the

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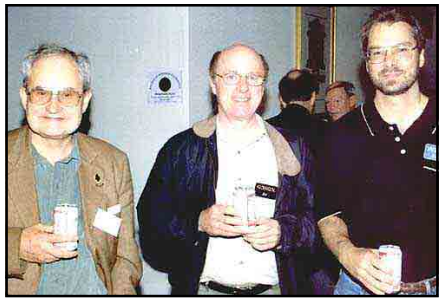

Contest Forum speaker Bob Whelan, G3PJT (left), with G3SQX (middle) and W2SC (right).

K8CX PHOTO

Contest Forum moderator Doug Grant, K1DG (left), with G3SXW (right).

Photos from the Dayton 2002 Hospitality Suites at the Crowne Plaza

The hospitality suites were alive and well at this year's Dayton Hamvention. They were packed every night, and one could easily achieve "Eyeball WAC" in a matter of minutes. From bottom to top, the second floor had the Contest Super Suite, which was jointly sponsored by the North Coast Contesters, the Frankford Radio Club, and the Mad River Radio Club. The Western New York DX Association and the Kansas City DX Club jointly sponsored the third floor suite. The Northern Ohio DX Association sponsored the tenth floor suite. The North Jersey DX Association and the Society of Midwest Contesters each sponsored suites on the twelfth floor. Here are several pictures from K8CX's hamgallery web site.

Many members from the Florida Contest Group (FCG) assembled for a group picture. Over half were wearing their distinctive orange club shirt. How many contesters can you identify?

The banner in the background should be a dead give-away for the group sponsoring this hospitality suite. It symbolizes the "black hole" of propagation in the Midwest. Who else could it be but the Society of Midwest Contesters (SMC)? Check out Adventures in Contesting elsewhere in this issue—one of the SMCers is covered with "black holes."

This is the part of the crowd at the joint Western New York DX Association and Kansas City DX Club (KCDXC) hospitality suite on one of the nights. The KCDXC runs the popular CW Pileup Contest. If you haven't participated in one of these, take a shot at next year's event. It is very interesting, to say the least!

average ham, and encourage them to participate. More participation in contests is a good thing! In parallel with a different approach to the write-ups, the line scores, with a great deal of enhanced detail that simply cannot fit in the print version of *QST*, would be moved to the Web. Wayne pointed to the SS results on the Web as an example of how ARRL's contest coverage could be enhanced. When Wayne concluded, I asked the audience what they thought of the on-line SS coverage, and the thunderous ovation indicated approval.

The WRTC2002 organizers, including Ambassador-at-Large Dennis Motschenbacher, K7BV, and Martti Laine, OH2BH, reported on the status of the preparations for the event and fundraising activities. Things are progressing well, and as of Dayton weekend, antennas at 33 of the 52 stations were installed and operational. Martti observed that since Finland has no mountains, all stations will be at the same elevation and nobody will have an advantage or disadvantage in local terrain. Furthermore, all tribanders have been installed within an inch (!) of the same height, so nobody will have an advantage or disadvantage in antenna height. This is in contrast to past events, where despite the organizers' best efforts, there were always variations in QTH, antenna height, etc.

The *NCJ*'s own Hardware Addict, Mark Beckwith, N5OT, presented some ideas on console design for a contest station. He began by showing photos of a wide range of single-op and multi-op stations, pointing out little problems with each, down to the details like sharp edges on operating desks pressing into operators' forearms. Mark noted that he believes that the monitor is now the centerpiece of station design, since we spend a lot of time looking at the screen, and it should be placed central to the operating position, and at an ergonomically-correct height. He also noted that radio front panels are much easier to see when the radio is "raked", or sloped, down away from the operator so that the front panel faces slightly upwards. He showed several examples of custom consoles he has built over the past 20 years, mostly of wood.

Humor was abundant in the Forum. Resident humorist K2WR filled the breaks between speakers with a series of "advertisements". Examples: a sales pitch for "Briggs-Tippett Replacement DX Windows", promos for the next Hiram Percy Springer Show ("Contesters who spot themselves, and the people who work them, etc."), and a new TV series—"Survivor P5"; and an introduction to the news parody "Contest Weekend Update." NCJ

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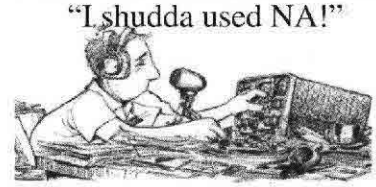

6 Of the Top Ten Stations in 1996 WRTC Contest Used NA!

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Contesting Cuisine at the 2002 Dayton Hamvention

John Dorr, K1AR
k1ar@contesting.com

Come on along as K1AR takes us on a quick trip through this year's Contest Banquet activities.

It's hard to believe, but this year's Dayton Hamvention included the successful running of the 10th annual Contest Banquet. A dinner by contesters for contesters, the banquet has become known as a high rate, high quality affair.

Speaking of Speakers

As preparations take place each year in advance of the event, we're often struck with the challenge of finding a captivating speaker who brings along an impressive pedigree as well. As it turned out, this year was no exception, as we enjoyed the unique insight of Joe Taylor, K1JT, who has the distinction of being both a 1993 Nobel Physics Laureate and Dean of Faculty at Princeton University.

Joe is an example of the depth of our hobby in general and contesting in particular. During the evening, we were able to discuss issues of keeping a run frequency alive while interspersing the conversation with thoughts of binary pulsars and Einstein's Theory of Relativity. With Joe's support, the audience was reminded again why contesting is much more than just a numbers game between hams.

Whether it's a General in the Slovenian Army (S50A), a 3-star Navy Rear Admiral (K0DQ), or a three-time World Series winner (NK7U), this event we call the Contest Dinner has proved to be memorable.

Entry into the Hall

One of the dinner's annual traditions has been to provide a venue for the induction of new members into the CQ Contest Hall of Fame. This year, Leif Ottosen, OZ1LO, was added to this distinguished list as the 39th inductee to be so honored. Nominated by the Danish DX Group, Leif's achievements in CW contesting, as well as his knowledge of propagation and DX, have made him well known and respected around the world.

First licensed in 1961, Leif won the Danish Christmas Contest in 1963 on CW, and this gave him the incentive to participate in international contests from then on. He has been an icon in contesting ever since, operated in the major phone and CW contests from 1965 to present-day with top-scoring results as both a single operator and as part of multi-op single transmitter teams.

Contest Banquet Moderator John Dorr, K1AR

Contest Banquet Featured Speaker Joe Taylor, K1JT

In addition to being a devoted contester, Leif is also an avid DXer, having achieved 5BDXCC in July 1970. He is also a member of the DXCC Honor Roll CW, Phone, and Mixed, and has qualified for endorsements on five additional bands. In addition, he is a member of the First Class CW Operators Club (FOC).

Leif has been secretary of the Danish DX Group since it was founded in 1972 and takes part in the Danish national society, the EDR, as a member of the HF committee and representative of the EDR at IARU Region 1 meetings. He was the editor of the DX section of *OZ* magazine from 1974-76 and has written numerous articles on contesting and DXing, which have been an inspiration to Danish radio amateurs. Congratulations, Leif!

And Finally…

After each contest dinner, we step back and look at what we did right and what needs improvement for next year. For most attendees, the bottom line is that they receive over two hours of great entertainment and camaraderie, which is the primary mission. I don't know how many more generals and baseball all-stars are left in our midst, but I do know we won't give up trying to make next year's event live up to its reputation! NCJ

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A California Contester in King DXer's Court—A Contester's Perspective on the Visalia International DX Convention

Rick Tavan, N6XI
n6xi@arrl.net

It was one of those hand-wringing talks that used to strike fear in my younger heart. "What's a nice contest boy like you doing in a place like this?" asked the little old lady, in obvious distress. "Well, you see, Momma," I replied, "there is a lot here for a contester to do … and it's educational, too! And besides, all my friends are doing it." She scowled. "Well, don't you go developing any bad habits, Rickeleh," she said. "Those DXers are a rowdy lot. Their rates are awful. They hardly ever CQ. They listen forever and they monitor packet even though they are single op. They call too long on a single frequency AND," she shuddered, "I think some of them are using LISTS!"

"Oh, don't worry about me, Momma." I searched desperately for some way to reassure her. "I'm a big boy, now. You taught me well. I'm a good contester and I would never do anything to bring shame on our contesting family." "That's my boychik," she sighed, "I know you'll keep the traditions. But please be careful out there."

Yes, folks, contesters do attend the annual International DX Convention, held most often in Visalia, CA and sponsored jointly by the Northern and Southern California DX Clubs. And they attend in large numbers, filling the banquet hall at the Friday night Contest Dinner and overflowing the NCCC Hospitality Suite. Some of the contesters at Visalia are actually DXers themselves and we all enjoy the good company, good food and good guffaws everywhere, and the good goodies in the exhibit hall.

Among many other things, this year contesters got to view the new Elecraft K2/100 expedition and home station transceiver; the latest in gain, portability and/or stealth from Force 12; the awesome portable 90-footer from US Tower; auto-tune Alphas and other amps; the new SteppIR length-adjusting antenna; and no less than three new logging and station control software programs.

Visalia is not the biggest hamfest of the year, nor is it the most geographically convenient. In order to draw from both the San Francisco and Los Angeles metropolitan areas, the organizers long ago converged on California's great Central Valley, breadbasket for the nation and home of the small cities of Fresno and Visalia, which approximate a geographic midpoint between the two metropolitan areas. Nor is attendance at Visalia limited to those of us who live in daily fear of sinking into the Pacific Ocean. Friends from all over the US, Europe, Japan, and elsewhere join us every year as a few hundred of ham radio's most active operators, expeditioners and station builders make the drive to join their peers in celebration of the two most interesting ways to heat the ionosphere: contesting and DXing. (To beat the long, boring drive, when weather permits, some fly in to the Visalia Municipal Airport, conveniently located next door to the Holiday Inn convention venue. But that is a different story.)

The highlights of Visalia for the contester include the Contest Dinner, the Contest Forum, and the NCCC hospitality suite. The Friday night Contest Dinner is arguably the largest annual confab of contesters west of Dayton. This year, Tom Taormina, K5RC, won your reporter's Nostalgia Award with his "Where Are They Now" program, a fascinating and frustrating collection of photos of great contesters of yesteryear. Some are now silent keys, but most are contesting still and many were in attendance at the convention, albeit with shorter, thinner hair and larger waistlines.

W6YA and N7NG won the prize for identifying the most contesters in this walk down memory lane. Vince Thompson, K5VT, and teammates presented their expedition to Ducie Island, VP6DI. Your reporter's Laughs Trophy went to lab-coated Dr. Beldar for his presentation "Contest Emporium, Products You Might NOT See at The Hamfest." Ward Silver, N0AX, and Research Assistants K2KW and K6AW discovered the mind-numbing potential of such devices as the waterproof FT-1000MP Mark V Field and Stream, the Que, Too? for hearing QRPers, Nieger-agra to enhance your on-the-air presence and the color-coordinated Shack-in-a-Purse for YL contesters. And finally, what hamfest would be complete without a raffle? There were plenty of contester-friendly prizes for lucky attendees.

ARRL Southwestern Division CAC Rep Ned Stearns, AA7A, chaired this year's Contest Forum, part of the single-track hamfest program. Also on the panel were Northwest Division CAC Rep Ward Silver, N0AX, West Gulf Division CAC Rep Joe Staples, W5ASP, and Dick Norton, N6AA, representing CQ Magazine. Contest coverage in *QST* was a hot topic and the forum provided an opportunity to relay some of the conclusions reached by the ARRL after last year's controversy. *QST* coverage will shrink some but online coverage will improve vastly, meeting many of the requests heard from the contesting community.

We can look forward to such improvements as machine-readable online reports that allow slicing and dicing to our hearts' content, online log checking reports, expanded soapbox and article coverage and enhanced detail on stations and their performance. Also noted: rules for club competition are improving, and Cabrillo is achieving very high acceptance now that people and software have become accustomed to it. Contesters are still asking for improvements in the contest submission robot and a way to track scores by hours of operation as well as absolute score. Perhaps the slice and dice capability will allow that. The forum is a good way for our contest organizers to hear from us and for us to hear what they are hearing!

The NCCC hospitality suite is a great late night gabfest where some of contesting's finest events have been debriefed and sometimes even designed. Ask Rusty Epps, W6OAT, about the origins of WRTC!

Contesting is big at Visalia, and you don't have to be a DXer to enjoy it. It's a good alternative to or warm-up for Dayton and a wonderful way to meet the competition, assess the next wave of QSO providers, greet your old friends, check out the vendors, thank the sponsors, jaw-bone the pundits and congratulate the organizers who make our hobby and this convention great. If you have not yet been to Visalia, check it out May 2-4, 2003. You will surely come to realize that the DX Convention is truly a Contest Convention as well. NCJ

Beverages: How Short Can They Be?

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Grayson, GA 30017
gabnjb@earthlink.net

When we think of Beverage antennas, we automatically think of several acres of land and lots of wire. Low band aficionados begin their consideration of Beverages at one wavelength. Not all of us have 540 feet available for a 160-meter Beverage, so we need to try other options, which is why we hear so much about EWEs, K9AY loops, flags, pen-

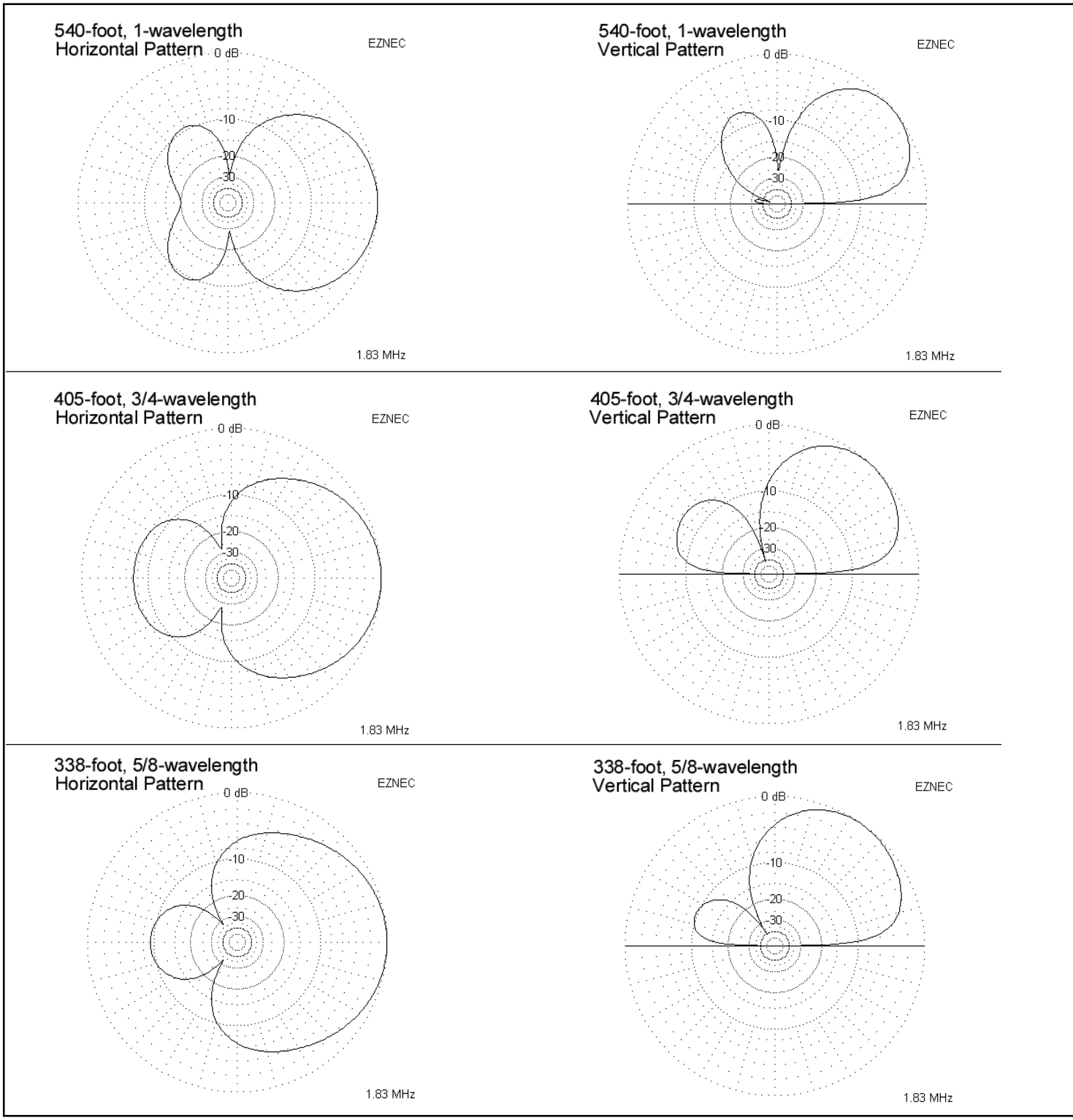


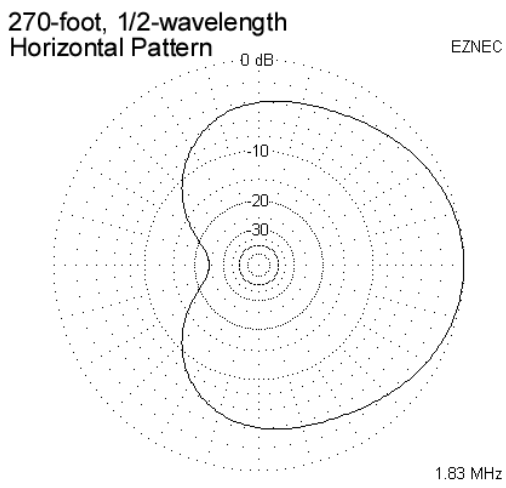
Figure 1—Radiation patterns of six different length Beverages from 1 wavelength down to 1/4-wavelength.

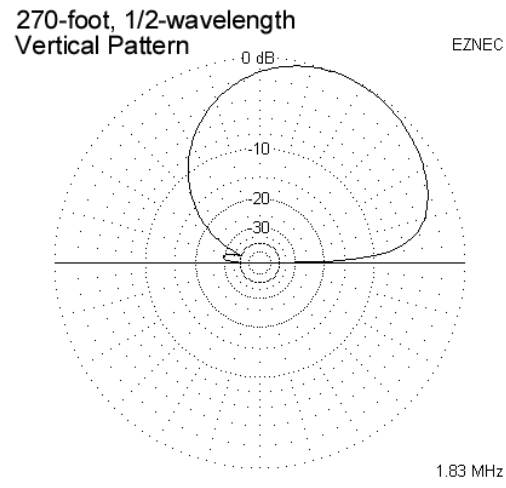
nants, slinkys, snakes, short vertical arrays and other small antennas.

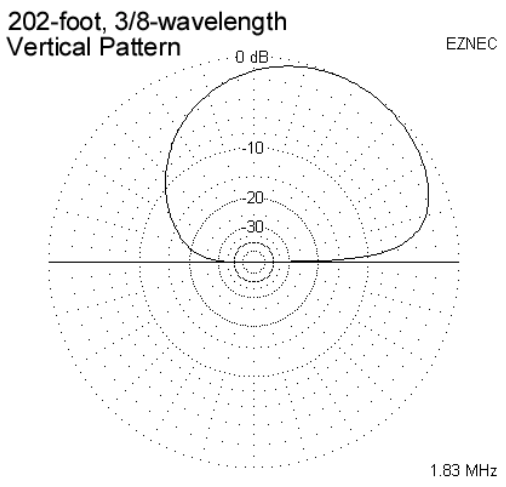
I'd like to discuss another option that hasn't gotten as much attention—short Beverage antennas. Although I will use *EZNEC 3.0* plots to show how these antennas work, this is *not* just a modeling exercise. I have used several different short Beverages and can testify to their usefulness. My experience also confirms that the computer-generated results are good representations of these antennas. Let's see how they work.

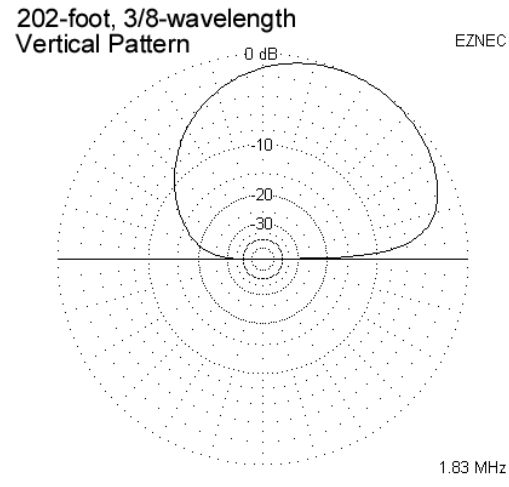
First, note that I will use the 160-meter band for all the antennas in this article. To apply the information to other bands, simply scale the lengths accordingly.

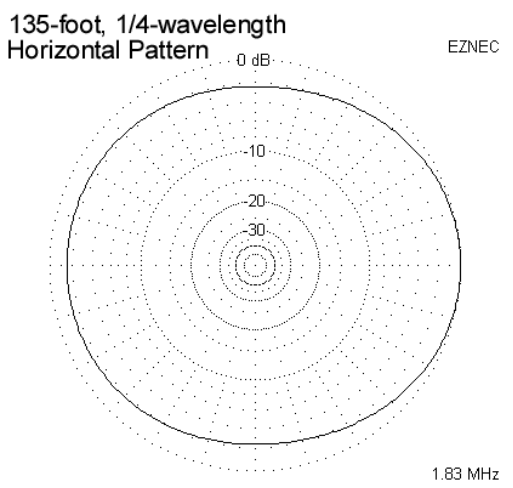
Figure 1 is a sequence of pattern plots for six Beverages, starting with a 540-foot long one-wavelength antenna, followed by progressively shorter versions down to 135 feet, or 1/4-wavelength. For each length, I used a simple resistor termination, with the resistance value optimized for best front-to-back ratio. All azimuth plots are at 30° elevation angle. You can easily see from this series of

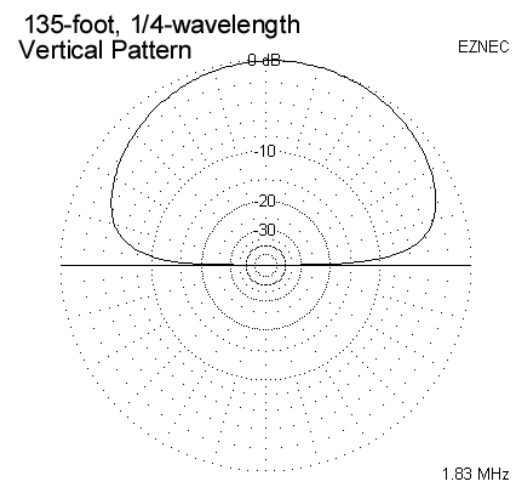












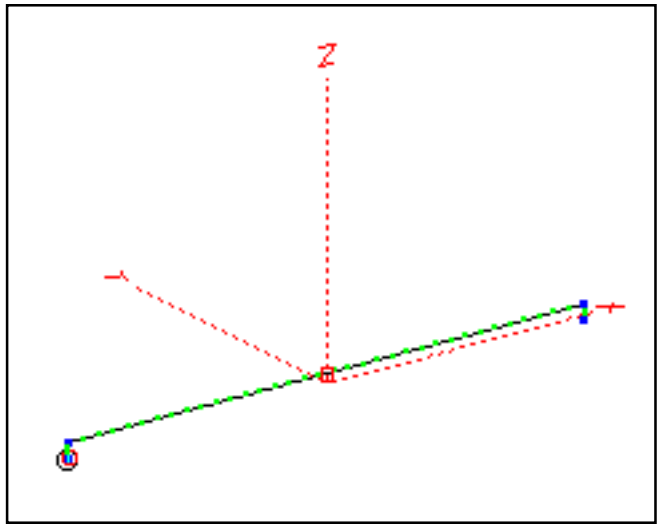


Figure 2—Diagram of a 1/4-wavelength Beverage with a loading inductor placed midway along its length.

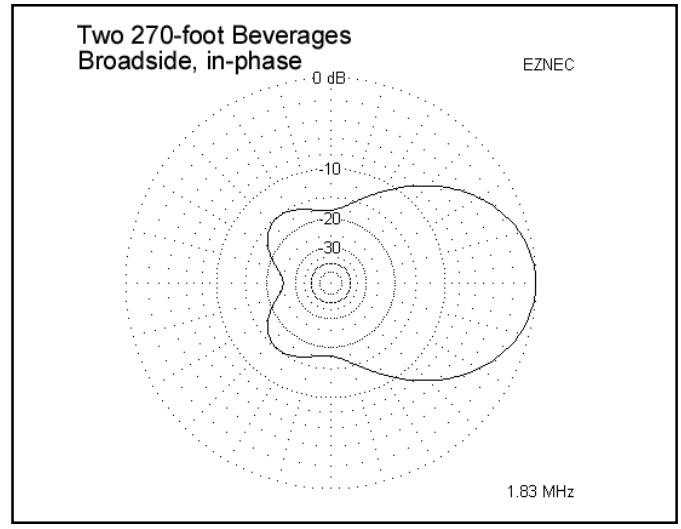


Figure 4—Horizontal pattern of a broadside array of two 270-foot Beverages, spaced 270 feet and fed in-phase.

plots that the patterns become less directive as the length decreases, although lengths as short as 270 feet (one-half wavelength) still have significant directivity. Once the length is reduced below 1/2-wavelength, directivity is hard to achieve in an ordinary Beverage configuration.

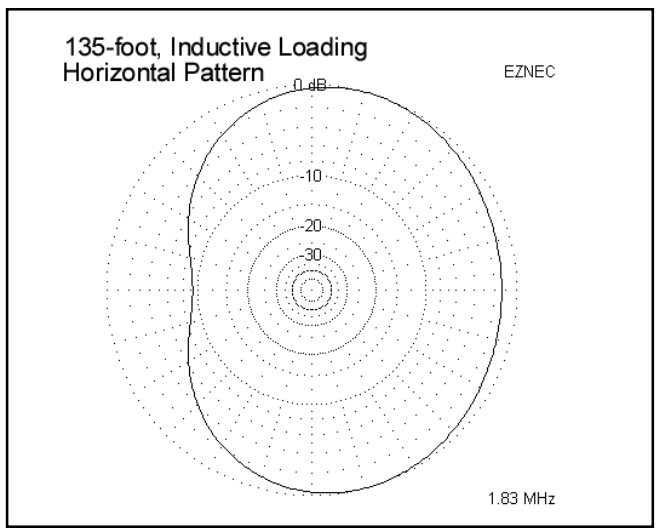
Although the 3/8-wavelength Beverage has some directivity, the shortest Beverage with a truly useful pattern is 1/2-wavelength long. It provides good front-to-back directivity, although its forward pattern is quite broad in both azimuth (horizontal plane) and elevation (vertical plane). At 160 meters, the best termination resistance is 330 Ω for *EZNEC's* "average" ground conductivity of 0.005 mS/m and dielectric constant of 13. Depending on your local ground conductivity and the quality of your grounding technique, the best performance may be achieved with a different resistor value, probably between 220 and 470 Ω.

Over the past few years, I have installed seasonal Beverages about 350 feet long, using 270-Ω terminating resistors. These Beverages have demonstrated directional characteristics very much like those shown in Figure 1 for the 338-foot, 5/8-wavelength Beverage. The most prominent feature in the pattern, the side nulls toward the rear of the pattern, is quite deep and was observed to be located at the expected azimuths relative to the antenna's orientation. My usual setup has one Beverage toward Europe at 45 degrees azimuth and another at 290° to cover the Western US, with JA and VK also in the main lobe. With these orientations, each antenna has a null nearly in line with the main lobe of the other. This is quite handy, nulling the Northeast US when listening to the West, and vice versa.

Can We Go Even Shorter?

Okay, we can see that conventional Beverage construction and termination methods will work with antennas as short as a half-wavelength. Can we go even shorter? If so, what do we need to do to improve the directivity? The short answer (pun intended) is *reactive loading*.

Let's see what we can do with a 135-foot (1/4-wavelength) Beverage. First, refresh your memory with the pattern in Figure 1. Now look at Figure 2. The square box at the center of the Beverage indicates a load, in this case, an inductor to alter the phase of the signal along the antenna. Figure 3 shows the patterns with a +*j*1200-Ω (106 μH) load. Although the front lobe is extremely broad, this antenna has a 10-dB null off



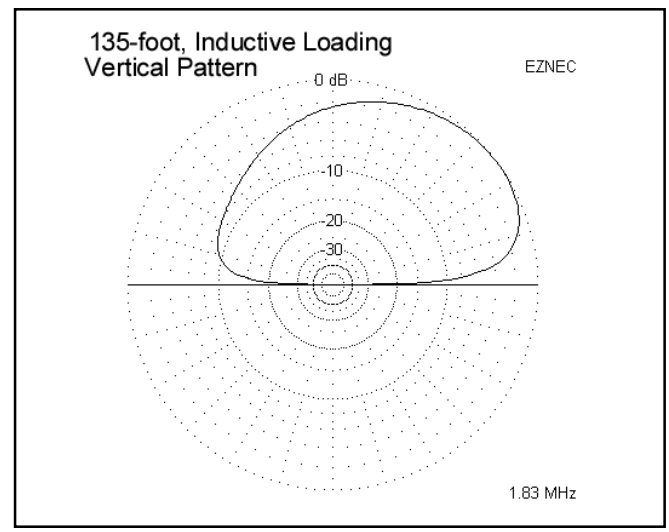


Figure 3—Elevation and azimuth patterns of a 1/4-wavelength 160-meter band Beverage with a 106 mH loading inductor.

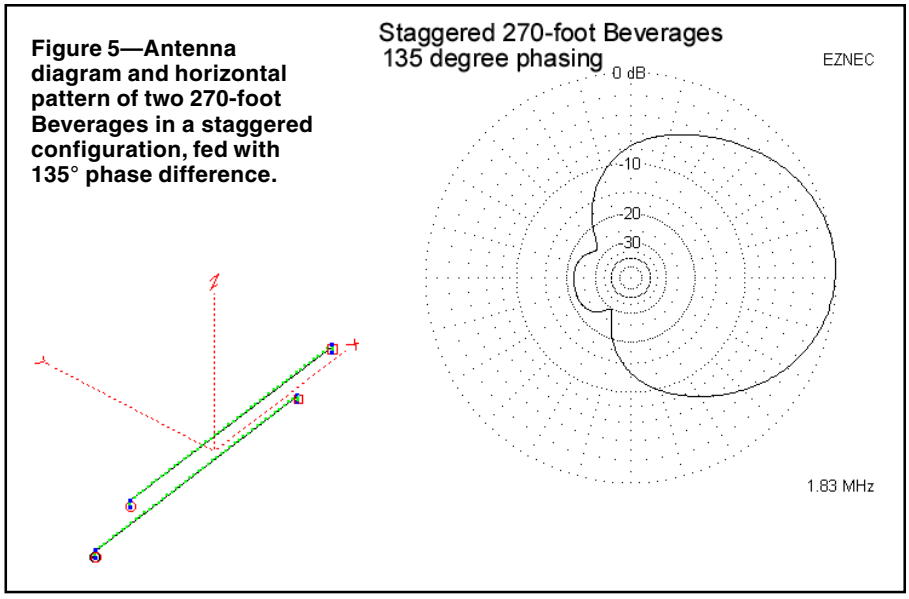


Figure 5—Antenna diagram and horizontal pattern of two 270-foot Beverages in a staggered configuration, fed with 135° phase difference.

the back and a pattern shape similar to the classic cardioid.

The loading can also be done with several inductors along the length of the antenna. Of course, the extreme version of this would be a single helical Beverage—the Slinky antenna. Be warned that it can be extremely difficult to calculate or experiment until you get just the right amount of loading using a Slinky. It's a lot easier to do this with one inductor.

It may be interesting to note that, with an ordinary terminating resistor of about 1200 Ω, this antenna (without the center coil) can become a long version of the EWE. In this case, its directivity is back toward the feedpoint, opposite that of a normal Beverage.

More Complicated Ideas

When a single antenna doesn't provide enough performance, we can combine them in various types of arrays. One way to narrow a broad forward lobe is to combine two Beverages in-phase in a broadside array with spacing of $^1/_2$ to $^5/_8$ wavelength (270 to 337 feet). Figure 4 shows the horizontal pattern of two 270-foot Beverages in a broadside configuration, spaced 270 feet apart. This is pretty good directional pattern! Four of these antennas can be arranged in a 270 × 270 foot square space and used two at a time. With relays to switch the feedlines and terminations, this system can cover four directions. If you need more coverage, two 380-foot Beverages will fit along the diagonals. Although this system is a lot smaller than a set of 500-foot or longer Beverages, it still occupies more than $1^1/_2$ acres!

Inline phased arrays can also be used, although they increase the overall length. Figure 5 is a horizontal pattern plot and pictorial diagram for two staggered 270-foot Beverages, spaced 20 feet apart horizontally and 70 feet along their length. The rear antenna is fed with a 135° phase shift relative to the front antenna. If you compare this pattern with the single Beverage pattern in Figure 1, the improvement is obvious.

What Else Can We Do?

This article has only explored antennas in the form of traditional Beverages. It is possible to make antennas that are smaller than these, yet have much better directional patterns. Phased arrays of loops or short verticals can perform remarkably well. The highest performance arrays require phasing and switching systems that can be quite complex and intimidating, but the payoff in "performance per square foot" can be dramatic. I'll describe some of these high performance arrays in a future article.

Recommended Reading

There are some excellent sources of additional information on this subject. The first is the Web site of Tom Rauch, W8JI (**www.w8ji.com**). His technical notes include information similar to what I've described here, along with some additional small antenna designs. Next is *Low Band DXing* (Third Edition) by John Devoldere, ON4UN, published by the American Radio Relay League (**www.arrl.org**). There are also some good antenna discussions on the Topband reflector. Reflector archives can be examined at **www.contesting.com**. NCJ

EZNEC 3.0

All New *Windows* Antenna Software by W7EL

EZNEC 3.0 is an all-new antenna analysis program for Windows 95/98/NT/2000. It incorporates all the features that have made ***EZNEC*** the standard program for antenna modeling, plus the power and convenience of a full Windows interface.

EZNEC 3.0 can analyze most types of antennas in a realistic operating environment. You describe the antenna to the program, and with the click of a mouse, ***EZNEC 3.0*** shows you the antenna pattern, front/back ratio, input impedance, SWR, and much more. Use ***EZNEC 3.0*** to analyze antenna interactions as well as any changes you want to try. ***EZNEC 3.0*** also includes near field analysis for FCC RF exposure analysis.

See for yourself

The ***EZNEC 3.0*** demo is the complete program, with on-line manual and all features, just limited in antenna complexity. It's free, and there's no time limit. Download it from the web site below.

Prices - Web site download only: $89. CD-ROM $99 (+ $3 outside U.S./Canada). VISA, MasterCard, and American Express accepted.

Roy Lewallen, W7EL
P.O. Box 6658
Beaverton, OR 97007

phone **503-646-2885**
fax **503-671-9046**
email **w7el@eznec.com**

http://eznec.com

NCJ Reviews: DX Atlas 1.5

Reviewed by Ken Harker, WM5R

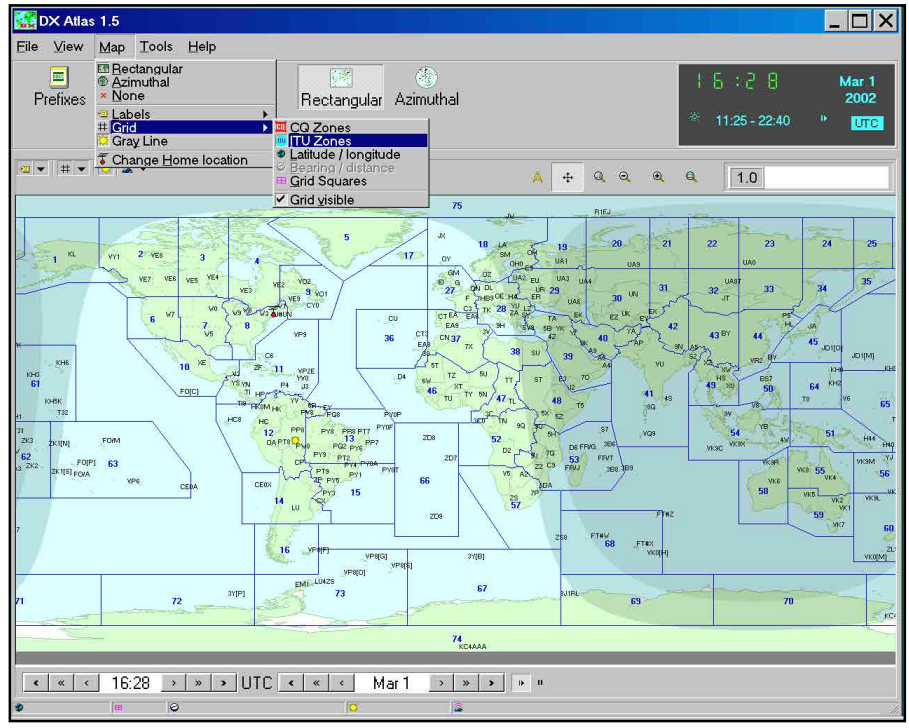
DX Atlas 1.5 by Alex Shovkoplyas, VE3NEA, is one of the newest software packages that will generate interactive azimuth-equidistant world maps, with real-time data overlays. This may be just the tool you are looking for to help plan or execute your next DX contest strategy.

Several years ago, a local DXer in the Central Texas DX & Contest Club was looking for a computer program that would create an azimuthal equidistant world map, centered on his location, with an indication of the position of the gray line that's updated in real time. He is a serious low-band DXer, and at the time he was focusing his efforts on finishing off his phone-only 5BWAZ. Knowing where the gray line is at a particular moment is a very useful tool when you are hunting rare DX. The closest he could get at the time was *GeoClock*—which does most of what he wanted, except that map is only shown as a Mercator projection. Ever since, we've both been on the lookout for the ideal azimuthal equidistant map software.

The Mercator projection is probably very familiar to most everyone. It stretches the mostly-spherical world to fit into a rectangle, which is a convenient shape for mapping on paper or computer screens. Some of the benefits of the Mercator projection are that the lines of latitude and longitude are always parallel to one another, and you only need to create one map for all users. Some drawbacks, however, are that it makes the polar regions look much larger than they really are, and they aren't very useful for estimating the great-circle routes between most points.

An Azimuthal-Equidistant map is a circular map centered on a single location. All points on the earth that lie the same distance from that point are drawn in concentric circles around the center point. The antipode of the center point of the map becomes distorted into the entire perimeter of the map. The greatest benefit of an Azimuthal-Equidistant map for radio operators is that it is easy to determine the headings to anywhere in the world. From the center point of the map, the great-circle heading to any point on the planet is just a straight line!

If you project the gray-line terminator on such a map, it is very easy to see what headings are on paths through darkness or daylight. You do not need to guess, like you might on a Mercator projection map, where it is not visually obvious which headings correspond to the shortest path to countries and regions of the world. In a DX contest, this information can be very useful. Many veteran contesters already have a strong feel for when and where openings can appear on the HF bands, but newer contesters probably don't, and having a visual reminder during the contest of where the sun is in relation to their station might be very useful. I've known even very experienced operators who keep *GeoClock* running during DX contests. If nothing else, it is a useful visual clue to the current situation when one is too tired to remember complex things.



A screen shot of *DX Atlas* showing the gray line on a Mercator projection.

DX Atlas 1.5 is a *Windows* software package that can draw either a Mercator or Azimuthal Equidistant projection of the world map. You can also zoom in to display just a continental size area (in either projection) for those domestic contests. Above and to the right of the main map area is a large clock (I set mine to UTC) with the date and sunset/sunrise times for your "Home" location (as defined in the preferences). There is also a tool bar that lets you select the projection, the labels that you want to display on the map, as well as the real boundary overlays (more on those later). Below the main map is a narrow bar that normally shows the current date and time, with buttons to change either into the future or the past. Below that navigation bar is an informational bar that shows the latitude and longitude of the cursor position (to the minute), the six-digit Maidenhead grid square of the cursor position, the beam headings and distance to the cursor position (both long path and short path), and the sunrise and sunset times at the current position. You can choose the current cursor position either with the mouse, or select from an extensive list of DXCC entities and sub-entities, cities or islands.

DX Atlas 1.5 lets you overlay the world map with all sorts of labels and real boundaries that are useful in a DX contest. The labels you can display include (in any combination, of course) cities, DXCC entity prefixes and island and IOTA information. Real boundaries include latitude and longitude, country boundaries, CQ Zones, ITU zones and Maidenhead grid squares. Have you

ever seen the CQ Zones displayed from your location in an azimuthal equidistant projection? It can be quite illuminating. This might be a very useful visualization for those traveling abroad to do their next CQWW effort.

DX Atlas 1.5 also includes a significant gazetteer of information about DXCC entities (current and deleted). While you probably won't want to go cruising through the gazetteer during the big DX contest to find out exactly how Russian or Japanese prefixes match with oblasts/prefectures, serious DX contesters might just find such a tool of interest for study before the next big contest.

One very promising new feature of the software is the ability to draw ionospheric maps showing predicted variables related to HF propagation. You can draw maps showing F_2 critical frequency, D layer peak electron density, magnetic dip, and more. The software uses the current sun position and solar flux/sunspot numbers for data input. The software draws very nice maps that use a monochrome transparent drawing scheme (instead of the confusing rainbow colors used by some other propagation packages) that is very easy to interpret. This is a very well thought-out visual display of the information. I'm fairly new to interactive real-time HF propagation prediction software tools, so I will leave their utility in DX contests as an exercise for the reader. (For a nice tutorial on propagation, you can also download NM7M's "Prop101" series at the DX Atlas Web site **www.dxatlas.com**.—*Ed.*)

Another advanced feature of *DX Atlas 1.5* is the ability to interface with other *Windows* applications through *OLE* and *COM*. This would let another program dynamically control the DX Atlas map. The Web site lists just one logging program, *AALog 2.1*, but also lists several DX cluster tools.

How do I use *DX Atlas* to help my contesting? Before the contest, I like to bring up the azimuthal equidistant map, centered on my location, with the gray line feature turned on. I set the time to the beginning of the contest, and then step through in one-hour increments to get a feel for which hours I'll need to be looking for which regions of the world to call. During the contest, I leave the program running on a separate monitor, off to the side, and only occasionally glance at it, as I get the opportunity during the event. I believe the combination of audibly experiencing the behavior of a band can be reinforced by visually seeing the solar pattern on the Earth at the same time. Having this tool available during the contest will probably not affect one's tactical decisions, but may be useful for making strategic decisions.

The computer resource requirements for *DX Atlas 1.5* are a Pentium 166 MHz or better CPU, 32 Mb of RAM, a *Win95/Win98/WinNT/WinME/Win2000* operating system, and a video card that does at least 640x480 pixels at 256 colors. The software is shareware, and can be registered for $29.95 USD. Information about registration is available at the Web site: **www.dxatlas.com**.

Additional Resources:

Azimuthal Equidistant Projections
www.ahand.unicamp.br/~furuti/ST/Cart/Normal/ProjAz/projAz.html

Adventures in Contesting

LAST ISSUE'S PHOTO

The July/August issue had a photo from Field Day 1970 by the Connecticut Wireless Association (CWA). Here's the same photo, but with all the participants identified. (Thanks to W1RM.)

This issue's photo

Is this a contester with the dreaded "black hole" disease?

One Computer Running *DOS* and *Windows*

By Joey Clements, W5BAK
w5bak@padre.net

Here's the deal. You want to be up to date on the latest ham software, but don't want to give up your *DOS* programs. One solution is to have two PCs: one for *DOS* and one for *Windows*. Here's the way I solved this problem with only *one* PC.

First you need to understand that I did this without spending any money on software and that was the goal for my tightwad friend Madison. So with that said, I am sure there are many other approaches. Try them if you like, but this one will work! Please don't send me a ton of e-mail saying that your cousin the computer expert has a better way. I have a better way, too, but we won't go into that now!

Things I had already:

• 3-GByte hard drive—Yep, it's small, but it was in my scrap pile.

• *Windows* 98 installation CD (licensing is up to you!)

• *MS-DOS* 6.2—Would rather have had 6.22, but the scrap pile rules.

Things I didn't have that I downloaded from the Web:

• Ranish *Partition Manager*: **www.ranish.com/part**

• If you don't have *MS-DOS* x.x you can use *FreeDos*: **www.freedos.org/**

• If you want a pretty GUI, try *XOLS*. You can grab it on the Web at: **www.xosl.org/**

I started with a clean, unpartitioned hard drive. *Don't do this on your primary workstation drive without a total backup!*

There are programs that will re-size your current hard drive with *Windows* 9X/ME, so you may have luck with them. That approach is not covered here, but the same logic applies if the re-size software works. Just be sure not to change anything on your existing partitions that you want to keep.

Step by Step

The concept is that you will set up a partition for each operating system you want. You will also need to set up a small (100 MByte) partition for the *Partition Manager* to reside in. I was using a 3.2-GByte HARD DRIVE so I set up a 200-MByte partition for the Manager, a 2.0 GByte partition for *DOS* x.x and a 1.0 GByte Partition for *Windows* 9x. Your mileage may vary!

Make a *DOS* boot floppy. Any OS is fine. Make a floppy of the Ranish *Partition Manager*. Finally, make a floppy of the *XOLS* if you are going to be using the GUI.

Step 1: Boot the PC with the *DOS* floppy.

Step 2: Exchange floppies with the Ranish *Partition Manager*.

Step 3: From the A: prompt, type cwsdpmi

Step 4: Type **PART**. This will load the *Partition Manager*. You should get the blue screen with the partition information. They are numbered 0, 1, 2, 3, x for the partitions.

On my machine:

0 is the MByteR (Master Boot Record)
1 is for the manager
2 is for *DOS* x.x
3 is for *Windows* 9x

The rest are not used but could be for any OS you like. Base them on your hard drive size and OS requirements. So if there isn't anything in x, delete the partition. *Do not delete any partition that has data you want to keep!*

Step 5: Select the first partition and either hit **ENTER** to start the wizard or insert (**INS**) to do it manually.

Step 6: Select "Boot Manager 0xf0" as the type.

Step 7: Set the size. This is in kilobytes, so multiply your MByte times 100,000 to get close. In my case, 2 MByte x 100,000 = 200,000 KBytes. Be sure to save your changes after each modification.

Step 8: You may format now or later. If you do it later, your OS installation will format it for you. I chose to format it now without error checking. This will conclude the setup for the Partition Manager's partition.

Now go on with the others in the same manner. Just select Fat-16 for *DOS* and Fat-32 for *Windows*. If you use the **INS** method, it will give you more choices so that you can use *Linux* or *NT*.

Step 9: When you have finished all the partitions, go back to the partition (in my case, #2) that you are going to use for *DOS*. Toggle the Boot Flag "B" on for this partition. It is easier when you have the default set to the partition you are setting up. If you get a weird line that has "....." after it, the computer is waiting on you to make a choice on the partition, so hit 1 for the 1st, 2 for the 2nd and so on.

Step 10: Re-boot your machine and install *DOS*. It may or may not format the partition based on your above choices.

Step 11: After you have *DOS* up and running, create a sub-directory called "PART" and copy the *Partition Manager* to this directory. You can run the *Manager* by issuing the commands the same as during the install.

Step 12: Start Partition Manager and make the *Windows* 9.x partition the default boot partition by flagging it with the "B" boot selection.

Step 13: Now install *Windows* on the *Windows* partition.

After you have done all of this, you can set up the menu so that you get a nice guide at the boot. You may use the Text Menu with the *Partition Manager*, or as I chose for a better GUI, the *XOSL*.

• For the *Partition Manager* menu:

Highlight the MByteR partition and hit the **ENTER** key. This will take you to the lower half of the screen and allow you to select the boot options. This is where you can select the Standard IPL or the Boot Manager. Select the Boot manager for User Interface at the boot.

• For *XOSL*:

Copy your *XOSL* floppy into a *DOS* sub-directory named XOSL. Of course, you will have to create the sub-directory. There is an install program named *install.exe*, so just type "install" and hit ENTER. This will guide you through the setup and allow you to name the partitions and set the defaults.

One nice thing about this setup is that if you boot into the *Windows* partition, you will be able to "see" the *DOS* partition. It will appear as a drive letter greater than "C." You will be able to take programs from the Web or CD-ROM and copy them to the *DOS* partition without *DOS* having direct access to these sources. Just remember, don't install anything from the *Windows* side to the *DOS* side because the software will install to some drive other than "C" and when you boot *DOS*, it will be on your "C" drive. Just copy the program over from the *Windows* side, re-boot into *DOS* and install it there.

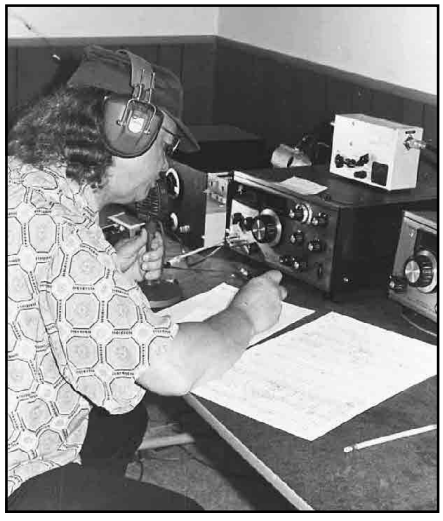
Have fun with your new dual-purpose PC! NCJ

The Connecticut Wireless Association

George Hart, W1NJM
66 Highland Street
Newington, CT 06111

The July/Aug "Adventures in Contesting" had a picture of the 1970 Field Day by the Connecticut Wireless Association (CWA). In "Adventures in Contesting" in this issue, those in the picture are identified. George, W1NJM, now takes us back to the '40s and gives us a short history of the CWA.

In the early months following my return from occupational duty in World War II and resumption of my career at ARRL Headquarters in late 1946, a group of CW-oriented hams used to meet on Thursday evenings in my cramped little "ham shack." It was in the basement of my little house at 66 Highland Street in Newington, CT, about half a mile south of W1AW.



Belying his call sign, Bob White, W1CW, runs a CWA Field Day shift on phone.

Pete Chamalian, W1RM, cranks the generator.

We called ourselves the "Thursday Night Club", but we weren't really a club at all, just a few ragchewers, and the conversation wasn't always about ham radio. It was nevertheless a convivial gathering of some half dozen or so local hams in a haywire electronic environment. Louise served us snacks but never entered the discussions, returning to the upstairs.

As time went on, the subject of formalization inevitably came to the fore and it was decided that we would become an amateur radio club affiliated with the ARRL. We were all primarily CW operators, so "CW" was to be a part of our name. After much bickering, the name Connecticut Wireless Association was decided upon.

Who were these CWA "pioneers"? Well, 1946 was a long time ago and memory of such details can be inaccurate. The group was formalized in 1948, and I am only absolutely sure of one charter member (myself). But I am reasonably sure of Joe Moskey, W1JMY; Rod Newkirk, W9BRD (then W1VMW); "Doc" Hayes, W3LVY (then W1IIN); Al Hill, W6JQB (then W1QMI); Tom McMullin (whose call I can't seem to remember); and Murray Powell, W1QIS. Other early members were Ed Handy, W1BDI; Ray Lowery, W1AFB; Roy Fosberg, W1TX; and Ike Hemingway, W1HUM.

Later we acquired such stalwarts as Dick Smith, W1FTX; Pete Chamalian, K2UTV/W1BGD/W1RM; John Doremus, W1EDA/W2ADE; Vic Pauonoff, W1EOB; Roger Corey, W1JYH/W1AX; John Lindholm, W1DGL/W1XX; Gary Foskett, W1ECH; John Thompson, W1BIH; and Jack Schuster, W1WEF. My apologies are extended to those several that I unintentionally omitted.

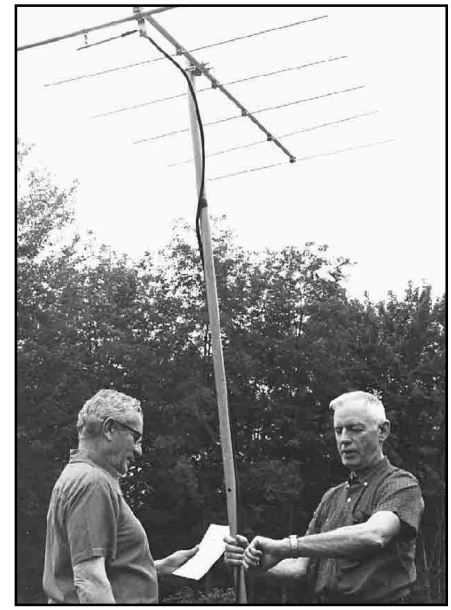
Membership was limited to 15, because we had no meeting place and meetings were held in the members' homes. It was an active, energetic, enthusiastic group, and we swapped tales of the pursuit of "rare ones," contest achievements, technical arguments, and discussions of arrangements for future activities, all in smoke-filled living rooms. There was never a dull moment.

The club members contributed to club scores in many contests. We put on several Connecticut QSO Contests, a raffle of an early TV set to raise money, numerous family picnics, and club "victory" banquets (whether we were victorious or not).

But our principal activity was Field Day. The first two were held at the Haddam Neck Fair Grounds in Haddam Neck, CT, but these were fiascoes, nevertheless punctuated by some amusing anecdotes I have related elsewhere. Then we discovered Dennis Hill State Park and held our next dozen or so Field Days at this location. The State Park and Forest Administration was often a problem, but the Rangers in charge were most cooperative, helpful, and interested.

Dennis Hill State Park was (and still is) located in the northwestern part of

Long before writing *Antenna Zoning for the Radio Amateur*, Fred Hopengarten, W1NJL (now K1VR), was a guest operator at CWA's New Hartford Field Day site.



Dick Smith, W1FTX, and John Thompson, W1BIH, at a Field Day at the New Hartford Fire Department in the 1970s.

the state in the foothills of the Berkshire mountains. An enclosed "lodge" was located at the top of Dennis Hill, 1620 feet above sea level, ideal for our purpose, which was to win our class in the organizational competition. We started planning as early as February, with election of a Field Day chairman and selection of "teams."

By the time June rolled around, we were in the final phases of organization. The club had few assets, so equipment was nondescript and inappropriate. Nevertheless, during our dozen or so Field Day operations at Dennis Hill we never placed lower than tenth in our class, and several times we were "top dog."

Dennis Hill was a state park and therefore open to the general public, and this caused us some difficulty, especially in the daytime when picnickers, curious about our activities, often got in our way. We were an intense group, cared nothing about publicity, only about winning. So we were eventually banished from this facility and had to seek other locations.

We were not interested in "camping out." We wanted shelter and a maximum of creature comforts within the rules. For several years, after abandoning Dennis Hill, we held our Field Days at fire houses, Grange halls, American Legion halls, and wherever we could get free access (or at a very nominal rental). None of them lived up to Dennis Hill.

UNTIL ...

Dick Smith, W1FTX, came up with permission to use the brand new New Hartford Fire Department facility about a mile from his home. This facility was located in a relatively isolated area on a private road surrounded by tall trees. It housed fire equipment and accessories and included a recreational annex complete with kitchen, rest rooms, and a large room for dancing, dining, and any other activity the members wished to sponsor.

Because of our potential for emergency communication training, we were welcome to use it without charge for our exercise, provided we left it as we found it. What a bonanza!

We used this facility for our Field Days for about the next 15 years, meticulously observing both the Fire Department and ARRL Field Day rules. We always placed high in our class, sometimes winning it. Anything less than first place was unsatisfactory. "Winning isn't everything," Pete, W1RM, used to say, "but it sure beats coming in second." Pete was, rabid competitor, served as Field Day Chairman for several of our Field Days at New Hartford, and set a high example of operating skill.

I tended to look askance at all the emphasis on winning, but I was a small minority and went along with the majority until the emphasis on DX and contesting ultimately disenchanted me and I stopped attending meetings. Shortly after this, the club dissolved. A couple of the members accused me of being instrumental in the CWA's demise because of my withdrawal, but I don't flatter myself with having this much influence.

Several abortive attempts were made at rejuvenation, but by the late '80s the CWA had become history. The memory of many enjoyable times with the CWA and the close friendships established remain with me and are a part of *Random Recollections of an Old Ham*, a work recently completed in two volumes that will probably never be published. Perhaps some day some part of it will be useful as a historical reference. NCJ

How smart is your contest software?

TR-Log is smart enough to know in the ARRL Sweepstakes when you enter:

234B76STX
76STX B 234 K5RAT
234 B K5RAT 76 STX
76 WPA 234 A Q B NLI MD STX
MD Q 234 A WPA 76 STX B
K5RAT 76STX 234B
235A46SCV STX 234 Q B 76
WPA 36 Q 735 A 234 STX 76 B
1 A 56 ND 76 B 234 STX

What you really mean is:

234 B K5RAT 76 STX

No tabbing between fields. No backspacing. No deleting.
To learn more and to order - http://www.QTH.com/tr/

TR-LOG -- by N6TR
http://www.qth.com/tr
email : k5tr@kkn.net
tel : 830-868-2510

GEO DISTRIBUTING
George Fremin - K5TR
624 Lost Oak Trail
Johnson City, Texas 78636

In Europe contact -- Jon Silvergran SM3OJR -- sm3ojr@pobox.com
In Japan contact -- Tack Kumagi JE1CKA -- je1cka@nal.go.jp

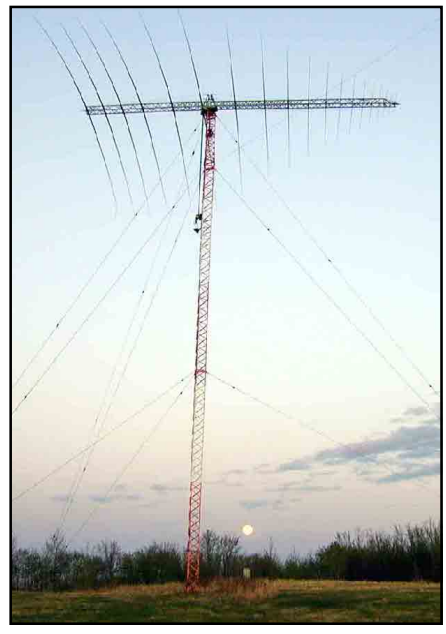
Station Profile—VE6JY

Conducted by Mark Beckwith, N5OT
swca@swbell.net

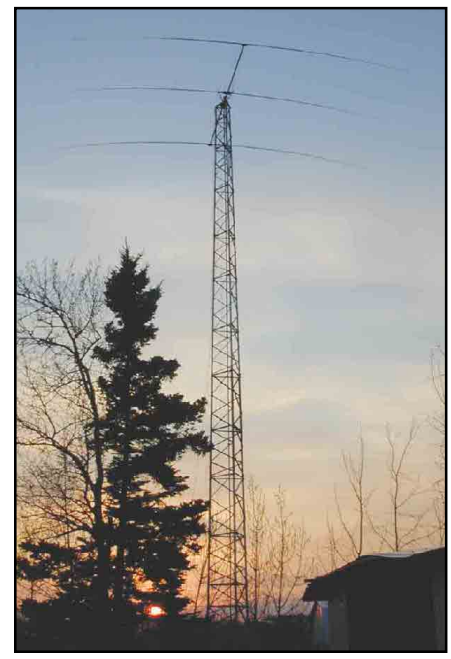
Greetings, fellow station-enthusiasts. I had been looking for a suitable candidate for the first profile outside of the United States when K9LA forwarded photos of Don Moman's multi-multi station, VE6JY, to me. I did my research and realized quickly that VE6JY is the biggest thing to hit western Canada on the multi front since VE7ZZZ. Knowing I was out of my element with the Canadian guys, I opened a channel with Frank VanderZande, VE7AV, who tells me that Don is one of the gang at Alfa Radio, the group that brings the new AlfaSpid rotator to North America. Frank has his finger on the VE6JY pulse.

"Western Canada's first permanent multi-multi station capable of simultaneous operation on all 6 HF bands was VE7ZZZ, which hit the airwaves in 1980. This station used to draw operators from VE5, VE6 and VE7. Now the big draw is VE6JY, with a larger antenna farm and increased functionality. Stations like these have been responsible for significantly increasing the interest in contesting in Canada, and many well-known VE ops have been there. Alberta now has numerous contest groups and has become the contesting hot-bed of western Canada."

The VE6JY antenna farm stands out against an Alberta sunset.



A 4-30 MHz log periodic is the primary SWL antenna.



The 40-meter Yagi at sunset at VE6JY.

When Life Was Simple

I remember the days when, if Canadians were multipliers, there were 8 multipliers and 8 call districts. With the exception of VY-something, which didn't matter because you never worked it anyway, you basically checked off the multiplier by looking at the digit in the call.

Well, times have changed, and even if you'd rather have none of it, you must still accept Nunavut. (I can't believe that one got past the editor.) However, that Alberta multiplier will always be the one with the "6," and it is to Alberta that we turn our focus.

Just a bit northeast of Edmonton is Lamont, Alberta. VE6JY can be found in a setting of rural pasture and farmland. Frank tells us Don acquired this 80-acre site in 1994.

"VE6JY has the disadvantage of being a thousand miles from salt water and almost 54 degrees north of the equator," Frank says. "The term 'black hole' is understood there. However, those of us who pay attention to contest results know that sometimes the northern disadvantage vaporizes and impressive competitive scores are posted, especially by this station."

Towers and Antennas

Don's station proved to be such a treasure that some of his team members are enthusiastic about putting out the word. Mitch, VE6JTM, describes the antenna farm at VE6JY:

"There are currently 14 towers on this 80-acre antenna farm, ranging from 15 meters (50 feet) to 48.7 meters (160 feet) high. The ground drops off gradually several hundred feet to the northeast and east, giving a good takeoff into Europe and Africa.

"Primary antenna choices include 4-high Yagi stacks on 10 and 15 meters, a 3-high stack on 20 meters, 5-element and 3-element 40-meter Yagis and a 4-element full-sized 80-meter Yagi. All Yagis are homebuilt, as are nearly all the rotating mechanisms."

Don adds, "That's changing with our 'discovery' of the AlfaSpid rotor, as they will (by the end of this year) be turning all the most important Yagis on 10, 15 and 20 meters. The BIG antennas are

In the Shack

Radios:
Yaesu FT-1000MP
Icom 756 Pro x2
Yaesu FT-847 (VHF)
Collins HF-2050 (several — used for spotting and SWL)
Other contest radios brought by ops as needed

Amps:
Pair of 8877s
Alpha 77DX
Alpha 87A
Alpha 374A
Henry 5K
Drake L-4B
Ameritron AL-1200
Heathkit SB-1000
Icom PW-1

Antennas:
160 meters:
Sloping dipole at 160-120 feet
Assorted Beverages

80 meters:
Homebrew 4-element Yagi (full-sized) on a 76-foot boom at 150 feet (W1JR OWA design)
Bobtail curtain - Europe/Pacific
Bobtail curtain - East Coast/Japan
Inverted V at 75 feet
Assorted Beverages

40 meters:
Homebrew 5-element Yagi (full-sized) on a 60-foot boom at 150 feet (VE6AQ OWA design)
Homebrew 3-element Yagi (full-sized) on a 40-foot boom at 120 feet (VE6XH design)
On separate towers

20 meters:
Homebrew stack of three 5-element Yagis on 48-foot booms at 55, 110 and 160 feet (ON4UN design)

15 meters:
Homebrew stack of four 6-element Yagis on 48-foot booms at 35, 70, 105 and 145 feet (OWA design)

10 meters:
Homebrew stack of four 7-element Yagis on 48-foot booms at 35, 70, 105 and 145 feet (OWA design)
Homebrew 7-element Yagi on a 40-foot boom at 70 feet

Multi-band HF antennas:
Sabre (mfr) 4-30 MHz log-periodic on a 62-foot boom at 93 feet (main SWL antenna)
HyGain TH-6 at 75 feet
Cushcraft ATB-34 at 55 feet (separated from other antennas by 1500 feet)

6 meters:
Homebrew 3-element Yagi at 105 feet
Homebrew 7-element Yagi at 75 feet
On separate towers

2 meters:
2x Cushcraft 13B2s at 100 feet (vertical)
Cushcraft 17B2 at 105 feet (horizontal)

No gin poles for this one: the 80-meter Yagi inspired VE6JY to get a second crane.

The four-Yagi stack for 10 meters ensures that VE6JY is heard when the band is open.

all turned by homebrew stuff—for now."

So what about this AlfaSpid rotator we are hearing so much about? "I spend a lot of time fixing and redesigning rotors in the course of keeping the contest station operating, and I've heard from a lot of guys that have the same problems. If I wasn't happy with this rotor, we wouldn't be making the changeover!"

Mitch gets us back on course: "Secondary antenna choices include several tri-band 10/15/20 beams strategically located to allow multiplier hunting, a large 4-30 MHz log periodic, several 80 meter bobtail curtain arrays and the usual assortment of other wires for 80 and 160.

"Future plans, besides keeping it all up and rotating, include 80- and 160-meter four-square vertical arrays and physically-distant monobanders for 10 through 40 meters."

On 80 acres, Don has the space to build his Beverages in a spoke-and-hub arrangement. There are 13 separate Beverages, varying in length from 185 to 400 meters (400 to 1300 feet), emanating from a single point. Mitch points out: "Both 80 and 160 stations can listen in any of the main directions. Unless a rampaging bull moose decides to tear through the antenna farm, that is!"

The bull moose story cannot be far-fetched, as Don jumps in to point out there weren't as many Beverages as Mitch claimed, but that "they'd be back up soon," and comments further, "Yeah, I said that last year, too."

Life is Too Short for Gin Poles

As if a full-sized 80 meter Yagi was not awesome enough, the *most* awesome aspect of Don's operation came to light when he started talking about his *original* crane. Some people say life is too short for QRP. At VE6JY, Don has decided that life is too short for gin poles.

"We put the 80 meter Yagi up the first

Don Moman, VE6JY, stands in front of his crane, which can reach antennas at up to 173 feet.

time the old-fashioned way, with winches and gin poles. Way too hard and too much room for something to go wrong — with 1000 pounds or more of antenna hanging over you, that's not a pleasant thought. That inspired looking for the second crane, one that could reach high enough, i.e. 160 feet or more. Many of the surplus commercial towers use 20-foot sections and that is serious gin pole work—too serious for me.

"The original crane is a Grove 18-ton TM180S with about 96 feet of boom/jib. I have put up a 160-foot tower with it—in one piece—but I thought extra height would be nice. So, I found a 40-ton rough terrain crane with a total height of 173 feet at an industrial auction. It can lift 5000 pounds at that height. That means I can pick any antenna off any of the towers so any future problems should be a lot less work."

I guess so. Golly. After I had picked up my teeth off the floor, Don continued "Renting a crane this far out and getting it over the soft country roads is a big problem."

I thought I had seen it all, but I have never seen a multi-multi with its own crane, let alone two cranes. *You know, I could get used to that.*

Inside the Shack

Don describes the VE6JY building: "The 'radio shack' is a metal-clad post-and-beam farm-type shop, 40 × 80 ×16 (*feet,* not *meters!*—Ed.), that I have adapted into the radio and living quarters, plus shop. Most of the living and radio operations are on the second floor."

Frank gives a detailed description of radio operations: "A small room dedicated to switching gives the station awesome flexibility. The station can quickly be turned into a single-op all-band, multi-single or multi-multi operation. Antenna stack switching lets the operator choose any combination of four antennas. Almost all of this is home-brew. Each operating station has a computer running DOS-based TR Log and all are networked."

Mitch comments, "The TR logging program was chosen because of its ability to run on simple computers under MSDOS 6.x and because of the high reliability."

Don injects, "My computer skills are minimal, but TR Log means one less thing I have to worry about during a contest."

Frank resumes, "A few years ago you would find only Yaesu FT1000 series transceivers being used at VE6JY. Now you will also find a couple Icom 756 Pros. The amps vary from old to new and include Alpha, Henry, Drake, Icom, Ameritron, and Heathkit. Thanks to Dan, VE6EX, and his building skills, the station now has a new 2x8877 homebrew amp."

Mitch adds, "It is possible to operate both phone and CW on the same band with little interference. This is done with high-Q filters and by the keeping the signal clean."

Don points out, "Having lots of space between the towers helps, too!"

The Crew

It has been great to hear all about VE6JY from some of those involved. Don gives us an idea of how this has impacted the ham landscape in western Canada: "I have been fortunate to have some good friends to assist me with the tower work over the past few years — Dan, VE6XH, Heinz, VE6LDX, Barry, VA6DX, and Maurice, VE6MAA, have all logged a lot of air time around here.

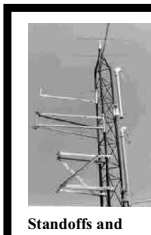
"The ground crew is also very important and thanks go out to Don, VE6JKB, Wayne, VE6NWR, and Denis, VE6AQ, who seem to be always available at short notice." A look at their contest operations show other operators including TI2WGO, VE2QV, VE2ZP, VE5FN, VE5MX, VE6AQE, VE6BCA, VE6BF, VE6BLA, VE6BMX, VE6DGG, VE6DXX, VE6DYB, VE6EKP, VE6EX, VE6EZ, VE6FR, VE6FU, VE6JG, VE6JTM, VE6LCB, VA6MA, VE6MK, VE6RIT, VE6SLV, VE6SRV, VE6VOA, VE6WQ, VE6YIC, VE7AV, VE7CC, VE7XYL, and ZL1JG.

Plans for the Future

Immediate plans include installing better 20 and 15 meter multiplier antennas (48' boom OWAs at least 100 feet high and located as far as possible away from the stacks). Don also will install more AlfaSpid rotors — for now on the top 15 and 20 meter stack antennas, plus on all the new multiplier Yagis.

"I haven't planned ahead for 2003 and beyond, but I guess 80 and 160 meter four-squares might be near the top of the list."

Then there's the rampaging bull moose — Don says those Beverages really will get fixed *this* year. NCJ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PAYPAL

Two Perspectives on the 2001 Pennsylvania QSO Party

PERSPECTIVE #1

Edward Miske, WA3SES
wa3ses@arrl.net

The Pennsylvania QSO Party (PaQP) is an operating event I enjoy very much. I have had many memorable experiences in this event and it seems that each year another memory is created. This year was no different.

This is the story of how, after missing the first 2 hours and 40 minutes of the contest (12%) due to a power outage, I came back to set a new (claimed) Cambria county record, beat my all time best score, and caught up to and passed my good buddy Bob, N3FR.

Preparation

I've operated in the Pennsylvania QSO party in the Single Op, Low Power, Portable category nine years in a row and 10 of the past 11 years. Only a wedding in 1992 interrupted the string. This year's operation started out as just another one of those portable operations, but turned into a bit more than that.

My planning for the 2001 running of this event began on October 16, 2000, the day after last year's contest. Many hours were spent, and more than a few drafts were downed between those two dates, talking things over with N3FR. Bob also goes portable, and he and I are fierce but friendly competitors in this event, trying to beat W3TDF and other regulars in the portable category.

By Wednesday evening, October 10, 2001, I have everything packed and ready to go. I live about 20 miles east of Pittsburgh and my portable QTH is another 50 miles to the east, just north of Johnstown.

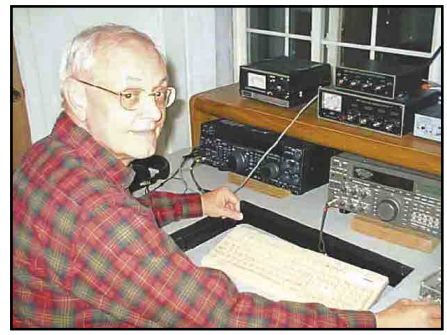
I go to work Thursday morning, October 11. I will work until about noon. Well, I try to work, but my mind is really elsewhere. I hope to be installing antennas in the trees by early afternoon.

The work involved in the setup falls into three main areas:

Antennas
Tent and facilities
Radio stuff

I work on the antennas first. I'm going to put up four this year (as opposed to only two the past several years); wire dipoles for 20, 40, 80 and 160 meters. By late afternoon the antenna installation is about half complete and I break for some of my Dad's (almost) famous soup.

By dark I have the antennas completed except for 160 meters. I'm having second thoughts about that one. I think I might put up an 80-meter Windom instead. My thoughts are that the Windom can be shorted out to work on 160 (that has been my 160-meter antenna the past several years in the PaQP, and the results, while not spectacular, have been acceptable). The Windom can also act as a very satisfactory backup on 40 and 80 meters. Though the antennas are not finished, I pack it in for the day feeling good about what is done and what is left to do.



Ed Miske, WA3SES

I awake to a fairly decent Friday morning. All the antennas made it through the night. I mentally go through the remaining "to-dos" so as to be ready for this evening's net. The past several years many of the participants have been getting together on 75-meter phone Friday evening for a last-minute update and some general chitchat; I don't want to miss that.

I have decided to take down the 160-meter dipole and put up the Windom in its place. But the antenna work will have to wait for the sun to burn the dew off the grass. I get the tent out of its storage area…also the saw horses, (table supports), old door, (table top), and kerosene heater. Dad gets the Kubota fired up so we can more easily move all this stuff to the area I have chosen for the tent.

By noon the tent is up, the extension cords run, the table (saw horses and door) is set up and the equipment is out of the car and on the table. After some more of the (almost) famous soup, I finish the antennas and go to work connecting the equipment.

By net time things are ready. I'm a little late to the net because I've been talking to N3FR elsewhere on 75 meters. By the time I get there Carter, N3AO, is doing net control duties. I check into the net, exchange pleasantries with some familiar calls and by 10:00 PM I'm ready to call it a night.

The Big Day Arrives

Saturday morning…the big day is here. The weatherman is calling for good conditions during the day, but rain and wind toward evening and the same all day Sunday.

It's 1530Z, a half-hour before the start of the contest, and I'm down to the final checkouts. I'm calling CQ on 20-meter CW, getting some answers from guys out west who are obviously planning to work the PaQP. At about 1545Z, in the middle of one of the QSOs, everything goes black, flickers back on for a microsecond, and then goes black again. I figure I must have blown a fuse. Not so. I discover there is a power outage in the whole neighborhood.

At 1600Z, the start of the contest, the power is still out. I can't believe my luck. I lived the first 18 years of my life here and do not remember a single power outage. There must have been some, but they were so few and far between as to be unmemorable.

1630Z: no power yet.

1700Z: Still no power. I write off this year as far as being competitive for the Portable or WPA Medium power awards go.

1800Z: I'm taking a nap as there is little else to do. I thought about trying to rent a generator or maybe even tearing down the portable setup and heading back home, but I decide to wait it out a little longer. I know I'm out of the running for any award this year.

1825Z: Power is back on…

1826Z: Power is back off.

1830Z: Power back on…I run to the tent.

1841Z: Log my first QSO…I'm on 40-meter CW. I've lost 2 hours and 40 minutes…12% of the contest. I'm disappointed but determined to work at it anyhow.

1915Z: I log 56 Qs on 40-meter CW in 34 minutes…things are hot…dare I dream? I go to 20-meter CW.

1942Z: In less than 30 minutes on 20-meterCW I log 34 Qs. After 61 minutes of operation I have 90 QSOs and 53 mults in the log. That's a great hour for me in this (or any) contest. Ninety CW QSOs equate to 135 QSO points…not chopped liver, but did I make up for any of the lost time? I go to 40-meter phone.

2054Z: I have just completed what has to be one of the best runs I've ever had in contesting, at least from my own station. In 72 minutes I had 157 QSOs and picked

up another 34 mults. For me, this is the reason I contest…pileups…rate…what a rush! It's almost 5 hours into the contest. In a little over 2 hours of operating time I feel like I've made up, maybe, 1 hour of the 2.6 hours I lost. I have yet to have a QSO with N3FR, WA3HAE or W3TDF (some of the main competition), so I have no way of knowing how far behind I am. I flip-flop between wishing one of them would answer my QRZ and hoping they don't. I'm not sure I want to hear what number they are at.

In this contest QSO number is less than half of the story. QSO point and mults are the real barometers of how stations compare. SSB QSOs are worth 1 point; 10/15/20/40 meter CW QSOs are worth 1.5 points and 80/160 CW Qs are worth 2 points. So a person could be behind in QSO count, but ahead in QSO points, with the all-important mults making the difference. I decide to go back to 20-meter CW for a spell.

2117Z: 19 QSOs on 20-meter CW in this 23-minute run, and another 3 mults, including Wyoming (nice to have that one in the log—thanks W7TSM). Okay, time to go back to 40-meter CW.

2217Z: 56 QSOs on 40 CW in this run, 7 more mults also. I've now logged 325 Qs and 97 mults. It's six hours and 17 minutes into the contest. I don't have anything in front of me to say where I was last year at this time, but I feel like I'm gaining. I work WA3HAE at 2138Z. I give him #287 and he gives me #301. Very encouraging. I'm certain Keith is formidable competition. I feel good to be only 14 QSOs behind him. I work Ray, W3TDF, at 2213Z and get number 432 from him; I give him #325. Over 100 QSOs behind Ray; hopefully my concentration on CW makes up for some of those 100 QSOs…back to 40-meter phone.

2316Z: I've been on 40 phone for an hour. I worked Bob, N3FR, early in this run. He gave me # 399 and I gave him #333—I'm 66 QSOs behind. I feel like I have made up about 1 hour and 45 minutes of the power outage. I know I still have a long row to hoe, but it does not seem as impossible as it did awhile back.

0145Z: I work N3FR again…on 75 phone…I give him # 539…he gives me #602. I'm 63 QSOs behind. I only made up 3 Qs in the past 2.5 hours. Time will run out on me at that pace.

0407Z: Less than an hour to go in the first half. I happen upon N3FR on 160-meter CW. I answer his CQ and await his QSO # with great anticipation. He gives me #695; I reply with #665. I've cut my QSO deficit in half in the past 2 hours 20 minutes. That's more like it! I give the air a little punch for emphasis. Now it' s time for the sprint to the 0500Z bell. This event has an off time from 0500Z to 1300Z Sunday.

0502Z: I find N3FR, WA3HAE and a few others on 3830 kHz. I can't believe it—N3FR's score is 120k, WA3HAE's score is 120k and my score is…120k. What a day of contesting! That had to be the fastest 10 hours and 19 minutes of my life. Later log examination showed that at this point I had 704 Qs compared to N3FR's 727; 125 mults compared to Bob's 124; 971 QSO points compared to his 977.5 and a score of 121,375 vs Bob's 121,210. I have made up for the power outage. Now, can I keep it going on Sunday? N3FR comments about my making up the lost time; I comment that maybe, just maybe, there are "X" number of QSOs to be had the first day. Within certain limits, a station will work that number, whether he works the full 13 hours or 12 hours or 11 hours (or 10 hours and 19 minutes). Maybe next year I'll skip the first 4 hours and see how I fare…*not!*

October 14, 1300Z: It's Sunday morning. I prepare myself for the usual Sunday in PaQP—lots of QSYing. (Later examination shows 34 QSYs in 9 hours on Sunday, as opposed to "only" 24 in over 10 hours on Saturday.)

1600Z: I need one county for the county sweep—Bradford. I have a total of 129 mults now, with 6 hours to go. Last year I finished the contest with 129 mults. At least I'll match that number. The score is a few points shy of 147k.

1636Z: I work VO1JLE for my first-ever NF mult in the PaQP. Thanks!

1643Z: Work K7MM for the EWA mult. It's only the second time I've worked EWA in the PaQP.

1829Z: I find NA2X/3 in Bradford for the county sweep. This has to be one of the greatest coincidences in PaQP history. For the third time in 4 years Bob, NA2X, gives me the county sweep. Mult total is now 134, one shy of tying my all-time high for mults in PaQP, which was 135 in 1998. Score is 172.5k…only a little over 10k short of last year's score and about 24k short of the Cambria county record, which I set in 1998.

2034Z: I work KC0IOX in SD. That mult, #135, ties my best mult total ever. Score is now 186.5k. I passed last year's score a little while back. Just 1.5 hours to go. Can I get to 200k?

2057Z: KG7H checks in with the ID mult…#136…a new record. Bumps the score to 191k. Only 5k to the county record with 1 hour and 3 minutes to go. Can I make it?

2103Z: K0UD hears me begging for QSOs and takes pity on me. That gives me the ND mult, #137, which will be the last mult I get for this year. The score goes to 193.5k.

2126Z: I work W2YR in NNJ on 80-meter CW. When I hit the "+" key to tell NA to log it and send QRZ, the score jumps to 197,143. I just set a new record for Cambria County. Two goals accomplished: a new county record and a new personal best.

2145Z: I work N2ED, another NNJer, and the score goes to 200,157. I feel very satisfied. Big question now is "How are N3FR and W3TDF doing?"

2100Z: The final 15 minutes bring me 5 more 80-meter CW QSOs (two points each). Final score is 201,527. Add in the 200 bonus points for each QSO with K3CSG and the final claimed score is 202,127. I'm thrilled and a little amazed.

Conclusion

I talked to a few of the guys, including N3FR, on 3830 kHz after the event. I managed to win my competition with Bob. Bob and I have a thing for this contest going back to 1991. He beat me that year, and the next two years, *and* 4 of the first five years. In fact, the only thing that kept him from beating me five of the first five years was that we did an M/M together in 1994. But I've been getting back a little, winning three of the five years between 1996 and 2000.

I accomplished my three major goals: setting a new county record, setting a new personal best mark and crashing the 200,000-point barrier. I also won most of the beer bets I had with N3FR. (Bring on the Coors!)

PERSPECTIVE #2

Glenn O'Donnell, K3PP
K3pp@arrl.net

Ah, autumn in Pennsylvania! The miracle of nature's metamorphosis blankets her rolling hills in a stunning brilliance of yellows, oranges, reds and greens. The breezes are clean and blow from the north with just the right tinge of chill. It is a time of year eagerly anticipated by Amateur Radio operators, for just as the leaves change, so do the forces of nature that carry their signals around the globe. The highlight of this wondrous season in the land of William Penn brings forth a cacophony of signals from hundreds of operators spread across the commonwealth and beyond. It is the beginning of "contest season."

A competition is under way, but its enthusiastic participants pursue this particular endeavor, not with bitter rivalry, but with charm, dignity, and a remarkable camaraderie typical of this unique cadre of individuals. This atmosphere of cordiality notwithstanding, these intellectual athletes paradoxically scratch and claw their way through the weekend with intensity, passion, and an unquenchable desire to excel. Records will fall. Players will reach new personal highs. Successes will be many and the taste of victory will be delicious. Sadly, failure, too, will inflict itself upon many in this valiant crowd. Whatever the outcome, most will emerge from the battle harboring a warm sense of ac-

complishment, for the true wealth gleaned from this game lies in being one with the game itself.

One of these intrepid souls sits atop a secluded hill in the eastern county of Carbon, a largely rural region in the southern reaches of the Pocono Mountains. In the bowels of his home, this man, known by his compatriots as K3PP, is pushing his talents to the limit. His newly reconfigured command center is yielding positive results as he chases his own record score for his county. He doesn't expect to win, since many of his fellow contestants possess stronger talents, refined over years, sometimes decades of experience in this sport. The criteria for his success will be a new record and a placement somewhere near the top of the pack.

I am K3PP and this is the story of how I progressed through the weekend, nearly caused a catastrophe, and how I fared at the conclusion of the 2001 running of the Pennsylvania QSO Party.

Beginning with a Bang

The contest begins with an explosion of energy emanating from all corners of Pennsylvania. I am testing on 10 meters and a few Europeans answer me. In the middle of my chat with ON4KML, the clock ticks over to 1600 UTC. He is the first entry in my log. My rate is strong as his fellow Europeans pour in to answer my call. This burst lasts about an hour and withers. Mother Nature tells me that 10 meters is done for the day to Europe. I try 15 meters, but it offers little. I switch to 40 meters, the "money band" for this event. Wham! The rate climbs and stays high. My logging software informs me that my rate is above 200 several times. After four hours, I have 349 contacts logged. Life is good!

As the end of the first day approaches, my numbers are looking good. For some reason, the late afternoon is slow, but 80 meters comes alive as darkness falls upon the Eastern Time zone. I run for two strong hours on 80 meters. Others are ahead of me, as expected, but strategies at this hour now focus on 160 meters. I am confident of my station's abilities on this band, especially in this particular event. I make my move.

A Mysterious Light

I pounce on the opportunities of 160 and score a rapid succession of points. Suddenly, I receive a call from above. My wife requests my presence upstairs. Something outside is puzzling her. It is almost midnight and an unusual, bright light is illuminating the natural blackness enveloping our wooded property. She points out the front window, toward the source of the mysterious, flashing light. We now see nothing.

An idea enters my mind. A wire threads through the trees at that point. That wire is one end of the Inverted-V antenna for 160 meters. I suspect the high voltage generated on this antenna is arcing over to the trees. I ask my wife to watch out the window while I rush back to the station for a quick test. If my theory is correct, the light should flash in cadence with my transmitted signal.

Seconds into my test transmission, a frantic yell from upstairs is imploring me to stop and hurry back up. My theory was correct, but the test ignited leaves on a tree in the front courtyard and embers were falling to the ground! We both rush outside. It is, after all, autumn in Pennsylvania, so this event is not good news. The ground is a carpet of dry leaves, pine needles, and sticks. Few environments are more combustible than a dry forest, in the autumn, in Pennsylvania. Within minutes, those few embers could have grown into a raging wildfire, fueled by the dense population of pine trees and fanned by the constant winds sweeping up from the valley to the south. Our home, and a dozen others, would likely have been engulfed at a most inopportune time of the night. It was a potential catastrophe and obviously would have brought my exciting competition to an abrupt end!

In the darkness, husband and wife inspected the flammable ground cover and the tree branches overhead. The situation appeared safe, but the risk was too profound to just ignore. A thorough soaking was needed to ensure a safe night for the hilltop neighborhood. After drenching the ground, our eyes turned upward.

When the wire antenna was installed a few years earlier, it was clear of all vegetation to prevent this very type of incident. As our eyes followed the wire, it became obvious that trees grow. The past year's fresh growth had come in contact with the wire, near the end and, as dictated by the laws of physics, the high voltage point. The station had not been used on 160 meters since the early spring. Now, the leaves not only touched this dangerous point on the antenna, but these leaves were now dry from the autumn transformation. One leaf in particular had a path burned through it and it was still attached to the tree, with the wire piercing through its center. Wow!

With disaster averted, I returned to my command center, banned from 160 meters by the family fire marshal. With about 40 minutes of the contest lost to firefighting, I finished the final hour on other bands. In this contest, we all shut down for the night and recharge our minds for the battles of the following day.

Returning to the Fray

The next day dawns and I return to the fray. The morning smorgasbord of Europeans is strong, yet less productive than the first day. I blend the European feast on the high bands with a rich string of Americans outside of the Pennsylvania borders. By mid-morning, my old record of 130,208 points is surpassed. My ultimate goal of 200,000 points appears difficult, unless the remaining 8 hours yield conditions as good as day one. Alas, the pace is slower and multipliers are down. Common multipliers like Hawaii, Puerto Rico, Idaho, and Alaska never made it into the log. Two of Pennsylvania's 67 counties were also absent. This hurt. My CW performance was also down, so the extra point values for those contacts were missing from my ultimate total score.

So, I didn't reach the 200,000-point goal. So I didn't qualify for a "clean sweep" award for all 67 counties. So I missed out on a lucrative 160-meter endowment. I scored over 185,000 points. I shattered my old record. I attained a personal best effort. I didn't torch the hilltop. Best of all, I joined my brothers and sisters in a spectacular weekend of exhilarating action. The Pennsylvania QSO Party is the pinnacle of the spirit that embodies the sport of Amateur Radio. I was one with the game itself, so I am blessed with the true wealth of my pursuit. What more can I ever hope to achieve? I am delighted! NCJ

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NCJ Profiles—Duking it Out with the Big Boys: Tim Duffy, K3LR

Paul Gentry K9PG
paul@k9pg.com

Fall is right around the corner... again…which means contest season is not too far away. And if you get on for either mode of CQ WW, you are bound to hear K3LR's monster signal on the lower end of each band working 'em fast and furious.

One of the things that I wanted to do with this column is have some "guest profiles." My friend and fellow SMC member Pat N9RV, has known Tim, K3LR, for longer than I've been licensed! He first talked to Tim in the mid-70s during a weekly 75-meter sked with K4GSU (now N4AR). They've been friends ever since. Pat has been the main 20-meter op at K3LR for as long as I can remember (which only goes back about 8 years) and always piles up huge numbers on that band. I think he had around 193 countries in CQ WW one year! They were competitors in WRTC 1996 in San Francisco and they recently returned from Finland this past July where they competed in WRTC 2002. Together, Pat and Tim make a great team.

Here's more from N9RV about the man behind K3LR.

Climb the hill and round the curve on Interstate 80 near the Ohio/Pennsylvania border, and you will behold a breathtaking sight. The panoramic view of the K3LR super station is not for the weak-hearted. But those majestic towers and Yagis that stretch to the sky are only the most visible achievements of a ham whose footprint in the world of contesting is larger than many.

Tim Duffy, K3LR, needs little introduction to most contesters. If you haven't built one of his antennas, read one of his articles, attended one of his forums, or been crushed by his signal in a pileup, you are a rare person indeed. To the generation of contesters who came of age in the last 15 years, Tim is the technical and organizational whiz whose team of operators has powered his world-class multi-multi station into the top tier.

"I like challenges," Tim explains simply, and the few who have attempted to assemble competitive multi-multis from west of the Appalachians know exactly what he's talking about. "I have no desire to locate my station further east. I enjoy working hard on antennas and station design to try and beat the East Coast M/M stations. As long as we have great operators, I think we are very competitive."

Tim in action at one of the 11 K3LR operating positions.

K3LR stands in front of *some* of his formidable antennas.

But multi/multi is only the latest outlet for Mr. Duffy's competitive juices. In the decade before turning the first shovel on his present-day station in 1987, Tim's formidable technical and operating talents were spent trouncing the competition in the single-op category. From the small lot of AF3P in the 1970s and early 80s, where he signed K3LR and won the ARRL 160 Contest, to K3TUP's station up the road in Erie, where he won the ARRL DX Phone contest twice in a row, Tim beat the East Coast at their own game.

From a couple of miles east of the W8 border, Tim did what the rest of us thought you couldn't do: win contests. In the CW SS, in particular, no one approached his level of dominance. K3LR has been in the top ten CW SS HP category 10 times, finishing as high as #2 and #3. During the 1990s, K3UA took a turn as pilot of the K3LR station and posted one of the best east-of-the-Mississippi finishes ever in SS Phone at #3 overall. And those of us who are still trying to win a CW Sprint look up to a guy like Tim who has done it not once, but three times.

Everything at the K3LR station now is bigger and better than in those days, but the flame of desire to win burns just as bright, very bright. How many people do you know who would take *down* a 3-over-3 stack of full-sized 40-meter beams to tweak the heights and element spacings to turn it into a 4/4 stack? Tim's commitment to get the most out of his station drives him to replace and improve things that most hams just ignore.

Outdoors, the K3LR station hardware reads like a contester's dream: 3-high stacks of monobanders on 20/15/10, each on their own 170, 120 and 100 foot towers, respectively; 4 over 4 on 40 meters at 190 and 110, a four square on 80 and a five element parasitic vertical array on 160, plus a host of other multiplier and receiving antennas. Inside is the latest and greatest radio equipment. Eight Icom 781s, with 765s and Yaesu FT1000MPs, round out 11 operating positions. Imagine 14 computers that are configured with DOS (no windows installed) that are used just four times a year! Every amplifier is a home brew dedicated single band 8877. But as other M/M station owners will attest, it's all for naught if it doesn't function flawlessly on WW weekend. Getting that job done has gotten harder, now that Tim's career puts him on the road, often sharing time between homes in both Pennsylvania and Oklahoma.

Tim visited W3LPL in 1986, and Frank's comments reminded him that multi-multi is the ultimate station challenge. Tim wanted to push his engineering expertise to the ultimate limit of radio competition. Frank would become a close friend and important advisor in K3LR's multi-multi design.

"It was 1987 and my best friend Scott, N3RA, convinced me to build a multi-multi when I bought 10 acres with a house that was built in 1865," Tim recalls. "With Scott's help by 1992 we were ready and entered CQ WW Phone that year and finished 4th in the USA. I have

been hooked ever since." Since that time the K3LR M/M strategy has evolved from emphasizing hardware and antennas to emphasizing operators. "Doing well in M/M from WPA is difficult. Attracting the best operators is the secret to success. Hardware and radio equipment will only take you so far in the final score. The better our M/M scores, the easier it is to recruit good talent from around the country." Several local operators have become very talented contesters because of K3LR multi multis. Tim continues to look for budding talent to staff multi-multis in the future.

Those team-building talents were finely honed during the 1970s and 1980s in the hills of WPA when a small group of now-famous contest operators took up the challenge of winning Field Day's most competitive categories. After hooking up with contest elmer K8MR at the age of 15 in 1975, Tim led a group that got progressively more serious, and more successful, about winning 2A and 3A. Operators on some of those winning teams included N3RA, K8MR, K3UA, W3YQ, K5ZD, N4AR, W8KIC, and N0AQK(better known as N5TJ).

But even in those years, the seed of future M/M operating was evidently being planted in K3LR. To his surprise, his bold phone call to K3EST in 1976 landed him a spot on 40 meters at PVRC-stalwart W3AU, then reigning supreme among the M/M listings. Tim also landed operating chairs at N2AA/K2GL and W2PV, rounding out the list of legends on his operating resume.

When it finally came turn for Tim to build his own station, that accumulated knowledge was put to good use. Other hams have come to Tim for help for a long time, since the days of Sherwood filters for Drake C-lines, LTA antennas, and even before. As a founding member of the North Coast Contesters, whose members and alumni include N3RA, K8NZ, K8AZ, K8DX, K3UA, and K5ZD, Tim has designed, built, and installed antennas and accessories for countless contesters, including his competitors. He has chaired the Dayton Antenna forum for more than 20 years and moderated the Dayton Contest forum for 10 years.

K3LR and N3RA, along with W9ZRX, own the K8TME/N3RA PacketCluster network node that provides DX spotting service for hundreds of contesters and DXers. Dave, W9ZRX, is the K3LR coach and technical advisor these days. "Dave has years of station design and operating experience. He continues to help the station get better all the time", Tim added.

If there's anything that you read between the lines on Tim's contesting resume it is this: persistence. Those who lose enthusiasm after getting beat in a couple of contests should know this: in the years 1992-1997, K3LR hosted 24 multi-multi operations, each involving 8-10 operators with hundreds of hours of advance preparation. Tim's team was beat in every one of those contests, before securing their first win in 1998. That energy and commitment to winning is eclipsed by few other contesters, and explains why K3LR will always be in the running for whatever challenge he takes on.

I was lucky enough to operate at K3LR a few years ago. While we didn't win, it was a great experience! The station is simply amazing, both inside and out. Tim is the picture of class and an all around great guy! Be sure to stop by and say HI to him at Dayton…he's always there, usually hanging out in or near the Miami room.

Thanks to Pat for being the first guest profile writer! Who is going to be next?

NCJ

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Contest Tips, Tricks and Techniques

Gary Sutcliffe, W9XT

Best Weapons of Little Pistols—*Part 2*

In the last installment of CTT&T, we discussed tips for little pistols. Topics included operating techniques and favorite contests for the ERP Challenged. This time we will concentrate on antenna systems for little pistols, with an emphasis on those that give good performance with limited space, at low cost, or low profile.

AE9B uses a pair of top-loaded phased verticals for 80 and 160 meters. He uses 50ft Rohn push up masts. There are loading coils near the top, and guy wires double as top hats. They take about 60ft of space. He lays out radials, but says that they can be bent as necessary to stay in the yard. Tom can put them up in about an hour.

Big gun stations often have multiple antennas for a band. Small stations can do the same thing, as suggested by Tom, K2UOP. Tom put a small tribander on a separate 20ft tower. During contests he turns the low tribander towards South America and the Caribbean. This not only saves wear and tear on the rotors, but also lets him instantly switch directions, saving precious time.

Tom also talks about his phased 40-meter vertical array. It can be switched from the shack from NE to SW. He is so impressed with this system that he plans on building a system for 80 meters using inverted L's.

A lot of contesters are afraid to try 160 meters, continues K2UOP. They feel they need a big, high antenna to make contacts on topband. He has worked a lot of DX with a dipole up only 24ft, but admits that his height above sea level helps. Tom also has an inverted L for 160 meters, giving him both vertical and horizontal polarization.

K2UOP's receive antennas for 160 meters are not all that high-end either. Tom has Beverages that just lie on the ground, and feels they work great. I used similar Beverages at my last QTH. They were about 85 ft long. One was pointed towards Europe and the other towards the Caribbean. The signal level output was low, and I needed a pre-amp. I would put them out in the fall. Snow would cover them in the winter, and I would pick them up in the spring. I didn't think they were killer antennas, but they were certainly responsible for a lot of contacts I would not have gotten without them, and they were small, inexpensive, and not visible.

Tim, K0PG, is a self described "cliff dweller". He waits for dark before putting his Outbacker on the balcony rail. Tim usually operates CW, but has been known to operate SSB. This year he operated the CQ 160 SSB contest with an 8 ft whip and two 16 ft radials strung out to nearby trees.

Dan, N9XX, has a trap vertical hidden by bushes. In his attic, Dan has a two-element yagi fixed on Europe. He says it is not a killer antenna, but better than the vertical.

Single Band Specialization

Henry, K4TMC, is a believer in single band efforts. He especially likes 10 meters. He has several antennas on that band, including fixed beams towards Europe, South America, Africa, and the West Coast of the United States. He also has a vertical to cover the other directions.

I am also a big believer in smaller station specializing in a single band. I did exactly that for many years, concentrating primarily on 10 meters. The main reason for specialization is the simple fact that it requires less money, space, and effort to put up a competitive antenna on a single band than it does on five or more bands.

The second reason for specialization is that as you concentrate on a single band, you get to become a real expert at it. You learn what propagation is likely, plus learn about the less common and unusual openings that sometimes occur. You know what stations are likely to show up and the operating practices of the band. As you get some success as a single band specialist, don't be surprised if you start getting recruited to operate at a multi-op effort. Big gun multi-op owners are always on the look out for single band experts to join their crews.

What band should you pick to specialize? I would suggest picking your current favorite band. You probably like the band because you get out as well or better than you do on the other bands. You already have a start!

Ten or fifteen meters are good bands to consider. First, and perhaps most important, antenna sizes are more manageable. The bands are large, allowing stations to spread out more. There is less of a problem of the big guns fighting it out for a few kHz to call CQ in. Static is normally low on these bands and absorption is low as well. Low power signals can cover the world when conditions are good.

What sorts of antennas are best for 10 or 15? Certainly a monoband Yagi is a good choice. A good monobander can be purchased for less than a so-so tribander. Building a monobander is not all that difficult, and with some scrounging they can be put together for very little money.

Big guns stack antennas. Little guys can do that too. During my 10-meter period I had a stack of two four-element yagis. They were on a 60-foot tower. The top one was on a rotor and the bottom one was fixed on Europe. Later, a simple side mount arm was put on the lower antenna that allowed it to be turned by a large TV rotor. It could swing between Japan and Europe. In retrospect, I should have changed it to go between Europe and South America. A simple home brew phasing box let me select the top only, or both antennas at once.

This system was an absolute killer. It was on a hill, so the effective height was higher than just the tower. Operating experience and later computer modeling suggested that it was too high during the sunspot peak. Bringing it down to 50 or maybe even the 40-foot level might have actually improved its performance. Not many contesters would consider a tribander on a 40 to 50-ft tower to be a big gun antenna, but a small stack on the same tower is certainly going to be above average.

As a footnote, I replaced the 10-meter beams with a pair of A3 tribanders during the last sunspot minimum. The bottom one is fixed on Europe. Although they offer a lot of flexibility they really don't have the raw firepower the 10-meter stack did.

One of the problems with 10 meters is that it is not very exciting during the low part of the sunspot cycle. To complement that, you might want to consider specializing in one of the low bands. The problem with the low bands is that it takes more effort to put up an effective antenna. The good news is that there are few stations that have truly outstanding antennas for these bands, so it does not take an exceptional effort to have some-

thing that beats the masses.

As mentioned earlier, phased verticals are fairly simple, and relatively unobtrusive, and can often fit in relatively small areas. An added advantage is that you don't have to climb towers and deal with expensive heavy-duty rotors. With proper design, instant directional switching is possible.

Verticals can be hidden or disguised as flag poles. Perhaps you can even pass off a 40 meter 4-square as a set of flagpoles. Tell the neighbors you are being patriotic.

Most contesters who have used 4-Squares on 40 meters feel that they are comparable or better than a 2 element Yagi at moderate heights. Such an array can be put in an area 100 ft on a side, including the radials. A fairly large yard could hold one of these. Some hams have been experimenting with 4-Squares for the higher frequency bands. A 4-Square for 20 or higher is quite compact. The results I have heard about them are encouraging.

The real secret to verticals is a good ground system. A poor ground system will cut efficiency. Fortunately a good radial system can be put in pretty inexpensively, and the neighbors can't see it. The down side is that it is a lot of work.

The tower that held the 10-meter stack is also shunt fed for 80 meters. The addition of 3/4 mile of wire to an already existing tower turned it into a better than average antenna on the 80 m band.

That wraps up our two-part discussion on weapons for little pistols. The proper selection of which contest to operate, combined with proper operating technique, and perhaps selected improvements to your antenna system can make a big difference in your little pistol contest standing.

Thanks go out to AE9B, KX9DX, K2SX, K3FT, K2UOP, K4TMC, K5AF, K5ZD, K0IL, K9OT, K0PG, NX6I, N9XX, N0AX, and W3DQ for sharing their ideas on little pistol contesting.

Topic for November- December 2002 (Deadline September 5): Operating From Outside the Target Area

Do you operate contests where the world works a specific location, such as state QSO parties from other states, WAE, SAC, All Asia from North America, or the ARRL DX contests from outside the US and Canada? Which ones do you like the best and why? What strategies do you use? What are your band plans? What percentage of the time do you expect at least one band to be open to the target area?

Send in your ideas on these subjects or suggestions for future topics. You can use the following routes: Postal Mail: 3310 Bonnie Lane, Slinger, WI 53086; E-mail: **w9xt@qth.com**. Be sure to get them to me by the deadline. NCJ

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Contesting for Fun

Brian Kassel, K7RE
bkassel@dancris.com

Antennas

Every contester knows that the station's antennas make or break his/her chances to succeed. Selecting, designing and construction, though, can involve many tedious hours poring over charts, diagrams, plots, and antenna simulation software.

Even after the above steps are completed, the actual worth or performance of any antenna can be difficult to analyze, given the many variables encountered in a typical installation. Could there be just one methodology to measure just how successful a given antenna installation actually may be? In other words, what really is our objective to all of this contesting stuff? If everything is rolled into one quality, it would have to translate to fun. I don't mean that you have to drop the analysis, the planning, or even the dreaming of the ultimate contest antenna system. I mean that sometimes during the process, it is easy to lose one's way, and forget what the ultimate goal really is—FUN.

So to this end, how can we come up with a measurement that would yield a "Fun Quotient?" Performance criteria such as gain, elevation angle, rejection, SWR bandwidth, physical dimensions, and weather survivability really add up to yield the bottom line: Just how much fun am I REALLY experiencing?

So has anyone really been able to quantify the many, many antenna system variables into a single Fun Quotient, based on as much as possible on real scientific data? Is such an effort even possible?

Yes, I am happy to report it has been done (at least to my satisfaction) about as well as one could expect given the many obvious pitfalls to such a project. In the July 2000 issue of *QST*, beginning on page 47, there is an article that I must call a classic: "Everything Works" by Thomas H. Schiller, N6BT. If you have never read this piece, you simply must find the time to do so. It is not so technical, and any ham that can deal with items such as dBs and the general idea of antenna gain should easily comprehend the main ideas of the paper. The gist is really quite simple, so simple that I'd bet many readers already have experienced the effects, and developed their own data in most any contest situation without even realizing it.

Tom compares the very minimum antenna a station might have with the very most complex system, and develops a chart on how many dBs the antennas are separated by. What is a minimum antenna system? How about a garden variety 150 W incandescent lamp on a short pole? Is that minimum enough for everyone?

He added a balun to ensure that the feed line would not radiate. With an SWR of about 4:1, he used an antenna tuner to make the TS-870 that he used in the test happy. He worked 14 countries the first day during the ARRL DX CW contest. The next day he worked Africa for WAC in one weekend, barefoot, on a light bulb antenna. You can see where he gets his title for the piece "Anything Works". He then comes up with a chart that compares "enjoyment" on one axis to that dB separation as noted above.

When I first read the piece, I was shocked to learn that the dB difference between this minimum antenna and the most complex system was only 18 dB. If we use the general yardstick that each "S" meter unit equals 6dB, that's only 3 "S" units difference! That's between a light bulb and what he considers the very highest end for an amateur antenna system.

So what is considered high end? How about a stack of six Force 12 C3s on a 190 foot rotating tower, as used by N7ML? Amazed? I sure was. By the way, he places a simple dipole antenna at about 1/3 to ½ wavelength high at the midpoint on this scale. Certainly, this antenna would be considered very moderate for any station considering active contest work. And yet, it is as far from a light bulb as it is to the Cadillac system at N7ML!

Tom goes on to examine other real world antennas in an additional chart, as well as exploring how gain can be at either end of a path to provide the required overall gain and signal strength to make the QSO work.

The bottom line here is that Tom shows us that one can have a tremendous amount of fun, and actually be quite competitive with a simple antenna such as a dipole. Also he points out in his summary that if one does indeed erect something like a tri-band beam at a usual height of 50 to 70 feet or so, one can approach those really wonderful large antenna systems used by the really big guns.

Another way to look at this is to closely examine the results of the winners and top scorers for a typical large contest. You will note that in many instances the difference between the top 5 is much less than 1% of the total score. At times I have seen less than 5 QSOs divide first through fifth!

So how much is enough? Well, of course that depends on many aspects, not the least is the size of your wallet. My purpose, and I believe Tom's as well, is to show that one can really do quiet well and have much more enjoyment and fun than one might expect from a minimal station antenna system.

So there, you don't need to spend your child's college fund or your grand children's inheritance to have a lot of fun —more that you might have imagined prior to reading Tom's piece.

Decibels, a Refresher

Of course to be able to deal with the article, one must have a smattering of an idea on how to calculate dBs. In talking with many hams who may not have a background in electronics or communications, it is apparent to me that many don't know how to cope with the basic communication yardstick: the dB. Some may be able to rattle off the formula, but few could really utilize that formula without a calculator, much less do the computation in their heads. Well, I actually did spend my working life in the field of telecommunications, and even within that field there were many who struggled to be able to REALLY comfortably use dBs to come to any quick conclusion.

As a bonus to this column, I respectively submit an easy to use method of calculating the dB difference between two power levels. This is not a new idea, but I rarely see it in recent publications. It is accurate to a dB or so, and is offered here as a quick, ballpark way to evaluate losses, gains, etc.

All that one has to memorize is:

Every time power is increased to 2X, add 3 dB

Every time power is decreased to 1/2X, subtract 3 dB

Every time power is increased to 4X, add 6 dB

Every time power is decreased to 1/4X, subtract 6 dB

Every time power is increased to 10X, add 10 dB

Every time power is decreased to 1/10X, subtract 10d B

OK, so here are some examples:

Problem: A transmitter has its output

power increased from 5 W to 100 W. What is the dB difference?

As this is an increase in power, we must add up the dB values.

100 W/5 W = 20X increase

5 W X 10 (10dB) = 50W

50 W X 2 (3dB) =100W

10dB + 3dB = 13dB, so we have a 13dB increase

Problem: We have a 100W transmitter and wish to increase our signal level 6 dB.

100 W X 4 (6 dB) = 400 W

Or another way to look at it:

100 W X 2 (3 dB) = 200 W

200 W X 2 (3 dB) = 400 W

3 dB + 3 dB = 6 dB

Hopefully, you get the gist of the idea. It won't be long before one can completely analyze an entire communication link. Add gains, subtract losses: it's that simple. There are many aspects to the dB, but those areas will have to be described further on down the road.

Movin'

On a bit of a personal note, I wanted to let all of the readers know that I have moved. Yep, FROM Peoria, AZ TO Spearfish, SD. Note where those prepositions are located in the above sentence. Yes, I did move from AZ to SD, not the other way around. Spearfish is a town of about 7000 people, and is located in the far western part of the state, only about 15 miles from the WY border. I look forward to handing out both the SD as well as the rarer WY SPC in the upcoming contests. The reason, ostensibly, for moving was that my XYL, KD7GYL, accepted a teaching position at Black Hills State University. The real reason was for the rare multiplier status, of course. I got addicted to those nice long runs in the ARRL DX CW contest when Bob Patten, N4BP, and I ran over to C6A for the event. Don't tell my XYL, though. NCJ

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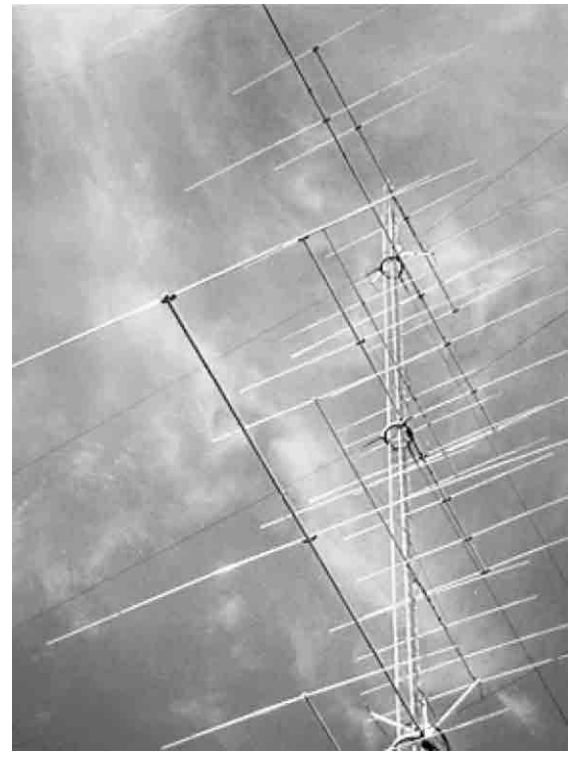

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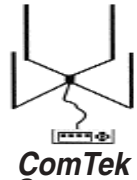

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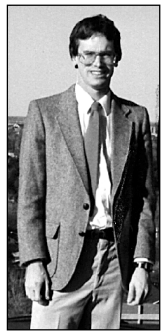
VHF-UHF Contesting

Jon K. Jones, N0JK
n0jk@hotmail.com

June 2002 VHF QSO Party–Worst Es in Years

June 2002 FM band Es: only for 475 minutes–worst June in my 30 years–de WA5IYX



Many operators were hoping for great 6 Meter Es conditions in the June contest. But instead, "It was just the opposite. As others have noted, 6 Meters was not that good. Only had a few openings, including to the southeast at the start and to the northwest (VE5-7, W7) near the end."—*Pete, K9PW.*

Most found only a few short Es openings. For stations away from population centers, Es is about the only way to make very many contacts in the June VHF QSO Party. With little Es, many scores suffered. Mike, KM0T, observed, "It took the wind out of my sails."

I operated QRP Portable in EM08 on a bluff overlooking the Arkansas River west of Nickerson, KS. I listened to noise for many hours out in the hot sun and wind. I had one decent 6M Es opening Sunday evening in the last hours of the contest to VE4, VE5, VE6, North Dakota, Pennsylvania, Florida and Virginia. VE5UF, W3GN, N3EMF and NT0V had big Es signals into the heartland. I finished the contest working VA6AN (DO42) and KC4PX (EL98) in back-to-back QSOs!

K7RAT in Oregon said the contest was "mostly a mud wrestle, but a nice opening on six during the last hour allowed me to beat last year's score." Tree said his "best moment was working VY1JA at the start of the contest for his only QSO." Despite the poor conditions, KM0T worked "almost 100 grids and over 200 QSOs on 6 meters." N6ZZ operated QRP from New Mexico and reported 96 QSOs in 48 grids on 6. Phil reported the Es were "very spotty, almost open to only one grid at a time."

Tropo was reported between Missouri and Illinois to the East Coast Saturday evening. K9PW worked AA2UK (FM29) at 740 miles on 144 and 222 MHz. WR0F (EM29) spotted a VE3 on 2 meters. Despite the poor conditions, K9PW posted a QRP Portable claimed score of 145,908. His line scores (see Table 1) are impressive, and should be enough for a new June QSO Party record. Congratulations, Pete!

Contest meteor scatter conditions were good

While Es openings were scarce, many stations reported enhanced meteor scatter — weak Es on 6 Meters. Both Saturday and Sunday afternoon I heard good signals on 6 meters out of 3 and 8 land. K8GP (FM08), KT3Y (FM18), K1RZ (FM19), K2UOP (FM09), AA2UK (FM29), K3CWH (FN10), W3SO (FN00), K3YTL (FN11), W3CCX (FN21), K3KYR (FN24), KA2LIM (FN12), N2PA (FN12) and K2BAR (FN31) were heard consistently in EM08 for hours on 6 Meter scatter.

I was able to complete SSB or SSB/CW contacts with all of them while running only 10 watts and a 2 element Yagi! I wonder if the propagation was meteor enhanced weak Es, as I would hear a particular area for 20 or so minutes; they would disappear, then another set of grids would be heard.

Emil Pocock, W3EP, notes: "When the MUF is just below 50 MHz, for example, random meteors may elevate the MUF to a useful level for a few tens of seconds at a time."[1] K9PW reported the "Meteors seemed good on 6 meters. Even with 10 watts, I was able to complete 3-4 meteor scatter contacts using SSB. It could have been more except that the operating ability of many of the stations was lacking, even for some of the 'big time' stations." Tim, N4GN, found "lots of very marginal sporadic-E openings. I could have had four times the rate at times if more guys had been on CW, but too many just insist on sticking with SSB, no matter how poor the opening."

Bill, K0HA, in Nebraska had good meteor/Es conditions, too. He also observed some of the big guns "can't hear the little or moderate gun callers." Some stations "could magically copy me during the marginal openings while others didn't know that I existed." Some stations seemed to need "hearing aids" despite having good signals.

My personal vote for those with the "best ears" includes the stations I listed previously plus K8MFO (EN91), with whom I completed a SSB/CW QSO just above the noise level! About half of my "Es scatter" QSOs were completed sending CW back to the stations CQing on SSB.

Perhaps a "best ears" award is in order. K0HA suggested, "All log submitters get to vote for up to 5 (or 10) stations that seemed to copy better during marginal conditions. The one with the most votes wins (with a top ten list)." If anyone is interested in voting for stations with the "best ears in the June 2002 VHF QSO Party" award, I am open to accepting nominations and may list those voted as having the "best ears" in a future column.

A contest with poor conditions such as the June 2002 VHF QSO Party is a real test of operating skill and persistence. It is easy to operate when the band is wide open, but not when it is dead. Using CW and reviewing meteor scatter operating procedures can help you take advantage of short weak signal bursts. WSJT and the new JT44 weak signal mode are other potential aids. I hope we all have better conditions in the September contest. NCJ

[1]E. Pocock, W3EP, "Sporadic-E Propagation at VHF: A Review of Progress and Prospects," *QST*, Apr 1988, pp 33-39.

Table 1
K9WP June VHF QSO Party Summary Sheet

Band	*QSOs*	*Mults*
6m	161	62
2m	164	40
222MHz	56	29
432MHz	71	17
903MHz	16	11
10GHz	6	5
Total	510	189
Total Score		**145,908**

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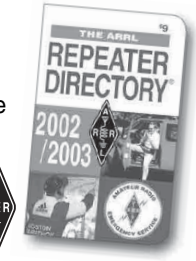

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Solar Flares and Their Impact on Contesting

Solar flares emit electromagnetic radiation at many wavelengths. Those that emit wavelengths that we see are called optical flares. Those that can cause disruption to propagation are called X-ray flares because of their emissions at wavelengths in the 1-8 Angstrom range (hard X-rays). Large X-ray flares at these wavelengths can cause significantly increased D region absorption on the daylight side of the Earth.

X-ray flares are classified as C, M or X. The C indicates a flux between 10^{-6} and 10^{-5} W/m^2. An M indicates a flux between 10^{-5} and 10^{-4} W/m^2. An X indicates a flux greater than 10^{-4} W/m^2. The digit after the C, M, or X indicates the multiplier. Thus an X1.9 flare has a flux of 1.9 x 10^{-4} watts/meter^2. Class C flares are the smallest and rarely adversely impact propagation. Class M flares are larger and can occasionally cause problems. The largest flares are the Class X flares, and are the ones most likely to disrupt propagation.

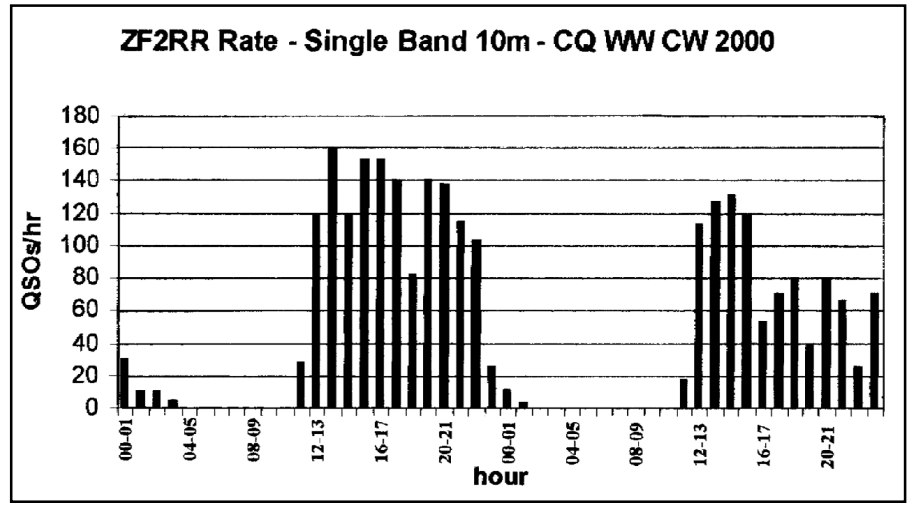
How do Class X flares impact propagation? As alluded to earlier, they can cause significantly increased D region absorption on the daylight side of the Earth. That means propagation along daylight paths will degrade due to excessive signal absorption until recombination gets the D region back to 'normal'. And the big ones can also cause Polar Cap Absorption events (PCAs) — but this is another topic for another day.

The duration of the blackout depends on the magnitude of the flare. And since absorption is proportional to the inverse of frequency squared, 28MHz will be the least affected of our HF bands. Let's take a look at a 10m contest log that shows the effects of two class X flares.

Dan, N9XX, was at ZF for CQ WW CW in 2000, and he did a single band 10m low power effort as ZF2RR. Overall he did very well (he won the World for 10m low power), but he noticed several hours with significantly reduced rates that he suspected were tied to flare activity.

Figure 1 is the ZF2RR rate plot for the contest period. There are four periods that stand out where the rate dropped significantly: during the 18-19 UTC period on day 1, and during the 16-17 UTC, 19-20 UTC, and 22-23 UTC periods on day 2.

The rate drop during the 18-19 UTC period on day 1 coincides with an X1.9 flare that erupted at 1836 UTC. The rate drop during the 16-17 UTC period on day 2 coincides with an X4.0 flare that erupted at 1638 UTC. Those were the only two class X flares during the contest weekend.



This leaves the obvious question: "What caused the rate to drop during the 19-20 UTC and 22-23 UTC periods on day 2 if there weren't any class X flares?" A look at the ZF2RR breakdown sheet reveals the likely answer. The hour before and the hour after both of those periods showed no new multipliers. But the hours in question showed three and four new mults, respectively. Thus it is likely that ZF2RR was sacrificing rate to look for new mults (indeed, Dan confirmed that he was chasing mults during these periods). By the way, this phenomenon with mults was not seen in the first two periods, so I'm pretty confident that those class X flares were responsible for the rate drop during those periods.

The good news about isolated flares is that generally their impact is of a relatively short duration. Some of the bad news is we don't have a warning of when one is coming. That's because the electromagnetic radiation from the flare that causes the increased D region absorption travels at the speed of light. So we don't detect it visually until it is happening. If you think one happened, you can always check on-line at **www.spaceweather.com** or at **sec.noaa.gov**.

More bad news is that flares can still have a devastating effect on competitive contest efforts. ZF2RR ended up with 2517 Qs, 33 Zones, and 105 Countries for a score of 851,736. That's about 32K below the North American 10m low power CW record. Adding in a conservative 100 more Qs to compensate for the first day flare in the 18-19 UTC period and the second day flare in the 16-17 UTC period would push his score slightly above the NA record. Thus without the flares ZF2RR might have broken the record. All I can say is: Dan, it couldn't have happened to a nicer guy. NCJ

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Contest Expeditions

Kenny Silverman, K2KW
k2kw@prodigy.net

It's summer time, and most of our thoughts have turned to baseball and barbecues! Tempting as it may be, the serious contest DXpeditioner will be turning his thoughts to the upcoming contest season. Now is the time to get serious about setting up reservations and looking for good deals on airfare.

Sometimes the most remote locations on the earth (Marquesas Islands comes to mind) are the most difficult to get to. Transportation to these destinations is often on smelly fishing boats or the like. Now you can get to paradise in luxury, though it still takes a few weeks to get to the Marquesas and your luxury digs. The TV show "Survivor: Marquesas" has popularized this remote group of islands, and business on the boat ARANUI has been brisk. Now that the Marquesas have been "discovered," the new luxury ship ARANUI 3 is set to sail in the summer of 2002. For information, pricing, and destinations served by the ARANUI, you can check out their web site at www.aranui.com.

Travel to other hard-to-get-to islands, such as Temotu, has become even harder. Commercial air transportation has been stopped due to lack of business. Now the only way to get to Temotu is via slow boat.

If spending a few weeks getting to paradise isn't your cup of tea, there are lots of DX locations in the Caribbean where it's only a short flight to reach massive pileups. KX4WW's new Rent-a-QTH is going up on Provo, and may be fully running by the time you read this. Speaking of luxury, there's always the new Rent-a-QTH at the Royal Antiguan Hotel. Check with Doug, W3CF, for details. Heading up to the northwestern Caribbean, there's a new Rent-a-QTH on Jamaica. Cool, mon!

DXpedition news has been a little slow lately—I presume most of you are dreaming about barbecued tri-tips rather than sending in tips to help fellow DXpeditioners. If you have information on where people can operate from, I'd love to hear from you! For information on the above locations, visit www.dxholiday.com. NCJ

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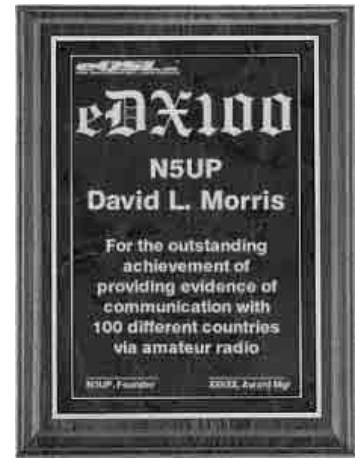

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DX Contest Activity Announcements

Compiled by Bill Feidt, NG3K
bill@ng3k.com

Now is the time to submit your announcements for the fall ARRL 160-Meter and 10-Meter Contests. If you want your listing to appear in the November/December 2002 issue, I'll need to receive it no later than September 20.

You can submit your data using the form that you'll find at www.ng3k.com/Contest/consub.html.

If you would prefer to e-mail me your information, please be sure to include:

- Callsign to be used
- DXCC entity
- CQ Zone (for the CQWW contests)
- Entry class anticipated
- QSL route
- Your callsign and public e-mail address
- Operators and other information of likely interest

Send your information to bill@ng3k.com.

You can review what has been received to-date at www.ng3k.com/Contest/conasc.html. This page is continuously updated as new announcements are received.

73, Bill, NG3K

CQ World Wide DX SSB Contest (October 26-27, 2002)

Call	*Entity*	*Class*	*Operators*
9M6A	East Malaysia	SOSB	N1UR (ex-K8EP)
D44TC	Cape Verde	SOAB	IV3TAN
FS/AH8DX	St Martin	SOAB	AH8DX
GD6IA	Isle of Man	SOAB	GM3WOJ
IG9A	African Italy	M/M	Team
IH9P	African Italy	M/M	IT9BLB + international team
JW5E	Svalbard	M/S	JW5NM, JW7FD and others
LZ8T	Bulgaria	SOSB 80M	LZ2CJ
NP2B	Virgin Is	M/?	W4OV, WD4JR, NP2B, VE3BW
OH0Z	Aland Is	SOAB HP	OH1EH
P40W	Aruba	SOAB	W2GD
PJ2T	Neth Antilles	M/S	WC4E, N8BJQ
PJ7/K7ZUM	Sint Maarten	M/S	K7ZUM, KD7BSW
T48W	Cuba	M/S	SM0WKA and CO ops
TI5N	Costa Rica	M/M	AC8G, W8ILC, N6JRL, WA8LOW, WD8ATS, KD6WW, N1IZP and others
XU7ACE	Cambodia	SOAB (A)	ES1FB
VP2M	Montserrat	M/S	PA0ZH, PA3EWP, PA5EA, PA5ET, PA3GCV, PA4WM
VP5T	Turks Caicos	M/M	WA2VYA, N2VW and others
VK8AA	Australia	SOAB HP	VK2CZ
W4WX/HI9 K9MDO	Dominican Rep	M/S	W4WX, W9AAZ, N1WON,
WP2Z	Virgin Is	M/M	K3NZ, K3OO, N2TK
YN2EJ	Nicaragua	M/S	K5LBU and others
ZD8Z	Ascension	SOAB	N6TJ
ZF2AH	Cayman Islands	SOSB 15M	W6VNR
ZK1MA	North Cook Island	M/M	W7VV, W7TSQ, AA7PM, VE7XF, KT7G
ZL7	Chatham Island	???	Kermadec DX Association

Thanks to: AC8G, ES1FB, GM3WOJ, IT9BLB, IT9GSF, IV3TAN, JW5NM, K5LBU, K7ZUM, LZ2CJ, N1UR, N2TK, N2VW, N6TJ, OH1EH, OPDX, PA5EA, SM0WKA, VK2CZ, W0CG, W2GD, W4WX, W6VNR, W7VV, ZL4HU

See www.ng3k.com/Misc/cqs2002.html for further details and updates.

CQ World Wide DX CW Contest (November 23-24, 2002)

Call	*Entity*	*Class*	*Operators*
8P5A	Barbados	SOAB	W2SC
C53M	Gambia	M/M	Team
D44TD	Cape Verde	M/S	IK4UPB, IK2NCJ, IK2JUB and others
HC8N	Galapagos	M/M	N5KO and others
IG9A	African Italy	SOSB 80M	IT9GSF
JW5E	Svalbard	M/S	JW5NM and others
KH0/N2NL	Mariana Islands		SOAB HP N2NL
LZ8T	Bulgaria	SOSB 80M	LZ2FV
MJ0ASP	Jersey	SOSB 20M	F5SHQ
P40W	Aruba	SOAB	W2GD
PJ2T	Netherlands Antilles	M/M	W4PA, NP2L, W0NB, W8TK, WA9S, W0CG, K8GT, N1ZZ, W9EFL
PY5A	Brazil	M/M	PP5JR, PY5EG, K1ZM, N7NG, OH2KI, N5ZO, N7BG, W6NV, N6CW, OH2MM, KH6ND, N6TJ
V26K	Antigua	SOAB LP	AA3B
V47CA	St Kitts	???	VE3BW
VE2IM	Canada	???	VE3DZ
VU3JDI	India	SOAB HP	AD6TF

Thanks to: AA3B, AD6TF, F5SHQ, IK4UPB, IT9GSF, JW5NM, LZ2CJ, N2NL, N5KO, N6TJ, OH9MM, OPDX, VE3DZ, W0CG, W2GD, W2SC

See www.ng3k.com/Misc/cqc2002.html for further details and updates.

ARRL 160 M Contest (December 6-8, 2002)

Call	*Entity*	*Class*	*Operators*
ZF2AH	Cayman Islands	SO LP	W6VNR

Thanks to: W6VNR

ARRL 10 M Contest (December 14-15, 2002)

Call	*Entity*	*Class*	*Operators*
8P9Z	Barbados	SOHP Mixed	K4BAI
C6ANK	Bahamas	SOLP Mixed	W9AU
D44TD	Cape Verde	SO SSB	I4UFH
ZF2AH	Cayman Is	SOHP SSB	W6VNR

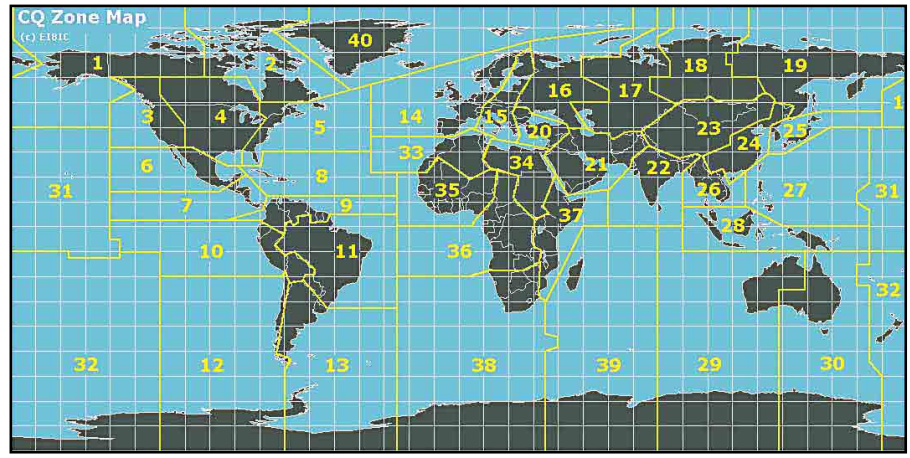
Thanks to: I4UFH, K4BAI, W6VNR, W9AU

Contest Helper

October and November bring the CQ WW DX Contests: SSB on October 26-27, and CW on November 23-24.

The exchange for this contest is signal report and CQ zone. Here's a worldwide map of CQ zones, courtesy of EI8IC's web site (**www.qsl.net/ei8ic/**), to help with your contesting efforts.

When you hear a DX station give his zone number but you missed his call (or he has a big pileup and hasn't given it yet), this map will give you a general idea of where he is in the world. For a detailed listing of zones and DXCC entities, check out *The ARRL DXCC List*. NCJ



Changes in ARRL Contest Reporting

By Mark Wilson, K1RO

Soon there will changes in the way ARRL reports the results of its contests. In July the ARRL Board voted to begin publishing contest line scores and Section News on the ARRL Web site, rather than in *QST*, effective with the January 2003 issue. The Board initially addressed this topic at its January 2002 Annual Meeting. Dave Sumner, K1ZZ, covered the issue in depth on in his March 2002 *QST* editorial, "What Belongs in *QST*?" (page 9).

Economic realities dictate the number of *QST* pages that we can afford to print and mail while still doing everything else that you expect from your League membership. There is intense competition for the space available in *QST* for articles and columns, and over the years it has been increasingly difficult to provide a balanced magazine that covers the breadth and depth of Amateur Radio. Meanwhile, the Internet has matured, and e-mail and the ARRL Web site provide a widely-accessible, timely means to supplement the information in *QST*. Despite rumors to the contrary, contesting will still have a place in *QST*. Combining the power of the Web and *QST*, members will have access to information than ever before.

What's Different?

Effective with publication of the June VHF QSO Party results in January 2003, the *QST* write-up will be focused on a review of what happened during the contest, photos, some tabular information on the leaders in the various categories, and information to promote the contest to hams who don't currently participate. The results articles will carry more detail than they currently do, using some of the space previously occupied by the line scores. Some of that space can also be used for articles and features of more general interest about contesting. Field Day scores will continue to be reported in *QST* as they are now.

The online version of the results will supplement the *QST* report and offer additional features. There has already been considerable development of the Web presentation, beginning with the 2001 ARRL Sweepstakes results last Spring. If you haven't done so already, check out **www.arrl.org/contests/results/**. Publishing on the Web offers a distinct advantage in timeliness, and you will begin to see results more quickly after the end of the contest. 2003 will no doubt be a transition year as we adjust to the new schedules.

Some of the new online features are on the Members Only portion of the ARRL Web site, while other are on the public portion. The key elements of online contest reports are:

1) **Searchable database of line scores.** Each score includes the information currently published in *QST* (call used, operator call(s), score, total QSOs, total multipliers, entry class, power). In addition, a breakdown of QSOs and multipliers and by band and mode (as applicable in the particular contest) is available for each entry. The database is searchable by many parameters. (Members Only)

2) **Downloadable, delimited file of line scores.** Those who want to do more detailed analysis can download the line scores in a file compatible with popular database or spreadsheet programs. (Members Only)

3) **Downloadable PDF file with the line scores similar to the current *QST* presentation.** For convenient printing and filing of the contest results, we offer a PDF file organized like the current *QST* results, along with the *QST* version of the contest report. This file is available on the public part of the Web site (ie, nonmembers may access the PDF version from the Web site after it has been published for members, as has been our practice since 1997). The vast majority of contest entries arrive at ARRL via e-mail, but entrants without Internet access who submit by postal mail may request a printed copy of the PDF version of the results by including an SASE or SAE/postage with their log.

4) **Online Soapbox.** All participants can upload stories and photos about their operation immediately after the contest. Soapbox comments are available on the public part of the Web site and linked to the score database.

5) **Expanded Contest Writeup**. Without the space constraints of *QST*, the online contest writeups are more detailed and include many photos, sidebars, tables, station descriptions and other interesting information. (Members Only)

6) **ARRL Contester's Rate Sheet.** This biweekly contest newsletter edited by Ward Silver, N0AX, features reminders of upcoming contests, log deadlines, and other useful news. See **www.arrl.org/contests/ratesheet/**. Members may subscribe to have the *Rate Sheet* e-mailed to them, and everyone may read it on the public part of the Web site.

7) **Logs Received listing.** As logs are received after the contest, information from the contest robot is be fed back to the ARRL Web site in near real time to compile a list of logs that have been received. This information is available on the public part of the Web site. In addition, the contest robot now does more up-front checking of entries to minimize errors in getting your score accurately into the results.

8) **Additional features.** Other features can be considered as resources are available. We welcome your input—contact ARRL Contest Manager Dan Henderson, N1ND (**n1nd@arrl.org**) at ARRL HQ.

Contest Calendar

Compiled by Bruce Horn, WA7BNM
bhorn@hornucopia.com

Here's the list of major contests to help you plan your contesting activity through December 2002. The web version of this calendar is updated more frequently and lists contests for the next 12 months. It can be found at **www.hornucopia.com/contestcal/**.

As usual, please notify me of any corrections or additions to this calendar. I can be contacted at my callbook address or via e-mail at **bhorn@hornucopia.com**. Good luck and have fun!

September 2002

MI QRP Labor Day CW Sprint	2300Z, Sep 2 to 0300Z, Sep 3
All Asian DX Contest, SSB	0000Z, Sep 7 to 2400Z, Sep 8
IARU Region 1 Field Day, SSB	1300Z, Sep 7 to 1300Z, Sep 8
North American Sprint, CW	0000Z-0400Z, Sep 8
DARC 10-Meter Digital Contest	1100Z-1700Z, Sep 8
QRP ARCI PSK31 Sprint	2000Z-2400Z, Sep 8
YLRL Howdy Days	1400Z, Sep 11 to 0200Z, Sep 13
WAE DX Contest, SSB	0000Z, Sep 14 to 2359Z, Sep 15
ARRL September VHF QSO Party	1800Z, Sep 14 to 0300Z, Sep 16
North American Sprint, SSB	0000Z-0400Z, Sep 15
Tennessee QSO Party	1800Z, Sep 15 to 0100Z, Sep 16
AGB NEMIGA Contest	2100Z-2300Z, Sep 20
ARRL 10 GHz Cumulative Contest	0800-2000 local, Sep 21 and 0800-2000 local, Sep 22
Scandinavian Activity Contest, CW	1200Z, Sep 21 to 1200Z, Sep 22
Washington State Salmon Run	1600Z, Sep 21 to 0700Z, Sep 22 and 1600Z-2400Z, Sep 22
Panama Anniversary Contest	1200Z-2359Z, Sep 22
Fall QRP Homebrewer Sprint	0000Z-0400Z, Sep 23
CQ/RJ Worldwide DX Contest, RTTY	0000Z, Sep 28 to 2400Z, Sep 29
Scandinavian Activity Contest, SSB	1200Z, Sep 28 to 1200Z, Sep 29
Texas QSO Party	1400Z, Sep 28 to 0200Z, Sep 29 and 1400Z-2000Z, Sep 29
Louisiana QSO Party	1400Z, Sep 28 to 0200Z, Sep 29 and 1400Z-2000Z, Sep 29
Anatolian DX Contest	1600Z, Sep 28 to 2400Z, Sep 29
Alabama QSO Party	1800Z-2400Z, Sep 28

October 2002

TARA PSK31 Rumble	0000Z-2400Z, Oct 5
Oceania DX Contest, Phone	0800Z, Oct 5 to 0800Z, Oct 6
EU Autumn Sprint, SSB	1500Z-1859Z, Oct 5
California QSO Party	1600Z, Oct 5 to 2200Z, Oct 6
QCWA QSO Party	1800Z, Oct 5 to 1800Z, Oct 6
RSGB 21/28 MHz Contest, SSB	0700Z-1900Z, Oct 6
YLRL Anniversary Party, CW	1400Z, Oct 9 to 0200Z, Oct 11
10-10 Day Sprint	0001Z-2400Z, Oct 10
Oceania DX Contest, CW	0800Z, Oct 12 to 0800Z, Oct 13
EU Autumn Sprint, CW	1500Z-1859Z, Oct 12
Pennsylvania QSO Party	1600Z, Oct 12 to 0500Z, Oct 13 and 1300Z-2200Z, Oct 13
FISTS Fall Sprint	1700Z-2100Z, Oct 12
Iberoamericano Contest	2000Z, Oct 12 to 2000Z, Oct 13
North American Sprint, RTTY	0000Z-0400Z, Oct 13
YLRL Anniversary Party, SSB	1400Z, Oct 16 to 0200Z, Oct 18
JARTS WW RTTY Contest	0000Z, Oct 19 to 2400Z, Oct 20
QRP ARCI Fall QSO Party	1200Z, Oct 19 to 2400Z, Oct 20
Worked All Germany Contest	1500Z, Oct 19 to 1459Z, Oct 20
Asia-Pacific Sprint, CW	0000Z-0200Z, Oct 20
RSGB 21/28 MHz Contest, CW	0700Z-1900Z, Oct 20
Illinois QSO Party	1800Z, Oct 20 to 0200Z, Oct 21
CQ Worldwide DX Contest, SSB	0000Z, Oct 26 to 2400Z, Oct 27
ARRL International EME Contest	0000Z, Oct 26 to 2400Z, Oct 27
10-10 Int. Fall Contest, CW	0001Z, Oct 26 to 2400Z, Oct 27

November 2002

IPA Contest, CW	0600Z-1000Z and 1400Z-1800Z, Nov 2
Ukrainian DX Contest	1200Z, Nov 2 to 1200Z, Nov 3
ARRL Sweepstakes Contest, CW	2100Z, Nov 2 to 0300Z, Nov 4
NA Collegiate ARC Champ, CW	2100Z, Nov 2 to 0300Z, Nov 4
ARCI Running of the QRP Bulls	2100Z, Nov 2 to 0300Z, Nov 4
IPA Contest, SSB	0600Z-1000Z and 1400Z-1800Z, Nov 3
High Speed Club CW Contest	0900Z-11000Z and 1500Z-1700Z, Nov 3
DARC 10-Meter Digital Contest	1100Z-1700Z, Nov 3
Japan Int. DX Contest, Phone	2300Z, Nov 8 to 2300Z, Nov 10
WAE DX Contest, RTTY	0000Z, Nov 9 to 2359Z, Nov 10
OK/OM DX Contest, CW	1200Z, Nov 9 to 1200Z, Nov 10
Anatolian ATA PSK31 Contest	1800Z-2400Z, Nov 9
LZ DX Contest, CW	1200Z, Nov 16 to 1200Z, Nov 17
ARRL Sweepstakes Contest, SSB	2100Z, Nov 16 to 0300Z, Nov 18
NA Collegiate ARC Champ, SSB	2100Z, Nov 16 to 0300Z, Nov 18
RSGB 1.8 MHz Contest, CW	2100Z, Nov 16 to 0100Z, Nov 17
CQ Worldwide DX Contest, CW	0000Z, Nov 23 to 2400Z, Nov 24
ARRL International EME Contest	0000Z, Nov 23 to 2400Z, Nov 24

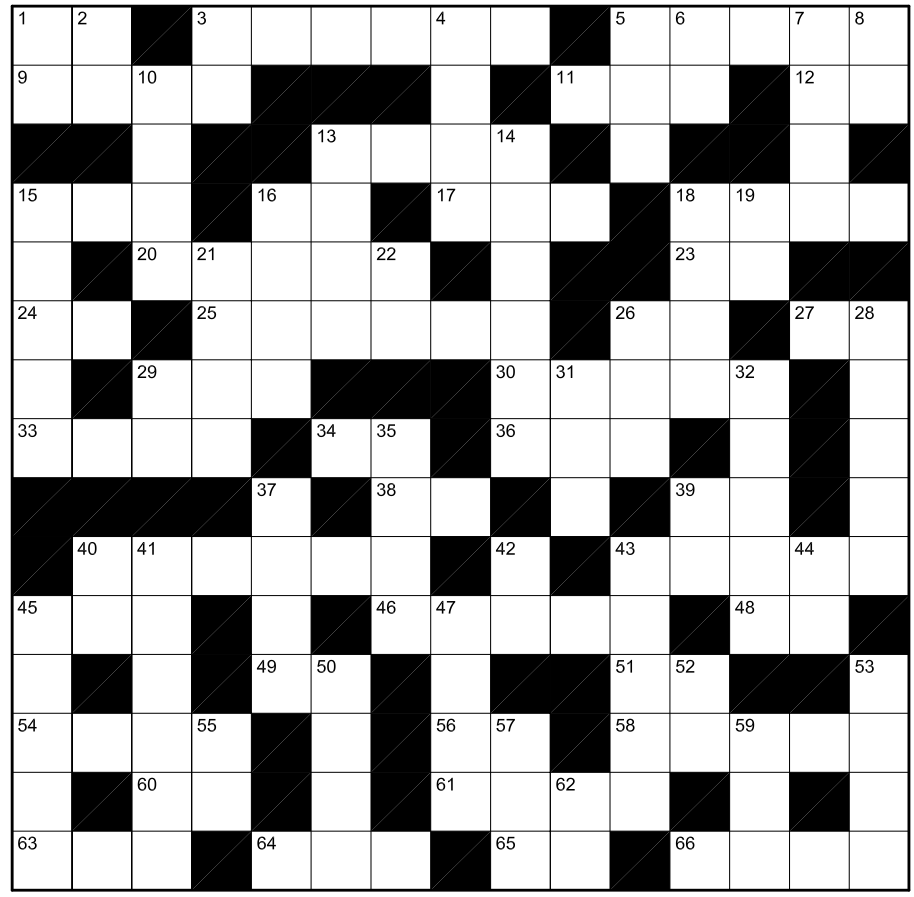
December 2002

QRP ARCI Hol. Spirits Sprint	2000Z-2400Z, Dec 1
QRP ARCI Topband Sprint	TBD, Dec 4
ARRL 160-Meter Contest	2200Z, Dec 6 to 1600Z, Dec 8
PSK31 Death Match	0000Z, Dec 7 to 2400Z, Dec 8
TARA RTTY Sprint	1800Z, Dec 7 to 0200Z, Dec 8
TOPS Activity 80m Contest	1800Z, Dec 7 to 1800Z, Dec 8
ARRL 10-Meter Contest	0000Z, Dec 14 to 2400Z, Dec 15
Great Colorado Snowshoe Run	0200Z-0400Z, Dec 15
AGB Party Contest	2100Z-2300Z, Dec 20
OK DX RTTY Contest	0000Z-2400Z, Dec 21
Croatian CW Contest	1400Z, Dec 21 to 1400Z, Dec 22
DARC Christmas Contest	0830Z-1059Z, Dec 26
RAC Winter Contest	0000Z-2400Z, Dec 28
Stew Perry Topband Challenge	1500Z, Dec 28 to 1500Z, Dec 29
Original QRP Contest, CW	1500Z, Dec 28 to 1500Z, Dec 29

Call Sign Crossword

By Ward Silver, N0AX

How many famous contest call signs do you know (or remember)? There's something old, something new and some miscellany to keep you occupied between contests.



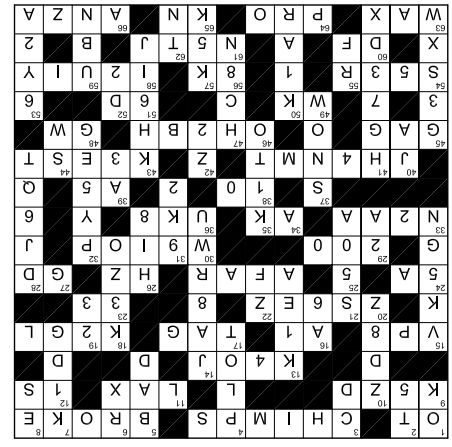
Across

1. Old Timer
3. Pileup fools act like these primates
5. Don't fix it if it ain't…
9. *NCJ* Editor, moved to Massachusetts from Texas
11. Sloppy
12. Common prefix for Spratly
13. Founder of Florida Contest Group
15. Prefix for four southern British entities
16. The best (abbreviation)
17. Put these on luggage so they don't get lost
18. First multi-multi station
20. Mr. Zone 38
23. Triplets
24. Prefix for northernmost Zone 34 country
25. DX is signals from…
26. Largest Zone 21 country (prefix)
27. British entity in the Irish Sea
29. Power limit on 30 meters
30. Author of the original "2nd Op"
33. Said, "Loud is Good!" (call sign)
34. Westernmost US state (abbreviation)
36. Prefix for Uzbekistan
38. Number of US call districts
39. Prefix for Bhutan
40. Yoshi 5U7M's Japanese call
43. Director of CQ WW
45. Choke
46. Where does he go next?
48. British entity in SW England
49. Weak (abbreviation)
51. Mexican contest prefix
54. WRTC-2000 organizer now in YA
56. Big Henry amplifier model
58. He is the Italian QSL bureau
60. Direction Finding (abbreviation)
61. Holds the SSB CQ WW Single-Op All-Band record
63. Beat soundly
64. Version of the IC-756
65. Only the called station respond
66. Net for VK, ZL and African stations

Down

1. Czech Republic prefix
2. Rare country on the Horn of Africa
3. Type of computer disk
4. To draw or scheme
5. K of 5 means conditions are…
6. Receiver (abbreviation)
7. One of the WRTC-1990 winners
8. And (CW)
10. Contest call sign of N6TJ
13. Created *CT*
14. WRTC-1996 competitor from Hokkaido
15. He's a beacon from state of South Australia
16. Location of biggest contest station in Zone 21
18. Used to be LU5HFI
19. Rarest Asian zone
21. WRTC-2000 organizer still at home
22. Cayman Islands prefix
26. Shares the island of Hispanola with Haiti (prefix)
28. German member of Contest Hall of Fame
29. Field Day category for two-transmitter club entry
31. Zone 21 country at the top of the Persian Gulf
32. Brazilian member of Contest Hall of Fame
35. One-half of the WRTC-2000 and -2002 winning team
37. Video noise
39. Prefix for Tonga
40. Prefix for most common Asian country
41. Big Hungarian multi-op station
42. Prefix for Zimbabwe
43. Contest Hall-of-Famer from Hawaii
44. Shortwave (abbreviation)
45. Leader of the Voo-Dudes contest team
47. Call for the CW CQ WW Single-Op All-Band record
50. The other WRTC-1990 winner
52. Prefix for Angola
53. Team Vertical call sign
55. Best form of electrical power (abbreviation)
57. Call of Kingman Reef expedition in 2000
59. Unique, busted, not-in-log
62. Prefix for country that rhymes with "bongo"

NCJ



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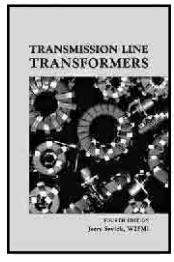

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"ICOM supplied a 'PROII for a recent DXpedition. It worked so well, that I bought TWO as soon as I returned home. Others on the DXpedition bought them, too. I can't believe the performance of the receiver, particularly on the low bands! The pre-amp REALLY works without distortion. The adjustable filters and twin passband tuning are a dream and so easy to operate. The digital noise reduction is truly amazing. You can't get "lost" with the operation of the controls....it's simple to back out a level. I've operated literally every HF radio made in the last 30 years, contesting and DXing, and the 'PROII is in a class all by itself! We have a six ham family and we all love our new PROII's!!! The "fun" is back into ham radio more than ever now."

-Glenn Johnson WØGJ , A50A WW SSB Contest

The IC-756PROII's worked great - we ran them for 11 days, non-stop, ...5 radios, 80,000 QSO's... all bands 160 through six meters... SSB,CW, RTTY, and PSK31! The built-in antenna tuners nice... we could run antennas on other bands... the 40m vertical on 15m... the 30m vertical on 10m... . Temps always above 80...sometimes 110 deg in the operating tents. Humidity above 90% all the time! Radios performed flawlessly. Everything you could want for operating convenience in one box. When you are on the receiving end of the entire world calling you in a pileup, it helps to have a top-notch rig to work them all! I liked the radio so much, I bought one and brought it home!

-Bob Voss N4CD, TI9M DXpedition

I was very impressed with the reliability of the IC-756PROII transceivers and IC-PW1 linear amplifiers, given that our environment on the island was challenging in some respects. At the CW site, there was so much talcum-powder fine volcanic ash blowing around that the radios, amplifiers, and everything else in the tent was covered with a thick layer of dust. I was especially concerned about the 'PW1s given that the fans were running almost continuously, pulling in this dust. We also had a troublesome generator which caused large fluctuations in voltage and frequency (we eventually replaced it). Even with these conditions, the ICOM equipment ran perfectly for 10 days, 24 hours per day. I'd feel confident taking your equipment to any location on the planet.

-Michael Mraz N6MZ, XRØX DXpedition

THE ICOM ADVANTAGE

TRINIDAD ISLAND PWØT OVER 54,000 QSO'S

WORLD RECORD BAKER HOWLAND ISLANDS KIB OVER 96,000

COCOS ISLAND TI9M OVER 80,000 QSO'S

SAN FELIX ISLAND XRØX OVER 68,000 QSO'S

KINGDOM OF BHUTAN A50A WW SSB CONTEST

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