

The Scuttlebutt

No. 40 September 1982



President	K2VV ...	John Yodis	(518) 843-3897
VP/Activities Manager	KR2J	Bob Naumann	(201) 427-8881
Sec/Treas	N1TZ	Bob Czajkowski	(617) 885-3841
Editor	K1GQ	Bill Myers	(603) 465-2673

Captain's Cabin

John Yodis, K2VV

Elsewhere in this **Butt** you'll find the results of the 1981 CQ WW Club Competition, the one we thought we had a good chance of winning. After the smoke cleared we lost by less than a million points to NCCC; that's the size of a modest single-op effort. If you submitted a log in last year's CQ WW, you were part of our best effort ever and our first defeat of Frankford. If you didn't, you are the reason that effort wasn't quite enough to beat NCCC.

The gods of propagation certainly sided with us this past season. 42% of the top-ten single-ops in CQ WW and ARRL were YCCC members. These scores alone, however, are not enough to win.

NCCC's strategy relied largely on DXpeditions. If you've got any such plans in the works please let Bill, K1GQ, know so that we can all be on the lookout for you.

YCCC's new dues policy has been somewhat effective so far. Amazingly enough, we are starting a contest season with more members having paid dues than not. This will be the last **Butt** for those who have not yet paid 1982 dues. Dues should be paid by mail to Bob, N1TZ. I'm sure everyone would like to see the treasury comfortable enough that we would don't have to bring up the question of money at every meeting. Bob would also enjoy an opportunity to see what really goes on at a meeting from the other side of his briefcase.

On the subject of money, one of our largest expenses is paying for meeting places three or four times a year. If anyone has the connections to arrange for free use of a suitable meeting hall, please let me know.

The CQ Contest Committee is kicking around some ideas on changing the current QSO point system. The problem is that the Caribbean, not to mention 9Y4 and PJ2, are virtually unbeatable, or at least some people think so. Feel free to nail John, K1AR, or me at a meeting with any input as we're both on the Committee.

I'm very happy with the cooperation I've received when asking members for help. I've only had one refusal so far. If this keeps up I don't see how we can lose in '82 - '83.

Announcement

Official Meeting 2 October 1982

The YCCC Convention meeting will be held this year at the New England Division Convention in Boxboro, Mass. The official meeting will be called to order at 4 PM; however, several contest-related programs are being organized by Doug, K1DG, so you should consider making a day of it. Tentative topics include the K2GL movie, mini-multis (K2VV), ARRL and CQ awards presentations, Contest Advisory Committee forum (short!), Yagi antenna performance (K1GQ), how-to-build-it workshop on antenna systems (K2TR), etc.

The Convention is in the Sheraton Boxboro, at the intersection of I-495 and Mass. Route 111, northwest of Boston. The tentative program in flyer contains the usual extreme claims, but since there was no convention at all last year this one can't fail to be an improvement. See you there.

Ponderings from the Poop Deck

Bill Myers, K1GQ

Since I elected to omit this column from the last **Butt** (hold the applause), I've more than a few thoughts to dump this month.

Elsewhere there appears a rather bare summary of the club competition results for last year's CQ WW. Least any of you feel obliged to take responsibility for the 700K difference between first (them) and second (us), you're too late. Dick, AK1A, single-op'd from my station (I went to W2PV) in the phone test and turned in a measly 1.5M when he should have made at least 3M. Nevermind that he had laryngitis. In any case, we turned in an outstanding effort, which becomes even more remarkable when you add up the number of DXpeditions that contributed to our score (John, K1AR, could only list five).

The 8M difference between them and us in the ARRL DX Test is rather more substantial. The number in parentheses is the total number of entries; clearly if we could muster the same turnout as does FRC (and keep the same average points/entry) we would be right in the running. More detailed analyses will certainly follow the Fall contest season. Incidentally, the NCDXC entry is the result of a deal whereby those contesters with membership in both NCCC and NCDXC submitted for NCCC in the CQ WW and for NCDXC in the ARRL.

I spent a very pleasant evening dining with Rick, K7GM, and his wife Debi in Phoenix several weeks ago. Rick is now Editor of **The National Contest Journal** and has ambitious plans for expanding both content and circulation. If you're not a subscriber, you're missing a great bargain (\$6/year), and some information that appears nowhere else (NA Sprint results, statistical log analyses, etc.) The most recent issue carried data dear to my heart — a table listing gains for most of the yagi and quad tribanders currently on the market. The info was reprinted from the Mad River Radio Club bulletin; K3LR says they got permission to reprint it from the originators, an outfit in Georgia which publishes a Consumer Reports-style magazine on amateur radio gear. I've seen a couple issues and was so impressed that I can't remember their name. This is not the place for me to mount my technical rocking horse, but I must at least suggest that you survey the gain data with resolute skepticism.

To counter-balance the above remarks, the same issue of **NCJ** has an excellent one-page writeup by K3ND on how to build a 50 ohm splitter/combiner for connecting two receivers to the same antenna or two antennas to the same receiver. These kind of gizmos are common on the tiny-wave bands (above 30 MHz), but not so often seen at HF. To reiterate, if you are at all interested in contesting, you should subscribe to **NCJ**: merely send \$6 to **NCJ**, 1914 West Cortez Circle, Chandler AZ 85224. By the way, you wouldn't believe how small the lot and how short the tower that generates the big K7GM signal.

Another publication of interest to amateurs in the New England Division is the **Crossbender**, put out on a monthly basis by K9HI. This HR Report-type newsletter now averages six to eight pages stuffed with info about what's happening around W1-land. You can get 12 issues of this very professional publication by sending \$5 to Rick Beebe, K1PAD, 6 Tracy Circle, Billerica, MA 01821.

One more newsletter item. I received issue number 1 of **CQ Test**, the journal of the newly-formed JCCC; that is, the Japan Crazy Contester Club! JE1CKA, JA1IDY and JA1ELY have taken the lead in forming a national contest club and are very interested in how others have trod the path. John, W1RR visited Tokyo in March and gave Tack, JE1CKA, a package of **Scuttlebutts**. If you run across any of the JCCC crew, be sure to say hiya. Meantime, anyone that can read Japanese is welcome to a copy (I can figure out most of the pictures.) Tack sent along some photos of his station, which includes very big antennas on a lot smaller than K7GM. John, W1RR, has some other photos of big Asian stations: ask to see them at the next meeting (October 2).

There were a couple of errors in **Butt** 39, as usual. Jack, W1WEF, bears the last name Schuster, not Watson. Tom, K1KI, bears the home phone number 673-5429, not 673-4014 (K1KA in NH, a fire station in CT). And the formula for reading level needs the plus sign changed to a minus sign. Someday, we'll be perfect (and someday I'll own a Big Bertha).

In case you missed it, there is now an alternative to the 402BA. Cushcraft is producing a 2-element 40 meter "Sky-walker" with a 22 ft boom and 40 ft elements. Tom, K1KI, has a prototype up at 65 ft fixed towards Europe, and I have one up at 130 ft. The SWR bandwidth is an outstanding 250 kHz (2:1), and the gain compares well with my 4 element KLM. The pattern is as expected — good front-to-side, but not much front-to-back. Details available on 3830.

The ARRL Contest Advisory Committee has been restructured (along with all the other advisory committees). Each Division has its own representative on the committee, so there are 16 members instead of 10. The division representative is selected by the Director and serves (at the Director's discretion) a term concurrent with that of the Director. The CAC members are: K3UA, VE3KZ, K9KM (chairman), W0SD, K4XU, K8MR, N2LT, WD0BNC, K1GQ, N7NW, WB6DSV, N8II, W0UA, K1ZX/4, N6TR, and K5TM. The only hot topic on the agenda is whether or not the District of Columbia should be a separate multiplier in ARRL contests where states are multipliers (namely, the DX Test and the 10 meter Test). Recently some political heavy-hitters wrote some letters that resulted in the Board directing CAC to vote again (we defeated this proposal on the last ballot). Anyone who wants to discuss the pros and cons please attend the appropriate session at the New England Division Convention, 2 October. ■

Station of the Month

W2PV

John Dorr, K1AR

Bill Myers, K1GQ

This article describes one of the most extraordinary amateur radio stations in the world. You may be thinking to yourself, "who cares, I can never build a station like that." True, but you should read on anyway, because there are lessons to be learned by all of us from the approach which Jim chose for the demanding arena of multi-operator multi-transmitter contesting.

The most obvious feature of any amateur station is, of course, the antennas. Here is a list of the HF antennas at W2PV:

- 160 meters - inverted vee @ 170 ft
- 80 meters - 2 el quad @ 160 ft
- low and high dipoles
- 40 meters - 3/3 el yagis @ 180/90 ft
- 3 el @ 85 ft
- 20 meters - 7/5/5 el yagis @ 150/100/50 ft
- 6/6 el yagis @ 106/42 ft
- 15 meters - 8/8 el yagis @ 99/49 ft
- 4/4 el yagis fixed south
- 10 meters - 10/10 el yagis @ 91/57 ft
- 6/6 el yagis @ 70/40 ft
- beverages for 160/80 meters

The illustration of Jim's antenna system is from the Japan Crazy Contesters Club bulletin, *CQ Test*. The dipole labeled 1.8 is in fact the high 80 meter dipole; the 160 meter inverted vee and low 80 meter dipole are not shown. Also, the 10 meter antennas shown on tower II are 6 el yagis rather than 5 el yagis, and rotate 300 degrees around the tower (the dead zone is towards ZL). The Big Bertha is a self-supporting 120 ft rotating mast and includes a 6 meter yagi between the lower 10 meter yagi and the 40 meter yagi, and a 2 meter yagi at the top -- a total of 77 elements on 9 booms. The guyed towers are Rohn 45 which Jim installed with help from local hams. All of the rotators are Telrex except for the the side-mounted 10 meter yagis, which are turned by the big Wilson rotator. There are three beverages running roughly NE-SW, E-W and N-S, with switching arranged to select uni-directional patterns in one of the six directions.

There are several stations with more antennas than listed here, but as will be seen, the PV system is engineered for maximum effectiveness in the contest environment. Furthermore, each antenna was carefully evaluated after installation to be sure that it was performing as expected; for example, the commercially-designed 3 element 40 meter yagis on tower II required drastic adjustments of the element lengths to achieve proper operation.

Inside, the operating positions for the six bands are divided between two rooms. The 40 meter and 15 meter positions are upstairs in the den, while the other four bands are downstairs in a large room which also serves as electronics lab and operations center. The modus operandi for these positions is best explained one band at a time.

The 160 meter position is least complex, since the only transmitting antenna is the inverted vee. The beverage receiving antennas are shared with the 80 meter position through separate matching networks. Jim found that the commonly-used toroidal transformer matching systems could not be used at his QTH because nearby broadcast stations generated enough voltage on the beverages to saturate the cores and cause severe intermodulation. So, his beverage matching networks look like low-power antenna tuners. In addition, a filter is installed in the receive antenna line to eliminate interference from the BC stations. The rig at the 160 meter position is a Signal One CX7A with an ETO Alpha 76 amplifier.

The 80 meter position has a choice of two transmitting antennas, the quad and the dipole at about 140 ft. The quad fires towards Europe or southwest at the flip of a switch, while the dipole is broadside to South America. The low dipole (60 ft) is available for SS by swapping some transmission lines. Each of the 80 meter antennas has a remotely-controlled network at the feed point to tune for either the phone or cw end of the band. The rig at this position is a CX11 and Alpha 77. In addition, there is a 75S3 spotting receiver which has its own antenna switch to allow listening on any antenna independent of the one selected by the primary rig. Each receiver has an 80 meter bandpass filter, and the output of the amplifier passes through another bandpass filter. Every band has similar bandpass filtering, which reduces inter-station interference to nil.

The 40 meter position includes a primary station with CX7A/Alpha 77 and a 75S3C spotting receiver. The antennas are the 3 element yagi on the Bertha, and the two yagis on the 180 ft tower. The latter two antennas can be selected separately, or driven together in-phase or out-of-phase. The lower antenna of the stack is fixed towards Europe; in addition to the usual application of stacking to control wave angle, the "both" mode with the top antenna towards VE3 is effective for digging out daytime QSOs in the CQ WW by spraying RF towards VE1, 2 and 3 all at the same time. The rotator control box for the Bertha is located where either the 40 meter or 15 meter position can reach it, so the 40 meter operator can position the Bertha after the 15 meter position shuts down at night.

The 20 meter position has two complete stations. The primary rig is another CX7A/Alpha 77 combination, and the secondary rig is a CX7A and Alpha 76. The primary station has a selection of the stacked 6's on the Bertha, stacked 5's (KLM) fixed towards Europe, and the 7 element at 150 ft. The stacked 5's and the 7 el yagi can be driven together, which allows CQing towards both Europe and Japan during the morning opening. The antenna switching is interlocked so that the secondary station automatically transmits on the antenna system not in use by the primary op (i.e., Bertha or stacked 7/5/5). In addition to the rotator control box for the 7 el yagi, the 20 meter position has a remote readout showing the direction of the Bertha arrays. Using the intercom discussed below, the 20 meter position can easily ask 40/15 to turn the Bertha if needed.

The 15 meter position upstairs uses either the stacked 8's on the Bertha or the stacked 4's fixed south. This position is the boss of the Bertha rotator, and with some changes in coax connections it serves as the focus for

single-operator activities. Like 20 meters, 15 has two complete stations, a CX11 and Alpha 77 primary rig and a TR-7/Alpha 76 secondary station.

Finally, the 10 meter position has the side-mounted 6's as the primary antenna system, and can also use the pair of 10's on the Bertha (there is another remote Bertha position indicator at the 10 meter position). The gear on 10 is a CX7A and Alpha 77.

You may have noticed the reoccurrence of "CX7/11" and "Alpha" in the description above. In addition to those listed, there is a backup Alpha 77, a backup Alpha 76, and a TS830. All of the gear is modified for the peculiar rigors of multi-multi. For example, the Signal One radios normally operate in full break-in mode on cw, which quickly uses up the limited lifetime (number of cycles) of the expensive vacuum relays in the Alpha 77s. So, the PV CX7/11s are modified to operate in the typical semi-breakin mode. Another example: the Alpha 77s have RF detectors which are used to prevent hot-switching the relays. In the multi-multi environment, these detectors can sense the signal from another rig, and incorrectly lockout the amplifier. The PV Alphas are revised to prevent this effect.

A key component of the multi-op setup is the use of CB radios at each position for inter-position communications. Each band is assigned its own channel, for example, 80 meters = 1, 40 meters = 2, etc. Thus the 40 meter position can talk directly to the 80 meter op (perhaps to pass a multiplier) without bothering any other position, merely by dialing up channel 1. In addition, the operations center mentioned above monitors channel 0 and the 2 meter spotting nets. Multipliers are passed out to the net from any position by announcing it on channel 0 (again without bothering other positions), while multipliers extracted from 2 meters are piped directly to the appropriate position on its private CB channel. The audio from the CB set is mixed with the audio from the primary receiver, along with the audio from a CQ tape deck, with switches to cut out any source momentarily when necessary. This audio box and another for the second receiver also include switching which allows either operator to listen to the other operator's audio. This is especially helpful when two pairs of ears are needed to dig out an inaudible signal, or when the spotting receiver has found a multiplier operating split frequency.

Often an operator will bring his own transceiver to use in place of an existing rig for one reason or another. The interfacing problems are minimal because every position uses exactly the same connectors, and because each cable is thoroughly documented. The importance of documentation cannot be overstressed. A station of this complexity involves considerable maintenance, which is enormously compounded if the systems being maintained are not well-described on paper. For example, last fall the 160 meter inverted vee was found to exhibit unusually high SWR. With time-domain reflectometry, Jim was able to localize the problem to near the feed point, at the top of the 180 ft tower. From his notebooks, he determined the length of the jumper cable from the feedline to the balun, the type of connectors on the jumper, and the type of balun. With the

proper jumper and balun on hand, only one trip up the tower was needed to repair the problem (a connector frazzled by a lightning hit). Just before the next contest, the 80 meter quad failed to switch to cw, which made the antenna useless due to very high SWR. The documentation of the relay control wiring included resistances between each pair in the cable, so that it was possible by measurements at the station end to determine that a particular wire was broken, and that the broken wire was between the base and top of the 180 ft tower, rather than between the station and tower base. Again, one trip up the tower to connect a temporary jumper at the quad switchbox resolved the problem.

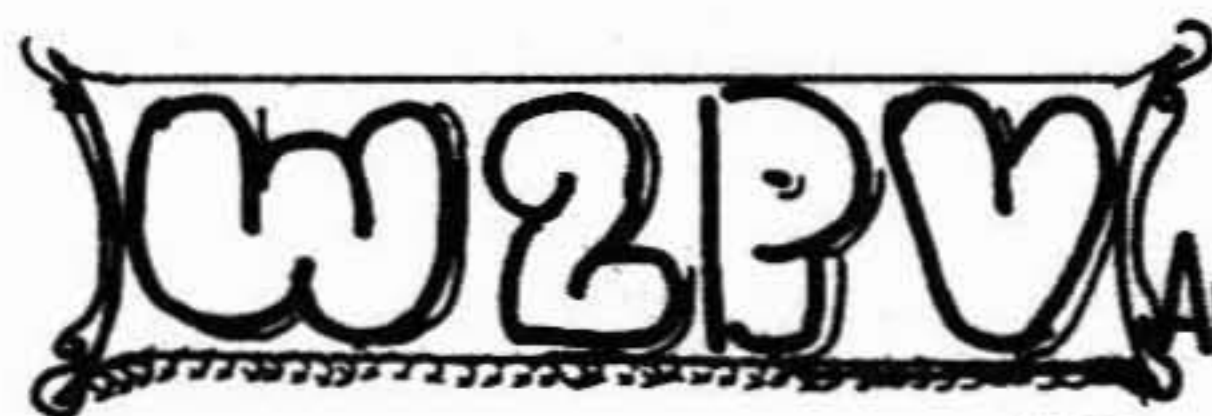
There is much more to be said concerning attention to detail, ranging from extensive spare parts and test gear, to a diesel generator capable of powering the entire operation in case of power outages. Beyond the technical, however, Jim pursued another means for increasing contest scores: he was very active in DXing all year round. This activity over the years has built up a circle of friends both locally and around the world. The local hams enjoyed spending the contest weekend searching the bands for multipliers to pass on 2 meters, or helping out with the less glamorous operating chores at W2PV such as manning 75 during the day. And the DX acquaintances searched the bands looking especially for PV, often volunteering to band-hop for additional points and multipliers.

In summary, the strong point at W2PV is the lack of weak points. The only problem area is occasional line noise. The QTH is located on a major highway complete with high-voltage power lines in a well-developed residential neighborhood. Although the property is more than 3 acres, there remains enough nearby man-made noise to sometimes degrade signal-to-noise ratio.

One final note about W2PV has nothing to do with the station at all. A contributing factor to the success at W2PV over the years was Jim's wife, Mollie. Anyone who has ever operated from W2PV can attest that Mollie was one of the nicest people you could ever meet. She became famous among the W2PV contest crew for her "contest stew" and emptyless icebox. Even more significant than "feeding the boys" was her smiling face, and her willingness to be a part of a group of crazy people who were the best at what they do and were doing it at the best place in the world.

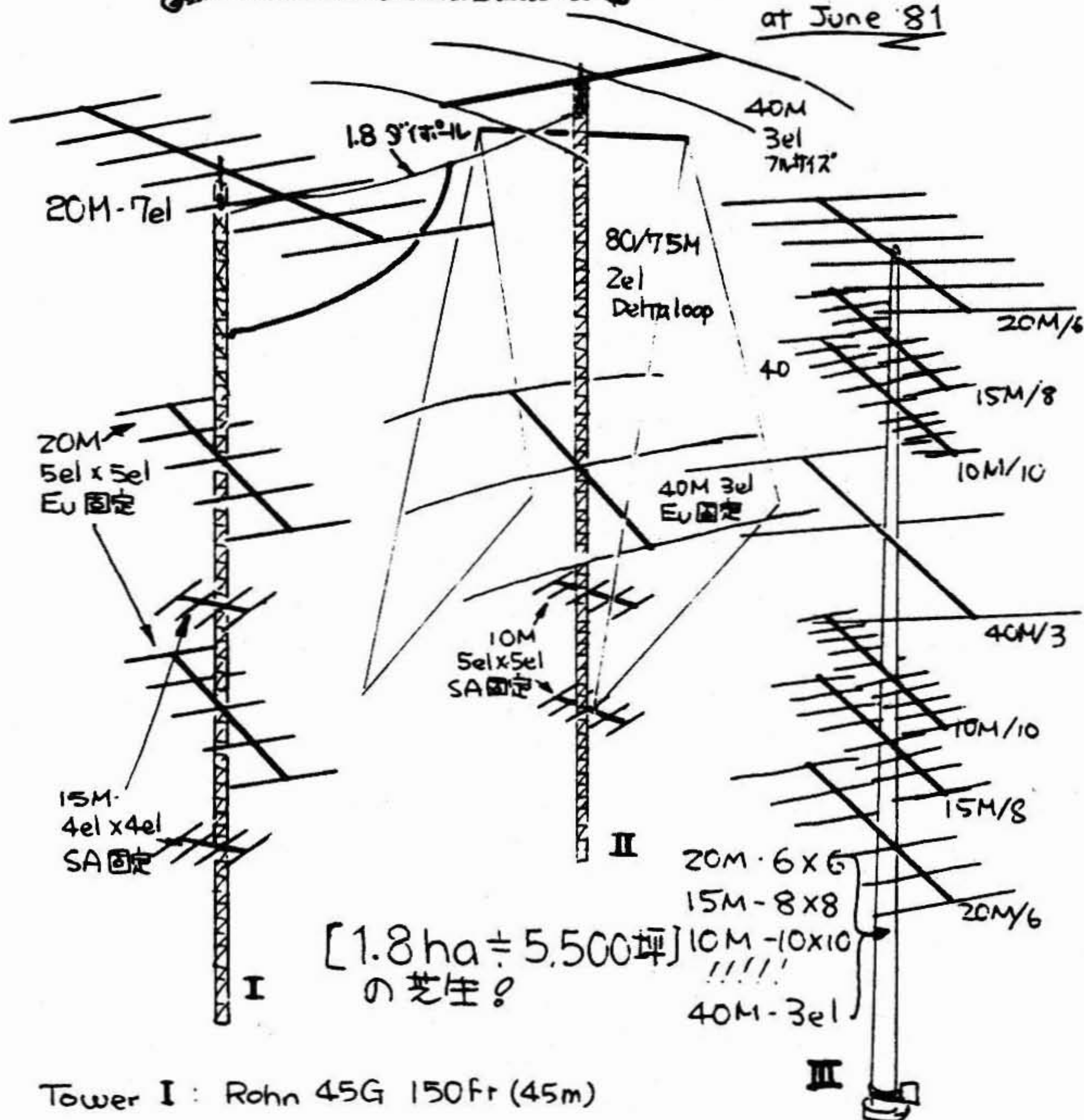
In all, W2PV won an incredible number of awards, finishing his contest career by placing first in the world in last year's CQ WW cw contest in the multi-multi category! A fitting end to a station built on technical excellence, superb operating, and integrity.

[The first place mentioned above is believed to be the only time a USA station has won the category. In addition, the W2PV entry on phone was the top USA score — one of the very few times the same station has won both modes in the same year. Through John's efforts and cooperation from the people at CQ, the trophies for these accomplishments were presented to Jim at his home the weekend before he passed away. — ed.]



Antenna System

at June '81



Tower I : Rohn 45G 150ft (45m)

Tower II : " 180ft (54m) (Illustrated by JE1CKA)

Tower III : Telrex Big Bartha 100ft (30m) タワ-ごと回転!
(1.5分/回)

アンテナは全て Telrex 製! ・スタックハブは上/下 シングル,
同相/逆相 給電がシャッフル SW 切換可。

Flotsam

John, K2VV, has a new work phone number:
(518) 370-1922 x600

Molly Lawson has accepted YCCC's offer to help with W2PV QSLing. She anticipates answering the cards herself, but needs help putting them in order. If you'd like to sort a shoebox full, please contact John, K2VV.

Dues Paid As of 6/1/82:

Area	AM	#members	%paid
1 CT/RI	K1KI	18	44
2 VT/NH	WB8BTH	25	52
3 EMA	W1FJ	38	66
5 SNY/NJ/PA	KR2J	18	33
6 ME	K1SA	4	0
7 CMA	N1TZ	8	38
8 NNY	K2VV	10	90
9 WMA	W1ZT	14	79

Net 135 members, 55% paid.

John, K1AR, and wife Barbara acquired a son, Timothy Paul, on 8/10/82. The youngster arrived at 6:30 AM, and weighed 8 lbs 1 oz. Congratulations!

John, KB2CR, has converted his TH6DXX to a TH7DXX and raised it, along with a 402BA, another 20 feet.

Jim, N2JJ, received 5BWAS #1111 to go with his recent 5BDXCC. A look at his antenna farm should give heart to anyone in such a quest.

Seymour, N2AIF, has replaced his 30 ft high TA33Jr with a Gem Quad on 60 ft of Rohn 25. Rumor has it he's having trouble filling his spare time, now that he no longer spends entire weekends in pileups.

Bob, W2NC, needs only the Laccadives to finish off the DXCC List. Please direct any rumors his way.

Quite a few YCCCs and friends have married in recent months (or will shortly). Among them, K1JX + WB1AVA, K1MM + KA1ESR, K1XM + KA1GHR, K1ZM, AA2Z, W2PA, K13P.

Bill, K1MM, recently suffered a fire caused by an electrical fault. Fortunately, Karen discovered the fire within 10 minutes, so the damage was limited to the basement and the underside of the first floor. However, all of the cables for the radios were destroyed, so Bill will be off the air for a while.

Bob, N1RC, has club jackets and tee shirts which were unclaimed at the Bash. If you ordered one or the other, contact Bob at his home: (617) 327-7249

AREAMANAGERS — Please send any notes for this column to K1GQ.

Excess Cargo

Tom, K1KI, is looking for accessories for his new Rohn 45 tower. He needs one torque arm assembly, three equalizer plates, three screw-in anchors, and eight guy insulators. (203) 673-5429

Scores

1981 CQ WW Club Competition

NCCC	160M
YCCC	159M
FRC	155M
PVRC	90M

1982 ARRL DX Club Competition (unlimited class)

FRC	64,904,584 (96)
YCCC	56,883,453 (80)
PVRC	46,962,639 (64)
NCDXC	31,331,209 (64)

1982 WAE CW (raw)

W1ZM (K1ZM op)	1361/405
KC1F (at K1OX)	1362/388

Antenna of the Month

4 MHz Antennas Over Real Ground

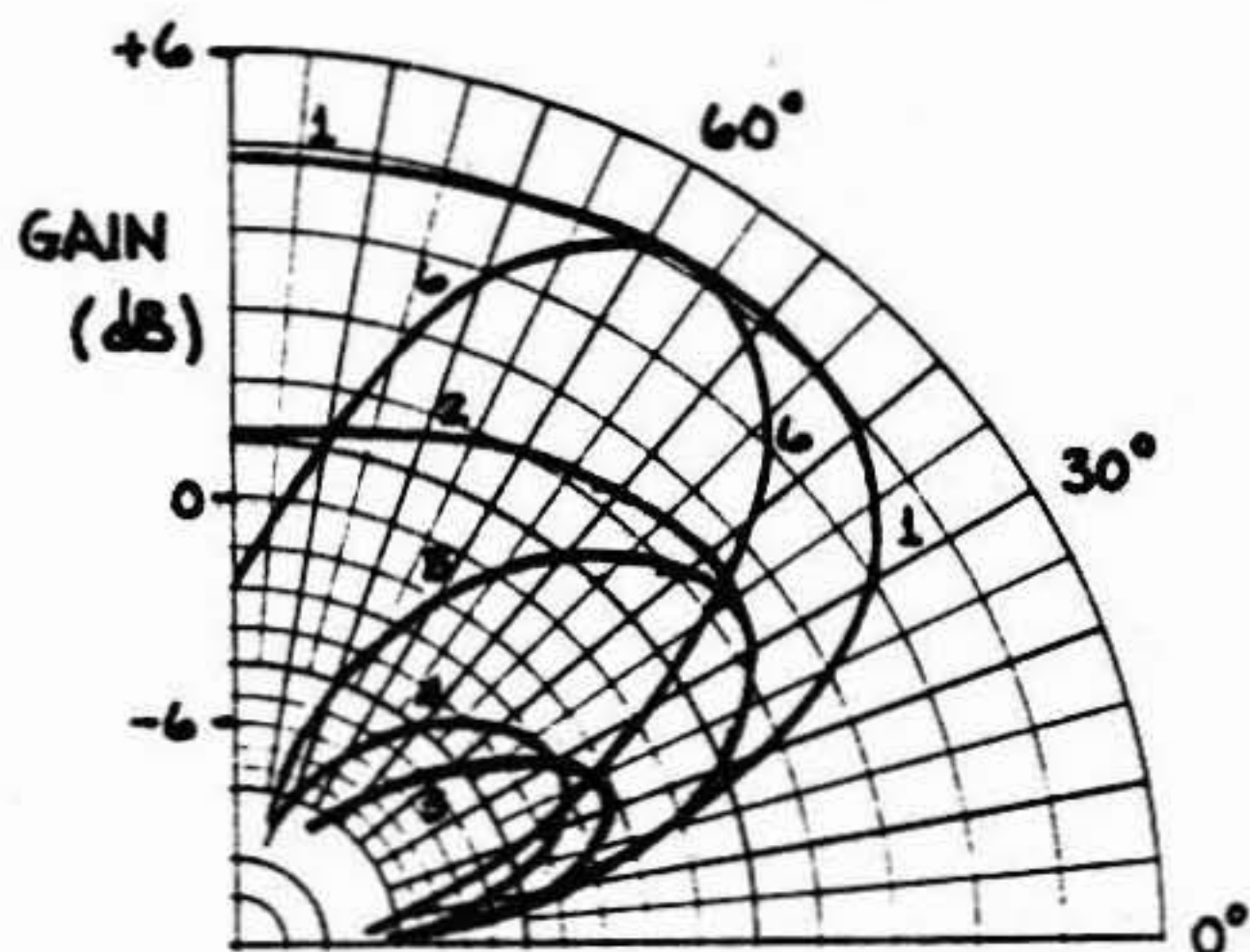
Bill Myers, K1GQ

I had intended to plot up the performance of the Hy-gain "Long John" monobanders in this issue, but I got sidetracked by that too-familiar lament: "what can I do to get out better on 80 meters?" While browsing through various books in search of the grail, I stumbled across some data that is pertinent to the question. The source of what follows is *Radio Propagation Handbook* by Peter Saveskie, Tab Books No. 1146.

The National Telecommunication and Information Administration Institute for Telecommunications Sciences has developed a computer program for point-to-point HF propagation analysis. One component of the program computes antenna gain (relative to isotropic) of some sixteen different types of antennas, including the effects of imperfect ground. Saveskie shows sample results for each type of antenna; of these the following six are of particular interest:

- (1) Half-wavelength horizontal dipole one-quarter wavelength above ground
- (2) Half-wavelength tilted dipole sloping at 45 degrees with center one-quarter wavelength above ground
- (3) Half-wavelength vertical dipole with center one-quarter wavelength above ground
- (4) One-quarter wavelength vertical monopole
- (5) One-quarter wavelength vertical monopole with 120 radials each 250 ft long
- (6) Sloping longwire fed at bottom, 300 ft long and rising to 52 ft (10 degree slope)

The book tabulates the vertical plane pattern every 1 MHz from 2 to 14 MHz, then every 2 MHz up to 30 MHz. The ground conductivity is 0.001 Siemens/m and the permittivity is 4. These parameter values correspond to "poor ground" — rocky steep hills, sandy dry coastal regions, or urban industrial areas. I've combined the patterns for the six antennas on one plot, for frequency equal to 4 MHz.



The most obvious conclusion to be drawn from this plot is that horizontal antennas and tilted antennas are better than completely vertical antennas. The reason for this is the poor ground, which degrades vertically-polarized radiation much more drastically than horizontally-polarized radiation. Even the enormous radial system for antenna 5 does not bring the vertical monopole gain up to that of a 123 ft horizontal dipole 61 ft high (antenna 1).

To fully interpret the curves, we need to know what vertical angles (often called wave angle, angle-of-arrival, elevation angle) are important. I don't know of any experimental evidence pertinent to 4 MHz; evidently nobody who can afford the experiments cares. Folklore has it that the angles from about 30 degrees up to 90 degrees seem to be most useful. The higher angles support short-haul QSOs, while the lower angles provide the DX contacts.

With this in mind, the vertical antennas suppress local QRM, making it easier to dig out the long-haul low angle signals. However, the guy at the other end will hear you better if you transmit on a dipole (so will the locals — maybe they will QSY). The sloping longwire seems to be an in-between antenna; it doesn't compare well at either low or high angles, but it has a good lobe at 60 degrees.

The tilting dipole is what we hams call a half-wave sloper, except that the computer program doesn't know about the steel tower which holds up the top end, or the guy wires and/or other slopers nearby. You would get the performance plotted here if you hung a single sloper from a (big) pine tree — but you would get better performance running the same wire horizontally 60 ft above ground.

At K1GQ, I have 4 slopers hanging from a 130 ft tower, and a horizontal dipole at 90 ft. The sloper switch is arranged to open the unused feedlines at $3/8$ wavelengths from the dipole; this inductively loads the centers and presumably causes the unused slopers to act like reflectors (i.e., electrically longer than the driven sloper). The system was developed by Dave Pietraszewski, K1WA, back when he was K1TZQ; see the ARRL Antenna Book for details.

I've found that the dipole is always better for 3830, and the European sloper is always better to Europe. The dipole runs east-west and I have no firm opinion on how it compares with the sloper in the dipole's favored direction (south). The slopers hear DX better — probably due to rejection of high-angle QRM and to some azimuthal directivity.

But you live in a swamp, not a parking lot? "Good ground" has conductivity equal to 5 Siemens/m and permittivity equal to 80. This is characteristic of sea water and is as close to perfect as can be found in the real world (at HF). Another book (by M. T. Ma: *Theory and Applications of Antenna Arrays*) has plots of power gain for horizontal dipoles over poor ground and over good ground. A half-wave dipole one-quarter wavelength high has about 2.8 dB more gain straight up over good ground than over poor ground. The advantage decreases as the wave angle decreases, to about 0.9 dB at 30 degrees. In other words,

your wet basement will help your horizontal dipole get out better for local QSOs, but won't make much difference for DXing. There is probably an even larger effect for the vertically-polarized antennas, but I haven't run across anything and I'm not motivated to search diligently because I live on poor ground (granite).

None of this explains why guys like K1KI and K1AR are so much louder than the average mortal on 3830, but perhaps it will provide you some reasonably reliable information on the relative merits of various antenna types for 80 meters at your QTH. ■

A 50 ohm Splitter/Combiner

K3ND

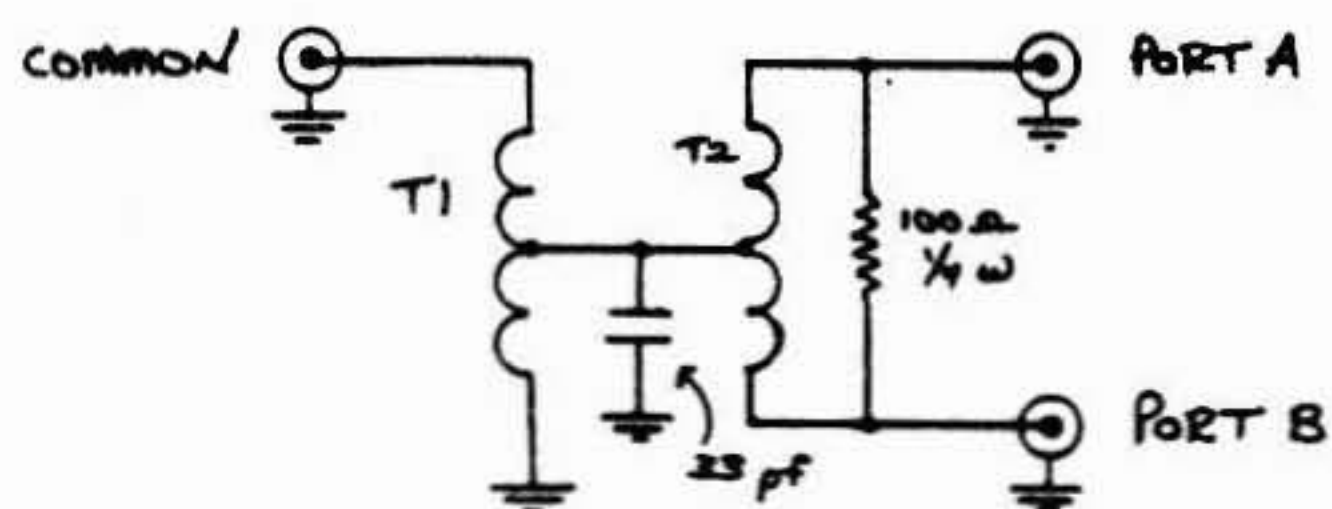
[From *The National Contest Journal* Volume 10 Number 2. — ed.]

This is a construction article for a splitter/combiner to be used in a 50 ohm system. Some uses for this unit could be:

- Feeding two receivers from one antenna while isolating the receivers from each other.
- Feeding two antennas into one receiver while isolating the antennas from each other.
- In a multi op station, feeding the 80 meter and 160 meter receivers from the same beverage antenna.

There are other uses, but these seem the most obvious.

The splitter can be built into a small enclosure. It is important to keep the connections short if full performance is to be obtained.



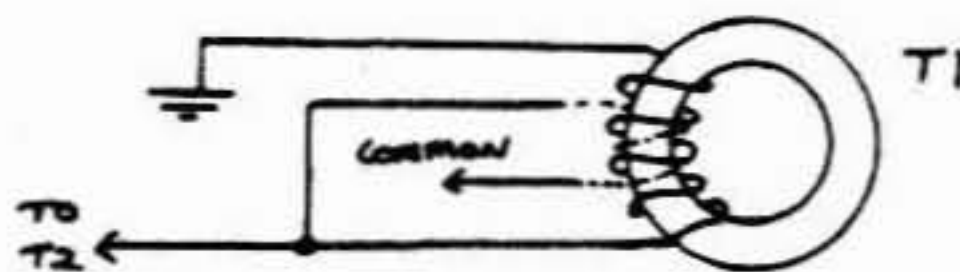
specs (1 thru 100 MHz):

Thru loss = 3.1 dB (common to port A, common to port B)

Isolation = 30 dB (port A to port B)

SWR = Better than 1.2 to 1

T1 Use Micrometals FT37-43 ferrite toroid core. Wind five turns of #30 enamelled wire on one end of the core. Wind two turns over the top of the five turn winding. Connect the end of the five turn winding to the beginning of the two turn winding. Keep the turns tight to the core.



T2 Use Micrometals FT37-43 ferrite toroid core. Wind five turns bifilar of #30 enamelled wire on one end of the core. Connect the beginning of one wire to the end of the other wire. This point is the center tap for connection of T1.

The Micrometals toroids can be obtained from Radio Kit in Hollis, NH, as well as other sources. [Radiokit moved some time ago; new info: Box 411H, Greenville, NH 03048, phone (603) 878-1033. — ed.] ■

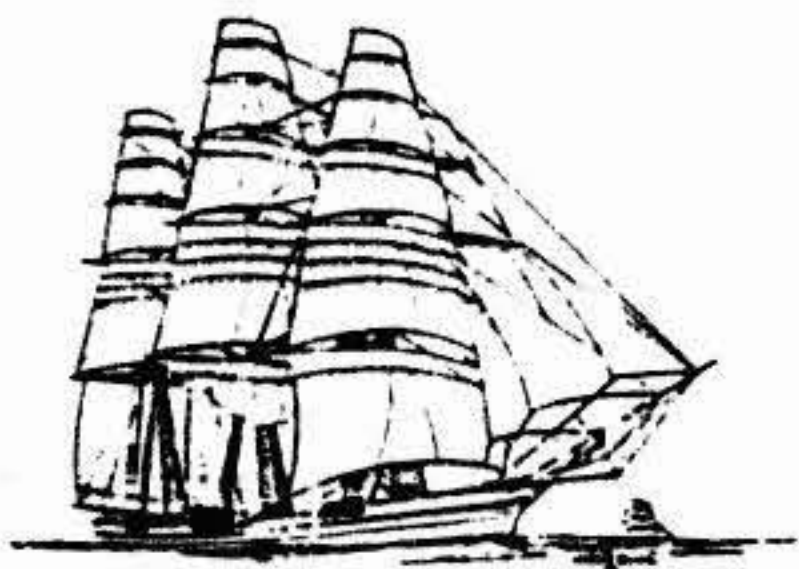
The **Scuttlebutt** is the newsletter of the **Yankee Clipper Contest Club** and is mailed about nine times per year to all paid up members. Dues are \$10 per year, payable 1 April with grace period through 30 June. Non-members may subscribe to the **Scuttlebutt** by sending \$10 to the Treasurer: Bob Czajkowski, N1TZ, North Brookfield Rd., Spencer, MA 01562. Subscribers who subsequently become members will be credited as having paid dues.

The **Yankee Clipper Contest Club** (an ARRL Affiliated Club) holds four official meetings per year, on Saturday afternoons in March/April, October (at the New England Division Convention), November/December, and January/February. Also, W2YV hosts a summer social gathering each July, usually on the second weekend after July 4. Attendance at an official meeting is *required* in order to become a member. Club members congregate on 3830 kHz Monday evenings; many routinely monitor this frequency other evenings as well.

Rosters are mailed to all paid members each summer. For information and/or assistance, contact the Area Manager nearest you on the following list:

YCCC Area Managers

	home	work
CT/RI.....K1KI..... Tom Frenaye ...	(203) 673-5429.....	(203) 549-0107
VT/NH.....WB8BTH...Jeff DeTray.....	(603) 525-3796.....	(603) 924-3873
EMass.....W1FJ..... Al Rousseau.....	(617) 598-3744.....	(617) 599-7500x173
SNY/NJ/PA...KR2J.....Bob Naumann...	(201) 427-8881.....	(201) 684-1400x25
ME.....K1SA.....Bernie Cohen....	(207) 773-6589.....	(207) 774-1334
CMass.....N1TZ.....Bob Czajkowski .	(617) 885-3841.....	(617) 885-3841
NNY.....K2VV.....John Yodis.....	(518) 843-3897.....	(518) 370-1922x600
WMass.....W1ZT.....George Johnson .	(413) 443-3084.....	(413) 494-2269



Box 501

Hollis, NH

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YANKEE CLIPPER CONTEST CLUB

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