

the SCUTTLEBUTT

JOURNAL OF THE YANKEE CLIPPER CONTEST CLUB

No. 24 JUNE 1980

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TREAS...N1TZ Bob Czajkowski	N BROOKFIELD	SPENCER MA 01562	617 885 3841

PRESIDENTIAL PEN...K1AR

YCCC has had a history of excellent leadership, with the latest job just completed by Dous, K1DG. Dous's enthusiasm and hard work has enhanced our club's reputation as a significant force in the contest world. I hope to continue that tradition by emphasizing the area manager concept, not only in coordinating our current crew, but in recruiting new members. The contest results show quite a few callsigns of non-members within our club territory; many of these probably don't know who we are or how to contact us. I believe a successful contest organization must actively seek out new members.

The 1980-81 contest season will be crucial to our maturing club. The CQ WW carrot has been out in front of us for three years, and this is the time to grab it! Every one of our members will be important to YCCC and its success. Last year was a good one; let's make this year a great one!

NEW MEMBERS

The Spring meeting at Auburn, MA yielded four new members for the YCCC crew. They are -

AI1D	Gene Henson
KN1DPS	Dennis Goderre
KA1ESR	Karen McDonough
AJ1I	Everett Hudson

The next official meeting will be October 4, 1980 at the New England Division Convention.

Deadline for the next BUTT is September 2.

FLASH -- YCCC

GRABS GENUINE GAVER...K1DG

The big surprise at the Spring meeting came during our guest speaker's presentation. Tom Frenaye, K1KI, of the ARRL Contest desk dropped by to discuss various topics. One of these topics was the 1979 Sweepstakes results. Tom presented various club members with their sections awards, division awards, and the like, then announced the results of the club competition. YCCC was not listed among the clubs in the unlimited category. As it turns out, we only submitted 38 entries, which placed us in the medium-size club category --- and WE WON IT!!!

It was a close finish between YCCC and Murphys, but we had 3 more entries (and a higher average per entry), and thus prevailed. Thanks are in order to all who submitted a score (and to those who didn't, dropping us into the medium-size class).

Last year, when K1DG became President, he made it clear that he wanted the club to win a contest. We actually won two - the SS gavel and the Mass QSO Party. How about CQ WW and ARRL DX Test this year sans?

DAYTON TRIVIA...K1AR

Can you imagine tens of thousands of hams in one place at one time (exclude 20m please)? The ham world took over Dayton several weeks ago, including a very representative collection of YCCC members. This year Dayton turned out to be very good PR for YCCC with not only a good number of members present but a hospitality suite also. Don't miss out on the fun next year!

\$1.98 BASH

Announcing the second annual summer gathering at the \$1.98 contest station. This is your chance to meet, all in one place, those W2s who keep groaning about all the official meetings in WI. Plenty of beer and fraternity, movies, slides, KWM-380, and unknown activities planned(?) by Fred Lass. Even the neighbors got a bang out of Fred last year. Brings a sleeping bag if you plan to sleep over.

DATE....19 July

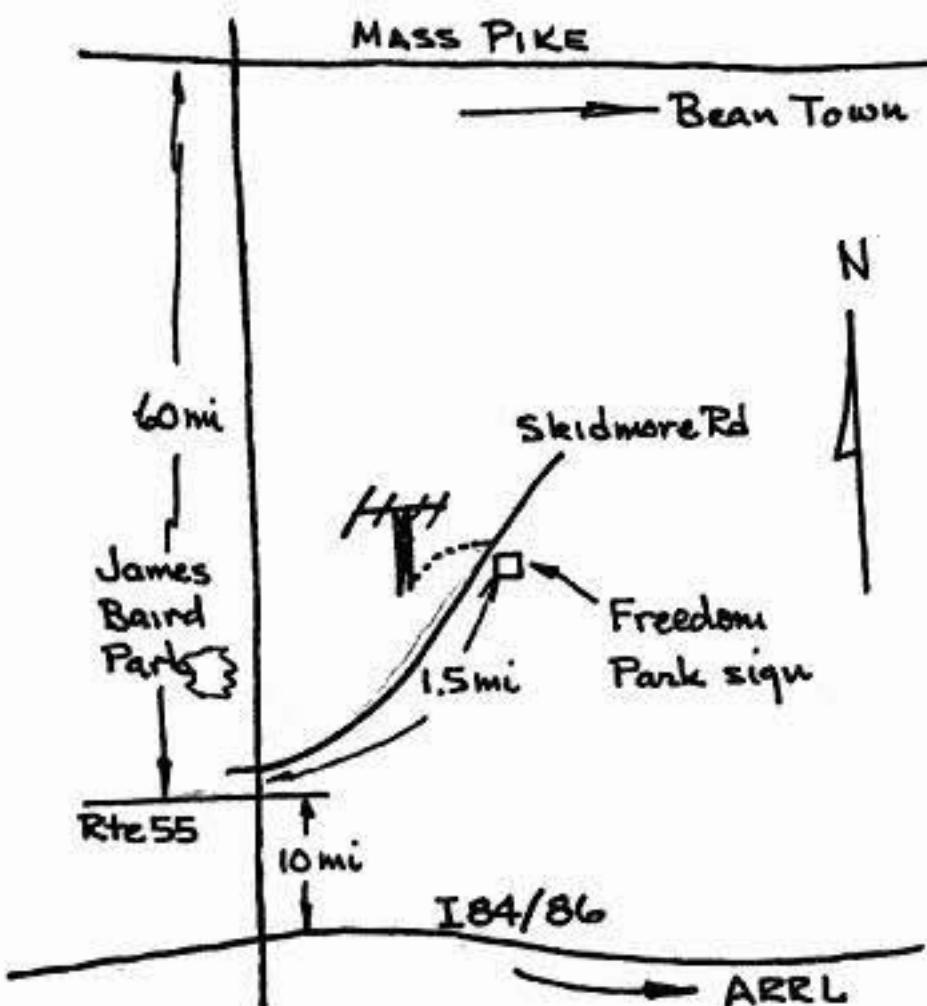
TIME....3 PM

PLACE...W2YV (914) 471 4765

From the Mass Pike, set on the Taconic State Parkway South for 60 miles. Skidmore Rd is about 1 mile past James Briar Park.

From East of Sturbridge, MA, take Interstate 84/86 into NY and set on Taconic North at exit 16N. Skidmore Rd is about 10.5 miles from 84, immediately past the second Route 55 exit.

Go East on Skidmore for 1.5 miles. Dave's driveway is on the left just past the Freedom Park sign. There will probably be a red/white Blazer parked at the bottom of the driveway.

**CLUB GRUB**

The new officers, elected at the Spring meeting, are listed on the masthead. Harrass them at every opportunity to make your club respond to your needs and desires.

Info for publication in the Butt goes to the secretary - K1GQ.

YCCC QSL cards are available directly from the printer - Professional Printing Service, 1192 Main Street, West Warwick, RI 02893, (401) 828-8530. Price is \$17.50 per 1000 plus postage.

A name badge with your call and a clipper ship is available from Framingham Engravings, 20 Nadine Rd, Framingham, MA 01701, (617) 877-7867.

Rumor has it that W1ZM is now DFO at the 220 MHz repeater. Contact N1TZ or K1SF for info or to arrange tests.

Look for YCCC members on 3830 kHz most evenings, particularly Monday, and Sunday after contests.

DUES REMINDER

At the Jan 80 meeting, the Bylaws were amended to raise dues from \$5 to \$10 per year. The officers promised more Butts, new rosters, and a personal copy of the Constitution and Bylaws for every member. Rosters will be in the mail at the same time as this issue of the Butt. The YCCC fiscal year runs from April to April, so almost everybody owes dues now. Send your offerings to N1TZ. Family members and students may take a 50% discount.

The club treasury has historically run at the brink of disaster. Our primary expenses are production and mailing of the newsletter, meeting halls for the four official meetings per year, and the YCCC awards program (including CQ WW and ARRL DX test plaques).

UP THE ANTENNA MAST...K1GQ

W7RM PASSED THROUGH YCCC COUNTRY IN APRIL ON A TOUR OF BIG ANTENNA INSTALLATIONS TO TRADE IDEAS. HE MET WITH K10X, K1AR, K1DG, W1HCS, K1GQ, AND K1RX AT W1RR'S RODEO ONE EVENING. RUSH COMMENTED THAT THE YCCC GANG WAS THE MOST TECHNICALLY ORIENTED GROUP OF CONTESTERS HE'D RUN ACROSS. HE ALSO LET SLIP THAT W2PV WAS ANALYZING WHAT HAPPENS WHEN TWO STACKED YAGIS ARE FED OUT OF PHASE. FOR ALL YOU TECHNOCRATS, THE POLAR PLOT BELOW SHOWS THE ANSWER - YOU GET A SINGLE BIG LOBE AT A HIGH WAVE ANGLE. FOR COMPARISON, I PLOTTED THE MAJOR LOBES BELOW 30° FOR THE FOUR FEED ARRANGEMENTS - UPPER ONLY, LOWER ONLY, BOTH-IN-PHASE, AND BOTH-OUT-OF-PHASE. THERE ARE MORE LOBES AT HIGHER ANGLES, BUT THESE ARE SUPPRESSED BY THE YAGI PATTERN. NOTICE THAT THE UPPER LOBES NEVER REACH A GAIN FACTOR HIGHER THAN THE BOTH LOBES AT ANY WAVE ANGLE, SO IF YOU'VE GOT A ROTATING TOWER, DON'T BOTHER FEEDING THE UPPER YAGI ALONE. ON THE OTHER HAND, THE LOWER LOBE FILLS IN THE NOTCH BETWEEN THE BIP AND BOP LOBES, SO DO KEEP THE LOWER POSITION ON YOUR ANTENNA SWITCH.

THE PLOT IS SPECIFICALLY FOR MY PAIR OF 4-EL 10's AT 30' AND 60', FIXED ON EUROPE. HERE'S THE EQUATIONS, SO YOU CAN PLUG IN YOUR OWN HEIGHTS:

UPPER OR LOWER

$$G(\alpha) = 4 \cos^2 k \alpha \sin^2(\theta \sin \alpha)$$

BOTH (+ FOR BIP)

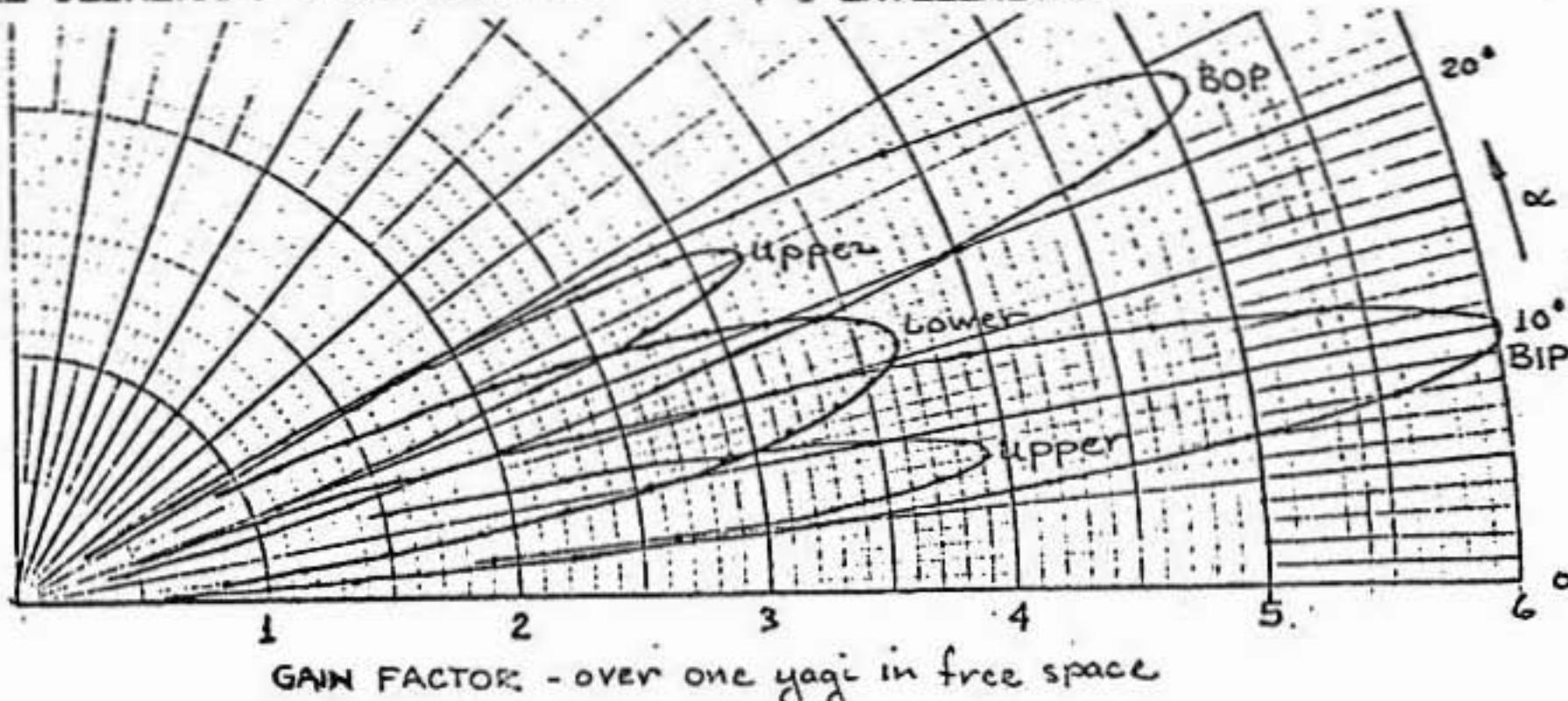
$$G(\alpha) = 2 \cos^2 k \alpha [\sin(\theta \sin \alpha) \pm \sin(\theta \sin \alpha)]^2$$

THE FACTOR K IS $90^\circ/\theta_{3dB}$, WHERE θ IS THE HALF-POWER H-PLANE BEAMWIDTH OF ONE YAGI IN FREE SPACE (86° FOR THE NEW CUSHCRAFT 4-EL DESIGN). THE

HEIGHT ABOVE GROUND, H , IS IN DEGREES. IT DOESN'T MATTER WHICH ANTENNA LEADS IN THE OUT-OF-PHASE CONFIGURATION.

THERE ARE A COUPLE OF APPROXIMATIONS USED IN THE MATHEMATICS BEHIND THESE EQUATIONS. FIRST, THE EARTH'S REFLECTION COEFFICIENT IS -1. THIS IS PRETTY CLOSE TO EXACT FOR HORIZONTAL POLARIZATION AT HF, REGARDLESS OF CONDUCTIVITY. SECOND, FOR THE PAIR OF ANTENNAS, THE CURRENT AT EACH POINT ON ONE ANTENNA IS THE SAME AS THE CURRENT AT THE CORRESPONDING POINT ON THE OTHER ANTENNA, WITHIN A CONSTANT FACTOR. THIS ONE IS SHAKY, BECAUSE THE ANTENNAS AREN'T SYMMETRICALLY POSITIONED WITH RESPECT TO THEIR IMAGES SO THAT CORRESPONDING MUTUAL COUPLINGS AREN'T ALL THE SAME. HOWEVER, THE INTER-ANTENNA MUTUALS MAY BE NEGLIGIBLE IF THE HEIGHTS ARE LARGE COMPARED TO THE INTER-ELEMENT SPACINGS. TIGHTLY-COUPLED YAGI DESIGNS (CUSHCRAFT, 204BA, ETC.) PROBABLY STACK BETTER THAN WIDE-SPACED DESIGNS (A GQ CONJECTURE).

THE EQUATIONS CAN BE MANIPULATED TO LEARN A FEW INTERESTING THINGS. NO PHASE SHIFT OTHER THAN 0° OR 180° CAN ACHIEVE THE MAXIMUM STACKING GAIN (8). IF YOU PUT THE LOWER ANTENNA AT ONE WAVELENGTH, AN IN-PHASE UPPER ANTENNA MUST BE 5 WAVELENGTHS HIGH TO ACHIEVE THE MAXIMUM GAIN. IN THIS CASE, THE MAXIMUM LOBE WILL BE AT 14.5° AND THERE WILL BE SEVERAL OTHER LOBES BELOW AND ABOVE THIS ANGLE. FOR OUT-OF-PHASE UPPER ANTENNA, THE ANGLE IS THE SAME, BUT THE HEIGHT IS 3 WAVELENGTHS.



TO MAKE A REAL ANTENNA SYSTEM WORK LIKE THE EQUATIONS, THERE ARE THREE THINGS TO REMEMBER:

1. THE TWO YAGIS MUST BE IDENTICAL.

2. EACH YAGI SHOULD BE CAREFULLY MATCHED TO ENSURE THAT THE POWER SPLIT IS EQUAL AND THAT THE PHASING ISN'T UPSET.

3. THE DIFFERENCE BETWEEN GAIN FACTORS OF 4 AND 6 IS LESS THAN 3 dB, WHICH IS BARELY PERCEPTIBLE TO THE AVERAGE EAR. A-B TESTS ON RECEIVE ARE OFTEN INCONCLUSIVE, OR EVEN WRONG IF THE SYSTEM IS NOT MATCHED IN BOTH POSITIONS.

CAC REPORT...K1GQ

A BALLOT IS SCHEDULED FOR LATE JUNE. THE SUBJECT IS (YOU GUessed IT) THE IX TEST. IN ADDITION TO CONSIDERABLE INPUT FROM MEETINGS, SURVEYS, AND CONVENTIONS, THE CAC HAS OVER 200 ITEMS OF CORRESPONDENCE THIS YEAR, OF WHICH MAYBE 3/4 CONCERN THE IX RULES CHANGES. LAST YEAR THE TOTAL INPUT WAS 160 ITEMS. I CAN'T PREDICT THE OUTCOME - TOO MANY POSSIBILITIES.

THE 10M TEST MAY BE MOVED TO JANUARY (VHF SS WEEKEND) OR EARLY FEBRUARY, AND RULES CHANGED SLIGHTLY TO PERMIT ONLY ONE QSO BETWEEN STATIONS REGARDLESS OF MODE.

INTERCHANGE WITH THE CQ COMMITTEE IS ONGOING REGARDING STANDARD BOILERPLATE RULES. FOR EXAMPLE, ALL RADIOS MUST BE WITHIN X-METERS FOR M/M. M/S DEFINITION WILL REMAIN UNCHANGED (ALLOWING SIMULTANEOUS RUN AND MULTIPLIER TRANSMITTERS). THE TWO TRANSMITTER M/M CLASS IS ABOUT DEAD - THERE IS A VOCAL SEGMENT OF THE WRITING PUBLIC WHICH OBJECTS TO QRN CAUSED (THEY BELIEVE) BY M/Ms.

INPUT IS REQUESTED REGARDING THE "SPECIALS". TELL K1KI WHAT YOU LIKE FOR BANDS, MODES, START TIME, DURATION, EXCHANGE, MULTIPLIER, ETC.

KWM380 OWNER REPORT

OVERALL RECEIVER PERFORMANCE IS OUTSTANDING. NO CRUD FROM BIRDIES, INTERMOD, OR RECIPROCAL MIXING, EXCELLENT FILTER SHAPE FACTOR AND ULTIMATE REJECTION, TUNING RATES EASY TO LOVE, AGC THUMPLESS ON BIG SIGNALS. THE TUNING MECHANISM (INCREMENTAL SHAFT ENCODER) HAS AN INHERENT ELECTRICAL 1 COUNT BACKLASH WHICH STEPS THE WRONG WAY 20 TO 50

PERCENT OF THE TIME WHEN YOU TRY TO REVERSE TUNING DIRECTION. THE NOISE FLOOR IS BARELY ADEQUATE, SEEMS TO BE EXCESSIVE IF NOISE. THE CW OFFSET IS 800 Hz; TO CHANGE, MERELY REMOVE 41 SCREWS AND SOLDER IN A NEW BFO CRYSTAL. THE SPOT TONE WILL TRACK EXACTLY, AND THE SIDETONE PITCH CAN BE ADJUSTED TO MATCH. MY UNIT HAS AN OCCASIONAL 10Hz WARBLE, DUE TO, I'M TOLD, A RARE CASE OF FAILURE TO LOCK CAUSED BY A PRESCALER. LATER PRODUCTION UNITS HAVE DIFFERENT COMPONENT VALUES TO CURE THIS. BAND CHANGING IS AWKWARD - PUSH BUTTON, TURN KNOB SOME, PUSH ANOTHER BUTTON, TURN KNOB SOME MORE, PUSH BUTTON.

THE TRANSMITTER IS FINE. ABSOLUTELY FLAT OUTPUT ACROSS ALL HAM BANDS, 100 WATTS OUT WITHIN THE ACCURACY OF MY POWER METER. THE AUDIO DOES LITTLE TO IMPROVE MY VOICE, BUT DOESN'T HURT. CW WAVESHAPe IS CLICKLESS AND HARD. THE VOX CONTROLS ALL INTERACT, AND THE ATTACK TIME IS TOO SLOW. A DESIGN GLITCH CAUSES A LARGE CLICK IN RECEIVE AUDIO AND A FULL POWER SPIKE IN OUTPUT AT SOME SPURIOUS FREQUENCY EACH TIME THE RADIO SWITCHES FROM TRANSMIT TO RECEIVE. COLLINS KNOWS WHAT IS CAUSING THIS AND WILL BE PRODUCING A SERVICE BULLETIN. THE AUTOMATIC TURNDOWN AFTER 10 SEC ACTUALLY RESETS NEARLY INSTANTANEOUSLY (BETWEEN SYLLABLES). THE RIG CAN HANDLE CONTEST OPERATION AT FULL POWER WITHOUT EXTRA COOLING.

THE REMOTE FREQUENCY CONTROL ACCESSORY IS NIFTY, AND WILL SOLVE THE BANDSWITCHING PROBLEM, IF I CAN EVER GET ONE. THE UNAVAILABLE SPEECH PROCESSOR OPERATES AT AUDIO USING A PATENTED INSTANTANEOUS AGC. THE SERVICE MANUAL WON'T BE OUT BEFORE MID-SUMMER.

FOR SALE

W1HR RADIOS, TEST EQUIPMENT, ANTENNA SYSTEMS, COMPONENTS, COLLECTOR'S ITEMS - OLD GEAR, BOOKS. CONTACT K1GQ

OVERHEARD

K1MEM is heading up (as the only W1) a new Sprint team. Anybody know these guys - RO, TR, SF, NA, ZZ, AA, BT, RTT, TJ?

1979 CQ World Wide DX Contest High Claimed Scores

Phone

CW

The following are the Phone high-claimed scores received by December 31, 1979.

USA

Single Operator

All Band

N7DO	3,161,165
W1ZM	3,035,790
W7RM	2,875,450
K1VTM	2,654,834
N7UU	2,625,984
K7RI	2,418,028
W3BGN	2,330,496
X W1CF	2,268,420
W3GRF	2,225,430
W9RE	2,184,776
N6RO	2,120,370
N4RV	1,945,008
K4VX	1,852,155
N6KT	1,799,658
K3TW	1,787,212
W7IL	1,686,894
X W1RR	1,685,440
K2DM	1,583,349
X N2IC	1,499,339
W2SUA	1,410,732
X W1OO	1,259,520
N6AR	1,255,988
W3FA	1,245,624
K5NZ	1,185,030
K5NW	1,131,124
K6RR	1,099,899
K5KLA	1,077,363
K3ZJ	1,066,648
N2LT	1,011,381
K3MWV	1,011,126

Single Band

1.8 MHz

W8RL	2,945
K5UR	2,436
K5YY	1,080
AD4U	1,067

3.8 MHz

W8MJ	49,950
W8EDU	45,150
K8XX	32,400
KG4W	32,096
WA4SVO	19,906
W9LF	17,385

7 MHz

K4JRB	75,911
N4KE	66,852
K7UR	53,922
WB9QPN	36,960
W9NWE	31,752
W8JWR	28,542

14 MHz

K6KX	330,879
K9RF	280,320
K8DD	248,976
W5FO	242,744
K1NG	215,930

X W2TA	214,200
X WB1ANT	205,084
W8TWA	194,951
X W1GG	186,184
K5NU	166,032

21 MHz

K1RM	870,237
WA5EKL	699,448
W1NG	480,554
K6SMF	432,634
K6EV	426,195

K8SMC	413,980
K4ISV	381,918
K6LL7	333,852
N4CT	328,328

28 MHz	735,528
X WA2SPL	689,520
W5MYA	689,520
AABU	582,288
K5TJ	569,262

WB9YK	565,780
AEGU	538,902
NBUM	524,986
K5JA	522,815
W6PU	518,990

W4RX	490,472
CT3BZ	232,956
YV5AMW	65,340
VE3ECP	64,498
VX3JAY	63,840

WA6OCV 487,940
N2PP 457,457
W4QON 437,613
WD9DCL 437,030
K9RX 434,130
N4SW 423,253

7 MHz

I5NPH 273,144
IT95K0/G9 190,008
OM2CMFIA 163,068

14 MHz

JA2BAY 155,899
OH8SR 135,360
I2VRN 115,900

18 MHz

OK3OM 104,625
OH1IJ 100,320

21 MHz

UA6HZ 1,014,284
YW1AWO 908,888
DL8PC 901,992

28 MHz

H31LR 1,485,093
VE7CML 1,112,220
VK4VU 1,079,335

OH1MA 870,500
4M3OS 862,663
VE4SW 805,428

28 MHz

OH2MM/CT3 1,827,150
EABA 1,791,755
KV4FZ 1,683,694

ZS3LK 1,421,164
DK3GI 1,248,072
G3ZOW 1,209,359

CZ6WO 1,182,315
KP4O 1,158,388
IG9UN 1,129,120

SP3DOI 1,061,012
JH1JGX 1,035,464
OH5NW 1,021,348

VE5DX 998,854
VP2MBA 860,768
VK4QK 859,011

JA1PIG/PZ 848,175
PA52TMS 4,413,952
OH6JW 4,389,460

Multi-Single

X HIBXWP 9,947,265
UK9AAN 7,620,272
IZ3MAU 7,605,580

DL8WU 7,226,800
HH2MC 6,861,130
I1KN 6,434,166

GW6GW 6,054,540
EA6ET 5,956,284
OH2UG 5,620,200

VP2VFK 5,380,175
I1DIE 4,742,144
Y2Z 4,392,123

UA1DZ 3,001,248
VC3GCO 2,895,100
G6UW 3,894,728

PA50HIP 7,644
GM3ZSP 6,068
K9P 5,889

4X6A 11,365,540
KL7D 10,928,280
DL8PG 10,507,220

YU3EY 16,646,364
SK2KW 14,675,821
KL7IRT 10,077,914

Single Band

1.8 MHz

X K1CO/PJ7 19,046,262
YU3EY 16,646,364
SK2KW 14,675,821

1.8 MHz

4X6A 11,365,540
KL7D 10,928,280
DL8PG 10,507,220

1.8 MHz

FIELD DAY...N2NT

Come one, come all to the finest FD ever! Many of the YCCC boys will combine with other ops from NYC/NJ area to attempt to break the all-time QSO record. This gala event will be held in Boonton, NJ, just 1/2 hour from the George Washington bridge. We need all the manpower and equipment we can get, since the new rules demand a 24 hour maximum setup period. We will be running 14 or 15 transmitters with kilowatts from an excellent location. Operators from YCCC already coming are WB1ANT, K1AR, K2MM, K1DG, K2TR, W2YV, K2OY, N2NT, WA2OVE, K1ZM, K1EB, K1EA/5, and K1DH. If you are interested, please contact me at (212) 436-9503 weekdays after 3pm, or check in on 3830 kHz any evening after about 8pm. If you can't join us on FD, look for W2RQ/2 everywhere.

MORNING SPECIAL

In the April event (or was it March, I can't set the hams of this GMT thing) YCCC members N1EE, WB1ANT, and N1ACJ finished 3rd, 4th, and 5th in W1, and WA2KCL was 3rd in W2. Honorary non-member K3UA led the field with 134 QSOs.

CQ AUTHORS

Free distribution is available for your gems of wisdom. What you learned years ago the hard way is yet to be learned by our less experienced members. Manuscripts will be accepted in any form; your editor will polish up prose and pictures as necessary. If you crave wider readership, NCJ also needs input, including your favorite DX dupe sheet, etc., for their centerfold.

July 1	Canada Day Contest
*July 5-6	Venezuelan Phone Contest
July 5-6	Ghost Town Expedition
*July 12-13	IARU Radiosport
July 19-20	10-10 Int. Net QSO Party
July 19-20	Maine QSO Party
July 19-20	SEANET C.W. Contest
*July 19-20	AGCW DL QRP Contest
July 19-20	Neil Armstrong Commemorative
July 20	RSGB WAB C.W. Contest
July 26-27	Venezuelan C.W. Contest
July 26-28	County Hunters C.W. Contest

Aug. 9-10	European C.W. Contest
Aug. 16-18	Rhode Island QSO Party
Aug. 16-18	New Jersey QSO Party
Aug. 16-17	SEANET Phone Contest
Aug. 23-24	All Asian C.W. Contest
Aug. 31	RSGB WAB VHF Contest
Sept. 14	North American Sprint
Sept. 13-14	European Phone Contest
Sept. 13-14	Cray Valley S.W.L. Contest
Sept. 13-15	Washington State QSO Party
Sept. 27-28	Delta QSO Party

Oct. 4-5	VK/ZL/Oceania Phone Contest
Oct. 11-12	VK/ZL/Oceania C.W. Contest
Oct. 18-19	Scouts Jamboree
Oct. 18-19	WADM Contest
Oct. 25-26	CQ WW DX Phone Contest
Nov. 29-30	CQ WW DX C.W. Contest

*Not official

FRANK ANZALONE, W1WY

CQ • July, 1980

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