Yankee Clipper Contest Club

Scuttlebutt

No. 67 February 1987

Captain's Cabin

Bill Santelmann, N1AU

HEY! LET'S WIN A CONTEST!! The ARRL DX is less than a month away, and it's time to fix those antennas, make repairs, and arrange for operators or a place to operate! If you aren't on packet, you still have time to connect to the YCCC spotting net. And mark the family calendar to reserve the weekend of February 20-22 for the ARRL DX CW and the weekend of March 6-8 for the ARRL DX phone contests. Also mark April 7 as the postmark deadline for mailing your logs to the ARRL. They won't count toward the YCCC score unless you beat that deadline and indicate the YCCC as your "Affiliated Club Participation". And on the same day you submit your logs, send your Area Manager your scores for listing in the next **Scuttlebutt**.

Our next meeting's program on Saturday, February 7 is designed to help you do well in these two contests. We will have an ARRL DX Forum which will divide into two groups to discuss operating strategies. Fred, K2TR, will moderate the group on multi-operator, two-transmitter stations. Ken, K1EA, will explain, and possibly demonstrate how he did so well in the CQ WW with computer logging.

We will also consider the important ethical question of "good amateur practice" with John, K1AR. The FCC wants amateur radio operators to decide what constitutes "good amateur practice" so that the FCC monitoring stations will have a standard by which to judge. The FCC is looking to us to set and abide by our own ethical standards, but failing that, they may have to set their own standards for interpretation of Part 97.78.

Our packet spotting net is operating continuously around the AK1A Packet Conference Board System, using a copyrighted program written by our own Dick Newell, which is the only system to date which can handle up to 26 simultaneous connects. It is a superb spotting net, operating not only during contests in condensed form for best efficiency, but also between contests with all of the Conference and BBS functions as well. If you need to be convinced, just talk to any user. For both ARRL contests, K2TR will be connected from the Schenectady area to AK1A and will function as a digipeater for other users. Also, a link is being tested into the Portland, Maine, area through W1RR. YCCC members N1AFC and K1SA are trying to establish connections from Portland, and non-members KQ1L and W1OO are also reported to be very interested from the same area.

If you submitted your scores from the CQ WW to your Area Manager, you will find them listed in this **'Butt**. If you didn't there is no guarantee you will see your callsign in print here. Just remember to do it for the ARRL DX!

SO LET'S WIN THE ARRL DX!! We have the best operators, the best stations, the best location, and the

best packet spotting net. If we really want to win, we can! Good luck!

Next Meeting
Paul Young, K1XM

The next meeting of the Yankee Clipper Contest Club will be on Saturday, February 7, at the Sheraton Sturbridge. The meeting will start at 1:00 p.m.

If you are interested in attending the pre-meeting luncheon, you **MUST** contact Charlotte, KQ1F, by noon on Wednesday, February 4th. If we tell them too few people, they won't have enough food, and if we tell them too many, then YCCC gets charged. Lunch will be $8.50. Last time five more people showed up than we had reservations for. I understand that you don't like list operations, but please make an exception for this one. You can contact KQ1F by telephone at (617)562-5819. This is a home phone with a tape recorder. Or leave a message for KQ1F (or K1XM) on the AK1A BBS system. Contact her by Wednesday morning at 8 a.m. Do **NOT** try to call either Charlotte or Paul at work the week before the meeting; neither one will be easily available.

The Sheraton Sturbridge Resort and Conference Center is located on Route 20 in Sturbridge, Massachusetts, $\frac{1}{2}$ mile West of I-84 (first exit off I-84 when coming South from the Mass. Turnpike). Directions to the Sheraton are easy: Exit I-84 on to Route 20 West. You will pass through two sets of stoplights while noticing several motels on your right. Make a right turn just prior to the Burger King sign. This is the entrance to the Sheraton, and there is plenty of parking in front of the hotel.

The meeting dates for the rest of 1987 are:

DATE	DAY	DELI-LUNCH
February 7, 1987	Saturday	11:30 AM
April 5, 1987	Sunday	11:30 AM
June 6, 1987	Saturday	11:30 AM
August 2, 1987	Sunday	Lakeside Bar-B-Que
October 3, 1987	Saturday	11:30 AM
December 6, 1987	Sunday	11:30 AM

Floating
Paul Young, K1XM

A **Scuttlebutt** reader recently asked if there was any cheaper way to receive the **Scuttlebutt** than to pay membership dues. If one person asks, then there are probably several who are wondering, so here is the answer:

Normally **Scuttlebutt** subscriptions cost the same as regular membership, $10.00. Since we started holding meetings at the Sheraton the club's total outlay for meetings has been less than $20.00. Almost all of the dues money goes to pay printing and postage costs for the **Scuttlebutt** and the **Contest Cookbook**. I don't charge the club for phone calls to find articles or gasoline to go to the printer or the post office, and I usually float the club to make sure we don't go below the minimum for the bank account. So I lose a little on the **Butt**. The more issues we send the less I lose per issue, so get all your friends to join YCCC.

We give a discount to full time students. Nobody has ever become a full time student just to get a price break on YCCC membership.

It is possible to get a complimentary **Scuttlebutt** subscription. There are not many of these; they mostly exist for a few months if someone tells us that a friend might be interested in joining YCCC. If the person doesn't join, we drop him from the list.

We also exchange newsletters with a few other clubs; if you form a club and edit the newsletter we may exchange with you. And if you can do that and spend less than $10.00 a year on it, please tell me how.

There is one other way! The **National Contest Journal** is looking for an editor. We send a complimentary **Scuttlebutt** to the **NCJ** editor. If you take this job, you can also get a free **NCJ**, and probably newsletters from all the other major contest clubs. If you are interested, contact Randy, K5ZD/1 for details.

Secretary's Report
Yankee Clipper Contest Club

The December YCCC meeting was held at the Sheraton Sturbridge on 7 December 1986 with 42 members and guests in attendance. Since the club secretary was en route home from the HC8A DXpedition and could not attend the meeting, minutes were recorded by the club president, N1AU.

The pre-meeting luncheon had reservations for 23, and 28 attendees.

Tom, K1KI, brought a visitor from Hungary, HA6NY, Julius, who operates at HG6N and HA6KNB. Julius felt his English was inadequate and wanted Tom to "interpret" for him, but Tom insisted he try it, and in fact he did very well describing HG6N and contesting conditions. HG6N is on top of a mountain which is accessible only in good weather by four-wheel-drive vehicles. In the winter, one climbs up with water and logs! The station has a VHF link to HA6KNB for spotting purposes.

We also had another overseas visitor, Ary Spieker, PA0ARY, who spoke on ham radio in the Netherlands. He is not a contester, but spoke in general of the op-

erating restrictions there, which are quite severe.

Among the notables at the meeting were Bill, K1MM, and Jim, K1MEM, after a long absence!

We had a little levity from Rich, K2WR, based on call-signs from *Star Trek*, which fell flat, but he redeemed his reputation later with a promotion on TCP RIG treatment for your linear.

Ed, WA1ZAM, showed some slides of the K1RQ multi-single contest operation which were well done.

Tom, K1KI, then presented his "Infamous YCCC Contest Quiz". The winner's prize was the responsibility to write the next version to be used at a future meeting. Tom's quiz was well thought out and stimulated a lot of discussion.

The club welcomed one new member:
Bill Welch, K1CLN

Glen Whitehouse, K1GW, has consented to become the new Area Manager for NH/VT.

Rich, KA1CI, may be able to assist in linking KY1H and K1KI on packet, and Al, K1IK, may be able to link AK1A and KY1H. Fred, K2TR, will be on packet for the ARRL DX contests.

Respectfully submitted,
Bill Santelmann, N1AU
Acting Secretary
Charlotte L. Richardson, KQ1F
Secretary/Treasurer
30 December 1986

Computer-Aided Design of Yagi Antennas

John J. Kenny, W1RR

As some of you are aware, I have been doing computer optimization of Yagi designs for several years now. Over that span of time, there have been several advances in my techniques with the result that it is now a straightforward task to design a very good Yagi. I gave a talk on some of that work at the last ARRL convention at Boxboro. This article will summarize that talk and present three antenna designs.

In 1964 a graduate student at Harvard by the name of Morris wrote a PhD thesis entitle, "Optimization of the Yagi Array" in which he solved the problem of finding the gain, pattern and input impedance of Yagi antennas. In that thesis Morris listed the Fortran source code he used to analyze a Yagi array. Bill Myers, K1GQ, got hold of a copy of that Fortran source code and with it he designed the Cushcraft 4-element HF "CD" Yagis around 1978-1980. I got a copy of that source code around 1979. After calculating a number of Yagi patterns (including F/B) and impedances, I got interested in optimization.

The Optimization

I devised a routine which calculates Yagi characteristics, varies one element length or inter-length spacing, recalculates the Yagi characteristics, changes another length or spacing, recalculates, etc., etc., etc. With each calculation of Yagi characteristics, the routine keeps track of which changes of spacing or length produce improvements in combined gain and Front-to-Rear ratio. The process repeats until no further improvements can be made. (I define Front-to-Rear ratio (F/R) as the ratio of the main forward lobe to the highest level lobe beyond 90 degrees in the azimuth plane of a horizontal Yagi expressed in dB. This is far more important to YCCCers who prefer to hear Europeans rather than W3s - W0s. The more conventional Front-to-Back ratio only considers the rejection in one direction, exactly to the rear.)

The analysis assumes that the elements are of constant diameter, so once the process described above is complete, the element lengths, accounting for element taper, element mounting method and boom effects, are calculated. Finally the matching device is designed.

My Experiences with Yagi Optimization

I designed antennas for myself and others. One of the early lessons I learned was that high performance Yagis could be too narrow band in both their SWR and antenna patterns. From this I got the idea that I should try to broadband the antennas. Instead of making the gain and pattern very good at a single frequency near the center of the band, I changed the program to optimize at two frequencies, typically one in the phone portion of the band and one in the cw portion. The resulting designs were broader band for both F/R and SWR. The gains were reduced by a fraction of a dB compared to Yagis optimized at a single frequency.

Many of the YCCC members use, or have used, the PV-4 Yagi design. It deviates significantly in several ways from the designs Jim Lawson described in his 1980 **Ham Radio** series. It certainly does not have equal length directors, nor are the element spacings equal, nor is the boom an odd multiple of a quarter wavelength long. Jim had his own computer-aided analysis tools and he must have gone through an extensive and lengthy search in arriving at this excellent high gain Yagi having such a good radiation pattern. Using my optimization program, I arrive at a very similar result automatically. I can optionally choose to put more emphasis on an improved F/R and/or wider bandwidth. Doing that, I have come up with

a 4-element, 40 ft., 20 meter Yagi which trades off some gain for improvements in those characteristics. The real power of this optimization program shows up, however, in bigger Yagis. It would be nearly an impossible task to arrive at an optimum design of a 5 or more element Yagi without it.

Properties Common to Most Very Good Yagis

After designing dozens of Yagis, I have come to recognize certain features common to all of them. Most of the very good designs have the following properties:

- Neglecting the driven element, the spacings are almost equal.
- The reflector is about half a wavelength long.
- All the directors are approximately the same length, except for the end one.
- The end director is significantly shorter than the other directors.
- The approximate number of elements for a given boomlength can be determined by rounding off the result of the following formula:

$$2 + (\text{boom length})/(\text{quarter wavelength})$$

Specific Examples

The first example is an antenna I recently designed for Bill Myers, K1GQ. It uses the latest vintage program and techniques. The calculated results are shown in Figure 1. Its gain is about 10.5 dB across the band. Using a hairpin to match the antenna to 75 ohms, I would expect the broad W-shaped SWR curve shown. The SWR should stay below 1.5 to 1 from 21.000 to almost 21.350 MHz. The F/R remains above 25 dB across the band.

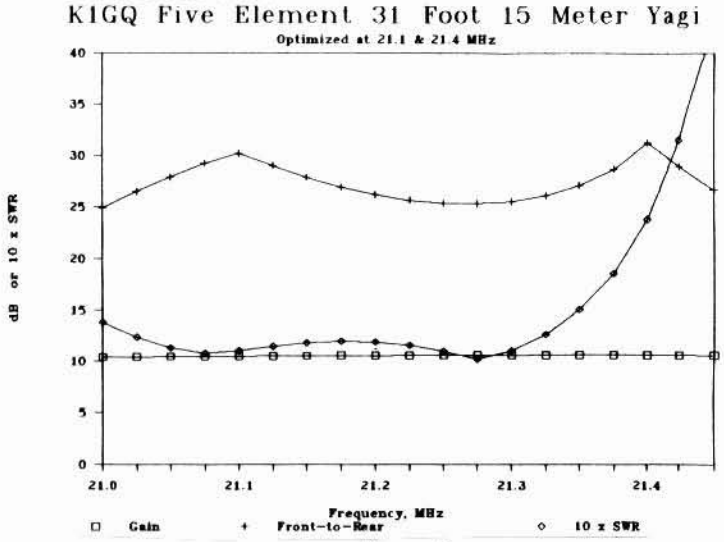

Figure 1.

5 elements, 15 meters, $31\frac{1}{4}$ foot boom, $\frac{7}{8}$" diameter elements, no element taper or boom correction.

Reflector halflength	139.129"
Space	25.093"
Driven element halflength	131.720"
Space	52.868"
Director 1 halflength	131.426"
Space	132.357"
Director 2 halflength	128.049"
Space	164.731"
Director 3 halflength	120.915"

The second example was designed some time ago initially for KS9K who built three of them. Since then it has been used at a few other contest stations as well. Today a redesign of this antenna could probably improve it slightly, although it is certainly a very good Yagi, as you can see in Figure 2. The gain is about 1 dB higher than the previous antenna, the F/R is extremely high around the bottom end of the US phone band, and the SWR characteristics is very broad.

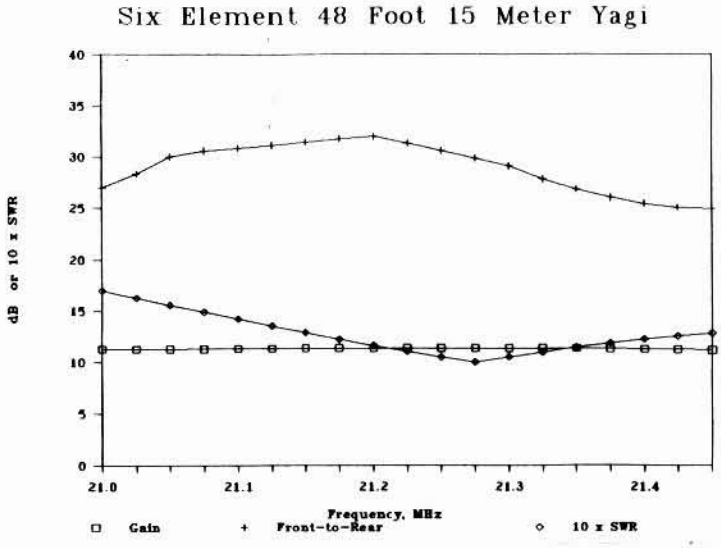

Figure 2.

6 elements, 15 meters, 48 foot boom, 1" diameter elements, no element taper or boom correction.

Reflector halflength	141.577"
Space	73.595"
Driven element halflength	133.000"
Space	71.712"
Director 1 halflength	128.836"
Space	153.312"
Director 2 halflength	126.716"
Space	128.172"
Director 3 halflength	127.745"
Space	145.209"
Director 4 halflength	118.943"

Finally, even before I put it up, here are the facts on the 5 element, 49 (call it 50) foot long, 20 meter Yagi I intend to install. Its electrical characteristics are shown in Figure 3. It will give me good performance for SSB both at the important bottom of the phone band and also at the high end where we all seem to retreat to run Europeans. There is only a slight sag in F/R in the middle. The F/R on cw is considerably better than that of a Yagi designed for the SSB portion of the band. The SWR is based on a hairpin matching network to 75 ohm line and it can be seen to be well below 2 to 1 from 14.000 to above 14.300 MHz.

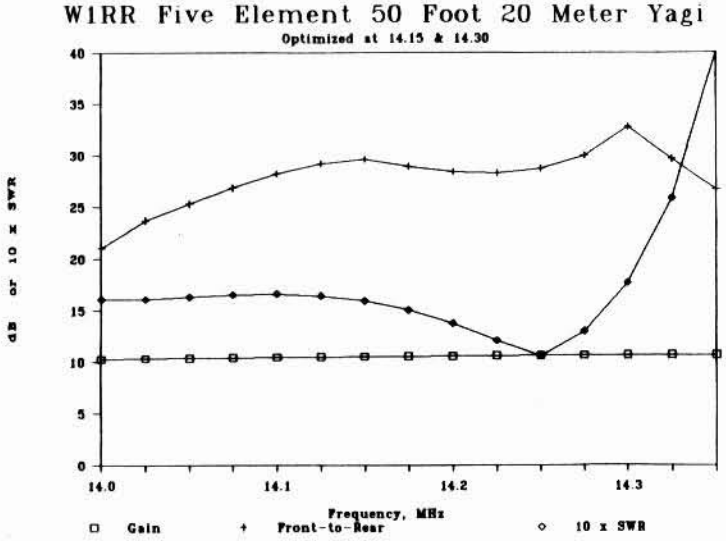

Figure 3.

5 elements, 20 meters, 49 foot boom, 1" diameter elements, no element taper or boom correction.

Reflector halflength	208.454"
Space	56.745"
Drive element halflength	197.500"
Space	76.253"
Director 1 halflength	196.984"
Space	211.130"
Director 2 halflength	191.037"
Space	243.873"
Director 3 halflength	181.222"

Summary

Some of the skeptics may say, "Well that may be all well and good in theory, but does it really work in practice?" The answer to that is "YES!!" Dozens of Yagis based on these techniques have been built for bands from 40 meters to 2 meters, with 3 to 8 elements. All feedback from the users is extremely enthusiastic.

My contributions to Yagi optimization haven been the simultaneous optimization of element lengths and their positions, the optimization of combined gain and F/R, and the optimization at two frequencies simultaneously to give the antennas broadband properties.

IARU International Contests
Tom Frenaye, K1KI

Here is how the dates for the IARU societies' various international contests are determined, and the dates for the next three years.

January:

Contest	Dates	1987	1988	1989
HA DX cw	3rd full wknd	17-18	16-17	21-22
REF cw	Last wknd	24-25	30-31	28-29

February:

Contest	Dates	1987	1988	1989
RSGB 7 MHz ssb	1st full wknd	7-8	6-7	4-5
PACC	2nd full wknd	14-15	13-14	11-12
RSGB 1.8 MHz cw	2nd full wknd	14-15	13-14	11-12
YU DX cw	2nd full wknd	14-15	13-14	11-12
RSGB 7 MHz cw	3rd wknd	21-22	20-21	18-19
ARRL DX cw	3rd full wknd	21-22	20-21	18-19
REF ssb	last wknd	21-22	27-28	25-26

March:

Contest	Dates	1987	1988	1989
ARRL DX ssb	1st full wknd	7-8	5-6	4-5

April:

Contest	Dates	1987	1988	1989
SP DX cw	1st wknd	4-5	2-3	1-2
Yuri Gagarin cw	2nd full wknd every 3rd year	11-12	–	–
RSGB QRP cw	2nd Sunday	12	10	9
Helvetia	last full wknd	25-26	23-24	29-30

May:

Contest	Dates	1987	1988	1989
CQ M	2nd wknd	9-10	14-15	13-14
Ibero-America ssb	last full wknd	30-31	28-29	27-28
World Telecom. Day	last wknd Sat. cw. Sun. ssb	23-24	28-29	27-28

June:

Contest	Dates	1987	1988	1989
DARC Field Day cw	1st or 2nd wknd	6-7	4-5	3-4
AA ssb	3rd full wknd	20-21	18-19	17-18
RSGB summer 1.8 MHz cw	last wknd	27-28	25-26	24-25

July:

Contest	Dates	1987	1988	1989
YV DX ssb	1st full wknd	4-5	2-3	1-2
IARU HF	2nd full wknd	11-12	9-10	8-9
HK DX	3rd full wknd	18-19	16-17	15-16
SEANet cw	3rd full wknd	18-19	16-17	15-16
YV DX cw	4th full wknd	25-26	23-24	22-23

August:

Contest	Dates	1987	1988	1989
YO DX	1st wknd	1-2	6-7	5-6
WAE cw	2nd wknd	8-9	13-14	12-13
WIA Remembrance Day	wknd nearest 15th	15-16	13-14	12-13
SEANet ssb	3rd full wknd	15-16	20-21	19-20
AA cw	4th full wknd	22-23	27-28	26-27

September:

Contest	Dates	1987	1988	1989
IARU Field Day ssb	1st wknd	5-6	3-4	2-3
LZ DX cw	1st Sunday	6	4	3
WAE ssb	2nd wknd	12-13	10-11	9-10
Scandinavian cw	3rd wknd	19-20	17-18	16-17
Can-Am	3rd wknd Sat. ssb, Sun. cw	19-20	17-18	16-17
Scandinavian ssb	4th wknd	26-27	24-25	23-24

October:

Contest	Dates	1987	1988	1989
VK/ZL ssb	1st wknd	3-4	1-2	7-8
RSGB 21/28 MHz ssb	Sun. 2nd full wknd	11	9	15
Worked All Y2	3rd full wknd	17-18	15-16	21-22
VK/ZL cw	3rd wknd	17-18	15-16	21-22
RSGB 21 MHz cw	Sun. 3rd full wknd	18	16	22

November:

Contest	Dates	1987	1988	1989
WAE rtty	2nd wknd	14-15	12-13	11-12
YO DX	2nd Sunday	8	13	12
RSGB 1.8 MHz cw	2nd wknd	14-15	12-13	11-12
All Austria cw	3rd wknd	21-22	19-20	18-19

December:

Contest	Dates	1987	1988	1989
EA DX cw	1st full wknd	5-6	3-4	2-3
ARRL 160m cw	1st full wknd	5-6	3-4	2-3
ARRL 10m	2nd full wknd	12-13	10-11	9-10

Score Rumors:

(Thanks to Randy, K5ZD/1, and the **NCJ** for providing some of this information.)

More CQ WW SSB:

Call	QSOs	Zs	Cs	Score
N1AU m/s	966	91	259	956K
W1FV	85	17	43	13680
K1TO (+K1XA)	1359	100	304	1.57M

N1AU ops: N1AU, W1FJ, NC1M, KA1NWE

CQ WW CW Multi-Multi:

Call	QSOs	Zs	Cs	Score
N2AA*	3637	170	553	7.5 M
NF2L	?	?	?	4.5M
W3LPL*	3718	163	526	7.2 M
N4ZC	2475	152	435	4.2M
N5AU	2392	165	455	4.3M
NR5M*	3123	165	477	5.5M
KS8S	2100	144	423	3.4M
HG5A	?	?	?	6.6M
HG6N	4434	137	454	6.1M
J6DX*	10767	139	464	14M
KP2N*	11211	163	506	18M

CQ WW CW Multi-Single:

Call	QSOs	Zs	Cs	Score
K1AR	1234	141	399	2.0M
N1AU	1182	107	320	1.4M
KM1C	1145	141	369	1.6M
N1CQ	1021	113	255	1.1M
K1IU	1259	124	322	1.5M
K1RQ	1454	117	447	1.9M
K1SA	1381	90	203	404633
K3OO	1563	149	454	2.7M
N3RS*	1998	155	473	3.5M
K4JPD	2093	147	394	3.2M
K4VX/0	1554	157	416	2.5M
W5WMU*	2110	163	466	3.7M
K8AZ	1451	133	348	1.7M
F5IN	3310	147	443	4.2M
HC8A*	3679	128	301	4.6M
KP4BZ*	5785	139	428	7.7M
UZ9AYA	2600	140	411	3.3M
VP9AD*	5895	136	401	7.3M

K1SA ops: K1SA, N1BBY, KY1K

N1AU ops: N1AU, NB1H, K1FWE

F5IN ops: F6ARC, F6BEE, F5IN

HC8A ops: K1XM, KQ1F, KD2HE

CQ WW CW Single Op:

Call	QSOs	Zs	Cs	Score
N1AFC (QRP 3w)	191	39	90	67983
K1CC*	1703	124	337	2.2M
K1DG	1039	119	330	1.3M
K1EA*	1802	138	379	2.6M
KC1F	1217	127	334	1.6M
W1FJ	?	?	?	800K
KY1H	1084	95	272	1.1M
K1KI	138	69	137	71K
W1KM*	2109	131	374	3.03M
W1RR	411	96	249	379K
K1RX	?	?	?	105K
K1TO*	2296	138	459	2.31M
W1WAI	608	82	228	517390
K1XA	1284	106	280	1455220
K1YR	?	?	?	300K
K1ZM*	1856	136	383	2.82M
WA2CNF	394	79	183	269K
AI3E	319	75	171	214020
W3GRF* (K0DQ op)	2111	132	388	3.18M
K3LR	1465	139	380	2.1M
K3NA	1323	121	315	1.6M
K3TUP	1450	131	388	2.1M
WX4G	1429	144	368	2.0M
NQ4I	1245	137	325	1.8M
K5ZD/1*	1686	130	374	2.4M
N6AR/4	1436	138	333	1.9M
KC8C	1695	112	299	2.0M
K8CC	1014	113	282	1.1M
W9RE	1533	137	353	2.1M
NP4A* (K7JA op)	4774	152	441	7.0M
PJ2FR (W8ZF op)	4870	114	320	
PJ7A* (N2GC op)	3321	111	347	3.5M
P40GD* (W2GD op)	5355	114	330	7.0M
9Y4VT	5258	146	383	7.9M

CQ WW CW Single-Op Single Band:

Call	Band	QSOs	Zs	Cs	Score
W1CF (WA2SPL op)	160	195	19	63	43465
WA4SVO	160	76	14	40	
W1FV	80	616	23	88	195804
P40R (K4UEE op)	80	1811	25	90	
W8LU	40	180	31	87	
K1RU	20	1142	37	104	468K
W2YV (KQ2M op)	20	1301	38	120	
N5CR	20	883	36	102	
WB8JBM	20	950	32	96	
WD8LLD	20	789	34	96	
P40N (NP4N op)	20	3377	36	117	

P40R and P40N set new single-band records!

*Score Breakdowns:

K1CC (s/o):

band:	Qs	Zs	Cs	
1.8	47	12	30	
3.5	194	20	65	
7	350	30	84	=2.2MM
14	760	31	77	
21	361	20	63	
28	35	11	20	
TOTAL	1703	124	337	

K1EA (s/o):

band:	Qs	Zs	Cs	
1.8	81	15	41	
3.5	213	21	66	
7	309	32	84	=2.6M
14	796	34	94	
21	367	22	71	
28	36	14	23	
TOTAL	1802	138	379	

W1KM (s/o):

band:	Qs	Zs	Cs	
1.8	45	13	35	
3.5	539	23	78	
7	371	31	81	=3.08M
14	795	30	95	
21	341	24	72	
28	18	10	13	
TOTAL	2109	131	374	

K1TO (s/o):

band:	Qs	Zs	Cs	
1.8	56	13	36	
3.5	198	18	68	
7	192	28	77	=2.31M
14	956	29	98	
21	241	23	62	
28	25	11	17	
TOTAL	2296	138	459	

K1ZM (s/o):

band:	Qs	Zs	Cs	
1.8	85	15	48	
3.5	289	24	75	
7	383	28	80	=2.82M
14	746	34	91	
21	326	22	67	
28	27	13	22	
TOTAL	1856	136	383	

N2AA (m/m):

band:	Qs	Zs	Cs	
1.8	181	20	67	
3.5	544	28	95	
7	861	38	118	=7.5M
14	1358	37	127	
21	592	28	103	
28	101	19	43	
TOTAL	3637	170	553	

W3GRF (K0DQ s/o):

band:	Qs	Zs	Cs	
1.8	30	9	21	
3.5	233	20	98	
7	635	35	98	=3.18M
14	810	33	94	
21	358	23	76	
28	45	12	25	
TOTAL	2111	132	388	

W3LPL (m/m):

band:	Qs	Zs	Cs	
1.8	138	18	60	
3.5	695	27	90	
7	1040	37	104	=7.2M
14	1185	35	115	
21	556	28	104	
28	110	18	53	
TOTAL	3718	163	526	

N3RS (m/s):

band:	Qs	Zs	Cs	
1.8	57	15	44	
3.5	296	26	87	
7	521	36	98	=3.5M
14	785	37	117	
21	293	25	91	
28	46	16	36	
TOTAL	1998	155	473	

W5WMU (m/s):

band:	Qs	Zs	Cs	
1.8	48	17	43	
3.5	311	28	80	
7	776	38	102	=3.7M
14	470	37	104	
21	460	30	103	
28	45	16	24	
TOTAL	2110	163	466	

K5ZD/1 (s/o):

band:	Qs	Zs	Cs	
1.8	71	14	37	
3.5	220	22	74	
7	360	31	84	=2.4M
14	762	32	95	
21	238	21	66	
28	35	10	23	
TOTAL	1686	130	374	

NR5M (m/m):

band:	Qs	Zs	Cs	
1.8	90	22	42	
3.5	341	26	78	
7	884	33	99	=5.5M
14	1029	35	109	
21	676	31	97	
28	103	18	42	
TOTAL	3123	165	477	

HC8A (K1XM, KQ1F, KD2HE m/s):

band:	Qs	Zs	Cs	
1.8	91	8	13	
3.5	409	20	49	
7	736	24	57	=4.64M
14	1138	33	84	
21	971	26	68	
28	334	17	30	
TOTAL	3679	128	301	

J6DX (m/m):

band:	Qs	Zs	Cs	
1.8	633	18	59	
3.5	1295	17	62	
7	2370	30	91	=14M
14	2768	31	94	
21	2253	23	81	
28	1448	21	67	
TOTAL	10767	139	464	

KP2N (m/m):

band:	Qs	Zs	Cs	
1.8	580	16	48	
3.5	1280	25	87	
7	2671	33	105	=18M
14	3280	38	120	
21	2500	29	86	
28	900	22	60	
TOTAL	11211	163	506	

NP4A (K7JA s/o):

band:	Qs	Zs	Cs	
1.8	351	18	53	
3.5	503	28	78	
7	994	28	71	=7.0M
14	1133	31	86	
21	1371	23	85	
28	422	24	68	
TOTAL	4774	152	441	

KP4BZ (m/s):

band:	Qs	Zs	Cs	
1.8	109	11	33	
3.5	611	19	68	
7	1660	29	79	=7.7M
14	1687	32	99	
21	1349	25	88	
28	309	23	61	
TOTAL	5785	139	428	

PJ7A (N2GC s/o):

band:	Qs	Zs	Cs	
1.8	129	8	23	
3.5	596	18	65	
7	685	20	65	=3.5M
14	940	28	79	
21	899	23	76	
28	72	14	39	
TOTAL	3321	111	347	

P40GD (W2GC s/o):

band:	Qs	Zs	Cs	
1.8	271	13	27	
3.5	737	19	63	
7	1083	22	68	=7.0M
14	1301	22	64	
21	1145	24	68	
28	818	15	41	
TOTAL	5355	114	330	

VP9AD (m/s):

band:	Qs	Zs	Cs	
1.8	111	9	21	
3.5	881	20	77	
7	1735	32	95	=7.3M
14	1610	31	92	
21	1527	29	91	
28	31	15	25	
TOTAL	5895	136	401	

ARRL 160M:

Call	QSOs	Ms	Score
KY1H (KB1W op)	674	81	
K1KI	101	37	8917
K5NA	1145	111	
K1XM/HC8	10	8	232

K5NA has probably won, for the third year in a row!

W2GD worked UV1OO at 3:45PM, also worked a JA.

WB9HAD (W9AZ op) worked more than a dozen JAs.

ARRL 10M:

Call	Mode	QSOs	Ms	Score
N1AFC	?	73	20	5840
KY1H	SSB	191	39	14898
K1KI	mixed	162	31	12028
WA1ZAM	mixed	80	28	7056

Changes at the ARRL

Billy, KR1R, is taking over the contest department from Mike, W1OD. Also, the ARRL budget includes an additional clerical position in the contest department (which was cut last year).

Movers and Shakers

Update your club roster to indicate these changes:

New address for the Peacors, K1IJU and K1IJV:
Norman and Jean Peacor
Box 1148
East Orleans, MA 02643

W1WAI has returned to his old haunts:
David S. Allen, W1WAI
22 Saxony Drive
Sudbury, MA 01776

New address for Bob Weinstock, KN1K:
7A Edwards Road
Woburn, MA 01801

Congratulations!

...to Fred, K1VR, on the birth of his son in December.

...to John, K1FWF, on his marriage in January. John is honeymooning on Montserrat at "The Last Resort" (VP2ML).

New Crew

Please welcome the following new member, who joined at the last meeting:

Bill Welch, K1CLN
86 Woodland St.
South Natick, MA 01760
Home Phone: (617)653-2347
Work Phone: (617)732-4745

YANKEE CLIPPER JACKETS

There will be a group order for the Yankee Clipper Contest Club jackets. The jackets will be navy blue, with white striped cuffs, collar, and waistband. They will have the club logo as well as the picture of a clipper on the back; optional call and name sewn on the front.

The jackets are "the original baseball style" made of a Dupont 66 nylon shell, kasha lining, striped knit collar, cuffs, and waistband. Features comfortable raglan style sleeves, slash pockets, 7 snap front closing. Fabric is machine washable and water repellent.

Anyone interested please return the forms **ASAP. I will place order on March 2, 1987,** so I can bring the jackets to the club meeting on April 5. If I don't have your order by February 28 - no jacket. With any questions, call (212)484-8342 – daytime.

Price:	$	18.00	per jacket
	$	1.75	Name sewn on the front
	$	1.75	Call sewn on the front

These prices are dependent on an order of 12 jackets or more. If we have more orders the price will be less and I'll refund the excess.

Sizes:
Adult: S(34-36), M(38-40), L(42-44), XL (46-48), XXL
Child: S(6-8), M(10-12), L (14-16)

ORDER FORM – PLEASE PRINT

Name Call

Address

City/State/Zip

Telephone

JACKET INFORMATION:

The sewn name and call is optional on the front. Please indicate how you want your name spelled, i.e., Name vs. Nickname.

Jacket (indicate size)	$18.00	Return to:
Name (Optional)	$1.75	Ed Kritsky, NT2X
Call (Optional)	$1.75	P. O. Box 715
TOTAL:		Brooklyn, NY 11230

Make checks payable to: Edward Kritsky

The **Scuttlebutt** is the newsletter of the **Yankee Clipper Contest Club** and is mailed six times per year to all paid up members. Dues are $10 per year, payable 1 April with a grace period through 30 June. Non-members may subscribe to the **Scuttlebutt** by sending $10 to the Treasurer: Charlotte Richardson, KQ1F, 11 Michigan Drive, Hudson, MA 01749. Subscribers who subsequently become members will be credited as having paid dues.

The **Yankee Clipper Contest Club** (an ARRL Affiliated Club) holds six official meetings per year, on the Saturday or Sunday afternoon of the first full weekend of every even month in the Sturbridge, Massachusetts, area. The deadline for article submission to the **Scuttlebutt** is three weeks before the next meeting date. The next meeting will be on Saturday, February 7, 1987, in Sturbridge, Massachusetts. Attendance at an official meeting is *required* in order to become a member. Club members congregate on 3830 Khz or 1900 Khz Monday evenings; many routinely monitor these frequencies other evenings as well.

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

Area	Call	Name	Home	Work
CT/RI	K1RX	Mark Pride	(203) 271-2076	(203) 265-8825
EMass	W1FJ	Al Rousseau	(617) 598-3744	(617) 599-7500 x 173
WMass	KY1H	Dave Robbins	(413) 655-2714	(413) 494-5618
VT/NH	K1GW	Glen Whitehouse	(603) 673-6290	(603) 627-7877
ME	K1SA	Bernie Cohen	(207) 773-6589	(207) 797-3585
NNY	K2RD	Ira Stoler	(518) 439-5804	(518) 445-8474
SNY/NJ	K2EK	Bill Gioia	(914) 221-1672	(212) 888-2102

YCCC
11 Michigan Drive
Hudson MA 01749

FIRST CLASS