



Publication of the
Northern California
Contest Club



Issue 572

March 2020



JUG Editor: Bill, N6ZFO n6zfo@arrl.net 415 209-3084

Inside this Issue:

	Page
President's Report — W6FB	1
About the NCCC	2
VP/CC Report — W6SX	4
March Meeting—Details	5
Editors Comments — N6ZFO	6
CQP Corner — N6DE	7
NCCC 2020 KB Competition — NA6O	14
Review of February NCCC meeting— WD6T	16
Tube of the Month — N6JV	18
NCCC Information	19
HRO	20

NCCC March, 2020 Meeting

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Date: Tuesday, March 10, 2020

Time: 1800-2100 PDST

**Where: Tony and Alba's Pizza & Pasta
3137 Stevens Creek Blvd.
San Jose CA**

Phone: (408) 246-4605

Talk: Bill Fehring, W9KKN

*“Bill's Excellent Caribbean Adventure—
ZF1A's Techniques for Staying Competi-
tive in Zone 8”*

Reservations: Please RSVP See page 5
Cost: \$18.00 (pizza, salad and soft drink)
Web Access : see page 5.

President's Report - W6FB

State of the Club

This time of year it seems the tradition has become for organizations at various levels to hear an update on how they are doing. These “State of the Organization” talks occur at every level from federal to state, city, etc. It seems that even the lowly dog catcher gets to talk about the stats of the dog pound. Not one wanting to buck a trend, let's try it for the NCCC...

So how is the club doing? In a phrase, pretty good. We can look at this in several ways, so let's take that look. Over the past two years the records show that we have added 35 members. That far exceeds those who have left the club, moving out of the territory or becoming SK. We are growing, and that is very good. What's more most of the new members are fairly young, lowering the average age of club members. It used to be I was one of the young guys, now, not so much. The newer members are bringing pretty good accomplishments, with several now competing at very high levels. There are some who are still at the beginner to intermediate levels, and we need to do more to guide them along, but by and large, we seem to be getting more competitive with this crop.

We can also look at it financially. Here we are doing very well. Our financial guru, K6EU, advises that income is up and our investments have done well. We are fully funded at this point. I attribute this to several things, first the brilliant move of our predecessors to acquire educational 501 (c) (3) status for the club, but also excellent moves by our treasurer to build and invest our funds. Tom's work has paid off very well, something we are proud of. Of course we should also attribute much of this situation to our generous members who have worked hard to keep us financially fit.



Northern California Contest Club

Excellence In Amateur Radio Contesting

Officers:

President	Jack Brindle	W6FB	jackbrindle@me.com
Vice President /Contest Chair	Hank Garretson	W6SX	w6sx@arrl.net
Treasurer	Tom Carney	K6EU	treasurer.nccc@gmail.com
Secretary	Greg DesBrisay	N6GD	secretary.nccc@gmail.com
Past President	Bob Hess	W1RH	w1rh@yahoo.com
Director	David Jaffe	WD6T	k6daj@arrl.net
Director:	Bill Haddon	N6ZFO	n6zfo@arrl.net
Director:	Bill Fehring	W9KKN	bill+nccc@w9kkn.net

Volunteers:

New Member Mentor	Al Rendon	WT6K	wt6k@arrl.net
Charter Member	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Awards Chair	Gary Johnson	NA6O	gwj@wb9jps.com
CQP Chair	John Miller	K6MM	k6mm@arrl.net
K6ZM QSL Manager	George Daughters	K6GT	k6gt@arrl.net
K6CQP,N6CQP,W6CQP QSL Mgr	Ed Muns	W0YK	w0yk@arrl.net
NCCC Email reflector Admin	Phil Verinsky	W6PK	kb-w6tqg@verinsky.com
Webmaster	John Miller	K6MM	k6mm@arrl.net
Webinars	Bill Fehring	W9KKN	bill+nccc@w9kkn.net
JUG Editor	Bill Haddon	N6ZFO	n6zfo@arrl.net

Thursday Night Sprint:

The Northern California Contest Club sponsors Thursday evening (NA local time) contest practice sessions of 30-minute duration. On the Thursday (and, sometimes Friday also) prior to a major contest weekend, the practice format follows the upcoming contest. Generally, on other Thursday evenings, a special format is followed, called NS or "NCCC Sprint". The NS began in the summer of 2004 as a snappy, concise contest occurring most Thursday nights, North American time. The power limit is 100 watts.

Thursday Night Contesting Director and Founder	Bill, N6ZFO
NCCC CW Sprint	Tom, N3ZZ (initially, Ken N6RO)
NCCC RTTY Sprint	Ken, K6MR
NCCC Sprint Ladder	Bill, N6ZFO
Sprint Web master www.ncccsprint.com	John, K6MM
non-NCCC:	Tim N3QE (Ladder Scores manager)
Thursday night Contesting Advisory Group:	N6ZFO, Bill (Chair)
	Mark K6UFO, (with W4NZ, N4AF, W9RE, K4BAI, N3BB, VE3YT and W0BH).
The Thursday night NCCC Net	Ken, N6RO

Continued on page 3.

A third way of viewing our state is through competition. Here we are fairing well also. In the contests where we really apply ourselves, mostly the digital efforts, we have established a record of excellence. It now appears that we have continued a string of Unlimited category gavels for RTTY Roundup this year. We also went after the new WW-Digi in a big way, with 51 members competing. The second best club had 20. This effort put us at the top of the club competition for the WW-Digi's inaugural event. What all this shows is that when we work together to compete in an event, we show that we are second to none.

Way to go NCCC!

Of course, there are some things we need to work on, which gives us work to do. We have new members, but many really need help in improving their contest skills and places to operate. California has become an expensive place to live, especially the Bay area. Many of the new testers live in apartments in the Bay area, with severe restrictions for operating. Several members have very generously welcomed new testers into their shacks. We point out NW6P, N6RO, K9YC among the generous group here. Thank you guys! Watching the testers these folks have hosted grow and become not just good, but top-level competitors has been outstanding. This is a win-win scenario as the new competitors grow in skills and the stations they work in also grow in capability. I can't think of a better scenario. Perhaps we can have more station owners contribute to this Elmering situation...

We can also help newer members by holding seminars to teach them new skills. Knowing the right way to contest — running instead of S&P, the right phonetics, the importance (and fun!) of CW, how to gauge propagation conditions and so forth are learned skills that need to be passed on from tester to tester. We need to redouble our efforts to do this, whether it occurs in club meetings, Contest Academy, or special local sessions.

Continuing our financial goals and work is also important. We need to keep the club strong so that we can continue to do the things and build the world of RadioSport.

One place we need more work is in the area of competitions. Yes, we are doing well in the digital world. We caught the world by surprise with WW-Digi. I am sure clubs will organize to come after us in this year's effort. We need to work just as hard to maintain our edge and our wins. We also need to work to improve our efforts in the traditional modes of CW and SSB. A very good trend is that of newer testers embracing the CW world. Here I point out W6BG and K6KM for their outstanding efforts in growing their CW skills. We need to spread that to others so that we do have more members competing at a high level in CW contests. We have actually done this before, and we have shown that we can grow. Now it's time to put it all together and again win in all areas.

So what does it take to overcome the lead that other clubs have taken? We need to put it all together, engage both our new and older members in every fray. Education and sharing are the ways to the future, to retake our rightful role in the contesting world. With an effort to share stations with the new folks, perhaps in multi-efforts at first, then turning our ops loose as they become highly skilled from our educational efforts, we surely can once again tell the world we are the best.

So what is the state of the club? Very good! We have come a long ways in a few years. With a bit more work, we should be able to say Excellent! All this is what makes NCCC the premier contesting club on the planet.

73!

Jack, W6FB

Vice-President / Contest Chairman Report - W6SX

NCCC Elections

In another month I will end my term as NCCC Vice President/Contest Chair. It has been very rewarding. It has been my honor and my privilege and fun.. NCCC is seeking candidates for president, vice president, and at-large directors for the coming year.

A year ago, when approached about being VP/CC I was hesitant. I knew it would be a bit of work. I knew it would be a little harder because I couldn't attend meetings in person.

Then I thought about how important NCCC has been to me. I thought about how important NCCC is to me. I thought about how important NCCC will be to me in the future.

I said yes!

If you are asked to be an officer or director, please consider saying yes. If you think you would like to serve in any capacity, please contact president W6FB. It's our club. We're all in it together. W6SX First Corollary: Share the fun. W6SX Second Corollary: We all get better together.

KB,

Hank, W6SX



The NCCC 50th Anniversary

Who were the members of NCCC fifty years ago? Here's a complete list from JUG #1. Maybe five are current members? K6AUC, SK, John, is a donor to NCCC via his estate.

K6AHV	W6CUF	W6HRB	W6MAV
K6ALH	WA6DKF/K2EIU/6	WA6HRS	W6RGG
K6AUC	K6EBB	WN6HSJ	K4TKM/6
W6BHY	K6ERT	K7INE/6	WA6TQK
K4BVD/6	K6ERV	WA6IQM	K6VVA
K6CQF	W6GFS	WB6KIG	W6WX

Club Officers - - -

W6BHY	President
K6EBB	Vice-President/Contest Chairman
W6RGG	Secretary/Treasurer
K6CQF	Director
W6WX	Director



NCCC Meeting— Tuesday, March 10 2020

*“Bill's Excellent Caribbean Adventure—ZF1A's Techniques
for Staying Competitive in Zone 8“*

Bill Fehring, W9KKN

Date: *Tuesday, March 10, 2020*

Time: *1800-2100 PDST*

Location: *Tony and Alba's Pizza & Pasta*

3137 Stevens Creek Blvd.

San Jose CA

Restaurant Phone: *(408) 246-4605*

Menu: *Pizza and Salad Bar, soft drink. Additional soft drinks and bar drinks available for purchase.*

Cost: *\$18.00, tax and tip included*

Reservations: *Please reserve at www.memberplanet.com/events/nccckb/ncccmeeting10march2020*

Note: *Daylight Savings Time in effect!*

WEB ACCESS:

<https://zoom.us/j/277254491>

Meeting ID: *277 454 491*

One tap mobile 1 669 900

6833,,277454491# US (San Jose)

One-tap mobile 1 929 436

2866,,277454491# US (New York)

Dial by your location

1 669 900 6833 US (San Jose)

1 929 436 2866 US (New York)



Editor's Comments – Bill, N6ZFO

The the third JUG of the new decade again highlights the CQP. The article by Dean, N6DE is the 2nd of a multi-part series that will examine CQP from a statistical viewpoint and make recommendations for fine-tuning the contest. Please feel free to respond to Dean's article, and any other, with email to the authors or with a letter to the JUG.

Also in this edition of the JUG David Jaffe, WD6T reviews Dan Werthimer's stimulating February talk about the work of Berkeley SETI. Gary, NA6O has finalized rules for the 2020/21 KB Competition Version 4.0, and the Tube of the Month feature has returned to the JUG, thanks to N6JV.

RTTY Roundup—Last month we described the exciting effort to secure NCCC's Unlimited Club entry in this competition. We're still awaiting final results, but, as Jack notes, it's looking good for 51 entries and a probably Unlimited Class Gavel.

But there's additional excitement in RTTY Contesting: Our effort to achieve highest US club aggregate score in the February 2020 WPX RTTY Contest is too close to call at the moment. Based on 3830 submitted scores, here's our placement relative to PVRC.

NCCC in the 2020 WPX RTTY Contest

NCCC : 43 logs and 41,069,533 claimed points

PVRC: 67 logs and 40,104,924 claimed points

Stay tuned! Either way, NCCC performed well, setting up another exciting competition for the 2021 WPX RTTY.

Corona Virus SARS CoV-2: The NCCC Board is actively monitoring the coronavirus situation as it affects public meetings and workplaces in California. For now we are proceeding with in-person meetings as usual, but asking attending members to be aware of the precautions desirable for in-person attendance, most importantly staying home if you don't feel well. Thanks to W9KKN we'll, as usual, have web access so that members can make an appropriate choice on restaurant attendance and still enjoy and participate in the meeting.

73,

Bill, N6ZFO – Jug Editor

n6zfo@arrl.net or 415 209-3084

CQP Corner

Dean, N6DE

cqden6de@gmail.com

This is the 2nd in a series of articles by Dean, N6DE, on statistical analysis of CQP performance. The first, appearing in the February JUG dealt with 75 meter operation. In April Dean will give a performance analysis of parameters for success for a CQP Expedition. N6ZFO, Ed.

CQP 2019 Multipliers

I analyzed multiplier coverage in CQP 2019 from all logs received. Following are my findings.

1. For all non-CA logs received, I grouped them into categories based on the number of CA counties they logged. I charted these county counts in Figure 1 for the last three years. Counties are not multipliers for CA stations, so I excluded CA logs from the analysis shown in Figure 1.

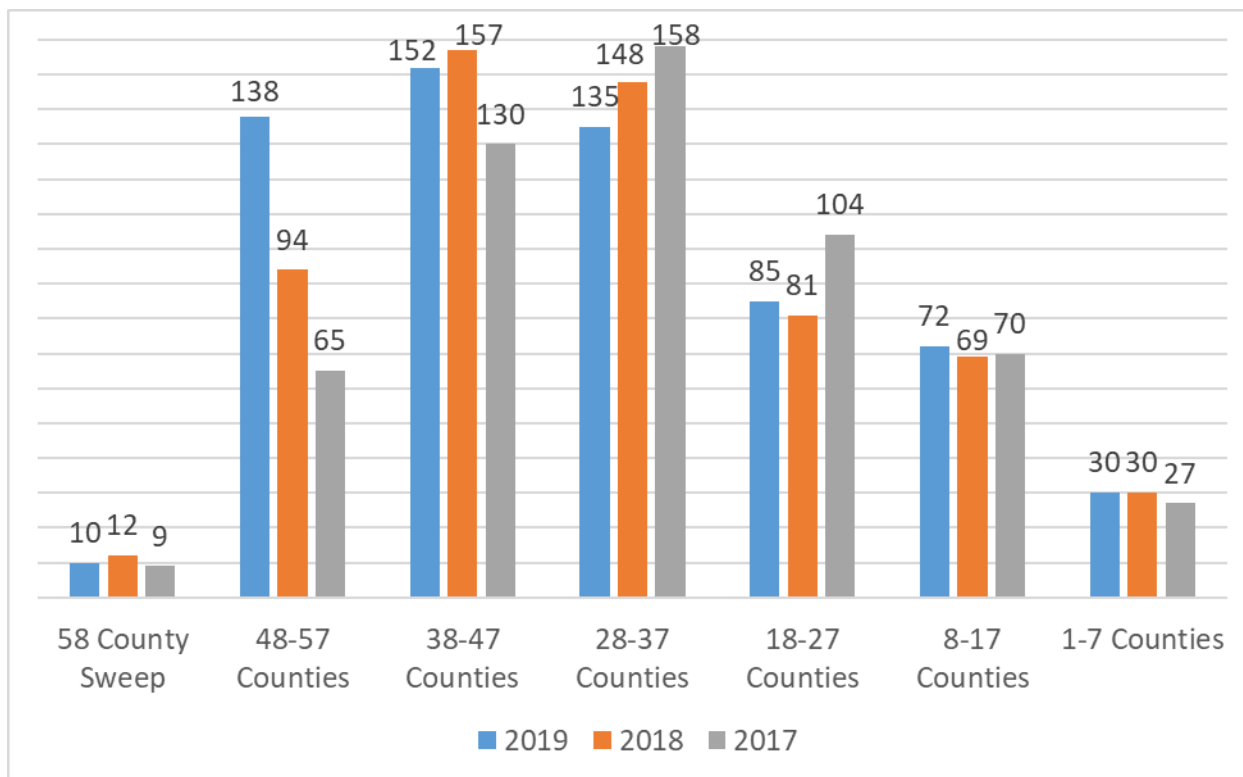


Figure 1. CQP 2017-2019: Number of CA Counties logged by non-CA participants

We did an outstanding job of covering CA counties in 2019. See the huge increase in stations that logged 48-57 CA counties in 2019 compared with prior years. This is an impressive statistic that did not happen by accident. A sincere Thank You to all of you for activating rare counties in CQP 2019!

One might conclude that there was a higher number of serious non-CA stations in 2019. In fact, there were fewer serious stations. As an example, five of the top 10 non-CA Single-Op stations from CQP 2018 did not even participate in CQP 2019, including the CQP 2018 winner. County mult totals are getting significantly higher with less operating time needed than in the past.

W1QK and WO4O contacted all 58 counties, operating less than 10 hours each. K1JB and VE5MX were able to log 57 counties in about 5 hours of operating time each. AA3B contacted 55 counties in under 3 hours of operating time. It is incredible that these high mult totals were possible with such little operating time!

County sweeps have been relatively flat over the last three years. This is one area we can strive to improve in CQP 2020.

- 2. In CQP 2019, there were 20 non-CA stations that logged 57 counties. This is an improvement over CQP 2018, when just 9 non-CA stations were able to log 57 counties. For the stations in CQP 2019 that missed a county sweep by just one county, which county did they miss?

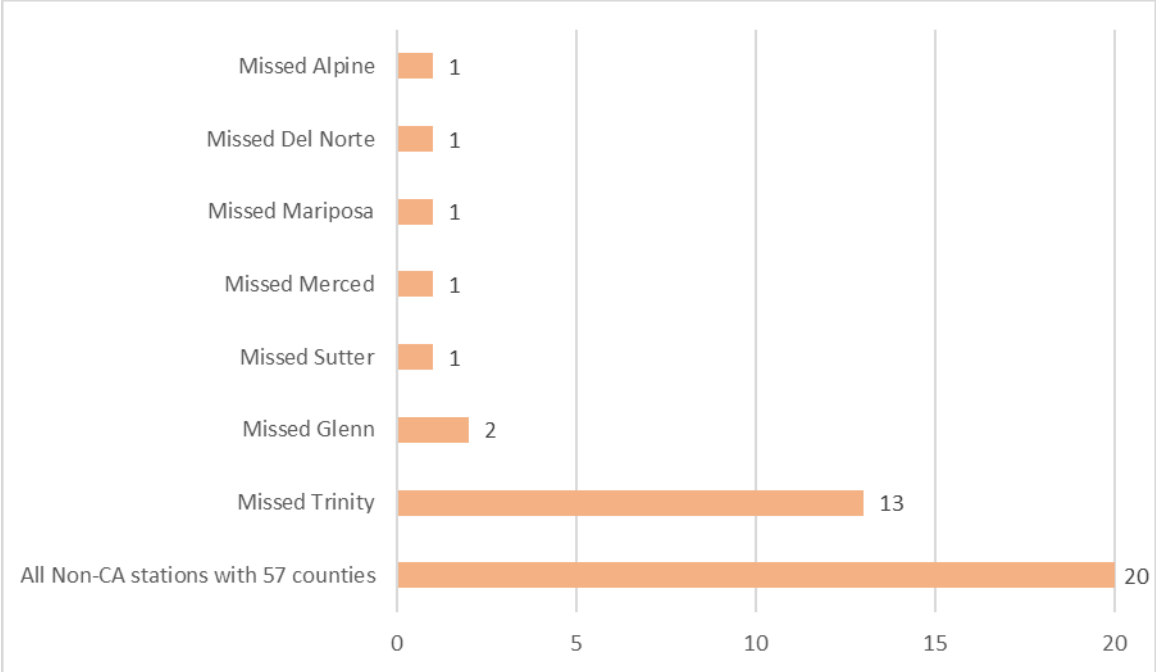


Figure 2. CQP 2019: The one county missed by 20 non-CA stations with 57 counties

Although Trinity County was missed most often, it is important to notice that there were six other counties missed for a county sweep. This means we can't just focus on one magic county in CQP 2020 to generate a large number of county sweeps.

- 3. What were the Top 10 rarest counties in CQP 2019? Figure 3 shows the Top 10 counties least logged by all non-CA stations, and the number of non-CA stations that contacted these counties.

This shows the number of distinct callsigns, not the number of QSOs made with each county (the QSO count would be much higher).

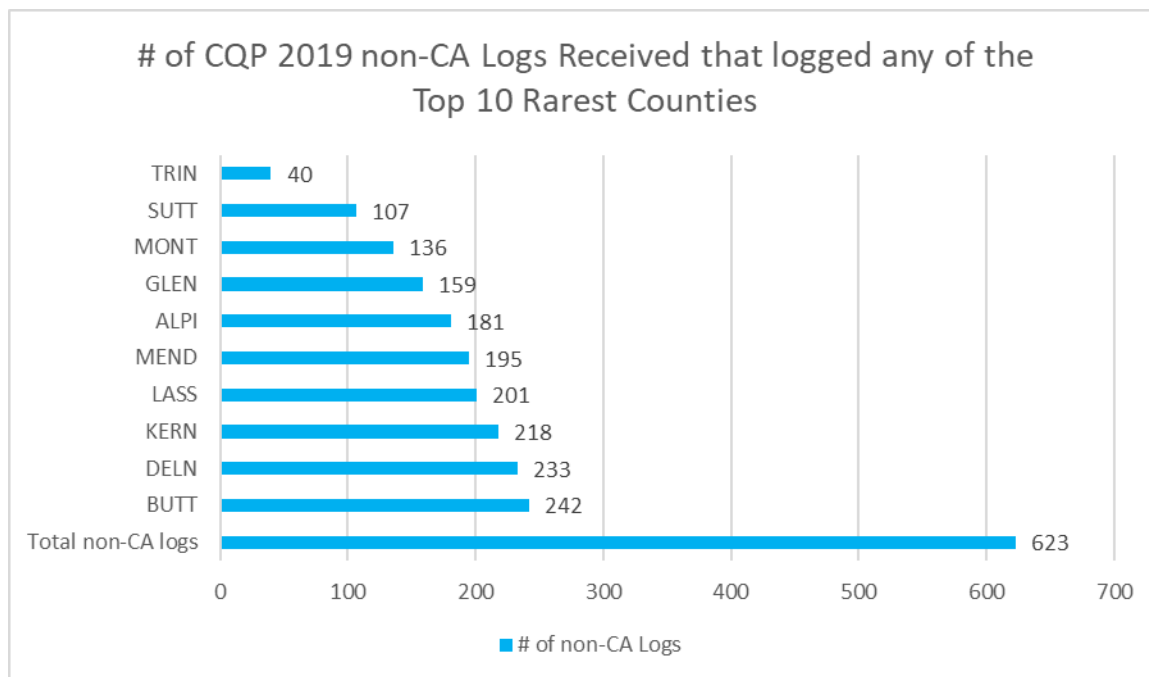


Figure 3. CQP 2019: Top 10 rarest counties in all non-CA logs

Please note that these are relative rankings. For example, Alpine County shows as the 5th rarest county, yet 181 non-CA stations got Alpine in the log. Clearly, it was not “rare.”

For each of these 10 counties, there were crucial efforts made. Without them, the numbers in Figure 1 would have been vastly different, so we owe the operators from these 10 counties a great deal of appreciation in making a county sweep possible. This list should just be a guide to help us all understand where more operator help, improved signal strength, or increased operating time could potentially be beneficial in 2020.

One other conclusion from Figure 3 is that 57 of 58 CA counties made it into over 100 non-CA logs in CQP 2019. That’s an extremely impressive statistic and shows how good our county coverage was.

- I wondered which counties showed the most improvement in terms of county coverage in CQP 2019 compared with 2018. Table 1 shows all counties that appeared in 100 more non-CA logs in 2019 over 2018.

Table 1. Counties that were logged in 100 more non-CA logs in CQP 2019 compared with CQP 2018 (next page)

County	2019 Non-CA Logs Submitted that logged the given county	Improve-ment over 2018	Strongest reasons for improve-ment over 2018
SJOA	367 logs	+280 logs	N6ESL (K6EI led) M/M Expedition + S/O from K6YK & K6JF (all mostly CW)
SFRA	409	+243	K6MM M/S Expedition
MADE	265	+199	N6YEU S/O Expedition
TULA	388	+180	NS6T M/S Expedition
RIVE	559	+177	KI6RRN S/O @WA6TQT
PLAC	348	+147	WX6V S/O CW + W6EK M/M PH Expedition
STAN	377	+132	N6DE S/O remote to N6EE home station over Remote Ham Radio
SMAT	364	+115	S/O from home stations: K0DTJ CW + K6KLY & K6TU PH
NAPA	329	+112	CW activity by AI6QZ S/O CW Expedition + KE6ZSN S/O PH higher score
MARP	246	+111	N6TCE concentrated M/M Expedition just in MARP
MERC	315	+108	KU6W M/M Sunday Expedition
ELDO	509	+108	5 strong S/O home stations on CW & PH
BUTT	242	+107	KF6NCX M/S at home, mostly CW
GLEN	159	+103	N6GK (KD6WKY) S/O Expedition

Expeditions were vital to improved county coverage, but notice that home stations also played a very important role.

5. How many CA stations got a county sweep of all 58 states & Canadian mults in CQP 2019, and how did it compare with past years?

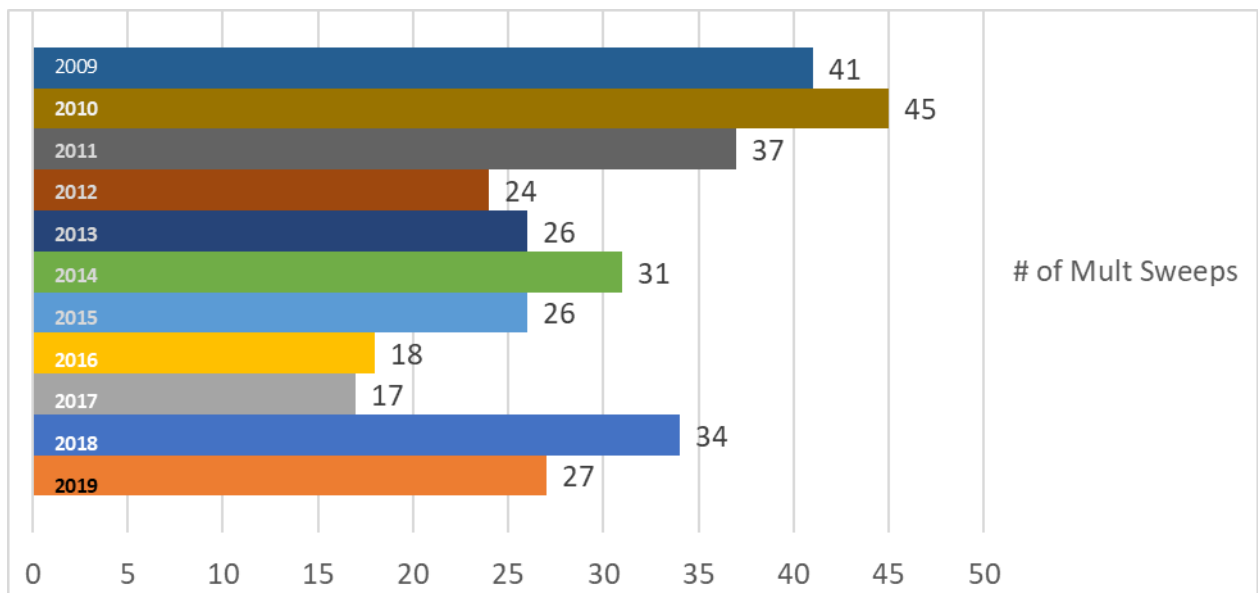


Figure 4. CQP 2009-2019: # of state/VE mult sweeps by CA stations

Sweeps are up from the low mark in 2017, but not quite to the levels seen ten years ago. There were 19 CA stations in CQP 2019 that had 57 mults.

6. Which states and Canadian multipliers were the rarest in CQP 2019?

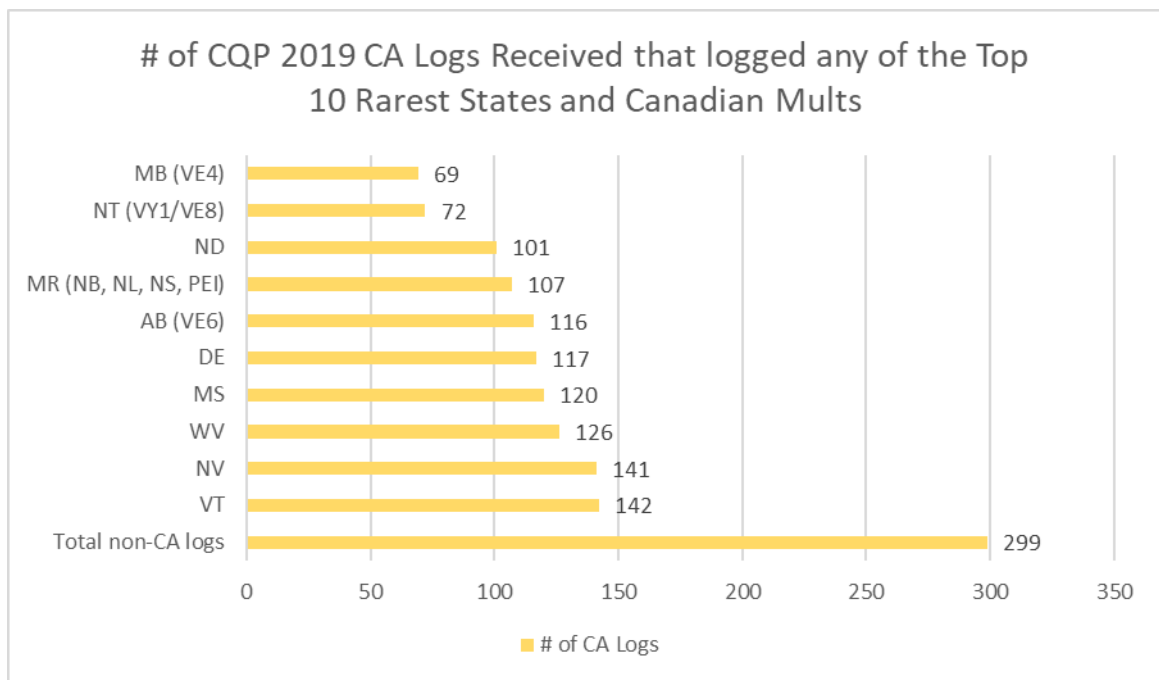


Figure 5. CQP 2019: Top 10 rarest states and Canadian multipliers in all CA logs

Manitoba and Northern Territories led the list. It's interesting to note that Canadian mults were four out of the top five rarest in 2019. We got lucky in CQP 2019 when W1VE was able to unexpectedly operate VY1JA's station remotely. In 2020, VY1/VE8 might be much more difficult to contact.

Additional Observations

1. Over the years, rare county coverage has fallen into five categories:
 - Expedition stations that have activated the same county for at least the last two years in a row. From CQP 2019, these are 20 expeditions spread across 16 counties in the state.
 - Expeditions that try a different county each year. We also had several new expeditions in 2019.
 - One home station in that seriously activates the rare county and saves our expeditions from having to travel there. This was the case in CQP 2019 for about 15 counties. One great example is Bill N6ZFO in Lake County.
 - Modest home stations from operators who are not serious contesters, activating their county as best they can.
 - Mobile stations: K6AQL/M
2. Last year, we were successful in expanding this coverage into two more categories:
 - Remotely operating from a rare county. I operated N6EE's station in Stanislaus County remotely from my house.
 - Strengthening a home station with a guest operator. A great example of this from CQP 2019 was David WD6T (ex: K6DAJ) who joined W6MY in a M/S from W6MY's station in Sierra County. They made over 1,500 QSOs.
3. Keys for rare county coverage in CQP 2020: supporting people who are already in one of these seven categories fulfill their goals, helping operators be successful who want to do something different this year, and providing guidance to new faces who we can inspire to join one of these categories for the first time.
4. Counting on just one home station to save a county every year is risky. For example, last year a home station signed up to participate from a rare county, but wasn't able to participate at the last minute. That county skyrocketed near the top of the Top 10 most missed counties.
5. Home stations in common counties are extremely important to CQP success, but in a different way than rare county activation. I'll cover this in a future JUG article about participation trends.

Rule Change Recommendation

Of the 43 expedition stations in CQP 2019, a large majority of them were affiliated with a club. We need to encourage club members to continue going on county expeditions. Clubs and club [Page 12](#)

members often have functional equipment sitting idle during CQP. We need to reward clubs for making expedition equipment available to its members. We should also provide an incentive for clubs to reach out to last year's expedition participants who weren't club members, add them as members and help mentor them before CQP 2020. Finally, improved coverage of multipliers outside of California is needed too. Clubs might be the most motivated to help cover those states and VE mults.

I propose the following rules changes to the club rules for CQP 2020:

1. An expedition that makes at least 100 QSOs in any of the Top 10 rarest counties of CQP 2019, or to any of 25 other counties that were only covered by expeditions or were one station away from being on this Top 10 list: 100,000 bonus points for their club. List of these counties posted on cqp.org.
2. An expedition that makes at least 100 QSOs from any county not covered by #1: 50,000 bonus points for their club.
3. Any operation (does not have to be an expedition) that makes at least 100 QSOs from any of the Top 10 rarest states or Canadian multipliers: 100,000 bonus points for their club.
4. Mobile stations, MCE (Multi-County Expedition), county-line stations and remotely operated stations are also eligible to participate.
5. A club can claim a maximum of 500,000 bonus points. CA clubs and non-CA clubs are eligible for these bonus points.
6. Bonus points are per multiplier, not per callsign. Examples:
 - a. A club cannot have five expeditions to Trinity County and claim 500,000 bonus points. This would be a 100,000 point bonus.
 - b. A club can mount an expedition to Sutter County, have another club member rent and operate from the VY2TT lodge in Prince Edward Island, and gain 200,000 bonus points if each station makes at least 100 QSOs.
 - c. A mobile station that makes at least 100 QSOs in each of five different counties in #1 would contribute 500,000 bonus points to its club.
 - d. A county line expedition from GLEN/MEND making over 100 QSOs would contribute 200,000 bonus points to its club.
 - e. An MCE operation from Butte County on Saturday and Lassen County on Sunday, with at least 100 QSOs in each county, would contribute 200,000 bonus points to its club.
7. Bonus points are only added to club totals; individual station scores are unaffected. Bonus points are allocated to clubs in the same way as individual scores: in the case of a Multi-Op expedition where different operators are members of different clubs, the operators may elect to allocate bonus points proportionately across the different clubs.

I look forward to hearing any comments you have.

NCCC Annual KB Competition Rules 2020

Gary, NA6O – NCCC Awards Manager



Current rules and standings are always available at <http://nccc.cc/awards.html>.

Purpose: To provide a means of rewarding NCCC members who are DX contesters, sprinters, VHFers, and especially active contesters in all modes.

Time period: The contest year starts at 0000 March 1 UTC. ARRL DX SSB is the first contest of the year. NAQP RTTY is the last.

Eligible contests: Currently, points from 29 contests are counted. See the table on the next page

Scoring: Score = N_Contests * sum of (points for each contest * each contest's multiplier).

Where N_Contests is the number of contests in which you participated.

NCCC weekly sprints are special. Points for the entire year are added up, but it is only counted as a single contest.

Multi-ops: Points = total score divided by the number of operators.

Station owners: A station owner who *does not participate* in a particular contest receives 25% of the points.

Valid scores: Only scores posted to 3830scores.com are counted. Scores obtained by use of High Power in the 6 NAQP competitions and the NS CW/NS CW Ladder series will not be counted for the KB competition, either as scores or as contest multipliers. Scores are counted regardless of which club received the contest points (NCCC, MLDXCC, REDXA, PL259, etc.). The only requirement is that you **MUST** be an NCCC member to receive credit for the contest, and to be eligible for an award.

Brackets: There are four independent brackets for the purpose of awards: 1-Platinum, 2-Gold, 3-Silver, and 4-Bronze. Brackets are assigned at the beginning of the contest year according to your final position in the previous year's standings.

Awards: Paid NCCC members may receive awards.

How to Improve Your Standing

- Post all your scores on 3830. Those are the only ones that count.
- Participate! Even the smallest score has value. Every contest on the list is a multiplier.
- Try a new mode or a new band (VHF, 10, 160).
- Try the sprints. Small score, big multiplier.
- Go for a big score in WPX: Exponential score growth and a big multiplier.
- Join a multi-op: The score is split among ops.
- Let someone else use your station: You get 25%.

Comments are welcome, as always. I log and track every comment and suggestion and try to improve the KB Competition each year. The one thing I can guarantee is that each year will be different!

NCCC Annual KB Competition Table—2020/21

Contest	Month	Mult
ARRL DX Contest SSB	March 7	10
CQ WPX SSB	March 28	2
7QP	May 2	20
NEQP	May 2	150
CQ WPX CW	May 30	1
ARRL June VHF	June 13	500
RAC Canada Day	July 1	15
IARU HF World Championships	July 11	10
NAQP Summer RTTY	July 18	25
NAQP Summer CW	August 1	25
NAQP Summer SSB	August 16	25
NA Sprint Fall CW	September 13	150
CQWW RTTY	September 26	5
CQP	October 3	10
Makrothen RTTY Contest	October 10	1
CQWW SSB	October 24	6
ARRL Sweepstakes CW	November 7	15
ARRL Sweepstakes SSB	November 16	15
CQWW CW	November 21	3
ARRL 160 Meter Contest	December 4	30
ARRL 10 Meter Contest	December 12	100
ARRL RTTY Roundup	January 2	50
NAQP Winter CW	January 9	25
NAQP Winter SSB	January 16	25
NA Sprint Winter CW	February 7	150
CQ WPX RTTY	February 13	2
ARRL DX Contest CW	February 20	4
NAQP Winter RTTY	February 27	25
NCCC Sprint CW	Weekly	50

KB Award Brackets There are four independent brackets for the purpose of issuing awards: 1- Platinum, 2- Gold, 3- Silver, and 4-Bronze. Your bracket is assigned automatically at the beginning of the contest year according to your final position in the previous year's standings. New members or those who have never posted a score to 3830 default to the Bronze level. Results from last year are pending. Bracket assignments for 2020 will be ready soon.



Synopsis of The February 22, 2020 NCCC Meeting: Dan Werthimer, SETI, “Is Anyone Out There? Berkeley’s Search for ET”

Prepared by David Jaffee, WD6T

At the February NCCC meeting, Dan Werthimer of the University of California, Berkeley presented "Is Anyone Out There?, Berkeley's Search for ET." Dan is a radio astronomer who has spent the last forty years developing hardware, software and algorithms to search for signs of life beyond Earth. The following is a synopsis of his presentation.

Drake's Equation gives a theoretical idea of the number of communicating civilizations in our galaxy and contains a number of terms, beginning with the number of Earth-like planets, and proceeding to the number of these that has the building blocks of life, then the number of those on which life actually emerges, then the number of those for which the life is intelligent, and then the number of those that develop technology capable of long range communication. The final term in the equation is the longevity of technological civilizations; will they last billions of years or, within a short time, destroy themselves and their planet?

There are clearly enough stars in the galaxy, but are there planets? 30 years ago, this was unknown, but since then, a large number of planets have been found using several techniques. One method, used to find the first exoplanets in the 1990s, involved observing the slight periodic wobble of the position of stars (due to gravity of the planets). A more recent technique uses space-based telescopes and optical cameras to observe slight variations in a star's brightness as a planet traverses in front. A large number of planets have thus been identified and extrapolating, it is assumed that there are more planets than stars in our galaxy. Of these planets, about half of them are neither too hot, nor too cold, i.e. "Goldilocks" planets. The next question is to estimate how easy it is for life to emerge out of the primordial soup. In a laboratory, scientists have created amino acids and proteins using the basic chemicals that were present in the early Earth, subjected to electric shock to simulate lightning. However, there is still a gap between this and creating a living organism. Fortunately, life seems to have emerged on Earth as soon as conditions were right, suggesting that it is fairly likely to occur.

One place to look for life is in our own solar system. Europa, a moon of Jupiter, has been shown to be covered with water beneath a thick ice shell. Scientists are trying to determine an efficient way to penetrate the ice and sample the water to see if it contains living organisms. Enceladus, a moon of Saturn, has a similar structure but also seems to have some vents where water is spraying out into space. It might be possible to do a fly-by and capture some of this water. If we find life that matches ours, it may not be so interesting, as bits of rock travel around the solar system and life could have hitched a ride one way or the other. More interesting would be find life that is significantly different from life on earth.

SETI (the search for extra-terrestrial life) can take a variety of forms. We can transmit ("METI" - - message to extra-terrestrial intelligence) in the form of intentionally sending a message into space, or we can receive and search for patterns in the noise. Dan, and most researchers, feel that SETI is a better approach than METI. One reason, as stated by Ray Norris in 2002, is that any civilization we encounter is likely to be a billion years ahead of us, and there is no guarantee they will be friendly.

METI predates radio and was first suggested by Gauss in 1820. He suggested creating a giant geometric

proof of the Pythagorean theorem using squares and triangles of forest, crops, and dirt. Charles Cros suggested in 1869 that the sun's rays could be reflected with a mirror to Mars in a pattern representing the Big

Dipper. Neither of these proposals was ever realized. Finally, in the 1970s, the Voyager spacecraft was launched containing a plaque that described our position in the solar system and contained pictures of a naked man and woman... porn in space! In addition, we have also been unintentionally telegraphing our presence via radio, TV and radar. Between 1940 and 1970 the mean daily television transmission in watts increased by four orders of magnitude.

Radio SETI dates back to the early days of radio. Both Nikola Tesla and Guglielmo Marconi thought they were hearing signals from beyond earth. These were later determined to be "whistlers", very low frequency electromagnetic waves generated by lightning, so named because their frequency descends. The descending frequency is a result of dispersion due to the slower velocity of the lower frequencies through plasma in the ionosphere and magnetosphere.

The first search for a radio signal from space was Project Ozma by Frank Drake (of the Drake Equation) in 1960. He listened on one channel: 1420-1420.4 MHz. Since that time, the Berkeley SETI group has expanded the number of channels, doubling every 20 months between 1979 and the present, increasing from 100 channels to 100 billion channels. Since we have no idea what kind of signal we are looking for, the search looks at channels as narrow as a fraction of a Hz. and as wide as many MHz. For the wide-band signals, Dan and his group have developed several generations of special hardware, using FPGAs, to do signal processing on large swaths of the EM spectrum from 20 MHz. to many GHz, using data from such large telescopes as the one in Arecibo, Puerto Rico. For the narrow band search, they developed a platform called "SETI@Home" that distributes the data to home PCs around the world for processing. Users who choose to participate download special software that runs as a screensaver when the computer is not otherwise in use. The software receives a piece of data and performs analysis, reporting the results back to the server. There are currently over eight million SETI@Home participants, using 1000 years of compute time per day and performing 10,000 Tera-flops of computing. The entire system represents the world's biggest super-computer.

While ET has not yet been found, several spin-offs from the SETI research are significant. The SETI@Home platform has been generalized as the Berkeley Open Infrastructure for Network Computing and used for diverse widely distributed applications in astronomy, earth science, biology, medicine and physics. Such citizen science projects show great promise in harnessing the vast power of GPUs on home PCs to solve complex problems. In addition, hardware derived from the instrumentation developed for SETI was used to produce the first image of a black hole, to detect fast radio bursts, identify pulsars, discover a planet made entirely of diamond. and do brain wave sensing.

The future of radio SETI includes even larger single telescopes, as well as composite telescopes made of many antennas. Radio telescope sensitivity has doubled every 3.6 years and compute power has increased exponentially and continues to do so. While the cost of steel has remained constant, the cost of electronics has plummeted and inexpensive receivers are available that can be used in vast arrays, such as the HERA array, consisting of 353 14-meter dishes. Meanwhile, optical SETI plans include using a geodesic dome with many optical telescopes to tile the entire observable sky and search for light signals from space. Other more speculative ideas include using the sun as a gravitational lens. Placing a camera near Pluto would allow resolution of 10 meters on an extrasolar planet.

We are still at the beginning of the search, but eventually we will find out whether or not we are alone, and the answer will be profound either way. Dan left us with several haikus sent in by users of SETI@Home. One, sent in by Paula Cook of Duke University, read as follows: "Searching for life, answers are revealed about ourselves."

For more information, or to participate in the citizen science project SETI@Home, please visit <http://seti.berkeley.edu> A link to SETI@Home is also on the NCCC web site at <http://nccc.cc/resources.html> .

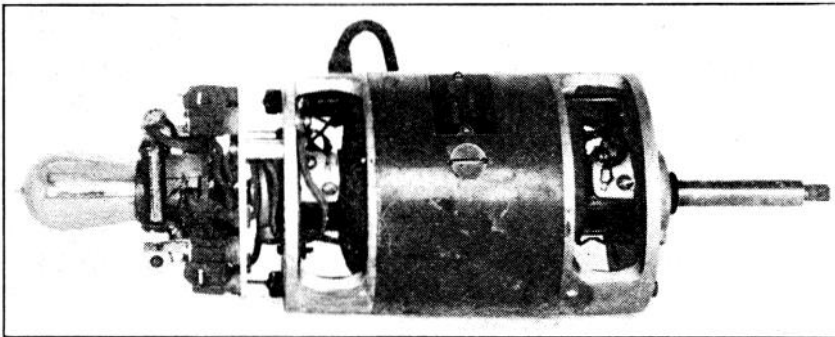
Tube Of The Month Norm, N6JV

TB-1

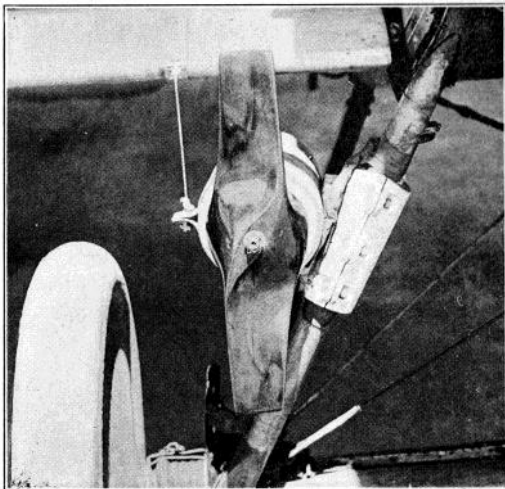


Of the handful of original tubes made for the U.S. Army in World War I, one was a regulator tube. Today it isn't unusual to find them still in the original box from 1918. This was probably because they made more than they needed as the equipment wasn't that effective. The Army Signal Corps decided that they could use the new AM mode and not teach their airmen the Morse code.

The transmitters of that day were self-excited oscillators. Any instability in filament or plate voltage would make the oscillator drift wildly. Batteries would be too heavy to deliver the 250 DC volts for the oscillator and modulator tubes, so a two winding generator was designed. One winding generated the high voltage that would be regulated by the TB-1. The second winding produced a low voltage to light all the filaments. The generator had the three pin TB-1 mounted on the rear end and a small propeller or "airfan" mounted on the front.



If the plane was flown too slowly, the generator wouldn't make enough voltage and if flown too fast the voltage would be too high and possibly smoke the regulator. They found that 4000 to 14000 r.p.m. would work correctly. That r.p.m. translated into air speed was 50 to 200 miles per hour.



The generator assembly was mounted on one of the landing struts. The photos were taken by the Signal Corps in about 1918.

Visit the museum at N6JV.com

Norm N6JV



NCCC Membership Information

If you wish to join NCCC, you must fill out an [application for membership](#), which will be read and voted upon at the next monthly meeting.

To join, you must reside within [club territory](#) which is defined as the maximum of:

- Northern California, anything north of the Tehachapi's up to the Oregon border, and
- A part of north-western Nevada (anything within our ARRL 175-mile radius circle centered at 10 miles North of Auburn on Highway 49).
- Life Memberships.— \$250.-00 Contact . secretary.nccc@gmail.com. The 80/20 Rule: Members who have reached 80 years young and been a NCCC Member for 20 years are eligible for Honorary life membership. Contact secretary.nccc@gmail.com

JUG Articles Wanted!

Without your help we cannot reproduce a quality newsletter so please consider submitting a suitable article!

We welcome any and all relevant articles for inclusion in the JUG.

The soft deadline is 7 days before month end. The preferred format is MS Word, Arial 12 point. Pictures should be full resolution. Send your material to Bill, N6ZFO at n6zfo@arrl.net . Don't worry about the formatting, we can take care of that if necessary! For pictures: Include them in-line with the text, OR identify them by file name at the insertion point.

Northern California Contest Club Reflector—Guidelines

This reflector is devoted to the discussion of contesting.

This includes contests, station building, dxpeditions, technical questions, contesting questions, amateur radio equipment wants/sales, score posting, amateur radio meetings/conventions, and membership achievements.

This does not include personal attacks, politics, or off-subject posts which will be considered a violation of the Guidelines.

Violations may result in removal of the violator from the reflector and possibly from club membership in good standing.



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