

# SCCARA-GRAM

WGUV .....VOLUME 6 NUMBER 1...WGUV  
SANTA CLARA COUNTY AMATEUR RADIO ASSOCIATION  
\*\*\*\*ORGANIZED IN 1921 SAN JOSE, CALIFORNIA\*\*\*\*

FROM THE PREZ

(CONTINUED FROM PREVIOUS COLUMN)



Hopefully everyone who had visions of a TS940, FT757GX or what have you found their stockings so stuffed on Christmas morning. A New piece of equipment is a real thrill, and usully starts a move to upgrade all other peripherals. Watch this newsletter! Eric Homa, N6NMZ regularly writes a section devoted to new equipment, and our own member responses show they are getting the most out of it. We're also going to have user friendly advertisements from our vendors, not to mention program announcements.

1987 should be a banner year for SCCARA. We have progressed a far piece since this time last year. We have overcome many problems of meeting place, newsletter, repeater and should be able to produce a polished convention repeat in 1987. Our finances are in order with the new dues structure, and, if the convention is repeated successfully, we'll be on top of the world! We could have that "all-band emergency/field day trailer" we've talked about, and/or the rest of the bells and whistles for our repeater system. Let's talk about it at the January meeting.

Novice classes will start in February. General code class continues on every Wednesday evening at 1900 at the County Service Center, Bldg. 2, 1555 Berger Drive, San Jose. Classes are taught by "JD" (Dog-bone) Daddysman, K6YKG. We do need an instructor or two, if we are going to teach technician and advanced theory. We also could use someone to better organize our educational efforts. HOW WOULD YOU LIKE THE JOB?

Our repeater committee continues to  
(CONTINUED NEXT COLUMN)

be very active. we should soon have their final recommendations for the equipment needed to have a better functioning system.

The Christmas party at the Moffett Field CPO Club was its usual pleasant affair, thanks to the efforts of many people, but particularly Joan Hastings and Bonnie Russel who decorated beautifully, and to Merrill Card who made the arrangements. This will be our last affair there unless we change to a different day, so throughout the year be on the lookout for a suitable place.

Please join or renew your ARRL membership when paying your SCCARA dues. We must have over 50% ARRL participation to remain an ARRL affiliated club...and have the convention. Remember SCCARA receives a commission if you pay your ARRL dues through our treasurer.

Next meeting January 12. See VP Allen Levin Column.

Directors' meeting will be at San Jose Hospital on January 15th at 1930.

With your continued support in '87 as in '86 we can expect a great year.

Happy New Year de WD6 chile hot dog, your president.

SCCARA 1987 DUES PAYMENT COUPON	
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Addr.....	
City.....ZIP.....	
Call.....Class.....ARRL.Yes/No	
Telephone.(.....)	

OUR VP SEZ

Hello, I am N6NOY your newly elected replacement for KG6PY as Vice-president, and I hope that I can do as well in bringing you interesting meetings.

At the January meeting Ron Dasilva, NV6F will speak on a QRP rig that he built and takes backpacking. He has been doing the John Muir trail each year, and he has had some experiences using the radio which should be fun to hear about. I found myself asking questions and getting very excited about the possibility of building such a radio while we spoke over the phone.

Please contact me with any good ideas for future meetings. For you older SCCARA members please be patient, some of us newer hams may be interested in subjects that you are quite familiar with.

The February meeting program will be on antennas.

By the way, Doug DeMaw's notebook on QRP is excellent.

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(CONTINUED FROM PREVIOUS COLUMN)

We have received two 1987 ARRL handbooks for January raffle prizes from Shaver Radio by way of Shorty. Please thank Shaver Radio if you get a chance. They also have a pretty good selection of used equipment.

73's de Allen Levin, N6NOY

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Advertising in SCCARA-GRAM is available at \$20.00 per half-page. Photo-ready copy and check must be delivered to the editor no later than the fourth Wednesday of the month preceding the month to publish. Right is retained to reject any submittal deemed unsuitable by the editor.

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All members are urged to renew their membership in or join ARRL. The league has its faults, but it is ham radio's most staunch defender. Your name added to the membership roll will assist in league efforts towards establishing a greater ham radio. Please be sure that you join through the club so the club gets its commission.

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CQ YL de W06X



Hello again and best wishes for the new year. By the time that you read this the holidays will be over and you will be trying to keep your new year's resolutions. I won't be for I never make promises to myself that I cannot keep.

BAYLARC held its annual Christmas luncheon on December 13. The luncheon was hosted by former president WA6LIZ. About 25 members attended, and messages were read from members unable to attend. It was also the birthday of Esther, W6BDE. Celebration of her birthday consisted of singing songs commemorating her career in amateur radio followed by a huge birthday cake.

SCCARA member, Frances, KB6JBQ has joined BAYLARC.

Caroline Lambert is now KB6OQX. She should replace this call with her extra call any time now.

About all I have for this month.

73 and 33, Carla

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### THE EQUIPMENT COLUMN

by Eric, N6NMZ

Happy New Year everyone!

I hope that you had a nice holiday season. Did everyone get the new ham radio equipment that they wanted for Christmas? Let me know what you got.

My discussion of coaxial cable has been postponed to next month. Please be sure to read the reprint from "73" elsewhere in this issue. It gives a very broad and complete discussion of the 2-meter band.

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### Editor's Comments.

One of the most appreciated, by me, accomplishments of SCCARA in 1986 was the repeater committee. My 1986 hero badge goes to the members.

I am endeavoring to keep the cost of publishing the SCCARA-GRAM as low as possible to make more funds available for other club activities.

\$\$\$HAPPY NEW YEAR\$\$\$

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### TREASURER'S REPORT

By Dan, WM6M



1986 was quite a year for our club. We had many fun activities, and, if you missed any of them, you should make a New Year's

resolution to attend as many 1987 SCCARA functions as you possibly can. We will be publishing a meeting calendar in a future SCCARA-GRAM with dates of our traditional activities, such as field day, old-timer's night, Christmas dinner, etc. We know that there will be at least one picnic meeting this year. We sure had a good time at the last one! Don't miss the next one.

Here are some reminders and resolutions: PAY YOUR DUES NOW; get on the air more often; attend more club functions; contribute something to the SCCARA-GRAM; bring a friend to a club meeting; persuade a friend to join the club; use our repeaters.

Wally, KA6YMD; Roy, K6VIP; and I just put the wraps on another novice class with 9 people passing. The next novice session is to begin on the first Tuesday evening of February.

Let's welcome Elliott Anderson, Irvin Sullivan, Bill Gleim, plus Hal and Doris Federwisch as new members.

Remember on ARRL that if you pay your dues or join through SCCARA the club will get a rebate from the league. You can send your payment directly to headquarters or pay it to me. If you send your dues to Newington BE SURE TO PUT OUR CLUB I. D.: #1802 ON YOUR FORM.

Here's hoping we have an exceptional year in 1987

73 de Dan, WM6M

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Editor's note: this month I had to delete most of my personal comments as I was surprised by some late-arriving material. Send in your material as early as possible. I try to strike a balance by keeping duplication to a minimum and keeping copy density per page as dense as possible. Get your copy in early, if you possibly can.

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PACIFIC DIVISION  
DIRECTOR'S REPORT  
de Rod Stafford, KB6ZV



The 220 Mhz band may be once again under attack. On November 25, there was a regular meeting of the Inter-department Radio Advisory Committee (IRAC). IRAC is the group that advises the National Telecommunications and Information Administration of the Dept. of Commerce, on spectrum planning and allocations matters involving Federal communications services and frequency bands assigned exclusively to the government or shared by the government and the private sector. The 220 band is one of those bands. A draft Notice of Proposed Rule Making was brought up which restructures 216-225 Mhz. Amateurs would retain 222 to 225 Mhz but the draft proposal would make 216 to 222 Mhz available for some experimental operation, most probably by the Land Mobile Service. The matter will come up again but it was tabled for the time being. We have been fighting off the attacks on 220 Mhz for several years now with good success. Hopefully, our efforts will continue to be successful in this regard.

Listed below are the totals for ARRL membership within each of the seven sections within the Pacific Division:

East Bay	1,530
Nevada	626
Pacific	595
Sacramento Vly	1,513
San Francisco	997
San Joaquin Vly	1,292
Santa Clara Vly	2,572

The Director for the England Division recently did a study of membership in the various states that lends credence to the proposition that the farther away from the national headquarters you go, the lower the percentage of ARRL membership. The ten states with the highest percentages for ARRL membership are all in the New England and Mid-Atlantic areas. The percentages in these states run from 36% up to about 42% for the state of Connecticut. Where does the Pacific

Division stand in all this? Well, California and Nevada both have 30.6% (37th and 38th place) while Hawaii has 27% (49th place).

A Special Events Communications Manual is on its way! Rick Palm has spent a lot of time editing contributions from the field for the new manual. Probable chapters include: Working with Event Sponsors and Public Safety Officials, Working with Volunteers, 'Is It Legal?', Public Displays and Demonstrations, Marathons Walkathons and Parade Communications, Do's and Don'ts, etc. The booklet will also include appropriate reprints from QST on public events communications.

There seems to be some misunderstanding about the ARRL Registered Instructor program. If you are involved in teaching amateur radio classes, be sure to send a letter to ARRL Headquarters (Attn: John Foss) and let them know. Any potential amateur who is looking for a ham class in your area (quite a few inquiries) will be given your name as a contact. It costs nothing to be a registered instructor! There is also another aspect to the ARRL Instructor program which is the purchase of instructional material at a discount. If you want to purchase such materials at a discount, you do have to pay \$20. and furnish ARRL HQ with a resale permit number. For the \$20. you will get over \$40. worth of books including all the license manuals, the FCC Rule Book, the Instructor's Guides (course outlines) and a copy of Tune in the World. Once registered, you can purchase the instructional materials at a discount ranging from 25 to 50% depending on the amounts purchased.

Upcoming divisional meetings and club visits: Lake Co. RC (Feb.1), Amador Co. ARC (Feb.6), Eureka (Feb. 8) and a special East Bay meeting on February 14 sponsored by CCRC at the Contra Costa Co. Water District Offices in Concord. This meeting will be a special report on the January 87 ARRL Board of Director's Meeting of Jan. 16/17.

(12-20-86)

## THE 2-METER BAND

Moving up the dial, switch your attention to the 144 MHz band or 2-meter band, as it is more commonly called. This is the most densely populated amateur allocation in the entire world, largely due to the phenomenal popularity of FM and repeater operation. It's also the band on which the OSCAR Mode B downlink frequencies are located. In North America, South America and Japan, the 2-meter allocation runs from 144-148 MHz, while in Europe it's limited to 144-145 MHz.

Normal propagation is considered to be line of sight on this band, and with gain antennas and some power, the average distance worked is 50-100 miles. Most of the activity on 2-meters consists of FM repeater operation, with SSB/CW operators usually found around 144.100-144.200 MHz. Packet operators have carved out frequencies near 145.000 MHz for their simplex operations. Moonbounce types frequent the area below 144.050, and the OSCAR downlinks are in the range near 145.800 MHz. More equipment is sold for this amateur band than for any other in the world, as well.

Enhanced propagation on 144 MHz comes in many forms: First and most commonly encountered is tropospheric propagation, or tropo for shorthand. This Phenomenon occurs when temperature inversions are present -- that is, for a given increase in altitude, the air temperature actually increases instead of decreases. When this happens layers of warm air are often sandwiched between layers of cold air and a duct is formed along the boundaries, carrying signals along much like a wave guide. Users of repeaters are very familiar with this condition in the late summer and early fall, usually in the morning hours.

Strong storm systems in the area can induce tropo, with the intensity of the ducting effect proportional to the areas of the cold and warm air masses as they overlap. Tropo ducts also form at higher altitudes, and stations below the duct are often unaware of the activity inside the

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duct. In this country most tropo occurs along the coastal regions -- mainly the Atlantic Coast and the Gulf of Mexico and the Pacific Coast to a lesser degree. The path from Hawaii to Southern California has been worked many times on 144 MHz via tropo.

A form of propagation that can show up at any time on 2-meters (and on 6-meters, as well) is aurora, which is related to sunspot activity. During auroral propagation, signals are reflected off the auroral curtain and received 800-1000 miles away, depending on the intensity of the aurora. This type of propagation occurs more frequently at higher latitudes, with stations in the Northeast, Upper Midwest, and Canada able to take best advantage of it most of the time. When aurora is very intense, stations from the southern United States will often be heard off the curtain.

Still another form of enhancement is Es, which occurs much the same way as it does on 50 MHz but far less often. Usually strong storm cells over the Midwest and Southwest provide the best conditions for long-haul DX, observed mainly during the months of June and July. You can often detect sporadic-E by listening to FM broadcast stations or watching channels 7-13 for interfering stations outside the normal coverage area. The higher the channel it's observed on the more intense the Es. A rule of thumb is to watch Es on 6-meters, and when it becomes quite short -- 200 to 300 miles -- move to 2!

Just as on 6-meters, you can work meteor scatter with patience and determination. It's more fruitful to pick a major shower to do it, though, as the pings from everyday meteorite trails are harder to detect than on 10 and 6 meters. Good high-gain antennas and schedules are a must as well as a fair amount of power to make it worthwhile. And as I mentioned earlier, moonbounce operation or EME (Earth-Moon-Earth) is very popular on 2-meters. Stations here usually run large four-bay or larger antenna arrays with legal limit ampli-

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fiers to overcome the 200 dB+ path loss from here to the moon. Low-noise GaAsFET preamplifiers find favor in this application.

There is a bewildering array of equipment for 2-meters currently available! At least eight Japanese and one U.S. manufacturer have FM handi-talkies available for the band, not to mention mobile FM radios. In addition there is a preponderance of 2-meter multimode radios for both base station and car, as well as the world's only multimode handie-talkie (Santec LS-202). Three companies in Europe have gone the other route and manufacture transverters for the band, so as to employ HF multimode transceivers as i-f frequency TX/RX sources, most often in the 10-meter band. Examples of these would include the popular Microwave Modules' MMT series, as well as Mutek and SSB Electronics.

There's a plethora of antennas to choose from as well -- KLM, Cushcraft, Jaybeam, CueDee, Hy-Gain and Tonna to name a few. Most users of FM employ vertically polarized antennas, such as ground planes and J-poles, while SSB/CW users employ horizontally polarized yagis, with as many as 19 or 20 elements. This is often why newcomers to weak-signal work can't hear any activity, as they are still using their vertical arrays!

There are many manufacturers of amplifiers for 144 MHz as well, with Mirage, TET, Alinco, THP, and Microwave Modules being among the more popular solid-state models. Henry Radio manufactures several versions of a 2-meter amplifier using 3CX800 and 8877 tubes, which find use largely with the moonbounce set and weak-signal enthusiasts.

As far as the OSCAR users are concerned, multimode transceivers for 432 MHz and 144 MHz or transverters are the order of the day, with "twist" polarization (antennas using horizontal and vertical elements) yagis and 100-Watt amplifiers.

Two meters is a perfect example of what happens when amateurs take to a certain band and populate it. The a-

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mount of equipment available goes up in direct proportion! It's probably the most secure allocation we have above the HF bands, directly due to the activity. Unfortunately, the same cannot be said for the next band, 220 MHz, which has long been the step-child of our VHF allocations. In fact, you can consider the 220 MHz band to be a UHF allocation in the scheme of things, lying above TV channel 13 at 220-225 MHz.

(Printed with permission of Peter H. Putnam and "73")

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#### EDITOR'S NOTE:

The antenna system drawing on page 7 by JD (dog-bones) Daddysman, K6YKG is published because it shows resourcefulness. I would not recommend risking stealing the dog's bone (especially the neighbor's dog's) as there are other suitable materials. The use of a nylon strongback is an approach that many of you could use to advantage.

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#### TO ALL MEMBERS:

Joe Quirantes, WA6DXP says that he can now supply SCCARA badges complete with logo for \$3.00 each. Call him on 371 0959.

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LOST SCCARA's CORPORATE SEAL  
Any leads? -- call ED 264-2988

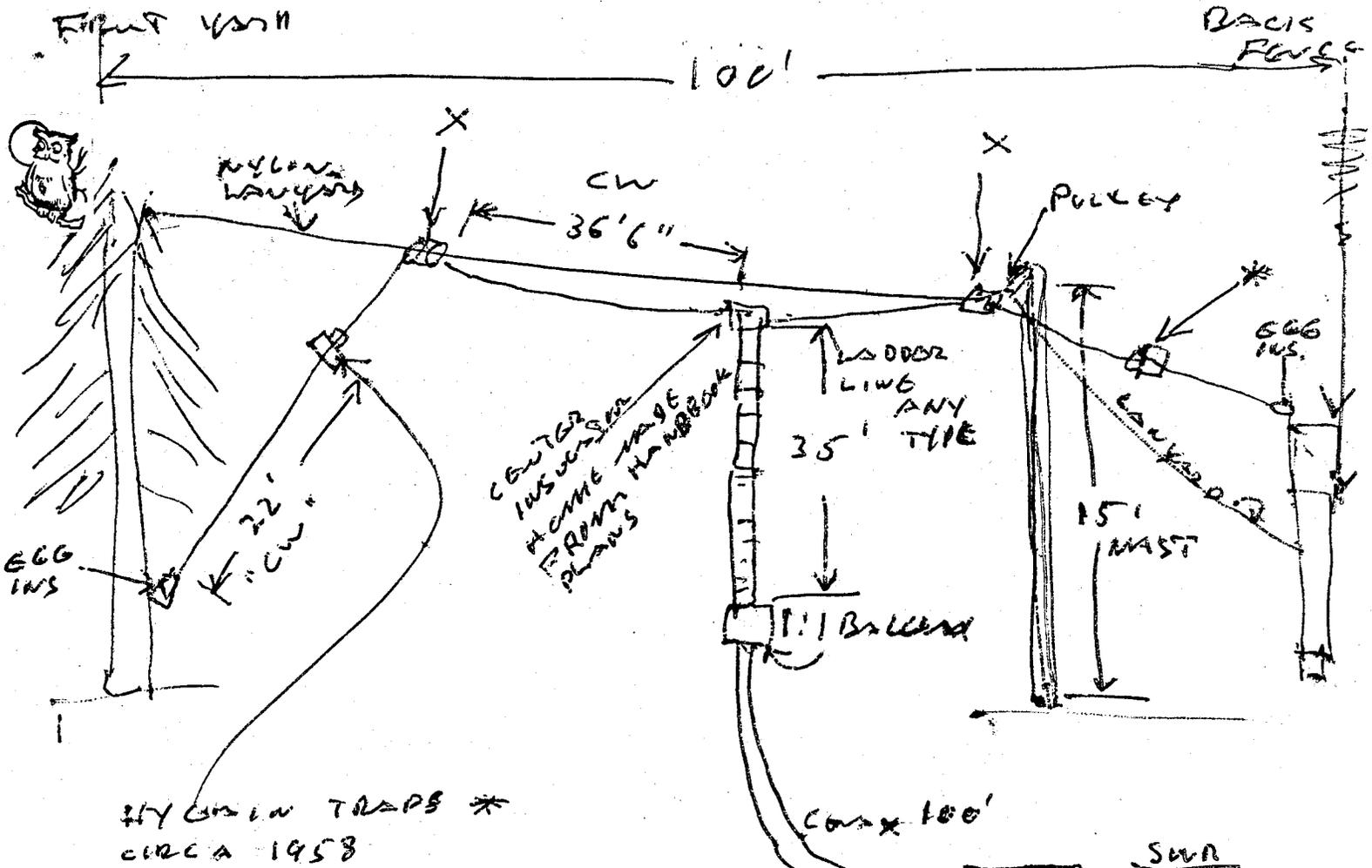
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#### FOR SALE

Transceiver, FFSB, 10, 15, 20, 40, 80 meter bands, digital readout. Kenwood Model TS-820-S with MC50 Mike, headphones, speaker, key and manual. From estate of K6SJ. Price \$450.00 firm. Phone ED, WD6CHD, 264 2988

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#14 HOUSE WIRE COVERED PLASTIC  
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"DOG BONE" WEATHERED ON BACK YARD, CLEANED BY DOG AND

"WHILE CHANGING ANT SYSTEM EYE HAD A  
"SLIP JOINT" INSULATOR AT POINT "X" EYE DIDNT WANT  
TO SPEND MY MONEY ON INSULATORS SO EYE STUMBLED  
ON A "DOG BONE" IN THE YARD SO THAT'S MY  
"SLIP JOINT" INSULATOR

J-D K6YKQ

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Club Repeater: 146.985 in/146.385 out--447.425 in/442.425 out - a  
 simultaneously keyed open repeater. Net meets Monday night at 1930 PT  
 except on regular meeting nights.

Regular meetings are held on the second Monday of each month at 1930 PT.  
 Meeting place is COUNTY SERVICE CENTER, 1555 Berger Drive, Bldg. #2.  
 Visitors are welcome to attend.

Permission to reprint articles is hereby granted provided source is  
 credited.

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