SCCARA-GRAM

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SANTA CLARA COUNTY AMATEUR RADIO ASSOCIATION
AN ARRL AFFILIATED CLUB-----ESTABLISHED 1921
REPEATER CALL: W6UU-----SECONDARY CALL: W6UW

OUR PREZ SEZ

No matter where you travel to, it's wonderful to get home to your own bed and things you are used to. We returned home from Fiji, Australia and New Zealand the day before (?) the April 25th breakfast. The question mark is because we left Friday and got home Thursday! True! You cross the International Date Line and pick up the day you lost the other way.

Talking about breakfast, Les Girls from SCCARA really made their mark high on the wall of achievement. The best hotel or reastaurant in town never put on a better meal. V. P. Allen followed with programs on propagation and radiation by Van Brollini, **NS6N** and Frank Glass, **K6RQ** that topped the whole affair. Our thanks to all concerned, particularly non-members Gwen Steirer and Ed Watson, who really worked.

At the breakfast I was informed that Frank Quement, SCCARA's first President, was donating a tower trailer that they had used in many demonstrations. The Monday following, I took possession for SCCARA. This is a real break! Many of us have talked about making something like this for field days and emergencies. A two-wheeled frame trailer 23'4" long by 7'2" wide and 8'6" high, it carries a three section mast that probably extends to 54'. It has a hand winch to erect it. In its storage compartment was a CDR rotator, presumably operable. Just what we need for this field day and the ones to come. There is lots of room to add a motor-generator, storage compartments, and racks to carry our existing antenna equipment. The trailer is perfectly useable as is but it needs light replacement, wiring, and miscellaneous cleanup.

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THE BIG NEED NOW IS STORAGE. It is parked in front of my house now, but somehow my neighbors are not enthused. **IF YOU HAVE A STORAGE AREA AVAILABLE, PLEASE PHONE ME AT 264-2988.** Obviously, if it is at your house, you have the use of it! I am going to register it and will propose insurance at the next meeting. Also, I have a Mosely Tri-Bander antenna to use for field day. A 5' by 10' clear frame section should also provide room for a galley as well as equipment storage. The top part of the frame could also provide a base for awnings from the sides. Am I dreaming and over enthusiastic? I am awaiting your phone call.

CLUB MEETING MAY 11 at 1555 Berger Dr.

BOARD MEETING MAY 21 at San Jose Hospital, unless we change the meeting time and place at the next meeting.

73 de ED, WD6ChileHotDog

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EDITOR'S CORNER

No board meeting secretary notes were received for publication. Since other promised material failed to arrive, I had to improvise at the last minute.

I have published a yarn from an old issue of "Radio". I hope that you find it entertaining.

There is really more material than usual in this issue. All but one page is written at 12CPI instead of my usual 10CPI.

As always, I have sacrificed my corner in deference to material that arrived at the last minute.

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QTE?

Shortly after my return from my annual vacation from the grind of aligning the feeble signalinhalers foisted upon the gullible public by the Whoosis Radio Co., there is a resounding shakeup in the ranks of Zilch Communications, Inc. The intermediate result of this shakeup is one vacancy in said ranks. The resulting scramble among the local gang was approximately the same as when the hotel phone kicks out a nickel during a ham convention.

When the hubub is finally over and the smoke has cleared away, I find myself firmly installed in the Zilch transmitting station. Instead of tuning receivers, my life has been reduced to a routine of checking frequencies, replacing tubes, and reading oven thermometers.

Shortly after my ensconcement in the new position, strangely enough, we commence having trouble with the jugs (tubes) in the 500-watt amplifier stage of the rig. It is quite embarrassing to me as such failures most frequently occur during my watch. But I manage to stand up under the strain, and in a short while with the aid of parts picked up here and there, I manage to get a really hefty ham rig going. It is not long before I find myself in the category of those who naively to their brethren, "It's amazing; I reduced input to 900 watts and I still get out".

Things go along swell in their own limited way and eventually the chief operator, Jack Dunkheimer returns to the fold after a leave of absence which started shortly before my name was inscribed on the payroll book. With the return of Dunkheimer the other lads feel it necessary to impart a bit of information concerning our boss. They go on to relate that Jack, while being tops in intelligence and ingenuity, is actually a lazy lout. Furthermore, he has an OW who actually knows radio, being second only to Dunk in that respect. They say that he even goes so far as to let the little woman come out and do his work for him when he, the great Dunkenheimer, feels indisposed. And to cap the climax they even go so far as to state that Mrs. D. is quite R9 in her own right.

Now all this information is a bit confusing, to say the least. In the first place, Jack appears to be about as fine a fellow, considering the fact that he is of the 'genus radio operatorus', as you would

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like to meet. In the second place, dating from my earliest days as a ham, I have been firmly convinced that the desirable of the species have no time to learn the code and other technical matters. In fact, as far as I was concerned, all female radio operators worthy of the name could be classed ---, and I wasn't interested in that class. Thus it was with great curiosity, but with no heart pounding in spite of the other operators' signal strength rating, that I awaited my first encounter with the chief's little helpmate.

In the meantime, due to the fact that more 500-watt tubes have been going soft, I am welcomed into the best of ham circles and am having a whirlwind social life. One day I report for the four PM to midnight trick and am immediately informed that the female wonder is coming to work at midnight to substitute for Jack. Now a guy who would send his wife out for the graveyard trick could be easily be accused of brutality in the first degree. I was beginning to change my opinion of Jack; maybe the rest of the ops were right after all.

About 11:55 PM I am restored to awareness by the sound of tires crunching on the gravel driveway, followed by the click of high heels on the steps. What follows is rather blurred, but the front door is thrown carelessly open by a bit of enening-gowned, silver-slippered, fur-coated, blond-headed, blue-eyed loveliness which breathlessly said "Oh hello, Jack's told me all about you. Almost late tonight -- big dance at the club -- be with you in a minute".

There is a swish in the direction of the locker room and the door slams shut. I am more or less out on my feet, but my ears don't quite escape the obvious sounds of feminine apparel being whisked about. Presently the door opens and I see that she has done a quickie into a pair of slacks and little sweater effect. The sweater evidently was designed by a guy who saw no point in using six skeins of yarn if five would do with a bit of stretching.

"Er, ah, been warm hasn't it?" I manage to stammer out.

"Yes, hasn't it," she agrees as she starts to warm up the filaments on the 10-KW rig.

"Paper says rain tonight," says I, feeling helplessly muddled.

"Really," and she punched the start button on the 4000-volt rectifier.

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"Guess I'd better get going," I mumble, being at a loss for anything to say.

"All righty. Awfull glad to have met you. Good night."

In the days that followed I didn't know whether to shoot Jack Dunkheimer for being an inhuman brute or kiss him for sending such an angel to brighten my squalid existence. In the next few weeks Ann takes Jack's place four or five times, and I become much better acquainted with her although I'm still in a daze most of the time. Then one afternoon I relieve Ann at four PM and we are having a little chat.

"Gee, Ann," I remark seriously, "Jack is plenty lucky to have a wife like you."

"A wi --," she begins and she sorta chokes up and bursts into hilarious laughter.

"What's funny about that?" I demand.

"Why I'm not Jack's wife, I'm his sister. Where'd you ever get that idea?"

"The other operators --" I started to say when I was interrupted by more laughter.

"I should have remembered." she said, when the humor had begun to die, "the older operators pulled the same gag on the last young fellow that came to work here. It should have been obvious the way you've been avoiding me."

"Of all the dirty tricks. They even told me that Jack made you work for him."

"Jack has been wondering about your attitude toward him. Truth is that I came out here to catch up on my reading. I learned the business helping Dad in his laboratory at the Bureau of Standards. What do you think now that you know the truth about Ann, the brow-beaten wife?"

"Gosh that's swell," struggling for words as I tried to remember who it was wanted to buy my rig last week, "sort of changes things around a bit."

About this time I heard a set of those long silvery horns that set the owner back about the cost of a kilowatt final.

"Oh, excuse me. I'll have to run. That's Harry, he's manager at Amalgamated Electric. We've been engaged almost a week now." Then she paused at the door, "Be seeing you the next time Jack makes poor little Ann stand his watch for him." (END)

Editor's Note: This article has been copied from the March 1939 issue of a no longer published magazine named "RADIO".

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FOOD FOR FIELD DAY

June 27, 1987 is rapidly approaching. We received many compliments for last year's meal. We would like to have some more this year. **BUT, WE NEED YOUR HELP!!** In order to plan properly, and be economical (we might be able to do it for $5.00 again, per person that is), we need to know how many to expect for dinner on the 27th. Please call me at **(408) 226-2919, between 1900 and 2300 hours, except Friday,** to let me know how many. Cut off date is June 18th. We do not expect to be able to feed any who do not have a reservation. We are not planning to have any extra steaks, as in privious years. Thank you in advance; and bring your appetite.

Herb, KB6ABG and his XYL

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Amateurs are requested to participate in various activities during the air show at Moffett field on July 3, 4, and 5. About 100 amateurs will be required on each day. If you can participate please contact:

Andy Chromarty, N6JLJ
3153 South Court
Palo Alto 94316
Home (415) 494 7870
Work (415 941 3912
or
N6IIU-1 Bulletin Board on Packet
or
Mike Hastings, KB6LCJ
NASA/AMES Radio Club
Work (408) 744 5551
Home (408) 243 6745

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A motion at the board meeting prompted the repeater committee to investigate the repeater telephone line to see if it would be available for emergency use. It was found to be so available. The county will pick up the cost overrun on the phone line. It is imperative that this telephone connection is used for emergency calls only. Don't use the connection to report non-hazardous traffic problems. Codes are available for use now. Contact Wally for a copy.

Wally reports that he has not received much feedback on the PL question on 440. If nothing is forthcoming, a PL frequency will be selected. NARC insists on PL.

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CQ YL'S DE CARLA, WD6X

The call of Susan Tracy, **WA6OCV** was familiar to many operators, but not to me. I first heard Susan during the Lexington fire in July of '85, and I was impressed with her efficiency in handling traffic and solving problems. It was about a year later that I met this remarkable YL, and I was not surprised that she matched the mental image that I had formed of her. She is a rare and outstanding combination of professionalism and femininity. Behind that soft-spoken voice is determination and the will to meet any challenge. What I hadn't realized was the big part amateur radio is of her life.

According to Susan, when David, **N6RZ** arrived at her home with a receiver and manual; she, David, and the radio hit it off right away. They have been together ever since.

Susan became a novice in 1977, and she now holds advanced class. She became an active member of the Santa Cruz Amateur Radio Club, and, after being appointed to be the ARRL EC for Santa Cruz County, she contributed many hours of her time in organizing and participating in community assistance. She played an important part as an ARES member during the Santa Cruz storm disaster in '82.

One of her first steps after becoming EC was to conduct training programs for all members of her ARES team. Shortly after the training program was completed the ARRL SET (simulated emergency test) was conducted. Susan and her team set up an earthquake scenario: 23 local members and 3 repeaters (3 repeaters necessary because of County terrain and geographical location). As part of SET, messages were passed through NTS (national traffic system), some to as far away as Maine, and all were delivered and acknowledged. Needless to say, the test was highly successful.

Susan likes to dabble in carpentry. She feels proud to have helped with additions to her house. She likes camping, skiing, and reading. A pet peeve is people who use VHF simplex as their own private channel. About amateur radio: she finds it convenient for safety; she enjoys the opportunity to make contact with others, near and far; and, of course, she gains much satisfaction from public service.

If you hear **KB6AWR**, you are hearing Susan's teen-age daughter, Amy. Amy was easily persuaded to become a ham, and, with a mother such as Susan, she must be capable.

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Well Susan received a rig and a book when **N6RZ** came courting. Not very romantic, as she recalls, but look what has developed plus the gain to amateur radio. As a YL, I feel proud that there is a YL such as Susan in the amateur radio world, and I wonder if, in my own way, I will ever be able to measure up to her.

All for this month.

33 and 73, Carla

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EQUIPMENT HINTS by ERIC, N6NMZ

AT250 ANTENNA TUNER

by MIKE, **KB6LCJ**

Some time ago I submitted an article on the Kenwood TS430 transceiver. One problem with the new solid state rigs is that they are sensitive to SWR. The 430 will start shutting down at 1.7:1.

The ideal is to tune all your antennas to a low swr, but often it is necessary to compromise. This is where the antenna tuner makes its debut.

I started with an MFJ-814 tuner. It did the job, but I had the itch for an automatic tuner. If you have a fancy rig, you might as well have a fancy tuner to complement it.

I chose the Kenwood AT-250. This tuner works superbly with the 430. It can handle 4 antennas, has a 20 watt or 200 watt power readout, plus computed SWR readout, and runs on 12VDC or AC mains.

Assuming that the 430 is on and the tuner is enabled; simply find a frequency, put the 430 in CW and transmit, press the "TUNE" pushbutton, and in a few seconds you will be tuned up. The manual indicates that the tuner will resolve SWR's up to 2.5:1, but my experience is that it will operate at much higher SWR's also.

Well there you have it. I may have oversimplified just a hair, but, as tuners go, this one stands apart.

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FROM YOUR TREASURER

Let's start with news about members:

Does anyone know the whereabouts of Tom Ashley, **AA4A**? or Carl First, **N6CKV**?

Karl Kasel, **WB0BMY** writes that he has moved to Lolita (LA area), and says "thanks for the good service over the last 3 years and the good time at last year's convention". Good luck Karl and thanks for being a member.

Marv Moye, **N6MXR** has returned from Diego Garcia. He told me that the shack there has been closed, so prospects for DX from that somewhat rare country are poor. Not many West Coast contacts as propagation was poor according to Marv. Anyone work him? He will be off to JA-Land soon (not so rare!).

Let's welcome new members: Lee Dimter, **W6YBV** (honorary), who spoke about spark transmitters at the March meeting, and Marty Durazzo, **K6JKM**.

Joe Eykholt is now **N6PCR**.

UPGRADES: Congratulations to Bob Hallden, **KB6NNZ**, general; Lee Henderson, **KB6MXH**, general; Mike Wooding, **KB6PYQ** and Les Stephenson, **N6PAQ**. Les has gone from **NOVICE TO EXTRA** in short order. Now, if we can only get him on the air!

NOVICE CLASS: Our Spring novice class just ended. What a pleasure it was to have such an outstanding and motivated group of students. Some have not only passed the novice but have gone further. Congratulations to novices: James Bond (no kidding); Meredy Brownstein (mother-in-law is Lee Henderson, **KB6MXH**); Jose Garza; Yvette Martinez; Sally Ortega; Ed Quigg; Mark Shapiro; Patty Stetson; and Karen Thornton. New techs are: Linda Menard (her OM is Dennis, **KI6QV**); Barbara Newman and her brother Richard; and Michael Leuschner. I hope that they all join SCCARA and that you meet them. Most will be at Field Day, so be sure to say "hello"! Our last session was at my place with 18 in attendance. We made contact with Gaines, **WD6DAA** in the Trinity Alps (i.e. boondocks near the Oregon border) on 75 meter phone. Patty Stetson setup this sked with her friend. We also had a packet demo by Wally, **KA6YMD** plus discussion of the basics of setting up a station. Thanks to Roy, **K6VIP**; Jim, **WE6V**; and Frank **KA6HWC** who were there every week during class, and Wally for filling in when needed.

DUES: If you have not paid dues by April 30th, you will be dropped from membership. I wrote all delinquents. Today (4/23/87) we have 89 unpaid or 32% of membership. Our

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OUR VEEP SEZ

As a new ham I want to relate some experiences, especially to other new hams.

After finnaly being able to hunt DX on twenty meters, the experience has not been as expected. Contests and pileups are quite frustrating; one-hundred watts, a two-element beam, and a low voice "**don't get no respect**".

I make more contacts on CW, and I get a lot more out of the contacts. It's a simple mode, conserves band space, and the CW operators seem a lot more considerate. Rather than a feeling of frustration, I get a feeling of elation; each contact exercises my brain and actually relaxes me. I haven't plugged a microphone into my new rig yet, and I probably won't for a while.

Weak signals are really fun to copy. One watt of power on CW can transmit readable messages across the US, even when the bands are noisy.

Weak DX signasl, that few others seem to be listening to, are also rewrding. I am looking forward to QRP operating, and I have ordered a QRP rig for that purpose.

Give CW a try, and come to our next meeting to hear OT Doc, **W6ZRJ** talk on CW.

73 de Allen, **N6NOY**

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total count is 279. We could drop to around 200 members, but new members are expected.

FIELD DAY: Dave Stoddart, **KB6QQ** gave us info on Field Day. We will use battery power in class 3A. We will attempt to be more competitive. The battery class had fewer contestants than our previous class, so we should fare better. We also have been given a tower by Frank Quement, **W6NX. THANK YOU FRANK!** We hope to put up a beam for the CW station this year. If you can help, our needs are: deep cycle 12V. batteries (4 or 5), a tri-band beam, operators and loggers. The CW crew will challenge the fone operators for highest points. We will also have a novice operation on the air for novices and techs. If you would like to operate at any of these positions, or can loan any needed gear, please let me know. More on Field Day later.

73 de Dan, **WM6M**

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COAXIAL CABLE

By: Eric, N6NMZ

I am going to discuss coaxial cable this month. I would encourage anyone interested in this subject to refer to the "Radio Amateur's Handbook" and the various books available on antennas. I also found useful information in various cable catalogs, such as Belden and Alpha.

Coaxial cable is one of the methods of getting signals to and from the radio and the antenna. It is the most common method in use today. Coax is sold at most electronic stores, and it is manufactured by many companies. I am going to limit my discussion to flexible cable. I will cover heliax and hard line at a later date.

There are many considerations when selecting coaxial cable. You will be confronted with a variety of specifications depending on where you look.

IMPEDANCE: Impedance is the measure of the total opposition to the flow of alternating current. It is essential to match the characteristic impedance of the coaxial cable to that of the source to provide the optimum transfer of power without excessive heating of the cable. impedance for amateur use should be approximately 50 ohms. Any other impedance will require use of some type of matching device to match the coax to the radio.

POWER RATINGS: Power rating is a very complicated spec. In simplest terms power [watts] is the product of voltage [volts] times current [amperes]. Voltage rating is based on the insulating material used, insulation thickness, and the intended use. Current rating is based on the total conductor area, ambient temperature, type of insulation (which limits the permissible temperature rise), ventilation and the duration time of current through the cable (the higher the frequency, the lower the power handling capability). For amateur use the smaller cables (RG58/U types) can withstand full legal power up to 10 MHz. The larger cables (RG8/U types) can withstand full legal power well into the UHF spectrum.

ATTENUATION: Attenuation is the term applied to the loss of electrical energy as it travels along the cable. This loss is partially caused by impedance of the metallic conductors. Another loss is the opposition that insulating materials offer to the rapid reversals of RF voltages. Cable losses increase with increases in frequency, increases in cable lengths, and decreases in conductor diameters. Cable attenuation is also affected by changes in conductor characteristics and insulation materials. Attenuation is generally expressed in decibels (db) per unit length. A decibel is a logarithmic ratio of voltage, current, or power. For example, a loss of 3db is approximately equal to a loss of one-half of the original power in a system. Low attenuation is desirable in all transmission lines, and it becomes extremely important at VHF and above. For example, Radio Shack RG58/U attenuates at 4db per 100 feet at 50 HHz, which might be acceptable for HF or very short runs, but at 150 MHz the attenuation increases to 6.5 db per 100 feet. This means that if your radio puts out 10 watts on 2 meters only 2 watts will reach the antenna. It increases to 12 db at 400 MHz, an intolerable loss. Received signals are attenuated in the same proportions making weak signal reception virtually imposible. You can easily see that attenuation must be given greater consideration at VHF and UHf than at HF.

VELOCITY - Radio waves travel at a velocity equal to the speed of light in free space, but in coaxial cables presence of the dielectric and other factors cause the wave to travel at a velocity less than the speed of light. Velocity as applied to coax relates the velocity of propagation in a coaxial cable (or any transmission line) to the velocity of a radio wave in free space. Velocity is frequently referred to as velocity factor in coaxial cable specs. Velocity is expressed in percent and velocity factor is the decimal equal of that percent. For any wavelength, the actual physical length, termed electrical length, must take velocity into account for length determination. In the mathematical sense, the electrical length of a coaxial cable is equal to the wavelength in free space multiplied by the velocity factor. The typical velocity factor of polyethylene coax is .66. Therefore, electrical length of such a coaxial cable at ten meters is 6.6 meters (EL = 10 x .66). It is this electrical length (or probably a fraction of it) that you must use to determine the exact length of a matching stub, a self-resonant feeder, a delay line, etc. In transmission line applications (antenna feeding, etc.) you need not consider the velocity; it only becomes a factor when electrical lengh is important.

Many materials are used in the manufac-

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ture of coaxial cables. An understanding of these materials is necessary to properly select a cable type:

Center Conductors - Most coaxial cables use copper as a center conductor. Bare copper is the least expensive, and it works well in most applications. Copper-covered steel is used where increased physical strength is required. Above 2 MHz copper-covered steel has the same characteristics as bare copper due to skin effect, or the tendency of current to increasingly travel on the surface of a conductor with increasing frequency of the RF. Silver coated copper center conductors have less attenuation due to skin effect and the fact that silver is a superior conductor to copper. Silver also reduces oxidation, improves solderability, but increases cost. Tinned copper is also used, but it has high attenuation at high frequencies. Center conductors are made of stranded or solid copper. Solid conductor is not recommended because of frequent breakage by vibration and flexing. Stranded conductors are to be preferred because of greater flexibility and reduced skin effect losses at high frequencies.

DIELECTRIC - The dielectric is the insulation material between the center conductor and the shield. There are two common materials: polyethylene and teflon. Teflon is very expensive, and it is really only required under extreme conditions of high temperature or chemical contamination. Polyethylene is the most common coaxial cable dielectric material; it will usually be solid or foam (with air pockets). Basically foam types are preferable due to lower dielectric constant permitting the use of larger inner conductors with resultant lower losses and smaller overall diameter cable.

SHIELD - Copper braid is the usual material because of the superior electrical conductivity of copper. To prevent oxidation of the bare copper braid, the individual strands are often plated with tin or silver. Silver plating is often used at higher frequencies to reduce skin effect losses. Holes or open spaces in the shielding permit coupling external fields to the inner conductor through those openings. The degree of opening in the outer braid is usually termed percentage shielding with typical coverages between 85% and 95%. Often a second braid is applied over the usual braid for better shielding and increased conduc-

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tivity; such cables have percentage shielding approaching 100%. In a type of cable called "triax" a second shield is applied over the usual shield, but insulated from it. This shield is not part of the outer conductor, and it acts as an electrostatic shield to reduce external field coupling to both the inner and outer conductors of the coaxial cable. The outer shield is normally tied to ground on one end only. Percentage shielding is a very important factor in the selection of a coaxial cable, because of superior losses due to the added copper, and reduced coupling to external circuits.

CABLE JACKETS - You will find two types of jacket materials in use: polyvinyl chloride (PVC) and teflon. Teflon, while being superior in chemical resistance, weather resistance, abrasion resistance, and temperature resistance, has poor flexibility and is expensive. PVC has fair flexibility, excellent weather resistance, excellent abrasion resistance, fair flexibility, and is inexpensive. It is important to select cable with non-contaminating PVC in its outer jacket. The contaminating type, usually found in cheaper cables, has a plasticizer that will migrate to the core of the cable to disturb the dielectric, resulting in increased attenuation of the cable with passing time.

PHYSICAL SIZE - Physical size is an important factor. Be sure to select cable that will fit your available connectors. Typically RG58/U types are .195" in diameter, and RG8/U types are .405" in diameter.

It is important to make a proper selection when purchasing coaxial cable. Beware of surplus cables, and cables with unavailable specs. Selection is expecially important at UHF and VHF. Consider a pool purchase with friends of a 500 foot long reel or longer. Cable is cheaper that way. I recommend Belden 8214 for VHF and above and for long HF runs. For smaller runs I recommend Belden 9258 (mini 8 or 8X type).

I hope that I have given you enough information to make a good selection. If you have any questions, you may write to: The equipment column, P.O. Box 643, Applelgate, CA 95703

73 de ERIC, **N6NMZ**

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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.

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