TRW W6TRW AMATEUR RADIO CLUB

CROSSTALK

TRW SEA

A Publication of the TRW Amateur Radio Club

MARCH 1994 CALENDAR

Every Monday: DCS Net on 145.32 Repeater at 7:30 PM

Every Wednesday: Emergency Communications Team Net on 145.32 Repeater at Noon

Every Thursday: Club Net on 145.32 Repeater at 7 PM, Club news, etc.

Every Friday: Club Breakfast in Bldg S cafeteria, 7-8 AM

Mar 1: Executive Board Meeting, E2/1200, 5:30 PM

Mar 5-6: ARRL DX Contest, Phone

Mar 8: Evening meeting at Petrelli's, 230 N Aviation, Manhattan Beach, 5:30 PM,
Speaker is Ray Enriquez, KD6IGI, 'VHF/UHF Contesting'

Mar 8: Emergency Communications Team Meeting, R3/1413, Noon

Mar 18: Technical Chairman's Meeting, Bldg 65 Shack, Noon

Mar 26: Swap Meet, Parking lot, NW corner of Aviation & Marine, 7-11 AM, T-HUNT at Noon

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EDITORS NOTES: The deadline for CROSSTALK submissions is the club meeting on the first Tuesday of each month. If you have something and will be later than that please call and I will try to accomodate you.

MEETING CHANGES: The Club Evening Meetings and the EBM have been swapped on the calendar. We had to do this to arrange the meeting location, they were booked the first Tuesday. The calendar for the rest of the year has been changed and a revision is included in this issue.

FUTURE CLUB EVENTS: VP Bryan DeAro, KN6OW would like to make the two club picnics, July 5 and Sept 6, HF QRP operating events. Please contact Bryan if you are interested in this activity. There will be awards/prizes for the most contacts, furthest contact, most unusual setup, etc. The only rules are less than 5 watts out and battery power.

BBS CHANGES: SYSOP Dave Hassall is moving the BBS to his home QTH on Saturday February 26 to make maintainance and update easier. The new phone number will be 310-530-6848.

CLUB NEWS:

Ray Enriquez reported that the club January VHF Sweepstakes score is 14,000 points. Participation was high for this event and a good time was had by all.

Phil Bergeron, N6PB is leading the planning effort for the move of the building 65 shack to R9. Regular planning meetings are being held, contact Phil if you are interested in attending. Two towers are planned for R9 to support the following antennas:

- 2 meter beam
- 6 meter beam
- 10/15/20 meter beam
- 12/17 meter beam with 30 meter dipole add on kit
- 40 meter 2 element beam
- 80 meter inverted vee
- 160 meter inverted vee

A GAP vertical for 20/40/80 and 160 meters is also planned. The OSCAR antennas will be installed on the shack which is on the roof. Verticals for the VHF and UHF bands will be mounted on the windbreak. We will have a first class antenna farm when we are through.

If everyone could help a little we can accomplish this move in a reasonable time span. Please call Phil or any member of the board if you are interested in helping.

JANUARY CLUB MEETING: This was our last noon meeting. Frank Cartier, WA6RAY gave an informative talk on 'Contest DXpeditions'. It sounds like it would be a lot of fun and may make a good club project someday.

Help Wanted: Bob Wartburg, K0LLO would like to hire someone to do minor maintainance on his Yagi. He lives in Orange, Phone is 714-5388305 home and 909-3828142 work.

TRW ARC 1994 Events Calendar (Revision)

2/4/94

January		February		March	
4	Eyeball QSO meeting	1	Eyeball QSO meeting	1	Executive Board meeting
11	EBM & ECT meetings	8	ECT meeting	5-6	ARRL International DX Contest, Phone
21	Technical Chairmans meeting	8	Executive Board meeting	8	ECT meeting
22-24	ARRL VHF Sweepstakes	18	Technical Chairmans meeting	8	Evening meeting with speaker
25	Noontime Club meeting	19-20	ARRL International DX Contest, CW	18	Technical Chairmans meeting
29	Swap Meet	26	Swap Meet	26	Swap Meet
April		**May**		**June**	
5	Executive Board meeting	3	Executive Board meeting	4-6	ARRL VHF QSO Party
12	ECT meeting	10	ECT meeting	7	Executive Board meeting
12	Eyeball QSO meeting	10	Evening meeting with speaker	14	ECT meeting
15	Technical Chairmans meeting	20	Technical Chairmans meeting	14	Eyeball QSO meeting, Field Day Plans
29-May 1	West Coast VHF/UHF Conference (Cerritos)	28	Swap Meet	17	Technical Chairmans meeting
29-May 1	Dayton Ham Vention			25-26	Field Day
30	Swap Meet			25	Swap Meet
July		**August**		**September**	
5	Executive Board meeting	2	Executive Board meeting	6	Executive Board meeting
12	ECT meeting	6-7	ARRL UHF Contest	10-12	ARRL VHF QSO Party
12	Noon Picnic	9	ECT meeting	13	ECT meeting
15	Technical Chairmans meeting	9	Evening meeting with speaker	13	Noon Picnic
30	Swap Meet	19	Technical Chairmans meeting	16	Technical Chairmans Meeting
		26-28	Southwestern Division Convention (San Diego)	24	Swap Meet
		27	Swap Meet		
October		**November**		**December**	
4	Executive Board meeting	1	Executive Board meeting	6	Executive Board meeting
11	ECT meeting	8	ECT meeting	13	ECT meeting
11	Eyeball QSO meeting	18	Technical Chairmans meeting	13	Christmas Party (evening)
21	Technical Chairmans meeting	19	Banquet	16	Technical Chairmans meeting
29-30	CQ WW DX Contest, Phone	26-27	CQ WW DX Contest, CW	31	Swap Meet
29	Swap Meet	26	Swap Meet		

From the Membership Chairman

Membership Renewals

All 1993 memberships expired January 31st. Please submit your 1994 membership application as soon as possible. Applications were included in the December and January issues of Crosstalk.

Non-TRW Memberships

Although we would like to accept all applicants for membership, the number of non-TRW club members is restricted to a maximum of 25% of the TRW Space Park employee membership. We receive many more applications than we can accept. Our goal in accepting outside applicants is to select people that have supported the club in our various activities. The following non-TRW membership selection criteria, listed in descending order of importance, were established by the TRW Amateur Radio Club Board:

1. Non-Space Park TRW Employees in the local area.
2. W6TRW Field Day and conest participants
3. W6TRW Swapmeet Crew (not buyers/sellers)
4. Regular attendees at TRW club meetings
5. Student applicants age 18 and under
6. Repeater users

Due to the large volume of applications, item 6 seldom figures into the selection process. If you feel that you fit in one of these categories and have been overlooked, please contact me. Processing of non-employee applications will begin the first week of February.

Crosstalk Mailing List

The Crosstalk mailing list will be trimmed at the end of March. Anyone that applied for membership in 1994 will kept on the list. If you did not submit a 1994 application but still wish to receive the newsletter, please contact me. If you are dropped from the mailing list, it may take 2 or 3 months to get back on.

Badges

The first order for badges requested on the 1994 application has been submitted and should arrive within a few weeks. A second order will be submitted in early February. If you do not receive your badge by mid-March, please let me know.

If you ordered a badge last year and have not received it, please let me know.

Nina Whiddon
KN6FL
Mail Station O1/2070
(310) 813-9351

What's New?

by Bill Shanney, KJ6GR

The rate at which new product announcements and new book releases are appearing is a sure sign that amateur radio is alive and well. Now that the sunspot cycle is on the down side activity is picking up on the lower HF bands and the digital modes (HF, VHF and UHF). The latest generation TNCs are user friendly and have more modes and features than ever. CROSSTALK is looking for beginners articles on Packet and the other digital modes to help our new members get started in this exciting aspect of our hobby. If any of you have ideas please let me know.

The major equipment manufacturers are making it less painful to get started in HF with the introduction of a new line of transceivers in the $800 price class. These bare bones radios have good receivers and accessory IF filters are available. External automatic antenna tuners may also be purchased. I have a Yaesu FT-840 in my mobile CW setup and am very pleased with the performance so far. I'm not knocking the other manufacturers offerings, the Yaesu simply had the features I wanted for mobile CW, each operator must make their own choices.

One other mode of operating that is on the increase is QRP. A lot of amateurs are building QRP transceivers and actively using them on the air. The favorite bands appear to be 20, 30 and 40 meters for QRP CW although many QRPers are working the RS-series satellites on the higher HF bands. Most QRP transceiver kits sell for less than $200 and I'm finding quite a few for under $100. This is a great way to get started in HF without a big cash outlay.

I was personally excited to see the new portable SWR analyzers offered by MFJ and AEA. The MFJ-249 VSWR analyzer has a built in 10-digit LCD frequency counter while the AEA SWR-121 has a graphic display of SWR versus frequency. A third manufacturer has entered this market with a lower cost, more versatile instrument. The Autek Research Model RF-1 RF Analyst measures not only SWR but RF impedance, inductance and capacitance as well. Most L/C meters operate at a low frequency but the RF-1 measures directly at the selected RF frequency. For only $129.95 this is sure to become a popular piece of test gear for us antenna builders. (Mine is on order.)

I encourage all TRW ARC members to try something new this year. If you need more information on a new mode or equipment advice please give me a call and I'll put you in touch with someone who can help.

The Southern California Six Meter Club Presents

The 1994
West Coast VHF/UHF Conference

April 29, 30 & May 1, 1994
The Sheraton Cerritos Hotel, Town Center
12725 Center Court Dr., Cerritos, CA

Great Location! Bring the Family. 10 miles to Disneyland -- 4 miles to Knott's Berry Farm, Movieland Wax Museum, Wild Bill's and Medieval Times. Golf, tennis and racquetball nearby and Shopping at the Los Cerritos Center.

Technical Talks, Vendor Exhibits, Swap Meet, Noise Figure Measurements, Antenna Measurements, Banquet, Breakfast, Pre-registration & Banquet Awards, No-Code Technician Week-end Class and **FREE PARKING.**

TECHNICIAN NO-CODE WEEKEND CLASS -- Offered by Loraine McCarthy, N6CIO. Bring a spouse or a friend to become a Ham while you attend the Conference. Class fee of $125.00 includes your Textbook and an ARRL Repeater Directory. Testing will take place at the end of class. Lots of equipment demonstrations, fun and learning will take place in the classroom. Pre-registration and pre-study are necessary. Contact Loraine at (714) 979-2633 for details and a registration flyer.

SPECIAL HOTEL CONFERENCE RATE OF ONLY $59! (Per night, double occupancy, plus local taxes. $69 triple & $79 quad.) Be sure to mention the VHF/UHF Conference. Valid to April 7, 1994. **For reservations call (310) 809-1500 FAX (310) 403-2080.**

	COST	QUANTITY		TOTAL
Registration (April 1, 1994 for pre-reg award)	$15	x_____	=	_____
Banquet (Advance reservations required)	$25	x_____	=	_____
Breakfast (Advance reservations required)	$12	x_____	=	_____
Proceedings (available at conference)	$10	x_____	=	_____
			Total $	_____

Name _____ Call _____

Name _____ Call _____

Street _____ Phone (____) _____

City _____ State _____ Zip _____

Make checks payable to Southern California Six Meter Club. Your canceled check is your receipt.
Send to: SCSMC, P.O. Box 10441, Fullerton, CA 92635. Info: 714-990-9203 FAX 714-990-1340.
More information will be included on future flyers as we arrange technical talks and exhibits.

11/16/93 HRO

LOW FREQUENCY ANTENNAS

by Bill Shanney, KJ6GR

Recently several members have asked me for advice on antennas for the 40, 80 and 160 meter bands. I've started making notes in my log for each station I contact on these bands. On 80 and 40 meters the dipole is the most often used antenna for those I have contacted, with the vertical not far behind. I've worked many stations on 80 meters who, using dipoles only 20 to 30 feet off the ground, were putting out good signals within a 1000 mile radius of L.A. My dipole has about 2 S-Units lower noise than my vertical on 80 meters which is a big plus.

I don't have a lot of data collected on 160 meters yet, there are few city dwellers on this band. Popular antennas include dipoles, verticals, inverted-Ls and loops. I use a vertical up on my roof and have worked a little DX and coast-to-coast when conditions are good and the noise is low. I just don't have the real estate for a dipole on this band, but that would be my personal choice.

A dipole should be mounted as high as possible off the ground for best performance. Below 1/8 wavelength high they experience significant ground losses which puts the lower limits at 17, 35 and 70 feet for 40, 80 and 160 meters respectively. A vertical needs a good ground system to perform well. Ground mounting with 15 to 30 radials or elevated with four symmetric radials will provide good DX performance. Verticals are poor local antennas due to the null at high elevation angles. My 80 meter inverted Vee at 40 ft. and my vertical up 20 ft. are comparable for distances greater than 1200 miles but the inverted vee is consistently better for closer stations.

My lot is only 75' wide by 70' deep which severely limits my ability to put low band antennas. I tried a commercial short wire dipole with a loading coil for 80 meters and was disappointed. I decided to try a short wire dipole and did some analysis on the computer using MININEC and NEC. The configuration I chose uses 100' of wire fed at the center with 450 ohm ladder line. The center is supported at 40' on my tower, the wires drop to 26' in a vee and then the ends drop straight down an additional 10'. The end supports are about 72' apart.

A Smith chart analysis showed that the impedance at the end of 40' of 450 ohm ladder line feeder would be 10 ohms resistive. I use a 4:1 low impedance transmission line transformer at this point which gives 40 ohms (1.25:1 SWR). The signal is then brought to the shack on 50 ohm coax. I use a 6-8 turn coax choke at the transformer end to prevent unwanted feedline radiation.

This antenna performs very well, it can be scaled for other bands but the matching impedance and length of ladder line will vary if height or ground characteristics are different. For 160 meters this antenna would be up 80' at the apex and for 40 meters 20'.

Now for those with property a 40 meter beam up 100' and 3 or 4 element vertical phased arrays for the lower bands would be good for starters. You could then add some 1000' Beverage receiving antennas in the directions you prefer. Enough dreaming, operating the low bands is fun and plenty of interesting contacts can be made using simple antennas, so why not try?