SCOPE July 2007

A newsletter by and for the Palomar Amateur Radio Club of San Diego, CA, USA.

Club Meeting "Handi-Hams"

NOTE: MEETING IS NOT FIRST WEDNESDAY

11 July 7:30pm at the Carlsbad Safety Center

Board Meeting 18 July 7:00pm at W6GNI QTH



Board of Directors	Call Sign	Contact Info	rmation
President - Steve Early	AD6VI	619-461-2818	ad6vi@amsat.org
Vice President - Tom Storer	KI6DER		ki6der@amsat.org
Secretary - Gary Kent	W6GDK	858-679-0578	w6gdk@arrl.net
Treasurer - Bob Birch	KG6RGI		rrbirch@cox.net
Director - Tom Martin	KG6RCW	619-778-3866	rbg4@aol.com
Director - Dennis Baca	KD6TUJ	760-722-0251	kd6tuj@amsat.org
Scope Editor - Michelle Thompson	W5NYV		w5nyv@amsat.org
Repeater Chair - Dan Bubke	K6NKC		k6nkc@amsat.org
Membership - Al Donlevy	W6GNI	760-630-3096	w6gni@amsat.org

Frequency	Τx	Tone	Call Sign	Remarks
52.680	_	107.2	W6NWG	
146.730	_	None	W6NWG	Autopatch; see note 1,2
147.075	+	107.2	W6NWG	Autopatch; see note 2
147.130	+	107.2	W6NWG	Autopatch; see note 2
447.000	—	107.2	W6NWG	Autopatch; see note 2
224.380	—	107.2	KK6KD	Americas Unidos
224.900	—	107.2	WD6HFR	Convair/220 ARC
224.940	—	107.2	KK6KD	Sharp Hospital Coverage
446.140	—	123.0	WB6FMT	Vista
146.175	+	107.2	N6FQ	Fallbrook ARC; autopatch; linked to 445.600
445.600	—	107.2	N6FQ	Fallbrook ARC; autopatch; linked to 146.175
145.050	(s)	None	W6NWG-1	Packet node; linked to Metro 9600 net
146.700	_	None	W6NWG-4	Packet duplex repeater; Duplex; PALBBS use OK

PARC also conducts the following ATV (amateur fast-scan television) operations: ATV in: 915 MHz WBFM, 919 MHz AM, 2441.25 MHz WBFM Intercom: 146.415 MHz NBFM simplex (tone 79.7) ATV out: 1241.25 MHz AM

¹ The 146.730 repeater transmits a CTCSS tone of 107.2, but does not usually require any tone for access. When necessary, an access tone of 107.2 can be enabled. A 107.2 tone is always required for autopatch access. ² PARC autopatches are closed, for members only, and always require an access tone of 107.2. For PARC autopatch access info, email autopatch@PalomarARC.org.

Regular Nets Sponsored by PARC

Day	Time	Frequency	Name	Manager
T/Th/Sa	2000	146.730	NTS Traffic Net	Marvin KD6YJB KD6YJB@arrl.net
Sunday	0830	146.730	ARES Net	Dennis K7DCG
Sunday	2045	147.075	MARA	Glenn Jones KG6JDF@amsat.org
Monday	1915	146.730	RACES Sub-net	
Monday	2100	146.730	Microwave Net	Kerry B.
Tuesday	1900	147.130	Red Cross Net	Ted tthompdson@sdarc.org
Tuesday	2100	146.730	Off-Road Net	Dick Wilimek KA7AYT
				rwilimek@cox.net
Thursday	2100	146.730	Ham Help Net	
Friday	2100	146.730	Hiker's Net	Ed KF6DXX@juno.com
Nightly	>2200	147.130	Facetious Group	

Contest Corral

RAC Canada Day Contest	0000Z-2359Z, Jul 1
Six Club Contest	0000Z, Jul 1 to 2400Z, Jul 31
SKCC Weekend Sprint	0000Z-2400Z, Jul 1
RSGB 80m Club Championship, CW	2000Z-2130Z, Jul 2
ARS Spartan Sprint	0100Z-0300Z, Jul 3
MI QRP July 4th CW Sprint	2300Z, Jul 4 to 0300Z, Jul 5
Venezuelan Independence Day Contest	0000Z, Jul 7 to 2359Z, Jul 8
VK/Trans-Tasman 160m Contest, Phone	0800Z-1400Z, Jul 7
DL-DX RTTY Contest	1100Z, Jul 7 to 1059Z, Jul 8
Original QRP Contest	1500Z, Jul 7 to 1500Z, Jul 8
DARC 10-Meter Digital Contest	1100Z-1700Z, Jul 8
ARCI Summer Homebrew Sprint	2000Z-2400Z, Jul 8
SKCC Sprint	0000Z-0200Z, Jul 11
RSGB 80m Club Championship, SSB	2000Z-2130Z, Jul 11
NCCC Sprint Ladder	0230Z-0300Z, Jul 13
FISTS Summer Sprint	0000Z-0400Z, Jul 14
IARU HF World Championship	1200Z, Jul 14 to 1200Z, Jul 15
Colorado QSO Party	1200Z, Jul 15 to 0400Z, Jul 16
Run for the Bacon QRP Contest	0100Z-0300Z, Jul 16
NAQCC Straight Key/Bug Sprint	0030Z-0230Z, Jul 19
RSGB 80m Club Championship, Data	2000Z-2130Z, Jul 19
NCCC Sprint Ladder	0230Z-0300Z, Jul 20
VK/Trans-Tasman 160m Contest, CW	0800Z-1300Z, Jul 21
North American QSO Party, RTTY	1800Z, Jul 21 to 0600Z, Jul 22
CQ Worldwide VHF Contest	1800Z, Jul 21 to 2100Z, Jul 22
SKCC Weekend Sprint	0000Z-2400Z, Jul 22
RSGB Low Power Field Day	0900Z-1600Z, Jul 22
CQC Great Colorado Gold Rush	2000Z-2200Z, Jul 16
NCCC Sprint Ladder	0230Z-0300Z, Jul 27
RSGB IOTA Contest	1200Z, Jul 28 to 1200Z, Jul 29
ARS Flight of the Bumblebees	1700Z-2100Z, Jul 28

Now that Field Day is over, you can start honing your skills for next year. VHF, 160m, CW, SSB and RTTY are all in the mix for July. Complete rules may be found in QST, CQ, NCJ, Worldradio and on the web. CU in the contest. 73, Harry

President's Message

June was a very busy month. First, PARC sponsored a special event station, W6P, on Palomar Mountain, headed up by Michelle Thompson, W5NYV, and operated by Michelle, Paul Williamson, KB5MU, and Al Donlevy, W6GNI. This event commemorated the 59th anniversary of the June 3rd, 1948 dedication of the Hale Telescope at the Palomar Mountain Observatory.

Also on June 2nd (finishing June 9th) The Palomar Amateur Radio Club held a General upgrade class at the Carlsbad Safety Center.

June 6th was the PARC general membership meeting. The topic was Field Day, followed by a presentation from Harv Hiller K6QK, about "Flip-Mount" brackets to aid in the assembly and deployment of portable towers.

On June 9th, PARC sponsored a "Get on High Frequency" seminar, which was designed to provide basic information on connecting and tuning a high frequency (HF) system, as well as practical propagation for HF antenna systems.

June 22, 23, 24 - Field Day - We've Got Site! As of this writing, Field Day is just about on us, so a report will be forth coming at the July PARC Meeting

The July program will be on Handi-Hams, presented by Marcia De Runtz, KG6FIX. The Handi-Hams program provides additional resources to those that may have physical challenges. Marcia is also starting a local Handi-Ham net, Sunday Evenings at 7:00 PM on 147.130 (tone 107.2)

Please note that July 4th is a national holiday and that the July Meeting will be held on July 11th, so that we can all enjoy the 4th of July with our loved ones and friends.

For July through September we will be doing repeater site refurbishment work parties. In August, we will have the annual picnic. Watch the website for details. I hope to see you on July 11th. Bring a friend! -Steve Early AD6VI



above: Steve Early chairing the June Board of Directors meeting.



The station at W5NYV was open for the June 16th, 2007 ARRL Kid's Day Contest. Several children were able to visit the station and most participated by getting on the air. Michael (pictured) made several contacts. Kid's Day is held twice a year and encourages kids to work other stations. The typical exchange is name, location, and favorite color. An entire pizza was eaten in celebration after the event concluded.

PARC Field Day 2007



Preparing to mount a yagi antenna on top of a tower.



Paul WN6K operating 20m CW using WriteLog logging software and powered by Fig Newtons and grapes.



Wild Bill WB6BFG operating up a storm on 20m SSB.

PARC Field Day 2007



15/40m CW Station



Microwave and Satellite Station



Field Day visitors at Information Booth



10m station during a break.



Juan W6NOW setting up 15/40m SSB.

June Meeting Goodie Givers

Tom KG6RCW, Conrad KG6JEI, Mark KI6FVH, Preston W6ASP, Wild Bill WB6BFG, Ellen N6UWW, Michelle W5NYV

June Fold & Staple

Terri N6UZH & Matthew, Art KB6YHZ, Jo KB6NMK & Tyler & Toby, Al W6GNI & Kathy

Membership Report

New Members Joining PARC: KG6FIX, KC6QLS, KI6JET, KI6FJZ, and KC7/IKD. And we had 2 "old" members reinstate their memberships. Welcome back!

Club Classified Advertisements

Personal equipment ads are free to members and could be bumped after 3 months. Make up your ad like the ones on this page and send to SCOPE@PALOMARARC.ORG.

Commercial ads in big boxes: \$2/col. inch/month. We will squash your ad copy to the number of inches bought.

(4.1) A-50-5S Cushcraft 5-el 6m beam condx: bent boom and bent 2 elements, fixable, on the ground, \$25. Miscellaneous aluminum tubing from Sommer beam: come and get it. Peter KQ6AA potifar@pacbell.net or 760-917-2264



Steve Early was presented with this plaque at the June 2007 general membership meeting of the Palomar Amateur Radio Club. Congratulations and thank you Steve for your service to the club and to the amateur radio community.

Tower Party

A crank-up 3-section 50 ft. tower was removed on May 22nd 2007 from the QTH of Kenneth Clayton, WA6GXS. The following people attended.

Bob Kruger K6DEX Paul Dorey WN6K Dennis Vernacchia N6KI Wild Bill Wiederhold WB6BFG Jim Egerton W6SST Paul Williamson KB5MU Michelle Thompson W5NYV

Most of them did some work on the tower. Some of them were instrumental. According to rumors overheard at the scene, at least one of them was in charge.



Planning session.



Preparing to hinge the base.



Tower winched down.



Antenna on the ground and disassembled.

Vintage Radios By Ron Pollack

Last month we discussed the earliest of the Heathkit Amateur Radio kits, the AT1 transmitter and AR2 receiver. These kits were very successful for Heath, but more importantly they proved that a viable market existed for low price equipment in kit form among the growing thousands of Novice licensees.

Heath jumped on the bandwagon, and was joined by others, notably Johnson Viking (who had been producing complex transmitter kits for several years), Knight Kit (Allied Radio), Eico, Globe (World Radio Labs), and others. The AT1 transmitter had two big drawbacks: Limited power and no antenna tuning stage. In that era, transmitters were rated by input power, rather than output as is common today. Input power was calculated by multiplying plate voltage times plate current in the final stage. Output depended on the efficiency of the tube and circuit, but was in the 60% range. Depending on the antenna tuner and antenna, only 10 to 15 watts actually went into the antenna from the typical AT1. Novices were limited to 75 watts input, so there was a demand for more power.

So, in 1957 the ATI was replaced by the DX 20, which became one of Heath's most successful transmitters ever. The DX20 boasted a TV sweep tube as the final, with 50 watts input and a wide range pi network output capable of matching 50 to 1000 ohm loads. The previous year, the DX 35 was introduced, with more power and a screen modulator. (We'll feature this one next month.) In order not to compete with the DX35, the DX20 had no provision for adding a modulator or VFO once the coveted General Class ticket was obtained. It was possible to use a VFO, but a wiring change was needed, and no auxiliary power connector was furnished, so a self

powered VFO or separate power supply was required. Heath sold thousands of them at \$36. There were many offered in the used market when their owners upgraded to General.

An example of the higher end of the low power CW offerings is the Globe Chief 90, available in both kit and wired form from WRL, World Radio Labs. It was introduced in 1956. This unit was meant to appeal to those who did not want to change transmitters upon upgrading. To this end, power was rated at 90 watts, with provision for operating at the legal 75 W Novice limit. Provision was made for VFO operation as well as screen and plate modulators. All of these accessories were produced by WRL. Pi network output was provided. The final stage consisted of 2 807 transmitting tubes, which were considered to be much more rugged than the sweep tube in the DX 20. The Globe Chief also included 160 meter capability, while most others were limited to 80 thru 10. Another nice feature was grid block keying as opposed to cathode keying used on most basic transmitters. A big advantage of grid block keying is that high voltage does not appear on the key terminals. This transmitter, which cost about \$60 in kit form, or \$75 in wired form, was a great success as well.

The marketing of kit transmitters aimed at the Novice was not matched by nearly the same number of receivers. In 1956, Heath replaced the AR2 with the AR3, but improvements were minimal. The AR series suffered from terrible sensitivity, selectivity, and stability. They were general coverage receivers, with a small bandspread control which was not calibrated for the amateur bands. There was no calibrator, so it was impossible to determine with any accuracy what frequency was tuned in. The Q multiplier, introduced in the late 50s, helped the selectivity somewhat, but for the most part, hams wishing for better receivers had to resort to commercially built units. There were plenty of these continued page 9



R55A with DX20.



Globe Chief 90 with Knight Kit R100.

continued from page 7 available, in a wide variety of price ranges, from manufacturers such as Hallicrafters, National, Hammarlund, and others.

Why the glut of transmitter kits and lack of receiver kits? One answer is that transmitters of the day, simple crystal controlled low power units, were relatively easy to design and, more importantly, easy to build successfully. There was little or no adjustment or alignment required and the chassis were big enough to have plenty of work space. Improving the AT1 type of transmitter by adding more power and a pi network output was relatively simple. All the Novice transmitters of the day consisted of an oscillator stage, one or two amplifier tubes, and a rectifier tube. They all used about the same number of parts.

However, improving a receiver was a much bigger challenge. To improve selectivity and sensitivity required more RF and IF stages, and improving stability required heavier duty components and shielding. Features such as crystal filters and noise limiters required still more tubes. Alignment of all but the simplest receivers required test equipment and skills not usually available to the typical Novice. It would be a number of years before Heath introduced a more sophisticated receiver.

The lone (as far as I know) exception was Knight Kit, owned by Allied Radio of Chicago. In 1958 they introduced a 9 tube general coverage receiver that was several steps above the simple AR2 and AR3. For a bit over \$100, a receiver was available with an RF stage and 2 IF stages, calibrated bandspread for the amateur bands, and a built in Q multiplier for added selectivity. A crystal calibrator, S meter, and matching speaker were offered as options. Oddly, it originally had no name or designation other than catalog number, but was soon named the R100, and a later version called the R100A. The only

difference between the 3 models was cosmetic. One way Knight was able to overcome the construction problems was to use printed circuit boards. Most parts were mounted on two printed circuit boards, and the control and interconnecting wiring was completed. This reduced the chances of wiring error, and added to the physical rigidity and stability. It was an outstanding value for the day, and was a great success. I bought one of these about 1960 and used it for several years. Compared to the primitive S38C I had previously, performance was several orders of magnitude better! This receiver is shown with the Globe Chief 90 discussed earlier, along with Heath's ubiquitous AM2 SWR meter.

Several years later, the R55 was introduced as a lower price version. This receiver also featured a large calibrated amateur bandspread. It had no RF stage or Q multiplier, but had 6 tubes, several of which served dual purposes. An unusual feature was that it covered 6 meters as well. The reason was probably compatibility with the T60 transmitter, a low powered CW and screen modulated AM transmitter, which also covered 6 meters. It also featured an internal speaker, unlike the R100. The one shown is the R55A model, identical to the R55 except for slight cosmetic changes on the panel. This sold for about \$65 in kit form. Many of these were sold, but it was never as popular as the R100 series. Knight Kit manuals were thorough and easy to follow, so most builders had little problem building their receivers. The one shown here is paired with the DX 20 discussed earlier. All these units are in good working condition!

Next month we'll show what happened when the Novice upgraded and was able to use AM phone and VFO!

Questions and comments welcome at K2RP@ARRL.NET

7-Land QSO Party Report by Harv K6QK

The 7Land QSO Party was held on Saturday 5 May and began at 0600 and ended at 2400 for a total of eighteen hours. The station is the new super station of Bud N7CW, a former resident of San Diego and now a permanent resident of Prescott, Arizona. The group invited to operate, along with Bud, were Jim K6ZH, Dave N6EEG, Paul NN6X and myself Harv K6QK. We also had the pleasure of Dennis N6KI joining us while on a one day stop on his way to Tucson. This group, except Dennis, operates the California QSO Party as W6PT, the call of the San Diego DX Club.

The drive from San Diego to Prescott was a 7-1/2 hour journey. It was without incident but when we arrived we were faced with winds gusting to 46MPH and temps in the low 60's. The nights were probably around the mid forties. We awakened to sunny skies but that turned to a sort of mist which produced small hail followed by snow and then just plain old overcast. We had it all. The end result of the weather was a high static noise condition as a result of the charged particles falling on the antennas creating difficult receive conditions. The crew operated 2-hour shifts throughout the contest giving everyone an equal opportunity to do their thing whether it is CW or SSB. We also had the opportunity to operate a new rig, an ORION II by Ten-Tec. The final results were QSO's: CW-561, SSB-599; Multipliers-65: Total Score-187.265 points. A good time was had by all.

The tower and antenna system were installed by Bud N7CW, Bruce N7TY, and myself K6QK. If you are interested in additional information and details of the station check out http://www.n7cw.com.

A special thanks to Bud and Susan for their hospitality. Photos courtesy of K6ZH.



Bud, Harvey, Paul, Dave, and Jim.



The antennas at N7CW.



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Directions: On 163, take Clairemont Mesa Blvd. off ramp to East. Stay in right-hand lane. Turn right at stoplight. As you are turning right you can see our beams in this shopping center. Travel 100 yds. On Kearny Villa Rd. and U-turn back to shopping area and HRO sign. Be sure to see our equipment in Address service requested

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Submissions:scope@palomararc.orgQuestions? Ideas? Comments?W6NWG@amsat.org

This month's General Meeting will be held on July 11th, 2007 (Usually the first Wednesday of each month, but not this month) at the Carlsbad Safety Center. The subject will be Handi-Hams. Talk-in on 146.730 MHz repeater. Meeting starts at 19:30. Ridesharing and coordinating for dinner beforehand often occurs on the repeater on Wednesday afternoons. Everyone is welcome! The Palomar Amateur Radio Club serves the Amateur Radio community of San Diego County California with repeaters located on Palomar Mountain. The club has monthly meetings, Field Day festivities, an annual auction, and many other fun and interesting functions. All are welcome at our club meetings and onthe-air interactive radio nets which now feature discussion groups on hiking, microwave, off-roading, as well as traditional message traffic and emergency communications nets (RACES - ARES - MARA). 73 and hope to CU you on the air! -NN3V (past president of PARC)