



Smoke Signals

Newsletter of Fullerton Radio Club

May 2018

May 2018 President's Column

I'd like to thank everyone who attended *Antennas In The Park* for helping to make it a fun, memorable, and well-attended event. Club events are truly a group effort, and everyone who attended contributed in some way, if only by their presence.

For those of you who are into statistics, we have 27 names on the sign-in sheet, but I have already noted several people who I saw but did not sign in. I'm guessing we had about 35 attendees.

There are a few key folks, without which *Antennas in the Park* would not have happened, I would like to recognize them individually. A big thank you to Gene for securing the Izaak Walton League Cabin for us. Having the cabin really enhances the quality of the event. We had a clean, cool, shaded place to prepare the food and the shady front porch was especially appreciated once the mercury (or should I say thermistor) passed 90°! Thanks to Albert and Helen for transporting the grills, and cooking the delicious burgers and Polish sausages. Thanks to Joe and Marvin for setting up and administering the ARDF course. (Marvin drove from Santa Barbara to help facilitate the ARDF event). It was good to see a few new faces who came to run the ARDF course. I'd like to thank April for securing the traditional Foxhunting Cake. April also administered first-aid when I tried to

remove one of my fingers while opening a plastic bag with a very sharp knife. Now everyone knows why I'm not allowed in the kitchen at home. Dick Palmer and William Phinizy strung a dipole in the trees and set up an HF rig, for a few contacts. They also made some contacts in the microwave contest that was going on. Paul, Gene, and Cheryl had us represented on VHF and UHF. So, yes, there were a few "Antennas in the Park."

Perhaps *Antennas in the Park* can serve as a reminder that it can be fun (and challenging) to set up a station outdoors under less-than-ideal conditions. It is also good practice, should you ever need to do this in an emergency. I hear there is an ARRL event in June dedicated to this very purpose...

The last time that the Fullerton Radio Club operated Field Day as a club, was long before I joined (was it back in 2011?), but that needn't stop you from finding a group who is participating, and joining in the fun. I'm sure you know that Field Day is June 23-24 this year. If you don't get outside, you can help other stations get contacts by running as a Class E or F station from your home.

Until next time...

73, Bob - AD6QF

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Show –and–Tell

Bring something of interest to the meeting to show and share your story.
Something old, new, or just of interest to hams.

Web site: www.FullertonRadioClub.org

May Board Meeting Minutes

The May 2018 FRC Board meeting was called to order at 7:28pm by President Bob Houghton. Others present: Walter Clark; Treasurer Gene Thorpe; KB6CMO; Secretary Linda Endsley KJ6IHB. Directors: Larry McDavid W6FUB; Paul Broden K6MHD; Member: Cheryl Thorpe KE6TZU.

Treasurer's report: Savings - \$2,607.46; Checking - \$4,174.08

Old Business:

There were four new amateur radio operators to help with Donate Life.

New Business:

Bob Houghton will contact previous members who haven't paid dues recently.

Need to think about nominees for the upcoming election.

Speaker for June will be Walter Clark.

Antennas in the Park will be May 5. Paul will send out reminders.

Field Day will be June 23/34.

Because the July Board meeting falls on July 4th, the meeting will be on Tuesday, July 3.

Next board meeting: 6 JUNE 2018

Adjourned at 8:08 pm

Submitted by Linda Endsley KJ6IHB

Donate Life Thanks

The Donate Life Run/Walk Staff and I would like to thank all those people who volunteer to help out with this year's Run/Walk event. There were 23 Amateur Radio Operators to help out with event this year. Many thanks to all of you for your help with this event.

God Bless America & U 2

Gene Thorpe KB6CMO

May Meeting Presentation

Civil Engineering in Fullerton – Or . . . "Dams and Spillways of Fullerton"

By Walter Clark

Walter got interested in the civil engineering of water in creating background information for his website, FullertonWalks dot com. Fullerton is unique in many ways, one of which is that it is a city with three dams. And of course the hundreds of acres of flood control basins associated with them. The talk will use the Fullerton Dam and the Brea Dam as examples in explaining how flood control dams are built and how they work. He will only touch on dams for power and dams for recreational lakes.

The dams themselves are rather boring because their job is to reduce the peak flows to something easily handled. It is boring even in the case of the worst storm in history. What's interesting is the spillways during the worst storm in history; when they are protecting their dams by the controlled release of millions of gallons per second falling hundred of feet. It's fun to run through the numbers and the details of what happens when the spillway is in the process of protecting the dam.

The only connection with radio Walter could think of, is a hill between the spillway and the dam that has something to do with the olden days of the Fullerton Radio Club. (The hill in the center of this picture.)

[Editor's note: FRC used to hold Field Day from the hill at Skyline Drive and Acacia Avenue, circa 1960 or so.]



Hillcrest Park ARDF on 5/5/2018

Photos and report below by Joe Moell KØOV.

There was no May-gray to keep things cool at Fullerton Radio Club's annual Antennas In The Park session. The temperature in Fullerton topped out at 94 degrees as members and friends gathered in Hillcrest Park for ARDF, food and radio fun. It was pleasant inside the Izaak Walton cabin, where several newcomers built tape-measure yagis. Just outside were three easy two-meter transmitters for training and antenna testing.

The five-fox ARDF course had an extra challenge because one of the transmitters went berserk and began randomly QRMing some of the others. Nevertheless, three of the teams solved the problem by taking careful yagi bearings to distinguish between two simultaneous transmitters. It was a quick sprint through the 40 acres for Bill Wright WB6CMD, who found all five in less than 43 minutes. Here are the complete ARDF course results:

TWO-METER COURSE RESULTS -- 5 FOXES

Name and call	Time	Foxes
Bill Wright WB6CMD	0:41:38	5
Michael Hart KC6MEH with Mary Ann Hart KM6NCA and Michael Wertenberger	1:17:00	5
Allison Lindauer KG6AAT with J. R. Lindauer and Dean Dods KD6I	1:39:27	5
Scot Barth KA6UDZ	1:26:00	4
Jordan Heichman WC6J	3:16:35	4
John Frerichs N6VCW with Don Frerichs KJ7GS	0:56:00	1

I was hoping that all newcomers would try to find my 80-meter transmitter, so I put it just 350 feet away. However, most folks were too tired after completing the two-meter course. (And they wanted to eat, too!) Here are the 80-meter results, which was another sprint for most:

EIGHTY-METER TRANSMITTER RESULTS

Name and call	Time
Bill Wright WB6CMD	3:03
Scot Barth KA6UDZ	5:00
Robert Canillas AD6XJ with Jenna Canillas KBØZDR	8:00

Parking was more difficult than usual this year because Fullerton city VIPs picked this day for ribbon-cutting of the refurbished fountain in the newly-landscaped Great Lawn portion of the park. They arranged for additional public parking a quarter-mile away across the street, but they had many spaces within the park roped off to provide close parking for themselves.

Thanks to everyone who made it a great day, including Gene Thorpe KB6CMO for arranging for the cabin, Bob Houghton AD6QF for procuring the food, Albert Solomon AG6OF for barbecuing and April Moell WA6OPS for bringing and cutting the traditional Foxhunting Weekend cake. Thanks to Marvin Johnston KE6HTS for providing the antenna building session and Tom Gaccione WB2LRH for helping to train new hunters.

Joe Moell KØOV

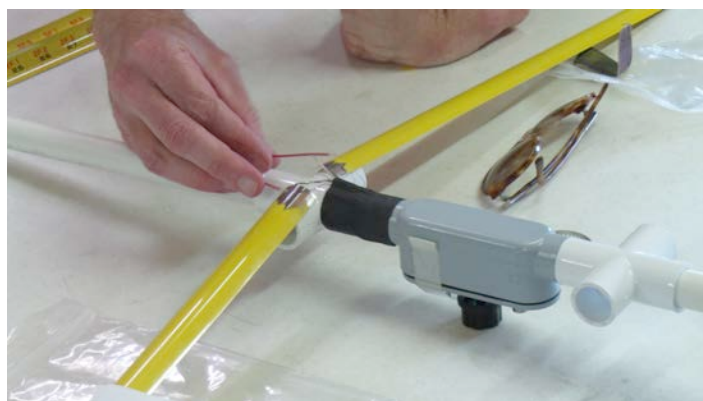


Antennas In The Park photos

More Antennas In The Park



Dick Palmer WB6JDH 40M QRP



Hook it up here



Will Anderson AA6DD with QRP kit



And solder Here



Gene Thorpe KB6CMO VHF/UHF



Michael KC6MEH & Mary Ann KM6NCA with instructor Tom Gaccione WB2LRH



Antenna Construction Table

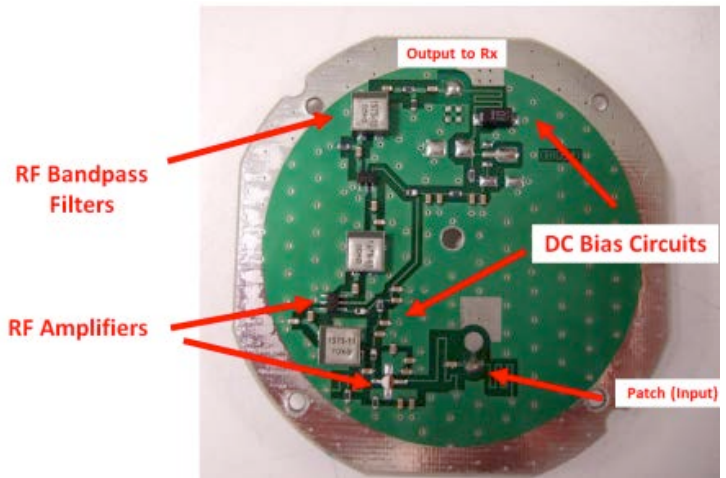
Activity Reports of the Fullerton Radio Club (Technical Advisory Group) for May 2018

Larry McDavid brought a friend, Dr. Jim Kreter (lives in Riverside). Jim and Larry are friends from the Southern California Home Shop Machinists and the Microscopical Society of Southern California. More on Jim later.

Tom Gaccione prepared for us and gave a Power Point presentation on the repair work he did on Larry McDavid's GPS antenna. (The antenna is on a short tower above Larry's house in Anaheim. He uses the GPS signal as a source of precise time for his clock projects.) Dr. Jim Kreter brought the projector and screen; thank you Jim.

In the first slide Tom showed us he found the problem in the form of a poorly cleaned solder joint. But not knowing that he did, he injected a signal into the front end and found it to be working. But how well? Tom stepped us through the various components of a microwave circuit board. (1.5 GHz) to show how the gains are added up. He used the part numbers on the amplifier chips to get what the gain was supposed to be. Measured and added-up specs seemed to be the same. What was valuable for us

was the stepping through of the parts on the board. See picture above. In the microwave, capacitance and inductance are achieved by the width, length of a squiggle in the traces.



Dr. Jim Kreter has quite a machine shop and he has done many projects with it, but for the newsletter it's probably enough to tell a bit of his history. He is a recently retired Ophthalmologist. His involvement into electronics, and computers was an amateur shortly after starting his career as an eye doctor. He was inspired by his wife who held a job with ESRI. <https://en.wikipedia.org/wiki/Esri> His first project was a computer he made from a kit in 1978. Larry McDavid and Bill Webb had similar starts at about the same time.

John Stevenson talked about a mechanical project he was working on for his archery club. It is a radio controlled moving target. The present payload is a life size deer made of foam rubber.

Later in the evening the subject changed to large amateur rockets where he talked about his extensive experience (with Bill Webb).

Bill Webb described the building of his 3-D printer (a kit from China) and passed around a small plastic emblem that was made from software which the maker of the printer provided as an example. The most interesting feature of this printer is that the finishing touches such as guide-ways for the plastic feed stock were in the form of software which Bill had the machine make. It can almost be said that the unit makes itself.

Tom Fiske described the progress he's making with PSK31 and the newer FT-8 on his Icom IC-7600. He said he was able to reach Russia on 10 watts with this digital modulation. He led a discussion on CW and the human ear vs the teletype-like communications of the digital ham world.

Walter Clark passed around a scientific toy which didn't work. It was a thick walled clear plastic cylinder and piston to demonstrate compression heating. There was a tiny wad of cotton at the end which was supposed to burst into flame by the compressed air when the handle was struck by the hand. It was several years old and it had developed some cracks on the side. But that led to a discussion on how compressed air underground can combine with tar to burn the tar so that the now warm dirt down there will liquefy the tar so it can be pumped out. That research was done in the research facilities Standard Oil had in the 50s and 60s. This was in La Mirada and Brea.

Rich Belansky announced his retirement in only 24 months. (Tom, by the way will retire in December.) Rich's long range slow progressing project is cosmic ray detection. (Slow... remember he's still working.) He showed us the detector last month. This month was just reading about the history of nuclear research. Not just

weapons but reactors too. Three of the five books he read were written by James McCarthy. Rich related some really quirky weird projects they did in the days before nuclear safety was a thing. Heads up on this subject. If he can find the time to put together a slide show, this would make a fantastic Tech Talk for the third Wednesday FRC meeting.

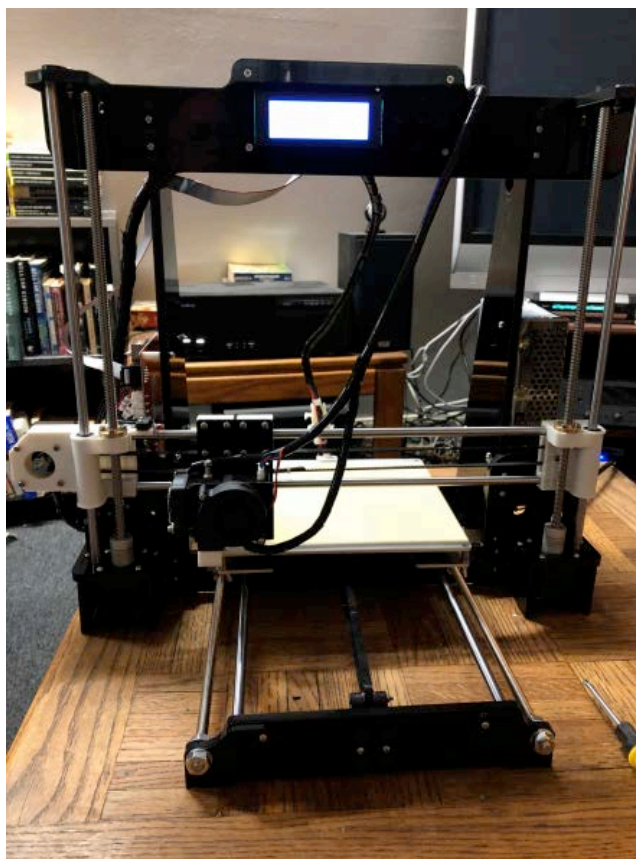
Tom Gaccione told us of the opportunity to see through the 100" and to hear a talk on Asteroid Impact. <https://mtwilson.z2systems.com/np/clients/mtwilson/event.jsp;jsessionid=EBEB0F9AD4126F81803B83B2F9943369-n1?event=281> This event is May 19th at 5:30 until midnight.

Dick Bremer brought along a tool for straightening out BNC female connectors which are on the instrument panels that have fallen on something hard. He passed that around which inspired a discussion on other ways to do it.

He also passed around a 10 GHz transverter he built from a kit. He has a couple of higher power ten-gig rigs, but couldn't resist building this project. It is only few milliwatts, which is plenty for the microwave. It transverts down to 2 meters.

Joe Moell reported on the T-Hunt that was the main activity of the Antennas in the Park event last weekend. The details of which can be found elsewhere in this newsletter and perhaps in even more detail at homingin.com. However, what was on his mind was a project involving his roving radio station in the form of a van. He was moving the gear out of the old one and into a newer van. The major modification involves the rotating mast. He claims it will be easier on the new van because it has a sun roof. (Not clear how that's easier.)

Brooks Kachner reported that after all these months his garage is finally getting rebuilt. It is framed and the new garage will include a workshop and radio room. His latest activity is babysitting his grandson and using that time to study his Raspberry Pi powered WSPR setup. Of most interest perhaps is his on-going project to evaluate the millampere hours of various brands of double A batteries. Why this is taking so long is that he's measuring them at very low discharge rates where they last many days. (Data is available on the net for much heavier loads.) He said he's done with the carbon zinc set of cells.



Bill Webb's 3-D Printer

Repair of Bent BNC Connectors

By Larry McDavid W6FUB

I have a number of tools I use to repair or reshape bent shells of BNC connectors. Dennis Tillman's idea on TekScopes to use a common Xcelite 3/16-inch (black handle) nut driver is a good one so long as the BNC shell is not so bent that the nut driver cannot be started into the connector. It is fortunate that the OD of the nut driver is slightly smaller than the ID of the BNC shell and that the ID of the nut driver is large enough to fit over the center contact of the BNC connector. If the BNC shell is bent so badly that the Xcelite nut driver cannot be started into the BNC shell, I have two uncommon tools I use.

A picture of my 60+ year old Xcelite nut driver set is attached. These tools are old friends and have served me well over the years. The red-handled 1/4-inch nut driver is the most commonly used. The 3/16-inch (nut hex size) driver is on the far left of the set. Similar sets of these nut drivers are available today, without the metal hinged case.

The first uncommon tool, and least potentially damaging to the instrument on which the BNC is mounted, is the MicroMark plier hand tool with parallel-acting jaws and mating concave-convex cylindrical tips that is very helpful in this case. The convex tip that must go inside the shell is tapered to quite a small diameter tip end so I can always get the tool into the connector shell to start the bending-out of the shell. It happens that the concave tip used on the exterior of the BNC has a radius that closely matches that of the BNC shell. Using this tool does not apply any force to the connector mounting if used correctly. See attached picture. The mating surfaces of the two jaws are parallel, but you must look carefully at the picture to understand that. I believe this tool is offered by MicroMark for forming precious metal wire for jewelry.

The second uncommon tool is an inexpensive set of leather punches of various size punches with a common handle; see pictures of the set. The end of the tapered outside diameter varies from punch to punch, from small to just barely too large to fit in a good BNC. This set of punches is an alternative to the plier but requires more pushing on the BNC, with increased risk to the instrument. I believe I got this tool years ago on Amazon; something similar must still be available.

Note there is a typo on the label insert for the leather punches! The smallest punch is 3/16-inch, not 3/46-inch diameter as printed. In fact, the actual punches are larger than these diameters but are meant to produce the specified hole in leather stock when it is punched with this tool.

Sometimes I use the leather punches after I open up the BNC shell with the plier tool. The punch engages only the outer end of the BNC shell, however. The plier tool can reach far down into the BNC shell.

Used together, these three tools can repair most BNC connectors with bent shells. HP often put BNC connectors on the very bottom edge of rear instrument panels and, if the instrument was picked up front-first, those BNC shells got bent.

Additional comments later:

I have this hole punch set also and use it occasionally on bent BNC connector shells. It is actually sold as a leather hole punch; the set I have is labeled, "Tandy Leather Factory" and is currently listed on Amazon as, "Maxi Hole Punch Set Leather Leathercraft Tooling" for \$13.00.

The problem with this type of tool is that it engages the bent connector shell only at the outer end because the tool is tapered. Shell bends that extend further down can't be easily fixed with this too.

That's why the parallel-acting-jaw plier tool from MicroMark I described earlier here is better to use to begin with. It is actually sold for jewelry making. This tool is described as, "Parallel Jaw Tapered Concave Plier" Item #86634 from MicroMark and sells for \$12.95 on-line. Several of you have asked for a picture of that tool and I will send it to those who ask.

Dennis Tillman's suggestion to use a 3/16-inch nut driver is still a good one, once you get the bent BNC shell opened enough to get the nut driver inserted. The advantage of the nut driver is that the cylindrical end will fit way down into the BNC shell and help straighten bent areas down from the outer end of the BNC. I don't know if all 3/16-inch nut drivers have the same outside size but my old, metal-case Xcelite nut driver set has a 3/16-inch driver that fits fine.

Yes, some care is needed when doing this repair. But, some BNC connector nuts are so difficult to access behind the panel that repair is the desired approach.



Excelite Nut Drivers



MicroMark Plier



Single Hole Punch



Maxi Hole Punch Set



BNC Installation Tool



BNC Installation Tool



BNC Wrench; MatthewsEng.com

NEXT FRC MEETING

Wednesday, May 16, 2017

Chapman Activity Center

2515 San Carlos Drive, Fullerton
(Second street east of State College Boulevard
off Commonwealth)

Meeting time – 7:00 PM

Visitors are always welcome

Dinner before the Meeting:

Black Bear Diner

5:00 PM

1011 N. Harbor Blvd., Fullerton (at Berkeley)

June BOARD MEETING

Open to all Club members

Marie Callender's Restaurant

126 Yorba Linda Blvd., Placentia

First Wednesday of each month.

Next Board Meeting

June 6, 2018

QSO and dinner; 6:30 PM

Meeting: 7:30 PM

MEMBERSHIP RENEWAL / APPLICATION

Fullerton Radio Club
PO Box 545, Fullerton, CA 92836

(Please Print)

Name #1 _____

Call: _____

Class: _____

Name #2 _____

Call: _____

Class: _____

Address: _____

City: _____

State/Zip: _____

Phone #1: _____

Email #1: _____

Phone #2: _____

Email #2: _____

ARRL Member ☐ Yes ☐ No

Special Amateur Radio Interests: _____

Dues are \$20 per member, or \$25 per family. Students (full time) \$10

Bring your application and dues payment to the next meeting or mail to the above address