The next regular meeting will be:

Friday, Feb 20th 2004
@ 7:00 PM

We will be meeting in Room 208
in the east Red Cross Bldg.

Reminder:
It's time to pay your club dues for the 2004 year.
You must pay by March 31st to remain a member in good standing and be included on the private roster.
Dues remain at $20, the same as last year (Bet your cable TV company can't say that!) Please pay Bob, KD6BWH at a meeting or breakfast, or mail your dues to our P.O. Box.

73, Steve, KB1GZ

The Board bestowed one of its highest honors upon retiring ARRL VP, Fried Heyn, WA6WZO [longtime OCARC member – ed.], by electing him to the position of ARRL Honorary Vice President. The Honorary VP position recognizes sustained and outstanding contributions to ARRL and Amateur Radio over a period of more than 20 years. Fried's track record of service as an ARRL official extends from 1978, when he was elected as the Orange Section Manager. The Honorary VP position is for a lifetime term.

(From the ARRL SWD Newsletter)

Greetings. Here's some info on a Western Regional Conference of Amateur Radio Astronomers that I thought you might be interested in. The Society of Amateur Radio Astronomers (SARA) is "The ARRL" of amateur radio astronomy. (Many (>50%) SARA members are hams).

See: News, on page 3

Next Club Breakfast & Open Board Meeting
March 6th 2004
2004 Board of Directors:

President:
Steve Brody, KB1GZ
(714) 974-0338
stevebrody@sbcglobal.net

Vice President:
Ken Konechy, W6HHC
(714) 744-0217
kkonechy@pacbell.net

Secretary:
Rich Helmick, KE6WWK
(714) 343-4522
r2535@sbcglobal.net

Treasurer:
Bob Buss, KD6BWH
(714) 534-2995
kd6bwh@aol.com

Membership:
Chris Winter, W6KFW
(714) 543-6943
cwinter727@aol.com

Activities:
Carl Schmid, WA6BSV
(949) 679-6970
wa6bsv@arrl.net

Publicity:
Matt, K6LNX
(714) 546-2228
k6lnx@arrl.net

Technical:
Tom Thomas, WA6PFA
(714) 771-2917
eelmert@aol.com

Members At Large:
Larry Hoffman, K6LDC
(714) 636-4345
k6ldc@earthlink.net
Lowell Burnett, KQ6J D
(714) 997-0999
LBurn729028@aol.com

2004 Club Appointments:

W6ZE Trustee:
Bob Eckweiler, AF6C
(714) 639-5074
af6c@arrl.net

Club Historian:
Bob Evans, WB6IXN
(714) 543-9111
bobev@netzero.net

RF Editor (Acting):
Bob Eckweiler, AF6C
(714) 639-5074
af6c@arrl.net

WEB Master:
Ken Konechy, W6HHC
(714) 744-0217
kkonechy@pacbell.net

ARRL Assistant Director:
Ken Konechy, W6HHC
(714) 744-0217
kkonechy@pacbell.net

ARRL Awards Appointee:
Larry Beilin, K6VDP
(714) 557-7217
k6vdp@aol.com

OCCARO Delegate:
Bob Buss, KD6BWH
(714) 534-2995
kd6bwh@aol.com

Monthly Events:

General Meeting:
Third Friday of the Month
At 7:00PM
American Red Cross
601 N. Golden Circle Dr.
(near Tustin Ave & 4th St)
Santa Ana, CA

Club Breakfast:
First Saturday of the month at 8:00 AM
CowGirl’s Cafe, Too
2601S. Harbor Blvd.
(just south of Warner)
Santa Ana, CA

Club Nets (Listen for W6ZE):
7.115 MHz CW OCWN
Sun - 9:00 AM - 10:00 AM
Rick KF6UEB, Net Cntl.
28.375± MHz SSB
Wed - 7:30 PM - 8:30 PM
Bob AF6C, Net Control
146.55 MHz Simplex FM
Wed - 8:30 PM - 9:30 PM
Bob, WB6IXN, Net Control

VISIT OUR WEB SITE
http://www.w6ze.org
for up-to-the-minute club information, the latest membership rosters, special activities, back issues of RF, links to ham-related sites, vendors and manufacturers, pictures of club events and much much more.

Club Dues:
Regular Members ....... $20
Family Members* ...... $10
Teenage Members ...... $10
Club Badge** .............. $3
Dues run from January thru December & are prorated for new members.
*Additional members in the family of a regular member pay the family rate up to $30 per family.
**There is a $1 charge if you’d like to have your badge mailed to you.
“HAM ON ICE”
Recalled by Larry Hoffman, K6LDC

Sounds like a not-so-tasty lunch dish, but for Fred Whiteside, W5ABG, it was a way of life in November of 1952. Whiteside was a U.S. Air Force radio operator stationed on Fletcher’s Ice Island at the North Pole. His post at the huge floating polar ice island was a USAF weather station established during the previous spring.

Whiteside made a prior arrangement with Bill Cowles, KL7AN, of Fairbanks, Alaska, to attempt to make contact at the same time daily. A convenient time for Cowles was 10 PM Fairbanks time, but made little difference for Whiteside because it was dark 24 hours around the clock. For their first contact and the world’s first Amateur radio contact with a floating polar ice island, the time was 3 AM the next morning, Whiteside time.

Whiteside’s time was really insignificant because at the pole, moving a little to the east or west could not only change the time, but the day itself. Cowles asked Whiteside if the island was actually floating; the answer was yes, but that it probably wouldn’t travel far until spring.

Author’s note:
I’ve been to the Geographic North Pole. It was about two years after this incident. Fortunately for me, I was not stuck on an ice island, but just flew over it as an off-shoot of my U.S. Navy duties in anti-submarine patrol. I’d like to point out that this was a boon to W5ABG, being able to talk regularly with someone stateside while stuck for months in what might be described as the most desolate spot in the World. Hanging antennas must have been quite a problem. And you thought you had it miserable!

QST! THE ULTIMATE ASTRO-NOMICAL EXPERIENCE!
From: Sirius Astronomer
It is Perfect for armchair astronomers – from the comfort of your computer! – take your own CCD images, NO SPECIAL SOFTWARE REQUIRED! – ready to use in minutes – no expensive equipment to purchase - perfect for those with physical disabilities... and more!... Interested?... Call Rent-a-scope at (714) 501-8247 anytime! And check out:

http://www.arnierosner.com

News, cont. from page 1
Please pass the word on to technically-minded hams who might like to attend.

The conference is being held at the Owens Valley Radio Observatory, Feb 28 & 29, 2004. More info at:
http://www.qsl.net/SARA/meetings/owens04.htm

73, Art Goddard, W6XD
Director
ARRL Southwestern Division

MY NOVICE DAYS – Part I:
by: Bob AF6C

I don’t recall when I first got interested in electricity. I do recall playing on the living room floor, when I was seven, with a #6 battery, some bell wire, knife switches, a door buzzer and small lamp; creating all kinds of simple circuits. I was living in the town of Manhasset, on Long Island. My interest in radio, with the exception of building a kids crystal set, didn’t begin until my dad brought home a National NC-88 communications receiver. He bought it from Terminal Radio on Cortlandt Street in New York City, An area known in the fifties as Radio Row. I remember putting up a “short” wire antenna above the ga-
Capacitors - Part I

Last month on the ten-meter net the discussion turned to capacitors, and some of the participants thought it would make a good topic for TechTalk. After all, capacitors are found in virtually every electronic component; they play an important part in antennas, power supplies, and tuned circuits, without which radios wouldn't work.

So what is a capacitor, and what does it do? Capacitance is one of three basic building blocks of electronic circuits. The others being resistance and inductance. We've discussed resistance, and ohms law, in prior TechTalk articles. Perhaps we'll get to inductance in a future series. We know resistance dissipates electrical energy; briefly, inductance stores electrical energy in a magnetic field and capacitance stores electrical energy in an electric field.

The basic capacitor is made up of two parallel conductive plates separated by a dielectric such as air. Many other dielectric materials can be used and we'll discuss them later. Initially, the two plates have an equal number of free electrons on them (because they are conductive), and there is no electric field between the plates; the capacitor is said to be discharged. When a battery is placed across a capacitor (see Figure 1) a current flows in the circuit as electrons flow into the negative plate and electrons leave the positive plate. This current is limited only by any resistance in the wires and battery. As the electrons flow in the capacitor, the difference in electrons between the negative and positive plates creates an electric field between the plates. When the magnitude of this electric field is equal to the battery voltage, no more current flows and the capacitor is said to be charged. If you were to measure this electric field between the plates by inserting a probe, you would find that the field varies linearly as you move from one plate to the other.

In other words when half way between the plates the field would measure half of the full field, referenced to one of the plates.

Back in the earlier days of electronics, when Hertz were known as megacycles-per-second (mcs), or just megacycles for short, capacitors were known as condensers, and picofarads were called micromicrofarads (µµf). These terms have all but disappeared, but you may hear old-timers refer to them or see them used in older books. A heated discussion about using “condenser” happened in the late fifties. Many complained that it was an air-conditioning component and not an electrical component!

The capacitance of a capacitor can be calculated from its physical properties. The equation for a two plate capacitor is straightforward:

\[ C = \frac{0.225KA}{d} \]

where:

- \( C \) = capacitance in picofarads
- \( K \) = dielectric constant
- \( A \) = the area of one plate
- \( d \) = distance between plates

The dielectric constant depends upon the material in between the plates. Vacuum has a dielectric constant of one by definition. Air's dielectric constant is also around one (1.0006). Paper used to be a very common dielectric, but has been replaced with polyester film or similar materials. Other materials provide \( K \) in the range of 1 to 7,500 as shown in Table 1.

<table>
<thead>
<tr>
<th>Material</th>
<th>( K )</th>
<th>( V/mil )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Space</td>
<td>1.0000</td>
<td>75</td>
</tr>
<tr>
<td>Air</td>
<td>1.0006</td>
<td>75</td>
</tr>
<tr>
<td>Paper</td>
<td>2.5</td>
<td>500</td>
</tr>
<tr>
<td>Polyester Film</td>
<td>3.0</td>
<td>1,000</td>
</tr>
<tr>
<td>Transformer Oil</td>
<td>4.0</td>
<td>400</td>
</tr>
<tr>
<td>Mica</td>
<td>5.0</td>
<td>5,000</td>
</tr>
<tr>
<td>Glass</td>
<td>6.0</td>
<td>3,000</td>
</tr>
<tr>
<td>Ceramic (BST)</td>
<td>7,500.0</td>
<td>75</td>
</tr>
</tbody>
</table>

*1 mil = 0.001 inch

Table 1 – Dielectric Properties
Dielectric also acts as an insulator. Some materials resist voltage breakdown better than others, also as shown in Table one. A third consideration for a dielectric is how it varies with external parameters such as temperature, frequency, etc. While stability might not be critical in a power supply, it is in a frequency determining circuit such as an oscillator, a filter or even an IF amplifier. Sometimes, however, a capacitor utilizing a dielectric that changes with temperature can be used to compensate for other components that drift with temperature in a frequency determining circuit. Some ceramic capacitors are made with known temperature coefficients for just this purpose.

Capacitor construction varies; often there are multiple alternating plates. This allows for higher capacitance since both sides of the plates are active areas. Capacitors may also be made of two long strips of foil alternating with two strips of dielectric material and then rolled into a cylinder (See Figure 2). Numerous other types of construction exist, each with its own benefits and drawbacks.

One type of capacitor that is very common is the electrolytic capacitor. It has very high capacitance for its size, and is normally a polarized device. The circuit it is used in must be designed so that the capacitor terminal marked positive is always more positive than the negative terminal.

The electrolytic capacitor is made up of two aluminum plates with an absorbent material between them. The material is saturated with a conductive liquid or gel called an electrolyte. The capacitor is then formed during manufacturing by applying a current limited voltage across the two plates. The current that initially flows creates a very thin layer of aluminum oxide at the positive aluminum plate. Aluminum oxide is a very good insulator. The aluminum plates are usually rolled and placed in an aluminum can that also houses the electrolyte. Electrolytic capacitors may also be made using tantalum instead of aluminum. Tantalum provides an even higher capacitance per unit volume, but is more restricted in its voltage range. One of the major uses of electrolytic capacitors is as filters in power supplies and power leads. They are also useful as coupling capacitors at lower frequencies.

Electrolytic capacitors can be easily damaged by applying excessive voltage or voltage of the wrong polarity. Reverse polarity will go unnoticed at first, with some reduction in capacitance until the oxide plating is used up. The electrolyte will then heat and give off gas possibly causing the capacitor to explode. Most electrolytic capacitors have a vent system to let the gas escape, but the vent is initially sealed and when it opens it is often accompanied by a bang that would make many firecrackers proud! The electrolytic material is corrosive and should be cleaned up quickly if it leaks to prevent further damage. We'll discuss electrolytic capacitors further in an upcoming TechTalk. Next month we'll continue our discussion of capacitors.

To review recent issues of the Tech Talk column go to our website at: http://www.w6ze.org

Novice Days from page 3.

name of Todd was studying for his ham license and leant me an ARRL License Manual. I had also found a 1940 ARRL Handbook in my dad's library. My real start began, however, when I visited George, W2CJY, the father of a girl I attended school with. Unfamiliar with the lingo, I really expected to be led to a rundown wooden hut in the backyard, but George's "shack" was a spare bedroom filled with very impressive equipment. Single sideband was quite new in the fifties but George was a pioneer using a Central Electronics 20A exciter, an HQ-129X receiver, and a homebrew linear amplifier in a seven-foot relay rack that dwarfed the other equipment. George made a few contacts, but I was most impressed with the linear. It had a glass window in front of the mercury vapor rectifiers (816's), so you could watch them glow bright blue as he talked. An another window, screened in, that showed the three power tubes with their plates glowing a dull red on voice peaks. I was hooked!

That afternoon I started studying code and theory in earnest. I ordered parts and built a code practice oscillator using one of the first commercially available transistors, the Raytheon CK722. I believe the circuit came out of Popular Electronics. By early spring of 1959 I was ready to take my novice test. That day I had ridden my bicycle to Arrow Electronics in Mineola, (a good distance for a young boy!) and just happened to ask the guy behind the counter if he knew of someone who could give me my novice test. He volunteered and the next day I sent to the FCC for the paperwork and test. The day of the test finally came and my dad drove me into Mineola. The gentleman in the store took me back into his office, opened an Ameco code record and administered the code portion of the test. After that success, the theory part was easy; I remember

See: Novice Days on page 7
**Statement of Receipts and Disbursements with Cash Balances**

For the Twelve Months Ending December 31, 2003

<table>
<thead>
<tr>
<th>Receipts:</th>
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<tbody>
<tr>
<td>Uncategorized</td>
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<tr>
<td>Auction In</td>
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<tr>
<td>Badge Income</td>
<td>13.50</td>
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<tr>
<td>BADGE MAILING</td>
<td>2.00</td>
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<tr>
<td>Donation - W6NGO Trust Fund</td>
<td>400.00</td>
</tr>
<tr>
<td>Dues, Family</td>
<td>120.00</td>
</tr>
<tr>
<td>Dues, Membership</td>
<td>777.00</td>
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<tr>
<td>Equip Sales</td>
<td>15.47</td>
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<tr>
<td>Interest</td>
<td>16.81</td>
</tr>
<tr>
<td>Raffle Reg Income</td>
<td>283.00</td>
</tr>
<tr>
<td><strong>Total Receipts</strong></td>
<td><strong>$2,777.54</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Disbursements:</th>
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</thead>
<tbody>
<tr>
<td>Auction Expense</td>
<td>952.88</td>
</tr>
<tr>
<td>Auction Out</td>
<td>60.00</td>
</tr>
<tr>
<td>Donation - OC Fair</td>
<td>50.00</td>
</tr>
<tr>
<td>Donation- OTHER</td>
<td>100.00</td>
</tr>
<tr>
<td>Field Day Food</td>
<td>110.00</td>
</tr>
<tr>
<td>Field Day Other</td>
<td>44.23</td>
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<tr>
<td>Insurance Expense</td>
<td>333.44</td>
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<td>Mailing Letter</td>
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<td>Miscellaneous Expense</td>
<td>21.00</td>
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<td>PO Box Rental</td>
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<td>Program Spkr Exp</td>
<td>18.88</td>
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<td>Raffle Expense</td>
<td>348.90</td>
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<td>RF Postage Expense</td>
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<td>RF Printing Expense</td>
<td>28.45</td>
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<td>Supplies</td>
<td>74.43</td>
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<td>Web Page Exp</td>
<td>334.40</td>
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<tr>
<td>World Radio</td>
<td>65.00</td>
</tr>
<tr>
<td><strong>Total Disbursements</strong></td>
<td><strong>$2,655.46</strong></td>
</tr>
</tbody>
</table>

**NET** $122.08

**Cash Beginning Balance - January 1, 2003**
- Checking Account: $2,095.08
- Saving Account: $25.00

**Cash - Beginning Balance** $2,120.08

**Cash Ending Balance - December 31, 2003**
- Checking Account: $212.85
- Saving Account: $2,029.31

**Cash - Ending Balance** $2,242.16

*Audit on January 10, 2004 by AF6C, WA6PFA, KD6DWH, and KG6QVY*

- Robert W. Eckweiler
  - Bob Eckweiler, AF6C
  - (Audit Committee)

- Tom Thomas
  - Elmer Thomas, WA6PFA
  - (Audit Committee)

- Robert Buss
  - Bob Buss, KD6DWH
  - (Incoming Treasurer)

- Steven Sam
  - Stephen Sam, KG6QVY
  - (Outgoing Treasurer)

(Signed original of audit report is on file with the current Treasurer.)
Novice Days

from page 5
drawing a schematic as part of the
test. With the paperwork submit-
ted, came the long wait for a license
and my own call!

For the next few weeks schoolwork
took priority as the school year
came to an end. By then my
thoughts turned to putting together
a station. I had successfully built
two PACO kits, an oscilloscope and
a signal generator in the previous
year, so my dad bought me a
Heathkit DX-40 novice transmitter
as an early birthday present. The
DX-40 ran 75 watts CW and was
crystal controlled. However, it could
also be used with the VF-1 VFO by
Heath. It also had built-in screen-
grid modulation for AM. I soon had
the transmitter working, brightly
lighting a 60W light bulb that was
the poor man's dummy load. I also
put up a 40 meter dipole from the
house to an aluminum pole in the
backyard. It was up about 20' and
broke many of today's antenna in-
stallation guidelines. I spent a lot
of time listening on the novice
bands while I waited.

The Heathkit DX-40

Still no license nor call in the mail.
It was common in those days to
find out your call before the license
actually arrived by the onslaught of
advertising from various amateur
establishments that got your infor-
mation from the FCC. I doubt any
new ham considered it junk mail!
Many new hams first learned their
call from World Radio. Along with a
catalog, World Radio would send a
plastic display with your new call!
What I didn't know was that my
mom had been intercepting the
mail so I'd get my license first. It
arrived on July 1st, 1959 just as
we were leaving on a vacation.
C. B. Plummer was signing the
FCC licenses in those days. I was
officially WV2GUQ; but getting on
the air had to wait until we got
back from vacation.

Next month: On the air and strug-
gling for the General Class license.

AARL Jr. RADIO CLUB:
A Ham Radio Contest for kids

The Anne Arundel Radio Club
(AARL) near Baltimore, MD came
up with a great idea. They started
a second club, just for kids called
AARL Jr. callsign KI3DS!

As one of their activities, they are
sponsor a radio contest to be
held on the first weekend in April
(April 3rd and 4th).

“This contest has a slight twist in
that it’s designed primarily for kids
(with or without a license - similar
to ‘ARRL Kid's Day’) although
adults are encouraged to partici-
pate. A logging program has been
developed for this specific contest
and is available for free. We've
combined various features from
several operating events and con-
tests along with the old AARL
‘Novice Roundup’, said Bob Rose,
AA3RR, AARL member. “This con-
test is open to kids in the US, Ca-
nada and other countries. Licensed
adults may participate in the con-
test. But more importantly, li-
censed adults and amateur radio
clubs are encouraged to help kids
get on the air, make contacts and
have fun.”

To find out more about the contest,
check out their website at:

http://www.qsl.net/ki3ds

Thanks to Bob, AA3RR via email.

General Meeting Minutes:
January 16, 2004

The meeting started promptly at
7:00 PM with the Pledge of Allec-
giance. Following that, an excel-
lent program on J–pole antennas
was presented by our Vice Presi-
dent Ken Konechy, W6HHC. An-
yone who missed the program or
missed getting a handout of Ken's
presentation may contact Ken for a
copy.

After a motion by Lowell, KQ6JD
and a second by Ken, W6HHC the
minutes of the last Board meeting
were accepted as published in the
RF.

Treasurer's report 
The audit was
completed and the club has
$2,223.43 in the accounts.

COMMITTEE REPORTS:
New Members: Neil Cavanagh,
KG6TGG was welcomed as a new
member. Welcome again Neil!!

Audit Committee Chair Bob, AF6C
reported that the audit papers
have been submitted to the treas-
uer.

OLD BUSINESS:
Bob, AF6C is
still looking for someone to print
the club QSL cards

NEW BUSINESS:
President
Steve, KB1GZ is looking for a time
to check out possible new sites for
club Field Day activities. Discus-
sion was held on this subject with
no decisions made.

Program manager and Vice Presi-
dent Ken, W6HHC has programs
for March and May 2004 already
set. He is open to suggestions from
the members for other programs.

Meeting adjourned at 8:40
PM. Good of the club held after the
meeting.

Respectfully submitted:
Rich Helmick, KE6WWK
Secretary

http://www.qsl.net/ki3ds

CQ KIDS

February 2004 - RF Page 7
Board Meeting February 7, 2004

The meeting was called to order at 8:20 AM. Minutes of the last Board meeting were read and approved. The Treasurer reported: $2001.20 in savings and $272.42 in checking.

Frank Smith, WA6VKZ, was recognized as being in attendance.

Old Business: Board members who need to be on the signature card for the bank accounts will meet today at the bank to update that form.

Good of the Club: Frank, WA6VKZ, suggested an idea on how to draw more members into the club. He suggested that as a club activity, members get together in teams of about four, and each team randomly draw a location that has been chosen from the Southern California area. The teams would then go to the location and wait for a message from another team to be sent. After receiving the message, the receiving team would then send the message on to the next team. All bands that can be used would be used to get the message passed. This exercise would get more club HAMs in to the field and generate interest from other HAMs and the community.

Committee Reports: Membership Chairman, Chris Winter, W6KFW reported that 13 of the 54 club members have renewed their membership so far this year.

Programs: Program Chairman and club Vice President Ken Konechy W6HHC reported he has five programs scheduled so far and is receptive to more ideas from the members. Future programs include HAMing in Africa, DXing, DX beacons, American Morse code and Comet antennas. As part of one of the programs, Ken will be emailing the members regarding how many are using log in software and what program they are using.

New Business: President Steve Brody KB1GZ, will be asking the members for a volunteer or two to head up the field day activities. It was discussed and decided the club would use the same park as last year for this year’s field day. Ken W6HHC will go ahead with making the reservations for the next field day with the City of Santa Ana.

Meeting adjourned at 8:50 AM

Respectfully Submitted,
Rich Helmick, KE6WWK