



# RF



## ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. XLV NO. 4

P.O. BOX 3454, TUSTIN, CA 92781-3454

APRIL 2004

### THE PREZ SEZ:



Field Day appears to be in place; several people have stepped up and volunteered to take a more active roll in planning and leadership. I thank them.

If people are interested, on May 22nd we will participate in *Antennas in the Park*. At our next general meeting on the 16th, I will ask for a firm commitment and request a vote to determine if the club is willing to pay for the hot dogs, hamburgers and other items.

OK. Have you ever given some thought to the following? I suspect that many of us that get involved with a hobby like ham radio, are solitary creatures, enjoying doing things by ourselves with a minimal involvement and contact with other people. Have you been on an airplane recently? I was at John Wayne airport a few weeks ago and was amazed at the number of people there; but I also noticed that in a crowd of thousands, few people were talking, even when passing through security. There are so many other activities that are similar. I read about bowling; there are more people bowling, but there are also fewer leagues, meaning that more solitary bowling or bowl-

See: Prez Sez on page 8

### ANTENNAS IN THE PARK:

Antennas in the Park is scheduled for May 22, from 10 AM to 3:30 PM in Tri-City Park in Placentia between Imperial Hwy. and Bastanchury on N. Kramer.

Several radio clubs will attend including Fullerton, Anaheim, Super System, Korean, WARA and others. Clubs will be bringing HF radios and antennas, and there will be a "T" hunt as well. The park has a lake, ducks to be fed and a children's play area. Operate or just bring a chair and sit, watch or take nap. There are lots of trees and electrical power available. Clubs are responsible for their own food and drink.

At the next general meeting we'll determine if there is interest in attending as a club, and whether the club will supply food. Individuals can supply their own dessert and any special food items.

### Meeting Notice

Due to recent security changes at our meeting place, you may find the door locked if you arrive at the meeting late. This is an automatic lock and the club has no control over it. Please give W6ZE a call on 146.55 MHz, and someone will come down and let you in. Additional methods for our radioless friends are being studied.

### APRIL PROGRAM:

Arnold Shatz, N6HC, will give a presentation about the ARRL Logbook Of The World program. The process of registering and using this free logging service will be explained. The advantages of computer logging utilizing LoTW will be discussed. Arnie is an active member of the Southern California Contest Club and the Southern California DX Club. He is a QSL card field checker for the ARRL DXCC and CQ awards programs.

The next regular meeting will be:

**Friday, Apr 16th 2004  
@ 7:00 PM**

We will be meeting on the 2nd floor in the east bldg.

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**Next Club Breakfast &  
Open Board Meeting  
Sat. May 1st 2004**

**THE ORANGE COUNTY  
AMATEUR RADIO CLUB,  
INC.**

P.O. Box 3454, Tustin, CA 92781



**2004 Board of Directors:**

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**2004 Club Appointments:**

**W6ZE Trustee:**

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**OCCARO Delegate:**

Bob Buss, KD6BWH  
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[kd6bwh@aol.com](mailto: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.

## How and Why I Became a Ham By Larry, K6LDC

When I was about an eighth grader in Phoenix, Arizona, I watched as some classmates would sit on the bench during lunch hour, PE and other times with their Allied Radio catalog and look with wonder at all of the unintelligible-to-me *stuff*. I preferred to play softball, touch football, or basketball at the time, but my curiosity was peaking about the mysterious *stuff*.



The 1956 Allied Catalog #150

During the next school year, all of the boys had to take general shop, which was a mixture of 6 different shops throughout the year. The first of these shops that I had to take (6 weeks) was called "Radio Shop." We learned the symbols, simple circuits, and best of all we made a CRYSTAL RADIO, complete with a cats-whisker and piece of galena (I think it was galena). The great thing was that it worked.

When I accumulated enough money to purchase a used set of ear-phones, I strung up a long wire antenna (probably about 30 feet) under the eaves of the house and at night I would lie in bed and listen to KTAR, the most powerful station in Phoenix.

I was frequently being annoyed by some station that would over-ride KTAR and talk (ragchew) with people I never heard of and his station was [W7 something that I can't remember]. It turned out that this ham was living about one-half of a block from me. After awhile, it became interesting to me and I talked to those other guys with the Allied catalogs and they gave me the

scoop on Amateur Radio. Now I patiently awaited having KTAR interrupted, eagerly anticipating the QSO nightly had by my neighboring Ham. I was bitten.

I walked to his home, took his name from the mailbox, went home and looked in the phone book for his telephone number and called him. I and the two Allied Catalog friends had an appointment to visit his station the following evening. Even today, the mass of rack mounted equipment was awesome. He explained that he was running a *full gallon*, 1,000 watts of AM power into the beam antenna on the tower above his second floor apartment. His tower was how I found where he lived.

From there it was full-speed ahead to get a license. There wasn't a novice license then. Thirteen words per minute were required for the General License. I worked feverously on that. I had to mail to Allied Radio to purchase a license manual and when it came, it was very difficult for a beginner to understand. The person being tested had to draw circuits, identify circuits, solve problems using the formulas that he or she memorized. It wasn't too easy.

The "hitch-in-the-gitalong" came soon when I discovered GIRLS. The pursuit of Ham Radio was now shelved. Raging hormones were now in control.

During my stint in the Navy, I was an Aviation Electronics Technician assigned to an anti-submarine patrol squadron. I flew as a radio-radar operator. At that time, during and after the Korean War, the Navy used primarily CW for HF communications, and voice for VHF and UHF. My code speed went up to about 28 wpm rather quickly (we graduated Navy CW school with 8 wpm).

When we were assigned to a tour of duty in the arctic, I had plenty of time to study the license manual and when we came back to the

States, I went to the Federal building in Jacksonville, Florida during the few days that the FCC examiner was there and became a Ham with station call K6LDC.

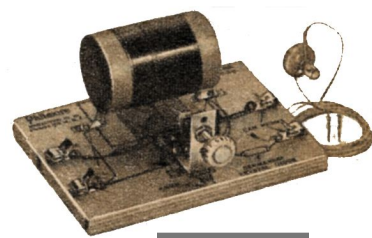
During the remainder of my enlistment I used the base Ham station at the Naval Air Station, Jacksonville (called JAX) with the call W4NEK. It was an excellent 1000 Watt AM transmitter with a Collins receiver and a tower mounted four element tri-band beam. The station was hardly used and I became spoiled very quickly. Regular phone patches to home plus great DX.

Upon discharge, I headed home to begin my quest for a degree and had very little money. The GI Bill was not too generous in those days. I built my first transmitter using a used TV horizontal sweep tube, and screen modulating it because I couldn't afford a modulation transformer. My receiver was a Gonset multi-band mobile converter connected to a Packard Bell 5-tube AC-DC household radio. My antenna was a longwire, strung from one end of the apartment house roof to the other end about 8 inches above the peak.

The big day came, it was all together. It was such a kluge, that I wasn't certain as to how I was going to tune it. I had no indicators because meters cost money. I had to work with a small light bulb. I turned it on, guessed at the tuning (it was VFO) and called CQ. After a plethora of calls without response, I was about to give up when a station in Ohio answered. He was patient and using his S-meter, we tuned the final. It was all gravy from there.

73

Larry, K6LDC



## Bob's Tech Talk #28:

by: Bob, AF6C

### Capacitors - Part III

Last month I said we were going to explore phase shift and power factor this month, Before we do that, perhaps gaining an understanding of how power, voltage and current are measured in an AC circuit is in order. So this month we'll look first at how AC is measured. Sine wave AC voltages and currents can be measured as either peak or peak-to-peak values. See figure 1. A peak measurement is made from the zero line to one of the peak points on the sine wave. A peak-to-peak measurement is made between the negative peak and the positive peak of the sine wave. It should be obvious from figure 1 that the peak-to-peak measurement is twice the peak measurement. But what's the average voltage or current? Since the voltage or current is symmetrical around the zero-line, the average is zero. That's pretty useless! Try telling someone who's been shocked by high voltage AC and lived, that the average voltage was zero and you don't see the 'big deal'!

Since the average voltage and current of a sine wave is zero, engineers - the clever people that they are - came up with a way to measure "effective" voltage instead of average voltage. The effective voltage and current is the voltage and current values that, if used in a DC circuit, would produce the same average power. This effective voltage and current is called the RMS voltage and current. RMS stands for *root mean square* and is one of those terms that help engineers command high salaries. The RMS voltage and RMS current are just the peak current divided by the square root of two or 0.707.

If you venture to look at a little math and Ohm's law, here's how that is derived. First, let's look at the average power of a sine wave. The top part of figure 2 shows a 3 volt peak sine wave and 2 ampere peak sine wave (as one might see if that voltage was fed across a 1.5Ω resistor.) The power at any given time is the voltage multiplied by the current at that time. This is right from Ohm's law. The bottom part of figure 2 shows the resulting power. You can check a few points yourself (Remember that multiplying two negative numbers results in a positive number.) Note that the power is a sine wave also, but with half the wavelength (twice the frequency) and it is always on the positive side of zero. From the figure you can also surmise that the average power in an AC circuit is half of the peak power, or 3 watts.

$$P_{AVG} = \frac{P_{PEAK}}{2}$$

Now let's define an *effective voltage* and *effective current* such that they will meet Ohm's law in the following three forms:

$$V_{EFF} \cdot I_{EFF} = P_{AVG}$$

$$I_{EFF}^2 \cdot R = P_{AVG}$$

$$\frac{V_{EFF}^2}{R} = P_{AVG}$$

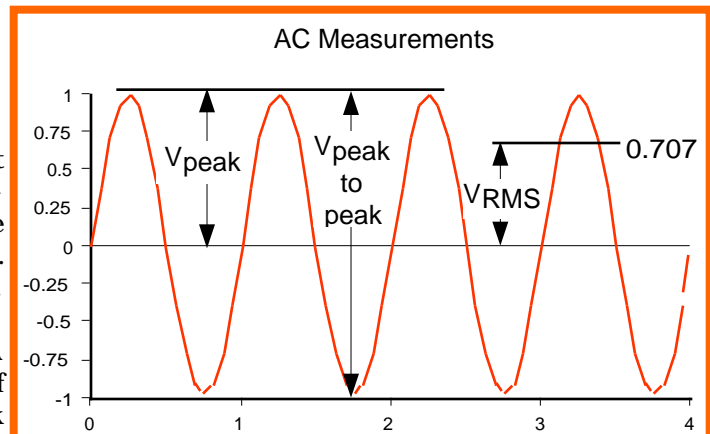


Figure 1 – How peak and peak-to-peak voltages are measured on an AC sine wave. Current measurements are similar.

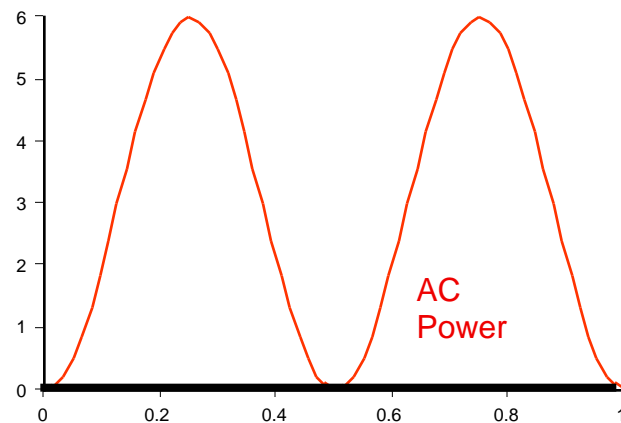
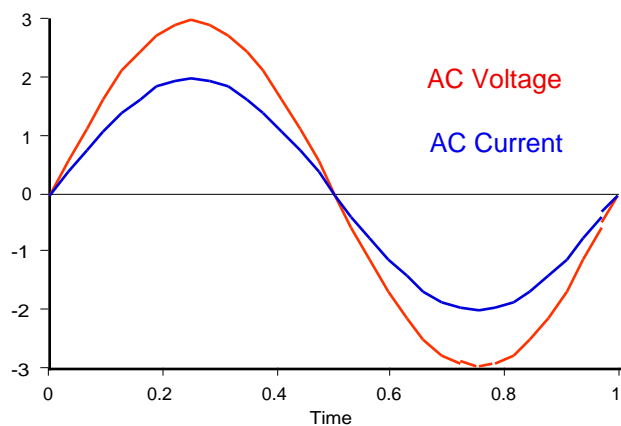


Figure 2 – AC Voltage and Current in a Resistive circuit and the resulting AC power

Next, we have to find how the effective voltage and current relate to the peak voltage and current.

$$P_{PEAK} = \frac{V_{PEAK}^2}{R} = 2 \cdot P_{AVG} = \frac{2 \cdot V_{EFF}^2}{R}$$

If you look at the two terms with R in them you'll see that:

$$\frac{2 \cdot V_{EFF}^2}{R} = \frac{V_{PEAK}^2}{R}$$

This solves to:

$$V_{EFF} = \frac{1}{\sqrt{2}} \cdot V_{PEAK}$$

or

$$V_{EFF} = 0.707V_{PEAK} = V_{RMS}$$

The effective voltage is also called the RMS (root mean square) voltage; it's the value that is commonly used for measuring AC voltage. In the US your wall socket AC voltage is typically 117V rms. This relates to 166 Vpeak or 332 Vpeak-to-peak). As mentioned earlier: *the rms. value of the voltage and current are just the equivalent*

*value that would produce the same average power in a DC circuit as the peak values would in an AC circuit.*

From now on, when we talk of a voltage or current in an AC circuit we'll mean the RMS (effective) value unless stated otherwise.

### Power in a Capacitor:

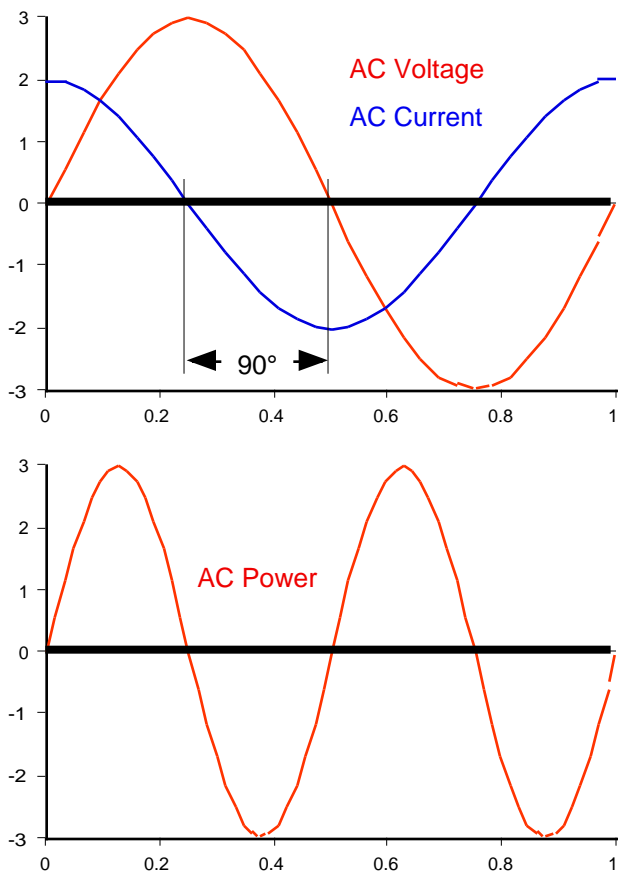
Last month we saw that when a sine wave voltage is placed across a capacitor the current is also a sine wave, but is shifted by 90°. Figure 3 is identical to figure two except that the current has been shifted to lead the voltage by 90° as was shown last month in figure 4. Note that the resulting power is similar to figure 2 except that the sine wave now lies centered on the zero axis. The capacitor is taking power from the circuit for half of the time and returning it to the circuit during the other half. This means that the average power in a capacitance is zero and the (ideal) capacitor dissipates no power from the circuit.

If a resistance is placed in series with a capacitor and a sine wave voltage is applied, what happens to the current then? Looking at figures 2 and 3 you can surmise that the current will also have a positive phase shift (lead the voltage) somewhere between the 0° shift of figure 2 and the 90° shift of figure 3; and that the amount of this shift depends upon the resistance and the capacitor's reactance. You'd be correct! The phase shift angle's tangent is just the reactance over the resistance. Or:

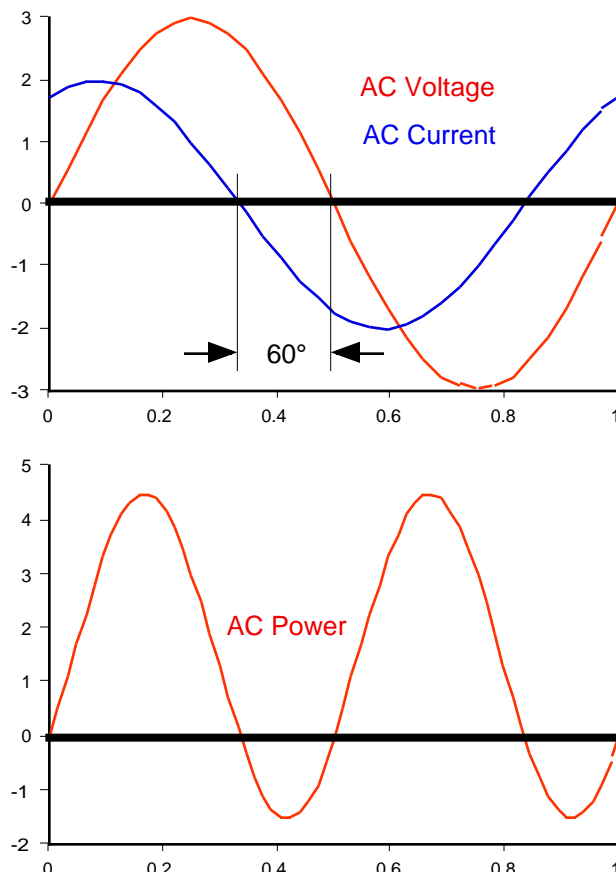
$$\tan \theta = \frac{X_C}{R}$$

If you're familiar with trigonometry, you'll immediately see that when Xc is zero, the phase angle zero and when the resistance is zero the phase angle is 90°, just as the graphs depict.

**See: Tech Talk** on page 6



**Figure 3** – AC Voltage and Current in a Capacitor and the resulting AC power



**Figure 4** – AC Voltage and Current in the circuit of Fig. 5, where the phase shift is 60° and the resulting AC Power

## Pictures from our March Meeting



ARRL Southwestern Division Director Art Goddard, W6XD, presents a program on the recent DXpedition to The Gambia in West Africa. Art's group had an uninvited guest tag along by the name of Murphy. While battling him all the way, they were still able to generate an unprecedented score.



Carl, WA6BSV conducts the post meeting sweepstakes. Winner Dan, N6PEQ, draws a ticket to select the next winner. L - R seated: Frank, WA6VKZ; Vince, WA6VJG; Amber, KG6UEM (still celebrating the first day of her license!); and Kristin, K6PEQ

### FIELD DAY...

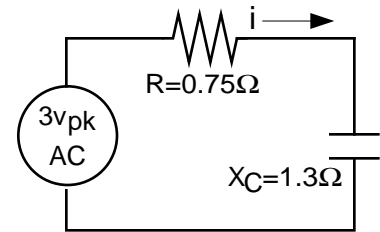
...is just over two months away and we're looking for band captains. Each band has a band captain who is in charge of coordinating equipment, shelter and antennas for that band. So far we have band captains for 40 meters (KD6BWH)

and 20 meters, (W6HHC). Please contact AF6C if you'd like to act as a band captain. Captains for 80, 15/10 and VHF/UHF are still open.

If you'd like to support the club in other areas (satellite contact, ATV, etc.) please also contact AF6C at:

[bobaf6c01@w6ze.org](mailto:bobaf6c01@w6ze.org)

## Tech Talk from page 5.



**Figure 5** – Circuit for Figure 4 graph

Let's look at figure 4. It's similar to figures 2 and 3, and shows the relationship of the voltage and current of the circuit shown in figure 5. The current is leading the voltage by a phase shift of 60°. Note that the power graph is shifted part-way between where it is in figures 2 and 3. Some of the power is being dissipated in the resistor and some is being stored and returned by the capacitor. What percent of the power is being dissipated by the resistor? The formula is:

$$P_R = V \cdot I \cdot \cos \theta$$

Theta (the oh with the line through it) is the symbol for the phase angle. Don't fret if your trigonometry is rusty; if theta is 60°, the cosine of 60° is 0.5 and the power in the resistor is:

$$\begin{aligned} P_R &= (0.707 \cdot 3) \cdot (0.707 \cdot 2) \cdot 0.5 \\ &= 1.5 \text{ watts} \end{aligned}$$

Remember that the voltage and current are peak values and each must be multiplied by 0.707 to get their effective or RMS value.

We've covered a lot; and used more math than I'd have liked. If the math confuses you, try to read the text and examine the graphs to get the concept. Next month we'll finally get to power factor in a capacitor and also power factor in your house electrical system. They're two different "enchiladas", but both with similar theory.

73,  
de AF6C

## Board Meeting Minutes

April 3, 2004

President Steve KB1GZ opened the meeting at 8:20 AM.

There were 7 Board members present. [Absent were Publicity, Matt K6LNX; Technical, Tom, WA6PFA; and Activities, Carl, WA6BSV. -Ed]

Treasurer Bob Buss, KD6BWH, reported that there was \$2,418.03 in the club bank accounts.

The previous Board Meeting minutes were accepted as published in the RF.

Committee Reports—None

### OLD BUSINESS:

Bob Eckweiler, AF6C, reported that he had contacted ARRL regarding updating club information.

Secretary Rich Helmick, KE6WWK, has updated club information with World Radio.

Bob Buss and Rich Helmick will continue to work on verifying club information with the State Tax Board.

Carl Schmid is unable to attend the next general meeting and President Steve volunteered Doris, WB1CDD, to conduct the door prize activities for Carl. Bob, AF6C, will coordinate the obtaining of the prizes.

Vice President Ken Konechy, W6HHC, reported that Field Day Captains are needed. Volunteering was Bob KD6BWH for 40m and Ken for 20m. 15 and 80 meters remain open.

Bob, AF6C will send e-mail to the members requesting volunteers.

Ken, W6HHC, will send a sample letter for the neighbors of the Field Day location regarding activities to Rich KE6WWK to be sent to them prior to Field Day.

The location for the Christmas par-

ty is still being researched.

### NEW BUSINESS:

Chris Winter, W6KFW, will compile a new club roster and make it available to members. The list will reflect those who have paid dues for this year as of 4/1/04

Bob, AF6C, suggested to the Board that the club hold a members night on a general meeting night. This would be a social event and prospective members, old members and present members would be able to socialize while promoting the club.

Vice President Ken reported that April's program would be Logbooks of the World presented by N6HC. May's program will be American Morse Code presented by KS6CW. June's program will be a DVD of Field Day activity.

The meeting was adjourned at 8:40 AM.

Respectfully Submitted,  
Rich Helmick, KE6WWK

### Coming Next Month:

Steve, our President relates how he got started in Amateur Radio.

Bob, AF6C talks about Lower Manhattan before there ever was a World Trade Center, and why that piece of real estate, so violently destroyed on September 11th with a horrible human toll, was the scene of a previous destruction that, while no lives were directly lost, had a major impact on Amateur Radio and the whole electronics industry.

Also coming next month might be an article from YOU. This is your Club Newsletter, take some time and contribute to it. No fancy word processors are needed. I like text that is in plain text format and unformatted. Formatting is my job - I've got to get it all to fit in the allocated space, and I try to limit text to two fonts.

The RF Editor

## General Meeting Minutes:

March 19, 2004

The March meeting of the Orange County Amateur Radio Club was called to order at 7 pm by President Steve, KB1GZ, who led the club in the Pledge of Allegiance.

### Announcements:

Steve briefly discussed two items at the beginning of the meeting, because he had to leave right after the program:

#### 1. Field Day:

Bob, AF6C, will handle the band assignments, David, W7KTS, will (tentatively) handle the food (Saturday dinner and Sunday breakfast) and Ken, W6HHC, will handle obtaining the Portola Park site.

#### 2. Antennas in the Park:

This ham radio event, sponsored by numerous clubs, is scheduled for May 22, 2004 at Tri-City Park, Placentia. Whether OCARC will be involved and what we will bring will be determined at the April Meeting.

### Visitors Present:

New Licensee Amber, KG6UEM (Congratulations); Ken, W6KOS; Jim, KB6OUM, and Ken, N6CCE.

### Program:

Vice President Ken, W6HHC, introduced Art Goddard W6XD Southwestern Division Director who gave a presentation "Murphy Lives in West Africa—The C5Z Story" This was the the story of Art's group's recent DX-pedition to The Gambia in West Africa. Thank you Art for a fascinating and informative evening.

### Roll Call:

The business meeting was brought to order at 8:20 by VP Ken,

See: **General Meeting** on page 8

**General Meeting** from page 7

W6HHC. Club Officers absent were Secretary, Rich, KE6WWK; Membership, Chris, W6KFW; Publicity, Matt, K6LNX; Technical, Tom, WA6PFA; and Member-at-large, Lowell, KQ6JD,. There not being a quorum present, Ken continued with an unofficial meeting.

Upcoming Program:

VP Ken announced that the April program will be "Log Books of the World."

Treasurer's report:

Current bank total is \$2,515.44.

Activities:

Baker to Vegas race is scheduled for April 24-25. This is a race for law enforcement personnel. Our club has provided communications in recent years.

Secretary:

Minutes approved as published.

Vice President:

Red Cross door arms at 7:30PM, not 6:45 as thought.

Old Business:

Articles needed for RF. Try one on your experiences as a new ham.

New Business:

OC Fair, The OCARC is scheduled to support the Amateur Radio booth on Wednesday July 14. Shifts to last four hours. See Bob Buss for details and to sign up.

The meeting was adjourned at 9:10 PM.

Respectfully Submitted,  
David Mofford, W7KTS,  
For Rich Helmick, KE6WWK

**Prez Sez** - From page 1

ing with less people participating.

Why am I writing about this? It's simple. I have noticed that we have people coming to monthly meetings, but not really participating. They

may sit, speaking with one or two people, but generally remain quiet. It's OK, doing it but:

Medical science has determined that the more you think and act, the more it can keep you healthy and ward off Alzheimer's, so participate, say something, come out for Antennas in the Park, Field Day and other activities. The time you participate is not giving time to anyone or anything else - except giving it to yourself!

73,  
Steve, KB1GZ



**ORANGE COUNTY AMATEUR RADIO CLUB, INC  
P.O. BOX 3454  
TUSTIN, CA 92781-3454**

***First Class Mail***

***Time Dated Material.  
Please Expedite!!***