

DECEMBER 2001

THE MONTHLY NEWSLETTER of the SANTA CRUZ COUNTY AMATEUR RADIO CLUB

# SHORT SKIP



## Congratulations to the new board! Hot Water, Ham Radio and a New Way to Measure Power



Secretary, Elaine KE6FRA; President, Richard KG6AXD; Vice President, Jim KF6YRD; Treasurer, Cap KE6AFE

Elected at our November club meeting, and taking office at our December meeting (the Chaminade brunch) were:

President Richard Trebbien KG6AXD  
Vice President James Welty KF6YRD  
Secretary Elaine Pennell KE6FRA  
Treasurer Cap Pennell KE6AFE

Board members:

Bruce Hawkins AC6DN  
Tom Johnson KQ6DV  
Allen Fugelseth WB6RWU  
Mike Doern KF6UXB  
Ron Skelton W6WO

Let them know how you feel!

## A TIME FOR RENEWAL

Time to renew your club membership again. Dues for the 2002 calendar year are payable as of December 1. Regular memberships are \$25, memberships for additional family members at the same address are \$6 each, and full time students under the age of 18 can become members for \$10. This has got to be one of the best deals going, dues prices haven't increased for over 10 years! We look forward to having you as a member again in the coming year.

Make out your check to: SCCARC  
Send it to SCCARC, PO BOX 238,  
SANTA CRUZ CA 95061-0238

This is a two-part article providing first some historical background followed by details of new technology for measuring RF power.

Every Ham knows that power is measured in Watts but how many of us have paused to think where the label "Watt" came from? We might guess that it has to do with James Watt who is famous for his pioneering work on steam engines. Watt has this to do with Ham Radio do I hear you say? Good question and pardon the pun. Let's find out a little more about this famous man.

In 1757 James Watt was an instrument maker for the University of Glasgow and there he developed his lifelong interest in steam engines—he did not invent the steam engine but radically improved their power output and efficiency. Watt gave birth to the "Age of Steam Power" and his name is honored today as the unit of power in various forms. Watt knew a lot about steam but we can safely assume he knew little or nothing about electrical energy and power.

In our field of interest the Watt is used to specify the rate at which electrical energy is dissipated or the rate at which electromagnetic energy is radiated. Sometimes we can be confused between Power and Energy. The simple distinction that I make is energy is the capability to do useful

Continued page 3

**CLUB MEETING FRIDAY JANUARY 18, 7:30P.M.**



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Free to members.

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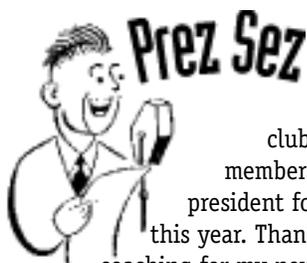
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Writer: Ron Skelton, W6WO

Distribution: Elaine Pennell, KE6FRA



I believe it was a great time had by all last Saturday at the club holiday celebration. The Chaminade is sure an excellent place for our party! The food was good and the company great. Last year was an excellent year for our club and a lot of credit goes to last years club officers, board members and committees. Tom KQ6DV did an superb job as our president for the last 2 years and will continue on as a board member this year. Thanks a lot Tom and I am hopping you will give me lots of coaching for my new club job. Jim KF6YRD is taking my place as VP, so plan on lots of great presentations at our meetings. Elaine KE6FRA and Cap KE6AFE will swap their roles so business will move ahead without missing a beat. The board will be close to the same members so we can expect next year coming to be as good as the last. It's nice to know that our club is as fun and interesting as we want it to be. The more people are active in the club the more fun and interest we can generate so be sure to put your 2 cents in by joining a committee or supporting an activity. Remember that amateur radio is a contact sport! I am sure I forgot to mention someone so let me know and I'll make it up to you.

—Richard KG6AXD

## BRUNCH PHOTOS

Brunch photos were taken by W6WO, KE6FRA, KE6AFE and K6EXT.



## A BIG THANKS TO OUR NET CONTROLS

I just wanted to take this opportunity during the holiday season to give a big thanks for the wonderful job that our Net Controls have done on the Monday night net. I have been fortunate to have five experienced operators in the rotation with me for at least the past several years now. In order of longevity, hats off to Dave, W6TUW; Jeff, KF6BKG; Phil, KE6UWH; Allen, WB6RWU; and Ron, W6WO.

We will be taking a break on Christmas Eve and New Year's Eve, but tune in again on Monday, January 7 at 7:30 PM for a New Year's beginning to this time-honored club tradition.

—Tom, K6TG



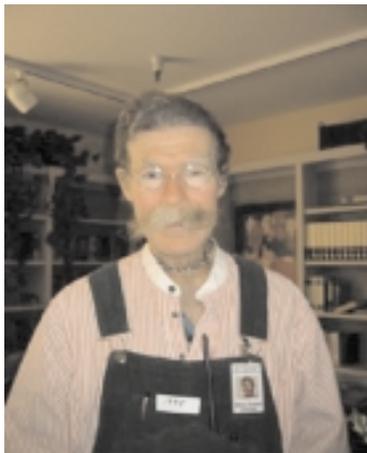
### Livermore Swap Meet - 1st Sunday of each month at Las Positas

College in Livermore, 7:00 AM to noon, all year. Talk in 147.045 from the west, 145.35 from the east. Contact Cliff Kibbe, KF6EII, (209) 835-6715, e-mail: larkswap@usa.com.

### RadioFest 2002. Saturday, Feb. 16, 2002, 7:00AM to 3:00PM

at the General Stilwell Community Center, Ord Military Community, 4260 Gigling Road, Seaside, CA.

Talk-in 146.97- PL 94.8. Sponsored by the Naval Postgraduate School Amateur Radio Club. See [www.k6ly.org/radiofest](http://www.k6ly.org/radiofest) for additional details.



## Hats Off

A special thanks to Art Lee WF6P who has help me during my tenure as Short-Skip editor. I have always been able to depend on Art to help me pull Short Skip together. Not to forget Ron, W6WO who has taken a active participation in writting monthly articles that help make Short Skip what it is. And a much belated thanks to Dave W6TUW for many years of taking care of the distribution of Short Skip.

—Ron K6EXT

Donna and Art Lee. Notice that Art is taking mental notes for "Chatter"



By Art Lee WF6P

## CHATTER

I missed our last club meeting. Our son Randy, N6UZI, and his family came down for his monthly Naval Reserve drill in San Jose. Once again, being with the family won out over a club meeting. I like to attend the meetings, we have great speakers and it is always good to "eyeball" old and new friends. My XYL Donna, AB6XJ, and I will be at the club brunch on Saturday, so that will be fun.

We are back in the rainy and windy season. While my rear deck was being replaced I took my 40 meter dipole down. Not wanting to be off the air, I dragged out the rigid "V" trapped dipole antenna I use for emergencies. It is good on 40/20/15 and 10 meters. I normally have its tripod screwed to my Redwood deck but because of construction going on, moved it to my brick patio. There was only one leg that I could screw down to a wood divider, which I felt was ... well, let's say it was barely (not!) adequate. I was doing fine with it for two days. The SWR was OK for all bands except the high part of the 40 meter band, which is what I really needed. My SWR on 7.238 was nearly 4:1 - which was not good. Power was cut back to about 10 watts out. Understandably, my net buddies in San Diego reported a weak signal. A few nights ago a big wind whipped up out of the south. In the morning I looked out my window to see the poor "V" toppled over and looking very sadly bent. The screw in the tripod leg held firm but the aluminum tubing was twisted and collapsed. The sail area of the rest of the antenna created too much force on that single leg.

This put me back out in the mud and cold rain to re-rig the reliable dipole. Slipping and sliding on my hill, I managed to erect a 30 foot push-up mast and lashed it to my utility shed. Another few lengths of Radio Shack TV posts got the other end of the wire up about 25 feet. Back in the

house and after a nice hot shower, I gave the trusty dipole a test. On 21.038 I sent out a CQ and was answered by WD4BQE, Jack, in Mosheim, Tennessee. With a magnifying glass and a very large atlas, I located his QTH in the northeast part of his state. He said his town was small! I believe him. Next I heard a station signing and picked up his call, RA9HDM. His fist was good and I had him at about a 559. He gave his age as 38, name was Stan and a QTH of Tomsk. Where in the heck was that? I asked him how come he had an English name. "Negative," he came back. "It's Stanislav. I'm Polish and living in Russia." He repeated his QTH and clarified Tomsk as being in West Siberia. "Asia, Asia," he kept saying. Now that was exciting! We actually chatted for about 45 minutes. There were a lot of repeats on both ends and he kept saying "DROM," and "DRArt," whatever that means. Wayne Thalls, KB6KN, told me once, but I forgot. I shut down the rig after that and felt relieved that the 22 year old dipole, crumbled and broken strands and all, was still doing a faithful job for me.

For anyone who served in Vietnam, my "Sapper Attack" piece appeared in the December 2001 issue. That war was quite a while ago. Anyone remember that far back? We've had a couple of shooting matches since then and even have one going now.

### DAVE BRADLEY, W6CUB SK

Dave Bradley, W5CUB became a silent key Saturday, December 8, 2001. Dave was a past President of our Santa Cruz Club.

In addition to his diagnosis of heart failure, he had just gone for gall bladder surgery. Apparently he died of an infection in the liver. Burial will be at the Skylawn Cemetery, San Mateo near his father's burial site.

It was Dave's request that donations be made to Jim Walsh, W7LVN, General Manager, QCWA, 159 E. 16th Ave. Eugene, Oregon, 97401-4017. His email address is jwalsh@teleport.com if you need it.

This information was given to Len Rosen, N2LR by John Griffey, Dave's son-in-law. It is suggested that a responsible committee be requested to evaluate Dave's electronic equipment and the funds derived from its disposition be given to Dave's ninety three year old mother.

By Len Rosen, N2LR

### Hot Water Cont.

things like provide hot showers, cool rooms, cold beer and DX (but usually not all at the same time). Power on the other hand is the rate at which energy is used actually doing those useful things. The stored energy in a battery might have the capability of creating RF power but neglecting internal losses it does not itself dissipate power. On the other hand radiated power from a 100 Watt RF transmitter would utilize and deplete the battery's stored energy.

To further understand the distinction between Power and Energy we have to look at the work of another Brit. James Joule. Joule was born in 1818 in Manchester, England to a wealthy brewery owner. His first brush with physics came when he was working to replace steam engines with electric motors for the family brewery. The remarkable thing about Joule's career was that physics remained nothing more than a hobby throughout his life. Brewing was his true occupation and not just in the quality control department either. HI HI

Joule spent much of his honeymoon studying a waterfall. He found the temperature of the water at the base of the waterfall was higher than the temperature of the water at the top. This proved that the energy of falling water, was being converted into heat and that heat was a form of energy. This was a major step in later on proving his theory of energy conservation. Taking time out of his own honeymoon to conduct an experiment shows dedication to his hobby worthy of any Radio Ham!

Joule's contributions to physics were innumerable. In one experiment Joule built a small revolving electromagnet which was turned rapidly between poles of another electromagnet. He enclosed the electromagnet in a glass tube full of water and measured the temperature of the water before and after the experiment to within 1/30 of a degree Fahrenheit. As the electromagnet spun, it generated an electric current that could be measured by a very sensitive meter. Joule discovered that the current warmed the water. The amount of heat produced related directly to the electric current, which in turn related to the amount of energy expended to turn the handle.

## Member Profile

# Steve Smardan N6TGM

Where can you live in a built-up area where antenna masts are actually appreciated? Steve N6TGM has the answer he lives snugly on board "Reachable Star Too" a Catalina 36 sailboat in the Santa Cruz yacht harbor.



Steve is another graduate of the Art Lee school of Ham Radio so once more we are indebted to Art for yet another valued member of SCCARC. Steve has concentrated on 10 meter SSB, has achieved DXCC and Worked

All States on that band and is close to having worked all states on 15 meters as well. Steve is a keen member of the 10-10 club whose members aim to promote the use of 10 Meter band. One interesting recent QSO was with a VK, Steve was using 10 M FM and the VK was using a UHF HT via a repeater.

The antennas at N6TGM are the usual (for Yachties) backstay for 40 and 80. Not so common is his "coat hanger inverted VEE" at the masthead. This is resonant on 10 M but Steve somehow manages to load it on 12,15 and 20 M. The HF rig is a Kenwood TS430 S and Steve uses a home brew logging program based on EXCEL.



Steve's 20 years of employment at a High Tec. company originally in Scotts Valley (but now located in South San Jose), was recognized recently with the presentation of a spotting telescope. I suspect that Steve's interest in astronomy will grow in leaps and bounds. Better watch out for those sailing types though, they are known for getting under way for exotic places.



## To All --

After a tenure of over 3 years as the Santa Cruz County DEC, I have been relieved of my watch by Rich Hanset / KI6EH. Because of employment over the hill and a daily 2-hour commute, I have been unable to fulfill my commitments as I believed I should and as I had originally wanted. I have been looking for a replacement who had the qualifications and interest to step up and take over for the past year. Recently, Rich offered to take over the job. Rich is a natural fit because as DEC, he recombines the lead for Santa Cruz County ARES and RACES with a single individual (he has been RACES officer since Bruce Wade moved away). Rich also has the requisite experience and leadership qualifications.

Rich now has the watch, effective Saturday, November 10, 2001. He relieved me at the DEC Council Meeting on Saturday; we were privileged to have present both our Section Manager, Glenn Thomas and Section Emergency Coordinator, Don Carlson.

As most of you know, ARES has been very active in our county during my tenure -- though I hasten to add, not because of it. ARES activity and success is attributable to the leadership of our excellent Emergency Coordinators (ECs): Frank Wyatt / N6FM, San Lorenzo Valley & Scotts Valley Op Area, Mike Kelley / N6ZOC, Loma Prieta Op Area, Phil Peterson / KE6UWH, Santa Cruz Op Area, and Bob Wisner / K6RMW, Mid and South County Op Area. These gentlemen are the prime movers in our ARES and deserve the support and recognition.

The past several years, ARES in Santa Cruz County has taken on an ever-expanding role. No longer does it limit itself to providing communicators who operate only their HTs or pound brass and nothing else. ARES has expanded what it does to include all facets of communications, limited only by what our served agencies would have us do. Not only have we been called upon to operate commercial equipment on the channels assigned to local government authorities and Red Cross frequencies, but to provide consultation services for devising communications plans and procedures for agencies we serve. In addition, we are not alone in what we are doing. A visit to the ARRL website to read what how a San Francisco Ham became 2nd in charge of all communications at a FEMA Command Center on 9-11 or read the Public Service column in the October issue of QST.

Rich has indicated that he will continue this legacy so that Santa Cruz County ARES will ever be ready to serve, regardless whether we are called to provide communications for the annual Strawberry Fields Forever bike event or when the next "Big One" hits, or worse.

For you "Old Timers" out there who have "been there, done that," I entreat you to rekindle an interest in ARES and come out for events to renew your tactical communications skill sets. For you new to Ham radio, join us by using your new avocation in the public interest. Its fun and a chance to really "play radio." ONLY with practice at the kinds of things that we do can you be truly effective when we really need you. Otherwise, you will only descend to the level of your recent practice and training.

Rich, thanks for taking over. I stand relieved.

—Jim Piper / KD6YKL

## Hot Water Cont.

Joule is credited with discovery of the law of conservation of energy, which states that energy used up in one form reappears in another and is never lost. Our earlier example of a battery-powered transmitter illustrates one form of energy (chemical) being converted to another form of energy (electromagnetic).

In 1840, he defined a law, now called Joule's Law, that relates energy and power to the heat produced by current flowing in the resistance of an electrical conductor. The International unit of energy, the Joule, is named in his honor.

The relationship between Watts and Joules is that 1 Watt is equivalent to 1 Joule per second or conversely 1 Joule is equivalent to 1 Watt\*Second. One reason to pay attention to the Joule is that in digital communications bit energy is usually expressed in Joules. In weak signal situations dashes in CW are easier to copy than dots because having a longer duration they provide more signal energy relative to the noise level. In general the signal to noise performance of digital schemes is often compared in a similar way.

Power is the product of the current and the voltage and in DC (direct-current) and low-frequency alternating current (AC) electrical circuits and systems these are relatively easily measured quantities. In radio-frequency (RF) circuits and systems, the calculation and measurement of power becomes more complex because, at high frequencies, measurements are affected not only by resistance, but also by reactance. RF power can best be determined by direct measurement using a RF Wattmeter.

In the next part of this article I will describe how hams traditionally have measured RF Power and how with new technology we can now greatly extend our ability to measure RF power and do so accurately and at low cost.

—Ron W6W0



The Man



The Woman

## SCCARC Officers - 2002

<b>President</b>	Richard Trebbien	KG6AXD	426-0169
<b>Vice President</b>	Jim Welty	KF6YRD	685-9225
<b>Secretary</b>	Elaine Pennell	KE6FRA	429-1290
<b>Treasurer</b>	Cap Pennell	KE6AFE	429-1290
<b>Board</b>	Bruce Hawkins	AC6DN	
	Tom Johnson	KQ6DV	464-3120
	Allen Fugelseth	WB6RWU	475-8846
	Mike Doern	KF6UXB	477-1161
	Ron Skelton	W6WO	477-1021
<b>K6BJ Trustee</b>	Royce Krilanovich	AC6Z	475-4798

## MONTEREY BAY ACTIVITY

SCCARC Repeaters: K6BJ 146.790- PL 94.8 Santa Cruz ( linked w/Watsonville full time)  
KI6EH 147.945- PL 94.8 Watsonville (linked w/Santa Cruz full time)  
K6BJ 440.925+ PL 123.0 Santa Cruz  
• SCCARC Net Monday 7:30 PM 146.79- /147.945- /440.925+ linked  
• SCCARC 10 Meter Net 28.308 MHz USB Monday 7:00 PM  
• SCARES Net Monday 8:30 PM 146.835-(PL 94.8)  
• Watsonville ARES Net Thursday 8:30 PM 147.945-  
SLVARC Repeater WR6AOK 147.120+ PL 94.8 Ben Lomond  
• SLVARC Net Thursday 7:30 PM  
SLV ARES N6IYA 146.745- PL 94.8 Felton  
• SLVRC Net Thursday 7:30 PM  
• ARES Net Monday 7:30 PM  
NPSARC K6LY 146.97- PL 94.8 / 444.700+ PL 123 (linked) Monterey  
• Monterey ARES Net Wednesday 7:30 PM  
• NPSARC Net Wednesday 8:00 PM  
• Monterey Bay Traffic Net Nightly 9:00 PM  
• Newsline (Ham News) Broadcast Wednesday 8:30 PM  
6 Meter Local Net 52.8 MHz (PL-114.8) Sunday 8:00 PM  
Mont. Bay Chapter 191 QCWA :Tuesday, 7:30PM, AA6T repeater, 146.700- PL 151.4

**FOR MORE INFO SEE: <http://www.k6bj.org/freq.html>**

## SCCARC Calendar of Events

SHORT SKIP deadline	Monday	Jan. 7
Santa Cruz ARES	Tuesday	Jan. 8
SCCARC Board Meeting 6:30	Friday	Jan. 18
SCCARC Meeting	Friday	Jan. 18
SCCARC Meeting	Friday	Feb. 15

## MONTHLY MEETINGS

The SCCARC Meets at 7:30 PM, on the THIRD FRIDAY of the each month (except December). Meeting are at Dominican Hospital, 1515 Soquel Drive, Santa Cruz.

Visit the SCCARC Website at -

**[www.k6bj.org](http://www.k6bj.org)**

**CLUB E-MAIL: [yourcall@k6bj.org](mailto:yourcall@k6bj.org)**

**NET CONTROL SCHEDULE** (Subject to Change)

12/17	Ron W6WO
12/24	NO NET (Xmas Eve)
12/31	NO NET (New Year's Eve)
1/7	Dave W6TUW
1/14	Tom K6TG
1/21	Jeff KF6BKG
1/28	Allen WB6RWU



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**Meeting: Jan 18, 7:30PM**

**First Class**