Foothills Amateur Radio Society

Relay

March 2003 Volume 33, Number 3

March Meeting

Date: March 28, 2003 - 7 PM socializing, meeting starts at 7:30 PM.

Place: Loyola Elementary School, 770 Berry Avenue, Los Altos. Directions to the meeting are later in the newsletter.

Speaker: Peter Griffith, WA6VAQ

Subject: Emergency Communicator Preparation

Summary: Ever wonder what a "Go Kit" is? Peter Griffith, WA6VAQ, will describe the in's and out's of being a volunteer emergency communicator including preparation for the "big one."

February Meeting Report

Bart Lee, KV6LEE, presented an eyewitness and illustrated account of amateur radio working in disaster relief in New York from September 11 to Sept 22, 2001. The presentation showed ham radio operators providing service in a great time of need. There were many suggestions for effective communications in disasters. 73 people attended this very interesting presentation.

The number for Jaime Sedano, KG6HOB, was chosen for the “Wish You Were Here” prize. Unfortunately, Jaime was not present. The prize is now $55.

Secretary’s Report

The FARS Board held its monthly meeting on the evening of March 4, 2003. Members present were Mikel, KN6QU, Frank, K6FCW, Mark, KG6GRR, Howard, KG6GRO, Stefan, KG6MAO, Omri, AA6TA, Dick, N6ATD, Steve, K6OIK, Mike, KG6GUE, Dave, KE6PFF, and Martin, KD6WJW. The payment of several bills was approved. The names of unpaid members will be removed from the list of those that receive the Relay. Various means for attracting new members were discussed. The need for more Relay articles was also discussed.

- Martin, KD6WJW

Presidents Column

Incorporation. The FARS Board has completed work on the Bylaws for incorporation. A copy is available at http://www.fars.k6ya.org/docs/FARS-Bylaws.html for members to review. We will take a few minutes at this month’s member’s meeting to answer questions and take comments. The board and I have put a lot of effort into developing a set of Bylaws that meet California nonprofit corporation requirements and address the specific needs of FARS. We will vote at the April meeting to approve these Bylaws. This approval will authorize us to proceed with incorporation and filing of necessary papers.

Flea Market. The next Foothill Electronics flea market is Saturday April 12. This one is sponsored by SPARK (South Peninsula Amateur Radio Klub). You can find the full schedule on the FARS web site www.fars.k6ya.org or at the official flea market web site at www.electronicsfleamarket.com. Spread the word about this year’s flea markets.

Training class. Mike Zensius, KG6GUE, has postponed the class we had planned for early April. There just simply was not enough time to get everything coordinated to have the April class. We are currently working on a new set of dates for the class in the early summer. Watch for an announcement in a future edition of the FARS RELAY.

- de mikel, kn6qi

Vice-Presidents Column

New meeting features. This month we are inaugurating two new meeting features. First, there will be a "show-and-tell" period before the presentation during which members will be encouraged to show newly acquired items of interest, such as transceivers, portable antennas, keys and keyers, or fun gadgets. Second, is an "ask-the-experts" service for new hams. Members can write and submit their amateur radio questions at the meeting. Questions will be selected and answered by our esteemed panel of Dr. Know-it-alls in the next issue of the Relay. Members whose questions are selected for publication will be acknowledged. Questions can be on any aspect of amateur radio operations and related technology.

- Steve, K6OIK

Upcoming Events

Mar. 28	7:00 PM	Club meeting, Loyola School
Apr. 1	7:30 PM	Board Meeting, Los Altos Town Crier
Apr. 12	Dawn to Noon	Foothill Flea Market
Apr. 25	7:00 PM	Club meeting, Loyola School

See more events, FARS Calendar
<http://www.fars.k6ya.org/events/calendar.shtml>

Beginner's Luck!
By Frank Weiss K6FCW

"CONTEST LT∅H CONTEST"
"CONTEST LIMA TANGO ZERO HONOLULU CONTEST"
"K6FCW KILO SIX FOXTROT CHARLIE WHISKEY"
"K6FCW 5 by 9 1K"
"K6FCW 5 by 9 Charlie Alpha 50 watts Thank you"
"Thank you."
"CONTEST LT∅H CONTEST"

In case you are wondering what the cryptic message is above, it is a log of my first international QSO (and only my second HF QSO which was only 4 hours previous) on March 1, 2003 at 10 p.m. local time! I had bought my first HF rig the week before at the Hamfest in Seaside, CA, at the old Fort Ord Officers Club. The rig is a FT-897 Yaesu multi-band transceiver with an attachable power amplifier accessory. It also comes with an additional accessory, an antenna tuner, but that was on back order. I was learning how to use the rig, and trying to understand the 90+ menu selections through a function key. Plus I needed an antenna.

Many local hams had given me much sage advice such as: Get the antenna as high and as clear from other structures as possible. Use good coax. Look at Cushcraft, Hamstick, Diamond antennas, etc. Well, at this point I was thinking about installing an attic antenna because of the low cost involved and the lack of a need to drill holes in outside walls and no need for weatherproofing or guy wires. So I completely disregarded all this advice and hung a 20 m. dipole antenna in my attic. This took a couple of hours on March 1. But when I went to test out the antenna with the rig, I found that the SWR reading was way off the charts. That meant, of course, that the antenna was the wrong length for resonance at 20M. But even though the SWR was high, and it remained very high, the SWR decreased slightly at the lower range of the 20M band. I received much encouragement and advice from a new ham friend who kept in contact with me all day was Dick WB∅DUL in Colorado Springs, Colorado. Talk about long distance elmers! Dick's support was above and beyond the call of duty! Anyway, the low band SWR being a little lower than the high band SWR meant that the antenna (cut nominally at 32.5 feet overall) was too long. I crawled back up into the attic and shortened each end by 6 inches and started over again. The SWR was still way too high but coming down! I kept crawling back up into the attic 5 more times, each time shortening the ends by 2 inches until the SWR was less than 0.2 to 1 in the middle of the General class part of the 20M band. Voila, I had a resonant antenna in the 20M band!

So I called Dick WB∅DUL again and we agreed to meet on frequency so I could have my first real HF QSO. While we had our cell phones open, I heard WB∅DUL's call for K6FCW, my call sign. What a great feeling to hear your own call sign over the air. We rag chewed for a while, with Dick telling me that 'real' hams have roof antennas, either verticals or Yagis. I knew this, of course, but I was ecstatic having a resonant attic antenna for 20M! I was exhausted by now and we signed off for the day. After showering before bedtime, I just could not resist one more turn of my brand new HF tuning dial, so I went into the shack in my PJ's (not a pretty sight, believe me) and powered up. I had never changed the power setting of the rig, but I remembered during my reading of the manual that it was set for 50 watts. So I tuned the 20 meter band and after turning the dial for a while I heard "CONTEST LT∅H CONTEST" on 14.2465 MHz. I knew from listening to the band during the day when I was an attic crawler that a major contest event was underway on 20M (and probably other bands). Dick WB∅DUL had clued me in on how to respond to such a transmission. So what the heck, I said. I squeezed the PTT and announced my call K6FCW. Lo and behold, I heard my own call coming back! The QSO as reported above ensued. I was so excited that I didn't think during the QSO where this station was calling from. I found out later that LT∅H is located in Argentina!! ARGENTINA!! On 50 watts!! My first international QSO and I contact a station 6200 miles away on 50 watts to his 1000 watts! Will wonders and attic antennas never cease!

Let me see. Now I gotta figure out how to swap QSL cards with an Argentine contester …

New Ham Net! (Repeat)

Date: Wednesdays,

Time: 9:00PM - 10:00PM PST (GMT-08:00)

Frequency: 147.39 MHz (Positive offset), 151.4 PL

Contact: Donn Lee, w6fyi@arrl.net

More Info: http://www.wvara.org/newham

A casual, friendly net where people entering the hobby can meet other beginners, ask questions, share information, and discuss other topics of interest. The goal of the New Ham Net is to jump-start new Technician class licensees, get them connected to each other & other hams, and help them branch-out to the many interesting activities in ham radio. Open to all hams. Experienced hams please participate and share your experience!

Please pass the word, especially to anyone you know who recently joined ham radio.

Fascinating Web Sites

Check out NASA's web site at www.nasa.gov or an associated web site at www.spaceweather.com. We may have some geomagnetic activity at middle latitudes on March 26th.

Information can be found on ARISS (amateur radio on the International Space Station) at the following links: http://www.arrl.org/ARISS, and http://www.rac.ca/ariss.

HamCalc Software

Here's the URL to download HamCalc v.63: http://www.cq-amateur-radio.com/HamCalcem.html. It has over 100 useful routines for doing many RF design and antenna calculations. Includes some very nice tools for computing Q of coils.

Save the zip file to your computer, open it and extract all files to the C drive. This will create a folder named HAMCALC with six subfolders containing the routines, and also puts two files (gwbasic.exe and ve3erp.bat) on the C drive. To start the program in Windows, click on ve3erp.bat. For convenience, you can also put a shortcut to this file in the documents and settings>some user>startup>programs folder.

There are other older versions of HamCalc available on the web. Version 63 is the latest. It includes my impedance formulas for open wire transmission lines having square conductors, e.g. square tubing.

- Steve, K6OIK

Spring 2003 Ham Swap Scheduled May 10

Nevada (Reno)-Saturday, May 10, 7:00 AM to 1:00 PM. RAMS (Reno Area Metro Simplex) ARC and SNARS (Sierra Nevada Amateur Radio Society) are sponsoring the Reno Spring Ham Swap 2003 at The Salvation Army Headquarters, 1931 Sutro St. in Reno. Ham swappers bring your own table. Large outdoor parking lot available. There will be a raffle, coffee, doughnuts, VE session and other activities being planned. Please bring a can or cans of food for the Salvation Army Food Bank.

A map can be found at http://www.nvrams.org/Downloads/HamSwap2003Map.pdf

ARRL Sanctioned event. ARRL table with Nevada SM Dick Flanagan W6OLD present.

For further information on the VE License Exams contact Don Freeman W7FD donald_freeman@sbcglobal.net. Telephone: 775-851-1176 Exams start at 11 AM.

SATERN (Salvation Army Team Emergency Radio Network) communications station will be operational. Salvation Army and Red Cross emergency vehicles will be on display.

Emergency communications session with Matt Parker N7TOD.

Contesting adventures seminar with Tim Marek K7XC.

Talk In: 147.060 + (123) on the RAMS Repeater System. Contacts: Gary Grant K7VY E Mail: k7vy@netzero.net, Matt Parker N7TOD E Mail n7tod@arrl.net.

CLUB INFORMATION

President:	Mikel Lechner, KN6QI
Vice President:	Steve Stearns, K6OIK
Treasurer:	Frank Weiss, K6FCW
Secretary:	Martin Liberman, KD6WJW
Radio Officer:	Omri Serlin, AA6TA
Training Officer:	Mike Zensius, KG6GUE
Relay Editor:	Mark Hardy KG6GRR
Board Members:	Jack Eddy WA6YJR, Dick Baldwinson N6ATD, Herb Davidson KF6BKL, David Cooper KE6PFF, Howard Califf KE6PWH, Howard Takaoka KG6GRO, Stefan Goette KG6MAO.
Station Trustee:	Stan Kuhl, K6MA
FARS Web Page:	http://www.fars.k6ya.org
Download Relay:	http://www.fars.k6ya.org/relay

FARS announcement mailing list is moderated, so you cannot reply directly to the list: fars-announce@svpal.org

Also, note you can contact the FARS board of directors at fars-board@svpal.org

To subscribe/unsubscribe, send a message to: majordomo@svpal.org

In the e-mail message (in plain text) put one of:
unsubscribe fars-announce YOUR-EMAIL-ADDRESS
subscribe fars-announce YOUR-EMAIL-ADDRESS
(e.g. Subscribe fars-announce dwilkes@svpal.org)

Club meetings are held at 7 PM on the fourth Friday of each month except January (Winter Banquet); and sometimes there are changes for June, Nov. & Dec. Annual membership $20, family $25. Club badges are $5.75. Visitors are always welcome! Directions on the back page. Talk-in: N6NFI (145.23-, 100 Hz) or W6ASH repeater (145.27 or 224.36).

The FARS *Relay* is the official monthly newsletter of the Foothills Amateur Radio Society. Contributions to the newsletter from members, family, and guests are earnestly solicited! Contributions subject to editing and/or compression. ASCII files via Internet or diskettes preferred; but all readable forms welcome.

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Voice: 408-243-0701 (Before 9 PM, preferred)
Fax: 408-243-0701
Email: kg6grr@arrl.net, At FARS meetings.

The Antenna

This story has been edited and reprinted from the April 1985 issue of the Tokyo International Amateur Radio Association's (TIARA) newsletter.

Greetings from Tokyo and all the members of TIARA (Tokyo International Amateur Radio Association). I know I promised you a series of articles on Japanese amateur radio, but there is something so exciting I just have to take a break and tell you about it.

It all started with the work that Ed Coan (AH7L/7J1AAE) did on antenna pattern plotting using his personal computer and the A-to-D converter in his FT-1000. The circular, and even backward antenna patterns of some of our local TIARA club members brought home the point that what a good station needs is a good antenna. Ed's antenna looks great and the results verify it. He works regular schedules into Colorado and Maine, just like sunspots don't mean anything. My mini-beam just could not compare.

Well, I got to thinking about what we Tokyo apartment dwellers could do and realized that space is THE problem. How do you fit a full-sized beam on a balcony? Loading coils are the answer and the problem at the same time -- the antenna radiation resistance drops as reactance is substituted for length. High current loops develop and the power is dissipated in the antenna instead of being radiated. If only the antenna didn't dissipate the power. Hmmm....let's see, $P=E^2/R$; now if R were 0 then...

From my work, I have some contacts in research groups over at Tokyo University. Better yet, I knew a Japanese ham that is a graduate student there. The thought running through my head was to build a super-conducting antenna. This requires cryogenics, i.e. temperatures around minus 279 degrees Centigrade. I was able get the university folks interested in the project and we built a 10-meter dipole test silicon wafer. They put together a lot of serial coils by "re-work" on the wafer; they were able to connect them so we had a super-conducting yagi. I took my TS-930 transceiver down to the lab for the first tests, but before we could test it, actual measurements showed it was resonant on 3.126 MHz. It seems that the normal equations for inductance don't work with super-conducting materials -- you need a lot fewer turns to get the same results compared to room temperature. Many measurements and trials later, we had a ten-meter resonant wafer. This time we put a 40-element beam on each wafer and stacked 4 wafers in the same assembly. That made a 160-element array on 10-meters in less than a half-foot cube (15 cm^3).

The first test didn't go too well. I connected my TS-930 to the super-conducting wafer antenna and tuned it for 10 meters. At room temperature, we couldn't hear anything. Using a heat pump, the lab technicians started lowering the antenna's temperature toward the super-conducting region. I was really impressed by how small the equipment is, and started thinking it might all fit in the shack. Just then, the TS-930 froze solid, which had a negative effect on its operating characteristics. This wouldn't be so easy after all; the coax connection would need some study!

We reworked the wafers to put inductive coupling on them, but I could find no way to efficiently couple to it from the conducting array. Fortunately the lab technicians came up with a new ceramic material that passed RF but not heat. Probably, something that Kyocera invented just for this use. I sent the TS-930 to the ham shop in Akihabara and asked them to touch it up for me. My friend Suzuki-San, JH1WWC (store manager at the ham shop), asked exactly how the paint had been peeled off around the coax connector -- lightning maybe? No, I assured him -- just low temperature exposure, without saying how low the temperatures were. The project had to stay secret and besides, Suzuki-San can repair anything!

Since it looked like it might be a while before the TS-930 would be repaired, I brought out my TS-940. I had already placed an order for a Yaesu FT-1000 anyway. After verifying that in the super-conducting range the antenna was resonant on 10-meters, we connected the TS-940. The ceramic material worked and the rig operated well as we began the cooling cycle. The band seemed dead even with the antenna at -150 degrees C. It took another 10 minutes to get to the super-conducting range -- then the TS-940 blew up. It seems our antenna had a bit more gain than the TS-940 front-end could take. Later measurements showed 500 volts coming out of the coax. A little hard to believe, but then what do I know about cryogenic LSI antenna technology? The TS-940 was also returned to Suzuki-San, but this time he frowned a bit -- the front-end board did look like it had been hit by lightning. Not to worry, Suzuki-San can repair anything!

The FT-1000 arrived just in time to be able to continue experiments. We built a QSK attenuator to protect the receiver. With the LSI wafer antenna still inside the lab, we decided to try to make a contact on 10-meters. What a shock when we got it working! The first thing we heard was a couple of W2's talking locally on 10 meters and that was with 80 dB of attenuation. We had the antenna array on a rotatable mount; I moved it about a half-degree and the W2's disappeared. What beam width! We tuned them in again, and they were just about to sign off, so we thought we would try to work them. The rig was tuned up at 50 watts on a dummy load; we switched in the wafer antenna and gave N2BA a call. The noise was unbelievable -- an ionized ray shot out from the antenna and hit the wall of the building. Before we knocked a hole in the band, we took a piece out of the lab wall! Ever wonder what an antenna pattern looks like in three dimensions? There was an oval hole in the wall of the lab -- about 1-cm high by 2-cm wide. We cut power quickly. N2BA came back on frequency a few minutes later and said he was using his back-up rig; something had taken his main rig off the air. For some reason, the station he was talking to never came back, so we decided not to transmit again until we knew for sure what was going on.

As near as we can tell, the antenna array has 620-dB gain over a dipole, but with a beamwidth of 0.75 degrees using the 60-dB points. With 50 watts output, the effective radiated power is 55 quadrillion watts at the center of the beam (5.5 with 13 zeroes). As soon as the University realized what we had built, the entire project was taken away from us and turned over to the Japanese Self-Defense Force. Amateur radio "tinkering" has contributed to something, but I am not exactly sure what. I haven't the slightest idea what was in those wafers or how to build another set. Do you think someone may be interested in this idea for Star Wars/SDI?? What I'd give to use a much smaller set in the next CQ World Wide Contest!

A few months later, the University contacted all of us and asked just how close we had been to the antenna when operating. As best as I can figure, we were in the null behind the array. From what has been said so far, it looks like a secondary use for our antenna may be as a mass sterilizer, but confirmation will have to await the results of our medical tests. If our antenna ever hits the market, it looks like remote operation may be desirable.

As I am writing this, I have been informed that my friend Suzuki-San can't fix everything after all. He's written off the TS-930 and TS-940, and I just found out that before the university terminated the project, they tried one more time with my FT-1000, but without the 100-dB attenuator to protect the receiver. Its front-end now matches the 940's and it looks like it will be a while before I am on the air again.

Best 73,
Joe Speroni, AH0A/7J1AAA
Ex-Technical Adviser TIARA
1 April 1997

(Maybe we can use the HamCalc software to check this out – ed.)

Amateur Radio Spectrum Protection Act of 2003 Introduced

The Amateur Radio Spectrum Protection Act of 2003 has been introduced in the US House of Representatives. The measure is an ARRL legislative initiative. Florida Rep Michael Bilirakis filed the latest version of the bill, HR 713, on February 12. It has been referred to the House Committee on Energy and Commerce.

HR 713 is aimed at ensuring the availability of spectrum to Amateur Radio operators. It would protect existing Amateur Radio spectrum against reallocations to or sharing with other services unless the FCC provides "equivalent replacement spectrum" elsewhere.

The previous version of the Spectrum Protection Act attracted more than 50 cosponsors. An effort will be made to encourage additional House members to sign onto HR 713 as cosponsors. Additional details are on the ARRL Web site (www.arrl.org).

FARS Membership Form

PLEASE fill out the membership form for all new/renewal members.

FARS 2003 MEMBERSHIP RENEWAL FORM Date: _____

Name(s) & Callsign(s) & Class (E-A-G-T-N-None): _____

_____

Mailing Address: _____

_____

Home phone: _____ Work phone: _____

Fax (H or W?) _____ Packet BBS Address: _____

E-mail: _____ ARRL Member(s)? _____

Preferred modes: (e.g. HF-SSB/VHF/QRP/Other): _____

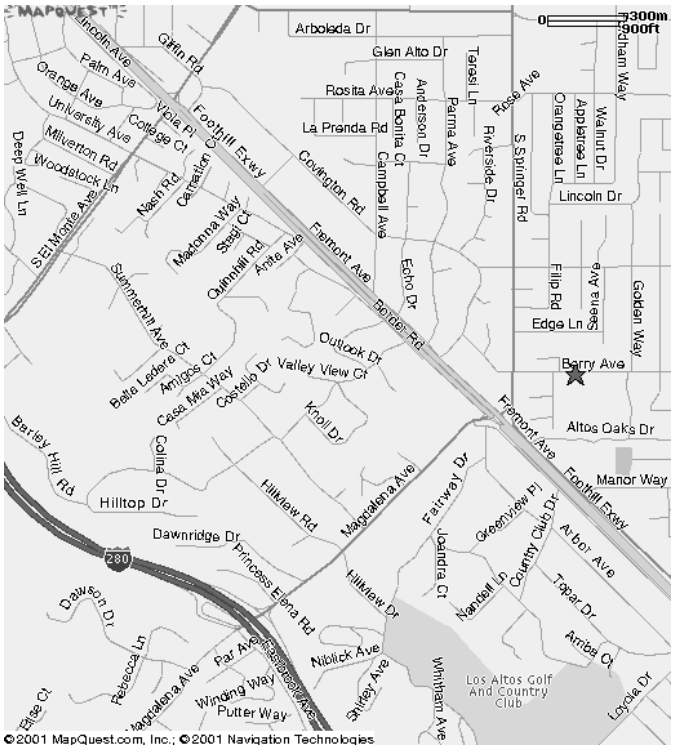
I'm willing to Elmer new hams with: _____

_____

Special topics of interest / suggestions for club meeting speakers:

_____

Dues: personal: $20; family: $25.
Please note: Membership runs from January 1 to December 31.
Send your check payable to FARS, to:
FARS, c/o Frank Weiss K6FCW, 109 Stratford Court, Mountain View, CA 94040



How to get to meetings:

(Visitors always welcome)

Our meetings usually will be held at the Loyola School gym room (directions below) on the fourth Friday at 7 PM for the code practice/socializing and 7:30 PM for the regular meeting. There may be changes in the meeting dates for January, June, November, and December.

DIRECTIONS:
Loyola School is at 770 Berry Avenue in Los Altos, between Springer Rd. and Miramonte Ave.

FROM FOOTHILL EXPWY take the Rancho shopping center exit and go east (toward El Camino Real) on Springer one short block; turn right onto Berry; watch for the school parking lot on your right. Walk past the office and turn right. The gym is the first building on your right.

FROM I-280 take the Magdalena Av. exit and go east (towards Foothill Expwy). Cross Foothill Expwy onto Springer; then follow directions as above.