



# The READOUT

Year 12

Number 5

May 1990



MY NEIGHBOR ALWAYS LETS ME KNOW IF I'M  
BOTHERING HIS TELEVISION

Stanislaus Amateur Radio Association

P. O. Box 4601 Modesto, Ca. 95352

**The READOUT** is published monthly by the Stanislaus Amateur Radio Association. COPYRIGHT 1990 by the Stanislaus Amateur Radio Association, (SARA), Modesto, CA. All Rights Reserved. Permission is granted for reproduction in whole or in part provided that credit is given to **The READOUT** and to the authors of the reproduced material.

#### 1990 SARA Officers

President . . . . . Phil Hartz . . . . . WD0FXX  
Vice President . . . . . Oliver Borns . . . . . KJ6YZ  
Secretary . . . . . Linda Franklin . . . . . N6REB  
Treasurer . . . . . Al Dionizio . . . . . N6SAE

#### SARA VHF Net

Thursdays @ 8 p.m. (Except Holidays)  
2 meters 145.39 MHz WD6EJF  
220 Band 223.68 MHz WD6EJF

Contributions to **The READOUT** are always welcome and may be submitted to the editor by mail or via packet at W6FGC-BBS on 144.97 MHz. The deadline for articles is the 15th of the preceding month.

#### Editor

Bob Pinheiro, WA6ZLO  
1221 Mist Flower Ct. Modesto, CA.  
95355  
209-523-5880

**Next SARA  
Meeting  
May 15, 1990  
730 pm  
County Administration  
Building  
12th and H Streets  
Modesto, CA.  
Lower Level Conference Room**

## **Budget Copy Center**

**Your Authorized Xerox  
Copy Center**

**Laminating Collating  
Stapling Spiral Binding  
Letterheads Folding**

**Business Cards**

**1321 J St at 14th**

**529-5395**

**Modesto, Ca.**

# 'Thin Air'

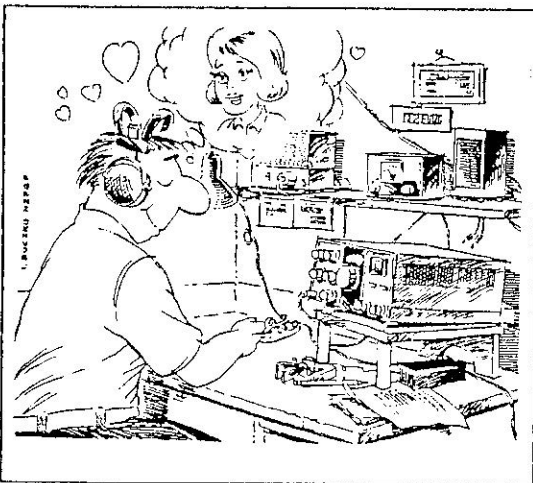
**Sometimes a Morse code trainer can be a little too realistic.**

By Joan Tanya Chopin, WA6BXT From QST Magazine

**S**am's social life was in a serious long-term slump. Work was becoming ho hum, and even his ham radio career seemed to be growing stale. He used to find relaxation by having spirited ragchews on the air in the evenings, but since 40 meters was so noisy he found himself fruitlessly calling CQ on 80, sometimes for hours, with no response. He could occasionally find a QSO in the Novice band, but he really didn't have much patience for QRS ragchews these days. Sam was becoming depressed.

One day, in the employee lunch room, one of his co-workers, Jerry, approached him with an idea.

"Hey, Sam, are you still into CW?"



"Yeah, but I'm not as active as I used to be. I've been kind of depressed and I've started watching TV and sleeping a lot."

"Well, maybe this will cheer you up. I've worked up a little something I'd like you to try out for me. I've been trying to get my code speed up and I built a little QSO simulator. It's more interactive than the other ones I've seen. I call it 'QSO Joe.' You're a CW man. I'd like you to try it out.

Would you?"

"Sure, it might be fun."

"Great. I'll bring it tomorrow. You can be my troubleshooter. Just keep track of the things you notice, good and bad, and let me know."

So, the next day Jerry brought in an innocuous-looking little black box in a paper bag. That night Sam took it home, plugged it in, and hooked up his paddle. He adjusted the speed setting and the dot and dash ratios according to the instructions Jerry had tucked into the bag. Also included was a note pad on which Jerry had written "Use this for taking notes. Thanks, Jer."

Sam poured a cup of coffee, kicked off his shoes, and sent a CQ. As soon as he was finished, he heard his call sign and realized the simulator was working. He gave the usual first-QSO information. The other station responded

See 'Thin Air' Page 4

appropriately with a name, QTH, RST, and so on. To see how clever the program was, Sam asked a few questions of the artificial operator. He sent, "How old are you? BK" The reply was prompt. "Age here is 38. How old are

## Thin Air From Page 3

you?" Sam was not expecting to be asked in return. He was impressed. On the note pad he put his first comment for Jerry. "No. 1: Impressive--asks questions in return."

Sam signed with QSO number one and called another brief CQ. Immediately his call was answered. This time the operator gave the name of Nancy. After exchanging the usual information, Sam decided to ask some personal questions of the YL. The answers were so appropriate that Sam had to keep reminding himself that he was really conversing with a silicon chip, a non-person, a thing, and not really a "Nancy." On his list he wrote, "No. 2: Sophisticated interaction."

Sam signed with "Nancy" and went to bed, but he had difficulty falling asleep. He was thinking about the simulator, particularly about "Nancy." She had told Sam she was 29, divorced for two years, and had no children. She had been a ham for 12 years and really liked CW. It was hard not to try to imagine what she looked like, yet she didn't really exist. Sam had to keep reminding himself of that.

The next day after work, Sam came home, grabbed a quick dinner, and went into his shack. Instead of turning on his rig or the TV, as was his usual routine, he went immedi-

ately to QSO Joe. He called one CW and, much to his surprise, Nancy answered. He began to go through the usual first-QSO ritual when Nancy interrupted him with, "Yes, Sam, I remember you." Sam was shocked and excited at this new level of sophistication. He added to his notes for Jerry. "No. 3: Yesterday's QSO remembered me."

Sam had a long QSO that night with Nancy. She was friendly and funny and asked him as many questions as he asked her. They talked about their families, their early ham days, and what sort of music they liked. She

## **'That QSO lasted for many hours and the subject matter became more intimate.'**

asked him about his job and told him about hers. It was awesome to Sam, and he was finding it more and more difficult to keep in mind that, as interesting as Nancy sounded, she was not real.

The next night when he came home, he went directly to the shack. He couldn't wait to see what QSO Joe had in store. Immediately, he heard his call sign coming from the speaker. He was being called by Nancy! When he answered, she said, "I'm glad I found you again, Sam. I have been thinking about you all day." On his list he wrote, "No. 4: Wow, Nancy called me," and "No 5: She likes me!"

That QSO lasted for many hours and the subject matter became more intimate. She talked about her loneliness and how he was

See 'Thin Air' Page 5

making her happy by talking so long. She talked about her innermost feelings and how much she believed they had in common. She

## Thin Air

From Page 4

said she'd had QSO's with many hams in her 12 years, but never had such a warm experience as she had talking with him. For many days the same routine was repeated. When he saw Jerry at work, Sam was reluctant to tell him about it, fearing Jerry would want to take it back to see for himself.

"How do you like QSO Joe?"

"Fine so far," Sam said. Then he hastened to add, "but I haven't had enough time with it yet."

"That's okay. Just keep track of any problems you find."

"Sure thing," said Sam. He realized he had found no problems so far, none at all, except that, even though he was falling in love with Nancy, she did not exist.

The QSO's with Nancy went on for weeks. Sam continued to put Jerry off so he could keep the simulator as long as possible. He spent many hours thinking about Nancy and wondering if she was a miracle, a fantasy, or just an enchanting glitch in Jerry's design. Their QSOs were so real it had to be a human being generating those words, a sweet, loving, real human being. He thought about her all the time and spent every evening talking to her.

One Thursday Jerry asked him to return QSO Joe so he could show it to a friend he was going to visit on the weekend.

"May I have it back on Monday?" Sam asked, trying not to sound too anxious.

"I'm not quite finished with it yet." Jerry agreed.

That night was sad for Sam. He told Nancy that he would not be able to talk to her on the weekend, and she seemed as distressed as he was. "When will we QSO again?" she asked with an almost perceptible sadness in her fist.

"On Monday," he assured her, "I will be back on Monday." And just before they said good night for the last time that week, Nancy said, "Sam, I just cannot exist without you." That night, for the first time in longer than he could remember, Sam cried himself to sleep.

The next morning Sam unplugged QSO Joe, put it in the paper bag, and brought it back to Jerry. As he handed him the bag, Sam reminded him that he hoped he could have it back on Monday.

"Sure, no problem I just want it for the weekend." That was reassuring to Sam. He just had to make it through the weekend,

and memories of those wondrous hours with Nancy kept him going. He began to fantasize about meeting her. He decided that Monday he would broach the subject. Having been separated for the entire weekend certainly together they could find a way to meet, to touch, to exist. He was convinced now that

See 'Thin Air' Page 6

## Amateur Calls As of April 1st

**Thin Air**  
From Page 5

**A**s of April 1, 1990, the FCC issued the following calls in sequential order in the sixth call district. If you are waiting for a call, this will give you an idea of what to expect.

EXTRA- AA6UJ  
ADV- KK6IS  
GEN-TECH- N6YJC  
NOVICE- KC6JXO

Once the N6--- calls are gone, the FCC will issue Novice type calls 2x3's to new Generals and Technicians in addition to Novices. If the new Communicator class is approved, those calls will also be 2x3's.

---

## FCC Announces 220-222 MHz Bandplan

**T**he FCC private radio bureau has released proposed service rules for the new reallocated 220-222 MHz land mobile band. The establishment of the service rules will clear the way for license applications to be accepted and the eventual removal of Amateur radio operations in this portion of the 220 band.

she was more than a function of a simulator. It had gone far beyond the limits of electronics. Thoughts of finally meeting her were consuming him again and of arranging a meeting.

Sam rushed home on Monday night, QSO Joe in hand. He ran to the shack, plugged it in, and hooked up his paddle. As he started to send, he noticed the speed had been changed, which was no surprise because Jerry was a beginner. Then he noticed a difference in the keying. Sam had adjusted it perfectly. Why would Jerry have changed that? Sam reprogrammed it to his liking and anxiously called Nancy. No answer. He called again. In fact he called for hours and she never came back. The next night he tried again, and still no Nancy. Perhaps if he called CQ she would answer him and they could start again.

As soon as he completed the CQ he heard a response. His heart beat fast and he waited to hear the sweet music of her call. It wasn't Nancy. He sat stunned, unable to send. What to do? He called another CQ and then another. Each time he was answered, but never by Nancy.

The next night he tried again to no avail. He managed to QSO some of those who answered him, hoping he would perhaps find Nancy with a different call. He talked to John, Ben, Tom, Jim, Pete and Ken, but no Nancy. It became sadly obvious to Sam that, by unplugging QSO Joe, Nancy was lost.

After two more torturous weeks of looking for her, Sam gave up. Remembering her last words to him, "I cannot exist without you," Sam sadly returned QSO Joe to Jerry. He didn't forget to include his list of comments to which he tearfully had added, "No. 6: Needs battery backup."

*Thanks QST for permission to reprint.*

# SARA Minutes

By Linda Franklin, N6REB

Club Secretary

4-17-90

The April 17, 1990 meeting was called to order at 7:30 p.m. by Vice President Oliver, KJ6YZ as President Phil, WD0FFX was absent due to illness. Introductions were made by 26 members and guests.

Treasurer Al, N6SAE reported the General Account beginning balance as of 3/21/90 was \$2490.63. Three deposits were made totaling \$203.25 bringing the balance to \$2693.88. Six checks were written totaling \$499.16 which left the ending balance as of 4/17/90 at \$2194.72.

Al also reported that the insurance company informed him that the club membership is covered up to 185 plus members and it would be beneficial to keep the policy as is. The policy premium of \$612 is due May 1, 1990 and Tony, WA6KOI made a motion that the club go ahead and pay the premium. The motion was seconded and carried. Hart, N6TIV, made a motion that the Treasurer's report be accepted, it was seconded and carried. A motion to accept the minutes of the last meeting as read was also seconded and carried.

Steve, N6EKV reviewed the no risk offer made to SARA by Milt McKuen, Scoutmaster of the Modesto Sea Scout troop. SARA would provide manpower to help run the fireworks booths and if they work 30 to 40% of the time,

then SARA would get 30 to 40% of the profits. More information on this will be placed in The READOUT.

Oliver, KJ6YZ announced that SARA has had a PC clone donated to the club by a Bay Area company. Since the WB6V BBS is no longer running, the intended purpose for the PC clone is to establish a low level BBS for the local area to forward packet mail out of Modesto.

Oliver also extended thanks to all who participated in the recent Bike-a-thon. He also informed everyone that Mark Lemon, WB6BJN, a blind ham operator, had his rig stolen and several people have donated \$10 toward helping Mark get a replacement rig. Those who would like to help please send your donation to SARA - P.O. Box 4601 - Modesto, CA. 95352. Please specify that your donation is for Mark, WB6BJN, RIG REPLACEMENT FUND.

Al, N6SAE, announced that 3,000 tickets have been printed up for the upcoming raffle to be held July 4th. Each member will be receiving a book of ten tickets to be sold immediately. If you wish additional tickets, call N6SAE at the number listed in the club roster.

Steve, N6EKV reported that the only thing on the agenda of the recent NARC meeting that would affect us is that we have three sanctions, 2-meter, 220, and 440. At the NARC meeting they OK'd a high level repeater in the Clear Lake area at 4700 ft on our pair. Steve said that he and LeRoy, NV6S feel that because of the distance involved, and the fact

*See Minutes Page 17*



## **SARA 1990 Raffle Equipment Fund**



SARA was born 14 years ago in 1976. Shortly after that our repeater equipment was purchased after several fund raisers. After 14 years of service, the equipment is getting old...not to mention tired. The frequency of breakdown is proportionate to the age and condition of the equipment, and the time has come to start to replace it. We cannot expect our Chief Engineer, Leroy, NV6S, to make repeated trips to the mountaintop just to keep us on the air. That's not only asking too much of Leroy, but is also hard on his family relations.

Mt. Oso is not the easiest mountaintop site to get to and requires a minimum of 4 hours just for a quick trip up and back. More often than not, its an all day affair. We owe it to ourselves, and especially Leroy, to make sure our equipment is in good condition.

For these reasons, the club is currently conducting a fund raising raffle giving away the winner's choice of a .357 Magnum pistol or \$500 CASH. Raffle tickets have been printed and have be mailed to all members. The tickets will be offered to members and the general public for a donation of \$1.00.

We hope that you will able to sell as many as possible. You will find the prize of a .357 Colt Python pistol (or \$500 cash) particularly attractive to men. If you want to participate in the raffle yourself, you can purchase as many tickets as you want for yourself. In fact many members prefer to keep the tickets for themselves.

Several years ago, we held a similar raffle to gather the money needed to purchase the 220 repeater. We found that we had no trouble selling the tickets, especially to men, because of the gun. This time, we have offered the alternative of taking the prize in cash (\$500) should the prize be won by someone not interested in the gun.

Please remember in order for a raffle to be legal, you CAN NOT DEMAND MONEY for the tickets. YOU MUST ASK FOR A

*See 'Raffle' Page 9*



# SARA Raffle

From Page 8

**DONATION** for each ticket. The tickets are printed with the word '**DONATION**'. So, please remember it has to be a donation and not a demand. There is no limit as to how many tickets can be purchased by one person. Each member of the club will be mailed 10 tickets and asked for their support.

All tickets are numbered and you must return them to the club no later than Saturday June 30, 1990. This includes the stubs from the sold tickets and any unsold tickets. This is especially important for those that are sold as we need to get them in the barrel for the drawing which will be held on July 4th.

Please be sure that you fill out the person's name, address and telephone number on each ticket stub when you sell it. You don't have to be present to win. If the winner elects to take the gun, there will be a fifteen day waiting period required by law for a background check. If the winner fails the background check, or is a juvenile, he or she will be awarded the \$500 cash. If for some reason you prefer not to participate in this fund raiser, just mail the tickets back to the club's post office box and thanks for your consideration.

If you sell all the tickets that you have and want more, or have any questions, contact the club treasurer, Al, N6SAE, 523-4485 in Modesto. Return stubs or unsold tickets and any money to SARA, P.O.Box 4601, Modesto, CA. 95355. Please don't send cash if possible. Money Orders of personal checks are preferred. This is the first major fund raiser we have had for several years and your support is vital and greatly appreciated. Together, we can do it !

**SARA Raffle  
Equipment Fund  
Win .357 Colt Python Gun  
or  
\$500 Cash  
Drawing July 4, 1990**

## Chief Engineer's Report By , LeRoy NV6S



I went to Mt. Oso on Saturday, April 7 to repair a failure on the main two meter repeater. A bridge rectifier went out in the power supply which was brought down for repairs. On Sunday, April 8, the repeater was put back in service. While I was there I took a look at the backup repeater ID'er that had quit. I found a 7805 chip with a lead broken off and an open trace on the circuit board.

On Thursday, April 12, Hart, N6TIV and I went up the hill to put the backup repeater back in service and fixed a couple other problems that had cropped up. I found a shorted transistor in the decoder circuit and

repaired that. The courtesy tone circuit has been intermittent and the final solution to this problem was to use a CMOS buffer chip between the receiver COR board and the input to the tone circuit. All systems are now working.

I still plan to do some work on the antenna system on the backup repeater at my earliest chance. I also want to experiment with the eleven element beam on the link receiver at the 220 site with hopes of putting a null toward the new Fairfield 440 repeater sanctioned on our 440 MHz pair used for the link. This is the audio that has been riding in on our squelch tail when the 220 link is up.

Also, the two meter beam that is used to transmit the 220 down link to the two meter site has lost some elements and needs to be replaced. We have one in surplus.

My thanks to Hart for his assistance on one of the trip. I think he enjoyed the trip as I enjoyed his company. He was also quite helpful. 73 LeRoy.

---

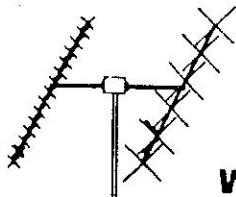
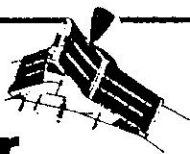
## WB6V-BBS QRT'S

After several years of faithful service to the Modesto area, the WB6V BBS in Ceres went off the air on April 7th. Ed Watson, WB6V, shut down the BBS because he plans to travel and see the country.

A search has been on for someone to replace him, but so far, none has been found. Local packeteers will be able to get BBS ser-

vices from W6FGC-2, (144.97) Burt, in Twain Harte. Good Luck to Ed, enjoy your travels and thank you for the time and sacrifices you endured providing the area with a first class BBS. SARA is looking at the possibility of taking over operation of the BBS in view of the recent donation of a computer to the club. NV6S, Leroy, has offered to operate it.

# Amateur Satellites



**WB5ZDP**  
**Kelth Berglund**

WORLD RADIO, March 1990

Last month we established that an all mode 2M rig was about the best investment that a satelliter could make. It can be used for the downlink on Modes B and T and the uplink on Modes A and J. When you don't want to use it for satellite work, there is always terrestrial 2M SSB and, of course, the rig can be used for traditional FM repeater operation as well.

## Transmit converters

If you're not sure if you can justify the price of an all mode 2M rig, you may want to consider a transverter or perhaps just a transmit converter.

The concept of a transmit converter is really quite simple. Figure 1 is a simplified block diagram of a 10M to 2M transmit converter. A small amount of 28 MHz energy from your HF transceiver is mixed with a 117 MHz

local oscillator to produce 145 MHz and 89 MHz (117 + 28 and 117 - 28 MHz).

Of course we only want the 145 MHz signal so the 89 MHz is filtered out. The 145 MHz signal is then amplified many times until the desired output power level is reached.

I personally know eight or 10 people in my local area who are active on the satellites and I estimate that half of them use some sort of transmit or receive converter on at least one mode on the satellites.

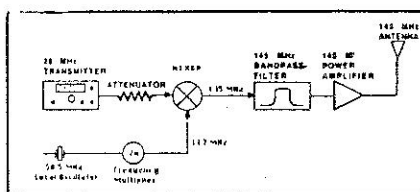


Figure 1. 28 MHz to 145 MHz transmit converter

Transmit converters are an easy and convenient way to uplink to RS-10/11. Consult the major Amateur Radio magazines for manufacturers, such as Hamtronics, Microwave Modules, Advanced Receiver Research and SSB Electronics. Also, please don't be afraid to homebrew your own.

## Satellite tracking

Before you can communicate through the satellite, you've got to know where it is.

Since the satellite is in an orbit that is non-geosynchronous, its position moves around in the sky. When the satellite is in view, you need to know where to point your antennas and if the satellite is not in view, it's nice to know when it will be next.

*See Satellite Page 12*

Finding RS-10/11 or any of the other satellites can sometimes be a bit tricky unless you have the right equipment. The vast majority track the satellites using a computer. AMSAT has software for almost every computer you can imagine, from the

## Satellites From Page 11

Sinclair/Timex to the IBM PC and I have found that all are menu driven, user friendly and very accurate.

The function of all of the satellite tracking programs is basically the same. They give you a predicted satellite position at a given time and tell you where to point your antennas based on your longitude and latitude. All programs give you this data in numerical or tabular form and many will also show you where the satellite is graphically on a world map.

Most versions have two important functions in common that are very useful: The "Scheduling" mode and the "Tracking" mode. In the scheduling mode the computer will tell you when a given satellite will first appear on your horizon (Acquisition or Signal -AOS-) and then when it will go below your horizon (Loss of Signal-LOS-). This is particularly useful in determining when you can work a future pass of the satellite.

The time that you tell the computer to begin calculating does not have to be "today." You can tell the computer to give you the passes of tomorrow, next week or even next year; it's just "numbers" to the computer.

An example partial printout of the scheduling mode from the IBM PC appears in Table 1. Note that RS-10/11 will make about five or six passes per day of approximately 12-20 minutes each.

Once you have determined which pass of the satellite you would like to work, you can then switch to the "tracking mode." The tracking mode is used to give you a numerical readout of where the satellite is at a particular time in terms of azimuth and elevation. In other words, when you want to know where to point your antennas now, this is the routing to use.

### ' The essential information that you really need is time, azimuth and elevation. '

I use this mode on RS-10/11 by getting a printout of a entire pass with a new azimuth and elevation reading for each minute. I have the printout directly in front of me during the pass and can change position of the antenna rotors without looking at the computer.

The essential information that you really need to work the satellite is the time, azimuth and elevation. The rest is interesting to know for other reasons. For example, on OSCAR-13 the mode (B, J/L and S) changes depending on the "phase count" or where the satellite is in its orbit.

With the correct external hardware, some computers can be made to automatically point your antennas at the satellite. When the bird moves more than a preset num-

See ' Satellites ' Page 13

ber of degrees, the computer will command the rotors to reposition the antennas. You can work an entire pass of the satellite and never touch your rotors.

## Satellites From Page 12

This can be particularly handy when working a "low earth," quick moving satellite, such as RS-10/11 or OSCAR-12. I know that the AMSAT software for the IBM PC, Apple, Macintosh and Commodore C-64 are capable of auto-tracking. It should be emphasized, though, that the ability to do this is not in any way a necessity to work the satellites and should not scare you away from getting started in Amateur satellite operation. Later,

as a luxury, you can add autotracking to your station if you desire.

## Keplerian elements

The computer calculates where the satellite is by knowing where it was. Or, more precisely, by knowing where the satellite was (say a week ago) and by knowing the characteristics of the orbit, the computer can predict where the satellite is now. As a simple example, if a train is travelling along a straight track at 50 miles per hour, I can predict that the train will be 100 miles down the track in two hours and 1,000 miles down the track in 20 hours.

A "snap shot" in time of the orbital parameters of the satellite is placed in a file of the computer program. These orbital parameters are called Keplerian elements, named after

Johannas Kepler, the German astronomer who first mathematically described the motion of the planets. These elements are measured by NASA and are free to anyone.

AMSAT routinely distributes updated element sets for all Amateur satellites, weather satellites and certain other spacecraft, such as the Soviet space station MIR. They can be found on the AMSAT BBS (214-394-7438), some packet BBS stations, HF nets and local VHF nets.

Though new Keplerian elements are made available on the average of

| SCHEDULE FOR SATELLITE RS-10/11 FOR WB8ZDP |        |        |        |         |       |     |       |
|--|--------|--------|--------|---------|-------|-----|-------|
| DATE                                       | AOS    | MAX    | LOS    | EPOCH   | DX/EL | AZ  | ORBIT |
| 08 MAR 90                                  | 003817 | 004338 | 004858 | 08MAR90 | 6 EL  | 294 | 13558 |
| 08 MAR 90                                  | 080657 | 081325 | 081953 | 08MAR90 | 10 EL | 69  | 13562 |
| 08 MAR 90                                  | 095101 | 095956 | 100852 | 08MAR90 | 89 EL | 35  | 13563 |
| 08 MAR 90                                  | 113835 | 114441 | 115047 | 08MAR90 | 9 EL  | 280 | 13564 |
| 08 MAR 90                                  | 213332 | 214142 | 214953 | 08MAR90 | 32 EL | 87  | 13569 |
| 08 MAR 90                                  | 231858 | 232716 | 233535 | 08MAR90 | 31 EL | 283 | 13571 |
| 09 MAR 90                                  | 083620 | 084417 | 085215 | 09MAR90 | 23 EL | 75  | 13576 |
| 09 MAR 90                                  | 102132 | 103006 | 103839 | 09MAR90 | 4 EL  | 272 | 13577 |
| 09 MAR 90                                  | 121251 | 121428 | 121605 | 09MAR90 | 4 EL  | 284 | 13578 |
| 09 MAR 90                                  | 202220 | 202714 | 203208 | 09MAR90 | 5 EL  | 78  | 13583 |
| 09 MAR 90                                  | 220301 | 221147 | 222033 | 09MAR90 | 68 EL | 9   | 13584 |
| 09 MAR 90                                  | 235058 | 235806 | 000514 | 10MAR90 | 14 EL | 289 | 13585 |
| 10 MAR 90                                  | 072359 | 072741 | 073123 | 10MAR90 | 3 EL  | 63  | 13589 |
| 10 MAR 90                                  | 090606 | 091453 | 092340 | 10MAR90 | 48 EL | 79  | 13590 |

DATE.....UTC date. Remember, date changes at 6:00 P.M. CST.

AOS.....Acquisition Of Signal (UTC). Time that the satellite appears above your horizon. Format is HHMMSS.

MAX.....Time (UTC) of maximum elevation angle. Also, time for repositioned azimuth.

LOS.....Loss Of Signal (UTC). Time that the satellite goes below your horizon. Format is HHMMSS.

EPOCH ...Date (UTC) at the end of the pass.

DX/EL.....Azimuth angle at peak elev on.  
Remember: 0 Deg. = North, 90 Deg. = East  
180 Deg. = South, 270 Deg. = West

ORBIT.....Number of revolutions around the Earth that the satellite has made since launch.

Table 1. Computer scheduling for satellite RS-10/11

See 'Satellite' Page 14

## TV Marti Hits Cuba Castro Expected To Retaliate

**T**esting of the controversial 'TV Marti', the U.S. government news and information television service beamed at Cuba, is scheduled to begin this month. The \$7.5 million dollar test project will use a balloon-tethered transmitter and antenna located at the U.S. Air Force base at Cudjoe Key, Florida.

The transmitter is a 1,000 watt unit which will feed a specially designed 14' long antenna, which is highly directional. The ERP of the system is expected to be in the area of 40,000 watts.

The transmitter and related equipment will be housed inside an Air Force Aerostat balloon which is the equivalent of a commercial blimp. The aerostat will not float away because it will be anchored to the ground. The transmitter will be powered by an on board generator and will be brought down weekly for refueling and maintenance. The antenna will be mounted outside the craft of the belly of the blimp. Programming will be uplinked to the transmitter both by microwave and satellite.

TV Marti is opposed by the National Association of Broadcasters (NAB), which fears retaliation from the Cuba government in the way of intentional interference with southern Florida TV stations and increased interference to U.S. A.M. broadcast stations which has received interference from Cuba on various frequencies since TV Marti's counterpart, Radio Marti, began broadcasting in 1985.

The Cuban government only recently demonstrated the ability to jam TV signals.

## Satellites

From Page 13

once a week, I have found that a three month old element set gives surprisingly accurate results on OSCAR-13. For satellites in a low earth orbit, such as RS-10/11 or the new microsats, the element set should be updated about once a month and on manned spacecraft that actively maneuver, such as MIR, updates of once a week or greater are sometimes necessary.

## Software availability

As mentioned before, AMSAT has a selection of satellite tracking software for about any computer. For a complete listing send and SASE to AMSAT, P.O. Box 27, Washington, DC 20044. Nobody is getting rich selling this software! The authors have freely donated the rights to the software to AMSAT and any monies collected go to building new satellites for you!

By now I hope that you've listened for RS-10-11 on 29.350 to 29.450 MHz. On the beacon, located just below the transponder passband, you'll hear some 15 wpm CW telemetry. The format of this CW is usually two letters followed by two numbers. For example RS10, NS81, NR00, NG45, IW00, etc. This telemetry is simple to decode and will tell you a gob of information on the status of the satellite.

## Next month

Next month we'll discuss how to receive and decode RS-10/11 telemetry.

# Editor's Notes

By Bob Pinheiro, WA6ZLO

**S**till more illegal operators invading the Amateur frequencies. On a recent trip in the mountains, one of our members observed several hang gliders soaring through the air near Hwy 49 in Mariposa County. One of their ground support people was using a walkie-talkie to communicate with their airborne mates using 144.150 MHz and name brand talkies like Yaesu.

They were monitored using first names only for identification with heavy traffic on the frequency throughout the weekend. Most of this activity was in the area of Horseshoe Bend on Lake McSwain. An official complaint has been filed with the FCC monitoring station at Livermore under number LV-9000592.

If you hear these people on in the future, please call the FCC at Livermore and let them know the frequency so they can tune in on them. This type of activity is continuing to increase and we must be vigilant in protecting our frequencies from illegal use.

Another recent incident involved pilot cars shepherding oversize loads southbound on I-5. They were maintaining communications on a frequency very near our .39 machine input. They were close enough to bring up the repeater and cause interference for an hour or so as they pass through the valley.

- Special thanks to all the SARA members who helped out with communications for the recent bike-a-thon in the Knights Ferry area.

The crew included Gordon, AA6TQ; Bill, WB9CYB; Phil, WD0FFX; Larry, WB6GJT; Lloyd, KC6HLM; John, KG6OU; Hart, N6TIV; David, N6WAG and his mother Linda, N6VGK and VP Oliver, KJ6YZ and Treasurer, Al, N6SAE, who headed up the crew. Their communications skills were unexpectedly tested further when the .39 machine went down the day of the event. They were equal to the task. Congratulations!

- A "BIG" thank you to SARA member, Frank Massa, N6YHY, and his employer, Consillium, of Mountain View, who donated a IBM compatible computer to the club. The gift could not have come at a better time as the need for a local packet BBS exists since Ed, WB6V, shut down his BBS to do some traveling. LeRoy, NV6S, has graciously offered to set the BBS up in his home and operate it, if all the needed equipment to run a BBS can be secured. More about this on page 19 of this issue of The READOUT.

- Apologies to Derrill Coffman, WA6FBE, whose name was inadvertently left off the roster that appeared in last month's newsletter.

- Welcome back Chuck Haight, N6NMM (No More Money) of Stockton. Chuck is a former member of SARA and a retired television engineer from Channel's 13 and 19. He still offers his services as a Telecom Specialist.

*See 'Editor's Notes' Page 19*

# 'Seeds From Outer Space'

By Ernie Rader, K6UVI

An interesting bit of news came across my desk recently and I'm certain that all who read this will be interested. As radio hams, we are very lucky to have one among us who's efforts deserve special note. I speak of Lory Jepsen, N7KTY. Lory is a ham in Eugene, Oregon who is an educator of high school students in the field of biology.

She is a member of the National Science Teachers Association and subscribes to a magazine called NSTA Reports where she saw an article last year describing a satellite, the size of a bus and weighing some 22,000 pounds, which was launched into orbit in 1983.

Among the many experiments on board this huge satellite, were some 12.5 million tomato seeds to study the effects of radiation on them in outer space. Things like mutations and genetic alterations resulting from exposure to radiation would be of interest to future space station dwellers should they want to grow their own food during extended stays in space.

The seeds were exposed to radiation while in orbit for almost 7 year before being brought back to earth by the crew of Discovery who snatched the satellite from orbit this year.

After getting the seeds back from space, NASA asked for help from grade school and college students throughout the country in planting the seeds and reporting their

progress. This was done in an effort to encourage students to learn, be aware, and mostly, to participate in the work done by both NASA and the space shuttle flights.

Lory wrote to NASA and requested a pack of seeds for her students to grow. She was lucky enough to receive two packets, each containing about 50 seeds along with a basic botany guide explaining the different parts of the plants. The seeds were planted during the week of April 9th through 13th in 3 inch peat pots donated by a local nursery with careful records being kept showing their progress.

It's interesting to note that this experiment, utilizing vast numbers of students not professionally acquainted with NASA, is the first of its kind in the world. Other experiments, of this type, have been made on seeds before, but they were conducted by only a small team of scientists under very controlled conditions.

After the experiment end on June 1st, each school will receive the results of the composite experiment from NASA... even if their seeds didn't grow. Hopefully, I can get a follow up story on how the plants did which would be the subject of a future report.

Congratulation Lory on an innovative approach to teaching. I know you will join me in wishing her the best of luck as she and her students continue their study of... "The Seeds From Outer Space."

*Via Packet Radio From Springfield , Or.*



# Postal Rates Increase

23 to 33% in 1991

**M**agazine subscriptions, advertising rates and direct QSL'ing will be going up if the U.S. Postal Service has their way! Their Board of Governors has proposed to increase second class magazine rates by a whopping 23% in February of 1991.

The new rates will also increase the cost of mailing a QSL card from 15 to 20 cents an increase of 33%. A QSL in an envelope will increase from 25 to 30 cents which will be a 20% increase in first class postage.

Supposedly the postal service needs the money to cover a \$1.6 billion deficit, to meet higher labor costs and to pay for new automated equipment.

New emerging mailing services such as Publishers Express and United Delivery Systems, are sure to grab a bigger share of the magazine, product sample and catalog delivery-to-the home (second and third class) business in metropolitan areas. First class alternatives include FAX machine transmission, which incidently the postal service is also entering, and electronic mail, bill paying and check deposits.

Since 1971, when Congress created the independent self-supporting postal service, the cost of first class postage has sky-rocketed from 6 cents to now 30 cents...a 400% increase! It seems to us that the Amateur Service has the capability to come up with some sort of digitized log entry procedure that could act as a credible radio contact confirmation system instead of QSL cards. *-W5YI Report.*

**Minutes**  
From Page 7

that we have two ranges between us, they shouldn't pose any threat to our pair at all. In fact they will keep anyone from the Bay-Area from throwing up a repeater on our pair. Steve also said we were contacted and asked if we had any objections to that repeater going up and the answer was no.

A break was taken at 8:08 p.m. with the meeting resuming at 8:30 p.m. Tony, WA6KOI introduced the evenings speakers, Les Ballinger, WA6EQQ, Stan Harter, KH8GBX, Howle Phelps, WA8TUJ, and Bill Qzment, W6LSW. These fine gentlemen gave a very interesting talk, as well as answering questions about packet radio and it's many uses, especially in emergency situations.

The meeting was adjourned at 9:30 p.m.

## Support Your Club Participate In The Raffle !

# Waiting For Ham Ticket? At Least 60 Days

**W**aiting for your ham ticket to arrive from the FCC? Be certain you know the exact date and city in which you were tested before contacting a VEC about non-delivery of your upgraded Amateur operator license. All VECs file their paperwork chronologically by test session date.

Wait at least 60 days after the examination before inquiring to the VEC or FCC about license arrival

The FCC has no record of your Amateur license until it is issued. They undoubtedly will have your application, but the FCC in Gettysburg, PA, is unable to give you any information until your license is actually output. And that's the last thing they do before mailing! The FCC's Consumer Assistance phone number in Gettysburg is: 717 337-1212.

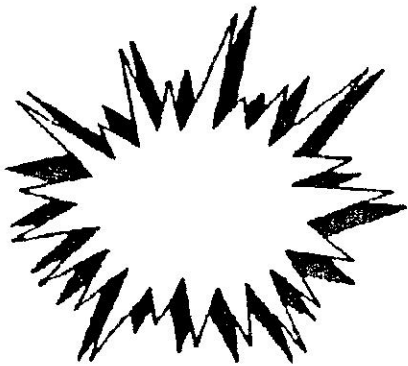
Amateur Form 610 application information is keyed into the Gettysburg computer on ar-

rival from the VEC and then electronically shipped down to Washington, D.C. for comparison with the FCC's data base. This screening process filters out those who should not be granted a license.

It also can reject your application if certain elements don't match up with previous Form 610 information. Once rejected, your application must then be researched and recycled which causes a substantial holdup. Biggest cause of license delay is poor handwriting!

Many applicants are upgrading faster than licenses can be issued. VEC's must hold your application in their files until you forward them your most recent license if you do not have it in your possession when you upgrade further. The 60 day period doesn't start until the VEC receives your most recent license copy.

*-W5YI Report.*



**Please Support  
The Equipment  
Fund Raffle .  
Together We Can  
Do It !**

A reminder to those of you who have cable TV in your area. Several of the frequencies that cable systems use to transport their signals are located in the Amateur VHF and UHF bands. The most

### Editor's Notes

From Page 15

common one is 145.25 MHz. If there is leakage from the cable system in your area, you will hear a carrier with varying strength on that frequency. Also, those of you in the Modesto area on Post Newsweek cable will notice that you tear up channel 18 when operating on two meters. Channel 58 from Sacramento is fed on cable channel 18 which is in the two meter band.

Take your talkie and walk into the front room and dial up channel 18 and then key your talkie anywhere in the two meter band. With a watt and a half you completely wipe the picture and sound out. With 1/2 watt the herringbones are most prevalent.

If your neighbor complains about the interference, refer him/her to Post Newsweek or it's equivalent in your area.

- Get well wishes go out to Neil, N6LAB of Valley Springs and Ken, WD6EOO of Modesto. Neil suffered a mild heart attack last month and Ken a slight stroke.

- Don't forget the club's equipment fund raiser is now in full swing. 73 Bob.

## Club Sponsored BBS ? Possible With Help

**T**hanks to SARA members, the club is getting a good start on possibly establishing a Packet BBS for Modesto and the area. When Ed, WB6V, shut his BBS down, the load shifted back to Burt, W6FGC, at Twain Harte, which obviously increased his work load. Although Burt has graciously accepted the extra work, it's still EXTRA work.

A search for a replacement for Ed was conducted within the ranks of local packeteers with no luck. The problem being the amount of time required on the part of the system operator and the tying up of his/her equipment on a continuous 24 hours a day basis.

LeRoy, NV6S, said he would provide a home for a club BBS at his QTH if the club could come up with the needed equipment. Then, Frank Massa, N6YHY, was able to get his employer, Consillium, of Mountain View to donate an older model IBM clone computer. N6LSF, Tom, donated a printer and a couple of terminals that could be used for parts.

Still needed are a couple of TNC's, antenna's and coax and a hard drive for the computer. If you can help with any of this equipment or possibly a cash donation, contact LeRoy at 523-4727.

---

*Did You Know...* In 1922 all the phones in the U.S. were out of service at the same time. While Alexander Graham Bell was being buried near his home in Nova Scotia, the phones all over America were silent for one minute.

# -- Calendar --

|                      |                                   |          |
|----------------------|-----------------------------------|----------|
| May 11-13 .....      | Fresno Hamfest .....              | 3 days   |
|                      | Airport Hilton Hotel              |          |
| May 15, 1990 .....   | SARA Monthly Meeting .....        | 730 p.m. |
| June 7, 1990 .....   | VE Exams In Modesto .....         | 630 pm   |
| June 19, 1990 .....  | SARA Monthly Meeting .....        | 730 p.m. |
| June 23-24 .....     | 1990 Field Day .....              | 24 Hrs.  |
| July 17, 1990 .....  | SARA Monthly Meeting .....        | 730 p.m. |
| Aug. 21, 1990 .....  | SARA Monthly Meeting .....        | 730 p.m. |
| Aug. 21, 1990 .....  | SARA Monthly Meeting .....        | 730 p.m. |
| Sept. 18, 1990 ..... | SARA Monthly Meeting .....        | 730 p.m. |
| Oct. 12-14 .....     | Pacific Division Convention ..... | 3 days   |
|                      | LeBaron Hotel, San Jose           |          |
| Nov. 20, 1990 .....  | SARA Monthly Meeting .....        | 730 p.m. |

SARA meets the third Tuesday of each month (except holidays) at the County Administration Building at 12th and H streets in downtown Modesto. The meetings are held in the lower-level conference room starting at 730 p.m. Visitors and interested parties are welcome.

Stanislaus Amateur Radio Association  
P.O. Box 4601  
Modesto, CA. 95352

Bulk Rate  
U.S. Postage  
PAID  
Permit 5  
Modesto, CA.

Address Correction Requested

1990

████████████████████  
████████████████████  
████████████████████  
████████████████████