



—The— READOUT

Vol. 9 No. 6 June 1986

SARA PICNIC



June 21st

Graceada Park

Needham Av.

Modesto

630 PM

SOMETHING

SPECIAL

**Stanislaus Amateur Radio Association, Inc.
P.O. Box 4601 Modesto, Ca 95352**

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READOUT is the official publication of the **STANISLAUS AMATEUR RADIO ASSOCIATION INC. "SARA"**
P. O. Box 4601 Modesto, CA. 95352.
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may be submitted to the editor, Bob Pinheiro, WA6ZLO at 1221 Mist Flower Ct. Modesto, CA. 95355. SARA owns and operates two F.M. repeaters. 145.39 MHz (-) located on Mt. Dso 18 miles SW of Modesto at an elevation of 3,370 feet. Our 220 MHz repeater operates of 223.68 MHz (-) and is also located on Mt. Dso at an elevation of 3,500 feet. Both repeaters are equipped with an autopatch for the use of SARA members. SARA owns and operates a packet digipeater also located on Mt. Dso at 3500 feet. The frequency is 145.01 MHz. SARA conducts an informational net on both repeaters each Thursday evening at 730 pm with the exception of holidays. SARA meets the third Tuesday of each month at the Stanislaus County Administration building at the 12th and H streets in downtown Modesto. Meetings begin at 730 pm. SARA is incorporated with the State of California and is an affiliated club of the American Radio Relay League (ARRL) and Stanislaus County RACES. Dues are \$15.00 per annum, \$7.50 for students up to sophomore in college and \$7.50 per year for Associate membership. Dues are pro-rated for newly joining members from the date they join. ARRL membership and QST renewals may be made through SARA with a 2.00 commission retained by SARA.

PRESIDENT

Gene Rong.....KI6DC.....239-9236

VICE PRESIDENT

John Cowman.....KB6DU.....527-7258

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TREASURER

Lynn Windus.....KB6DXX.....523-0141

PROGRAM THIS MONTH

INDUSTRIAL

PHOTOGRAPHY

PRESENTED BY

SANDIA LABORATORY

AT LIVERMORE AND

BUD PELLETIER

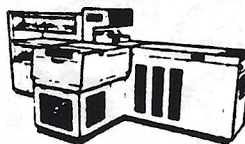
KB6JHU

SARA MEETING

AMATEUR CALL SIGNS SIXTH CALL DISTRICT

(As of May 1, 1986)

Novice.....KB6MRM
Tech-General.....N6NOW
Advanced.....KI6FD
Extra.....WS6X



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SARA SUMMER PICNIC SATURDAY JUNE 21ST AT 630 PM

Modesto's beautiful Graceada Park is the setting this year for the SARA summer picnic. This year's family get-together is set for Saturday evening, June 21st, starting at 630 pm. The blue section of the pavilion area has been reserved for the evening with plenty of shade, tables and barbeques. There's plenty of playground equipment and grassy areas for the kids to play. As for the food, it will be potluck with the club furnishing cold soft drinks and briquets. The food assignments are: Novices and Technicians bring a hot dish. Generals and Extra's bring a salad and Advance's bring a dessert. EVERYONE BRING YOUR OWN TABLE SERVICE including napkins, cups, plates and flatware. If you want to barbeque a steak or something else, bring your own and flip it on the barbie. The co-chairmen of this year's picnic are KG6-OU, John and N6KMR, Jim. Graceada park is located at Needham and Park Street in Modesto. To reach the park from Hwy 99 take the Kansas Street off ramp and go east on Kansas to 9th street. Turn right on 9th one block to the first signal light

where you turn left onto Needham Ave. Go east on Needham about 8 blocks to the park on your left. Turn left on Park Street and go to pavilion area which will be on your right about a half a block north of Needham. The transmitter hunt has been canceled. As always, feel free to bring guests as all SARA functions are open to members and their guests. See you there on June 21st starting at 630 pm.

HERE'S WHAT TO BRING

NOVICES.....HOT DISH
TECHNICIANS.....HOT DISH
GENERALS.....SALAD
ADVANCED.....DESSERT
EXTRAS.....SALAD
EVERYBODY.....YOUR
OWN TABLE SERVICE
EVERYBODY.....YOUR OWN
MEAT
CLUB...WILL PROVIDE SOFT
DRINKS AND CHARCOALS



ELECTRONIC TRACKING

Every year more than a million cars are stolen in the U.S. Only half are ever found. Soon, however, owners chances of getting their cars back may dramatically improve, thanks to the invention of a new electronic tracking device. The device can be activated when a car is stolen, leading police to the vehicle within under 10 minutes. Called "Lo-Jack," it is a narrow-band FM radio set off by a police computer when the car's owner reports the theft. The device resembles a rectifier that can be placed under the car's hood, trunk, or inside the frame or upholstery making it even more difficult to find. The "bug's" inventor is William Reagan, a former police commissioner in Medfield, Massachusetts. His Lo-Jack Corporation markets the device, which is manufactured by Motorola. Initially, it is being sold to 225 new-car dealers in the Massachusetts. The cost to car buyers is \$495 for hardware and installation. State police cars in Massachusetts are equipped with tracking units and the Public Safety Department in Boston has a computer ready to activate Lo-Jack beepers when cars are reported stolen.

HAM ANTENNA CITATION

Cliff Wells, KA7TVC, erected an Isopole 2-meter antenna at his apartment in Kirkland, Washington, (a Seattle suburb) recently. He had permission from the building owner. Although the antenna extended only a few feet above the roof, a neighbor objected. Cliff was slapped with a citation when he inquired about the antenna policy at the local city hall. It seems that an ordinance does exist that requires engineering drawings and a \$350 fee to have a hearing examiner review the application. According to the decree, transmitting antennas must be erected only at the minimum height required and not interfere with the rights of neighbors. Cliff is now in the process of appealing the citation, hoping for support from the ARRL and that the recent PRB-1 ruling by the FCC will help to convince the town government that the ordinance is vague, unenforceable and not in the best interest of the community. The law only applies to private transmitting antennas. It would be legal if the antenna was for receiving only or was erected by the fire department.

(W5YI Report)

STATION LOG

ARRL
affiliated club

The May 20, 1986 meeting of SARA was called to order at 733 pm by President Gene, KI6DC. Introductions of 24 people present was followed by the reading of the April minutes. Minutes approved as read. WA6ZLO gave the treasurers report for Lynn, KB6DXX who was teaching the Novice class. Expenses for the month approximately \$93.00 with income approximately \$50.00. All bills are paid and the treasury has slightly less than \$2,000. Under old business, Tom, WJ60, will be participating in Field Day with TARC and invited any member that wants to participate to join TARC at Greeley Hill. The picnic plans have been firmed up for Graceada Park according to Tom, N6LSA. MIZ will not be able to conduct a transmitter hunt. The club's VE exam session to be held on July 12th was discussed. It was decided that CW exams will be given at 8 am with written tests to follow. Maps on how to get to the site will be mailed to all those who pre-register. The Boy Scouts jamboree was a success despite the rain that forced an early end. We got one new member from the event, Harley Lee, WA6GKS,

who was at the jamboree exhibiting his hot air balloon. ZLO reported that this was the last night of the SARA Novice class and instructors Lynn, KB6DXX and Phil, WD0FFX expected to graduate 14 to 16 new Novices. ZLO reported that the trip to the transtower this Saturday was still on despite a lack of interest. Under new business, WJ60 reported on his trip to Japan. Tom and his wife thoroughly enjoyed seeing Japan in its true form. He was able to operate about 7 days of his trip splitting his time between CW and SSB. Gene, KI6DC, reported that the low level Manteca two meter repeater was now on the air. Frequency is 146.985 (-) MHz. The interference problem on our 39 repeater has been referred to the FCC because of a lack of response from the offending system. The raffle prize of \$5.00 cash was won by K6KQE, Bob from Tracy. The program for the evening was a slide/sound program on the raising of pheasants. (Respectfully submitted by LaVerne, KB6ECF, SARA Secretary)

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CANADIAN INTERFERENCE CASE! CAN IT HAPPEN IN USA?

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As reported last month, Canadian VE3SR, Jack Ravenscroft, was ordered off the air and fined nearly three thousand dollars when a Canadian judge ruled against him in a interference suit brought by a neighbor. The question in many minds is, could this happen in the U.S.? We did some research on this and here's what we found out. It is doubtful, but some municipalities are trying. The document having authority over radio transmissions in the U.S. is the Communications Act of 1934 as amended. It clearly gives exclusive jurisdiction in this area to the Federal Communications Commission. The township of Ewing, New Jersey, has recently enacted an ordinance prohibiting radio transmissions that "interfere with the operation of televisions, phonographs or other such household entertainment devices, in such a manner as to disturb the peace, comfort, enjoyment, or general well being of others." The ARRL recently asked for an opinion from the FCC on the legality of the New Jersey ordinance. In a response to the League, FCC General Counsel Jack D. Smith said that he believes: (1.) ..the Township ordinance is

illegal since the interference provisions of the Act are so widespread that Congress obviously intended to preempt any state regulation in this area. (2.) ...a recently enacted Section 302 (a) (2) provides that the FCC may establish.. "minimum performance standards for home electronics equipment, and systems to reduce their susceptibility to interference from radio frequency energy." "Thus," the FCC said, "under these provisions we may regulate both interference between two radio transmitting stations or between a radio transmitting station and home entertainment equipment. Furthermore, the legislative history of Section 302 (a) expressly indicates that Congress intended these two provisions to be exclusive of all state or local regulation of radio frequency interference." (3.) The FCC said that under Part 97 of the rules it "is established who may operate as an Amateur, what frequencies may be used and what practices are permitted." On the other hand, even though it appears that the FCC has complete jurisdiction over all transmissions of radio signals, it must be pointed

out that VE3SR was not charged with "RFI interference," but with violating the Canadian "nuisance" statutes. (WSYI Report)

RAVENSCROFT TO APPEAL

Jack Ravenscroft, VE3SR, the Canadian Amateur found guilty of being a public nuisance when he interfered with a neighbor's electronic appliances through no fault of his equipment has decided to appeal the verdict. It will cost him about \$5,000 to do so. Contributions would be appreciated to his callbook address in Ontario.

WORLDS FAIR STATION

EXPD-86, the Worlds Fair being held in Vancouver, B.C. has VE7EXPD on the air operating on all bands and modes including AMTOR, packet, ATC and SSTV. QSL's to VE7 bureau. ICOM donated all the radios.

EMPLOYMENT APPLICATION

The employment form said "Your age and sex?" The girl bit her fingernails a minute, then wrote, "21 years and occasionally."

LASER PRINTERS COMING

Apple Computer is now the nation's number one seller of printers...principally because of its high end (\$5,237) LaserWriter printer for desktop-publishing applications. Hewlett Packard's LaserJet printer is another big mover. Both machines are basically copiers (made by the same firm, Canon) that take input from PC's and turn out typesetting and unbelievable graphics. Software firms are pushing to turn out packages that take advantage of laser printer capabilities. Dataquest, a San Jose, CA. research firm estimates that 50 firms will enter the desktop publishing market by the end of this year alone. Software not only does typesetting, but complete page layout as well. A.B. Dick, whose claim to fame is quick printing, is going one step further. Their soon to be introduced "Inprint" system is a hardware/software combination (\$25,000) for printers that do it all from text/graphics entry to quality typesetting and fast duplication. (WSYI Report)

FCC PROPOSES

VOICE PRIVILEGES FOR NOVICES!

The FCC has issued a Notice of Proposed Rule Making, NPRM, PR Docket 86-161, substantially enhancing the Novice class privileges. The FCC said "One of the fundamental purposes of Amateur radio is to maintain a pool of operators, technicians and electronics experts. In light of the apparent downward trends in Novice operators, we are concerned that a valuable national resource is being diminished. Accordingly, we will propose rulemaking in the hope that an enhanced Novice license will benefit the service and reverse the trends." The FCC was referring to the high attrition rate at the Novice level. Sad to say, a staggering two thirds of all Novices eventually drop out of ham radio without ever obtaining voice privileges they dearly desire. The statistics show that over the last three years a total of 52,049 applicants obtained Novice tickets. 33,627 of them dropped out of ham radio and never upgraded during that same three year period. The wash-out rate, 64.6%. The FCC NPRM basically follows the ARRL proposal for Novice enhancement submitted by the

League in June of 1985. The new rules, if adopted, would authorize Novice and Technicians access to: 28100-28500 kHz- CW, Digital Info with 200 watts PEP output. 28300-28500 kHz- SSB voice J3E with 200 watts PEP output. 220-225 MHz- All current Amateur modes with only 25 watts PEP output. 1246-1260 MHz- All current Amateur Modesto with only 5 watts PEP output. The FCC did caution the Amateur community, however, regarding the 220-225 MHz band. They said that it must be recognized that there are three petitions seeking spectrum from this Amateur band. Two seek narrowband land mobile operation and another from a "reading for the blind" organization. In view of this, the FCC said that they will not finalize the matter of permitting Novice operators on 220 MHz until these petitions are resolved. Any Novice operation authorized will necessarily be on an interim basis pending resolution of the entire 220-225 MHz issue. We will know the final outcome on this on July 16, 1986 when the public comment period runs out on this NPRM.

ROGER: A couple attended the first showing of a new release at the local theatre. Upon arriving at their assigned seats they found a man lying over their two seats. The couple explained that the seats were theirs and he would have to move. The man would not move and just layed there and moaned. The usher told the man he would have to move and received the same response. The theatre manager was called and he met the same results. The manager called the police. The policeman asked the man his name. He moaned "Roger". "Where did you come from?" asked the policeman. "The balcony," moaned Roger.

"REALLY": The obituary editor of a paper was not one who would admit his mistakes easily. One day he got a call from an irate subscriber who told him he had printed his name in the obituary column. "Really!" was the calm reply. "Where you calling from?"

QUESTION: Do you know how to get a one armed man out of tree? Wave at him.

PARDON ME! A young lady from New York City was visiting Texas. At a banquet she excused herself to go to the ladies room. She quickly returned and asked, "Am I a heifer or a steer?"

EAT LESS: Doctors will tell you that if you eat slowly, you will eat less. This is particularly true if you're a member of a large family.

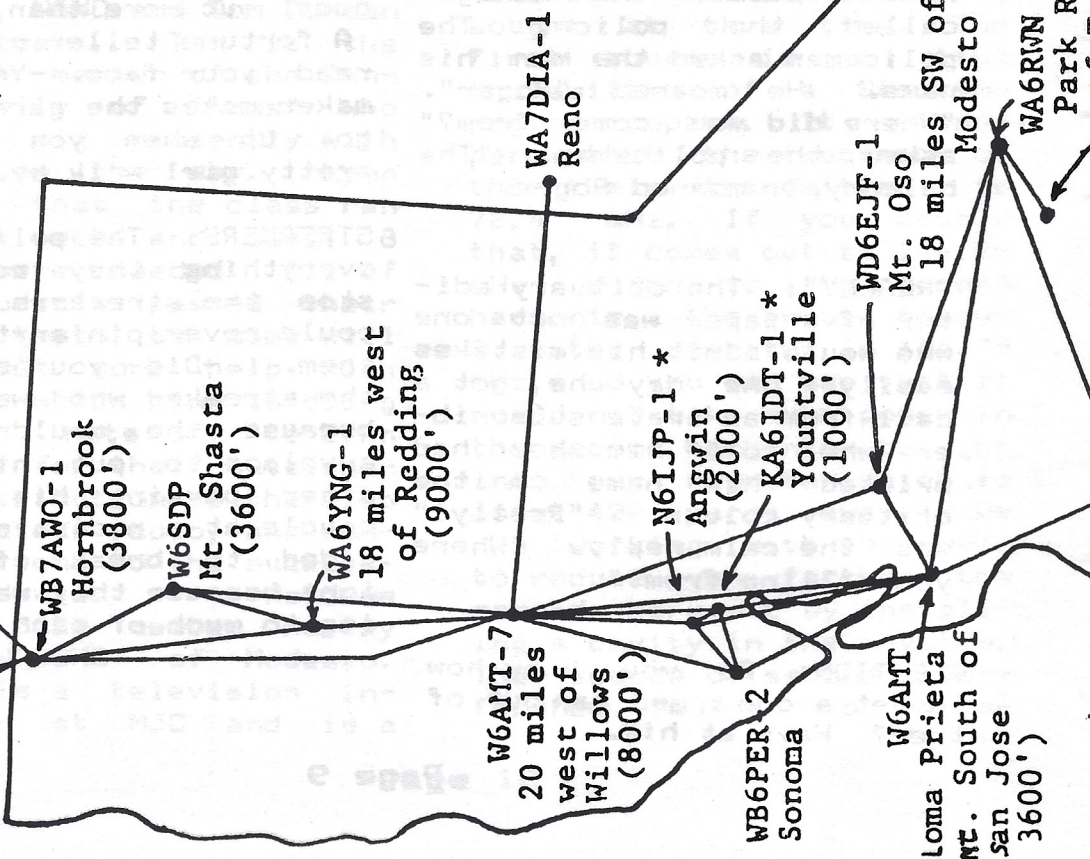
GETTING OLD: You know your getting old when- Your back goes out more than you do. -A fortune teller offers to read your face. -Your pace-maker makes the garage door go up when you watch a pretty girl walk by.

STREAKERS: The police tried everything they could to stop the streakers but they could never pin anything on them. -Did you hear about the streaker who went nuts because he couldn't find anyplace to put his keys after parking his car. -A couple at a nudist camp decided to break off relations because they were seeing to much of each other.

145.01 PACKET DIGIPEATERS

H3AAA
shland

W7LPC, Klamath Falls
WB7SZM-1, Ashland (3600')



PACKET RADIO

MAP OF DIGIPEATERS
AND MAILBOXES

145.01 MHz

*=scans 145.01 - .09
#=mailbox

WH3AAA	Ashland, OR.
W7LPC	Klamath Falls, OR.
WB7SZM-1	Ashland, OR.
WB7AWO-1	Hornbrook, CA.
W6SDP	Mt. Shasta, CA.
WA6YNG-1	Redding, CA.
W6AMT-7	Willows, CA.
WA7DIA-1	Reno, NV.
*N6IJP-1	Angwin, CA.
WB6PER-2	Sonoma, CA.
*KA6IDT-1	Yountville, CA.
WD6EJF-1	Modesto, CA.
W6AMT	San Jose, CA.
W6AMT-1	Kings City, CA.
WA6RWN	Fresno, CA.
WA6QSA-2	Fresno Mailbox

To WA7GTU-1



Editor's WA6ZLO Notes

The latest SARA Novice class is history. Lynn, KB6DXX and Phil, WD0FFX conducted the classes with several new Novices graduating. Two of them, Devona Jenkins, wife of Phil, N6WC and Tom Duncan of Manteca. Tom is the youngest member of the Duncan family of "hams" who number six presently with another on the way. Lynn reports that the class ran only six weeks and about 8 weeks were needed. All of the students passed their written tests, but some will need a bit more help with the code which Lynn is doing at home. Hats off to Lynn and Phil for their outstanding contribution to the club and Amateur radio, and congratulations to the successful students. +++ Welcome to new SARA member Harley Lee, WA6GKS of Modesto. Harley is a television instructor at MJC and is a

professional balloonist. His business is known as Cloud Nine Balloons. In case you're interested in a ride or flight instructions contact Harley at 529-4333. Our membership now stands at 178. +++ I'm sorry to report the death of SARA member Chuck Strobel, K6PDE of Arnold. Chuck died in surgery on 5-29-86 in Stockton. Our condolences to Sylvia and the family. +++ I'm sure you've noticed the interference that has been plaguing our two meter repeater the last month or so. One source has been identified while the second, and more obnoxious source is being sought at this time. The first source is a link transmitter of a Stockton paging company. It so happens that the frequency of the their transmitter is 72.4 MHz. If you double that, it comes out to 144.80 MHz which is the second harmonic. The input to our 2 meter repeater is 144.79 MHz, so you can see that it would not take much power in the second harmonic to get into our repeater which is about 400 yards away. We are working with the owner to reduce even further the second harmonic by installing a cavity in the system. The source of second interference is yet to be lo-

cated. It showed up about a month ago as an unmodulated carrier wandering near and onto our input frequency. Our engineers have been able to look at this signal while on the hill and have noticed that it is constantly changing frequency. When it moves close to our frequency, it causes desense to our receiver. When it gets close enough, it grunges the repeater and holds it up. This source is going to be tough to find. A special meeting was called by President KI6DC on May 30th to discuss our plans. It was decided to send teams to the hill with DF (direction finding) equipment to begin the hunt. It's not absolutely certain that the source is on Mt. Oso, but, we won't know until we find it. In the meantime, please be patient and understanding. These kind of problems are not solved overnight. We could be in for a long hunt! +++Speaking of interference, the SARA digipeater has been causing some problems. As of this writing we believe they are being caused by the Icom 230 transceivers receiver being overloaded with other RF signals on the hill. Plans call for a cavity to be installed on to sharpen up the front end. +++ The FCC's year-long

crackdown on illegal CB equipment continues. During March the FCC investigated over 400 cases involving CB linear amplifiers resulting in \$52,000 in fines to operators and \$10,000 in fines to marketers of unlawful equipment.

+++Don't forget the next SARA sponsored VE exam will be held in Modesto at County Center 3, Scenic and Oakdale Rd, on July 12th. Test contact person is Gene, KI6DC at 326 Dana Ct. Manteca, CA. 95336. The next VE in Merced will be on August 16th. Contact person is K6RAU at 722-7183. No walkin's in Merced but OK in Modesto.

+++Tom, WJ6D and his wife Ann are back from their trip to Japan. Tom will have some slides to share with us in a future meeting program.

+++New call for Lee, WA6SHV. His new Extra call, WS6Q.

+++ Congratulations to Mark, N6ICM on his recent marriage and to Kirsten Storne, daughter of SARA members Jack and Wilma (WA6CYR and WB6ISA) who is KB6MBN, a new Novice. +++ Received a card from Dick Wharton, N6MOG/7. Dick and his wife are settling into their new Oregon home at Roseburg. That's it this month. See you at the picnic on the 21st. 73 Bob, WA6ZLO.

THE AMERICAN RADIO RELAY LEAGUE, INC.

SECTION MANAGER

SAN JOAQUIN VALLEY

Charles P. McConnell W6DPD

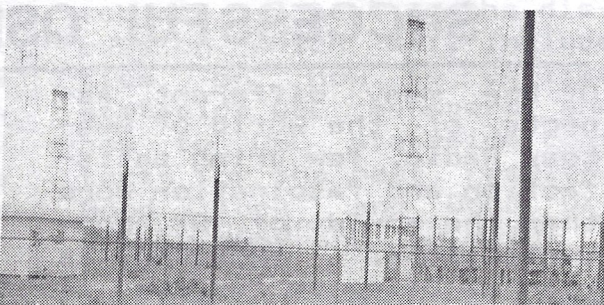
AMSAT has declared an emergency on AO 10. Effective immediately and until further notice, transponder use is prohibited. A computer failure has caused the Mode B transponder to remain on. The problem is being analyzed and possible fixes are being considered. Monitor W1AW for further bulletins.

Field Day contacts on the 10 MHz band do not count for Field Day points. Contest style operating could cause harmful interference to the fixed service, the primary band occupant in most other countries. This interference could threaten our use of this band.

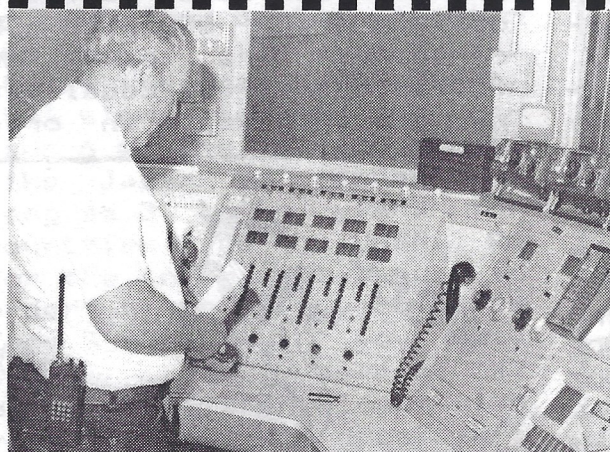
The Notice of Proposed Rulemaking (NPRM), PR Docket 86 161, has Comments due July 16, 1986. Reply Comments are due August 20, 1986. This proposal would allow Novices (and Technicians) to use CW and digital modes on 28.1 to 28.3 MHz and SSB and CW on 28.3 to 28.5 MHz with a 200 watt PEP output power limit. On 220 to 225 MHz, Novices would be allowed all voice and data modes with a 25 watt PEP output power limit. On 1246 to 1260 MHz, Novices would be allowed all voice and data modes with a 5 watt PEP output power limit. Novices could NOT be control operators or licensees or repeater stations. The Novice Exam (Element 2) would be expanded to 30 questions to include information on new privileges. The full text of this notice is in the June 1986 QST.

The Report and Order in PR Docket 85 22 makes Amateur repeater or auxiliary stations mutually responsible to solve interference problems if both stations are coordinated. If one of the interfering stations is Not coordinated, then the non-coordinated station is totally responsible to solve interference problems. These new rules become effective July 12, 1986. Details have been in QST and ARRL LETTER.

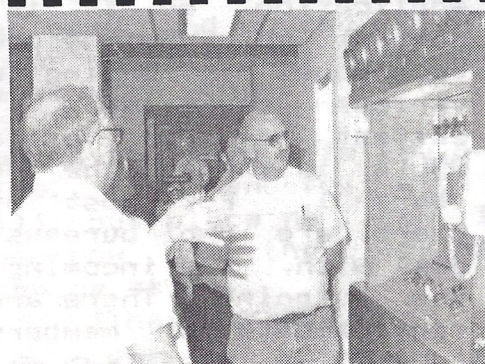
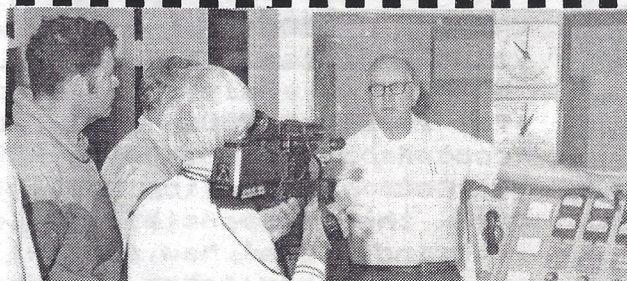
In the June 1986 WORLD RADIO Stanford University Professor Robert Helliwell stated in a report and the 1986 International DX Convention that the current solar cycle would end June 20 of this year, and a new cycle would then begin.



VOICE OF AMERICA



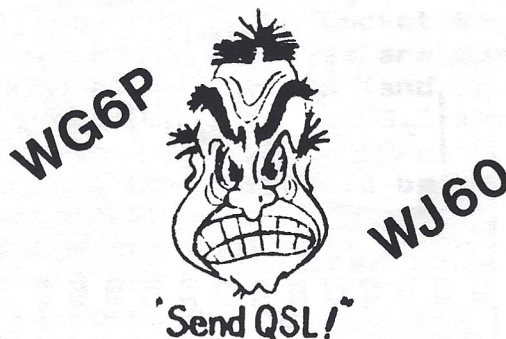
Photos of the VOA Field Trip in April as taken by Bud, KB6JHU. From left to right, top to bottom: Main entrance. Antenna farm. Glen, KA6WBY inspects master control board. WA6ZLO views one of the older VOA transmitters. Bruce, NK6C and Jim, W6DYF (with camera) in control room. SARA members arriving in front of VOA.



SUCCESSFUL QSLing TIPS

Of the many different aspects of the world of Amateur Radio, few bring satisfaction and fascination more than the world of DX communications. However, as much as DXing is fun, so is the rather complicated task of QSLing. In this continuing series we will talk about the fine art of sending, and more importantly, receiving QSL cards. Exchanging QSL cards is not necessary from the standpoint of making simple contacts, but if the operator is serious about DX, the cards are necessary to apply for awards given by the ARRL. These include WAC (worked all continents)- WAS (worked all states)- WAZ (worked all zones) and of course DXCC (DX Century Club for at least 100 countries.) The ARRL in order to issue any of the above awards requires that confirming QSL cards be sent in with the application. So, it is important to know the proper techniques for QSLing with various countries. The easiest way to exchange QSL's is through the "Buro" (bureau). For most of us there are two bureaus to deal with. The incoming and the outgoing. There are no requirements for membership

in the incoming bureau and for those of us in the Sixth call area, the bureau is located in Sun Valley, CA. In order to use the outgoing bureau services, which is located at the ARRL, you must be a member of the League. Heres how the two work. A QSL card is filled out on each QSO with a DX contact. The cards are filled out in the usual manner and then kept in order



by prefix. Only those cards for foreign QSOs will accepted by the outgoing ARRL bureau. Domestic contacts are the responsibility of the individual ham and will be discussed later. When approximately one pound of cards (150) are accumulated, you may ship these off to the ARRL outgoing bureau in Newington, Ct. You include a check for one dollar for each pound of cards. To

prove membership in the ARRL you can wrap the cards in the latest plastic wrap from an issue of QST with the mailing label attached. Upon receipt of the cards they are sorted into bins for the various countries with cards received from other hams. At various times the cards are packaged and shipped to a matching bureau in that foreign country where they can be picked up by the receiving ham. Its simple, but it has its drawbacks. First, its slow, taking from perhaps 4 months for countries like Japan to perhaps as long as 3 to 4 years for countries like the USSR. As for the incoming bureau, in order to receive your cards from Sun Valley, you must send them several 5X7 manila SASE's envelopes with your call in the upper left corner in black marking pen and your address in the usual place for mailing. Put 44 cents postage on each envelope and its a good idea to enclose extra postage in case of a large number of cards for you. 44 cents will return about 10 cards. When using the incoming bureau, be patient as it is very slow. If you are in a hurry, the next approach is to QSL direct which is currently the most popular approach, and also the most

complicated. That's the subject of next months discussion which will include tips on how to utilize stateside QSL managers and how to QSL stateside contacts for the best results. Good luck and Good DX! (Denny WG6P and Tom WJ60)

CHUCK, K6PDE, SILENT KEY

It is with regret we record the passing of SARA member Chuck Stroble, K6PDE, of Arnold. Chuck died unexpectedly on May 29, 1986 while undergoing open heart surgery in Stockton. Chuck was 65 years old and a veteran of three wars. His remains were cremated and scattered in Arlington National Cemetery in Virginia. Our condolences to his wife Sylvia and the family.

-THE CLOCK OF LIFE-

The clock of life is wound but once, and no man has the power to tell just when the hands will stop.

Now is the only life you own. Live. love and toil with a will, but place no faith in tomorrow for the clock may then be still.

(Thanks K6SJY)

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UNDERSTANDING/SERVICING NICKEL CADMIUM BATTERIES

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How much do you know about the batteries in your hand-held? They are called Nickel Cadmium batteries and there are some important things to know about them. Have you ever had a set of NiCads that you thought were bad? Ever thought your NiCads weren't up to snuff? Many of use have thrown out NicCads because we figured they were bad after giving them a complete recharging. Well the following information might shed some light as to whether that NiCad is actually bad or just has a case of bad memory. First, lets talk about the battery itself. NiCad is the common abbreviation for the Nickel-Cadmium cell and is derived from the electrode materials in the cell. In the Ni-Cad cell, the positive plate is made of nickel hydroxide and the negative plate is of cadmium. During the charge cycle the nickle hydroxide gives up electrons, changes valence, and acquires a positive charge with respect to the cadmium plate. During the discharge cycle, the nickel hydroxide acquires electrons from the cadmium plate as it oxidizes to form cadmium hydroxide. This pro-

cess results in no physical change in the plates. Ni-Cads, though rated at 1.2 volts, actually have voltages ranging from 1.2 to 1.3 volts. The NiCad has an unusual discharge curve in relation to the carbon-zinc cell, most familiar to us. It is important not forget that while the potential across a carbon-zinc cell decreases proportionately with time, the NiCad retains the intial voltage level almost completely until it drops in a relatively short period of time. Thus there is little warning to the user that the batteries are approaching the end of their charged capacity. The NiCad, due to its chemical makeup, has a unique and deceiving characteristic most often called "Memory". The memory effect causes the cell to be "programmed" by repetitious charge-discharge cycles. A NiCad which is used in a consistent pattern over an extended period of time, will react as if it were totally discharged after its usual use period is over even though it has a greater potential. By applying several forced deep discharge cycles the memory problem

can be eliminated. Some of the methods commonly used include forced discharge across a passive resistive load such as a light bulb or large resistor, and forced discharge by turning up the squelch and leaving the radio turned on for an extended period of time. Discharging a large capacitor once or twice through a NiCad can also reduce dendritic shorts in the cell. However, one must be aware of shortcoming in these procedures due to a lack of precise control which may cause more harm than good by driving cells into reverse polarity or damaging the plate separator. There are now commercially manufactured units available that control the discharge cycle to prevent these problems. These units incorporate an automatic discharge cutoff preventing the cell from being discharged to a critically low level. A timer or a voltage sensing device is used to accomplish this function. As with almost any cell, the NiCad is temperature sensitive. Temperature extremes will effect performance. The cell can be operated between 41 and 113 F while being charged and between -4 and plus 133 F while discharging. They can be stored at tempera-

tures between -40 F and 140 F. However, battery life will be shortened if the cells are stored at temperatures above 70 degrees for extended periods. Extended charge at temps above 100 degrees may shorten the battery life. The recommended charge temp is 70 degrees. Though Ni-Cads present unusual servicing problems, they can be successfully troubleshot and faithful service rendered.

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HOT AIR BALLOON BUST

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Agents from the FCC's Douglas, Arizona, field office recently investigated a report of illegal use of the Amateur 220 MHz band by the operators of hot air balloon ride businesses in the Phoenix, Az area. Two different businesses were found in violation of Section 301 of the Communications Act of 1934 as amended. One group was operating on 221.0 MHz and the other on 221.15 MHz, using handheld Amateur talkies for communications with their chase cars. Each group was fined \$750 for their unlicensed operation.
(W5YI Report)

CALENDAR

June 17, 1986.....SARA Monthly meeting.....730 p.m.
 Program: Bud , KB6JHU, on Indust-
 rial Photography.

June 21, 1986 SARA Picnic at Graceada Park 630 pm.

July 12, 1986 SARA sponsored VE Exam at County
 Center 3, Modesto. 10 a.m.

July 15, 1986.....SARA Monthly meeting.....730 p.m.
 Multi-Projector Slide/Sound on
 Alaska with Mrs. Bunnie Rader
 (Rescheduled from January)

August 19, 1986.....Color Video of April trip to VOA
 video taped by W6DYF 730 p.m.

Sept. 16, 1986.....SARA Monthly meeting.....730 p.m.

Sept. 5-6-7, 1986.....ARRL National Convention at the
 Convention Ctr. San Diego

Oct. 3-4-5, 1986.....Pacific Div. ARRL Convention at
 the Le Baron Hotel San Jose

October 11, 1986.....9th annual SARA dinner-dance.
 Sylvan Club house.

October 21, 1986.....SARA Monthly meeting.....730 p.m.

Nov. 7-8-9, 1986.....Ham West Convention in Las Vegas

Nov. 18, 1986.....SARA Monthly meeting.....730 p.m.

Dec. 16, 1986.....SARA Monthly meeting.....730 p.m.



Address Correction Requested

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