SPARKS

Volume 9, No. 6 July-August 1995

Next meeting of PARS will be Thursday, August17 at 7:30pm at the Puget PowerAuditorium. The early-bird session begins at 7:OOpm: A basic DC electronics theory course given by Tom Grotte, WB7TEJ

SPARKS Delayed!

As you may remember from the last issue, this issue is being delayed as this has been a busy summer for all here in the Johnson household. I apologize for any inconvenience for those of you who rely on the newsletter to remember the meeting. We included calendars (suitable for framing!) with important club dates marked in so you could hang them on the wall and remember ...We'll continue to include calendars each month to help keep track of important club events. If there's something you would like to see included on the club calendar, e-mail it to me at djohnson@oz.net or send it to SPARKS on the PARS BBS.

Record set at3456 MHz

Extraordinary conditions for tropospheric propagation in the US Midwest have resulted in a new overland record on the amateur 3456 MHz band.

At 1224 UTC on July 12, A1 Ward, WB5LUA,in Allen, Texas, worked Gary Morhlant, WAOBWE, in Maplewood. Minnesota, a distance of 841 miles. The previous record of 736 miles was set on May 1,1992, between WB5LUA and W9ZIH, in Malta, Illinois.

As is often the case, this record-breaking activity began lower in frequency, with an initial contact between WB5LUA and WAOBWE on 432 MHz, with signals "59" both ways, according to Ward. An equipment problem forced them to skip 1296 MHz (where the overland record is 1287 miles).

2304 MHz came next, and the first Texas-Minnesota 2304 MHz QSO (where the record is 940 miles). Contact was then "easily established" on 3456 MHz. WAOBWE was tuning about 5 watts; WBSLUA was running 100 watts to a 5-ft dish at 65 feet.

On July 13, excellent tropospheric propagation continued in the Midwest, with perhaps more distance records to come as a result. Thanks to WBSLUA for prompt reporting of these developments.

2 meter record claimed

An over water distance record on the 144 MHz band has apparently been set between Hawaii and Washington state.

On July 1, 1995, Paul Lieb, KH6HME, on Mauna Loa volcano, worked Jim Costello, W7FI, in Woodinville, Washington, near Seattle, a distance of 4333 kilometers. The previous record was set between KH6HME and XE2GXQ, on Baja California, a distance of 4276 km, on July 13, 1989.

This tropospheric ducting opening began June 28 when the 144.170 MHz beacon on Mauna Loa, 13,680 feet (4170 meters) above sea level, was heard on the West Coast, according to QST VHF columnist Emil Pocock, W3EP, who called the next three days "the most widespread Hawaii-to-West Coast opening ever recorded."

In the early evening of June 30, KH6HME worked W17Z and N7KSI, both near the coast of Washington, the first ever 144-MHz contacts from that state to Hawaii, and then worked N7AVK,in Oregon. The breakthrough came the next day, at 0600, when KH6HME worked several Seattle-area stations, beginning with W7FI, and was heard by VE7SKA, who could not make himself heard in Hawaii.

Using computer software, the various Seattle-area stations calculated who was the farthest from Mauna Loa, and the winner was W7FI. The record-setting distance was 58 km farther than the six-year-old record.

Unfortunately, the conditions did not extend to higher bands; KH6HME made 432 MHz contacts with K6QXY and W6SYA, but no others were completed.

Treasurer's Report

Treasurer's Report for June 1995

Beginning Balance	$1938.53
Deposit	
Dues	$ 15.00
Ending Balance	$1953.53

Treasures Report for July 1995

Beginning Balance	$1953.53
Income	$ 0.00
Expenses	
Insurance	$ 255.00
Ending Balance	$1698.53

500 kc
(A true story in 7 parts)

Part 4. Procedures (continued)

I had mentioned that the last 15 seconds of me silent period were reserved for safety (TTT) and urgent (XXX) preliminary broadcasts. The problem was that 10 or 20 shore stations might have such a broadcast to put out and none of them knew who else would be a sending one - the result was sometimes a mess. To hear a dozen shore stations trying to send at once:

TTT TTT TTT CQ DE... was extremely funny!

Thus, some would start a bit earlier than H:17:15 or H:47:45. I would start hearing TTT TTT TTT CQ DE ... sometimes as early as the last 30 seconds of an SP. Now, EVERY shore station worked duplex and everyone wanted to be the first to get their broadcast out. The Japanese stations were always the most polite. I'd hear a New Zealand TTT and an Australia TTT and a Japanese TTT and the Japanese station would always stop his bcst to yield to the other. Once the freq was quiet then the Japanese station would start his TTT prelim again.

Oh, a prelim broadcast is the short announcement on 500 telling everyone to shift to one's working freq for the full bcst text:

XXX XXX XXX CQ DE VLA VLA VLA URGENT MARINE BCST MAN OVERBOARD QSW 472 UP

is a prelim bcst.

The Australian shore stations were a well behaved unit (even though they might crush other countries trying to send prelims!). The following Aussie stations would take turns sending their prelims - as soon as one finished the next would start:

VII, VIA, VIR, VID, VIS, VIT, VIM, VIB.

The only New Zealand shore station I used to hear was: ZLZ. Other South Pacific shore stations I heard nightly were:

FJP - New Caledonia
3DP - Fiji Islands
P2M -Papua New Guinea
DUQ-Samoa
8BB -Indonesia
VJZ - New Britain
FUM -Tahiti (French Navy)
XSU-can't remember-used to hear a lot of X_ _ shore stations, and ones from Korea, Philippines, China, Central and South America...

North Pacific Wed Coast shore station that would boom in nightly included:

NMQ -USCG Radio Long Beach CA
NMC - USCG Radio San Francisco CA
NOJ - USCG Radio Alaska
KSF -a San Fran commercial station
KPH - another SF commercial station
KOK - a Honolulu commercial station

To hams, 500 would have been a DX'ers dream but we took the excellent conditions for granted. Keep in mind that NMO had a *very* long long-wire receiving antenna (over one mile in length).

Want Ads

This would be the perfect place to advertise to get rid of that old boat anchor in your closet gathering dust! All ads are free to club members!

Not only would there be pile ups at the end of a silent period, but also, at the top of each hour, that's when the low priority "CQ CQ CQ DE ...WX AND TFC LIST QSW...AR" type of prelims would go out. So, not wanting to take a number and wait for others, prior to sending a prelim bcst I would always send: dit dit dit (or I E) (i.e. ...) as a way of saying "Hey - don't anyone else send anything because I'm running 10 thousand Watts and in A2 and I'll crush you..." or something like that. Seriously, if I had a safety or urgent to send at the end of an SP, as I was sending my TTT or XXX I'd hear other countries under me as they started their prelim and they would suddenly stop when they heard us; NMO must have putout a commanding signal to the entire Pacific for everyone to yield to us.

Generally, 500 was very orderly and everyone was a gentleman.

4D. Frequency scheme.

Ships had a choice of using any of the following working frequencies: 425, 454, 468, 480, and 512 kc. Shore stations only had one fixed working freq so during an initial call on 500 a shore station would give his working freq and. the ship would choose one of the above to get as close as possible (so as to work duplex):

3LF 3LF3LF DE CKHB CKHB TR K
CKHB DE 3LF GE QSW 471 K
DE CKHB R 471/480 UP
R UP

EE
EE

Here, the ship CKHB called the shore stn 3LF wanting to pass a travel report (TR); 3LF has a fixed working freq of 471 so the ship chose to use 480: 471/480 means "you use 471 and I'll use 480".

Why these particular choice of frequencies? Note that 454 kc was the old 660 meter wavelength, 480 kc = 625 meters, and of course, our star frequency 500 kc = 600 meters.

Oh, if you haven't guessed, shore stations have 3 character call signs, and ships have 4 character calls.

Many folks have shown their surprise that this kind of activity was occurring, on a worldwide scale, just below the broadcast band. But as a young pup I knew something was lurking just below the rock and roll band; living near NMQ (USCG Radio Long Beach. CA) I would occasionally hear an unusual on-and-off hissing sound which would get stronger the lower I tuned:

sheeeesh shesh sheeeesh shesh sheeeesh sheeeesh shesh sheeeesh

(NMQ sending their CQ -of course my AM table top tube radio didn't have a BFO). That prompted me to both study the code and take the cover off my AM radio to move to 'down' to the source of this noise (boy did I ever ruin that radio; thank goodness my parents bought me a Heath kit short-wave receiver- with a BFO).

End of Part 4.

OLD GOATS MEMORIES, OR HOW THINGS USED TO BE. WMIE, " GIB ".

CONTINUING ON FROM LAST MONTH. OF COURSE TIMES CHANGED AND AS THE WAR WENT ON, TRAFFIC VOLUMES GREW. GOOD LONG RANGE PLANNING ANTICIPATED THAT THIS MIGHT OCCUR. SO BY MID 1942,CHANGES BEGAN TO OCCUR SEVERAL BOXES OF EQUIPMENT, AND A WESTERN UNION ENGINEER, ARRIVED AT SEWARD. LOTS OF PREP WORK AND UNPACKING AND STRENUOUS EDUCATION RESULTED IN A NEARLY AUTOMATIC SUBMARINE CABLE TELEGRAPHY SYSTEM.

SUCH A SYSTEM REQUIRED SOME TECHNICAL CHANGES IN THE CABLE ELECTRICAL SYSTEM. IN THE "OLD DAYS" SIMPLEX SUB CABLE TELEGRAPHY WAS RATHER SIMPLE. YOU SENT OR YOU RECEIVED, BUT NEVER AT THE SAME TIME. EARLY IN 1941 THE SEATTLE-KETCHIKAN-SEWARD CABLE SYSTEM WAS CONVERTED TO FULL-DUPLEX! SENDING AND RECEIVEING AT THE SAME TIME. WOW! (BUT STILL AT ABOUT 45 WORDS PER MINUTE TOPS-WHEN THE NORTHERN LIGHTS (CALLED EARTH CURRENTS) WERE NOT BOTHERING). WHEN EARTH CURRENTS GOT REALLY BAD WE JUST HAD TO SHUT DOWN BECAUSE NO MATTER HOW WE TRIED WE COULD NOT KEEP THE SIGNAL WITHIN RECEIVING RANGE OF THE RECORDING EQUIPMENT. YOU SEE, INDUCED CURRENT CAN ALWAYS BE PICKED UP FROM THE EARTH'S NATURAL RESIDENT VOLTAGE. IF YOU HAVE A WIRE LONG ENOUGH, SUCH AS AN 800 MILE CABLE, THE INDUCED VOLTAGE WILL GET RATHER HIGH. UP TO 500 VOLTS MEASURED AT TIMES. THIS ALWAYS DID US IN BUT AT LOWER VOLTAGES WE COULD WORK AROUND IT-MOST OF THE TIME.

COMES NOW FULL DUPLEX. SENDING AND RECEIVING AT THE SAME TIME IN TWO DIRECTIONS ON ONE SINGLE WIRE!! FANTASTIC. WITH ADJUSTMENTS FOR EARTH CURRENTS AND INDUCED VOLTAGES. HOW WAS IT DONE? I SHALL ATTEMPT TO EXPLAIN IT WITHOUT DRAWINGS AND PICTURES.

IMAGINE THAT THE "KEY" BEING A TWO-HEADED THING, KEYS EITHER POSTIVE OR NEGATIVE OR ZERO VOLTAGE. AT THE KEY "OUTPUT" THE SENDING WIRE IS CONNECTED THROUGH COUPLING CAPACITORS TO THE CABLE ON ONE LEAD AND ANOTHER LEAD THRU ANOTHER COUPLING CAPACITOR TO WHAT IS CALLED AN "ARTIFICIAL LINE". THE ARTIFICIAL LINE (AL) IS IN A BIG WOODEN BOX FILLED WITH ADJUSTABLE RESISTANCES, INDUCTORS, AND CAPACITORS ALL CONTROLLABLE BY KNOBS.

CONNECTED BETWEEN THE AL AND THE CABLE IS A METER, AN INK RECORDER, OR A SUB-AUDIO DC AMPLIFER. (THE METER IS MOSTLY USED FOR INITIAL ADJUSTMENT). BY ELECTRICAL KNOWLEDGE WE KNOW APPROXIMATELY THE RESISTANCE, CAPACITANCE AND INDUCTANCE OF THE INSTALLED SUBMARINE CABLE. SO WE NOW SET THE AL TO APPROXIMATELY THE SAME VALUES. IF THE AL HAS BEEN PROPERLY ADJUSTED TO IMITATE THE CABLE, THEN SENDING A POSITIVE OR NEGATIVE VOLTAGE SHOULD SHOW NO DEVIATION ON THE METER. (THIS INITIAL SETUP NEVER COMES OUT RIGHT SO DONT GET DISCOURAGED BUNKY). EXPLANATION--SINCE THE VOLTAGE DERIVED FROM THE KEY IS BEING SPLIT AND EQUALLY DEVIDED BETWEEN THE AL AND THE CABLE, THERE SHOUID BE NO VOLTAGE EXISTING ACROSS THE METER IF PROPERLY ADJUSTED!

AFTER MANY HOURS, OR EVEN DAYS, ADJUSTMENTS HAVE RESULTED IN A ZERO VOLTAGE DIFFERENCE BETWEEN THE CABLE

CONNECTION POINT AND THE AL CONNECTION POINT. THIS WAS PROBABLY THE MOST TEDIOUS AND SWEAT-FILLED TIME OF ALL. IT WAS CALLED "BALANCING THE CABLE" WHICH WAS ACTUALLY ADJUSTING THE AL TO ELECTRICALLY IMITATE THE CABLE. PROOF OF ABILITY CAME WHEN SENDING TO THE CABLE FROM THE NEAR END RESULTED IN NO VOLTAGE APPEARING ACROSS THE CONNECTING POINTS. BUT, IF THE FAR END OF THE SUBMARINE CABLE WERE TO SEND, THERE WOULD BE A VOLTAGE DIFFERENCE BETWEEN THE NEAR END CABLE-AL CONNECTION POINTS! IT WOULD BE A SMALL VOLTAGE BUT IF BOTH ENDS OF THE CABLE WERE PROPERLY BALANCED, THEN THE SENDING END WOULD NOT SEE THEIR TRANSMISSION AND WOULD ONLY SEE THE VOLTAGE FROM THE FAR END. THE SAME CONDITION EXISTS AT EACH END OBVIOUSLY. AND IT WAS RATHER REMARKABLE THAT THE ALASKA COMMUNICATION SYSTEM DEVELOPED THIS METHOD AND PERFECTED IT. I WAS FORTUNATE TO BE A PART OF THE DEVELOPMENT. NEXT-WE'LL GO MORE INTO OLD-TIME COMMUNICATIONS. IF I HAVE NOT BEEN KICKED OUT OF THE CLUB FOR BORING YOU WITH MEMORIES.
73. GIB.

A Little History on the Women's Restroom

Submitted by Jim Hossack

It's been years, but it's time for the record to show the true history of the throne in the women's restroom at the clubhouse. Turning back the clock to the time when the club needed to expand the clubhouse, around 1970-1973 I think, the club turned out in force to cannibalize an old dance hall at Spanaway Lake. We were offered all the lumber we could tear out of it as it was being demolished. We used it for expanding the clubhouse to it's present size. Elmer Case figured prominently in the expansion effort, as he was a carpenter and could boss people around with the best of them.

The old clubhouse was a "one-holer". The club was expanding, and it was decided to make it a "two-holer". As good fortune would have it, the need for a second throne was me with skill, as opposed to money.

At that same time, the local ham radio club, the Radio Club of Tacoma, was having a "ham-fair" at the Tacoma Sportsman's Club. That, for you normal people, is a weekend fling for radio nuts where they have a flea market, specializing in boat anchors from the past that they try to pass off as good, working, ham radios. There are also seminars for techno-geeks, food, and contests.

One such contest was a secret thing. You had to sign up for it without knowing what the contest was, only that it involved ham radio. The only clue was a largish thing draped in a sheet in the center of the stage in the big meeting room. Once we were signed up, we had to line up on stage, in front of a few hundred people (well, hams, anyway...). There was no backing out.

Turned out that me draped thing was a toilet. A toilet. Great! What sicko dreamed THIS up? And WHAT do they expect me to do with or on this toilet? Noticing that the exit stairs were now blocked my ears drooped much the same as Wiley Coyote's does when his fate is secured.

Look, I'm 16 years old and I don't need this. The master of ceremonies announced the rules of me contest. When our name was called, loudly, on a BIG PA system that I couldn't disable, we were to walk to the toilet and begin sending Morse code. How, you say? Well, the sickos had installed a Morse code key on the lid of the seat. Our assigned duty was to hop up and down, on this stupid toiled in the center of the stage, in front of hundreds of people (well, hams, anyway...), sending a paragraph of ham drivel. The guy who sent the best code, the fastest and most properly formed, was deemed the winner.

My turn came up. My knuckles were sweating. Teeth were grinding. It was time to reach deep within the primal instinct and set free the competitive rage that is in us all. Advancing toward center stage, vision became like a tunnel, focusing alternately on the (stupid) toilet and the exit stairs. Still blocked**.** Feeling nervous that I hadn't stretched yet I assumed the position. The message sheet was handed to me. The last thing I remembered was the stopwatch being clicked on. Time blurred as the stage shook to the thundering beat of high speed code. As the paragraph drew to a close, I was on an adrenaline high. It was like the scene from Chariots of Fire where they cross the finish line. The crowd cheered. I knew in my gut that I had won. The rest of the guys gave it a shot but fell short.

I was declared the winner, over objections that I must have practiced for this. The prize? A trophy? A ham gizmo? A toilet. A toilet. THAT toilet. I'm 16 and I don't need this.

Fortunately, the trail club DID need a toilet. The only remaining degradation was to explain to the Trail Cruisers how I had happened upon this…prize. I explained that I was 16 and didn't need this.

N9MEZ Young Ham of Year

Adam Weyhaupt. N9MEZ, has been named the 1995 "Young Ham of the Year," an award jointly sponsored by Amateur Radio Newsline, Yaesu USA, and CQ Magazine.

15-year-old Adam is the third winner in five years from the St. Louise area According to Bill Pasternak, WA6ITF, of Newsline, he was selected for his "extraordinary skills in communication, organization, and leadership during a major disaster and a major Amateur Radio public service event."

During the Midwest floods of 1993, Adam, then age 13, was in charge of scheduling ham radio operators for round-the-clock emergency communication. He also acted as net control station for the disaster communications in his area, according to Pasternak.

The following year, at age 14, Adam was a key organizer of amateur communication for the US Olympic Festival, held in St. Louis, Pasternak said.

Currently, Adam is the network manager of his local Amateur Radio Emergency Service (ARES) net and a net control and weather spotter for the National Weather Service's "Skywarn" network. He also edits a regional "Skywarn Newsletter."

Adam lives with his parents, Gil (KA9YAW)and Teresa Wcyhaupt. and two younger sisters, Ann and Ellen. He has been a licensed amateur since 1991 and holds a Technician class license.

Adam will receive his award on August 19, at the Huntsville Hamfestin Huntsville, Alabama. Also taking part will be the 1994 Young Ham of the Year, 16-year-old Allison Zettwoch, KD4CKP.

Two additional finalists for the "Young Ham of the Year" award were 18-year-old Bryce Duncan, NOYDI, of Red Wing, Minnesota, and Toby Metz, KB7UIM, a 14-year-old from Meridian, Idaho.

Fines for 4 amateurs

Four amateurs cited by the Federal Communications Commission for malicious interference on the 2-meter band have had the amounts of their monetary forfeitures adjusted.

The four, all in the New Orleans area, were cited for transmissions made in the spring of 1993. In September 1993 all four received Notices of Apparent Liability from the FCC's New Orleans office. The FCC, after reviewing responses from all four, then issued Notices of Forfeiture in November 1993, all in the amount of 2000 dollars. All four appealed the NOFs.

While these appeals were pending, the Court of Appeals for the D.C. Circuit vacated the forfeiture guidelines that the New Orleans Field Office had followed in the forfeitures, and on reconsideration, the FCC's Compliance and Information Bureau reduced them.

On July 10,1995, the FCC issued Orders in all four cases, noting that the cases were based on information provided by the Amateur Auxiliary, and saying that "use of amateur volunteers for the purposes of monitoring violations in the amateur service is permitted by the (Communications) Act. In fact, the amateur radio community has distinguished itself for its self policing operations."

The FCC reduced the fine for Joseph F. Richard III, N5JNX, from 2000 dollars to 1000 dollars, rejecting his contention that tape recordings used by the FCC in the case are "inaccurate or misleading."

Vernon Paroli, KA5OWW, had his forfeiture amount reduced to 700 dollar, based on his clam of being financially unable to pay the 2,000 dollar forfeiture originally assessed.

The forfeiture amount for Will T. Blanton, N5ROC, was reduced from 2,000 dollars to 1,000 dollars. That of John B. Genovese, WB5LOC, was lowered to 500 dollars, because of the shorter duration of his transmissions.

Scarborough decision

At its July 19 meeting, the ARRL Membership Services Committee (MSC) of the ARRL Board of Directors voted to remove from the Awards Committee Standard Operating Procedure (SOP) an administrative interpretation of a Board motion. The deleted text said in part, "'Thus it requires a favorable recommendation by the DXAC to initiate a country status review by the Awards Committee." All ARRL Directors were present at the meeting, and it was the sense of the meeting that the Awards Committee should review negative as well as positive country status recommendation of the DXAC.

On July 25, the ARRL Awards Committee voted unanimously that Scarborough Shoal (Huang Yan Dao) should be added to the DXCC List under Point 2 (a) of the Countries List Criteria. Committee members all felt that Scarborough meets the rules that were in place when the petition for new country status was received. Further they concluded that it meets the definition of an island under the UN Law of the Sea Conventions. China claims Scarborough. and there is an absence of other territorial claims. Finally, it is more than 225 miles from the nearest part (island) of China.

Awards Committee Chair, Chuck Hutchinson, KBCH, shared the results with DXAC Chair, Garth Hamilton, VE3H0, immediately after the vote. As announced in a June 30,1995 news release, the DXAC voted 9 to 7 against recommending the addition of Scarborough to the DXCC Countries List.

Under procedures established by the ARRL Board, and because the Chairs are unable to effect a compromise, there is an automatic appeal In the next step, the two committees will report the reasons for their votes to the MSC for recommendation to the full Board, which ultimately will decide the matter.

5 GHz petition opposed

The ARRL, has filed comments on a petition for rule making that would allocate 300 MHz of spectrum in the 5GHz band an action that would , affect the Amateur Radio Service.

The petition by Apple Computer, Inc, seeks 150 MHz, at 5150 to 5300 MHz, and 5725 to 5875 MHz. Amateurs currently have access to the entire range 5650 to 5925 MHz on a shared basis.

The Apple petition, RM 8653, seeks the spectrum for a new, unlicensed radio service that the League called "essentially unregulated, save for certain technical rules," and that proposes the use of directional antennas and relatively high power, and protected allocation status in shared bands by "non-technical persons."

And in defense of the Amateur Radio allocation in the 5-GHz band the ARRL cited activity in a number of metropolitan areas around the US.

The League said the petition doesn't show why 300 MHz is necessary for such a service (and why existing allocations are not sufficient); why existing wireless and wireline services aren't sufficient; and why a proceeding such is this should not wait until current proposals on such services are resolved.

The ARRL also said the petition fails to consider compatibility between the proposed new radio service and other services (including Amateur).

SAREX helps NASA

The Space Shuttle Atlantis landed in Florida on Friday, July 7, at 1454 UTC. The landing ends the STS-71 mission, which included a historic docking with Space Station Mir on June 29.

Mission Specialist Ellen S. Baker, KB5SIX, and Pilot Charlie Precourt, KB5YSQ, conducted Shuttle Amateur Radio Experiment (SAREX) activities using the shuttle's VHF radio. Early reports indicate that the astronauts made successful contacts with five student groups who had prearranged contacts, and made numerous random voice contacts with individual amateurs.

In keeping with the experimental nature of SAREX, volunteers around the world also supported numerous tests to help NASA. The crew made a number of contacts with amateurs using the Shuttle-Mir VHF radio to test the operational configuration of the radio hardware and antenna. The radio will be used to facilitate at least six more planned Mir docking missions.

SAREX reports and QSLs may be sent to ARRL EAD, STS-71QSL, 225Main Street, Newington, CT 06111-1494, USA. Include the following information in your QSL or report: STS-71, date, time in UTC, frequency and mode (FM voice). In addition, you must also include a SASE using a large, business-sized envelope if you wish to receive a card.

The Sacred Hearts Academy Radio Club in Honolulu, Hawaii has volunteered to manage the cards for this mission.

The next mission supporting SAREX activity is STS-70, scheduled for launch next week, on July 13. Listen to W1AW for operating details and frequencies.

[Ed: STS-70 was another flawless mission with many SAREX activities. Unfortunately, the inclination was only about 28 degrees and so not visible from our area.]

PARS OFFICERS

Inside This Issue:

500 kc (Part d), More from lV7JIE, Morse code in the bathroom!.. And MORE!

Meeting Thursday, August 17, 7:30p.m.

PRESIDENT: Stuart Whiting, KB7UUX 230-0882
Vice Pres.: David Johnson, KJ7GA 827-3827
Treasurer: Chaz Hitz, N7NNS 230-9061

Membership Info:
To join PARS, please write Chaz Hitz, N7NNS at 2445 65th Pl. S.E., Mercer Island, WA 98004 or call 230-9061

Dues are $15.00 per year for an individual, $22.50 ror family membership and $7.50 irstudents18 or under.

(Meetings are held every third Thursday ~of the month at 7:30 PM in the Puget Power auditorium at 10600 N.E. 4th Ave., Bellevue.

For Info: Call Chuck or Lorie at 392-5846