SECOND CLASS MAIL Postmaster, see page 3

CENTRAL OKLAHOMA RADIO AMATEURS
COLLECTOR AND EMITTER
50¢

Vol. 11 DECEMBER 1985 No. 131

INDEX - INDEX - INDEX

WHEAT STRAW RADIO CLUB

VOLUNTEER EXAMINER PROGRAM

TRS 80C Central Oklahoma Computer Organization

The Wheatstraw club held our November meeting in Calumet with 34 attending. There was not much old business but there was some discussion on the CORA report given by K5GGL on the possibility of the national ARRL convention being held in OKCY in 1988 or 1989. The state convention will be held at Tulsa in 1986 which previously has been in OKC during Ham Holiday.

The club also wants to thank the people who worked out at the repeater site doing the necessary repairs and waterproofing on the tower and coax to get us ready for winter; I understand that the coax connectors had plenty of water in them after all the rain this year! Winter is upon us and I'm sure glad these folks donated a Saturday of there time to keep the repeater in good shape for the rest of us to enjoy and I think the coverage has been improved with the modifications to the antenna.

Moving on to new business the meeting was opened up for nominations of club officers for 1986 to be selected at the December Christmas meeting. Those nominated for Pres are WA5FLT & K5GGL: for vice Pres K5VRL & K5GBN: for Sec. WA5PFK, N5ING & WD5GLD: for Reporter N5IKN,WD5JNT & N5EMD. If anybody feels like they were left out and missed there chance to be nominated, we will entertain it at the December meeting. I'm suprised nobody was nominated that wasn't at the meeting so they couldn't defend themselves! Honestly we had a good time and these are a great bunch of dedicated people second to none!

The December Christmas party will be held on Dec. 8th at the End of Main restaurant in Watonga at 1:30 pm. I don't know the exact cost per person or couple but everyone is welcome to attend and enjoy the superb meal these folks dish up and for more info tune in on the Wed night net or contact one of the club members for details. Come out and enjoy the dinner and bring a big appetite.

One final comment here about the Wed night nets on the 01-61 repeater; with the time change we have moved the net up to 08:30 local time. Net control varies depending on what town will be having the club meeting for the next month, WA5PFK Ralph at Watonga is net control now untill the Dec meeting.

Many thanks to George K5GGL for taking the typewriter (computer) over and getting the last two months articles in the C&E, we have been out of town on business and was not able to get the articles ready.

TO BEGIN THIS MONTH'S COLUMN, I WOULD LIKE TO TAKE THE OPPORTUNITY TO THANK THE AMERICAN RED CROSS FOR THE USE OF THEIR OKLAHOMA CITY FACILITIES FOR THE V.E. EXAMS. THIS IS NOT THE ONLY HAM RADIO USE OF THE RED CROSS BUILDING; C.O.R.A. USES THIS FACILITY ALONG WITH AT LEAST ONE OTHER RADIO CLUB.

MANY OF US DONATE TO THE UNITED WAY CAMPAIGNS AT OUR WORK PLACES BECAUSE WE KNOW ALL THE GOOD WORK PERFORMED BY THE RED CROSS AND OTHER MEMBER AGENCIES. BUT SELDOM DO WE THINK OF THE WAYS WE DIRECTLY BENEFIT FROM THESE DONATIONS. THIS FACILITY WOULD NOT EXIST WITHOUT YOUR CONTINUED SUPPORT. REMEMBER THIS THE NEXT TIME YOU'RE APPROACHED BY THE UNITED WAY.

NOW TO THE V.E. NEWS. V.E. TEST SESSIONS ARE HELD THE 4TH MONDAY OF EACH MONTH AT 6:00 P.M. AT THE OKLAHOMA CITY RED CROSS AT 10TH AND HUDSON.

THESE SESSIONS ARE CONDUCTED UNDER THE W5YI PROGRAM AND ARE SPONSORED BY C.O.R.A. OCTOBER'S SESSION CONSISTED OF SEVEN CANDIDATES, AND WE ARE PLEASED TO ANNOUNCE THAT WE HAD 4 UPGRADES; 1 TECH, 1 GENERAL, 1 ADVANCED AND 1 EXTRA CLASS.

THESE TEST SESSIONS ARE FOR ALL LICENSE GRADES; FROM NOVICE TO EXTRA CLASS. WALK-INS ARE ACCEPTED. WHEN ATTENDING A TEST SESSION, PLEASE BRING THE FOLLOWING:

1. **A FILLED OUT FORM 610**
2. **PEN OR PENCIL**
3. **CALCULATOR (IF DESIRED)**
4. **DRIVER'S LICENSE (OR OTHER SUITABLE I.D. FOR MINORS).**
6. **ORIGINAL HAM LICENSE (YOU KEEP)**
7. **XEROX OF HAM LICENSE (WE KEEP)**

IF YOU DO NOT HAVE A FORM 610, ONE WILL BE PROVIDED. A FOUR DOLLAR FEE WILL BE CHARGED, AND THIS FEE COVERS AS MANY ELEMENTS AS YOU SUCCESSFULLY CONTINUE TO PASS (YOU LOSE NOTHING BY AIMING FOR THE HIGHEST LICENSE AND IT GIVES YOU THE OPPORTUNITY TO SEE WHAT YOU MAY BE IN FOR AT FUTURE TESTS).

Meeting called to order by Bob Pace at 9:10 A.M. 100 members/guests attended the meeting on November 9, 1985.

1. Elections - new officers will be elected at the December meeting. Bob Pace introduced the nominating committee members - Jim Seals, Al Ward, Larry Griffin, and Harold Todd. If anyone is interested in serving as an officer for 1986, please call one of these people.

2. Paul Asplin donated $154.00 to the club. Thanks to Paul for selling the Gold C books to raise this money.

3. $250.00 was donated to the club from the sale of used disks. Thanks to Robby and to all club members who support this project.

4. Other COCO related groups meet as follows: TACO - meets at Tinker on the Thursday following the COCO meeting at 4:30 P.M. Call Jack Cochran or Bob Helms for more information. ACCU - (American Color Computer Users) meets at the Red Cross Bldg. following the COCO meeting. At FAA, there is a meeting each Monday in the Executive Conference Room at 9:30 A.M. These people don't meet on those "MONDAY" holidays, of course.

5. Program - The program for November was presented by Dorothy Roberts. Dorothy did a great presentation on the BASIC language. Look for a related article in this months C&E. The December and January programs will also cover BASIC so if you know someone who plans (hopes!) to get a COCO for Christmas, let them know.

6. Hardware - If you try the Reset/On/Off switch modification from Hot COCO be aware that Larry Loe experienced disk problems afterwards. The reset worked but the on/off switch seems to be the culprit. We will miss Larry but wish him well as he travels to Biloxi, MS.

b) If you have a D board you may not be able to use the fast poke, the early SAM's do not support the fast poke.

c) Does anyone know of a driver/controller to interface an IBM hard disk drive to a COCO? (CONTINUED ON BACK PAGE)

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC.

W5 PAA

The South Canadian Amateur Radio Society

The November meeting of the Aeronautical Center Amateur Radio Club was called to order by El Prez Jack, WB5SVN, at 1930. Following self introductions Jack called on Tom, K5LDI, for a CORA report. As a result ACARC will handle the non-technical programs (Thats ladies) at Ham Holiday 1986.

Bob Pace gave the treasurers report. Everything looks good. It was approved.

Howard and Peggy Ridgeway gave a report on the Christmas Dinner meeting. It will be at Western Sizzler on NW 23, just east of Macarthur. December 5 at 6:30 pm. Go through the chow line and place order, meet in East Room, tell them you are with ACARC, waitress will bring tray to your table. Pay up on the way out.

Bob Pace requested that Bob Graham present the same or better magic program, assisted by Holly Holcomb's YL, Judy, as enjoyed by many at the 1983 Christmas party.

Bob Helms AF5Z and Joe Buswell, K5JB presented a program on Packet Radio that simplified the new craze for many of us.

Meeting was adjourned at 2050 for coffee and do-nuts.

Bob, W5HXL (Acting minutes taker)

SCARS CHRISTMAS DINNER.....

Once again, the South Canadian Amateur Radio Society will hold an annual Christmas Dinner. This year's edition will be held on Saturday, December 14, at Sooner Bar-B-Q in Norman. Sooner Bar-B-Q is located approximately 3 blocks south of Robinson Street on Berry Road in Norman. Dinner will be at 6:30 pm. Contact Dave, KD5IT, so that he can give an approximate number to the restraunt.

LOOK OUT!!! IT'S A WHITE ELEPHANT

Dave says that just to get into the Christmas spirit, each couple may bring a White Elephant gift to the dinner. Dave stresses that the cost of this pachyderm of pale complexion should cost no more than $3.00. This might be a good place to get rid of a few of the fleas that I bought at last Ham Holiday in the flea market.

SCARS RADIO CLASS.....

The fall edition of the SCARS license class is well into the final stages. By the time this is published, most of the participants will have taken the Novice exam and will be preparing for the Technician or higher.

VE EXAMS---DEC 4.....

Testing for all classes of amateur license will be given on Wednesday, December 4th at 6:30 p.m. The exams will again be held in room 229, Kaufman Hall, on the OU Campus. Prior registration is not necessary, and some 610 forms will be available. A $4.00 fee will be charged, and each candidate must furnish identification, preferably a driver's license.

Exams will begin promptly, so please be on time.

-wa5rpp-

FOR SALE (I'll bet)... if anyone is interested in old National Receiver which is in MINT contidion, contact Jack, KU5B. I'll bet he would be willing to part with it, and it is really a nice one. Jack's phone number is 360-2290, or you could pass a message to him through Q.R. Zedd, A5A.

THESE CORA MEMBER CLUBS PROMOTE AMATEUR RADIO

1 AERONAUTICAL CENTER ARC
MEETS: FIRST THURSDAY, FLIGHT STANDARDS BUILDING, FAA, S. MACARTHUR

PR	JACK IMAN, WB5SVN	677-8537
VP	TOM MANGHAM,K5LDI	677-5291
SE	GLORIA SEIGNIOUS, WD5JPW	722-1740
TR	BOB PACE, WA5CJG	376-3569
EDITOR:	GLORIA SEIGNIOUS, WD5JPW	722-1740

2 CENTRAL OKLAHOMA VHF CLUB
MEETS: 10:00AM THIRD SATURDAY, RED CROSS. 10TH & HUDSON (BACK DOOR) OKLA CITY

PR	JERRY METMORE, KD5IS	524-5080
VP	PAT SHERRILL, N5PS	943-3219
SE	JOE BUSWELL, K5JB	732-0676
TR	ELLARD FOSTER, W5KE	789-6702
EDITOR:	JOE BUSWELL, K5JB	732-0676

3 MID-OKLAHOMA REPEATOR, INC
MEETS: 8:00PM FIRST TUESDAY, OKLAHOMA CIVIL DEFENSE WILL ROGERS BLDG., STATE CAPITOL

PR	BOB ALLEN, N5EPV	UNLISTED
VP		
SE		
TR	SID GERBER, W5KOZ	737-1050
EDITOR:	MIKE SAMBUCO, KA5TSD	672-9176

4 OK CITY AUTOPATCH ASSN.
MEETS: 7:30PM THIRD TUESDAY. OKLA CITY FIRE TRAINING CENTER. 800 N PORTLAND

PR	DON ROOKER, WD5M	721-2119
VP	DON SAUNDERS, WD5ISS	721-0404
SE	CHARLES HOFFERBER, N5FMU	340-4468
TR	ART HERNANDEZ, N5GRI	354-9724
EDITOR:	DON ROOKER, WD5M	721-2119

5 OKLAHOMA UNIVERSITY ARC
MEETS: 7:30PM SECOND TUESDAY (SEP-MAY) 119 WILSON CENTER. 1334 S JENKINS

PR	LUKE NOAH, KA5BAY	325-1775
VP	JOHN WUSTENBERG, KE5N	325-2382
SE	PETER RICHESON, KA5COI	329-3217
TR	GREG SMITH, KA5LZN	366-1641
EDITOR:	GREG SMITH, KA5LZN	366-1641

6 ALTUS ASSOCIATION
MEETS: 7:30PM SECOND THURSDAY NORTH MAIN FIRE STATION (CD) ALTUS

PR	DWIGHT DENNIS, WB5KRH	482-2498
VP		
S/T	MIKE SCHENKLE, W5VXU	482-1797
EDITOR:	MIKE SCHENKLE, KB5IN	482-1797

7 BICENTENNIAL (76ers) ARC
MEETS: 7:00PM SECOND TUESDAY. OG&E BLDG. SE 3RD & E. K. GAYLORD BLVD.

PR	DONALD DUCK, AE5N	691-4199
VP	TED VANLANINGHAM, WD5JNT	262-1675
SE	JERRY SPROUL, N5AUH	354-2061
TR	TOM WEBB, WA9AFM	737-6716
EDITOR:	JIM SEALS, KB5IN	381-2005

Just think, even YOU can be an author. All you have to do is write what you think, longhand, with crayon or whatever you have. We will print it if it isn't too rank.

9 WHEATSTRAW ARC
MEETS: 2:30PM SECOND SUNDAY. LOCATION VARIES. SEE CLUB SECTION FOR DETAILS.

PR	MARVIN STOKES, WA5JMB	893-2221
VP	VIRGINIA BENEDA, N5EMD	825-3302
S/T	GEORGE MASCHINO, K5GGL	263-7614
EDITOR:	RICHARD RUHLE, WD5GLD	375-4843

19 OKLA INDEPENDENT AR
MEETS: 7:00PM SECOND TUESDAY SOUTHWESTERN BELL IFFICES, PONCA CITY

PR	DAVE WHITE, WN5LUI	765-5707
VP	VERNON TREIBER, N5ANV	767-1571
SE	GLEN BISHOP, JR, KA5PUB	767-1031
TR	BIZ MICHY, WD0HCO	762-3297
EDITOR:	DOUG EVERITT, N5DUB	359-0069

11 EDMOND AMATEUR RADIO SOCIETY
MEETS: VARIES. SEE CLUB SECTION FOR DETAILS

PR	KEN STEPP, N5DBM	341-4874
VP	BILL DEMAND, K5SKA	751-5137
S/T	BILL WRIGHT, KC5GN	341-6076
EDITOR:	BILL DEMAND, K5SKA	751-5137

12 QUARTER CENTURY WA
MEETS: QUARTERLY AT VARIOUS PLACES.
NET: 3855 kHz SUNDAY AT 8:00 AM.

CHM	FRED BOARDMAN, W5NL	427-2505
VCH	RAY LONG, W5TY	942-4314
S/T	HOWARD BAKER, W5AS	721-5453
EDITOR:	ROBERT RUNYON, AA0D	373-1818

13 KAY COUNTY ARC
MEETS: 7:00PM THIRD THURSDAY PONCA CITY EOC

PR	PAUL DAVIS, N5HIC	765-2227
VP	MARSH PRONNEKE, WA5UBO	363-2526
S/T	DAVE LAND, KD5FX	762-8616
EDITOR:	RICK LONG, KE5XY	767-1871

14 CIMMARON ARS
MEETS: 7::PM FOURTH MONDAY. PLACE VARIES. SEE CLUB SECTION.

PR	JACK DAY, WN5Z	227-3462
VP	LEO PEIL, KA5DUO	886-2996
S/T	REETA MARTIN, KA5SLY	227-3013
TR	DEDE BAILEY, N5FUN	227-2061
EDITOR:	RUTH SIMPSON, N5FUR	227-2791

15 SOUTH CANADIAN ARS
MEETS: 9:30AM SECOND SATURDAY. RED CROSS BLDG. NORTH OU CAMPUS. NORMAN

PR	DAVE EGLE, KD5IT	321-7570
VP	KEN ESADOOAH, N5BEW	329-4667
SE	JOE GREEN, KA5AIQ	364-4301
TR	MONTE BATEMAN, WB5RXI	329-7485
EDITOR:	SAM BARRETT, WA5RPP	321-2601

I bet that you could sell an ad for the C&E. They are just 45c a square inch. Business cards are only $30 a year. Try it.

16 EDMOND AMATEUR RADIO CLUB
MEETS: 7:00PM SECOND MONDAY. SEE CLUB SECTON FOR LOCATION AND TYPE

PR	MARK NORTHCUTT, WD5DYI	755-4672
VP	RON CRON, WA5EAI	681-0896
S/T	KAY NORTHCUTT, WA5DYJ	755-4672
EDITOR:	MARK NORTHCUTT, WD5DYI	755-4672

17 CP/M USERS
MEETS: 6 TO 10 PM, SECOND THURSDAY OSU TECH. ROOM 307

PR	JIM WHITE	364-5289
VP	BILL SKIPPER	946-8180
SE	ELAINE WEAVER	495-4089
TR	JOY MELTON	789-0280
EDITOR:	BILL SKIPPER	946-8180

18 GREAT PLAINS ARC
MEETS: 7:30PM FIRST TUESDAY CIVIL DEFENSE ROOM, WOODWARD COURTHOUSE

PR	GERRY FORD, NC5C	256-5342
VP	LEWIS PATTERSON, W5KFK	256-2111
SE	LOIS FORD, KA5PYA	923-7683
TR	FREIDA PATTERSON, N5EOX	256-2111
EDITOR:	LOIS FORD, KA5PYA	923-7683

What have you done for ham radio today?

20 ARDMORE ARC
MEETS: 7:30AM 2ND SATURDAY. CORRAL RESTAURANT
INFORMAL: EVERY WEDNESDAY, 221 9TH NW

PR	GENE SOUTH, WA5IJA	223-8252
VP	HOWARD ROBINSON, WB5FAJ	223-5726
SE	JIM CHILCOAT, W5JCX	226-6816
TR	JOHN MERLYN, WD5FZD	223-9543
EDITOR:	JACK GANT, W5GM	223-2619

10 COCO
MEETS: 9:00AM SECOND SATURDAY, RED CROSS BLDG. NW 10 & HUDSON. DUES $10.00 PER YEAR

CH	BOB PACE	376-3569
VC	BOB HELMS	733-3429
S/T	KAYE DERRYBERRY	681-0461
EDITOR:	KAYE DERRYBERRY	681-0461

CENTRAL OKLA RADIO AMATEURS
MEETS: 7:30PM FOURTH TUESDAY. RED CROSS BLDG. 10 & HUDSON OKLA CITY (BACK DOOR)

PR	DON SAUNDERS, WD5ISS	751-0404
VP	JIM BUSWELL, N5BEQ	236-0368
SE	KATHY WHITED, WB5NDO	799-1457
TR	SUSAN ST LAURENT, N5GVK	324-8180

CORA Collector & Emitter (USPS 116-150) is published monthly by CORA, INC, 1020 ARTHUR DR, MIDWEST CITY OK 73110. SECOND CLASS POSTAGE PAID AT OKLA CITY OK. SUBSCRIPTION:CORA member $3 other $7 yr

POSTMASTER: Send Form 3579 to:
CORA, 1020 ARTHUR DR, MIDWEST CITY OK 73110

EDITOR: Joe Harding, WA5ZNF 737-1044
CIRCULATION: Bob Graham, WB5NSV, 677-8685

OKLAHOMA CPM USERS GROUP

The November meeting was a good one and if you missed, you missed a good lesson on the CP/M operating system. Jim White, our illustrious president, is quite knowledgeable about CP/M and has delivered 2 very good lessons on it. The first one was at the October meeting and was directed toward how the different parts of CP/M fit together to make up the complete operating system. Then, at this month's meeting, he followed up with an explanation of all of the CP/M commands and how we can use them to do all of the neat things that are possible, such as changing the parameters to fit our systems, setting up the autoexecute function, and changing the size of memory. There were some of the commands that didn't make much sense until some additional questions were asked. That is due to the fact that all of us are at different points on the learning scale and what made sense to one person wouldn't be understandable to some of us who are newer in the club. But Jim is very patient and answered all of our questions without exasperation so that all of us now have a good basic understanding of all of the CP/M commands and how they all fit together. Thanks, Jim, for doing such a good job.

We have had visitors at our meetings from several different clubs who wanted to find out more about CP/M and the immense public domain library which we have access to through our private bulletin board.

One club, one of the Commodore users groups, was interested in learning about CP/M, because the new C128 has the capability of running it. Since the C128 uses the new version 3, and Jim also has version 3, he boned up on it so he could present the differences, but as luck would have it, none of them were present so we spent the whole time on version 2. Come back fellows. We have a lot to offer.

Another club who has been attending is the local Osborne Users Group. Not only have they been attending, but have been adding to our meetings with their expertise. Thanks, fellows.

Also, this group has asked us to consider a merge between our club and theirs, which has been discussed at the last two meetings. At the next meeting, we will further discuss the matter and vote on it , so be sure that you are present, so you can have a part in this important decision.

Our good secretary, Blaine Weaver, had a roster prepared and pinned to the wall with the due dates for our membership fees. The names of the paid up members were highlighted, but there were several names which were not. If your membership isn't paid up, you need to pay up before the first of the year in order to prevent your name from being removed from the mailing list when we clean it up at that time. Please be at the next meeting so you can take care of this.

The librarian and bulletin board manager of our club is Kevin Karns and he has been really conscientious about keeping the board up at the designated times and putting the public domain software on it that we request. The board has electronic mail capability and Kevin wants us to utilize it more. Leave a message for him so he will know what you want him to put on it.

One of the most important things that I get out of the club meetings is the association with people who are knowledgeable about CP/M and the programs that I am trying to learn. At each meeting, there has been someone who could answer my questions. The best time for this has been before the meeting starts, but since school started, we have not had access to the meeting room until almost 8 o'clock, so our casual conversation time has been cut short. Before the next meeting, several of us are going to come early and meet in the campus cafeteria before the meeting so we can get some more visiting done. The members of the club are friendly and talkative, so come a little early and join in on the conversation.

If you have any ideas about what programs you would like to present or have presented at the meetings, be sure and let us know. I'm sure that you realize that it's not easy to come up with new ideas for the programs at every meeting, especially if its also up to you to make the presentations. At the next meeting, a series of lessons will be started on how to use dBASE II, which has become the standard by which all other database programs are judged. It's not a hard program to learn, but there is a lot to learn about it if you have never done any programming in a structured language. The series will be presented in a logical manner, starting with the basics.

Three of our members went to the electronics flea market at the Heathkit store in Dallas,

kay

This month's meeting will host Dr. Nelson Erlich, WB5ONA, of NASA and will be held in the Hutchins Memorial Bldg. here in Ponca City and will be open to the public. The meeting will be at 7:00 pm on Thursday, November 21. His main topic will be about Haley's Comet and if the weather permits, a telescope will be set up for viewing the comet.

Last month's meeting was very short due to the fact that most of the officers had prior commitments. Steve Scott, KA5SJK, brought along a radio service monitor and checked out a few radios for the members who showed up.

The new repeater (37/97) is working very well and most of the bugs are out of it now we hope. Thanks again to KA5SJK for his time in setting up the new machine. The autopatch access code has been changed and notice has been sent out to the autopatch subscribers. The old code will not work !! If you try to use the autopatch and have trouble, get in touch with KD5FX, KA5SJK, or myself, KE5XY.

The 10-meter repeater is being overhauled and as soon as we can get some solid-state 450 mHz gear to replace the old tube type, the repeater will be back on the air. The frequency is 29.52/62.

73
Rick, KE5XY.

FOR SALE: ROHN HDBX Tower, 48 feet, self-supporting, incl. thrust bearing & mast, $225. Commercial grade steel tower, 75 feet, $200. Hy-Gain six element 10 meter beam, $65. Johnson Ranger II, $50. Icom 451 all mode UHF transceiver, like new, $400. Call Dennis, WD5CSM 495-0769.

---

recently, and picked up some bargains, such as extra disk drives and controllers. They said that there was a lot of computer gear there, new and used. If you are interested in planning a trip down there in that suberb of south Oklahoma, why don't you come to the next meeting and maybe some others would like to go, also.

If you haven't attended one of our meetings lately, you may not know that we are meeting in the administration building of Oklahoma State University Technical Institute just south of N.W. Tenth Street on Portland. The meeting starts at eight o'clock. Be there!!!!!!

This month, let's get the important stuff out of the way first.

For months now, I have been pleading for the members of Chapter 63 to contribute to this column. Now it appears that at least one brave (?) soul has heard the call and answered. What follows was received in a plain brown wrapper devoid of any identifying marks (including fingerprints). After determining it to be harmless (no explosives), the contents were revealed.

I have promised that everything submitted would be published unchanged (except for editorial comments) so long as it did not escape the bounds of good taste. The following is reproduced exactly as received. It is published here despite the fact that it was submitted anonomously, and did not taste good at all. Even with Miracle Whip and mustard.

TRIVIA (anon.)

"Doc" KX5W got started for 80 CW DX. He put up a nice big 80 meter Delta Loop and it works fine. Then the solar flux went down the drain. Well maybe next solar cycle. Then the solar flux up to nearly 100 a few days. Then disaster hit. His 2KW after blower went up in smoke. He must have been snake bit or sumpin and anyway the solar cycle 22 will start one of these days...
Howard W5AS been steady on his diet. Over 60 pounds off so far and has purchased a nice fancy leather puncher - just to have more holes in his belt. Anyone else dropping weight? Free new holes in your belt...

Howard W5AS has problem with the cable thing. It seems that any freq from 144mHz to 4000kHz at five watts to 1500 PEP and even his mobile 2 meter rig clobbers his cable TV. Cable people have done nothing to help...

Seems Ivan W5HFU got mixed up with lawn mower - got his face nicked up somewhat. (what was Ivans face doing in the lawn mower? .-ed) By the way he needs a tube 6HF5. It works in old Galaxy rig...

Ray W5TY seems to still have antenna problems. After all, Ray, its just a piece of wire???

"Author Strickly Unknown..."

The following is submitted for your information:

QCWA Chapter 63 operation on the air for October 1985:

SESSIONS	4
CHECK-INS	137
TRAFFIC	24

(signed) Howard W. Baker, W5AS

- - - - - - - - - -

Here is the birthday list for December 1985.

01	Bill Malone	W5HIM
10	Cermie Oldfield	XYL-W5AYL
10	Tiny H. Irwin	W5NBH
19	George Clark	W5JKK
19	Juanita Stinson	XYL-W5OZE
19	Eunice Holt	XYL-W5DDI
25	Ned Leach	W5FIJ
30	Charles Shaefer	W5WL

Happy birthday to all of you from all of us!

- - - - - - - - - -

This month we've had a contribution, albeit by the famous author "anon.". Perhaps publication of "TRIVIA" will move others to follow suit and write down a few notes. At any rate, thank you, whoever you are out there in radioland. Without looking back through the files, I believe that was either the second or third member contribution since Chapter 63 initiated this column (not counting Carl, W5JJ who contributes regularly).

The lady who shares her life and her home with me has recently returned from a stay in the hospital. Some of Glo's internal parts were malfunctioning, and required repair. When the surgeon gave her back to me, she was festooned with various pipes, tubes, bottles, and other bits and pieces of futuristic looking plastic plumbing. These gradually disappeared over the ensuing few days. All but one. We are about to wind up the second week of her recovery. She is home now puttering around the house with a drain still installed in her side which somewhat restricts her mobility. Glo's illness was timed coincident with another of those "short" trips back east. Since Glo's travel will be restricted until after the first of the year, we will not be spending another winter on the banks of the Potomac. Rob's new motto is "If she can't go, I ain't". About the only thing that makes those trips bearable, other than job satisfaction, is Glo's companionship. In years past we've spent considerable time separated while she made a home somewhere, looking after kids, and I rammed around the world on this or that project. Even then, we tried to maintain as close proximity as the situation permitted. Now, by conscious agreement, we've re-ordered our priorities, and pretty much try to arrange to be together as much as possible even if doing so adds degrees of difficulty to the assignment.

Last winter, we got acquainted with a lot of really nice folks through three organizations we belong to with chapters in the Washington area. One of those organizations was, of course, QCWA. Another was the Wally Byam Caravanner Club International (WBCCI), an association of Airstream travel trailer owners, and the third was the National Contract Management Association (NCMA) which is an association of government (federal, state, local) and industry folks involved in the business of doing the government's business, which is the line of work in which I am presently engaged. Attending the various functions of these organizations was delightful, particularly over the holidays, and for us opened doors into the social life of Washington we would otherwise have missed. We were both looking forward to revisiting our old/new friends. Particularly the QCWA group. Glo and I think we are pretty fortunate to be affilliated with, and included in, the QCWA circle. The natural gregariousness that characterizes amateur radio is amplified by a factor of several in QCWA.

In December I will begin a new assignment which will require much less travel. I'll miss the opportunity to make new acquaintances on those trips... but I won't miss the tight airport connections, the

(CONTINUED NEXT PAGE.)

N O T I C E

To all Persons, Exchanges, New Subscribers, Correspondents, etc. who desire to correspond with the CORA C&E - PLEASE - address your communications to:

CORA Collector & Emitter
1020 Arthur Drive
Midwest City OK 73110

We have cancelled our P.O. Box.

red-eye flights, the unending boredom of terminal boarding areas, sharing my intimate space with strangers, skimpy inflight meals, skimpy airplane seats, and having to warm my own bed. What I will miss are the trips when Glo and I can take the trailer and stop along the way to "smell the roses". I've been a "commercial" traveler over the years enough to have developed a rather strong dislike for meeting someone elses time-table. It bothers me sometimes having to depend too much on someone else to "get" me there. Call that middle class American macho if you wish. I've never been successful at settling into an airplane seat and dozing off secure in the knowledge that the guy doing the driving really would get me there. I guess I may have a hidden need to worry about things over which I have no control. I'd much rather depend on myself in travel situations. That may sound strange from a fellow who has literally been around the world several times. But the truth is, I worry a lot when I'm doing commercial (and military) air travel. Maybe it's because there isn't much else to do. And then again, maybe it's because I understand too much about the "system". Ah yes... the "system".

At least when driving, one can occasionally check the guages, change lanes, and stop for a little fresh air.

Give me the old Chevy pickup, travel trailer, roadmap, and time to get there. Glo and I will do it together... in style... with plenty of stopping along the way for deep breathing exercises...

Speaking of Chevys, there is a Ford van in the parking lot where I work with the following epathet emblazoned on the front license plate: "I'd rather eat worms than drive a Chevy". Now that, gentle reader is product loyalty in it's very purest form!

As this column is being completed, the outside temperature is in the sixties, with a warm south breeze, more like a spring day than mid-November. So I almost forgot to say...

MERRY CHRISTMAS!

from all of us here to all of you there... and vice versa.

- - - - - - - - -

GREAT PLAINS A.R.C.

WSHGH Repeater 146.13/73

We were still a little short on numbers at the November meeting but hopefully we'll have a record breaking group at the Christmas event. After the usual monthly business was conducted and several committees appointed, Bill Wyatt, KD5JR, gave a very interesting updated slide presentation on current happenings and future plans for the Severe Storms Center Inc. The next day his program was well received by members of the Gage Rotary Club. Bill does an excellent job with the Severe Storms Center presentation and, at the same time, insures a lot of publicity for amateur radio.

CHRISTMAS PARTY

The annual Great Plains Amateur Radio Club's Christmas Party will be held Saturday, December 7, 1985 at K-Bob's Steakhouse in Woodward, Okla. Visitation will start at 7 p.m. and the meal will be served at 7:30 p.m. in the large dining room. This is one of the few times a year that we can all get together, conduct business and enjoy the fellowship that our common interest in amateur radio provides. All club members, spouses, visiting amateurs, guests and those interested in amateur radio are invited and urged to attend. Let's try to make this the most successful Christmas Party ever!!!

Didja ever think that the last thing to go through a bug's mind as he hits the windshield of your car is his own rear end?

Think about it...

Just as I was getting ready to send this month's column to managing editor Joe, a note arrived in the mail from Ivan Miller, W5HFU, with a copy of a letter from Phil Knox, KA3NBQ, who lives in Maryland. The letter is too long to reproduce entirely in this month's issue, but it seems Phil and Ivan served together in the South Pacific theater during WW-II, and had first met at Saipan in early 1945. The letter is full of interesting recollections, and reveals a little of Ivans adventuresome past. I'll be referring to this letter in subsequent columns. Watch this space!

73, ROB-AA0O

SUCCESS?

There once was a Ham from Peru
Who didn't have too much to do
So, he got chunky and fat
Upon his hand held once sat
Now it's all held in place-
with super glue!!!

UNUSUAL HAPPENINGS

It is our understanding that some strange looking snowmen were left in the Colorado Rockies by one of our members vacationing there in early October. Hopefully, someone got pictures of the unusual artwork before the sun took its toll and all that was left was a pile of sticks!!

FINAL WORDS

To those hearty few actually looking forward to seeing who our Club Profile Victim for this month would be, I extend my apologies. The old man, WB5OVT and I were in Oklahoma City for his Marine drill which was to last for him from 9-12 November. It turned out, however, that he was extended for the entire week through Sunday the 17th. So, the Tuesday that we were to be home to interview the likely prospect, was spent downstate instead. Cheer up though----things may even be worse next month.

73
Lois, KA5PYA

Next month, we will run a roster of club members. If you have anyone who isn't on the mailing list, who is a ham and a member of your club. Send in his/her name, call sign, address, ZIP, and phone number. They will be added to the roster BUT will not receive a copy of the C&E.

You must send this information immediately if you expect it to be included.

FOR SALE: RCA 13" Color Portable TV - ideal for computer, bedroom, ham shack, etc., excellent condition -$75. XITEX RTTY-CW Station complete with keyboard, interface and monitor, $200. One pair 4-400A tubes, $50. Heath SB-650 Frequency display, $10. One pair like-new 4X-150A tubes, $10. Astatic D-104 Mike, $10. MFJ-202 Noise Bridge, $10. Heath 23A AC Power Supply, $5. NBVM Model 3000 Baseband Transcvr, $10. Radio Shack (Micronta) FET-VOM Model 22-208, excellent condition, $15. Call for info, George, AD1S, 722-6195.

Salem

FLASH, RATTLE AND ROLL!
(A Design to Get Attention)

I have puttered around on occasion with circuits to flash and beep to get attention. One of the first was a little CMOS beeper circuit that I used to signal receipt of a carrier on my parents business band system. The idea was to detect the continous presence of a carrier for 4 seconds. This in turn would set off a little beeper so that the operator would know that he had a call. The beeper would continue to work until the operator removed the microphone from the mike holder and triggered a switch which reset the circuit. The circuit would rearm when the microphone was hung up. The radios were Motorolas and used PL. Thus, in an area of light population (like my home town), the presence of a detected carrier generally meant that one of my parents was calling the other. I timed the circuit so that it would not activate for a period of time that I guessed would take my mother to call my father. This set the beeper to pulsing. The tone was 1000 hertz pulsed on about about 1 time a second.

So, I generally have had an interest in circuits that attract attention or warn of an out of tolerance condition. This generally extends to alarm clocks. All of us have an interest in getting out of bed in the morning and the simple circuit of the alarm clock can grow very irritating if permitted to persist. I used to try to wake up to music with a clock radio. No good. First, you couldn't depend on the station being on the air in the morning. Second, unless you turned the volume up to the threshhold suitable to wake the neighbors, you could sleep through it. I was especially good at that since I used to be able to fall asleep with the television on and the stereo going in the background. So, it was back to digital beep when I first built a project alarm clock.

The study of emergency signalling has developed into a science of sorts. It requires not only studies by doctors who measure sensitivity to color and light, but also psychologists who tell us why particular colors seem to stand out more.

What color is the eye most sensitive to? Red? Orange? All wrong. In daylight, peak sensitivity to color occurs around 555 nanometers. This means that the eye is most sensitive to green. This means that during the peak intensity of daylight, you can see a corresponding shade of green before any color. The chartbelow illustrates:

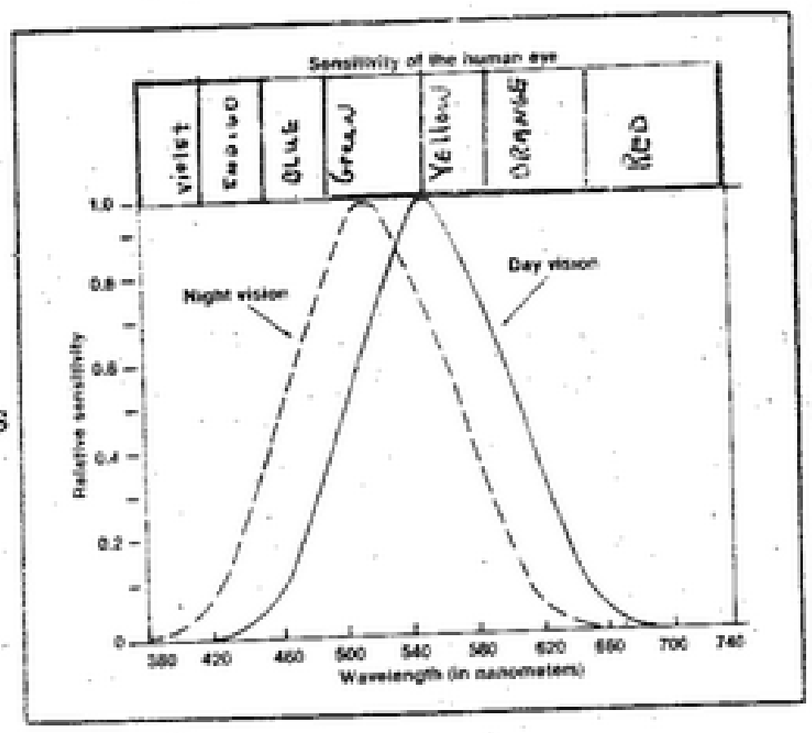


Figure 1. Sensitivity to color of the human eye.

Come to think of it, this may be why I have seen people along the side of the road working as signalmen wearing green vests instead of orange. The same may be true for hunters. But not for the army camouflage. Strange, you mean those people I saw on 60 Minutes earlier today running around in camouflage at that mercenary school in Alabama might actually bee seen easier? Well, maybe not, since the idea there is for them to blend into the background. When the grass is dead and the leaves have turned brown, it might be time for a wardrobe change.

One interesting fact is also relevant. In night time or low level conditions, the sensitivity of the eye shifts toward the shorter wavelength frequencies (the so-called Blue Shift). This is generally accounted for on a zoological level with the presence of greater number of blue sensitive cones in the retina.

Visible light characteristics are defined by "photometric" measurements, which are calibrated in accordance with the curves in Figure 1 to compensate for the eye's response to different wavelength.

The brightness of a light is a subjective sensation related to luminous intensity. If brightness is considered photometrically, then photometric brightness is a measurable quantity that is also referred to as luminance which is defined as light intensity per unit area. So if something has high luminance, then it has a greater light intensity per unit area. Luminance is also rated in terms of candlepower expressed in units called candelas (cd). The old standby term candlepower defines the unit of light (the light from a candle) a particular distance away.

But light color or intensity is not the whole story. That is why green may be a good camouflage color in the forest. Actually, the perception of brightness in visual signals is related to several complex factors, some of them subjective:

- Adaption of the eye.
- Background luminance and color.
- Luminance and color of light source.
- Size of light source.
- Location of light source in visual field.
- Duration of light source.
- Reflections created by light source.
- After images.
- Effort and concentration of observer.

Obviously, a flashing light will command more attention than a fixed light. Studies have shown that short duration flashes are perceived up to five times as effective as the same total luminous energy emitted from a steady source of light. This makes sense when you consider that a strobe light is a light of very bright intensity for a very short duration. The average light luminescence is very low, but the strobe does get the attention.

Light engineers also take into account the type of reflector or lens that may be used with a particular light and apply an applification factor.

So what can you do with this kind of information? Not really a whole lot, unless you are designing circuits for attention attraction. But you might trot the chart out the next time you get a ticket for running a red light and try to use it to convince a judge that since you could see the green easier than the red, that the failure to see the red was not really your fault, but actually the result of thousand and million of years of genetic selection. Probably won't work, though. Judges just expect you to see red lights.

The efficiency of a visual signal is related to luminous efficacy--the ratio of total luminous (visual) flux to the total power into the light source. Incandescent light sources such as tungsten lamps have relatively low efficiencies unless operated at high filament temperatures. There is a lot of heat produced from most incandescent sources. This is invisible radiation. The table shown to the right shows the luminous efficacy for several popular sources.

Light source	Luminous efficacy (Lumens per watt)
(Incandescent)	
Tungsten (10W)	8
Tungsten (100W)	17
Tungsten (1000W)	23
Halogen-tungsten	20-30
(Gaseous discharge)	
Mercury discharge	50-60
Fluorescent	60-80
Metal-halide discharge	80-100
High pressure sodium	100-125
(Electronic flash)	
Xenon flashtubes	30-50*

*Luminous efficacy for xenon flashtubes is given in terms of energy rather than power (lumens-seconds per watt-second) because they are inherently flashed devices.

Table 1. Luminous efficacy for various light sources.

Sound Signalling

The loudness of a sound depends mainly on the intensity of the sound waves reaching the observer, perceived loudness is also greatly affected by the frequency, bandwidth and duration of the sound.

All frequencies are not perceived the same by the ear. Certain frequencies are more readily apparent to the ear than others. The following Figure 2 shows the relationship of sound intensity to frequency.

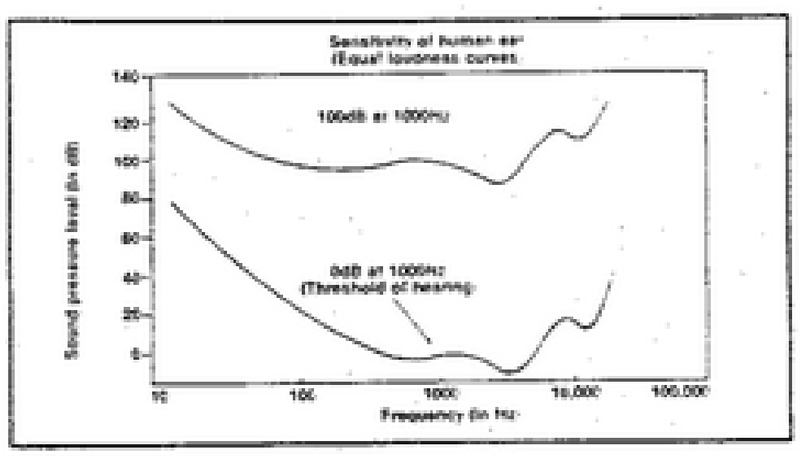


Figure 2. Equal loudness curves.

Notice that the ear sensitivity also varies depending upon the sound level. At the threshhold of hearing, lower frequencies are not as readily apparent as they are when the sound is cranked up to 100 db. Please also remember that the chart is logarithmic.

The sensitivity of the ear is highest for tones around 3000-4000 hertz. It decreases rapidly also for tones above 5000 Hz. Psychologists have found that high-frequency tones are usually more annoying than low frequency sounds of the same sound pressure level. Does this mean that you might want to build all signalling devices in the 3 to 4 Khz region? No, not necessarily. High frequency hearing falls off significantly with the aging process. Second, it might also depend upon the application. A high frequency tone is directional and may not carry far in a direction in which it is not pointed. A low frequency signalling can be heard around corners as it diffuses . The reason is not complicated, but generally can be explained by a little wave theory. The easiest way to observe the phenomenon is to go to a dance and listen to band. When you walk out the door , you can still hear the bass instruments even though those instruments that are pitched higher are still inaudible.

Standard sound level meters compensate for the ear's various sensitivity to different frequencies. The dBA (decibel) scales in most sound meters are weighted to selectively discriminate against low and high frequencies in accordance with the "equal loudness" curves. 0 DB is defined as the minimum sound pressure level audible to people with normal hearing. On the other hand, 120 dB is loud enough to cause discomfort in most people.

If a signal contains a "wideband" sound, the ear perceives a wideband sound as louder than a narrow-band tone of the same intensity. Thus a pure note may register the same level on a sound meter as a wideband signal, but the wideband signal is perceived to be louder.

Duration is also important in determining loudness. Generally, loudness decreases as the duration of the tone becomes shorter than about 100 milliseconds. The following curve is illustrative:

Figure 3. Sound duration vs. required decibel increase for constant loudness.

For a sound duration below 100 milliseconds, the sound pressure must increase 3 dB each time the duration decreases by a factor of two in order to maintain the same loudness level.

Many times pulsed audio signals are used to impart urgency or conserve power consumption. If the sound is pumped , then such a signal should exceed 100 ms in duration in order to maximize percieved loudness.

I have tried listening to CW at about 4000 hz, it takes some getting used to. For a really weak signal, who knows, it might work. I don't think that it would be a good idea to design an audio filter for that high a frequency. The filter would probably also amplify the receiver noise which would mask the incoming signal. Better stick to a thousand hertz. Besides, the higher frequencies might be heard easier, but since high frequencies are more irritating, they might not be the best choices for a filter design.

Underwriter's Laboratories have developed some standards for audible warning devices and loudspeakers. UL Standard 464 is for audible signals and UL Standard 1480 is for loudspeakers.

UL also has a Standard for visual signals, UL Standard 1638, although it is in the preliminary draft form.

Attention getting signals are helpful though around the shack, whether an overload warning or the telephone ringer. Come to think of it, those telephone ringers with the high pitched warble ringers are attention getting, but irritating.

Micheal Salem N5MS

A SHACKUP (A Radio Station Rebuilt)

I moved several months ago. It has been an unsettling experience. Besides all the normal trauma that one is subject to in moving household items (I guess that I should face it, I just don't have all that many household items), I also had to move the radio shack. Not that that was a particularly complicated project. I just realized that moving into a new house meant that it might take me sometime to completely rebuild the station the way I wanted it. The last time I moved it took almost 10 years before I got the HF station up and running again. I just never used HF very much and it seemed like a lot of trouble to restring the dipole. Besides when I moved into the old house, I planned on traveling light. I was in school and I basically moved most of my stuff in the back of a 1963 Chevrolet. I felt like traveling light. Putting up an antenna was a commitment of permanence and I really didn't feel like many commitments at that time.

After finding a need to set the station back up, I restrung a dipole for 40 meters and operated a Heathkit QRP rig that I borrowed. It was fun, but I kind of got the taste to put the HF station back in gear. This led to the recovery of my Swan 350 from WA5MLT (he later went on to spend thousands replacing the HF habit he had acquired with the Swan). From the time that I had bought the Swan in 1967, HF equipment had progressed light years from the old tube clunker. So I shopped around and found me a TS-130. This was a nifty radio and I spent quite a bit of time listening and talking to WB5YWO up in Stillwater on 75 and 40 meters. Still later, N5IH had an IC-720 that had taken a lightning strike. I didn't realize what lay ahead but I bought the radio. It took almost a hundred hours to figure out the radio and restore it to operation. In the meantime, I had became quite intimate with the guts of that radio.

Besides equipment, I also had to move a large collection of magazines. My interest in radio stretches back to 1962 or so. I had a a complete collection of Ham Radio and only lack a few issues having a complete set of 73 magazine. My collection of QST's extended back to the early '60's and K5HMD pushed that back even further when he gave me about 10 years from the 50's. I now have those on semipermanent loan to KA5UPM who loves to look at the pictures. Physically, it took me almost a month to cull the mags and equipment and move them into the new house. In the 16 years I had lived in the old house (well, I thought it was only temporary and it was) I had acquired a lot of equipment. I really didn't cull all that well. I threw out, sold and gave away a lot of equipment. I still find things here at the new house that I stop and ask myself why I brought it over here.

I guess that it is just hard for a real collector to go cold turkey all at once. But radio equipment wise was nothing when it came time to moving the station. I have kept it simple over the years. The TS-130 and IC-720 have now evolved into an IC-751 with the AT-500 automatic antenna tuner. An IC-230 handled the two meter chores. I kept a PT-400 (motorola drag-a-talkie) in the house and on continously and tuned to the 28/88 repeater for monitoring. It actually was the very first thing that I took to the new house. Even before I got the clothes over here. It is a great radio, but my battery is dying, again. I have worn out a couple of these old batteries with that radio.

I guess that my problem was inertia. After all, anybody who takes 10 years to put up a dipole probably is operating a cog or two below everybody else. To some extent, my worst fears have come true. I moved in the new house beginning in the middle of June and hre it is in the middle of November and I don't have an HF station on the air. But I have overcome the inertia. Whereas previously, I put the Swan 350 into the back ground (and the back room) and left it there for 9 years, I have selected a room at the new house to be the radio room. Well, that isn't much, but it is a start. Actually, it became the radio room a little by default. When I was carrying the boxes of equipment from the old house, this room was the one that wound up with the most equipment in it. I think that there is something satisfying about finding out the natural order of these things and going with the flow.

I have been diligent in considering about what to do about the HF station. The first couple of months were consumed by moving and taking care of the business of getting settled. I had a lot of work to do at the office also and that cut into planning time. But I was thinking about it. At the old house I had a couple of sections of TV masts that I was using to support the packet radio antenna. It was only about 20 foot up, but it worked OK. I thought that I would add a 10 foot section and take off one of the 5 foot sections and get the antenna up to 25 feet. I also worked out a support system for stringing up the dipoles from this pole. I felt that this would be OK. My downfall came when I was fixing up a commercial grade antenna for UHF control link use. It was a little too husky for the TV mast along with everything else. I thought about it and considered buying a couple of sections of Rohn 25G so I wouldn't worry about the antenna falling off. Then I got to thinking. 20 feet of tower was five foot less than the pole I already had. It was no decision to get an extra section so the total overall height would be about 29 feet.

I began to look around. I remember that WB5FZD had an antenna up at one time that he had taken down. John said that he still had it. Did he have any extra. Sure, in fact, he could spare as much as 40 foot if I wanted it. Well, that was a little higher than I wanted to go, but at 40 foot I would still not have to guy the tower with only the things that I was going to put up, so I told him OK.

One of the requirements I had given to the realtor when I began looking for a new house was to have lots of trees. I like trees, they provide shade and, most importantly, they were an ideal mask to the neighborhood for a tower. The house that I found does have trees and they are giants. Several top 35 to 40 foot. If I was going 40 foot with a tower, I needed to hide it in the trees and that would not be an easy trick. The previous location I had planned to put the pole was in the front yard. I figured nobody would bother it. But a tower is another story. There are children in the neighborhood and a tower is an attractive nuisance. I had to move the tower to the back yard. But this would put it about 15 foot from a couple of big trees. If I ever decided to get a beam, I would need a tower well above the existing trees. I was not sure that 40 foot would cut it. Well, I would worry about that much later. I drove out to John's house with N5AMV to pick up the tower. All of a sudden, it seemed that John only had about 20 foot to spare. He had miscounted the sections. Later in the week, he called and told me that after thinking about it, I could have

another two sections since he didn't think that he would put the tower up anytime soon. I knew that he had a top section, so I asked him if I could buy it from him also. He said sure. Dean and I wandered out to John's house later on Saturday to get the additional two sections and the top. After loading them up, John had one section left. He suggested that I take it also. It didn't really seem like a bad idea at the time, so I now had 59 foot of tower.

Well, I thought about not putting it all up, but that seemed like a waste. Of course, a lot of plans had to be changed. Since it appeared that I would now clear the trees at least by 20 feet, I began to think of other possibilities. I thought that I would look around for a small beam. Of course, if I did that, it would necessitate guying the tower. Rohn recommends never going above 35 feet unguyed, but the stuff is so strong that a 50 foot antenna tower with only a light load would easily survive here in Oklahoma, especially if you use a house bracket. I thought about putting up a UHF DB-410 antenna that I had and a couple of other sidemounts. I also expected to get a couple of beams for UHF and two meters. With this load and a tribander, I knew that I would have to guy the tower. I checked the Rohn catolog again as well as the Motorola books. To be perfectly safe, I would probably need two sets of guys, one at 25 foot and another at 50. Now, I had to get some guy supports. Oh yeh, guy wire, turnbuckles, and strain plates and don't forget the guy grip preforms. K5JB suggested that I insulate the tower in case I ever decided to shunt feed it. I thought was a good idea although I had to listen to the griping and moaning from WA5TOO and KD5WA asking me why I wanted to do something like that. It also doubled the number of preforms that I needed to 24.

At this point, I began seriously thinking about a beam. I didn't want to mess with monobanders since I am in no way a serious hf operator. I began to ask around. K5JB really liked his Classic 33 and it sounded like a good antenna. W5NUT was sold on his HyGain TH7. Several others mentioned the KLM KT-34, but said that it was difficult to tune. I really didn't want to mess with taking the antenna down just to measure and adjust. Getting it in the air would be a problem all by itself. While the trees in the area would mask the tower and the antenna, it would also make the errection of the antenna a major problem. WA5TOO kept talking about his Telrex antenna. I really was not interested since it was an expensive antenna, but it was well made. I kept looking around. Meanwhile, Darrell gave me some literature about Telrex. The stuff was first class. Darrell had the TB5EM. Five elements and husky. Telrex also made a TB6EM with six elements and a 26 foot boom. It cost an arm and a leg. I kept looking at it. Another advantage about Telrex is that a lot of the antenna is preassembled. You sort the parts out, bolt it together and put it up in the air. There is not much to pretune. Other s such as the TH7 come in a kit of parts and takes awhile to assemble. I also began to think that I intended to only buy one antenna like this in my life. After thinking, I held my nose, took the plunge and order the six element Telrex. It made a major dent in my Mastercard account.

At this point, I had already dug the hole. Chas KA5UPM offered the services of his gasoline powered ground auger. This in and of itself was a surprize. I had been to his apartment and had never seen one there. He said that he kept it in the closet. It worked well for the main hole. We dug eight holes and I was going to clean them out and extend the hole to 3 1/2 foot. Unfortunately, the digger went berserk on the guy wire holes and literally blew a rod. The rod came through the carburetor and blew it right off the side of the engine, narrowly missing both Chas and myself. I didn't relish the thought of finishing all the guy wire holes by hand, so I went down and rented a husky power auger and Chas and I finished the job in about 20 minutes. I would recommend these devises to anybody. For about 16 dollars, you can plug all the guy wire holes and make a major dent in the main pier in nothing flat. I recommend that you get the two man jobber with at least 5 hp. Dig only in dry ground and it should be a snap.

I cleaned out the hole and extended it to 30 by 28 inches. I also dug it to a little over 3 1/2 foot so that I could put some rock in the bottom 8 inches so the 3 foot short section would be able to drain moisture out of the legs. Louis helped me with the concrete and it took about 45 minutes to unload about 10 wheelbarrow loads from the truck into the hole. We also had the guy wire supports ready to concrete at the same time. It all went smoothly.

I had tried to scrounge parts for the tower. If I had it to do over again, I probably would have just gone down to Texas Towers and just bought it all. When I bought my IC-751, there was a guy doing exactly that. I thought that he was nuts, but now I understand why he did it. He was ready to put the power up then. He hadn't collected a lot of stuff over the period of years. If he didn't have it, he could spend a lot of time and money tryin g to collect it. So just buy it and be done with it. Louis did the same thing and I have to say after several trips to the city and chasing around that he is right.

Dean, Darrell, Jim WD5HPU and Louis and I assembled 30 foot of the tower and stood it up about a week ago. I would not recommend this unless you know exactly what you are doing. Plan on having about 5 for the help. One on each guy wire and two on the tower to set it on the pier. Darrell and Louis helped put the next two sections up this past weekend and as soon as I get a new top section (need a communications top section to accommodate the 2" O. D. pipe that it takes to mount the Telrex) we'll be able to get the last section up and hopefully plug the pipe with the VHF and UHF antennas ready to go. I finally settled on a pair of KLM 8 element antennas and a single KLM 27 element 440 antenna between them. I don't intend to do a lot of listening or talking with the two meter antennas, but I thought that it would be good for packet and DFing. I hope that I can get it all in by winter.

I spent some time making sure that there would be no problems with neighbors. Most of them around the area seem really nice. Part of the reason I moved the tower to the back yard was to move it out of the view of one of the neighbors. Since I had to run some guy wires over my power service, I called O. G. & E to have them come out and inspect the site. They said that it would be OK. I also got a building permit from the City, but didn't go over to talk to them until I knew exactly what I was going to do. I also took a Rohn catolog and additional documentation about the antennas. The beam came in the other day and it is a monster. Dean looked at it and said "You'll hear things you never heard before." He could be right. I just hope that it is not the neighbors. More later.

Micheal Salem N5MS

Edmond Amateur Radio Club
P.O. Box 75252 / Okla. City, Ok. 73147

Are you ready for a national amateur radio news program, once a week, on your two meter rig? It's coming in January to the 147.030 repeater. And it's free for the listening!

Edmond Amateur Radio Club is pleased to announce licensed affiliation with the Metroplex Network, a nation-wide system for amateur radio related news. As a licensed affiliate, EARC will downlink the programs from the network commercial satellite transponder.

The Metroplex Amateur Communications News Network is a non-commercial weekly amateur network program service for legal use on amateur repeaters, remote bases and high frequency stations. The program service is a co-production of WESTLINK and METROPLEX and is produced in Los Angeles and New York. Commercial equipment and professional talent are used to produce the programs with excellent audio quality.

Its format assures up-to-the-minute news relating to amateur radio, from all over the world. The news program will run 20 to 30 minutes.

Metroplex plans a national swap net, following the news segment. The proposed swap net will involve call-ins on a national scale. It would also run 20 to 30 minutes.

Metroplex is extensively involved in the distribution of the Teleconference Radio Net, heard four times a year on EARC's '03 repeater. With the establishment of satellite distribution, Metroplex will also feed the TRN from space. EARC will continue its presentations of the Teleconference, with improved audio quality.

The news program is scheduled every Monday night at 9 p.m. The National Swap Net is tenatively scheduled for 9:30 that same evening. The North American Teleconference Radio Net is scheduled four times a year on Friday nights (dates to be announced) at 8 p.m. These schedules are changed from time to time, based on satellite availability.

Local area announcements on tape can also be inserted and are cued from the network feedpoint automatically.

The Metroplex Network seeks to promote amateur radio everywhere. Local reports, activities, hamfests, public service and other items of amateur interest are wanted for national presentation. This is a chance to promote all OKLAHOMA club activities. We will appreciate your news and comments, to be forwarded to the network. (Contact WD5DYI).

Repeater groups outside the central Oklahoma area who are interested in becoming licensed affiliates are invited to contact EARC or the Metroplex Network direct. Per licensing agreement, re-broadcast of the net from 147.030 through any other system is strictly prohibited.

TELECONFERENCE DECEMBER 13

The North American Teleconference Radio Net will be presented on the 147.030 repeater in Oklahoma City, December 13th, 8 p.m.

Subject of the net will be Amplitude Companded Single Sideband (ACSSB).

This teleconference was scheduled for the September presentation. Last-minute cancellation came as a result of the telephone bridge network's being tied-up. See the September edition of C&E for details of the net subject.

In addition, a representative from the FCC Monitoring Station in Nebraska will provide information on interference. The FCC staffer will have information about what can be done to assist the Bureau in locating malicious interference.

Mark your calendars NOW for the Teleconference Radio Net, December 13, 8 p.m., on the 147.030 repeater.

MERRY CHRISTMAS

Edmond Amateur Radio Club, Inc., wishes all its members and other readers the most merry and meaningful Christmas. We also hope the upcoming year will provide happiness and prosperity.

CHRISTMAS DINNER

Edmond Amateur Radio Club will hold its annual Chili & Stew Dinner on December 9th. Members will be contacted later concerning location and what to bring.

1986 OFFICERS

The Board of Directors of Edmond Amateur Radio Club were elected at the November meeting. With the exception of the Vice President's position, all officers were re-elected.

Our new Vice President is Bob Moore, KA5ETA. Among Bob's responsibilities will be the arrangement for our six dinner meetings to be held next year.

Bob's recommendation of Gertrude and Gonzales Mexican food restaurant, where the October dinner meeting was held, won him the nomination. He has good taste!

The Vice President's duties also include the chairmanship of all committees, including the Membership Committee.

Officers re-elected are Mark Northcutt, WD5DYI - President; and Kay Northcutt, WD5DYJ - Secretary-Treasurer.

CONGRATULATIONS

Larry Stewart, WB5POW, long-time member of EARC, recently upgraded to amateur general class. Congratulations, Larry!

DID YOU KNOW...

...OG&E power poles often have large numbers nailed to them. These numbers correspond to the street address on which they are located.

...The first Morse code transmission was "What hath God wrought?"

EDMOND AMATEUR RADIO SOCIETY

EARS met at the EOC 11-17-85 at 2:00PM and a slate of officers were presented by the Nominating Committee as follows:

N5BUJ	Bobby McCoy	Pres.
KA5WIS	Lee Vaughn	Vi. Pres.
WD0FTM	Linda Calison	Sec. & Tre.
KA0CVK	Bob Thomason	Dir.
KA5WAV	Tom Guinn	Dir.
N5DBM	Ken Stepp	Dir.

Nominated from the floor by KB0FTM was KA5VEK Amber Thomason for Sec. & Tre.

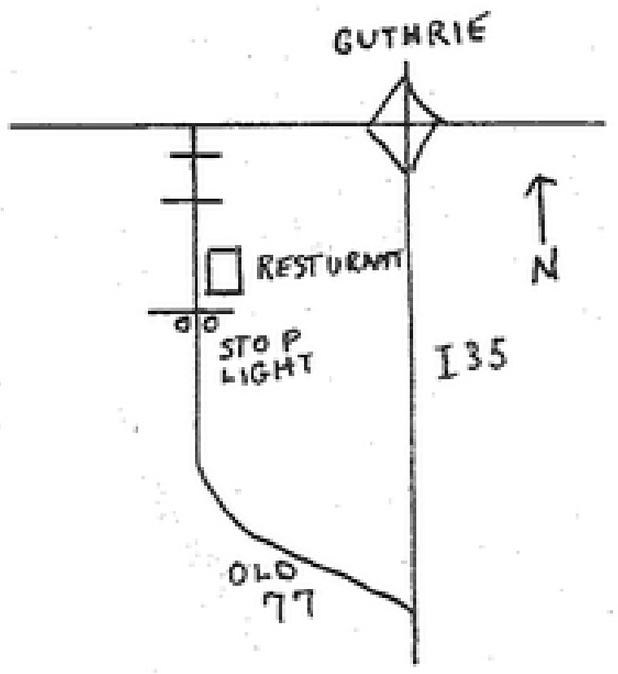
All nominees have indicated acceptance for this nomination.

Respectfully submitted by, Clarence Dollmeyer, Chairman , David Patillo and Lee Vaughn.

Our antenna has been reoriented thanks to volunteers on a regular tower inspection from Bolay Tower Co. N5BUJ also reported they found a bad P.A. in our transmitter which caused some trouble with low output power intermittently.

KA5WGS Frank Tassone is running code practice from 5 to 13 WPM on Monday and hursday at 7:00 PM on 147,135 repeater and is getting a good turn out even from other amateurs outside our group.

Our next meeting will be the third Friday of next month in Guthrie at Pecan Grove Home style Restuarant 108 E. Harrison. I will try ot include a map in this writting.



I believe that is it for now.
Bill K5SKA

In the old days if you wanted a horse to stand still you would tie him. Nowadays you bet on him.

FOR SALE: Icom IC25. 25 Watt 2 meter mobile with TTP micro-phone. $200.00. Randy, WB5ERN. 631-7501 or 1-275-1259.

MID-OKLAHOMA REPEATOR, INC.
WA5YTI

The election of club officials was conducted during the last meeting. Here are the new officers that will assume duties in January:

President- Doc Bowers, KX5W
Vice Pres- Tim Rauscher, KA5MUG
Secretary- Mike Sambuco, KA5TSD
Treasurer- Sid Gerber, W5KOZ

Thanks to our outgoing President, Bob N5EPV for his term of service to the club.

Other business conducted was a vote to determine what MORI would like to do for Ham Holiday next year. It was voted that we would like to do Registration.

Merwin, K5ELL gave a status report on the 146.07/67 machine. He explained that the output power was back to normal, after replacing a final and doing a realignment. Thanks to Merwin and Ron, KA5RVM for their work keeping our repeater on the air! The 146.34/94 machine has the new controller installed, thanks to Ron, WA5EAI, and his efforts. He has been putting in lots of work getting the new RC-85 installed and setting it up properly.

The annual MORI Christmas dinner will take place on Dec. 3rd, from 6:30 to 8:30pm at Furr's Cafeteria at N.W.63rd and N. MacArthur. Everyone come and have some good food and good conversation!

We know a lid who stoped to think and was never heard of again.

The C&E needs some ROLL paper 3 1/2 inches wide or some size larger than that to print the columns by computer controll before it is sent to the printer.

OIDAR

OKLAHOMA INDEPENDENT AMATEUR RADIO

OIDAR HOLIDAY DINNER will be Tuesday evening, December 10th, 6:30 p.m. at the Western Sizzlin' on Prospect, near Gibson's in Ponca. Talk-in on 145.23 and 145.31 (-600).

Over Enid way, Ken W5QMJ is preparing to move the monster repeater amplifier over to the 145.29 machine, along with the autopatch. 29 will be off the air while the new system is being prepared. The 146.94 repeater will go down a tad in power, while 145.29 will be running about 400 watts ERP, up 6dB or more, continuing to receive from the 700' level (avg terrain) on the CATV tower north of Enid. OIDAR members have, in the three years since 29's been up, encouraged Larry, Ken and EARC keeping that system in good order, by being reguler users and contributors. Good repeaters make good neighbors, or something like that...

I'm told Glen KA5PUB is plotting meterials for the upcoming Novice, upgrade, and "continuing education" ham classes - more info next time.

NEXT OIDAR meeting will be the December 10th holiday dinner meeting mentioned above. Hope to see you and a guest or two there...

73 - Doug - **N5DUB**

1	AERONAUTICAL	130
2	V H F CLUB	27
3	MORI, Inc.	232
4	AUTOPATCH CLUB	131
5	O U CLUB	28
6	ALTUS CLUB	26
7	BICENTENNIAL	12
8	SUBSCRIBER & EXCH	57
9	WHEATSTRAW CLUB	34
10	C O C O	136
11	EDMOND SOCIETY	33
12	QUARTER CENTURY	81
13	KAY COUNTY ARC	26
14	CIMMARON ARC	11
15	SOUTH CANADIAN	72
16	EDMOND CLUB	48
17	CP/M USERS	61
18	GREAT PLAINS CLUB	29
19	OKLA INDEPENDENT	14
20	ARDMORE CLUB	26

The YF talks to herself a lot She doesn't know she does - sh thinks we are listening.

Can HAMburgers be fried on th GRID of a DIODE and eaten of the PLATE and wouldn't the SPLATTER?

FOR SALE: Ten-Tec Argonot 80-10 5 watts, CW, SSB, 12v with matching Ten=Tec 50 watt amplifier 80-10. Includes all cables, manuals and Microphone. $150. DRAKE TR-3 transceiver 80-10, 300 watts, CW, AM, SSB with matching AC-3 power supply Includes all cables and manuals Very good condition. $250. Lore Simms, WA5CBF, 209 Mockingbird Dr N, Altus OK 73521, Phone 477-0921.

Q. R. Zedd

BULLETIN

LONDON (DNN) -- Q. R. Zedd, A5A, world's greatest DXer, told the world press today that he will activate the lost continent of Atlantis on all bands early in January. The usual DX frequencies will be used, both phone and CW, with added Oscar operations, Zedd added.

A YULE VISIT TO SEE ZEDD

Dashing through the snow,
On the way to see old Zedd,
O'er the fields we go,
Toward the towers glowing red.
Then Honor Roll is here,
A5A flag's at hand,
Oh, what fun to sip a beer
With the greatest in the land!

Oh --
Q. R. Zedd, Q. R. Zedd,
Q. R., you're the best!
No one ever topped you, Zedd,
In the East or in the West!

Standing in the shack,
We watch old Zedd make calls;
They always answer back,
And the rf heats the walls.
Momma writes the log,
Tondelayo serves the beer,
Oh, what fun for a DX hog
When Zedd sends Yuletide cheer!

Oh --
Q. R. Zedd, Q. R. Zedd,
Q. R., you're the best!
No one ever topped you, Zedd,
In the East or in the West!

Tondelayo's neat,
And Momma Zedd is cool,
But in the pileup's heat
Our Zedd is no one's fool.
Lights on towers gleam,
Signals pierce the night,
Oh, what fun to see Zedd's beam
Win every DX fight!

Oh --
Q. R. Zedd, Q. R. Zedd,
Q. R., you're the best!
No one ever topped you, Zedd,
In the East or in the West!

The Christmas tree shone bright,
The grog was world-class red,
But Christmas '85 was best
'cause we got to visit Zedd.
He worked 'em left and right
On phone or code instead,
Oh, what fun we had that night
When we met with Q. R. Zedd!

Oh --
Q. R. Zedd, Q. R. Zedd,
Q. R., you're the best!
No one ever topped you, Zedd,
In the East or in the West!

OK DX De AD1S.

OK DX RIDES

Absence from the hallowed pages of C & E has not meant that the OK DX crew lacked activity. Our trusty faithful have met each month at various establishments in the OKC area. Our "Holiday Meeting" will be held on Monday, December 9, 1985 at Harry's Oyster Bar & American Grill, Northwest Expressway, just east of Rockwell. The meeting gets underway between 5:30 and 6:00 P.M., but feel free to drop in anytime...even if you cannot stay long! We promise to get you home in time for Monday Night Football, and Harry's has FREE SHRIMP from 6 'til 7 PM! If you have any interest in DX or contesting, please try to visit OK DX for a relaxing, informal session.

UPCOMING DX STUFF

VK9NM - LORD HOWE ISLAND has been very active on 40 and 80 meters and is expected to continue through end of December. Listen on 3.503, 3.799 and 7.003 around local Sunrise.

ZK3AMO - TOKELAU ISLANDS is expected to be active through December 10. Not sure about the call sign, but station will be operated by Ron, ZL1AMO...QSL to home call. Look on "usual DX frequencies."

9U5BB - BURUNDI (Africa, dummy) has been heard with bone crushing signal around 1800 UTC on 21.088 Mhz. And you thought 15 meters was dead...

A5A - EVERYWHERE (beam heading 180 degrees) was heard working Challenger space shuttle on local repeaters - all of them - on Veteran's Day. Zedd is expected to work all continents (FROM each continent) on Thanksgiving Day, before the football games.

ZM8OY - KERMADEC ISLANDS. Remember the horrendous pileups for this one in 1984? Now ZM8OY can be heard on 20, 40 and 80 meters begging for calls. People must not be listening...because the bands are dead. (?)

PROPAGATION

Ten meters has been expectedly quiet with sporadic openings to Western Europe around 1700 UTC. The band opens to Central and South America during local daylight.

Fifteen meters has been a pleasant surprise, with good openings to Africa and Europe from 1300 to 1700 UTC. Rapid shift to Pacific before props fail in favor of Southern opening around 2200 UTC.

Twenty meters is still reliable daytime band, though some VK - ZL action has been heard as late as 0500 UTC.

Forty meters is still 40 meters. Better work your DX before the rag chewers elbow out the weak stations shortly after local Sunrise. The DX is still there, but you'll never hear it due to QRM.

Eighty meters has been exciting, though still lots of warm weather static. Your correspondent worked 26 new countries on this band in CQ World Wide DX Contests...and with a dipole! How about Pakistan at 0200 UTC, Pitcairn Island at 0430 UTC and Indonesia at 1200 UTC, all on 3.798 Mhz!

I have settled into my new employment and hope to see you at upcoming meetings at OK DX, and of course we will endeavor to make our deadline for C & E during the coming months. I would certainly appreciate your comments and suggestions for the column. Good DX, de AD1S.

PET PEEVE of the MONTH: The guy on the repeater who says "HI-HI" when he intends to laugh... I thought that HI (.... ..) was for CW mode. The end.

In '86, we know,
Pretenders will appear,
But down the tubes they'll go;
Zedd is the one we'll hear.
Finals glowing bright,
Tonsils all aflop,
Zedd will work 'em through the night
And always be on top!

Oh --
Q. R. Zedd, Q. R. Zedd,
Q. R., you're the best!
No one ever topped you, Zedd,
In the East or in the West!

-- Yule greetings from KU5B

(With the conclusion of 1985, C&E has now published 52 episodes in the continuing saga of Q. R. Zedd. The great man made his first appearance in the issue for September, 1981.)

The oratow was going great when the lights went out. He asked everyone to raise their hands. They did and the lights came on. "How come?", asked his friend. Said the orator, "Haven't you heard the old Chinese saying 'Many hands make light work'?"

Club
NEWS

W5LOU

Minutes of November Meeting

There wasn't one! Remember? It was picnic time and nobody wanted to conduct business at a time like that! The group of about 23 folks gathered at Will Rogers for the weiner roast and according to President Jerry, KD5IS, nobody went home hungry. I didn't make it because of a conflict but I am sorry I didn't. I missed a sample of Charlie, WA5JGU's famous venison chili and the perilous attempts to extract more than 20 Amps out of the lone convienence outlet. The group was able to get the club's coffee pot working OK though.

The VHF Club members would like to wish all their amateur radio friends and their families a very merry Christmas and all the other seasons greetings. I would like to add "May your New Year prosper and bring you happiness like you don't even deserve!"

Just a reminder, the Club's Christmas party will be December 14 (a Saturday night) at 7:00 P.M. It will be a covered dish affair consisting of desserts and snacks. I assume Charlie will be making his world famous punch. Rather than exchange gifts, a hat will be passed to make a contribution for needy children. Jim, K5VRL, will take care of making the contribution for us.

I liked the way the little notice looked last month, so I am gonna do it again. Joe, K5JB, Secretary

Notice!

Christmas Party

Saturday, December 14
7 P.M. at ARC Headquarters

Cover Dish; bring desserts, snacks, utensils. Coffee and punch will be furnished.
All
CORA members invited!

Amateur Conversion of the TV-36/TU-9 Transmitter's Triaxial Cavity to 2M

Glowing reports of the successful conversion of the AM-6154 and AM-6155 Linear Power Amplifiers to 2-Meter, 220 and 432 MHz operation led me to expect a similar adaption fould be made with TV-36 and TU-9 transmitters, obtained from Government surplus

Offhand it appeared the "coaxial" cavities used were the same, but it was known that a 4CX250 tube is used instead of the larger 8930 tube in the AM-6154. Fortunately I had an instruction manual on hand, and soon discovered there are two tubes in the TV-36 (or TU-9) assembly. A 6816 is used to drive the 4CX250. Both stages are normally biased AB for linear amplification of low-level AM modulated signals.

The manual also explained that a TV-36 (116-136 MHz) transmitter can be converted to a TU-9 (225-400 MHz) by disconnecting a series L-C circuit in the driver compartment, "switching" an intermediate cylinder in the PA cavity, using a different multiplier module (ahead of the driver), and a different bandpass filter in the PA output. The change is proclamed by turning the nameplate over to read "TU-9" with the same serial number.

I started off with a TV-36, cnecked it into a dummy load on the aircraft frequency last used, found it operative, and shut it off. Too risky QRMing those frequencies! It looked like too much trouble to find an amateur band crystal and tune up the whole transmitter. It was simpler to connect my faithful 2AT to drive the cavity assembly. I also took out the 116-136 MHz output filter, which might not pass 144-148 MHz.

The driver stage tuned up OK. It also provided plenty of drive to the PA. But, PA resonance could be found nowhere. It was hoped that some intermediate setting of the cavity "Band Switch" might permit tuning to 144 MHz. Multiple attempts finally produced a few watts output - far short of the 50-100 watts expected. It also turned out to be at 288 MHz. Surgery (or butchery) appeared necessary.

The instruction manual was explicit and adequate on how to get the cabinet and cavity disassembled. It is not a simple task, but it can be done. The cavity was found to be triaxial, with the main tuning done by moving a finger stock short within the inner cavity, but it is held in place with a set screw. The intermediate "barrel" is moved by the Band Switch to short its open end against the plate blocking capacitor. Figure 1 roughly depicts the mechanism, while Figure 2 is an equivalent schematic.

A trial modification was made by moving the slider in the inner cavity to shorten it by 1 1/2 inches. Re-assembly of cavity and transmitter found that bias and filiment leads should have been marked, because two of each are the same color. After that was

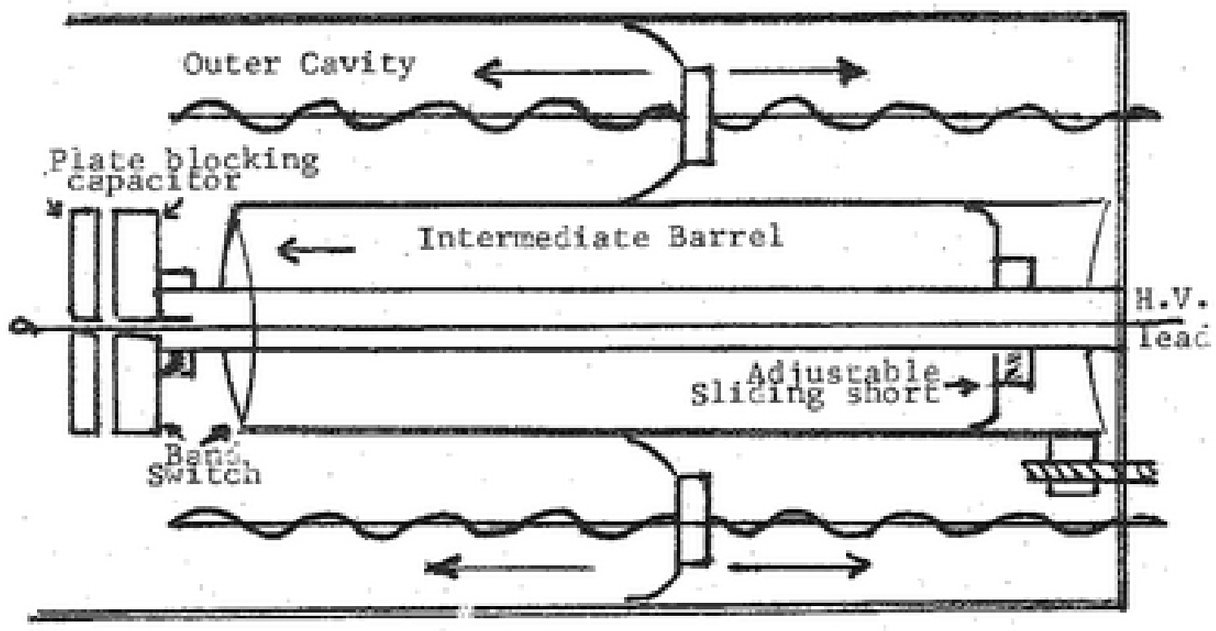


Figure 1. Cavity Mechanical Scheme

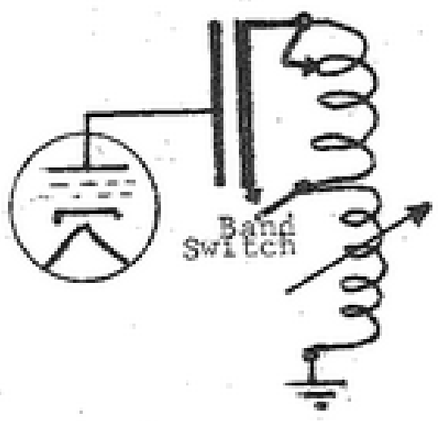


Figure 2. Equivalent Schematic

straightened out, normal no-drive voltages and currents prevailed.

Tune up with the modifications started out with great promise and the output was rising rapidly - too rapidly! I ZAPPED the plate blocking capacitor. The 2AT on "high" output provided too much drive.

It was some time before I got around to rebuilding the mica-insulated capacitor. But, when that was done, and a cautious "low" 2AT drive applied, the cavity tuned up OK near midscale, on 146 MHz. Increased bias on the driver allowed me to shift to "high" and obtain 120 Watts RF output on a Bird Wattmeter.

Experience with the cavity reveals its removal from the transmitter is not necessary in this modification. Do the following:

1. Take the access plate off the right side of the cabinet and cover off the PA tube compartment.

2. Remove four phillips-head screws at right of the 4CX250. This frees the inner side of the blocking capacitor and plate lead. (Be careful to get all hardware out of the PA compartment.)

3. Remove the 7 screws (accessible through holes in the gearplate) at right end of cavity. (Put something underneath to catch the hardware before you start.)

4. Carefully pull the gearplate and cavity "innards" out of the cabinet.

5. Adjust the PA tuning so the outer slider is near the middle of the intermediate barrel. Then, remove the plate lead lug and plate blocking capacitor (one set screw holds it on.)

6. Rotate the PA Band Switch until the intermediate barrel is free of its drive screws. Then move the barrel far enough to expose the set screw in the inner slider. Loosen the set screw and slide both barrel and slider out 2 1/2 inches (10 cm). Retighten the setscrew.

7. Leaving the inner slider at its new position, reverse the above procedure to re-assemble the PA cavity. If the PA Band Switch does not indicate properly, loosen the clamping ring on its gear end and slip the control. When reinserting screws in the gear-plate and tube cavity, use some goo on the screw heads and washers to hold them together and on to the screwdriver.

Conclusion: The TV-36 does not compare with the AM-6154 in either maximum output or work accessibility. But, band changing is simpler; and if 100 watts will do, you should be able to buy one for half the money.

Notes:

1. TV-36 & TU-9 are FAA equipment models.
2. Bob Ledbetter contributed greatly to the repair of the plate blocking capacitor.
3. the Built-in power meter indicated 150W but the Bird said only 120.
4. If conditions permit, I may be able to add a supplement on 440 MHz operation.

Ellard, W5KE

Amateurs Lose Part of 160

The following bulletin gives the news about losing part of "Top Band" to commercial interests:

ARRL Bulletin Nr. 96 from ARRL Headquarters, Newington CT Nov 4, 1985

To All Radio Amateurs,

By FCC Report and Order released October 31, Non-Government Radio-Location has been given primary status at 1900 to 2000 kHz. This action in PR Docket 84-874 relates to the projected allocation of 1605 to 1705 kHz to broadcasting, which will displace Radio-Determination stations in that range. Effective December 9, 1985, Amateur stations in the 1900 to 2000 kHz range must not cause harmful interference to the radio location service and are afforded no protection from interference arising from radio location operations. This is not as bad as it seems, however, as FCC will not accept applications from radio location stations at 1605 to 1705 kHz for moves to 160 until July 1, 1987. According to FCC, this means that amateur operators will continue to have virtually exclusive non-government use of 1900 to 2000 kHz until private radio-Location transmitters become operational.

January QST will carry further details. (end of Bulletin)

THIRD PARTY TRAFFIC OK WITH U.K.

The Federal Communications Commission announced an agreement, effective October 14, with the United Kingdom's Department of Trade and Industry, permitting third-party communications between amateurs in the United States and special events stations in the U.K. This applies only to U.K. special event stations using the prefix GB, but note that GB3 stations are excluded. Three conditions apply:

1) Communications are limited to conversations or message of a technical or personal nature too unimportant for a commercial message.

2) No compensation, either direct or indirect, may be received for the passing of such traffic.

3) Communications must accord with regulations for amateurs in each country.

(from Oct 24, 1985 ARRL Letter)

PACKET ON SHUTTLE?

AMSAT and the ARRL have sent a proposal to NASA requesting permission to develop a second Shuttle Amateur Radio Experiment (SAREX). SAREX I was the well-received WOORE SSTV experiment, and the proposed SAREX II would be a packet-radio experiment conducted by Dr. Ron Parise, WA4SIR. Ron, who will be a payload specialist on STS 61-E, has expressed a great desire to use packet radio from the shuttle.

SAREX II, if approved, will use a modified TAPR TNC-2, the Motorola 2-meter HT used by Drs. Garriott and England, and a lap-top microcomputer. The following "wish list" of operation modes is from in the AMSAT/ARRL proposal:

"The SAREX II experiment will have the capability to operate in several modes. Actual selection will depend on a number of factors including power considerations, operator availability, Shuttle location and other mission activities. The modes available are as follows:

"BEACON: (Unattended) Periodic transmission of an identifying text sequence. This sequence can be used by all ground stations for tracking and identification. Depending on configuration, this text can be from one line to several lines in length and may consist of a mission status report entered by the operator.

"KEYBOARD TO KEYBOARD EXCHANGE (Attended): This involves two-way real-time communication between the SAREX II operator and specific ground stations...

"STORE AND FORWARD MESSAGE DELIVERY (Unattended): This mode allows designated ground stations to access the SAREX II computer to post and retrieve stored messages. Such messages might be either for the SAREX II operator or another ground station, perhaps on the other side of the earth. (It is envisioned that this mode might be used to demonstrate the PACSAT concept...

"REAL-TIME RELAY (Unattended): This allows the use of the SAREX II to relay data between ground stations, just as Packet ground stations customarily do. This mode allows the SAREX II computer to be powered down to conserve power.

"ROBOT (Unattended): This mode allows ground stations to establish contact with SAREX II and receive a customized, but automated, acknowledgment. The rapid handling of such automatic contacts permits a large number of stations to participate in the experiment."

The SAREX II proposal has just been submitted to NASA, and the AMSAT Board of Directors will be discussing financing for the project at their general meeting (November 8 and 9). If SAREX II is approved, it will be up to packet radio clubs to make good use of the mission. It will be a good opportunity to show high-technology Amateur Radio in action. Via DRNET, via Gateway V2, No.6.

PACKET TRAFFIC DURING EARTHQUAKE

During the recent Mexico City earthquake, Syl Gookin, N1DKF, used packet radio to forward health and welfare messages to NTS stations in Texas. The messages were stored on Syl's MailBox in Rhode Island, went from there to WORLI on 2 meters, and then on to the W5XO MailBox on 20 meters. Syl says that most of the messages made the trip in less than 24 hours, and some replies reached his MailBox in as little as 36 hours. The messages were written as standard NTS radiograms, so that the Texas stations would have no trouble introducing them to NTS voice nets. Syl summarizes that "this method required minimal operator time, used alternatives to otherwise busy traffic channels, is error free, fast, and it works; because packet folks have exerted a large effort to put the packet network in place prior to the emergency and the folks at both ends of the link made the effort to handle the traffic." From N1DKF and NEPRA PacketEar, via Gateway V2, No. 6.

TNC-2 UPDATE

With 1200 TNC-2 kits sold and two commercial manufacturers marketing TNC-2 clones, TAPR is "basically done" with TNC-2 production. The TNC-2 has been another success for TAPR, and software enhancements introduced in the TNC-2 are already appearing in commercial TNCs.

People who bought TNC-2s early on (before serial number 501) should watch the next issue of the TAPR PSR Quarterly. This newsletter will provide details on how to upgrade TNC-2 Rev-1 pc boards to TNC-2 Rev-2 boards. Rev-2 boards have extra RAM, a better heat sink for the power supply, less RFI, enhanced software and a few other nice additions.

If you still want to build a TNC-2 kit, don't despair. GLB, manufacturer of the PK-1 and PK-1L TNCs, is introducing a TNC-2 clone called the TNC-2A. The TNC-2A kit uses the same documentation, software and hardware (including the low-profile cabinet) as the TAPR TNC-2. Although standard TNC-2As will use some NMOS parts, a low-power, all-CMOS version will also be available. TNC-2A is priced at $170, and should be available before Christmas. To place an order, contact:

GLB Electronics
151 Commerce Parkway
Buffalo, NY 14224
716-675-6740.

(From WB9FLW and GLB via Gateway, V.2, No.6.)

TNC-2 Notices to Owners

The following notes were taken from Compuserve's Hamnet. They are of particular interest to owners of Tucson Amateur Packet Radio (TAPR) TNC-2s:

#: 34633 S9/Packet/RTTY/AMTOR
10-Nov-85 09:39:21
Sb: TNC2 Changes
Fm: HamNet*SYSOP Scott W3VS 76703,407

To: All

The following message ported from DRNET:

M 12380 Pete Eaton (WB9FLW,2970)
11/9/85 9:44 PM L:21

To: All

From: TAPR

Subject: Important TNC 2 Information!!

Feedback from the field has shown two serious problems that ALL TNC-2 owners should be aware of!

If the Lithium battery is not mounted flush against the board and/or the PC board is warped it is possible that the case can be shorted to ground.

All owners should insulate the top of the battery with a piece of electrical tape.

Notice to owners of Radio Shack Model 3 and 4 remove R14, R15, & R16. These resistors have been shown to draw excessive current to the point of damaging the board!

Please open your unit and make this modification immediately.

(end of message, one to follow)

#: 34634 S9/Packet/RTTY/AMTOR
10-Nov-85 09:39:48
Sb: New Packet Business
Fm: HamNet*SYSOP Scott W3VS 76703,407
To: All

The following message ported from DRNET:

M 12482 Gwyn Reedy (W1BEL,2975)
11/10/85 7:35 AM L:15

TO: The Packet Radio Community (Wide Distribution Encouraged)

FROM: Gwyn Reedy, W1BEL

SUBJECT: New Packet Radio Enterprise
Andy DeMartini (KC2FF) and I have started an enterprise to support the packet radio community. We will be doing business as Packet Radio Systems in Tampa, Florida. This is a private venture, fully separate from our volunteer work with TAPR and FADCA. Packet Radio Systems is purchasing the OEM kit for the TAPR TNC2 and will very shortly have available TNC2 bare boards, hard-to-find parts kits, full kits, cabinets, etc. Prices will be set with the builder and experimenter in mind. Other products are planned for the immediate future. Watch for our advertisements for details on these items to support the innovators in Amateur Radio.

(Your comments are welcome. I intend to continue working for FADCA and TAPR in a volunteer capacity. This new venture won't have any effect on my editorial policy with the publications I edit! Gwyn)

Amateur Radio and the News

The ARRL, in its October 24 issue of the ARRL Letter, had an interesting analysis and some thought provoking comments regarding recent FCC monkeying with the regulations in Part 97. (It also contains the revisions which you can make by pen and ink in your copies of the regs.) For example, a narrow interpretation of the rules would end my 15 year involvement with the Oklahoma Traffic and Weather Net which meets on 75 Meters in the evenings. Portions of that ARRL Letter follow:

AMATEUR RADIO, NEWSGATHERING AND BROADCASTING

"The Commission's Rules generally permit rebroadcasts of transmissions of stations in non-broadcast radio services, but prohibit the use of stations in services not allocated for broadcast purposes to transmit communications intended for broadcasting."

Such was one of the many comments read out by FCC in last June's Report and Order terminating the proceeding in BC Docket 79-47. It seems straightforward enough. The heading for 79-47 reads "In the Matter of Amendment of Parts 73 and 97 of the Commission's Rules Concerning Rebroadcasts of Transmissions of Non-Broadcast Radio Stations"; the intent of the proceeding was to clarify what use could be made of non-broadcast radio by broadcast users of radio (and television!). Has it?

Some say yes and some say no. FCC was pretty sure it had covered all the bases. In the text accompanying the rules changes ordered in 79-47, FCC touched upon broadcasting, Amateur Radio, General Mobile and CB interests. The Commission related how it had dealt with a request from the National Association of Broadcasters for the amendment of the rules to permit broadcast stations to rebroadcast CB emergency transmissions and to permit amateur stations to transmit emergency and public safety information for broadcast and broadcast-related purposes. Congress had modified Section 605 of the Communications Act of 1934 to eliminate the statutory proscriptions on the unauthorized interception of Amateur Radio and CB transmissions. Another modification of 605 in October 1984 did nothing to alter matters relating to privacy or rebroadcasts of Amateur Radio and CB communications. FCC had decided to undertake "a comprehensive review and revision of its regulations with respect to rebroadcasts of transmissions of non-broadcast radio stations." Another log on the fire was the interaction between the broadcast media and Amateur Radio when the U.S. invaded Grenada in October, 1983. What about cooperation between Amateur Radio and the National Weather Service; the collection of weather data, the spotting of tornadoes and their associated severe storm systems? It all had to be dealt with comprehensively in BC Docket 79-47. The outcome was the 18-page document released by FCC on June 13, 1985. The Report and Order revised several sections of Part 97, the Rules for the Amateur Radio Services; these revisions were covered briefly in August 1985 QST's Happenings, and in greater detail in Washington Mailbox, September QST. The full text of these revisions follows this piece.

Glossed, the revisions to Part 97 redefine "emergency communications," add a prohibition of broadcasting to the rules pertaining to repeater operation, and slightly alter the text of the rule prohibiting business communications. There is great expansion on the theme of Section 97.113 ("Broadcasting and broadcast-related activities prohibited"): what was a two-sentence paragraph was revised to detail in nine paragraphs the dividing line between Amateur Radio and broadcast work. In paragraph 20 of the discussion accompanying these revisions, the Commission says that "we are revising the amateur rules and including specific provisions to prohibit use of amateur stations for broadcast news gathering or production purposes as proposed. These rules will prohibit use of an amateur radio station as a remote pickup or auxiliary link broadcast service facility. Such uses of an Amateur Radio station as

forwarding weather reports or providing commuter traffic reports for use in any broadcast context will continue to be expressly prohibited." That seemed to nail things down pretty well.

Some customers weren't satisfied; ARRL, for one. The League took exception to the narrowing of the definition of "emergency communication" as set forth by the Report and Order (see "Petition for Reconsideration," below). The original Notice of Proposed Rulemaking in 79-47 hadn't proposed such a revision, and the original definition was adequate. Inconsistencies between the letter of the Part 97 revisions and the preceding comments by FCC might require "snap judgments" on the part of amateur operators as to the legality of a given communication.

The National Association of Broadcasters (NAB) and the Radio-Television News Directors Association (RTNDA) were similarly concerned with discrepancies between the revised amateur rules and FCC comment. "The Commission should permit amateur radio operators to cooperate with broadcast journalists to gather and report news during broadly defined emergency situa tions . . . the danger is that the black-letter rules . . . can be read narrowly as restricting significantly the ability of broadcasters and amateur radio operators to provide information of vital interest to the public during periods when such information cannot be transmitted in a timely fashion by other means of communication."

The National Weather Service wasn't satisfied. Interpretations of the revised Part 97 in the 79-47 Report and Order from some sources in the Amateur Radio media had participation in severe weather spotting nets drying up. Couldn't Amateur Radio relay reports of threatening weather to NWS, or did it have to wait for actual tornadoes to drive actual straws through actual fence posts (or houses, or people) before reacting to an "emergency"? Could Amateur Radio report on a cracked dam that hadn't broken?

The cracked dam broke, so to speak, on September 19, 1985, when the first of several terrific earthquakes struck Mexico. Print and electronic news media descended on ham shacks in force. There was raw newsgathering in the ham bands. Perhaps worse, amateur frequencies were used for the passing of business traffic many observers say went beyond what was called for by the earthquake emergency. What, in the language of the final Report and Order in BC Docket 79-47, could have allowed this?

It will go down in amateur history as "the rule of reason." The black-and-white revisions of Part 97 in the Order prohibit newsgathering right enough. But there was something else; something ARRL had questioned in its July Petition for Partial Reconsideration. It had raised eyebrows at NAB and RTNDA as well. In paragraph 22 of the discussion preceding those revisions in the Order, FCC had opined: "We note that a rule of reason applies when interpreting this emergency exception to the broadcast prohibitions in the Amateur Radio Service. Thus, conveying news information directly relating to an unforeseen event which involves the safety of human life or the immediate protection of property falls within this rule of reason, if it cannot be transmitted by any means other than amateur radio because of the remote location of the originating transmission or because normal communications have been disrupted by earthquake, fire, flood, tornado, hurricane, severe storm or national emergency . . ."

Boom. There it is. That was the loophole. That's what was behind the newsgathering and questionable business traffic you may have heard on amateur frequencies during the Mexican earthquake disaster. The clinker is that the letter of the rules prohibited much of what went on, no matter what related opinion in the 79-47 document had to say. Informal comment from FCC subsequent to all this has indicated that such use of amateur frequencies wasn't what they'd had in mind at all! But informal comment is just that: non-binding, unofficial.And what of the National Weather Service's plaint: shrinking participation in spotting and reportage of tornadoes, hurricanes and other severe weather on the part of radio amateurs who wish to continue their tradition of serving the public interest the best they know how, while sticking to the rules? Official clarification on a number of points in Docket 79-47 may be in order.

To update your copy of The FCC Rule Book, revise paragraph (d) of Section 97.3 (Definitions) to read as follows:

(w) Emergency communication. A nondirected request for help or a distress signal directly relating to the immediate safety of human life or the immediate protection of property.

Paragraph (d) of Section 97.85 (Repeater operation) is revised to read as follows:

(d) A station in repeater operation shall be operated in a manner ensuring that it is not used for broadcasting (see Section 97.113).

Section 97.91 (One-way communications) is removed and reserved.

Section 97.110 (Business communications prohibited) is revised to read as follows:

The transmission of business communications by an amateur radio station is prohibited except for emergency communications (see Section 97.3(w)).

Section 97.113 (Broadcasting prohibited) is revised to read as follows:

Section 97.113 Broadcasting and broadcast related activities prohibited.

(a) An amateur station shall not be used to engage in any form of broadcasting, that is, the dissemination of radio communications intended to be received by the public directly or by intermediary relay stations.

(b) An amateur station may not be used for any activity directly related to program production or news gathering for broadcast purposes.

(c) An amateur station shall not retransmit programs or signals emanating from any class of radio station other than amateur, except for emergency communications (see Section 97.3(w)).

(d) The following one-way amateur transmissions are not considered broadcasting:

(1) Beacon or radio control operation;

(2) Information bulletins consisting solely of subject matter relating to amateur radio;

(3) Transmissions intended for persons learning or improving proficiency in the international Morse code; and

(4) Emergency communications (see Section 97.3(w)).

(e) Round table discussions or net operations where more than two amateur stations are in communication with one another are not considered broadcasting.

ARRL WOULD LIKE THE EVIDENCE

The cooperative emergency communications work between amateurs, "served agencies" and the media which occurred following the Mexican earthquakes in September was generally outstanding, an excellent example of service in the public interest, convenience or necessity. At the same time, there were some instances in which media personnel stretched the "Rule of Reason" to the breaking point by using Amateur Radio for business rather than communications. In order to reduce the chances of abuse next time there is a widespread disaster, League Hq. would appreciate receiving (in the next week or two) tapes or other firm evidence of misuse by the media which can be used in a low key way to correct the problem. (Oct 24, 1985 ARRL Ltr.)

Special Thanks to W5KE

I want to give special thanks to Ellard, W5KE, who prepared the article on the TV-36/TU-9 modifications for this issue. He had it all beautifully typed up and figures drawn, ready to go. I could have pasted it right in except it was in the old format (4.6 inches wide columns). Thanks Ellard! And to all the rest of you, Sincere Seasons Greetings! Joe, K5JB

THE BIG SIGNAL

OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

SINCE THE C&E DEADLINE IS A WEEK EARLY THIS MONTH DUE TO THE THANKSGIVING HOLIDAYS, THIS MONTH'S COLUMN IS BEING WRITTEN BEFORE THE NOVEMBER MEETING.

THE SKED: OUR DECEMBER MEETING IS SCHEDULED FOR TUESDAY, DEC. 17 AT 7:30. THE PLACE HAS NOT BEEN DETERMINED AT THIS WRITING. WE WILL NOT BE ALLOWED TO SERVE FOOD AT OUR USUAL MEETING PLACE. THIS IS OUR ANNUAL CHRISTMAS PARTY. ALL AREA HAMS AND THEIR FAMILIES ARE INVITED. EACH PERSON SHOULD BRING A "WHITE ELEPHANT" GIFT WRAPPED AS A CHRISTMAS PRESENT. BRING A COVERED DISH DINNER AND WE'LL ALL SHARE AND HAVE A GOOD TIME.

OUR EXEC COMMITTEE MET SUNDAY, NOV. 17 INSTEAD OF THE ANNOUNCED THURSDAY 6 P.M. TIME DUE TO SCHEDULING DIFFICULTIES. AT THIS MEETING WE DECIDED TO CHANGE OUR EXEC MEETINGS TO THE WEDNESDAY EVENING PRIOR TO THE REGULAR TUESDAY CLUB MEETING NIGHT. THIS CHANGE WILL TAKE EFFECT IN JANUARY, 1986. THE DECEMBER 85 EXEC MEETING WILL TAKE PLACE SUNDAY AFTERNOON, DEC. 15, TIME DEPENDING ON THE FOOTBALL SCHEDULE.

THE NEWS: AT THE EXEC MEETING MENTIONED ABOVE, BUDDY, KE5LD, READ A LETTER FROM ACC, THE MAKERS OF OUR RC-850 REPEATER CONTROLLER. THEY WILL BE SHIPPING THE EXPANSION MODULE FOR OUR CONTROLLER SOON. AT A FUTURE MEETING WE'LL ASK BUDDY TO EXPLAIN WHAT GOOD THINGS WE CAN EXPECT FROM THIS NEW CIRCUITRY.

ALSO AT THE EXEC MEETING, GUEST BOB, W7LOU, REQUESTED THE CLUB CONSIDER ALLOWING A SATURDAY MORNING "SWAP" NET. THIS PROPOSAL WAS SCHEDULED BY THE EXECS FOR PRESENTATION TO THE MEMBERSHIP TUESDAY, NOV. 19.

WARNING: OUR APRIL MEETING PROGRAM WILL FEATURE A "CRAZY ANTENNA" CONTEST. ENTRIES WILL BE LIMITED TO TWO-METER AND MAYBE 440-MHZ ANTENNAS. START GETING READY NOW. DETAILS WILL FOLLOW IN THIS COLUMN.

OUR V.P. DON, WD5ISS, IS HEAD OF OUR CORA COMMITTEE AND PRES. OF CORA. HE HAS APPOINTED CORA DELEGATES FROM OCAPA. THE LUCKY ONES ARE: KATHY, WB5NDO; TIM, KA5NNT; CHARLES, N5FMU; DON, NO5M (ALTERNATE); AND CHUCK, K5NK (ALTERNATE).

OUR FIELD DAY '86 COMMITTEE IS HEADED BY CHARLES, N5FMU. HE HAS PUT TOGETHER A PLAN THAT IS VERY IMPRESSIVE. GET IN ON THE FD '86 ACTION. CONTACT HIM AND I'M SURE HE CAN FIND A PLACE FOR YOU.

OUR REPEATERS ARE WORKING WELL. MAYBE 444.3 IS A LITTLE SICK. WE'LL TRY TO ENCOURAGE DENNIS TO GIVE IT A LITTLE TLC. IF YOU WANT SOME REPEATER EXPERIENCE (BELIEVE ME, IT'S AN EXPERIENCE), CONTACT DENNIS, WD5CSM AND OFFER YOUR HELP.

REMEMBER THE "OFF" SWITCH.

HAPPY HOLIDAYS TO YOU AND YOURS,

73 DE NO5M

On the Rifle range the sergeant explained: "This type of bullet will penetrate two feet of solid wood...so be sure to keep your heads down."

... I heard . . NK needs a stimulant every night - like a redhead or a blonde.

Mac tells me that medicine is getting really expensive. Some doctors are requiring a deposit when they hand you a specimen bottle.

Sue says she has a new vanishing cream, it takes the wrinkles out of your face and moves them to where they won't show.

The son came home the other day and said he got a 98. (His teacher took his temperature.)

We were in a QSO with a K7 the other day and he said his clock fell on the floor. We asked him if the clock stopped. His comment was, "Of course it did! You didn't think it would go right through the floor, did you?"

Here is another VE Exam. There will be Amateur Tests given, Novice thru Extra,

DATE December 21 (Saturday)
TIME 10:00 am
PLACE KF Industries Lunch Room
1500 SE 89th
Oklahoma City OK
Pre-Registration not required !
(Walk - ins Only)
Phone Contact:
(405) 794-7398 HAL (After 5 pm)
(405) 672-5564 GEORGE (after 5)
(405) 631-1533 ORLIE or HAL
(8:00am to 5:00pm)
Talk-in: 146.55 Simplex

"as I said to John"

This series of articles on technical topics starts with a look at receivers; how their performance is specified, and what can be expected of a good receiver.

SENSITIVITY first, not because it is the most important, but it is oft quoted and is familiar to most. The sensitivity represents the smallest level of signal that a receiver can resolve under ideal conditions—with no other signals present, and it is usually quoted as the signal required at the antenna input of a receiver to produce a certain signal-to-noise ratio at the audio output. The nature of the signal depends on the mode of the receiver, but would generally be normally modulated AM or FM as appropriate, or an unmodulated carrier for single-sideband receivers.

The input signal level can be quoted as voltage (in microvolts) or as power level (usually in dBm). Zero dBm is defined as 1 milliwatt, so for a 50 ohm antenna input, 1 uV is equivalent to −107 dBm, and 0.1 uV is equivalent to −127dBm. Voltages are mostly specified as PD − the potential across the input of the receiver, but occasionally EMF is specified, which is the voltage before the 50 ohm source impedance is taken into account. The EMF value is always twice the value of the PD voltage.

Signal-to-noise ratios are usually chosen to represent signals that would be easily readable for phone communication, thus 10 dB S/N is normally specified for AM and SSB operation and 12 dB S/N for FM. Weak FM signals often produce large amounts of distortion in receivers, and for this reason FM sensitivity is quoted at 12 db SINAD. The SINAD ratio is similar to the S/N ratio, but distortion is included as noise and not signal. In the case of AM or SSB, the S/N and SINAD ratios are very similar.

Another commonly used S/N ratio is 3dB; also known as the minimum determinable signal (MDS)—this is the limit of an intelligible phone signal on AM or SSB. CW signals can, of course, be read at lower S/N ratios than this. Because the S/N is the ratio of SIGNAL + NOISE to NOISE, a value of 3 dB (ie 2 times in terms of power) means that the signal and noise powers are equal. This means that the input signal required to produce a 3 dB S/N ratio is of equivalent power to the noise generated within the receiver, and is thus equal to the NOISE FLOOR of the receiver.

How can the results at different S/N ratios be compared? FM is not obliging, and sensitivity figures should be compared at equal SINAD values. With AM and SSB receivers, however, the output signal level rises proportionally with the input signal, until the receiver gain is reduced by AGC action, so the input required for, say, 10 dB S/N can be calculated if we know the signal level at the input to produce 3 dB S/N: At 3 dB S/N the output noise and signal powers are equal. At 10 dB S/N the output signal power is 9 times the noise power. It is reasonable to assume that the noise power remains constant, so the input power for a 10 dB S/N ratio will be 9 times that for a 3 dB S/N ratio. This is equivalent to a factor of 3 times in input voltage, or about 9.5 dB. To summarise:-

In microvolts:
MDS = Noise Floor = (3 dB S/N sens) = 1/3 (10 dB S/N sens)
In dBm:
MDS = Noise Floor = (3 dB S/N sens) = (10db S/N sens)—9.5 dB

What determines receiver sensitivity?

There are two main factors—the amount of noise generated in the receiver's RF and IF amplifiers and the bandwidth of the receiver. The stages at the front end contribute most to the total noise in a receiver since the noise that they generate is amplified by subsequent stages. The overall gain of a receiver is not a primary factor affecting sensitivity, and for this reason an RF pre-amplifier will only result in a more sensitive system if it generates less internal noise than the first stage in the receiver.

The noise present in receivers behaves as 'white' noise, in that it contains components at all frequencies at equal levels. The bandwidth filters in a receiver allow only a small portion of the frequency range to contribute to the output noise, but the wider the filters are, the more noise gets through. We would expect to get about twice as much noise power through a 2 kHz filter than through a 1 kHz filter, so a signal that would pass through either filter would have a higher S/N ratio with the 1 kHz filter than with the 2 kHz one. The sensitivity of a receiver improves as the filter bandwidth is reduced, provided that the signal will pass through the filter. The sensitivity of a receiver with a 500 Hz CW filter fitted should be about 6 dB greater (half the input voltage) than with a 2.4 kHz sideband filter, so be careful to compare sensitivities at similar bandwidths, or apply a correction.

A measure of sensitivity that does not involve bandwidth is NOISE FIGURE. All receiving systems have an inherent noise floor that is produced by thermal agitation of electrons. This is THERMAL NOISE or JOHNSON NOISE. The power of thermal noise is dependent on bandwidth in the same way as noise in a receiver, and is also dependant on temperature. The NOISE FIGURE of a receiver is the ratio of its noise floor to the thermal noise floor. It is usually expressed in dB. At room temperature, the thermal noise power is about −144 dBm in a 1 kHz bandwidth, and about −141 dBm for a typical SSB filter bandwidth.

A receiver with a 10 db S/N sensitivity of 0.15 uV (−123 dBm) would have a noise floor of −133 dBm and a noise figure of about 8 dB. TNX WB5JJJ

Next month

More on noise figure, and how sensitive should a receiver be?

AMATEUR ANTENNAS AND THE LAW

THERE ARE IN SOME COMMUNITIES CERTAIN RESTRICTIVE ORDINANCES AND CONTRACTUAL REQUIREMENTS THAT WOULD DENY THE AMATEUR RADIO OPERATOR THE RIGHT TO HAVE AN OUTSIDE ANTENNA.

THERE MAY BE SOME JUSTIFICATION OF SUCH RESTRICTIONS AS A SAFETY MEASURE BUT ONLY A FEW COMMUNITIES HAVE DEFINED WHAT A "SAFE" STRUCTURE WOULD BE. IT WOULD BE REASONABLE THAT SUCH ANTENNAS WOULD CONFORM TO SPECIFIED ENGINEERING SAFETY STANDARDS, BUT TO ARBITRARILY DEEM THE ANTENNA "UNSAFE" IS NOT THE PROVINCE OF ANY GROUP OR INDIVIDUAL.

IN LIEU OF SAFETY REQUIREMENTS, MOST OF THESE RESTRICTIVE ACTS SIMPLY SEEK TO BAN OR SEVERELY LIMIT THE USE OF OUTSIDE ANTENNAS.

IN EFFECT THESE RESTRICTIONS ARE BASED ON THE AMBIGUOUS THEME THAT AN ANTENNA IS SOMEHOW UNSIGHTLY AND WOULD LOWER THE ADJACENT PROPERTY VALUES.

IF THIS ARGUMENT SOUNDS FAMILIAR, IT IS. IT IS THE SAME ARGUMENT ADVANCED TO RESTRICT THE SALE AND OCCUPANCY OF PROPERTY BECAUSE OF RACE OR RELIGION.

A RADIO AMATEUR HOLDS A RADIO STATION LICENSE THAT WAS OBTAINED BY WRITTEN EXAMINATION AND BY MEETING RIGID REQUIREMENTS OF CHARACTER AND TECHNICAL COMPETENCY. HIS STATION IS LICENSED AS A PUBLIC SERVICE. THE SERVICE RENDERED BY RADIO AMATEURS IN WAR AND EMERGENCY, PLUS THEIR CONTRIBUTIONS TO THE DEVELOPEMENT OF THE COMMUNICATION ART REQUIRES NO ELABORATION.

TO DENY A RADIO AMATEUR THE RIGHT TO ERECT AN ANTENNA ON HIS PREMISES IS TO ESSENTIALLY DENY HIM THE USE OF HIS STATION.

SATISFACTORY COMMUNICATIONS ANTENNAS CANNOT BE CONCEALED IN A HOME OR APARTMENT.

TO PROPOSE OR CONDONE SUCH RESTRICTIONS DENIES THE FULL AND NORMAL USE OF PRIVATE PROPERTY AND ARBITRARILY IMPOSES AN UNTENABLE SITUATION ON THE HOLDER OF AN AMATEUR RADIO STATION LICENSE.

THE LEGALITY OF SUCH RESTRICTIONS IS QUESTIONABLE AS THEY ARE INVASION OF BASIC RIGHTS.

WADE WILLIAMS W9BC

THE TWELVE EQUATIONS OF OHM'S LAW

W =	EI	I^2R	$\frac{E^2}{R}$			
E =		IR		$\sqrt{WR}$		$\frac{W}{I}$
I =			$\frac{E}{R}$	$\sqrt{\frac{W}{R}}$	$\frac{W}{E}$	
R =	$\frac{E}{I}$				$\frac{E^2}{W}$	$\frac{W}{I^2}$

STANDING WAVE RATIO

Standing Wave Ratios — there are two kinds. The standing wave ratio is a direct measure of the ratio between two impedances; i.e. an SWR of 3 to 1 tells us that one impedance is three times the other. Therefore, the unknown impedance can be either three times as large or three times as small as the known. If the desired impedance that the Transceiver wants to see is 50 ohms, an SWR of 3 to 1 on the line may mean a load impedance of either 150 ohms or one of 17 ohms. If it is 150 ohms, the transmitter will act differently than if it is 17 ohms. In the first case, the power demanded from the power supply will be much lower, and will not be large enough to trip the power supply breaker. In the second case, even through the SWR reads the same, the supply may repeatedly trip out. The SWR gives no indication of reactive components, nor can it separate the resistive from the reactive components. It is calibrated with a pure resistive load and therefore has its greatest accuracy with pure resistive loads. The SWR bridge should be used only as an indicator when attempting to adjust antenna systems to a pure 50 ohm resistive impedance at the transmitter out put point.

The above from the TEN-TEC Owner's Manual

Karl White — K4DQ

S A N T A ' S W O R K S H O P

If you think your holiday bills were high, consider St. Nick's. His expenses were:

WATS lines for incoming requests - $10,337.

Temporary help - fifteen clerks to process requests - $45,000.

100 elves - Toymakers earn $5.49 per hour or $11,419.20 per year; benefits add $4,110.91 for a total labor cost of $1,553,011.20.

Personal computer with battery pack for making and doublechecking lists - $2,120.

Toys - Spending $10.00 per child for the worlds 553,254,000 children aged 0 to 5 makes Santa's toy bill a whopping $5,532,540,000. For naughty boys and girls, Santa needed coal at $38.50 per ton.

Batteries - Batteries are not included so Santa is spared this expense.

Reindeer maintenance - To keep his flight crew in tip-top shape, Santa pays a keeper, who works two hours a day at $9.52 per hour for an annual cost of $6,949.60. His reindeer (eight plus Rudolph) consumed $1,806.75 worth of groceries annualy. Santa is able to avoid the high cost of medical care because reindeer are generally healthy. But Santa needed $2000.00 in his savings account to buy a reserve reindeer should the flu strike on Christmas eve.

Sleigh tuneup - $30 for repainting the sleigh and oiling the harnesses.

Insurance premiums - Property damage cvoverage (to cvover any necessary roof repairs), $1,500; travel insurance (one day coverage) $5.15.

Clothing allowance - Red suit, complete, $250; thermal underwear (polefin/nylon blend size XXXl) $45.

Air traffic control fees - Luckily for Santa, the FAA says it waives this fee for him.

Dry cleaners - Man's suit $3.50.

The grand total of Santa's trip is $5,534,169,367.33. But that's only half of one percent of the US national debt. Santa said: "For the amount of joy I brought, it was a bargain."

QSP, Tampa Bay Repeater

ISN'T IT STRANGE ?

When the English tongue we speak
Why is break not rhymed with freak
Then tell me why it's true
We say sew and likewise few.
And the writers of poetic verse
Cannot rhyme his horse with worse!
Beard sounds not the same as heard,
And cord is different than word;
Cow is cow but low is low;
Shoe never rhymes with foe.
Think of goose and then with choose;
Also comb and tomb and bomb.
Doll and roll and home and some.
And since pay is rhymed with say,
Why not paid with said, I pray?
We have blood with food and good,
Mould is not pronounced like could.
Is there any reason then, that we
Have sounds and letters disagree?

Have you hears any of these speech synthesizers used with home computers? The above poem illustrates the extreme difficulty with artificial speech.

HAM HAPPENINGS

REFER TO CLUB SECTION FOR SPECIFICS

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	**MORI** CHRISTMAS DINNER 3	VE EXAMS SEE SCARS SECTION 4	**Aeronautical** CHRISTMAS DINNER 5	6	**Great Plains** CHRISTMAS DINNER 7
Wheatstraw CHRISTMAS DINNER WATONGA 8	**EDMOND Club** CHILI & STEW 9 DINNER	**76'ers** OU OIDAR 10 DINNER	11	**ALTUS AREA** 12 CP/M	TELECONFERENCE RADIO NET on A.C.S.S.B —8 P.M.— 13 147.030 MHz	**ARDMORE** VHF Club **COCO** XMAS DINNER→ **SCARS**
15	**CIMARRON** COLLECTOR - EMITTER 16	**AUTOPATCH** CHRISTMAS DINNER SOMEPLACE 17	18	**KAY County** 19	EARS CHRISTMAS DINNER 20	VE EXAMS KF INDUSTRIES 21
22	VE EXAMS AT RED CROSS 23 6PM	24	**25** CHRISTMAS DAY	26	27	28
29	30	31	**1** HAPPY NEW YEAR		**DECEMBER**	

The managing editor assumes no responsibility for the data contained herein.

MORE COCO

d) We will try to get some more of the gel to use on the contacts on disk controllers.

e) The new DAK catalog offers a low cost ($90) Gorilla Banana Printer and an Info Grabber inexpensive phone/modem for only $49. There seems to be about a 4 week waiting period however.

f) Tom Mangham is going to modify his COCO to 256K. We're all waiting on your report, Tom!

7. Software - On this months Club disk there is a public-domain graphics editor called McPaint. The documentation file is there also. If anyone can get this program to dump to a DMP-110 let us know. A DMP-105 will work with the program.

b) Bob Striegel needs a patch to slow down key repeat in Telewriter.

c) Mark Data products has a utility program that runs on the IBM PC that will convert COCO format programs to MSDOS format and vice-versa. Hope to hear more about this after it has been tested by some members of our group.

8. Door Prizes - lucky winners included:

Greg White - keyboard
Bill Gillum - power strip
Paul Asplin - disk file box
David Roberts - diskbank file box
Brenda Morral - Hot Coco
Tom Brewer - Rainbow
Eric Gillum - box of disks
Steve Goodspeed - Chromacassette
DJ Hardy - OS9

Ron Folks and Larry Loe donated several games and cartridges which were won by:

Mike Frazier, Marc Bosley, Joe Harding, Daniel Allen, Cecil Borin, Adrian Long and Ron Walker.

Thanks to Paige Derryberry for drawing for the door prizes. Many of the door prizes are purchased with profits from the coffee/donut fund and the two ongoing disk projects.

9. MABEL - MABEL may be purchased by club members. See one of the club officers if you need a copy. Please, do not upload MABEL on the net. Cost is $20.00 to non-members.

10. A reminder - All dues ($10.00/year) will be due at the December meeting. Since we will be closing our set of books prior to the new officers' taking the reigns in January - we would like to have accurate records.

Hope to see all of you on the 2nd Saturday of December at our next COCO meeting!

Happy Thansgiving!!
Secretary/Treasurer
Kaye Derryberry

WANTED: Fundamental crystals for 40, 30, 20 meters. We7're poor and are learning to build simple tube type CW QRP rigs like used back a few years ago. If anyone wants to part with any that are collecting dust in the junk box or are willing to sell cheap, please contacr Mike, KA5TSD, at 672-9176 or Don, KA5UOS at 348-1669.