CENTRAL OKLAHOMA CHAPTER #63
CHARTERED MARCH 19, 1973

Q. R. Zedd

Central Oklahoma Radio
Amateurs

FOREST PK., OK(NL) Nov. 19, '87:
During last Sunday's
On-The-Air-Meeting Ralph
Rea, W5AA expressed the
sentiments of this Chapter's
membership with sincere thanks
to Howard, W5AS for his
tireless effort in fulfilling
so ably the myriad of duties
required of this Chapter's
Secretary. Many who heard this
pronouncement echo-ed these
sentiments over the air. Might
suggest a few kind words to
Howard when you return your
SASE. Am also certain he will
gladly accept any
"Growls, beefs, yells etc" as
stated at bottom of his
November 15, 1987 NEWS LETTER.
(ED)

QCWA, Chapter 63's on-the-air
operation during Oct. '87 as
follows:

SESSIONS	4
CHECK-INS	167
TRAFFIC	20

Sincere wishes & greetings to
the following members with
December '87 Birthdays.

04 Judy Garrison	YL N5JDP
10 Cernie Oldfield	YL W5AYL
10 Hernan (Tiny) Irwin	W5NBH
17 Harold Soard	OM W5OQT
19 George Clark	W5JKK
19 Eunice Holt	YL W5DDI/SK
23 Frank Berry	K5KKF
25 Roy Garrison	N5JDP
30 Charles Shaefer	W5WL
30 Benjamin F. Allen	K5IRO

We now have a total of (5)
five new members; thus far
during 1987. Our two latest
members have not been
mentioned in previous C&E's,
as follows:

Mr. Gail D. Benson, W5ADV.
Gail received his first
license April 1928, now has a
General ticket and currently

CONTINUED ON PAGE

CHRISTMAS AT HONOR ROLL

Christmas was celebrated a
little early at Honor Roll
Ranch this year.

Honor Roll, home of Q.R.
Zedd, A5A, world's greatest
DXer and all-around great
person, was cloaked in snow for
the event. Zedd had most of it
flown in from Montana, but some
of it was created on the spot
by a curious phenomenon in the
upper atmosphere that sometimes
takes place when Zedd runs the
big linear and the electrons
act sort of like cloud-seeding
devices at high altitude.

What a scene it was!
There was Tondelayo, blond,
nubile, precious bride of the
great man, wearing a demure
black creation specially
crafted for family occasions by
Frederick's of Hollywood, with
little Zepp Zedd, her infant
son, drooling on her knee and
messing around with an
electronic keyer.

And there was Momma Zedd,
her nose like a cherry from
just blasting in from her home
in Mena, Ark., on her new,
specially supercharged Honda
Interceptor. Momma has done
her bouffant hair in greenglo
for the season, and she looked
real nice in her festive orange
minidress, with the black
fingernails.

Bill Buckeye, ace Ohio
DXer and carp farmer from
Ashtabula, was also visiting.
Buckeye, 5 feet, 5, and a trim
365 pounds, was wearing his
Impeach Earl Bruce sweat shirt
and old Rose Bowl cap with his
BY QSL card in the sweatband.

And of course your
reporter was privileged to be
on the scene.

The big Christmas tree in
the corner was aglow with

CONTINUED ON PAGE

The regular meeting of CORA
was called to order by
President Jim Buswell, N5BEQ,
at 7:28 p. m. on September 22,
1987. Directors present were:

ACARC	Tom Mangham,
KSLEI	
VHF	Ellard Foster,
WSKE	
Wheatstraw	George
Maschino, K5GGL	
MORI	Nora Ward,
NSKDX; Tim Rauscher, K5MUG	
OCAPA	Gary Norris,
K5BQS; Craig Wright, K5SBOB;	
QCWA	Howard Baker,
WSAS; Rob Runyon, AA00	
EARS	Frank Tassone,
K5WGS; Lee Vaughn, K5WIS;	
	John Thomason,
W5SSYT	
SCARS	Monte Bateman,
W5SRZX; Gary Skaggs, W5SULK;	
	Marshall
Maddox, WUSP	
OUARC	David Medders,
K5PL; Mark Kleine, N5H2R;	
	Louis
Russell, K5SWA	
EARC	Lee Ward,
NSHIR; Phil Wolfenbarger,	
NSHIP	
Tri-City	Robert Dolton,
K5SRHU; John Warriner, K5MT;	
	Yvonne
Warriner, W5TYW	
Ex-Officio	Don Saunders,
W5ISS	
C & E	Joe Harding,
W5ZNF	

Visitor present was Jim Jones,
K5PER, CORA.

Motion was made by Nora,
NSKDX, seconded by Frank,
K5WGS, that the minutes of
the August meeting be approved
as distributed. Motion
carried.

Mark, N5H2R, reported a
current balance of \$166.57 in

CONTINUED ON PAGE

1987 C.O.R.A. MEMBERSHIP ROSTER

KAY COUNTY AMATEUR RADIO CLUB

OCTOBER MTG-

We had a very good turn-out for the October meeting at the Vo-Tech. A big thank-you goes to Shawn KA5UOI for the chocolate chip cookies. We viewed the new ARRL film, and plans are underway to show it in some of the local schools.

NOVEMBER MTG-

Marsh WA5UBO will be presiding at the November meeting because of my absence and he will present a program relating to computers (I think, at least that's what he had in mind last time I talked to him). It should be a good one regardless. Another big thanks goes to Marsh for taking over while Mike and I are out of town.

DECEMBER MTG-

The Christmas party at the Marland Mansion was such a nice dinner that we will do it again this year. The dinner will be on December 17th at 7 pm at the Mansion. A program will be presented by Allen Mitchell from Channel 9 in OKC on the 'Terrible Twisters'. All hams and spouse or date are invited to come. This cost will be the same as last year, \$10 each. PAID reservations are due by Dec 5th! So, bring your money to the next meeting! or call Harry (WD5DPR) at 765-3862 and drop it by his place. If you can't reach him, call me (KD5FX) or Steve (KA5SJK) and we'll see that Harry gets it.

KAY COUNTY PACKET NEWS-

A now for a subject that's near and dear to my heart, packet radio. After much discussion, the club voted to sponsor a local digipeater at the old repeater receiver site on top of the water tower east of town. Basically, I will supply the equipment (with the help of KA5SJK) and the club will pay the electric bill (usually less than \$4 a month). The digi will be dual frequency, 145.01 the usual network freq. and 145.09 the NMS network that is being built state-wide. I have all the equipment set-up and running here at the house for a test run. It consists of a 15 watt xtal radio, a GLB TNC1, and a 80 watt amp. I also have battery backup for the TNC and bare foot radio. If all goes well, it will be installed around Thanksgiving. Those of you on packet can look for it using the call KD5FX-1, it should have very good range out there on the hill top. Well, I've run out of news for this month, look for me blazing around town in my new (to me) little red car (with the flashing lights following me) and give me a call on .97! 73 and have a Happy Thanksgiving! Dave KD5FX.

G. C. W. A.

works SSB only. His birthday is June 8th. Welcome Gail; we hope you will become a regular on the Sunday net.

Mr. Robert (Bob) Rogers, WA5EEZ. Bob was first licensed 1962; has an Advanced ticket and resides Tuttle, Okla. His birthday is just coming up (Nov. 21st); His YL is Marsha with Birthdate May 16.

<WB5JJ's SHACK FAX>

FREE-FREE!! A whole sackful of tapes for a reel-to-reel tape player. Most are utterly virgin, high class brands. Many extra blank reels also. Just come around and pick them up....repeat they're FREE!! Tel. 789-3788, 5824 NW 58th Street, Warr Acres.

DO YOU REMEMBER THE AR-88? Just before WW-2 there were a number of really good (by standards of those days) receivers manufactured for the Amateur Radio Market. (made in US of A also, ED). Best known were the National HRO's, followed closely by Hammarlund. Thence the Hallicrafter's SX-28. But, topping them all (my opinion), was an RCA model that never made it to the USA Amateur market.

That jewel was the RCA/AR-88. Immediately after it was developed, the war in Europe created a market for high-class receivers. The AR-88 was so highly regarded that four factories in USA & Canada worked "flat-out" to meet the United Kingdom requirements. Very few ever showed up in the USA; even after the war was over.

What was it like? Well it had 14 tubes, two stages of TRF before the converter, three stages of IF, and two stages of AF; plus, of course all the little goodies such as noise limiter, BFO, AGC, ...Etc.

Those Amateurs fortunate enough to acquire one (few if any were purchased) rated it superior to the Hammarlund SP-600; which receiver you may recall was rated one of the very best.

Want to read more about the AR-88? Read the Feb. 1987 issue of Amateur Radio. An Australian publication You'll find in the ACARC clubroom.

BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

(Editors Note: This was delayed in the mail for last months issue.)

Seventy Sixers Minutes. The meeting was called to order by Jerry Sproul at 7:30 pm at the Kettle restaurant.

Treasurers Report: The beginning balance for the month was \$209.83. Two memberships for \$6.00 each were received and the bank credited .99 in interest. The ending balance is \$222.82.

Secretary Report: The minutes of the last meeting was read and was approved as read. CORA Report: George filled us in on the September meeting. New CORA officers are Garry Skaggs President, Lee Ward V P, Yvonne Warriner Secretary, Mark Kleine continued as treasurer.

Old Business: New antenna for repeater has not been located. Discussion followed on the repair of antenna. A motion was made to table the subject until a future date. New Business: Elections were held for officers for 1988. Those nominated for President were George Maschino and Dennis Musser. In a close election Dennis was elected the President. There was only one nominee for Vice President and Dick Baker won by a landside vote. Also only Jerry Sproul was nominated for Secretary/Treasurer, and likewise was a resounding victor.

NEW MEETING LOCATION: The new meeting place will be at the BRICKS Restaurant at 3100 N Portland. See you there next month, the second Tuesday. Repeater Report: There has been some repeater interference. Vern has been investigating and has determined that the interference is caused by the Northside Taxi Service who have a repeater on 152.39 and is giving us a spur and kerchunking our repeater every time they key up. Dick has been advised and he will contact the proper people to try to get the problem resolved.

Jerry Sproul, N5AUH

ACARC CHRISTMAS DINNER
Dodsons, S 44 & Western
6:30pm, Dec 4. Call Bob
376-3569 for headcount.

1 AERONAUTICAL CENTER ARC

MEETS: FIRST THURSDAY, FLIGHT STANDARDS
BUILDING, FAA, SOUTH MACARTHUR 7:30 PM

PR BOB PACE, WASCJG 376-3569
VP

S/T JACK INAN, WBSVW 677-8537

EDITOR: BOB PACE, WASCJG 376-3569

2 CENTRAL OKLAHOMA VHF

MEETS: 10:00AM THIRD SATURDAY, RED CROSS
10TH & HUDSON (BACK DOOR) OKLA CITY

PR JERRY METMORE, KDSIS 524-5080

VP RICHARD GIMMEL, KASITH 721-3991

SE JOE BUSWELL, K5JB 732-0676

TR ELLARD FOSTER, WSKE 789-6702

EDITOR: JOE BUSWELL, K5JB 732-0676

3 MID-OKLA REPEATER

MEETS: FIRST TUESDAY 8:00PM, OC COMMUNITY

COLLEGE 7777 S MAY ROOM 101

PR BOB ALLEN, NSEPV UNLISTED

VP TIM RAUSCHER, KASMUG 848-9910

SE RICHARD WOOD, K5QNN 677-0363

TR LINDA MOORE, KASNAV 799-1765

EDITOR: TIM RAUSCHER, KASMUG 848-9910

4 OK CITY AUTOPATCH

MEETS: 7:30PM, SALVATION ARMY, NW 50 & PENN

PR GEORGE ADKINS, AD18 722-0074

VP DENNIS PATTERSON, W5SCM 495-0769

SE DAVID CAREN, KFSEB

TR MIKE CREWS, N50DB 722-2638

EDITOR: CHUCK WILHITE, K5NK 721-4926

5 OKLA UNIVERSITY ARC

MEETS: 7:30PM SECOND TUESDAY (SEP-MAY)

119 WILSON CENTER, 1334 S JENKINS

PR FRANK DONALDSON, N510J 329-4172

VP JOHN MUSTENBERG, KESM 325-2382

S/T JIM GREENSHIELDS, W5HPU 321-9981

6 ALTUS ASSOCIATION

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

S/T MIKE SULLIVAN, W7DNU 477-2938

EDITOR: MIKE SULLIVAN, W7DNU 477-2938

7 BICENTENNIAL (76er) ARC

MEETS: 7:30PM SECOND TUESDAY
KIPS RESTAURANT, RENO & MERIDIAN

PR DENNIS HUSSEY, KAS6TH 524-4670

VP DICK BAKER, W5TMM 685-2867

S/T JERRY SPROUL, W5AUH 354-0017

EDITOR: JERRY SPROUL, W5AUH 354-0017

9 WHEATSTRAW ARC

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

PR RALPH WILDER, W5PFX (WATONGA) 623-5421

VP TOM JOHNSON, W5IKH (EL RENO) 262-5631

S/T JOE GARLAND, W5FLT (CALUMET) 893-2660

EDITOR: JAN KUEHN, W5JUT (OKARCHE) 263-4480

11 EDMOND AR SOCIETY

MEETS: 000 MONTHS, 3RD SUNDAY, 2:00PM EDMOND
EOC. DINNER, EVEN MONTHS, 3RD FRIDAY.

PR PHIL WOLFENBARGER, WSHIP 789-0681

VP DEE MIZE, W5FHR 341-6163

SE GLOPIEA GUINN, K5BGM 341-5886

TR EDITH VAUGHN, K5YPT 348-2961

EDITOR: DEE MIZE, W5FHR 341-6163

12 QUARTER CENTURY W A

MEETS: QUARTERLY AT VARIOUS PLACES.

NET: 3855 KHZ SUNDAY AT 8:00AM.

CHM ROBERT RUNYON, AA00 373-1818

VCH GENE MAILON, K5OLE 341-8289

S/T HOWARD BAKER, W5AS 721-5453

EDITOR: ROBERT RUNYON, AA00 373-1818

13 KAY COUNTY ARC

MEETS: 7:00AM THIRD THURSDAY

PIONEER DRIVE-IN BANK, PONCA CITY OK

PR DAVE LAND, K5SFX 762-8616

VP STEVE SCOTT, K5SGK 762-0117

S/T HARRY BEATTIE, W5DPR 765-3862

EDITOR: CHARLES NORTH, N5EYD 762-8136

14 CIMMARON ARS

MEETS: 7:39 PM SECOND TUESDAY

W5Y PLAYHOUSE, 827 S 13, FAIRVIEW

PR RAY BARNES, AB5Z 274-3334

VP LEO PEIL, W5SH 886-2998

SE MADINE PAINTON, K5FMH 764-3599

TR DENNIS PAINTON, W5SV 764-3599

EDITOR: JACK DAY, N5Z 227-3462

15 SOUTH CANADIAN ARS

MEETS: 9:30AM SECOND SATURDAY, RED CROSS BLDG
NORTH OU CAMPUS. NORMAN

PR ANDI WOLFE, W5W NONE

VP DAVID WEDDERS, K5PL 360-4292

SE DORINDA SKAGGS, A51VA 799-6727

TR MONTE BATEMAN, W5RZX 329-7485

EDITOR: DAVIS EGLE, K5IT 321-7570

16 EDMOND AR CLUB

MEETS: 7:00PM SECOND MONDAY. SEE CLUB
SECTION FOR LOCATION AND TYPE

PR MARK NORTHCUTT, W5DYI 755-4672

VP BOB MOORE, K5ETA 799-1765

S/T KAY NORTHCUTT, W5DYJ 755-4672

EDITOR: MARK NORTHCUTT, W5DYI 755-4672

17 OK CPM USER GROUP

MEETS: 7:30PM SECOND THURSDAY OSU,
ROOM 307

PR WILLIAM COOTER 360-2141

VP JIM WHITE 364-5289

S/T JOY NELTON 789-0280

EDITOR: WILLIAM COOTER 360-2141

18 GREAT PLAINS ARC

MEETS: 7:30PM FIRST TUESDAY

WOODWARD PUBLIC WORKS BLDG.

PR WINDLE HATCHETT, W5PLW (FT SUPPLY) 766-3561

VP RON TICE, W5OP6D (MOORELAND) 994-2138

SE ROD FORD, W5OVT (GAGE) 923-7683

TR FREIDA PATTERSON, N5EOX (WOMD) 256-2111

EDITOR: LOIS FORD, W5J6D (GAGE) 923-7683

19 OKLA INDEPENDENT ARC

MEETS: 7:00PM SECOND TUESDAY

SOUTHWESTERN BELL OFFICES, PONCA CITY

PR LIN JACKSON, K5ZJH 762-7299

VP BRUCE LEFEBURE, K5ZKI NONE

SEC BIZ WICHY, W5OHC 762-3297

TR DAVE WHITE, W5SLUI 765-5707

EDITOR: GLEN BISHOP, JR., K5PUB NONE

21 TRI-CITY ARC

MEETS: 1ST THURSDAY OF THE MONTH.

PLACE:

PR ROBERT DOLTON, K5AHU 379-2365

VP RON PHILLIPS, W5UPU 382-1856

S/T J. B. BILLS, K5HU 379-3992

P.O. BOX 655, HOLDOENVILLE OK 74848

EDITOR:

CENTRAL OKLA RADIO AMATEURS

MEETS: 7:30PM FOURTH TUESDAY. RED CROSS

BLDG. 10 & HUDSON OKLA CITY (BACK DOOR)

PR GARRY SKAGGS, 799-6727

VP LEE WARD, W5HIR 789-0681

SE YVONNE HARRINER, W5TYM 379-3149

TR MARK KLEINE, W5HR 329-9285

CORA COLLECTOR & ENITTER (USPS 116-150) IS
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MIDWEST CITY OK 73110. SECOND CLASS POSTAGE
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CORA, 1020 ARTHUR DR, MIDWEST CITY OK 73110

EDITOR: JOE HARDING, W5INF 737-1044

CIRCULATION: BOB GRAHAM, W5MSV 677-8685

SCARS

MET on Saturday

November 14 at 9:35 am. About 30 folks attended. Monte WBSRZX, reported a balance of \$876.30 in the treasury.

The elections

for SCARS officers were not rigged, contrary to reports circulated in several yellow journalistic rags. In fact this election was a model of the democratic process created by early Greek amateurs (remember $\chi\epsilon\rho\chi\epsilon\omicron$ SVIA who invented the Δ loop antenna).

The nominating committee (KDSIT, WUSP, KB5ABS) suggested the following names:

For president: QR Zedd, ASA
and Andi Wolfe, WUSW

For vice-president:
Dave Medders, K5PL

For treasurer:
Monte Bateman, WBSRZX

For secretary:
Dorinda Skaggs, N5IUA

Medders, Bateman, and Skaggs were accepted by acclamation. In a very close runoff, Wolfe was elected president by a vote of 22 to 21. NBC commentators reported that ASA would have won if he had attended the meeting.

Negotiations

to get the autopatch back are still going on. The county CD director has volunteered to pay the whole cost by apparently the county commissioner feels that half the cost should be paid by SCARS. That will be a logistics problem but Monte, WBSRZX, and the SCARS crack legal team are working 25 hours a day to get the thing off the fence.

The Novice class

is going well. Fifteen of the twenty four have already passed the code (as of November 1) and ten of those also passed the written test. We expect all of the others to get through before you read this. One of the new licensees

lives in Queens, New York. Your SCARS Novice class has gone interstate!!

Andi, WUSW,

announced the plans for the SCARS Christmas dinner party. It will be on December 12 at 7:30 pm in the Jack Santee lounge atop Owen stadium on the OU campus. The club will provide the meat dishes, ice, and beverages for a cost of \$5 per person. Attendees are requested to bring a side dish of some sort, vegetable, salad, dessert, hors d'oeuvres or whatever. Andi needs to have your reservation by December 6 so get on down to the Red Cross next Saturday and sign up.

Entertainment plans include a sequel to the SCARS DXpedition, a white elephant gift swap, a unisex belly dancer (arranged by K5PL and WUSP), and lots of door prizes. The big prize this year will be a Bird wattmeter! Hey that is uptown.

Ken, N5KUK,

reported that the repeater was back to normal. The tubes in the exciter had to be replaced and it was putting out a healthy 90 watts into the antenna. Both receivers are also back on line. Next time you see Ken thank him for the work he has done on the repeater.

Under MISC list

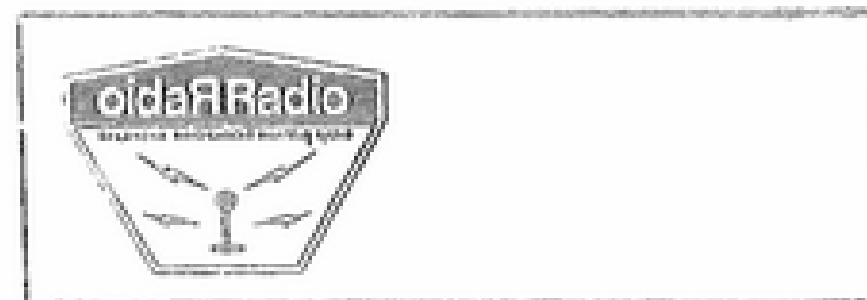
the SCARS T-shirt project is moving right along. Cost will be under \$10 and jackets will be available for a higher cost. The NWS storm spotting class will be held on February 27. The activities will include a tour of the NWS and an advanced topic class. Tell Andi or Steve Wolfe if you are interested.

Saturday

December 12 at 7:30 pm in the Jack Santee lounge is the date for the SCARS Christmas party. Hope to see you there.

-----KDSIT-----

FOR SALE: Assorted HF, VHF, UHF equipment, antennas, tuners, transmitters, the whole works. Sid Gerber, W5KOZ, 737-1050 (after 1 pm).



The November Meeting of O.I.D.A.R. was conducted on Tuesday the 10th. First item of business was the treasure's report. According to Dave WN5LUI, OIAR has \$118.61 in the bank after expenses. Biz, WD0HCO, read last meeting's minutes and then old business was discussed. The first item of old business was the O.I.D.A.R. Xmas Dinner. Taco K5FFL reports that this year's dinner will be held on the Friday 11th of December at 6:30 PM. The meeting place will be the Rusty Nail restaurant on 14th street here in beautiful downtown Ponca City. If you have a chance, drop by and see the whole gang.

That being the end of old business, Bruce KA5ZKI acting as vice prez called for any new business. Glen WN5J and Doug N5DUB asked to be recognized. Both of these gentlemen wanted to know what was the club's feeling on attaching the .31 repeater to the M.O.R.I. repeater system in Oklahoma City for extended coverage. This was then put into a form of a proposal which was then voted by the club. Overwhelmingly, that club approved linking .31 with M.O.R.I. as long as sufficient control was available for all parties concerned. Glen and Doug will then present their findings to M.O.R.I. and if acceptable will begin working on the technical details of the proposal.

In other new business, Biz WD0HCO reports that he has obtained a donation from Conoco of about 70 telephone sets. This instruments have been used in executive offices but have been pulled out to make way for an updated model. These sets have a speaker phone built in as well as a switchable pulse or DTMF dialing and they make excellent phone patches or telephone remote base controllers. O.I.D.A.R. is currently selling them at \$25 a set. The set costs \$90 - \$110 to corporate customers with the typical corporate discounts. To get one, contact any O.I.D.A.R. member but hurry 14 have already been sold (one individual has bought several for his business) and they won't last long. Money gained from the sale will be earmarked for the .31 Autopatch fund.

CONTINUED ON PAGE 6



AS MINNIE PEARL WOULD SAY !!
HOWDY!!

It's been a while since I have written an article for the C&E so I decided I would write one more, in spite of popular demand. One reason for my not writing besides laziness, is we moved the computer from the living room. and do you know how many wires there are to a small computer just to play pac man? Well let me tell you I had to reread the manual just to put all the pieces of the puzzle back together. I think a computer should be thought of as a waterbed if it doesn't have to be moved DON'T No mater what kind of pile of paper and disks and other materials acculimate around. unfortunately my wife doesn't agree with me so now I'm in a small corner of the house with everything piled in a Tall pile, Just hope no one touches it or TIMBER.

Enough of the rag chew. If you are like me you might wonder why your tired. I started thinking of all the things EARS has done this year and I know I've forgotten a bunch. See if you can remember more than I can? No names will be given because I can barely remember the event not to mention who, when and where.

Here my list: Ham Class Graduation and club challenge award, the new 850 controller, garage sale #1, new antenna for the repeater, campout at Canton, weather spotters classes, Garage sale # 2, Field Day, July 4th parade and fireworks, Ham Holiday, opening of Arcadia Lake (how do you like that David?) special event station and campout, motorcycle races, Myriad Garden Run, novice classes, 2meter amp classes, weather class. every thing else is a blur and I'm getting a headache trying to remember what else and when. A lot of members participated in these events but when all is said and done it took all of us to carry them out and we all had fun. For those of you who

didn't attend you missed a lot of good times. Just get ready for next year!! There's no telling just what kind of things we can get ourselves into. Many thanks to all involved with the planning and getting all the things together. There are already some projects on the books, if you would like to help just jump in and tell anyone talking about them. Don't be shy. We all learn by doing, and whether it's your 1st time or millionth it takes teamwork to to get things done. Some of the projects coming up are 2 parades, one in OKC and one in Warr Acres (hey Phil is that any place near Green Acres? I want Sam Drukers autograph.) The 1st is the Friday after Thanksgiving for downtown OKC. It will start around 11:00 am and end up with a tree lighting with Santa Claus and the mayor of OKC. The 2nd is in Warr Acres on Dec. 12. More details to come from Phil.

The Dec. EARS Dinner will be at St. John the Baptist Church. It will be a pot luck dinner, meaning if you don't bring something, you don't eat and that means you too Phil. The date will be Dec. 18th at 6:30 pm. Come one come all. For more added fun bring your white elephant, keep it small, and not too tall. We will to have a get together before the blood donation date of Dec. 12. Remember if you can't help out on that date and would like to donate blood for the club, just tell them you're from EARS and they can handle all the paper work. As they say "GIVE THE GIFT OF LIFE". You never know who might need that gift or what it will mean.

Antenna classes start Dec. 3 at Lee Vaughn's garage. If you've never built an antenna then this is just the time to start. You would be surprised how simple it is. (???) Well at least they aren't expensive and the birds like them. Really, you can build a very nice antenna with a lot of gain to it for a lot less than a commercial one. Ben and Lee will help any first timer, and the rest of us.

Election of club officers was held Nov 15 at our regular

business meeting.

1988 OFFICERS

PRESIDENT

Phil Wolfenbarger NSHIP

VICE-PRESIDENT

Dee Mize WDSFHR

SECRETARY

Gloriea Guinn K85BGM

TREASURER

Edith Vaughn KA5YPX

BOARD MEMBER

Brad Efaw KB5CDE

BOARD MEMBER

David Smith KB5DQZ

BOARD MEMBER

Larry Traub NSIXV

congratulation to all. Have a great year.

On the serious side EARS is in the process of setting up a scholarship fund. As of this time it is still in the planning stages and nothing has been decided except that we will have one. As I am going back to school myself I know the cost involved and am sure any help would be appreciated from the student. If you think that newspapers are expensive try to buy a college book or two. This fund will be set up by contributions from the club and anyone else who wants to help college kids. Listen on the repeater for other details.

The club station has another piece of equipment in it now. A packet station has been installed thanks to Phil, NSHIP and Lee, KA5WIS and has been making a few contacts. I think I heard that someone had found a Gateway (?) and made contact with someone in Africa??? For more information contact Phil, Lee or Larry, NSIXV to get checked out on either of the stations. Packet will certainly come in handy this spring. When the weather gets bad the National Weather Service plans to send radar maps over 2 meters(145.09) (I think) That means we won't have to depend on the commercial TV or the phone lines for radar updates.

The Guthrie link will be going up soon. We have bought the parts and are getting them assembled. Brad, KB5CDE and Lee, KA5WIS are working on the link transmitter and receiver.

Well I got long winded, guess

CONTINUED ON PAGE 4

CIMARRON

The first item on the agenda this month is a change of date for CARA'S meeting night. Henceforth the club will meet on the second Thursday of the month instead of the third Thursday! I can tell you that this is going to expedite the writing of this column...it also destroys my excuse that I couldn't meet the deadline. You win some and you lose some,,,Oh well.....

Our meeting October 22nd. was well attended. Twenty six members and guests enjoyed a hamburger grill reinforced with a variety of goodies. Present for the festivities were Bill and Helen Simpson..N5HOK & N5HOL, Ruth Simpson..WX5Y, Edith Sproul, Terry McColl..KA5TVF, Leo Peil..WZ5H and Ann, Ray Barnes..AB5Z and Sue, Vern Brewer..KA5SZD and Fran, Jack and Betty Day..NN5Z & KA5RTW, Steve Schoonmaker..KF5SW and Karen, Jack Kelly..N5LBN with wife Joyce and three daughters, Dede Bailey..N5FUN and her three boys, Dennis and Nadine Painton..WK5V and N5FMH. Brad, the oldest of the Bailey boys has a call sign..N5DEL. Altogether it was a good evening...very enjoyable.

Our Christmas get together is locked in for the evening of Thursday, Dec. 10.....seven oclock sharp! We will dine royally at FEEDLOT #2, 205 East Broadway in Fairview and then repair to the PLAYHOUSE at the end of 13th St. to finish off the evening. We will go dutch for the groceries and all members, guests and interested parties are welcome.

Our meeting of November 12th. was not so well attended, but the quality was high. Quite a lot of business was transacted, including the election of new officers for 1988. The new staff will be as follows...President..AB5Z-Ray Barnes. Vice President...Leo Peil- WZ5H. Treasurer..Nadine Painton-N5FMH. Secretary..Denny Painton-WK5V. Editor..Jack Day-NN5Z. Activities Chairman..Jack Kelly-N5LBN. Net Manager..Ed. Arnote-WZ5F.

CARA will host a VE upgrade test on the first Saturday in December. That will be on the Fifth. The session will run from 10 am until 2 pm or until the tests are completed. This will be under the auspices of W5YI and walk-ins are welcome. The place...The VO-TECH, Fairview campus.

Terry McColl, KA5TVF, our treasurer, reported that the club treasury balance was \$323.05, after paying our C&E bill. We value our C&E newsletter

MORE EARS

I'll either not wait so long to write next time or let someone else write the article. It's just hard to put so much in such a small space. Again forgive me for not mentioning many names but in the spirit of teamwork let it be said WE DID IT TOGETHER.

ATTENTION NEW MEMBERS and the rest of the club. We have started having doughnuts and coffee before the siren test the first Saturday of the month. Everyone is invited. It gives everyone a chance to have fellowship and maybe even get some help with a problem you might have with some equipment you might have. Also Larry and John will show you how to use the club station and get checked out for the EOC. You never know who they might contact and if you might be interested in packet radio this will be a good time to see what all the fuss is about. So come on sown and let's see you there.

Many thanks to all involved with all the projects of the club and hope more will join and sincerely hope that things can be worked out so that it may continue!

It was determined during this meeting that the Salvation Army Emergency Net would be given permission to use the 145.45 rprr. whenever a need was felt. The club felt that the prime purpose of our repeaters was the expedition of emergency measures. Jack Kelly..N5LBN is Civil Defense Leader in the city of Fairview as well as Chief of Police and the club has pledged to work with him on the weather net and in any way that we can help in emergency situations.

The HAMBASH at Texhoma was attended by several of the local gentry. Leo and Ann, Ray and Sue, and Denny and Nadine all reported a blast.

FINAL ITEM: Leo..WZ5H (who looks like a new man since his bypass operation) did it again. During the recent earthquake in California, Fay England one of our Fairview citizens was anxious about her aunt who lives in McFarland, Ca. Landlines were jammed and Fay was unable to get through. She called on Leo and within one minute after the first call, he was answered by N6NWH whose handle is Bala. A few moments more and the ladies were in touch! All in the days work, says Leo....!

in with the fun. Thanks again and 73. Tommie Guinn, KASWAV

HERE WE GO AGAIN!!

As some of you may be aware the amplifier construction projects were recently completed. Several club members had expressed a desire to have an antenna building class. Ben Allen KSIRO offered his services and expertise again. Sometimes I wonder if Ben is a glutton for punishment. This project is scheduled to begin Thursday Dec. 3 at 7:00pm and should run consecutive Thursdays until the project is completed. Lee Vaughn KASWIS has offered his heated garage at 1020 Juno Circle in Edmond. The first meeting will be used to determine what type of antenna will be built. I hope to see you there.

HAVE YOU BEEN NAUGHTY OR NICE ???

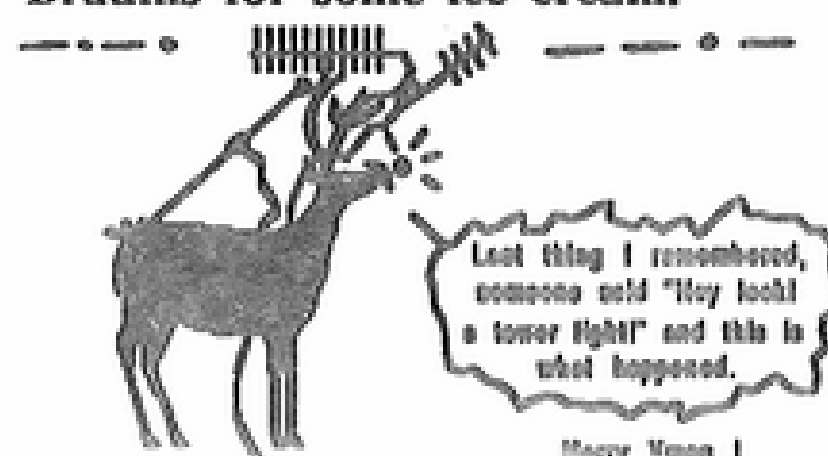
Well have you? This is the question that Santa Claus will be asking when he comes to visit you at your home. The club has made special arrangements via northpole link for Santa Claus to visit your kids at home, school or at a function. Because of Santa's busy schedule this time of year he will only be able to schedule his visits from Nov. 27 to Dec. 24. To assist Santa with the increasing cost of reindeer food a fee of \$25.00 will be charged for a group of 7 or less. If there are more than 7 a fee of \$40.00 will be charged. To make arrangements for Santa to visit you call Jim Timberlake KB5BYF at 947-2233

Till next time and 73

Wes Johnson, KB5BKX

O.I.D.A.R. CONTINUED

Last item of old business was in the form of a comment made by Glen that he had missed the curtesy beep which left when we disconnected the C64 computer from the repeater. I had promised Glen that the club would look into installing an alternative beeper. With that the meeting was ended and everyone Bee-Bopped to Braums for some ice cream.



Heavy Hines I

RICHARD WOOD	KSQNH 3400 EASTWOOD CIR	DEL CITY, O 73115 677-0363
VERNA WOOD	NSHIZ 1812 N BILLEN	OKLA CITY, 73107 525-5859
BILL WOODRUFF	K5YVI 410 N BARFORD	WATONGA, OK 73772 623-2429
T VAN WOODY	W5FNX 2517 NW 62 APT 40	OKLA CITY, 73112 842-1663
J.V. WOOD	W5KFT BOX 163	OSAGE, OK 74054 354-2579
BILL WORTHINGTON	CP/M BOX 307	LOWEOLF, O 73655 846-5425
CRAIG WRIGHT	K85B08 2516 NW 33	OKLA CITY, 73112 949-2690
FRED WRIGHT	K5HFN 8822 SE 25TH	MIDWEST CIT 73110 737-8784
WILLIAM WRIGHT JR.	KC5GN 2105 RAMBLING ROAD	EDMOND, OK 73034 341-6076
BILL MYATT	KD5JR 1114 WEBSTER	WOODWARD, O 73801 256-3248
JEFFERY WYKE	K5EB 1709 IOWA	NORMAN, OK 73069 329-6762
JAMES YATES	NSKLH 9300 RED OAK LN	EDMOND, OK 73034 341-6531
CHARLES YORK	W5FFG 3700 NW 64	OKLA CITY, 73116 842-3918
JAMES YORK	K58JZ 2600 SW 91	OKLA CITY, 73159 691-7496
FRANK YOUNG	H15J BOX 176	OKLA CITY, 73101 239-2040
H.B. ZACHRY	KC5IS 3505 ROLLING LANE	MIDWEST CIT 73110 732-7255
JOHN ZIETLOW	K9VIC 724 BRIARCREST DR	MIDWEST CIT 73110 733-2765
DAVID ZIMMERMAN	W5ZIV 338 W ASPEN	MUSTANG, OK 73064 376-2784

G. R. ZEDD

flashing red and green diodes, old 811s, and burned-out RG214 for tinsel. The 7 KW quadraphonic disk system was playing Montovani classics, and the Icom 761 built into the arm of Zedd's easy chair softly crooned the holiday love and kisses of a pileup for XU.

Zedd himself, the great man, reclined in the easy chair, the smoke of his pipe encircling his head like a wreath and the Coors empties gathering about his feet like buttercups. He wore a royal purple robe and Vietnam jungle boots, and his DXCC badge with his number of confirmed countries -- 876 -- blinked regularly from the brim of his pith helmet.

It was a wonderful moment, and it brought tears to me eyes.

"Oh, I swan!" quoth Tondelayo. "Isn't this just the GREATEST, Q.??? To be here with kith and kin, in the bosom of family, oh silent night, oh holy night! Jiminey!"

Zedd whipped off a fast CW contact with the XU station and reached for another Colorado KoolAid. "This is what it's all about, Tondelayo. Ain't that right, Momma?"

"Are we going to the SCARS Christmas party?" Momma asked, putting down her nail file. "I want to see what Natasha saw in that fellow... what was his call?... WB5RZX."

"We'll go, never fear," Zedd told her.

"Momma turned to Bill Buckeye. "Have you finished your Christmas shopping, Bill?"

"Well, no," Buckeye said. "But there is a lot of time left. I mean, only an IDIOT would be worried about delivering Christmas presents

this early, right?"

When out on the lawn there arose such a clatter, we all sprang to the window to see what was the matter.

When what to our wondering eyes should appear, but our own Homer Klott, with his mouth in high gear.

WHAM! WHAM! WHAM! came his hammering at the front door.

"Oh, no," Tondelayo moaned. "Not tonight! Should we answer?"

"Turn out all the lights," Zedd suggested.

"Too late," Buckeye said. "He's seen us through the window."

"Burn the house down," Zedd amended.

"We can't do that," Momma replied. "The ice cream would melt."

"Where's my sixshooter?"

Tondelayo sprang to the door and threw it open. "Why, Homer!" she trilled with more insincerity than two sessions at the UN. "How nice to see you! Please come in!"

Homer, staggering under a sack of packages flung over his back, staggered into the middle of the living room and dumped his load. He was wearing his brown macinaw, brown corduroys, brown sweat shirt and brown boots. He was leaving brown footprints.

"Wow!" he gasped. "Shazam! That snow are really slick out there!"

"That," Zedd told him through gritted teeth, "is not snow you walked through."

"It ain't? Golleeeee!" Homer brightened. "Hey! I brang presents for Christmas!"

"Why, Homer," Tondelayo cooed, "that's very sweet of you."

"Aw," Homer blushed, "I'm something else. I know that."

CORA MINUTES

the C & E account. Present balance in the Ham Holiday account is \$2,125.16. Motion was made by Lee, NSHIR, seconded by Phil, NSHIP that the treasurer's report be accepted as presented. Motion carried.

Joe, W5ZNF, again reported the C & E is broke and the next issue will be small.

Lee, NSHIR, reported the VE session on September 21 had 11 candidates; the pass rate was good, but the figures had not yet been assimilated.

No old business was brought before the Board.

NEW BUSINESS: The results of the election of officers are:

PRESIDENT:	Gary
Skaggs, WBSULK	
VICE-PRESIDENT:	Lee
Ward, NSHIR	
SECRETARY:	Yvonne
Warriner, WBSTYW	
TREASURER:	Mark
Kleine, NSH2R	

Meeting adjourned at 9:10 p.m.
Submitted by: Lee Ward, NSHIR

"I wish," Momma murmured, "we could figure out what it is."

Homer ignored that. He pulled out his packages. "I got something for everybody! Hey! Momma Zedd! Here's yours!" And he handed over a package.

For the next few minutes it was a lot of fun. Homer had gotten everyone just what they always wanted and needed:

For Momma -- A copy of the Better Homes and Gardens Cookbook.

For Tondelayo -- A Jane Fonda workout tape.

For Bill Buckeye -- An autographed picture of Earl Bruce.

For little Zepp -- A bottle of Brut.

For Zedd himself -- A copy of Tune in the World, the ARRL's package for beginners.

And for your reporter -- a new Big Chief tablet.

Zedd bought Homer a gift certificate for Norman Regional Hospital, for a free EEG, to see if there's any activity up there.

--KU5B

<VUCC VUCC VUCC VUCC>
VHF/UHF CENTURY CLUB UPDATE

Robert (Bob) Ard, W5JME, periodically updates the above titled information for benefit of C&E readers; particularly for reasons of encouragement & enticement to aspiring Amateurs. Besides himself as a contact, please refer to QSTs January 1983, August 1987 and October 1987 with heading "VHF/UHF Century Club" for specific information.

Since his appointment as ARRL VHF Awards Manager for this area (1985), Bob has processed twenty (20) initial applications plus seventeen (17) Endorsements & with a total of 2514 QSL's involved. Applications came from three states, namely: Arkansas, Kansas and Oklahoma. In his own words Bob would like to see more area activity and will process your input pronto!! He also provided the following:

Check your QSL files for cards on the following bands since 1 Jan., 1983, viz.... 50 MHz/100 grids; 144 MHz/100 grids; 220 MHz/50 grids; 432 MHz/50 grids; 1296 MHz/25 grids.... Etc. See January 1983 QST for more detail & you may be closer than you think!!.

To initiate action toward obtaining a VUCC award, send request for proper forms and instructions to ARRL, ATTN: VUCC Award. After accumulating the required number of "Grid Squares" confirmations (QSL's) and completing the application forms, you should submit at the local level... In this case to W5JME. Please follow instructions closely!!

Solar cycle 22 is on the upswing and we can hope for a repeat of the fantastic conditions that produced DX on the VHF bands during Cycle 21. So sharpen your pencil, tune up the rig, check the feedlines and align your antenna direction indicator. Good times are coming. Hope this applies to the myriad of Stock Exchanges as well!! (ED)

As evidenced by the latest attempts by commercial interests to obtain additional frequencies at the expense of the Amateur Community (ie., 50 & 220 MHz) it is still imperative that we utilize our frequencies. The VUCC still provides objectives, incentives, operator satisfaction and "Great

A Tearful Cheerful Earful

by Allen Watson for Bertha
W5ERY for W5JCY

The year 1981 was bad
Bertha had CANCER bad
I prayed the LORD above
Please help the one I love
to make our GOLDEN ANNIVERSARY.
HE did.
We did.

Dr. Woodward was good
The operation was the best
Five years it stood the test.
Devastated in Eighty Seven!
Metastasized CANCER lungs!
She is back, I am back,
again I prayed to heaven.
Prayers answered.
Chemo-Therapy working
O happy day!

But now again on my back
Tears in my EARS:
CATASTROPHE!
Once more to pray
Please help us today
The DEVIL had its way
BIG "C" in her brain!
We are asking again
for another desperate prayer:
FOR FUTURE happy days!
O Happy DAYS!

CYNOAK PRINTING

9105 N. COUNCIL RD.
OKLAHOMA CITY, OK 73132
728-3610

QSL cards!

Wallpaper". Besides that-Its fun!!.

<<K.O.B.O.>>

(Keep Our Bands Occupied)

PS: I still would like to know who put a set of Jordanian Amateur Radio Commemorative Stamps in my Midwest City mailbox the week end of 22/23 Aug. 1987. Complete anonymity is guaranteed to whomever is the donor-as you may prefer!!.

73 Bob, W5JME (12 Nov. '87)

<OKLAHOMA CENTRAL VHF A.R.C.>
<DECEMBER MEETING NOTICE>

Am rather certain this notice will be a repeat of our Secretary, K5JB's input. But, calculate that two reminders will do no harm.

Our December "Get-Together" will be a Christmas Lunch at the Bricks, 32nd and Portland; Saturday Dec. 19th at about 11:30 am.

A "Fun-Time" gift exchange is in the works. Please bring a unique "White Elephant" type of gift for a Santa Bag type of drawing. To ensure complete redundancy this notice will be followed by "Calling Committee" inquiry during the week of this meeting. (Fred, W5NL).

There isn't a calendar this month. Its Christmas and everyone is having a Christmas Dinner or Party. Look at the units column this month and see when and where to go.

If there is no comment from your club listen on the repeaters or the LO bands for details. Failing that look on page 3 and call someone.

G. K. CHESTERTON and several other literary figures were asked one evening what book they would prefer to have with them if stranded on a desert isle.

"The complete works of Shakespeare," said one writer without hesitation.

"I'd choose the Bible," said another.

"How about you?" they asked Chesterton.

"I would choose *Thomas's Guide to Practical Shipbuilding*," replied Chesterton.

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Fred Noble, N5JIK



Club
NEWS

W1LOP
The Place to be for Ham Radio

Minutes of Club Meeting

The November meeting will be replaced by the Campout/Wiener Roast to be held in conjunction with the Lake Thunderbird gathering at Little River State Park, Clear Bay Area, sponsored by Charlie, WA5JGU, and Bob, W5HXL. It hasn't happened yet so it will be written up next month.

I know the members of the VHF Club would join me in wishing all of you and your families the very best of Seasons greetings and hopes for a joyful new year!

The December meeting will be a Christmas lunch at the Bricks, 32nd and Portland on December 19. Gathering will start about 11:30 am.

Joe, K5JB, Sec'y

Good Guy, Greenshields

Rumpity Tumpity Tumtity... as the November C&E was rolling off the printer...

Every month when I run off my C&E pages I get a little bit uneasy about the way the computer drives that venerable, old IBM Selectric typewriter. (Yeah, when someone asks if I have an "IBM" I say "Sure do! Works good too, as long as I keep it oiled!") Well, I had kept it oiled, and all like that, but I still listen to the 135 word per minute printing for any skips of its little pounding heart. For month after month it has worked with only an occasionally skipped letter but I still worry about it. It just doesn't seem natural to hear it being pounded by that computer.

I keep thinking that one of these days it is going to throw a rod and then I will be off to the computer store to find a printer suitable to provide the fine quality print demanded by that tough ole editor, Joe, WA5ZNF.

Well, my worst fears were confirmed last month when the Rumpity Tumpity was interrupted by a "Rump Thump ker-bump bump!" I peered into it and sure enough it had thrown a "rod", er, rotate band off a little pulley. The typewriter was printing gibberish about 80 percent of the way down the last page! Since I had procrastinated and waited until paste-up night to do the printing, I started to sweat. With a little home-made tool, I carefully lifted the band back onto the

pulley, edited the file to leave only the unprinted portion, and restarted it.

It printed the rest of the file but made a few messes so I restarted it to try for a better copy. It went along fine for a few lines and started its "Bumpety Ker-klinkity" again and I stopped it. Sure enough, the band was off again so I reinstalled it and started the print again. This time it printed a few lines and went "Poing!" and that was the end of that little rotate band!

With scissors, paste, and a bit of taping, I finally finished the copy and rushed it over to Joe's, and not all that late, whew!

I spent the next week out of town but all the while was thinking that I had to do something about that printer problem. I scanned the ads but my heart wasn't agreeing that I wanted another printer. What I really want is a laser printer like Mike, N5MS's. It isn't the price that retards me but the installation of the printer drivers and finding suitable software to run it.

The next weekend, when I got home I called the well known typewriter magician, artist, printer, and generally expert-at-most-everything, Jim Greenshields, WD5HPU. Noting from last month's C&E that he has established himself in his own business at 331 White Street in Norman, and that he was the one who did the initial tuning of my Selectric before it started its C&E career, I gave him a call. "No sweat, sez he! Bring 'er over!" So I did.

Now, this isn't just an ordinary Selectric. It has the ESCON computer interface, originally installed by Tommy, WA5TSJ. It includes a bunch of solenoids that act like electric fingers which pound those keys like a demon. I didn't expect Jim to have to mess with the solenoid adjustments but as it turned out, he did.

He found the basic typewriter mechanism in pretty good shape and replaced the broken rotate band lickity-split. But, there was still a problem. When the test print routine was performed, the band flipped off of that little pulley. "Hmm, sez Jim. I need to look at this a little deeper."

Like I said, Jim is kind of a wizard about a lot of things and he knew that there were some simultaneous happenings that the Selectric mechanism wouldn't take kindly to. Once he figured out what all those solenoids did, he zeroed in on a combination of activities that one of the solenoid shouldn't get involved in. He took a close look at that particular little

critter and discovered that the armature (the plunger) seemed to be sticking at the bottom of the hole. So, he took it apart to see what kind of junk was in there. Nothing! "Well, it sure is sticking, sez he. There must be some kind of reason for it." And there was. It had some residual magnetism that was causing the armature to stick to the iron in the bottom of the hole. He fixed that in his ingenious sorta way. He slipped a tiny bit of cotton down into the bottom of that hole to add a bit of space. It worked! Immediately the thing quit throwing a fit when the printer test was run.

When I got it home I ran a bit of a test and found it working almost perfectly except the shift/space solenoid seemed to need a bit of adjustment. It is going to get some fine tuning before I try to run this off. I format the three columns side by side and print them all at once on a big piece of paper. If I miss a space somewhere in that 132 column line it sure makes it look messy! My fingers are crossed and we will see how it runs this time.

I gotta say though, I couldn't be any luckier than to know about Jim and his skills. Appreciate it Jim! I hope they keep you busy as heck in your new location! Joe, K5JB

Pac-Comm Tiny-2

Last month I ran a little blurb about the Pac-Comm Tiny-2 TNC prototype I had been testing. It is still doing well here. Since last month I did some testing with other EPROMs after making modifications necessary to achieve full TNC-2 interchangeability. (It came equipped with Version 1.1.4 of the TAPR code and 32K of RAM. It will be shipped with Version 1.1.5 code.) Glenn Bankston, WB4ZNM, the designer said it wouldn't work with NET/ROM until some changes were made with the I/O device addressing scheme. I made the changes on mine and tested it with the KISS and Texnet Bridge EPROMs in order to report on the success of the modifications. (More on the Bridge and KISS experiments later.)

The only other alterations I made on mine were to replace some of the components with CMOS devices to see how much I could reduce the current. Initially, with NMOS Z-80, EPROM, and Serial I/O chips it drew 215 mA. Changing the Z-80 to CMOS reduced the current to 142 mA. Changing the 27256 EPROM to a 27C256 further reduced it to 113 mA. I will wait to mail order the CMOS SIO to give that a shot. All the other devices are already low power. I think it will make a nifty portable, battery powered packet rig.

A quick review of what it is:

It has the Texas Instruments TCM 3105 modem chip that the Kantronics KAM uses (Last month I mis-identified it). So far I have been very impressed with it's receiving performance! It is a bare bones design, having only four big ICs and eleven little ones. It is not the itty bitty one you have heard about from the Japanese Packet User Group; the one with surface mount devices. That one may be someday marketed in the US but, because of the surface mount devices, it will be expensive, probably about \$300.

The Tiny-2 is on a circuit board that is about 4 1/2 by 7 inches. It could have been smaller but the circuit board provides for some other circuits that will be used to control another design that is in the mill. The design goal of Tiny-2 is to have a TNC that is simple and inexpensive to produce, to run the same software as the TAPR TNC-2 design, and to be able to advertise the lowest price TNC on the market. It should look pretty respectable too since it will be in an extruded aluminum case like the TNC-2 (AEA PK-80, etc.) except lighter and smaller. The radio connects with the same DIN plug as used with the TNC-2 designs. A DE-9 connector is provided for the RS-232 signals. The intent was to make it possible to use a cheap IBM PC/AT modem cable to make the connection to the computer. There is also a separate connector to provide TTL signal levels for PK-64s.

That's about it, I guess. Oh yeah, it runs on 12 V DC and has the regular set of five status lights like the later TNCs have for power, PTT, Connect, Outstanding packet status, and Carrier Detect.

There is a backorder on the things and the first ones should start shipping within a couple of weeks. Just like the initial shipments of the TAPR TNC-2s, Pac-Comm is sweating delivery of the cabinet end pieces. I told Gwynn to send me one without the end pieces so Bill, WD5HJL, could get it on the OKC net/rom deal for the UHF link. If it isn't running the Bridge (see article below) catch me around the ham shack and I will put it on for you so you can hear it. Joe, K5JB

TCP/IP on Packet

The last couple of months I have mentioned TCP/IP and how I got the disks for Dave, WD5G so he could take advantage of the KISS protocol in his Kantronics packet controller. I was waiting for someone like Dave to express an interest before I bothered because it "takes at least two to

Tango, er, TCP/IP".

Bob, WA9FCT, was the first local amateur who expressed to me any interest in TCP/IP on packet radio. He brought up the subject at Ham Holiday and later that weekend brought me a copy of a computer trade paper that discussed the merits of TCP/IP and said he would sure like to know more about it.

When Dave, WD5G, got the Kantronics upgrade that alluded to TCP/IP support he developed a burning yen to pursue it. After I fixed him up with the program disks he went to work in earnest trying to figure it all out. Meanwhile, from some Compuserve Hamnet messages, I noted that Bob, WA9FCT, was after the program disks too, so the race between Dave and Bob was on. Unfortunately, Bob didn't get outa da gate because he has a TI-99 and the compiled stuff only runs on the MS-DOS computers. He did, however enable Duane, KA5WRG, and Mike, N5CCM, to get the materials and start playing with them.

(The disks to run TCP/IP on packet radio are distributed by Andy Freeborn, NOCCZ, in Colorado Springs. Full source code is included so if you are crafty with the C language you might be able to port it over to your favorite computer.)

This last week things finally started happening! To date there are three of us on the air with TCP/IP. Dave, WD5G, lives in Midwest City; Duane, KA5WRG, lives in Moore. We have had telnet sessions (keyboard to keyboard) and ftp sessions (reading directories, sending and receiving files, etc.) I have succeeded in sending mail to those guys but neither of them have sent me anything yet.

I learned that Bob, KA5MIZ, in Norman had already contacted the IP address Guru and received an IP address, 44.52.0.1. We decided to make him our local address Guru and he passed out the next addresses as folks came on line. Bob is not on the air with his yet because there is no KISS code available for the Pac-Comm TNC-220 he is running. The addresses you need to know to contact one of us with IP are:

*Bob, KA5MIZ	44.52.0.1
Joe, K5JB	44.52.0.2
Dave, WD5G	44.52.0.3
Duane, KA5WRG	44.52.0.4
*Mike, N5CCM	44.52.0.5

* Mike, as of this writing, was not on the air. He was browsing through the disks but was going to be traveling for the next week so he wasn't going to try it until he returned. Bob, as I mentioned has to figure out how to get a KISS TNC running.

You can make up any kind of address you want, as long as it is in that format and but you have to let the others know what your address is so they can contact you. The IP uses the numerical address for running sessions.

Just for a refresher, here is a thumbnail explanation of what TCP/IP, as it relates to packet radio, is all about.

Functionally, you can have a keyboard to keyboard (telnet) session; you can log on to another user's computer, send and receive files (ftp); send mail (smtp); or if you run a WORLI type bulletin board you can pass files (server) between the two. This latter function requires that you have at least two serial ports on the computer.

Basically, packet radio TCP/IP is a suite of standards and programs that create a network using the same standards used to link various computers together over telephone lines (primarily ARPANET). What makes it interesting is that it was created by computer users rather than by someone with a product to sell. The information is completely free and the "standards" are all well documented. Unfortunately, you really have to be a computer networking freak, and a programmer to understand and make full use of the available information. To really get a kick out of it you have to be one who, for example, has a copy of all the the ARRL networking conference proceedings. The programs we are running were developed by Phil Karn, KA9Q, and others, to adapt TCP/IP to the Amateur Packet Radio environment.

The TCP/IP package consists of a terminal to terminal process called "telnet"; a file transfer protocol called "ftp"; a mail sending process called "smtp", or simple mail transfer protocol; a mail preparation program called "bm", prepared by Bdale Garbee, N3EUA; and a server routine, called "server" that handles transfer of mail between the MS-DOS TCP/IP and the WORLI type bulletin boards done by Gerard, PA0GRI.

At the present, this stuff ain't for the occasional computer user who has trouble remembering whether the command "del" is used to "deliver" or "delete" files, or can't remember to hit Control-C before issuing commands to a TNC. There is one disk in the three disk set, called "Plug and Play" that facilitates getting on the air without much muss and fuss. When Dave was ready to try it, I broke out my copy and went through the configuration process. It took all evening but we got them the computers to recognize each other on the air.

The TNC used with the TCP/IP uses a simple protocol called KISS (guess what that means). It receives packets off the air and passes them, unprocessed, except for the SDLC error check, to the computer. It is up to the computer to examine each packet and determine what to do with it. (The TCP/IP we have will not work unless you have this KISS protocol.) Since TCP/IP is a networking protocol, it uses different kinds of packets than link level AX.25 uses. It can read AX.25 link level packets and display them on the screen, but there is nothing we have found that can make the TCP/IP using computer recognize packets from ordinary TNC users. (There is an ordinary serial port handler called "slip" that we are looking at closely.)

This is a rather serious limitation because all the nifty networking in the world is useless if no one can use it. I suspect the reason Phil, KA9Q, makes all the source code available is so someone (a talented programmer) can make that user interface available. So far, we haven't found it lurking in the code. There is an interface with the WORLI type bulletin board message system, but I don't happen to run one of those.

If anyone else is interested in giving it a shot, I have the KISS code for TNC-2 designs in two formats. One which is KISS only, and the other which is a loader routine combined with the regular TNC-2 code. On startup you type "H" to go to regular code, or you execute a download of the Intel HEX code if you want to run KISS. PK-232, and some Kantronics, have the KISS code in them already. It is available for the TNC-1 and I think it is available for the PK-87. If you want the EPROM images I have, just call me or leave a note on the BBS. I can provide the MS-DOS code or you can get it from one of the other guys who is on TCP/IP.

If you want more reading information it is scattered all throughout the packet publications for the last couple of years. For example, the Fourth Annual Computer Conference Proceedings from the ARRL contain Phil Karn's TCP/IP paper that relates to Packet Radio Levels 3 and 4 (networking and transport) and contains the arguments favoring the datagram network over the virtual circuit network.

In the next few weeks we will be finding out if TCP/IP is here to stay. I suspect it ought to be run on some frequency other than 145.01 but I hate to screw up another frequency until we figure out if it is worthwhile. (It makes little cuss characters like net/rom). For it to take off and be useful, it will be

necessary for someone who is a real network whiz to get interested in it. If that happens, there are at least a few folks who have the curiosity to play with it and the capability to run the stuff. Joe, K5JB

NET/ROM Operation

(Bill, WD5HJL, obligingly prepared this at a moments notice and sent it to me by, ahem, Packet Radio!)

As most of you packeteers have already noticed, several digipeaters (digis) have been converted to NET/ROM nodes. This article is to explain what NET/ROM is, how to use it, what it's status is, and where it's going. It is not the intent of this article to argue for NET/ROM against other forms of networking, but merely to inform.

NET/ROM is packet networking software provided in a 27256 eeprom which replaces the firmware in the standard TAPR TNC-2 or "clone". This converts the TNC-2 into a high-level networking node controller. The software is written by Ron Raikes, WA8DED of Software 2000, Inc. You might recognize his call from the level 2 software he wrote for the TNC-1.

In addition to normal multi-hop digipeating, NET/ROM provides what is called true store and forward packet switching. This means that packets are passed from node to node with acknowledges (acks) occurring between nodes, as opposed to ordinary digipeating with only end to end acks. Throughput is enhanced a great deal over long paths with multiple digis. NET/ROM also uses multi-layer protocols between nodes. This is why you see seemingly meaningless ASCII characters on your screen from time to time. It is beyond the scope of this article to explain these higher level protocols. It is not necessary to understand them to use NET/ROM anyway.

To use NET/ROM, you establish an uplink by just connecting to your local node:

```
(Control-C)
cmd:connect okc
*** CONNECTED to OKC
```

You then can ask the node for a list of other nodes it knows routes to:

```
nodes
WD5HJL-1) Nodes:
CEDAR:N5KFN-1 ELRO:AC5C-1
OKCY:KG5AA-1 POND:WA7UIB-1
WALAW:WJ5Y-1 WFORD:K5LGW-1
```

Next you ask your local node to establish a link to one of the nodes on the list by issuing the commands:

```
connect walaw
WD5HJL-1) Connected to WALAW
```

Now you can either issue another NODES command to get another list of nodes or you can establish a downlink to a station near that node:

```
connect wj5y
WJ5Y-1) Connected to WJ5Y
```

When the destination station gets your connect, he will see a -15 (or possibly -14, -13,...) appended to your call. This is because the last node in the route assumes your basic call sign when making it's downlink. The appended SSID is necessary to keep the nodes from getting confused.

When your finished with your conversation, just issue a disconnect to your tnc:

```
(Control-C) disconnect
*** DISCONNECTED
```

The nodes will automatically disconnect the link.

You will notice that you do not have to specify which nodes to route thru to get to the destination node. This is because of NET/ROM's automatic adaptive routing table. All you have to do is connect to your local node and then tell that node the destination node you wish to connect to. NET/ROM automatically picks a route to the destination. If the particular route you are using fails for some reason, NET/ROM will try to find another route circumventing the failed link. This is done dynamically usually without the end user's knowledge.

Besides the CONNECT and NODES commands, there is the CQ, and the USERS commands that are of interest to the user. The CQ command allows a user to broadcast an unproto message thru the nodes and enables other users to connect to the station that originated the broadcast. The form of the command is as follows:

```
CQ <text message>
```

Text message can be any string up to 77 characters long. After making the broadcast, a listening station can connect back to the originating station simply by connecting to the call-sign shown in the broadcast. This connect-back feature only lasts for 15 minutes after the CQ was broadcast. The USERS command responds with a summary of who is using the node.

Currently all NET/ROM nodes in Oklahoma are using 145.01 MHz for both the uplink-downlinks and the crosslinks between nodes. Plans are now in the works for several of them to utilize a common UHF frequency for crosslinking. This will help alleviate the congestion on 145.01 caused by the communications between nodes. Hopefully, high-speed modems will be employed on these crosslinks in the near future to enhance throughput.

Another possibility is to set up separate frequencies for each local area network to further reduce congestion.

This was just a brief overview and tutorial of NET/ROM. There is much more to it's operation. If you have any questions, there are several users available on 145.01 that can assist you. Enjoy. Bill, WD5HJL, Trustee of OKC NET/ROM

The Bridge

Back in January 1987, I ran some information supplied by Ron, WB5TTU, on the Texnet Conference Bridge that Bob, WB5AOH, was running in Ft. Gibson. I withheld my editorial comment at that time because Ron accurately reflected my feelings that it would be a real frequency hog.

What is "the bridge"? Well, I am glad you asked. It is a TNC running a control program written by WB5PUC that exercises some of the code modules he developed for the Texnet Controller project. A user connects to the bridge by using a specified call (K5JB-3 or K5JB-8 in my case) and whatever he sends to the bridge after connecting is retransmitted if there is someone else connected to the bridge. It sends the packet to, and gets an ACK from, all the other people on the thing. If nobody else is connected, it transmits nothing. Users have to connect to the thing; it is incapable of sending out connect requests. (I don't know how it handles the AX.25 version 2 link reset thing). The only command you can send to it is a Control-U, which causes it to respond with a list of users who are connected.

It follows the AX.12 1/2 standard that Texnet uses (half the packet size, half the number of permitted digipeaters and half the number of SSIDs, more or less). That is why I put the connect message on it to limit the packet size to 128, maximum. It is retry city otherwise. (You limit the packet size with the command, "paclen 128". Don't type the quotes; type Ctrl-C to get to the command prompt on your TNC.)

When you see W5XXX-?, it is because the bridge didn't think someone was going to use a ssid greater than 9 and didn't provide for the -15 and other numbers made up by net/rom. Try connecting to it with -11 and you will see something equally strange. Beats always talking about the weather, eh?

The real reason for putting it on the air was to exercise the Pac-Comm Tiny-2 TNC prototype with a foreign EPROM. (I also ran the KISS code for a while.) I ran it about a week on

145.07, but of course nobody knew it was there so it didn't get much activity. Since one more junk generator couldn't hurt on 145.01 at the moment, I put it on there for a few days. It has been kind of fun to watch.

I got some help from Bob, WB5AOH, in making patches to the thing so it wouldn't interfere with the switch or my main station. My EPROM code originally came from WB5FWE and I royally bugged it up. Texnet no longer supports the scheme because the same functions are now performed in a first class fashion in their network node controller.

When we get organized I might make the bridge available on a local area net frequency. Who knows? At least, it doesn't make winkey blinky and ringy dinky characters like the TCP/IP and net/rom! Joe, K5JB

Some Packet Operating Tips

Since Bill gave me this article to run I had another page I had not counted on so I still have a bit to fill. I'll just do it with some packet operating problems I have noticed. No, I am not going to nag you about the beacons, etc.; I wanted to mention some technical tips.

A couple of month's ago, at Mac, K2GKK's suggestion, I ran some technical tips about transmitter deviation setting. That seems to have done some good because there are a lot of good sounding signals out there. I made some smart aleck remark about Kantronics the other night and Ken, WA5DTL, pinned me down and made me get out the instruments so he could fine tune his KAM.

(With Kantronics you have two jumper selections. With some rigs they are "too weak" and "way too weak" and with other rigs they are "too hot" and "way to hot". If you want to really adjust it you have to pick "too hot" and add just a tad of resistance to the mike circuit.)

No, the transmitters are sounding pretty good. At least I don't seem to have any problem reading any of them. But, I am seeing a lot of unnecessary retries from perfectly readable packets not being acknowledged by someone. I am not sure what to suggest. Here are some of the problems I have experienced that made it difficult to receive packets.

Noise! Power line noise or any kind of disturbance that punches a hole in a packet will sure do it in. Sometime there are noises on frequency we just aren't aware of because of the nature of FM. I have done some noise chasing by using the 2M SSB rig and

you can bet your life there is a bunch of noise out there. If the packet signal you are trying to receive is weak enough the background noise will sure enough knock holes in it. I have found that when signals are weak, it seems to be better to have the audio from the radio at the lower threshold of a TNC's ability to decode. I had a lot of experience in the early packet days working WB5RRR directly from Enid and I found some benefit in setting the receiver audio low and turning it up until it just started decoding Sandy.

Some noises you might be able to eliminate. Whenever I tried to use the hand held on packet it was a disaster because of the noise generated by the TNC or a nearby computer. I currently have the Tiny-2 TNC running without a case and the 2 M hand held goes crazy! The only solution in this case is to hook up a remote antenna and try to eliminate some of the noise from the source with shielding and grounding.

Poor grounding can cause AC ripple to ride in on the audio lines. This really shouldn't be much of a factor with the audio levels coming from a speaker but I discovered the Tiny-2 TNC would decode with as little as 5 mV RMS of audio. It isn't difficult to imagine having 5 mV of noise from a power supply ground loop.

Some computers are noisier than others. I wouldn't advise using a Model 1 Radio Shack computer, if you know what I mean, or an early Apple II, before they started shielding them (starting with the II+). Ken, WA5DTL, can give you some advice on noise riding out of the computers and TNCs on the cables. Ask him about split toroid cores that can be easily installed to choke some of the noise.

With a decent outside antenna and coax cable installation, the only thing you may be able to do is be more conscious of the audio levels you are sending to the TNC. For starters, I open the squelch and raise the audio until the DCD LED just starts to flicker. This seems to be a good setting for my setup. It results in about 40 to 60 mV of audio (which is a very low listening level) going to the TNC.

You should already know how to test your receiving ability by setting up an unproto path through a station you want to test with. Try it and find what audio settings your TNC likes.

I guess the bottom line is to be aware when your system isn't working properly and do something about it. You will certainly enjoy it more if you get the performance the thing is designed to yield. Joe, K5JB