SECOND CLASS MAIL Postmaster, see page 3

CENTRAL OKLAHOMA RADIO AMATEURS
COLLECTOR AND EMITTER
50¢

VOL. 12 March 1986 NO. 134

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OKLAHOMA CPM USERS GROUP

I have an important announcement to make concerning the club's meeting place. Instead of meeting at the usual place, we will be meeting at the downtown offices of Southwestern Bell Telephone which is located on the north side of Dean A. McGee Ave. between Broadway and Robinson. Now, if you don't know where Dean A. McGee is, it's 3rd street. I was told that we could park in the parking area between the two SW Bell buildings or anywhere on the street that we wanted to. The meeting will start at 7:00 PM.

Some of you may not know that the Osborne Users Group has merged with our club. Their president, Bill Cooter, will be presenting the program for the next meeting. Now, Bill is a real talker, so don't miss it, because I'm sure that it will be interesting.

There is a CP/M program in the public domain for dBASE II called Mail. I downloaded it from Kevin's bulletin board and found it to quite useful. It allows you to build a database of mailing addresses that you want to keep track of, but it goes a lot further than that. Other fields are included, also, such as:

1. Company name
2. Phone number
3. Birthdays for husband & wife
4. Wedding anniversary date
5. Whether you want them to receive a Christmas card
6. A keyword for searching

Complete editing provisions are built into the menu, so it is really easy to use.

Some of the printing options available to us are:

1. Mailing labels
2. Directory listing
3. Mailmerge file
4. Christmas card list
5. Birthdays and anniversaries list for a particular month

You can have the list sorted in:

1. Directory order
2. Zip code order
3. City order
4. State order
5. Original order

You can have it search for particular:

1. Last names
2. Zip codes
3. Keywords
4. All names and addresses

It could be a useful program to keep track of friends, business clients, prospects, and any other category that you need and you can have them all in one list categorized by keywords. The output can be directed to the screen or to the printer.

I have made some modifications to the program, which have made it more useful to me and I would be willing to share my copy with you or to help you to adapt it to better suit your needs.

If you would like to have some input to this column or if you would give us a review of some program or other product that would be useful to the rest of us, let me know.

Dale Moore, 721-6142

REPORTERS NOTICE !

After checking the calendar for the rest of the year I noticed that the only one that would have to "hustle" to get his copy in if I changed the closing time for the Collector & Emitter. (That was Joe Buswell, KSJB, and he hasn't missed an issue yet so I guess he can make it from the Third Saturday to the Friday before the Fourth Monday to get his copy in.) Boy, that is a mixed up sentence - but.....

Due to printer problems I am going to have to change the paste up date from the Fourth Monday to..

Friday before the Fourth Monday.

SO

Starting with the next issue we are moving the paste up a couple of days to.....

FRIDAY

BEFORE THE

Fourth Monday

The South Canadian Amateur Radio Society

KD5IT

FEBRUARY MEETING

The club held its monthly meeting on Saturday, February 8, at the Red Cross. In spite of the bad weather, about 20 members and 3 guests attended the meeting. The guests were Jim, N6HNY; Andrea, KA6PKJ and Stephen,NI8W. Jim hails from San Jose, CA and is attending the postal institute in Norman. He has a portable packet system and has been very active on 2 meter packet while in Norman.

NEW MEMBERS AND CALLS

Andrea and Stephen, who live in Moore, joined the club at the meeting. Other new club members are Joyce, N5IDY, and Fred, N5ITQ, who earned his novice and tech tickets last fall in the SCARS class. Two other members of that class have finally received their calls: Dorinda, N5IUA, and Barney, N5IUB. And Frank, N5IQJ, upgraded to general at the VE exam in Moore last December.

The business items discussed at the meeting were:

1. Purchase of antenna and feedline.
2. Field day plans
3. VE Exams

ANTENNA & FEEDLINE

The decline and fall of the tower used for the club repeater (transmitter and 66 input) destroyed both the antenna and the feedline. Ken, N5BEW, the repeater alternate trustee, proposed the club purchase a DB 224 antenna and 350 feet of 7/8 in hardline. Total cost of the two items is $475. The club approved the purchase.

DUES ARE OVERDUE

SCARS members who have not paid their dues by March 1 may be dropped from the club roster and the C&E mailing list. Send your check for $12 to the club treasurer, Monte Bateman, 1514 Denison, Norman, OK if you can't make the coffee on Saturdays.

Q. R. Zedd

DETAILS OF ZEDD'S ATLANTIS FEAT

LONDON -- Q. R. Zedd, A5A, world's greatest DXer, became the first member of Great Britain's Order of the Yagi today.

The presentation, which included a tap on the shoulder with a piece of RG8U by the Queen and a night at the nearest disco with Princess Di, was in recognition of the Sooner ace's great exploits in amateur radio.

The new award was created for Zedd.

As she swatted Zedd with the coax, the queen specifically mentioned his activation of the lost continent of Atlantis on all bands, all modes, a month ago.

"Sweetheart," said the queen, "when I turned on my KWM2 and heard you QRZ from under the sea, it really turned me on."

Zedd said he was glad to have worked the queen on three bands during the expedition. The queen handed him her QSL cards on the spot and asked when the Atlantis QSLs would be going on.

"Soon," Zedd told her. "Say, queen, where are your IRCs? I don't see your IRCs in this envelope."

The disco scene with Princess Di was a glamorous event, attended also by Jacques Cousteau, who danced a lot with N5IAA, and such luminaries as Elton John and W5NUT. Zedd taught Di a few new steps and she was thrilled.

Tondelayo Schwartz, Zedd's blonde, nubile, QSL secretary and constant companion, may have been jealous.

"I think Tondelayo may be jealous," a reporter for the Times of London keenly observed right after Tondelayo tore Princess Di's hair out and dumped a 40-gallon punch bowl over her newly bald head.

As to worldwide reaction in the aftermath of Zedd's historic DXpedition, there were already 15,000 QSL cards in Box 1, Norman, Okla., the proper route for those who worked the great one's team.

In Russia, Soviet DX ace Boris Badenov issued a statement congratulating Zedd on his latest feat, but saying that Russians had first worked amateur radio from Atlantis in 1355 B.C., when it was still above the water.

"Is like everything else, great Russian radio sportsmen did it first and best," Badenov added. "But as greatest in world, I congratulate crummy capitalist pig, my good friend, that swine, Zepp, Zipp, what is his name."

Zedd's underwater team worked 66 K on 12 or 13 bands, using battery power for exciters and nuclear power supplied via cable for the linears from the USS Yagi, the nuclear submarine floating above. Rigs were sealed in plastic trash bags with capacitive feed to the antennas, waterproof coax going up to buoy-supported beams on the sea surface. Special Twinkie and Coors dispensers were used.

Now that first things have been done first, it was reported that 14 nations are planning investigations at the site of the lost continent, a subject of myth since the time of the ancient Greeks. National Geographic and Disneyworld are also planning visits. As a special mark of distinction, Zedd and his party left their coax connectors on the site of the expedition, so that future visitors can touch them and get a thrill.

At presstime, the first worldwide sensation over Zedd's latest and greatest exploit had begun to subside only a bit. But Momma Zedd, a member of the team, had already jetted back to her home in Mena, Arkansas, and Zedd himself, with Tondelayo at his side after their post-disco reconciliation, was reported preparing to spend a few well-earned days of rest on the French Riviera.

The good news for hams everywhere was that the great man was seen packing a Kenwood 430 for the trip to the beach. The bad news was that the only antenna anyone saw was a little six-element Yagi.

Tondelayo had her keyer.

--KU5B

THERE WILL BE ANOTHER AMATEUR TEST SESSION, NOVICE THRU EXTRA

DATE MARCH 8, 1986
TIME 10:00 am
PLACE KF Industries (Plant Lunch Room), 1500 SE 89th. One mile East of SE 89th and I-35.

PRE-REGISTRATIONS NOT REQUIRED
(WALK-INS ONLY)

PHONE CONTACT 794-7398 Hal, NX5I after 5:30. 672-5564 George, NX5E after 5:30. 631-1533 Orlie or Hal 8:00 am to 5:00 pm.

The fee has been advanced to the tune of $4.25 for all test except NOVICE.

Last session 18 applied and 10 passed.

VOLUNTEER EXAMINER PROGRAM

V.E. TESTS ARE HELD THE THIRD 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.

SCHEDULED TEST SESSIONS FOR THE REMAINDER OF THE YEAR ARE AS FOLLOWS:

MARCH 17	AUGUST 18
APRIL 21	SEPTEMBER 15
MAY 19	OCTOBER 20
JUNE 16	NOVEMBER 17
JULY 21	DECEMBER 15

AT FEBRUARY'S TEST SESSION WE HAD NINETEEN CANDIDATES. ELEVEN OF THESE APPLICANTS UPGRADED. THE BREAKDOWN WAS AS FOLLOWS:
- 3 GENERALS TO ADVANCED - MIKE (KA5TSD), TERRY (N5ILR) AND EARL (N5FBM).
- 1 TECH TO GENERAL - MARIOLA (KA5YEG).
- 7 NOVICE TO TECH - CAL (KAØSEJ), TODD (KA5YSD), SYLVIA (KA5SUY), SANDRA (KA5ONI), JERRY (KA5VCJ), BEVERLY (KA5WKQ) AND JOHN (KA5VCW). CONGRATULATIONS TO ALL THE NEW UPGRADES.

WE WOULD LIKE TO REMIND YOU THAT 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).
5. ORIGINAL HAM LICENSE (YOU KEEP)
6. XEROX OF HAM LICENSE (WE KEEP)

IF YOU DO NOT HAVE A FORM 610, ONE WILL BE PROVIDED. A $4.25 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).

NOVICE TESTS ARE AVAILABLE AND ARE FREE OF CHARGE.

HOPE TO SEE YOU AT THE NEXT TEST SESSION.

RON -- ND5S

An optimist is an OM who expects to find a useful item in the junk box he bought at Ham Holiday.

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 WETMORE, 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	DOC BOWERS, KX5M	942-7738
VP	TIM REUSCHER, KA5MUG	848-9910
SE	MIKE SAMBUCO, KA5TSD	672-9176
TR	SID GERBER, W5KOI	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, W5FMU	340-4468
TR	ART HERNANDEI, W5SRI	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, KA5CDI	329-3217
TR	GREG SMITH, KA5LIN	366-1641
EDITOR:	GREG SMITH, KA5LIN	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, W5VIU	482-1797
EDITOR:	MIKE SCHENKLE, KB5XN	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, KB5XN	381-2005

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 BUSHELL, N5BEQ	236-0368
SE	KATHY WHITED, WB5NDO	799-1457
TR	SUSAN ST LAURENT, N5GVK	324-8180
CON/COM:	CHARLES HOFFERBER, N5FMU	340-4468

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

PR	JOE GARLAND, WA5FLT (CALUMET)	893-2660
VP	JOHNNY FISH, K5GBN (CALUMET)	893-2227
S/T	GEORGE MASCHINO, K5GGL (OKARCHE)	263-7614
EDITOR:	VIRGINIA BENEDA, N5EMD(WATONGA)	623-7935

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

PR	DAVE WHITE, WN5LUI	765-5707
VP	VERNON TREIBER, W5ANV	767-1571
SE	GLEN BISHOP, JR, KA5PUB	767-1031
TR	BIZ MICHY, WD0HCD	762-3297
EDITOR:	DOUG EVERITT, N5DUB	359-0069

11 EDMOND AMATEUR RADIO SOCIETY
MEETS: ODD MONTHS, 3RD SUNDAY, 2:00PM, EDMOND EOC. DINNER, EVEN MONTHS, 3RD FRIDAY.

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	ROBERT RUNYON, AA0D	373-1818
VCH	GENE NAILEN, K5DLE	341-8289
S/T	HOWARD BAKER, W5AS	721-5453
EDITOR:	ROBERT RUNYON, AA0D	373-1818

13 KAY COUNTY ARC
MEETS: 7:00PM THIRD THURSDAY PIONEER DRIVE-IN BANK, PONCA CITY OK

PR	PAUL DAVIS, N5HIC	765-2227
VP	DAVE LAND, KD5FX	762-8616
S/T	RICK LONG, KE5XY	765-5487
EDITOR:	RICK LONG, KE5XY	765-5487

14 CIMMARON ARS
MEETS: 7:30 PM THIRD THURSDAY. N5FUD RADIO SHACK 827 S 13, FAIRVIEW

PR	STEVE SCHOONMAKER,N5FUP	(405) 886-3274
VP	BILL SIMPSON, N5HQK	(405) 883-5523
SE	NADINE PAINTON, N5FMH	(405) 764-3599
TR	BETTY DAY,KA5RTW	(405) 227-3462
EDITOR:	JACK DAY,NN5I	(405) 227-3462

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

PR	JEFF WYKE, KE5EB	329-6762
VP	FRANK RIZZO, W2OCM	321-2899
TR	MONTE BATEMAN, WB5RIX	329-7485
SE	LINDA BRANDT, N5DWN	321-5081
EDITOR:	DAVIS EGLE, KD5IT	321-7570

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	BOB MOORE, KA5ETA	799-1765
S/T	KAY NORTHCUTT, WA5DYJ	755-4672
EDITOR:	MARK NORTHCUTT, WD5DYI	755-4672

17 CP/M USERS
MEETS: 7:00PM SECOND THURSDAY 111 DEAN A. MCGEE, SOUTHWESTERN BELL OFFICE

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 WOODWARD PUBLIC WORKS BLDG.

PR	MINDLE HATCHETT, WA5PLM (FT. SUPPLY)	766-3561
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 I 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, W5GN	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

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EDITOR: Joe Harding, WA5IMF 737-1044
CIRCULATION: Bob Graham, WB5NSV, 677-8685

Club
NEWS

W5LOV

Minutes of February Meeting

Meeting was called to order by president Jerry, KD5IS, with six members present.

Ellard, W5KE, gave the Treasurer's report.

Joe, WA5ZNF, advised that to improve production arrangements, C&E material would be due for paste-up on Fridays rather than Mondays, starting in March. Joe also gave the CORA report.

Motion passed that the treasurer send a notice of club dues to all members who have not paid yet for 1986.

Meeting adjourned at 11 A.M.
Joe, K5JB, Sec'y

News from Lake Where's He Gone

It has been pretty quiet this last month at the Lake Poke 'n Plumb K5JB ham shack (that is where you poke your head out of the window and you are plumb out in the country) because K5JB has been nowhere to be found. I have not been anywhere exotic so there isn't any story there. I did get to join up with some of my cronies in Washington D.C. where Hoss, WA5ZAI, lives. One of our buddies. Chuck, N8ADN, was in Washington going to school and we managed to get together for one dinner. Hoss and I made the Goddard Space Flight Center Amateur Radio Club flea market and I bought a cowboy hat. (It was raining at the time and it seemed like a good idea.) That hat made some good points back at the Washington office where I gave it to one of my favorite secretaries.

I also got an opportunity to get Hoss' packet radio setup running while I was there. He had built a TAPR TNC 2 and it was dying on the sign-on process. He had thoroughly trouble shot the thing and was at the point of thinking that there was a firmware problem. I brought the thing home and hooked it up to my gear. It ran! I finished the alignment, which Hoss couldn't do because of the lock-up. I have to give credit to Bob, AF5Z who gave me a clue of what might have been happening. He said that he had heard that the TNC would die during sign on if one of the terminal handshaking signal lines was asserted. He was right! When we hooked the thing up to Hoss' CRT terminal and powered it up, it died right in the middle of the sign-on.

I asked for the diagonal cutters and proceeded to snip some of the unnecessary wires leading to the RS-232 plug for his terminal. Mission accomplished. No sweat! It signed on and permitted us to do the initial TNC set-up commands.

He had not connected a cable from the TNC to the radio yet so we were unable to watch it play on the air.

Later, on another visit, I found that he had finally connected the cables to the radio but had not yet made a contact. I fixed that too. After watching the band for a bit to see who was reachable from his home, I tried a loopback test with one of the stations. (A packet station can connect with itself via another packet station. It is a good way to test a path without disturbing another operator or possibly getting his station locked in a connected state if the path is bad, or the receiving set-up is inadequate.)

I connected with the nearby station and typed the line, "Hi there! My name is Hoss and you are my first packet contact!" Then I got up from the chair and told Hoss that someone wanted to talk to him.

After he finished his contact, he reminded me that I had done that to him once before. When he received his novice ticket, I went to his house to check out things and verify his transmitter tuning, etc. When I heard a station calling CQ, I did Hoss the favor of calling the guy for him and getting up from the chair to let him jump in and swim in the sea of c.w.

Plans are well under way for the Dayton Hamvention this year. I don't know who all is going from the Oklahoma City area this year but a bunch that went last year and got the benefit of $400 vouchers from TWA are spending about half of those vouchers getting to Dayton and back this year. Mike, N5MS, advises me that the rooms are all ready for us, thanks to the scrap put up by Tim, WA5LTM. It seems that the Holiday Inn folks thought these Okies were a bunch of push-overs. They greatly underestimated Tim's aggressiveness when they tried to give our rooms away and shuffle us off to another hotel out in the boondocks (that is Ohio equivalent to Poke 'n Plumb).

The Ohio members of the 'Faithful' are readying for our arrival. I heard them on 40 Meters discussing plans of hiding the booze, etc.; and what kind of surprises they were going to pull on us.

I am later than ever getting to work on the C&E. Travel has taken its toll. If I didn't have anything else to do there wouldn't be to much of a problem getting the thing together. But, fixing plumbing, washing clothes, fixing the car, etc. really eat into what little time is available on the weekend. Joe, WA5ZNF, made the comment during the VHF Club meeting that I was the only contributor who had managed to have something in every issue of the C&E that has been published under the CORA banner.

I was surprised that I had not missed at least one issue because of my extensive traveling. I was also surprised that someone else has not made every issue. I am curious if someone else out there has made all issues and needs to be recognized.

Another thing I am curious about, regarding C&E production, is how many contributors are using word processors to produce their materials. I assume that the dot matrix printing I have been seeing in the C&E was produced by a computer, because there aren't many dot matrix typewriters around.

After reading an article in the February TWA in-flight magazine, Ambassador, about computerized word processing, I started wondering how many of the C&E contributors are making use of the things. I fully agree with, William Swanson, the article's author, that a word processor doesn't make an author write better, but it sure makes it easy to write more. Gone is the hesitation to retype a particularly awkward passage, therefore, I feel the quality is somewhat better (assuming I can recognize an awkward spot when I see it)

Writing is work and using the word processor lessens the work involved because it takes away the strain of getting it perfect the first time and lets the ideas flow more freely. Swanson cited the word processing skeptics who go so far as to suggest that a word processor allows the words to flow faster than the thoughts those words are supposed to represent...

One thing is for sure. It is a lot easier for me to throw scraps of notes together over the period of a month between issues, and when the deadline nears, stir them all together and make them fit the allotted space nicely. The slogan of the C&E is, as you know, "All that fits, we print."

I am looking for someone who has, or has seen one of the Epson ink jet printers. It looks like the size of the thing would make it an ideal candidate for portable packet radio operation. It is battery powered and roughly 3 x 4 x 10. I dropped into a couple of computer stores and they didn't have them, in fact, the sales people had never heard of it.

Well, so much for the rambling, let's see what's going on. Joe, K5JB

Packet Racket

A new book about Packet Radio is being published and it might make interesting reading. The following was gleaned from HamNet on Compuserve:

After many months in preparation I'm pleased to pass along to you that a new book will be available shortly. It will premier at Dayton but I wanted to pass along some early information to my friends here on HAMNET.

QSKY Publishing is announcing, "Get ***CONNECTED to Packet Radio" a 5 1/2 X 8 1/2 inch paperback book with over 150 pages of information devoted

exclusively to packet radio.

Many reviewers have lamented the lack of practical information available in book form on packet radio. While most TNC instruction manuals are very thorough in explaining how to hook up the TNC, not much information is included on operating via this new mode. Many of the areas of packet radio have gone all but undocumented. "Get ***CONNECTED to Packet Radio" is the book you wished had come with your TNC. If you are already involved in packet, it serves as a "handbook" on everything from protocol and Xerox 820 boards, to networking and packet accessories.

The book is divided into three major sections: 1) Information for the beginner. Step by step instructions for making your first CONNECT 2) Advanced information. Protocol explained in layman's terms, networking concepts, store and forward systems and much more 3) Finally, numerous appendixes listing organizations, publications, suppliers, frequencies used, command cross reference, WORLI BBS commands and a bibliography and glossary.

"Get ***CONNECTED to Packet Radio" is written by Jim Grubbs, K9EI and is available for $12.95 from QSKY Publishing, PO Box 3042. Springfield, Illinois 62708. The book will ship in April. Orders are being accepted now. Please write to the address listed for further information.

New TNC Gadgets

One of the problems with switching between HF and VHF packet is the difficulty with switching filters to handle the different audio characteristics and get optimum performance with the receiving setup. On VHF, 1200 bauds is used and the shift is 1000 Hz. On HF, 200 HZ shift is used and the baud rate is 300. If the wide shift VHF filters are used on HF, performance suffers because of poor signal to noise ratio. On the TAPR designed TNCs, sockets are provided for plugging in component headers for changing the filter characteristics, a hassle, at best. The following announcement from Amateur Packet Alaska describes a kit that is available to simplify the task. (from Hamnet)

Amateur Packet Alaska TNC VHF/HF Switch Kit Features:

- All CMOS logic switch
- Changes all filter/timing parts for VHF or HF
- Self contained - Fits inside the TNC case
- No recalibration of tones - same precise tones as original
- Easy to build and install - one hour average
- Prime quality parts

Now you can use your TAPR TNC-2 or TNC-1 (or any close clone - AEA, MFJ, Heath, Paccom, etc.) on both VHF at 1200 baud and HF at 300 baud. The flick of a switch changes critical filter and timing components to optimize the TNC's on board modem for VHF or HF operation. The APA switch uses all CMOS logic, has a current drain of less than 5 ma and fits conveniently inside the TNC case. APA supplies prime precision parts, IC, circuit board, and complete step by step instructions. You bought the best TNC - now make it complete. $30 airmail postage paid. Send check or money order (no credit cards please).

Amateur Packet Alaska is a non-profit educational, research and public service organization dedicated to linking Alaska and the World by Amateur Packet Radio.

Write to:

Amateur Packet Alaska
AX.25 Communications Trail
Ester, Alaska 99725

Meanwhile, Tucson Amateur Packet Radio (TAPR) is still busy with an HF tuning indicator and the Network Node Controller (NNC). The former is almost a necessity because of the fleeting nature of packets and the precise tuning requirements of the receiver. The NNC is a component of a network that connects the stations in a local net to a larger network. The three items that follow were lifted from the January 24 Gateway, the ARRL Packet Radio newsletter.

TNC Tuning Indicator

(Gateway) If you operate HF packet, or are thinking of becoming an HF packeteer, you probably already know that tuning can be very critical. To ease this situation, TAPR is hard at work developing a P.C. board for an HF Tuning Indicator that will interface with the TNC 1 and TNC 2. It is reported that the indicator will allow you to tune to a resolution of 10 Hz.

Working from the circuit that appeared in the Packet Status Register issue number 17, Lyle Johnson, WA7GXD, has laid out a neat two sided circuit board. All active components are available from Radio Shack (3 ICs and 2 LED bar displays).

Prototype boards have just been completed in St. Louis and will be tested in Arizona before being offered for sale by TAPR. The price has not been announced.

NNC Prototype Testing Update

(Gateway) We received this update on the Network Node Controller (NNC) from Lyle Johnson, WA7GXD.

"The NNC Prototype PC board has now been suitably hacked because of: a) incompatibility of HD64180 uP with Z80(tm) peripherals running Mode 2 interrupts, and b) requirement of parallel printers to get a pulsed signal telling when data is ready.

"I patched the Z-system BIOS to recognize the modified Z80 PIO B port as the system listing device. It is now fully Mode 2 interrupt driven and the OkiData uLine 93 printer loves it! The Wait-state generator has been reworked to provide a single wait-state during op-code fetches in the lower 256 kbytes of address space as well as providing the required leading edge delay in the !LIR signal from the HD64180 to more closely emulate the !M1 signal from a standard Z80.

"The system clock is 4.608 MHz (9.216 MHz crystal) and the BIOS has been modified to accept this data rate. The disk drives have been interfaced and run just fine with the disk controller running under DMA control. The SIOs have been tested using a simple test procedure sending HDLC frames and receiving them in a full duplex loopback system; interrupts have not yet been tested with the SIOs. The SCSI interface has been tested to the extent of verifying that the uP can in fact talk to the registers of the NCR5380 chip and read the registers from the chip.

"The modified schematics will be sent to St Louis this weekend to get the necessary changes CADded. We hope to have the revised artwork back in Tucson by Friday the 17th and test boards in time for the annual meeting. One additional change being implemented is replacing the op-amp RS-232-C driver with a CMOS RS-232-C driver for better operation at higher data rates.

"If the revised artwork is accurate, then we will immediately push the button on getting the Alpha and Beta PC boards fabricated." From WA7GXD.

MFJ TNC 2 Delay

(Gateway) Word has it that delivery of MFJ's new TNC 2 clone has been delayed by a month. This should put the the unit on the shelves sometime in March. The MFJ TNC 2 clone will contain an RS-232-C interface as well as a TTL interface for the C 64 and VIC 20, and will be housed in MFJ's own cabinet. The firmware will be compatible with the TAPR TNC 2 and will support multiple connects and AX.25L2V2. The selling price is reported to be $129.95. Via WB9FLW

Update on UoSAT Oscar 11

The following came from DRNET. It was submitted by NK6K & G3YJO.

The Digital Communications Experiment (DCE) on board the UoSAT-Oscar 11 spacecraft has recently been loaded with software that allows it to act as a reliable message store-and-forward system. This system, called MSG2, can store 128 messages with a maximum size of 16k characters, up to the total message capacity of 96k characters. During the initial tests of the system in the first 24 days of January, 185k bytes of live data were moved between the satellite and ground stations at the University of Surrey and NK6K in Los Angeles. The maximum transfer capacity per pass (at 1200 bps) is about 30k bytes for a total daily

transfer at a single location of 120k bytes. The MSG2 system is now being integrated into the terrestrial amateur packet radio network through the use of a small number of gateway stations.

The UO-11 gateway stations perform the same tasks as the real-time AO-10 gateway stations that have become familiar. An AO-10 gateway takes a local FM frequency, translates it to the AO-10 standard of SSB, and routes it to the satellite. A UO-11 gateway takes a local packet message, translates it to UO-11 format, and likewise routes it to the satellite.

The UoSAT-Oscar 11 spacecraft, built at the University of Surrey in England, was launched in March 1984. The UO-11 DCE, designed by groups in Dallas, Los Angeles, Ottawa, and Tucson, began its orbital operations in May, 1984. Initially, it supported spacecraft operations -- this unplanned activity made necessary by the post-launch failure in an uplink data communications path system. UoSAT spacecraft have considerable redundancy in this area, and the problem could be bypassed by routing all VHF spacecraft communication through one of the two onboard experiment control computers. The DCE provided this bypass function in the initial months of spacecraft operations. Since that time, the software in both computers has matured sufficiently to perform the command bypass function while carrying out their other duties. The main spacecraft computer, the onboard computer (OBC), carries out autonomous control of the spacecraft and several experiments, the DCE is dedicated to the message store and forward function.

A prototype message system, developed by Hugh Pett, VE3FLL, was used for a demonstration of low earth orbit store-and-forward capabilities at the Pacific Telecommunication Conference in Hawaii in early 1985. The demonstration was done by Hugh and Larry Kayser, WA3ZIA, with support by Harold Price, NK6K in Los Angeles and Martin Sweeting, G3YJO and the UoSAT team in Surrey.

The current message system was developed by NK6K and Jeff Ward, K8KA. K8KA, past editor of the GATEWAY packet newsletter, is currently GO/K8KA during a two year stay at the University of Surrey as a Research Fellow. NK6K is currently serving as the west coast US gateway, but will shortly turn that task over to Wes Morris, K7PYK, and then continue with R&D efforts. The next gateway stations to be brought on will be WA9FMQ, Gary Garriott on the east coast of the US, and ZL1AOX, Ian Ashley, in New Zealand. Discussions are underway with stations in Australia and Japan to provide gateways in those countries as well. Once the inevitable bugs in software and procedures have been worked out by these stations, a second round of expansion will begin.

The UO-11 DCE is limited to access via a small number of gateway stations due to several constraints. The spacecraft supports a single 1200 baud uplink channel. The DCE is only one of several experiments which requires link access. Close coordination is required between spacecraft controllers at Surrey and DCE gateways in the field to get the most use out of the spacecraft for all concerned. However, procedures developed here will assist in the development and use of the future JAS-1 and PACSAT spacecraft. Both of these will be available to individual access as well as gateway service. The general amateur community has access to the current capacity of the DCE by using the gateways as intermediaries. Watch the UO-9 and UO-11 bulletins for news of further developments and new gateway stations. This announcement, a two continent collaborative effort, was relayed several times using the DCE as the communication medium.

Packet Closer to Home

Meanwhile, here at home, Joe, WA5ZNF, has ordered a MFJ packet radio TNC and is expecting to get it in the next month. It will be interesting to see how many of the packet radio crowd will send some of the C&E text to him via packet. Jim, KB5XN, proved that it was a practical way to handle stuff like that. I believe he used packet radio to send me a couple of sets of minutes of the Seventy Sixer's club and a product review article he wrote on the Heath TNC.

Stan, WB5UIY, has been having a heck of a good time with a packet radio bulletin board system (PBBS). Tony, K3NV, is the original author of a program that runs on an Apple //e computer and provides most of the typical features of a good bulletin board. A PBBS allows packeteros to leave messages for each other and have a watering hole where radio news is gathered. The most popular PBBS in operation is one written by WORLI for the XEROX 820 computer. It has all the bells and whistles and is capable of forwarding messages between computers running the same program.

Tony sent the program to Sandy, WB5RRR, in Enid who installed it on an Apple at his house. He sent a copy to me and I modified it (still modifying, in fact) to run on Stan's Apple //c. It is a natural for the program though it only has one disk drive. We put the program code in the computer's auxiliary RAM and are using the disk drive to store bulletins and messages. It took quite a bit of modification to get time of day features, since the //c doesn't have provisions for a clock. We got a little demon running that keeps track of time and tells us what time it is and stamps the messages and the log. It would be interesting to see Tony's expression when he sees what we did to his program!

The operation of the PBBS is simple. When an operator makes a connection, the TNC connected to Stan's computer sends a message, "*** CONNECTED to K5JB", for example. This triggers a chain of events. It looks to see who K5JB is and sends an appropriate message if one is present. It logs the connection, along with time of day, and sends a greeting.

The commands to the thing are simple. It responds to /SEND with a list of messages it has available for sending. It has a directory command, /DIR and has four different directories for different type of material. The entry directory is sort of like a mailbox where messages are stored. If a message was stored for K5JB, it would tell me that I had one (or however many) messages.

If I want to leave a message for Stan, I use the command /RCV and it asks for a filename. The name is free form, up to 20 characters long and can contain any characters one wants to use. This is a nice feature because the file names don't require that the packetero who is leaving the thing be a computer operator to make it work.

The question of unattended operation has not become a factor yet because Stan has to hang around to catch the thing while it regularlly crashes!

The FCC ruling on digital operation (FCC Report and Order for digital operation, PR Docket 85-105) has had a chilling effect on the Packet Radio bulletin boards since the legality of leaving them unattended has been questioned. A few weeks ago in Washington there must have been dozens of Packet Bulletin Boards on the air but now one hardly ever hears one.

The issue seems to deal with the need for a control operator to be present when third party traffic is being handled. Packet radio bulletin boards fall in the gray area where automatic operation is concerned. They are not repeaters and don't fall under the provisions of the repeater rules which permit unattended operation. They are more kin to auxiliary stations when they are unattended and can be operated under automatic control as long as there are provisions to shut the thing off if its automatic operation fails. However, bulletin boards, by their inherent design, are involved in third party traffic. That is the stickey part that is not clearly covered by the rules and are further muddied up by PR 85-105.

The following message was left on Compuserve's Hamnet by Bill Schimoler. It expresses a reasonable interpretation of the situation. It is came from the PONY L/L BBS:

From: HY W2HY (ID=4)
Date: Thu Feb 13 11:27:37 1986

In my capacity as an ARRL Volunteer Counsel, I called Chris Imlay, N3AKD, the League General Counsel, for guidance.

Chris said the League's position was

basically, that there was no cause for concern at this time - Ham to Ham VHF packet BBS operation should continue as usual.

As a hypothetical example, if N1ABC wishes to upload some information to VHF digi/BBS A2DIG for later retrieval by W3XYZ, this is NOT third party traffic - this is merely two Hams communicating via repeater/digipeater, regardless whether a control operator is "present" at digipeater A2DIG. The thing to remember is that automatic operation can be permitted on VHF.

On HF, however, automatic operation is not permitted (absent an STA - a FCC Special Temporary Authorization). This is the case for bulletin boards, rtty boards, beacons, or anything else. Thus, one who has an unattended HF BBS - or a digi or beacon for that matter - is in violation of the rules.

On VHF, the problems start when packet is used, not for Ham to Ham BBS operation (which is normally the case) but for third party communication. In the example noted, although N1ABC could upload an article in the "PONY EXPRESS" for later retrieval by W3XYZ (assuming there were no violations of copyright, business purpose, etc.) N1ABC could not pass truly third party traffic through an unattended digi.

Thus, if during a field day exercise, Dr. Jane of the Red Cross wishes to send a message to Nurse Tom, N1ABC could contact W3XYZ directly, but could not go through UNATTENDED digi A2DIG. Similarly, Dr. Jane's message could not be deposited by N1ABC in A2DIG's unattended BBS.

To sum up:

1) Ham-to-Ham VHF BBS operation - even with an unattended BBS - is OK.

2) As usual, no automatic stations - digi or otherwise - are permitted on HF, absent an STA.

3) Third-party traffic is prohibited through repeaters, digi's, etc. which are not under direct control. The League, however, is expected to petition the FCC shortly to permit permissible third-party traffic through unattended digi's, etc. 73, Hy W2HY

I hope this clarifies an issue of significant concern to many of us, and allows a lot of PBBS sysop's a good night's sleep. 73, Bill KB2CQ

The February 13, 1986 ARRL Letter contains the following details on the PR Docket 85-105:

In the January 16 Letter, we took our first look at FCC's Report and Order in PR Docket 85-105. Yeah -- we were allowed automatic control for digital operation at 50 MHz and above, but the wording of the ruling is such that it's a kick in the teeth for amateur packet radio. ARRL is in the process of seeking reconsideration, as promised. For now, here are the actual Part 97 updates resulting from 85-105. They go into effect March 14, 1986. Section 97.3(m)(3) is amended to read:

(3) Automatic control means the use of devices and procedures for control without the control operator being present at the control point when the station is transmitting.

Section 97.79(b) is amended to read:

(b) Every amateur radio station, when transmitting, must have a control operator. The control operator must be present at the control point of the station, except when the station is transmitting under automatic control. The control operator must be a licensed amateur radio operator or permittee designed by the station licensee. The control operator and the station licensee are both responsible for the proper operation of the station. For purposes of the enforcement of the rules of this part, the FCC will presume that the station licensee is the control operator of the station, unless documentation to the contrary exists.

Section 97.69 is amended by adding a new paragraph (d), as follows:

(d) An amateur station may be under automatic control when transmitting digital communications on frequencies 50 MHz and above.

A new Section 97.80 is added, as follows:

Section 97.80 Operation under automatic control.

(a) When under automatic control, devices must be installed and procedures must be implemented which will ensure compliance with the rules when the control operator is not present at the control point of the amateur station.

(b) No amateur station may be operated under automatic control while transmitting third-party traffic.

(c) Automatic control of an amateur station must cease upon notification by the Engineer-in-Charge of a Commission field office that the station is transmitting improperly or causing harmful interference to other stations. Automatic operation must not be resumed without prior approval of the Engineer-in-Charge.

Section 97.114 is amended by adding a new subparagraph (4) to paragraph (b) as follows:

(4) Third-party traffic from an amateur radio station under automatic control.

That is about all the packet news I have this month. I am sure there are more interesting things happening but I just haven't been able to noodle them out. I haven't heard anything from Eastern OK. Let's keep those packets flying folks! Joe, K5JB

Addendum

Did I ever screw up this time! I couldn't imagine what had happened when the printer stopped a bit ago. There was still a full column to go. My worst fears about the venerable ole Selectric were met when it sat there in overwhelming silence.

Every time I go to the runoff phase of this process, I am gripped with anxiety that I am going to throw a rod in the printer and have to type the balance, like in the good old days.

I could still drag the telegrapher's typewriter out of the garage, blow the dust off it and probably get it to do a fairly good job of typing, but Lord would I hate to do that!

But, I went back to the word processor. I had neatly pared the material down from 5 pages to 3 and 2/3! Drat! That is what I get for waiting until the last minute to do this thing. The following is a column I was going to give to Joe, WA5ZNF for fill. Sorry Joe, I needed it myself. Maybe there will still be some fill left after I finish miscalculating again.

Freedom to Listen

(From ARRL Letter)

Freedom to listen to the airwaves is one of our basic traditions of Amateur Radio, dating back to 1912. To augment the format ARRL text of President Price, ARRL Secretary and Washington Area Coordinator Perry Williams, W1UED, presented oral testimony in which he quoted from congressional bills to regulate radio communication three quarters of a century ago: "The bill does not interfere in any way with the hearing of messages by amateurs at all times and places as they may elect." ("Amateur" in that context was generic -- it included listeners.)

"This freedom is not just in the abstract," continued Williams to the Subcommittee, "Amateurs NEED it to continue doing their public works. When amateurs help the Forest Service fight brush fires in California, they have to keep one eye on Forest Service frequencies. When servicing as tornado spotters (as 30,000 amateurs do) throughout the mid-section of the country, they monitor weather service circuits.

"Along the coasts of the country, amateurs helping the Coast Guard respond to boats in distress must listen on maritime frequencies. And when we help the Civil Air Patrol, we're monitoring aeronautical circuits. So the need for freedom to listen is still there, and still in the public interest.

"The checks and balances of Section 705 seem to have served well for seven and a half decades. Such a concept is still valid."

(from Feb 13 ARRL letter) Joe, K5JB

EDMOND AMATEUR RADIO SOCIETY

First off I as your new president would like to thank the club for trusting me with such a responsibility. I hope that I can meet the expectations and standards set by our past club officers. The club will not be what I make it but will be what our members collectively make of it.

New officers are: Lee Vaughn, KA5WIS, vice-president; Amber Thomason, KA5VEK, secretary-treasure; Tom Guinn, KA5WAV, boardmember; and Bob Thomason, KAØCVK, boardmember. Bill Wright, KC5GN, will continue as an assistant treasure until the constitution is changed to provide for separate secretary and treasure.

Repeater committee is about same as the last few years: Bill Wright, KC5GN; Chuck Holbrook, WD5BKT; Mike Smith, KA5MJT; Oscar Staudt, WB5GCX; and Bob McCoy, N5BUJ.

CORA representatives are: Frank Tassone, KA5WGS; Lee Vaughn, KA5WIS; Bob McCoy, N5BUJ. I would like to thank Linda and John (Cal) Callison, WDØFTM & KBØOU for representing EARS at the CORA meetings for the last couple of years. I know that everyone appreciates their past efforts. Linda also served as the CORA treasure which meant that while the rest of us where enjoying Ham Holiday 84 & 85 she was stuck in a room accounting the funds as they came in, quite a chore and responsibility.

Ken Stepp, N5DBM, will continue as club emergency coordinator. Ken has always done a great job as liaison between the club and Edmond Civil Defense. John Thomason, WB5SYT, is continuing as our siren test coordinator. John took over this task last year and is doing a great job.

Harrold Wells, WA5ZKX, managed our calling committee last year and I hope that he can find time to handle it this year. Unfortunately I haven't talked to Harrold. I understand that some of our younger members would like to become envolved in the calling committee, perhaps there is relief... I'm sure Harrold would appreciate some extra help. There are some additional members who helped with the calling but I don't know who you are, sorry.

Wow there is so much to cover that I will probably leave something or someone out. I'm sorry if I do. I also hope that I have spelled names correctly and not messed up too many call signs.

Who is club editor? We don't have an official club editor, vice-president has usually taken on this duty in the past. This year we will try something new. You can be the club editor for a month! You don't have to have a typewritter or fancy computer with wordprocessing, just put your creativity, observations, opinion, or whatever down on paper; if it can be read we will get it typed and submitted to the C&E. Contact Amber Thomason, KA5VEK or Bob McCoy, N5BUJ, for more information. Now is your chance to report that activity that you think was left out or didn't receive proper coverage. Good Luck.

The amateur radio classes have been going great. Bob Thomason, KAØCVK, is responsible for the successfull organization of the classes. Bob doesn't do it alone, he has help from family, club members, and graduates of his earlier classes. Rather than try to list the new hams and leave any out I will save that for a future article by someone closer to the effort. The most recent graduates (hams now!) will be honored at the February dinner meeting. Will report on the dinner meeting next month.

Amber Thomason, KA5VEK, is handling arrangements for all of the dinner meetings for 1986. I believe that she already has the year scheduled. What I have heard sounds good, expect details in the future from Amber.

I have heard some "badmouthing" over the air in the past with regards to the club's weather spotting. The reason EARS has its own weather net is because EARS works directly with Edmond Civil Defense. Our spotters do not go where they want when they want, they go to a location as directed by the Civil Defense officer in charge. The CD officer may direct questions ect toward the spotter. The close knit manner of our operation with dialect going both ways would not fit into any other weather net currently operating in the OKC area. We do not compete with any other net. Most of us (spotters & our net control) are listening to the OCAP net because it provides valuable information to us, unfortunately some view our net as competition to the OCAP net. This just is not so. Part of the problem in the past has been third parties jumping in on 735/135 or 22/82 trying to advise one or the other what is going on over on the other net. I can't apologize for the third party(s) that don't have enough sense to keep their mouth shut. All weather nets seem to have a problem with unsolicited information. The EARS weather net is a public service to our community. Public service is a common goal of all weather nets, let's not "badmouth" our fellow dedicated hams.

Recently KC5GN, KA5WIS, & N5BUJ (me!) went to Stillwater to attend the Oklahoma Repeator Society, Inc, ORSI, meeeting. The only other amateur present from the OKC area was Mac K2GKK. The discussion was 20 Khz verse 15 Khz. 20 Khz offers more repeater sites for a given area because since the spacing is 5 khz farther apart the adjacent channels can be located geographically closer. Most the states to our north are using the 15 Khz plan. Only Mac and our group seemed to be for the 15 Khz plan. Some diode programable rigs will not program to all of the 20 Khz frequencys. We are not for the 20 Khz plan because it will require more repeaters in OK to change frequency than if we stay with the 20 Khz plan; we think it will be a mess. 20 Khz would be the way to go if starting from scratch. I believe the majority of ORSI members are for the 20 Khz plan so plan on it. Our repeater would probably become a 147.74/147.14 repeater if the plan is adopted.

Want to join ORSI? Send $3.00 per year for the number of years you wish to join to:

Dan Prater
P.O. Box 261
Enid, OK 73701

Include your name, call, and address. Only ORSI members will have the opportunity to vote on the 15/20 Khz issue. Might be to late for you to vote on this issue but if you have an interest in rpt coordination or even reserved frequencys (packet) you might want to support the group.

The PA deck on our 90 watt Micor gave up the ghost recently, Chuck (WD5BKT) spent some time with it and got it going. We are trying to get the original Micor exiciter back in operation also -- real soon now?

You might want to be thinking about the ACC RC-850 repeater controller. The club is going to be looking at this unit real close. Think about how much it would be worth to you. We will try to have someone well versed on the 850 at the March meeting. If we can not swing the 850 we will be considering the RC-85;

CONTINUED PAGE 11

President Sam Murr called the meeting to order at 9:11 AM on February 8, 1986. 95 members and guests attended.

Old Business

1. COCO, Inc will sponsor a swap meet in the Red Cross parking lot on May 11, 1986. A short meeting will precede the festivities. We will gather in the shade of the old oak tree.

2. President Murr lined up COCO programs for the next several months. They include:

March - Word Processing.
VIP - Larry Griffen
Elite Word - Sam Murr
Telewriter - M. Schiel

April - Extraordinary Hardware Show and Tell. Bob Pace, Rob Runyon, Marc Bosley, Lewis Sample, and Darwin Smith will show off their prides and joy.

May - Swap Meet.

June - A. Auction of junk left over from May's swap meet.

B. Harold Todd's video presentation on COCONET. Don't miss this one!

July - Spreadsheets. We need volunteers for this show.

August - DBMSs.
Elite File - Bob Pace
Color Profile - ????
VIP File - Sam Murr

September - Telecommunications. We need volunteers for this one, too.

3. Joe Harding printed business cards advertising the COCO, Inc meetings. Everyone grabbed about five each to distribute to prospective members.

4. I drew up a petition for a RAINBOWfest in Oklahoma City during 1987. 74 attendees signed the petition, which I will carry to the Palo Alto RAINBOWfest this week.

5. By the March meeting Bob Pace will have compiled a list, by locale, of COCO members and their areas of expertise.

6. Rob Runyon reports that he's had excellent success with the AT&T diskettes, 1900 of which changed hands at the December meeting for 25¢ each If AT&T has any more, we'd welcome another chance to buy them.

Software Problems

1. Lewis Sample has updated his program called CATALOG, which allows one to catalog all the programs he owns. The new version will appear on a swap disk in the near future.

2. Anyone wishing to submit programs for the swap disk should write-protect the diskette containing the program. Otherwise, Tom's copy program will overwrite your file.

Hardware Problems

1. Tom Mangham has built some 4-way RS-232 switches into which you plug your printer, plotter, modem, etc. Then, turn the switch to the appropriate setting to engage the desired device. The switches save wear and tear on your jacks and enable you to select devices easily without fumbling for plugs. He's selling them for $20.

2. Bob Pace has hooked up the new 1200 baud modem to COCONET on a trial basis. Before he installs it permanently, however, he must debug it somewhat.

3. Bob also found a bargain on a 5 megabyte hard disk drive, so he bought it for COCONET. If it's successful, he will upgrade to a 20 Megabyte hard disk at a later date. An acquaintance of his wrote the Flex-based hard disk driver that he is using.

4. Cigarette smoke damages the heads on your disk drives, which will, in turn, scar your diskettes. (That same smoke will also scar lung tissue.)

5. Rob Runyon, whose telephone has the Call Waiting feature, has recently noticed a degradation in his ability to transmit data with his modem. He suspects that Ma Bell has been tampering with something more technical than I can accurately relate to you.

Doorprize Winners

Dan Kesler - power strip
Ron McCubbin - hole puncher
Brian Kennedy - Flip-N-File
Paul Pape - RAINBOW on Disk
Debbie Voigt - EDTASM
Billy Gill- circuit template
Richard Setzer - another circuit template
Joel Swift - data case
Tom Brewer - OS9
Chuck West - Chromasette
Jim Stover - write protect tabs

I'm now up to 26 straight meetings without winning a prize. Whatever happened to the Law of Averages?

Program

Lewis Sample presented a painless introduction to OS9, or the Operating System for the 6809. People with OS9 questions may call him at 745-2872.

Lewis began with a talk on the evolution of the CoCo, from 4 to 16 to 32 to 64K and beyond. Next, he explained operating systems in general and why OS9 can't fully use 256K.

Following that, he described device drivers, device descriptors, kernels, and shells. I don't mind telling you that the show got a little deep at this point. It served to demonstrate that to fully avail yourself of the capabilities of OS9 you must study OS9 with more than a passing interest. To that end, Dale Puckett's RAINBOW GUIDE TO OS9 is available at Radio Shack Computer Centers for $15.95.

While the basic OS9 package consists of the operating system itself, a line editor, an assembler, and a debugger, other modules are also available, including full-screen editors and languages such as BASIC09, PASCAL, C, and COBOL.

Lewis ended with a question and answer session. One question on several people's minds was: Why do I need OS9, anyway? Lewis listed four reasons, all sharing the common thread of a thirst for knowledge. Anyone who wants to learn more about computers, operating systems, system generations, or computer systems would benefit from studying OS9. I'll offer another reason. Anyone who enjoys playing with exotic hardware will need a sophisticated operating system such as OS9.

****

Again this month I have good news. Bob Helms has turned over to me a treasure trove of documentation. As soon as I can find time to preview it all, I'll turn it into articles which will appear in future issues of C&E.

If you read last months column you may remember our hypothetical trip to the RAINBOWfest in Palo Alto. Well, for yours truly at least, it's no longer hypothetical. I guess I talked myself into going.

I received my RAINBOWfest ticket in late January, and do you know what? Believe it or not I was one of the first 500 people from my state to buy a ticket so I'll receive a free RAINBOWfest poster. But that's not all. I was one of the first 5 from Oklahoma to buy a ticket, so I'll also receive a RAINBOWfest T-shirt. I'll report on my junket in the April C&E.

Speaking of RAINBOWfest, I drew up a petition requesting that a RAINBOWfest be held in Oklahoma City during 1987. By the time you read this, you may have already signed. Believe me I had to rack my brain to come up with something good to say about OKC, but I finally managed to think of a few things.

Enough of the future! Let's discuss this months issue. Since I didn't receive any articles from any of you (again!), and since I haven't perused Bob's cornucopia, I wrote two breif articles pertaining to CompuServe. By the way, are any of you out there even interested in CompuServe? Let me know one way or another.

This month's first article discusses how to find topics of interest quickly. In the second essay we discover how much all this conect time is costing us when we look at CompuServe's billing information reports.

While we're on the subject of

fee-for-service information services, let's talk about Delphi, the new service which has been advertising in the RAINBOW for the past few months. The RAINBOW is pushing the service fairly hard, but I remain skeptical.

First, because Delphi only offers a long distance number, AT&T is going to make a bundle every time you log on. (You can avoid the long distance charges by going through Tymnet or Uninet. However, you'll still have to pay connect time surcharges to use those networks.)

Next, the ads mention a CoCo Special Interest Group (SIG) operated by the publishers of RAINBOW. CompuServe has had a CoCo SIG since before November, 1984, when I first logged onto that service. Both SIG's allow people to download programs, so neither seems to offer a distinct advantage in that regard.

Despite these bones of contention, I won't advise against trying out the service. After all, Delphi does offer one free hour of connect time to any RAINBOW subscriber. Just follow the directions on pages 234 and 235 of the February, 1986 RAINBOW, and use the quick-reference chart on pages 88 and 89 of that same issue to guide you.

When I have some spare time, maybe I'll inspect Delphi and report on it. Well, I suppose I've rambled on enough for this month. Keep those articles and essays coming.

Next month: a few words baout the RAINBOWfest...window shopping in CompuServe's Electronic Mail..and maybe a few surprises ...(but, then again, maybe not).

FINDING TOPICS ON COMPUSERVE

To find a topic of interest on CompuServe, type the word FIND at any prompt. Then, you'll get an 'Enter topic:' prompt. Type in a topic and you'll receive a list of related CompuServe services with Quick Reference Words in parentheses. To access a specific service or menu, type (... in 'GO', followed by...) the Quick Reference Word. For example, the command GO ANTIC will take you to Antic Magazine.

"The Find A Topic feature is also available from the top menu on CompuServ." -- plagarized from CompuServe. (Ed. Note -- Being loyal Color Computer owners, lets see what CompuServe has to offer us Tandy-ites. So, at your first "!" prompt, type:

```
FIND TANDY
 1 Mary Mac Industries  MM
 2 Tandy Business Users Group
     TCBUG
 3 Tandy Color Computer Forum
     COCO
 4 Tandy Newsletter  TRS
 Enter choice:  (3)
```

(Ed. Note -- Hmmm! The Color Computer Forum looks good.)

```
  * The color SIG *
        VISITORS MENU
 1 Membership Information
 2 Forum Administrators
 3 Instructions
 4 Visit *The Color SIG*
 5 Join  *The Color SIG*
 0 Exit
 Enter choice:   0
```

(Ed. Note: Okay. I've gotten you this far. Now you can do whatever strikes your fancy. In the interest of conserving space, let's just exit. A word of caution about choosing option 3: It generates 10 non-stop minutes of instructions which scroll across your screen. If you're planning to sign onto the COCO SIG however, you'll need to know this information. So, download it and print it out.)

```
 Exiting at 01-Feb-86   15:14:50
 Last message in forum:   113992
 Last message you've read:    0
Thank   you   for   visiting:
        *The Color SIG*
```

(Ed. Note: We'll try one more FIND command. Let's see how many Special Interest Groups (SIG's), are currently on CompuServe.)

```
Enter choice:   FIND SIG

 1 AOPA Aviation Forum (AOP)
 7 Bacchus Wine Forum(WINEFORUM)
 15 Creative Computing (CRE)
 19 Fire Fighters Forum
     (FIRENET)
 24 HamNet Forum (HAMNET)
 37 MEDSIG (MEDSIG)
 44 OS9 Forum (OS9)
 46 Orch-90 Music Forum(ORCH-90)
 55 Space Forum (SPACEFORUM)
 58 Tandy Color Computer Forum
     (COCO)
 60 Travel SIG (TRA-12)
 66 Writers and Editors Forum
     (WESIG)
```

(Ed. Note: This is just an abreviated list. There are currently 66 SIGs altogether. As you can see, the SIGs cover a wide variety of topics. The next time you're on CompuServe, why not visit a few of them?)

$COMPUSERVE BILLING INFORMATION

For those of you to whom money is no object, you need not read this article. For the rest of us, however, it might be very important, indeed. This article covers the various forms of billing information available to CompuServe subscribers.

Connect time for a 300 baud modem costs $6 per hour at night and on weekends. They allow you three convenient ways to pay. The method I chose was credit card billing.

I can access my billing information while on-line to insure that I stay within my budget. But equally important, I can keep tabs on CompuServe.

When you first log onto CompuServe, you'll see a menu such as this:

```
1 Instructions/User information
2 Find A Topic
3 Communications/Bulletin Bds.
 Enter your choice number! (1)

 INSTRUCTIONS/USER INFORMATION
 1 Tour/Find a Topic
 2 Online Today
 3 Command Summary/How to Use
 4 What's New
 5 Telephone Access Numbers
 6 Feedback to CompuServe
 7 Change Your User Profile
 8 Billing Information
   Enter your chouce!  (8)

      BILLING INFORMATION
 1 Current Rates
 2 Reviewing Your Charges
 3 Billing Options Explained
 4 Changing Your Billing Option
 5 Changing Your Billing Address
 6 Order Executive Service
 7 General Billing Information
   Enter Your Choice!  (2)
```

(Ed. Note: It would be wise to browse all these topics at your leisure. The CompuServe User's Manual covers some of them in detail.)

```
  REVIEWING YOUR CHARGES/USAGE
 1 Explanation
 2 Current Usage
 3 Period Summaries
 4 Period Details
 5 Weekly Usage Analysis
 6 Account Balance
 7 Mail Hardcopy ($)
   Enter  Your  Choice!    (3)
```

(Ed. Note: Let's get summary concerning my account.)

```
   SELECT PERIOD OF INTEREST
 1 Jan-04-86        $18.37

     PARTIAL PERIOD SUMMARY
Connect Time (3:59)          23.90
Commun. Charges               .99
Premium Program Chg.        11.20
                            ------
TOTAL USAGE CHARGE          36.09
Usage Credits Applied      -43.75
NET USAGE CHARGE              .00
Purchases                     .00
                            ------
CHARGES AS OF 01/04           .00

  Do you want details?   (Y)
```

(Ed. Note: Same report as if I'd requested Option 4, Period Details.

```
                BILLING DETAIL
Date  Description        Min Amount
10/15 INTERACT CREDIT      - 12.50
12/27 Std-300-CPS           14   1.46
      (20:27-20:40)
12/27 Std-300-CPS            3    .31
      (20:55-20:58)
12/27 Std-300-CPS           19   1.98
      (21:29-22:07)
12/29 Std-300-CPS           80   8.33
      (15:17-16:38)
01/01 Std-300-CPS           13   1.35
      (17:57-18:09)
```

CONTINUED NEXT PAGE

MORE EARS

we being the club. The technical committee will make a proposal with a justification.

You might want to get your dues paid up if you haven't already; the patch/autodialer access codes will change effective the end of March. You will be made aware of the changes at the March business meeting.

If you are interested in taking care of the programs at Ham Holiday 1986 then see one of the CORA representatives. CORA needs a program chairperson to arrange technical programs, speakers, ect.

What is EDMOND AMATEUR RADIO SOCIETY? We are a group of amateur radio operators that take pride in our hobby and enjoy each other's fellowship. We are not a repeater club as that is not the purpose of our club. EARS was incorporated long before we ever had a repeater. We have members that work UHF, VHF, HF, HF-DX, and all different modes from CW to packet. The club will support a field day exercise, and has had mini-field day antenna exercises. The club supports Edmond Civil Defense: weather spotting, parades, firework displays, siren tests, and emergencies. Many members of the club supported the 85 Sooner Games. Our club will again handle the HH86 registration at the door. The club is what you make it. Thanks.

EARS has a business meeting every other month (the odd months; Jan, Mar, May, ect) on the third Sunday at 2 PM. We meet at the Edmond EOC across the street east from the police department, in the basement of the city hall. We have a dinner meeting on the third Friday of the even months (Feb, Apr, Jun, ect), usually about 7 PM.

73 Bob N5BUJ

FOR SALE: Drake TR-3, Ten-Tec Argonot, plus: "Machine Language for Beginners" $10, "C-64Games For Kids" $10, "IBM PC - Textbook" "15, "Exploring With Logo I & Exploring With Logo II" $10 ea or $15 for both, "Understanding Logo" $2. SOFTWARE: "Easy Finance I" "Easy Finance II" for C-64 $10 ea or $15 for both, "Logo"(C-64) $25, "Gortek and the Microchips" (C-64) $5, "Screen Editor C-64" $10, "Assembler Development System" $10. HARDWARE: Cardo Light Pen (C-64/V20) $20. Loren Simms, WA5CBF, 209 Mockingbird N, Altus OK 73521, 482-0921.

MORE COCO

(Ed. Note: Option 5, the Weekly Usage Analysis.

USAGE ANALYSIS

Ending Date	Connect & Comm.	Trans.	Premium Purch.
10/19	.00	.00	.00
12/28	5.52	.00	.00
01/04	19.37	11.20	.00

Well, thats about it, as far as billing information is concerned. Two other options you may request are #6, Account Balance (mine was zero since I didn't owe them anything), and #7, Mail Hardcopy, which costs money. The latter is a report printed at CompuServe and mailed to you. I think it's simply an official version of the Detail Report, But I've not yet been curious enough to pay the money to find out.

3-1

WANT TO BUY: IC-202S. CALL ELMO BLACK, W5JCB. Work 528-6467. Residence 341-5126.

THE BIG SIGNAL
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

Those of you who missed our February meeting may have missed one of the nicest weather presentations in years. Larry,WB5PWY our own resident National Weather Service expert, gave one of the best slide shows about tornadoes ever seen in these parts. Dennis, WD5CSM, weather net chairman, and George, AD1S, chief weather control, added invaluable information about organization and net procedures. Frank, N5FM, spoke in behalf of ARES. Local media weathercasters Rick Tasetano (KTOK), Fred Norman, Wayne Shattuck and Brent Franks (Channel 5) and Jim Williams and Dan Threllkeld (Channel 4) added their support.

Our next meeting will take place Tuesday, March 18, at 7:30. We expect to meet at our usual place in the Police and Fire Training Center, 800 N. Portland. The program tentatively scheduled is "After The Disaster" to be presented by State Civil Defense authorities.

NOTE to all, repeat all, hams: Don't forget our April meeting which will feature a "Crazy Antenna" contest. A few rules (Unofficial at this point): 1. Antenna must operate on 146.00 mHz. 2. Antenna must fit through a standard doorway. 3. Must have a minimum of three (3) feet of coax feedline terminated in a PL-259 (UHF) connector. Length could be negotiable if your feed line length is critical. 4. Must have VSWR of less than 2:1. 5. Antenna may be entered in any or all of three (3) catagories: A. Non Directional. B. Directional. C. Just Plain Crazy.

Some worthwhile prizes will be offered in each catagory. Winners in more than one catagory may claim only one prize. Judges will be hams experienced in the technical fields. In the "Just Plain Crazy" catagory the audience may be asked to particivate in the judging.

Get started on that design and ready yourself for some Spring Time craziness on April 22.

Also scheduled for the April meeting is viewing of a Field Day warm-up video tape from ARRL

Charles, N5FMU, wants us to get an early start on our club's Field Day effort.

Members note: You will soon, repeat soon, receive by U.S. Mail some long-awaited info about our club's 2 meter repeaters. We have installed at great expense and difficulty (Well, it felt like it was difficult) some excellent equipment at our repeater site. We want all of our members to have full access to the wonders of our High-Tech facilities. Read, try and enjoy your repeater privileges as a member of OCAPA.

Finally, a word of appreciation: Our repeater techs have equipped this club with some of the most reliable machinery in Oklahoma. They keep it running with maximum efficiency and a minimum of praise. Next time you have the opportunity, give them your thanks. Thanks, guys. You're doing a great job.

73 'til next time.

Don, NO5M

GREAT PLAINS A.R.C.
W5HGH Repeater 146. 13/73

We were pleased to have 13 members and 5 guests present at our February meeting. Richard Henderson, KA5YTP, was welcomed into the club as our newest member. Richard attends Junior High School at Mooreland and is a welcome addition to our organization. Gerald, N5CCV, has some interesting phoenetics for his, Richard's call but, in keeping with the high standards expected by Mr, Joe Harding and Co., we had better not elaborate further in this column.

EYEBALL QSO

Work is well underway for the Mooreland Eyeball QSO, Swapfest and VE Testing. It has been decided to take test applications at 2:30 pm, Saturday April 12 1986 with VE Testing to commence at 3:30 pm. Events will continue that day with a hamburger fry planned for later that evening. Eyeball QSO and Swapfest activities are set for Sunday, April 13 1986. Make plans now to attend. All amateurs throughout the area are invited to attend and help to make this our biggest and most successful event yet.

UPGRADE CLASS

The start of our latest upgrade class coincided with the coming of the cold weather. Gerry Ford, NC5C, is teaching the code and Bill Wyatt, KD5JR, is theory instructor. Our club is indeed fortunate in having several dedicated hams who serve as excellent instructors. Bill and Gerry have been instrumental inconducting numerous novice and upgrade classes to their succesful conclusion. If you have ever taught then you realize that the successful instructor "learns" much more than the student simply from all the necessary preparation. Presently we have three students hoping to upgrade to Technician/ General. They are Alan Prentice, woodward; David Keeton, Gage; and yours truly from Gage. Our numbers are few but the interest is high and hopefully when the weather clears perhaps some others will join the group.

THE RADAR WORKS AND HOW!

Recently afer one of our upgrade sessions and before the first heavy snowfall Bill, KD5JR, invited several of us over to the radar facility to see what had been happening. What a number of surprises there were! We were able to see the current weather from the Amarillo facility as it was printed by the computer. Later, we were actually able to see, in color, the areas of snowfall as it was occuring in the surrounding areas covered by the Woodward radar. Many other changes had taken place in the facility since our last visit some time ago. If you haven't visited this installation recently you will be amazed at what has taken place literally from the top (antenna dish) down. Bill tells us that the National Weather Service Personnel will be in our area tentatively during the first part of April. Further information concerning spotter training and related NWS activities will be forthcoming in next month's column.

NORTHWEST OKLAHOMA SERVICE NET

Myron, N5HRA, net manager of the Oklahoma Service Net reports the following information for the month of January: 14 sessions, 137 check-ins, and 1 piece of routine traffic handled. Recently, with the help of W5HGH and others, we have been doing a little digging into the history of this net. Lee tells us that the first net was called on April 19, 1972 on the old Woodward 34/94 repeater. Billy Geerdes, WA5YQR, was the first net manager and remained in that position for several years. Some names found in Lee's log at that time were Doyle, WA5YQQ; Harry, WB5DGT; Lewis, W5KFK; and Doug, WB5EGZ. There were many others and several of the above mentioned calls have now changed.

Repeater frequencies were changed in this locale and the net was then called on 13/73 as it is now.

If you recall any interesting events concerning the early days of the Northwest Oklahoma Service Net please pass them on so we can add them to Lee's research efforts. When they are all compiled we'll pass the information on in this publication.

73, Lois, KA5PYA

OPERATING DISK: A wastebasket with drawers.

OM peering into a coffee cup: "There are enough grounds for a divorce."

WANTED: A reasonably priced match box(< 200 watts) for coax or random wire. Contact Justin, KA5WIJ, at 3296314.

Immediate Past Chairman Fred, W5NL dropped FILE ZERO a line the other day with an interesting idea, towit:

"Whilst making some 'Valentines' utilizing a computer program (The Print Shop), an idea flashed. A special QCWA-QSL designed for universal (fill-in) use, ie any Chapter, and Call, any Name, and QTH and etc.!! Anyhow did make one and mailed it to Robbt, AA0O this morning. But, the format is in letter form (and) costs 22 cents to mail, tho it has big bunches of space to write, plus a flip-side for address and return. All of the above merely something to consider. A standard, multi color QSL but, universal (fill in) format is undoubtedly a better choice. The per card cost should carry significant savings if ordered in large quantities. Personally, I have been depleted of QSL's for a long time and resort to hand scribing on prestamped postal cards.

As is frequently the case, author of an idea is usually more enthusiastic than the reader. But, if this whets your interest please make some kind of input. Be assured this is not a new or original idea but for Chapter 63 it probably is."

OK Fred, thanks for the input. Anyone out there care to comment? (.-ed)

Fred also sent along a reminder that the RAZORBACK Chapter 90 will have it's Spring meeting in conjunction with the N.W.Arkansas Hamfest at Noon Saturday May 3 at the Rogers Holiday Inn. Chapter 63 usually has a few members who have attended the Hamfest, and there are a number of Chapter 63 members who are also members of Chapter 90. Fred says he will make another announcement on the subject for the April issue as well.

Enclosed with the birthday list and traffic report from Howard, W5AS this month was a request to mention one of Howard's many activities which involves the Oklahoma Nite-Owl Net (ONON). Howard says the Oklahoma Nite-Owl Net has no roster, no officers, no treasurer, no rules etc. So, all that's left is for them to have a good time!

Many Chapter 63 members check in... Howard is the Net Manager, and from what I understand, the Net Manager, and the Assistant Net Manager are somehow elected each two years. The ONON meets each night on the 146.67 VHF repeater, and uses the .94 machine as alternate.

Howard advises the following: "Oklahoma Nite-Owl Net will have an old fashioned EYE-BALL rag chew on Saturday, March 15, 1986 at 6:30PM at DODSON Cafeteria, 2150 S.W. 59th St. Oklahoma City. We will not be on the air, there will be NO long winded speeches, no color slides, no home-brew movies, just meeting each other, and what you might have to say to the gang. Bring some of your QSL cards for swapping. No charge of any kind, eat just what you want and that's it. We will have our own room, especially good for the other people in the place! Why don't you and your YF show up for this thing? You will have a nice time, I can assure you." (signed vy 73, Howard, W5AS)

Howard also called me the other night and said that the QCWA QSO party (CW Section) which was February 8/9 was very interesting. The magnetic flux was up to around 8 due to a huge solar flare that screwed communications modes around the world. There was very high noise at times and frequencies unexpected this time of year, and all bands experienced odd openings. (I worked my first ni-time 10m DX to the Marrieannas in ten or more years -.ed). Howard reports three Chapter 63 participants that he knows of:

Himself, W5AS with 15,960 pts
Don/Doc, KX5W with 10,266
and Cal, W5LJI, score unknown.

Nice going fellers. The QCWA Party Phone Section will occur March 8/9. See the Winter 1985 QCWA News for the rules.

Chapter 63 for the month of January had the following activity:

SESSIONS	4
CHECK-INS	164
TRAFFIC	21

Also a reminder... QCWA Chapter 63 net convenes each Sunday morning at about 0800 local for early check-in on 3855 SSB. The Chairman of the Chapter is NCS. We usually have over 40 check in, so come join the net. It's informative, and you get to see old friends. The formal net gets under way at 8:30 with roll call. Each participant is encouraged to give the net the benefit of their comments. (-.ed)

BIRTHDAYS - MARCH 1986

5	Clifford Collier	W5LJI
9	Abe Crook	W7LLP
9	Ruby McCawley	YF-W5OFG
12	Mel Bolger	W5AXM
12	Edward Fauss	W5HW
19	Joseph Kelly	W5LFK
23	Bob Ashby	W5HXL
23	Denise Bowers	YF-KX5W
23	Wm E. Peterson	W5OY
25	Lolita Malone	YF-W5HIM
25	Mary Jo Rauscher	YF-W5CXP
30	Wilma Edwards	YF-W5GOO
31	Edith Jessup	YF-W5EIO

Happy Birthday to one and all.

That about winds up the FILE ZERO for March, 1986. By the time the next one is published in C&E, we will have had our quarterly Board meeting, and settled a few issues including the date and place for our 2nd 1986 quarterly meeting in April. Watch this space for coming events!.

73 to all! Rob-AA0O

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC.
W5PAA

Meeting opend at 7:30pm with Tom Mangham presiding, Bob Pace being absent due to college classes, 23 people were present.

TREASURERS REPORT: $909.34; no outstanding bills.

CORA REPORT: CORA has not as yet found a chairman for Ham Holiday Program Committee. ACARC has $850 bugeted for Non-Tech programs. The banquet will not be held at Lincoln Plaza due to high cost. The "banquet" will be a Smorgasboard at the Heritage House on Northwest Highway.

EQUIPMENT REPORT: Tri-band beam not working (John Whitten will check it out). Two meter repeater repaired and operating OK. The pieces of RG58 coax has been replaced with RG8, hopefully this will stop further troubles.

OLD BUSINESS: Packet radio is on order. No arrival date.

NEW BUSINESS: A student from New York (Sorry I missed his name and call) asked if the station could not be marked or labeled better. After discussion those present agreed that adequate instructions are needed at the station.

There's no use advertising your troubles - no one will buy them.

CIMARRON

February is almost gone and CARA is well into their 1986 program. Two new novices are eagerly awaiting their new call signs and already thinking about upgrading. Tim Buster and Bill Pool passed the test and were welcomed into CARA during our Valentine's Day bash and club meeting.

Helen Simpson and husband Bill were hostess and host to twenty members and guests of the club. We thank you, Helen and Bill, for making the occasion a very enjoyable one.

Thanks also to club secretary Nadine Painton, for getting the invitations out.

Those asttending were Bill Pool, Leo and Ann Peil, Major and Dede Bailey, Tim Buster, Jack and Betty Day, Edith Sproul Ray and Sue Barnes, Fred and Ruth Simpson, Vern and Fran Brewer, Tonya Toomey, Bill and Helen Simpson, Tommy Townsend, Terry McColl and Dennis and Nadine Painton.

Major Bailey brought his even ing class in basic electronics to a successful conclusion this month. It is to be hoped that a similar class will be forthcoming, as many students were benefited by Major's efforts.

Four members of CARA are attending Spanish language classes. Leo Peil, Ray Barnes, Betty and Jack Day have turned their tri - banders toward the south and hope soon to be able to say more than "Hola, Amigos!" (Ed. "What in the world does HOLA mean? I looked but couldn't find it. Joe, WA5ZNF). Ray and Jack both worked Haitian stations during the recent disturbances but did not pick up any H&W traffic.

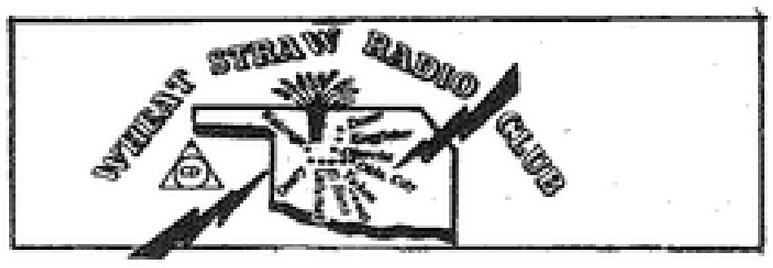
Fred Simpson has been working on equipment slated for use by Tim Buster - taking time out from his passion of inventing new antenna modes. Fred has the best shop in the club and spends most of his time either soldering or unsoldering. XYL Ruth, of course, is still trying for 20 wpm.

Denny Painton and Major Bailey have our 2 meter repeater in the best shape it has ever been in.

Try it out sometime on 145.45, down six.

March twentieth will be our next regular meeting. We will be discussing the forthcoming Tech/ General classes so we hope all members will maker a special effort to attend.

Jack Day, NN5Z



On January 16 when President WA5FLT sounded the in El Reno, 24 answered the call to order and 3 little lost just wandered around in the shine.

A letter from the Oklahoma Repeater Society stated that a meeting was being held to decide if we desired a 15 or 20 kh split. After it was brought to our attention that we were delinquent on dues, a motion was made by WD5JNT that we become current on this matter, seconded by "Mother Goose Zipper", and was passed.

WA5FLT announced a meeting of the packet radio group on January 18. Representatives for CORA meetings were asked to volunteer, no response was heard and the matter is being considered further. A volunteer for Activities chairman was called for. Silence resounded. Tom, you did such a fine job last year I guess everyone is waiting for you to reconsider a re-run. Sound like an excellent idea to me.

WA5PFK asked about sending reminders to everyone who hasn't paid their 1986 dues. WD5JNT moved that they be sent, seconded by W5MGZ, motion carried. So members, former members, potential members, etc: "Keep those cards and letters comin'" with a money order or enclosed. $10 for operat ors and $2 for assoc. "DON'T SEND ME ONE"!! I promise to pay in February!!! NSABM, Herchel, invited all RACES members to check into the net every Thursday evening @-8:00 pm on the 34/94 repeater.

Some special "New Business" surfaced with the announcement of wedding . Congratulations JHB, and expect your wedding to be spiced with lots of HAM(s).

Motion was then made by WA5FPK to adjourn for the better part of the meeting. Goodies!!! and Goodies they were. Thank you El Reno ladies.

See you in February. Okarche National Bank.

73 for now. N5EMD

The most exhausting thing in like is being insincere. That is why so much social life is exhausting.

****

M.O.R.I.

****

HAM NIGHT AT GM

****

ON MARCH 4, 1986 M.O.R.I. WILL HOST A TOUR OF THE GENERAL MOTORS ASSEMBLY PLANT WHICH WILL BE THE PROGRAM FOR THE EVENING. WIVES/HUSBANDS, CLUB MEMBERS AND NON-MEMBERS ARE MORE THAN WELCOME TO ATTEND. A MEETING ROOM WILL BE PROVIDED TO CONDUCT NORMAL CLUB BUSINESS. THE TOUR WILL BE AT 8:00 P.M.; YOU MAY ENTER THE BUILDING ANYTIME AFTER 7:00. "TALK IN" WILL BE ON THE 146.67 MACHINE.

THE TOUR WILL TAKE APPROXIMATELY 90 MINUTES AND MEMBERS ARE REMINDED TO WEAR COMFORTABLE SHOES AS THE TOUR IS EQUIVALENT TO A TWO MILE WALK. WHEEL CHAIRS CAN BE ACCOMMODATED, HOWEVER THOSE WITH A WALKING DISABILITY MAY WANT TO ATTEND THE MEETING, BUT FOREGO THE TOUR. SAFETY GLASSES WILL BE PROVIDED, IF YOU WEAR PRESCRIPTION GLASSES THOSE WILL DO FINE. CAMERAS ARE NOT PERMITTED IN THE PLANT.

THE ENVIRONMENT IN THE PLANT IS QUITE NOISY. PLEASE BRING YOUR HANDY TALKIE AND AN EAR PLUG, AS WE WILL CONDUCT THE TOUR AND HAVE A RUNNING COMMENTARY ON 2 METER SIMPLEX.

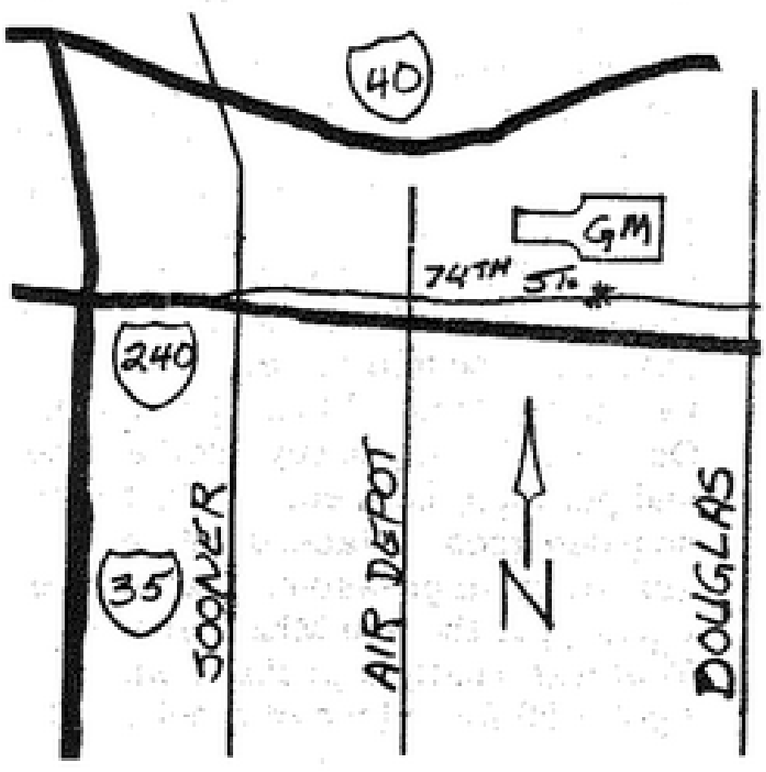
THE GENERAL MOTORS PLANT IS BORDERED ON THE NORTH AND EAST BY TINKER AIR FORCE BASE. TO GET THERE TAKE:

- I240 TO SOONER RD. NORTHBOUND
- RIGHT ON S.E. 74TH ST.
- PROCEED EAST PAST AIR DEPOT (FIRE STATION WILL BE ON YOUR RIGHT.)

ENTER THE PARKING LOT IN FRONT OF THE MAIN LOBBY (BY THE U.S. FLAG). PROCEED TO THE LOBBY; MEETING ROOM IS TO THE RIGHT.

HOPE TO SEE YOU THERE.

RON NDSS



Salem

TWO TO BEAM UP, SCOTTIE
(Two Beams on Two Meters)

When planning the antenna farm for the new house, I thought long and hard about the kind and number of two meter antennas I would get. Beam antennas on two meters if improperly used can be a bane to the existence of a repeater. While the whole idea of a beam is to squirt power in a particular direction, the existence of lobes not in the main line of direction can really be a problem for the person off to the side of the antenna. It is not uncommon for stations many miles away to clang your local repeater while pointed away from the repeater. And the unsuspecting operator can become a source of interference to locals trying to use the system for patch and other uses. I have found that many of these problems can be solved by a little diplomatic jaw-boning. Very few people in this world go in for jamming, whether intentional or accidental. Most will take great pains to avoid the repeater and place it in a node to insure that no interference results.

I really didn't think much about a beam antenna for two meters. It was traumatic enough just selecting an HF Beam for the house. But during the course of looking at HF Beams, I thought that it would be a real waste of all that real estate above the HF Beam to not put a two meter beam up also. And, since I have access and use a couple of 450 Mhz systems, I thought, well, have to have something on UHF also. This polarized thinking persisted and I began to expand my antenna scanning to take in various two meter and 450 Mhz antennas.

I found that there were many more of these babies than HF Beams. And the designs are really varied also. At first, I thought that I would want a single two meter antenna. That was easy. I have an 11 element beam made by Cushcraft. Had that baby for about 15 years now and it has only been up in the air once for a couple of years. The rest of the time, I kept it outside. Oh, well. I might buy another one and put them both up. Now, that sounded good. Stacked antennas are alway impressive. But where would I put the 450 Mhz antenna? That was really a problem since I got a 20 foot piece of steel mast to mount all this stuff to and had decided to stuff about 10 foot of the mast down inside the tower when I decided to mount the rotor at the bottom of the top section and put a thrust bearing up where the rotor normally mounts. This meant that I would only have about 10 foot of pipe. Normal convention was that the two meter antenna should be mounted at least a wavelength above the HF Beam, at least six feet and preferably 8 foot or more. If I put the two meter antenna up there, I would be hard pressed to get the 450 antenna between it and the HF antenna, especially if the 450 antenna is pretty good size. Since I didn't plan to take this system down for a long time once it was up (just too much trouble), I figured that a little planning and thought might save a lot of work later. The HF Beam weighs 85 pounds and has a 26 foot boom. I really didn't want to move it off the tower very often just to get to the two meter antennas.

K5JB suggested stacking the two meter antennas horizontally about 10 foot apart, then putting the 450 antenna in between them. That sounded like a good idea and I would have gone for it, but I decided not to put up two UHF antennas. I figured that I didn't need them. The cost and difficulty in getting them to work would not really be worth it in my mind. So I needed a single UHF antenna. I settled on a KLM 440-27. This was a very broad band antenna that was about 12 foot on the boom and featured 27 elements. The bandwidth was 420 to 470 Mhz and the forward gain was about 14 db, plenty for what I had in mind. The only problem with this antenna is that they tell you not to mount it vertically on a metal pole. You should insulate when mounting the pole parallel to plane of the elements. I wasn't really in the mood to move away from the steel mast and mount this antenna on a wood mast.

Meanwhile, I dug out several articles on stacking antennas. If I was going to put up a couple of antennas and stack them, I wanted to do it right. Some people have just said put them about 10 foot apart and go. That seemed a little simple to me. RF is voodoo magic and I wasn't going to take a chance that a by guess and by golly technique might render my experiment worthless.

Fortunately, there has been several articles in ham radio magazine by some people who should know on just the subject that I was interested in. I checked magazines back about 5 years and I think that hr was the only one with anything really useful.

The interest in moonbounce arrays had peaked a lot of interest in stacking antennas. Since nobody is going to work moonbounce with just a couple of 11 element Cush-crafts, somebody had to figure out how to build those big antennas to go with those big amplifiers. The simplest way to build a big antenna is to do it out of small antennas.

The three articles that I found were very interesting and I would recommend them to anyone interested in the subject, whether putting in a system on not. An earlier article helps define performance parameters for antennas and is also useful. It was written by Joe Reisert W1JR in his regular column VHF/UHF WORLD in the May 1984 issue of ham radio magazine at page 110. In this article, Joe describes a simple method of measuring your antenna performance using your rig's S Meter and even gives a simple circuit to use to calibrate your S Meter. By calculating the E and H beamwidths and applying a little magic from John Kraus W8JK, you could get a rough idea of the gain of the overall system. This method is illustrated in the article.

Some time later in the April and May 1985 issues of ham radio, there were three articles on stacking antennas. W1JR wrote two of them in his VHF/UHF World column for each of those months and in the May 1985 issue, Steve Powlishen K1FO also added another article at page 18 entitled "Stacking Yagis is a Science." This by far is the most comprehensive of the three articles and is an interesting and technical tour de force.

Figure 1 is taken from the April 1985 issue by W1JR, but it could just as easily be lifted from any reasonably good antenna book. (I might add that the ARRL Antenna Book and their VHF/UHF Books have nothing like either of these 3 articles anywhere in them).

Since Yagi type antennas consist of a number of elements arranged in the same plane, they exhibit directionality. By looking at Figure 1A, we see a typical antenna pattern for a 3 element Yagi. There is one major lobe and three minor lobes. The

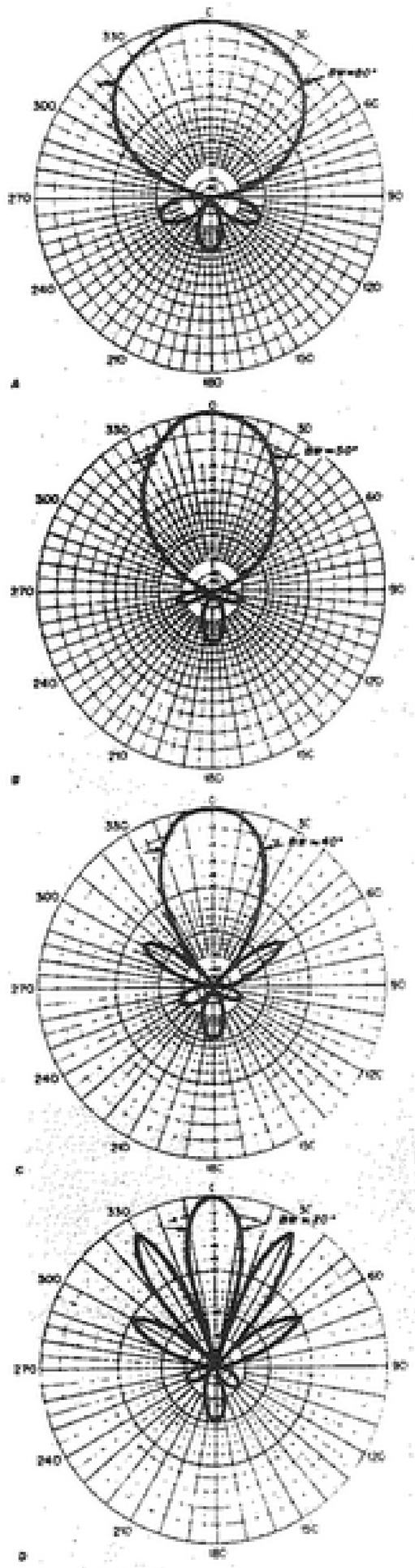


Figure 1. Top figure is (A) and is a typical 3-element Yagi pattern with major lobe and three minor side lobes; (B) is two 3 element Yagis stacked 1/2 wavelength apart. The net effect is a narrowing of the beamwidth and an increase in gain; (C) is the same two 3 element Yagis now stacked 3/4 wavelengths apart. Moving the antennas further apart narrows the beamwidth and increases the side lobes; (D) is spacing of 2 wavelengths for the same two 3 element Yagis. Note that beamwidth has narrowed considerably and the sidelobes have grown to within almost 2 db of the main lobes with very deep nulls between the lobes.

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beamwidth is very broad and, in fact, you would have to rotate the antenna quite a bit to get to the nodes. Sharp nodes are posted at 90 and 270 degrees.

What would happen if you stack two of these same antennas and feed them in phase from the same transmitter?

Well, the results are shown in Figure B, C and D depending on the spacing. Theoritically, you should get an increase in gain of about 3 db by adding the extra antenna, but with phasing losses from the line and line losses, the actual number might be 2.5 db. If you can stack and get an increase of 2.6 to 2.8 db, then you are really doing well.

Another result from stacking antennas is that the beamwidth narrows and continues to do so as the antennas are moves further and further apart. However, a consequence of moving the antennas further apart is also that the side lobes increase both in number and gain. This is shown in C and D where the spacing is increased and the sidelobes can be increased. Thus, there is an optimum distance for spacing where gain is present, beamwidth is sharpened and the side-lobes are still down below the main beam.

The best stacking distance is where the beamwidth in the stacking plane is reduced to approximately 50 percent of the original antenna beamwidth and the first sidelobes are at least 13 db below the main lobe. Using this criteria, it can be seen that (C), the stacking distance of 3/4 meets the criteria. It can be seen that the sidelobes are about 13 db below the main lobe and the beamwidth has shrunk from about 80 degrees to about 40 degrees.

There are other reasons to discard the results of (D). When the sidelobes are so close in value to the main lobe (almost 2 db), it can become difficult be be certain that you are on the main lobe. It will take a lot of first class rotor play to figure out if you are on the right signal. And if the signal that you are listening for is varying around in strength (as is typical), it is hard to get a bench mark to check. Although (B) has small side lobes, the beamwidth is still pretty broad, about 50 degrees instead of 80. This still makes it hard to get a good fix on a signal. Again, this is a 3 db point. You can vary the antenna over about 50 degrees before you would see a drop of 3 db below the maximum.

The criteria of halving the beamwidth and keeping the sidelobes 13 db below the main lobe is a practical compromise. A 10 db change in signal level from the main lobe to secondary lobe can usually be easily spotted. The narrowing of the beamwidth helps also in locating signals. With high gain antennas (instead of the 3 element jobbers that we have been using here) beamwidth and sidelobes become very important since halving beamwidth might make an antenna main lobe so narrow you might have trouble aiming it with the typical rotor. Thus stacking high gain antennas becomes an art as well as a science. And frequently, the manufacturers suggested stacking distance is all wrong. They are usually derived from rules of thumb and set formulas. Those high powered 15 element blivits you purchased for the better part of a "C" note might not follow the "rule of thumb" because the thumb is different. If you start with an antenna that has sidelobes that are within 13 db of the main lobe, then you can't stack them optimally. This means that you must stack them closer together in order to obtain decent sidelobes, but that lowers the stacking gain and if you give up gain, then you might as well as not go to the trouble to stack.

W1JR presents a relatively complete discussion in his two articles on stacking and how to calculate stacking distances. There are several formulas and he even presents a table of optimum stacking distances for several popular antennas and gives actual measured data including gain, and sidelobes. Some of you might not want to look, especially if you followed the manufacturers data. There is another table in the article by K1FO in the May 1985 issue. Same as W1JR.

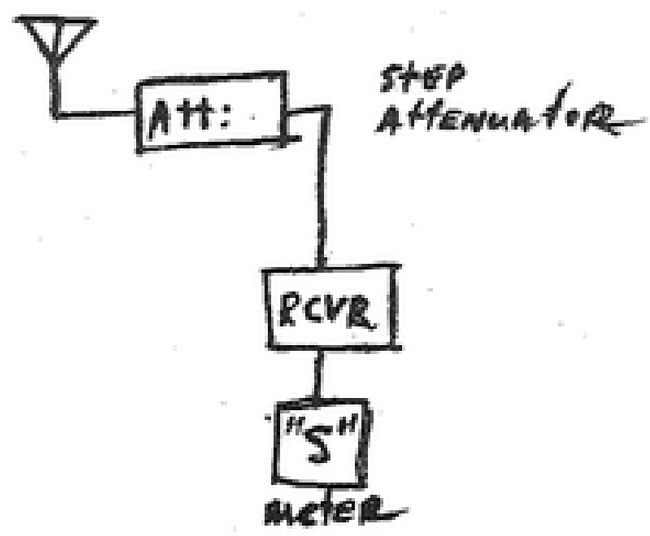
So what did I decide to do? Well, it seemed to me that this was a lot of trouble. I was not interest in taking down the antennas if I flubbed up on the stacking distanc As many of you might have noted, the antenna farm is quite a handful and to get to the 2 meter antennas would require loosening the HF antenna and dropping it down on the needle of the tower. Then the rotor would have to be taken out and the thrust bearing loosened to allow the pole to drop down so that the upper antennas can be reached. An option would be to tie muffler clamps on the mast, climb up the pipe and work on the antennas by loosening the horizontal mast and sliding the antennas back and forth. I can tell you this. With those antennas at 70 feet, about 20 foot above any guy wires, I am

not about to do that. After looking around, I found that Cushcraft made a fairly broadband antenna with an advertised gain (not in QST) of about 15.5 db. Another thing about the 215WB is that Cushcraft gives some pretty good specifications including all the E and H beamwidths (E Beamwidth is 34 degrees and the H beamwidth is about 36 degrees). The antenna is less than $100 and I thought about stacking two of them, but decided against it. Instead, I put the 215WB on one side of the stacking boom and the 440-27 on the other side. I think that I can get by with just these simple antennas.

After the antennas were in place, I played around with them just to check them out. I found that the two meter antenna exhibited pretty good front to back and certainly appeared to have gain, but since I didn't have any kind of unidirectional antenna, I couldn't really guess how much. Anyway, I had intended to test the pattern because I was concerned that putting it in the same plane as the 450 might affect its pattern. About the same time, Darrell WA5TOO started wondering out loud whether his Telrex stacked 8 element antennas with the 14 foot booms were doing their stuff. After some really busy times on my part in the office, we managed to both be at home a couple of weeks ago and I pointed my antennas toward him in the city and put my step attenuator in the line. I had Darrell transmit a signal on a simplex channel and I adjusted the attenuator to give a 2 on the S meter. I then had him rotate the antenna and I adjusted the attenuator up or down to keep the same reading on the meter. After gathering all the data for every 15 degrees, I subtracted the highest reading from the lowest, then subtracted that number from all of the readings to normalize them to zero, then after changing all the directions so that the main lobe centered on 0 degrees, I plotted the data on some circular graph paper. The paper is linear-circular, in other words, the scale going outward from the center is linear instead of log, but this should be adequate since the changes are in decibels.

Perhaps a word about the step attenuator might be helpful. It is suitable for VHF, probably would work on UHF with a little more insertion loss. It is capable of changing in 1 db steps from 0 to 102 db. By "dialing" in the attenuation, I got a db reading that corresponded to the same meter reading on my S meter. We were only able to read every 15 degrees since that is about the best you can really do on a rotor control box. Besides, it was just a rough experiment.

The circuit I used for the experiment just simply looked like this:



The data for Darrell's antenna really doesn't look too bad. I am sure that I missed the sidelobes since they don't show up on the graph (Figure 3 on the next page). I would suspect that low value at 340 degrees is one of those data points that might be slightly awry. Side rejection at 90 degrees and 285 is really quite good. The front to back leaves a little to be desired, but the manufacturer only specs it at 23 db. If these antennas are optimally stacked (Darrel is using two 2M814 stacked about 10 feet apart), the beamwidth should be about half of the beamwidth of a single 2M814 or about one half of 35 degrees or 17 degrees. That is pretty tight. Telrex says that it should be about 20 degrees. They also say that the gain should be about 19 db over an isotropic source and 3 db over the single antenna. I don't know about that. I should have checked the half power points of the main lobe, but really didn't have time for that.

Other items that skew the data is that I did not really try to fit a curve to the data points. There could be many lobes and nodes that don't show up on the chart. But this is a reasonable approximation and certainly better than anything Darrell would do for himself.

I decided to test my Cushcraft 215WB. The results are shown in Figure 2. I used the same setup as before, but this time I focused the beam on a local repeater where a series of longwinded conversations kept the carrier on for about 40 minutes or so. First, I peaked the beam for maximum signal (with some attenuation set in), then rotated the beam through the compass points and adjusted the step attenuation until I got the same reading on the S meter (still using a two on the scale). After normalizing the data to 0 and converting the compass headings so that the main lobe set on north, I plotted the data as shown in Figure 2. If you check the half power points, they seem to mesh up with the manufacturers data or about 35 degrees. I was impressed that it met their specifications. There are some really sharp nulls in the back, over 48 db. I don't really know why, but that clearly exceeds the manufacturers specs of 24 db.

I suspect that the high front to back may have resulted from a reflection somewhere since there is a fairly large water tower about a half a mile from my house. Otherwise, the signal looks fairly straight forward. One question that I had in my mind was why the pattern is asymetrical to the right. Actually, the answer is fairly easy, I think?

The main lobe is pointed down or at 0 degrees. As the antenna is facing you, the UHF antenna is to the right of the two meter antenna about 10 foot. I did not think that it would affect the pattern, but it apparently did. There is also a possibility that the pattern may also be affected by the HF antenna below. It is hard to really quantify those speculations. But I imagine that they are true.

Again, the data that I plotted don't really follow a smooth curve, but I tried a little harder to fit one to the plot. I know that I missed some of the lobes and nodes, but that really was unavoidable. The night I ran both of these tests, the wind was blowing and the antenna was gently rocking in the breeze. This would cause the readings to change by as much as 1 to 2 S units on the IC-230. I just tried to average them and get them to swing equally on either side of 2 on the meter.

So, if you really want to check out your equipment, run a couple of tests. Step attenuators are not readily available, but I have seen them in the flea market. You might even try your hand at building one.

Darrell will probably want the graph, so I had better save it. Since he doesn't like to climb, I expect that his antenna won't change much. I don't expect to change my antenna either, but I might run the test again just to make sure that it was correct.

Micheal Salem N5MS

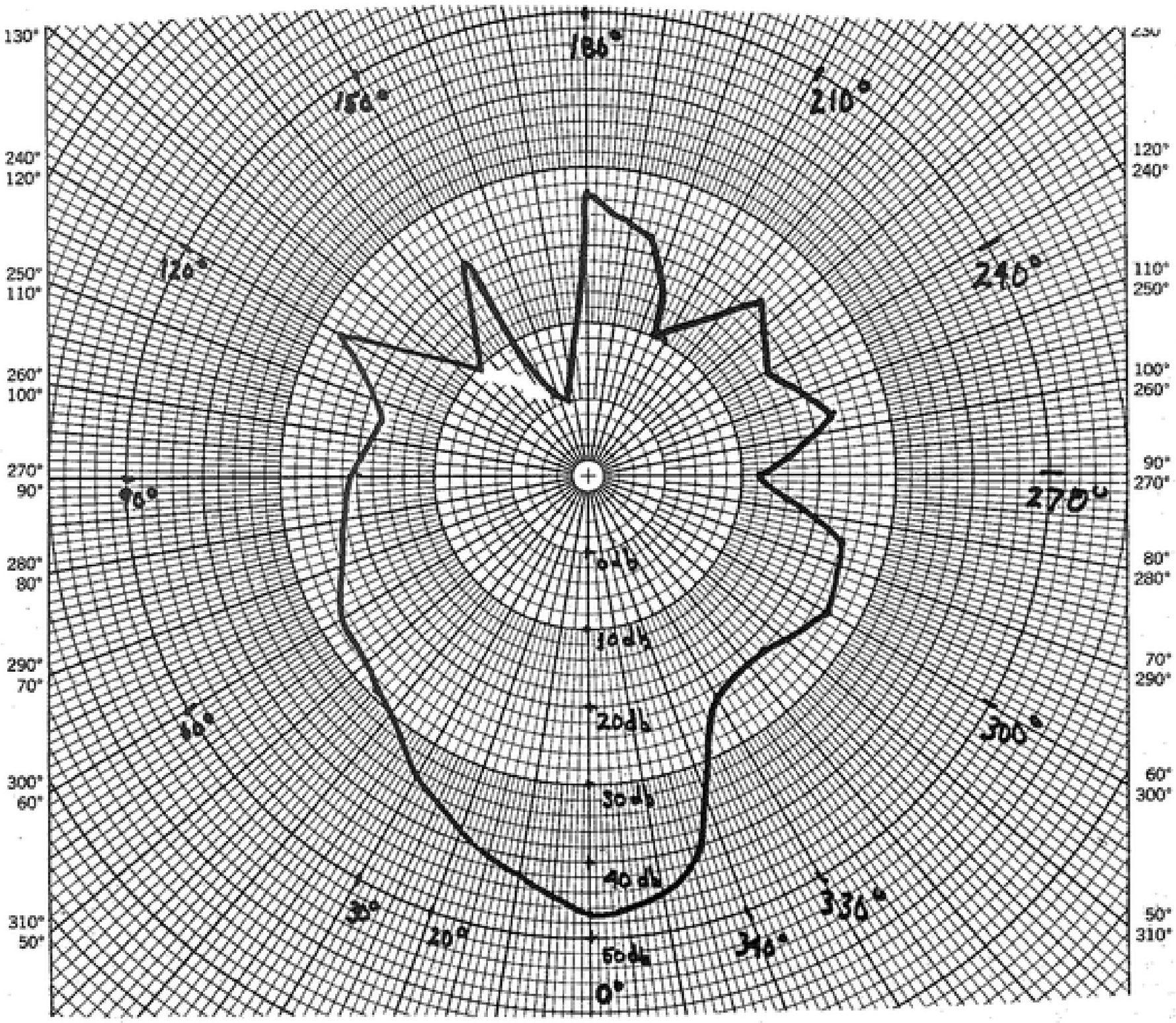


Figure 2.
Two Meter Antenna at N5MS. Cushcraft 215WB. The boom is 15 foot. Gain is advertised at 15.5 db but that is doubted. A UHF antenna is stacked on the same mast on a boom about 10 foot horizontally away which may account for the skewed pattern. Beamwidth is also advertised at 35 degrees to half power for the E plane and 36 degrees for the H plane.

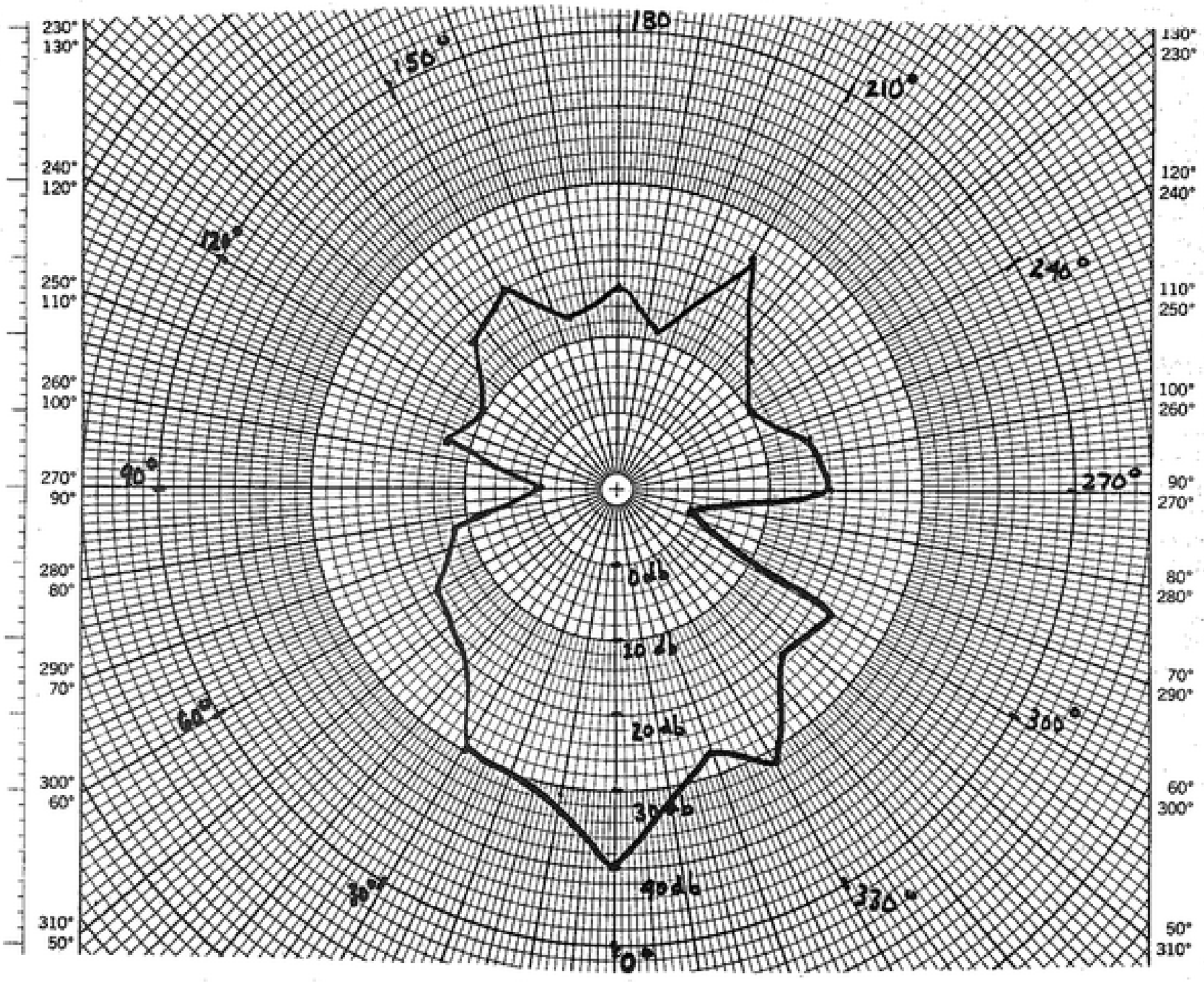


Figure 3.
Two stacked 2M814 Telrex antennas at WA5TOO. This set is spec at 19 db forward gain and features a 14 foot boom radius and a stacking distance of around 10 foot. The half power beamwidth for a single antenna is supposed to be 35 degrees and for the stacked pair is 20 degrees according to the manufacturer. Side lobes are not shown for either antenna since readings were taken only every 15 degrees while rotating the beam.

Privacy Act: ARRL on Capitol Hill

(ARRL Letter) You've heard the rumor that we're going to lose phone patching, or the rumor that even if we're still allowed phone patching we won't be able to listen in to a patch unless we're participating, the rumor that ARRL is asleep at the switch on this one...

Where is all this coming from? Scuttlebutt concerning the Electronic Communications Privacy Act of 1985, that's where. Get the background on the Act (H.R. 3378 and S.1667) from February QST's "Privacy Act - Fact and Fiction." And then get a gander at this. It's the statement by ARRL President Larry Price, W4RA, as presented to the Subcommittee on Courts, Civil Liberties and the Administration of Justice of the Committee of the Judiciary, US House of Representatives, on January 30, 1986. It's not a short piece. But read it word for word. It's the straight dope, carried to the House by those you've entrusted to do such work. Here we go.

"The American Radio Relay League, Incorporated, is the national, nonprofit organization representing the interests of the more than 400,000 Amateur Radio operators licensed in the United States by the Federal Communications Commission. The League is appreciative of the opportunity to submit to this Subcommittee the views and concerns of Amateur Radio operators relative to the instant proposed legislation.

"The Amateur Radio Service is allocated various radio frequency bands for local, regional, national and world wide communications. Such communications promote technical self-training and provide a unique ability to enhance international goodwill. More importantly, however, amateurs are expected to and do provide regular public service and emergency communications. In every major disaster, Amateur Radio operators provide communications where other facilities are destroyed or overtaxed. Most recently, following the earthquake in Mexico City, and the various hurricanes along the southern and east coasts of the United States, rescue efforts were coordinated via Amateur Radio and literally tens of thousands of health and welfare messages were exchanged by Amateur Radio links. The Federal Communications Commission has termed such operation a "priceless public benefit." In addition, amateurs have developed networks of computer data banks known as "packet networks" accessed by, and linked together with, Amateur Radio stations. These provide extremely rapid and error-free computer communications.

"Because there are more than one and one-half million radio amateurs operating world wide, using the same bands of radio frequencies, no one communicating via Amateur Radio or via Amateur Radio frequencies has any reasonable expectation of privacy. A reasonable person would not expect that words uttered over an Amateur Radio frequency would be heard only by those few individuals for whom the communication was specifically intended. Thus, those utilizing Amateur Radio frequencies do not enjoy any expectation of privacy. In 1982, Congress amended then Section 605 (now Section 705) of the Communications Act, 47 U.S.C., so as to clarify the absence of any expectation of privacy in connection with amateur communications and thus the exemption from the reception and disclosure restrictions of 74 U.S.C. Section 705.

"The creation of an expectation of privacy in Amateur Radio is further unnecessary and antithetical to the nature of the Service. The FCC Rules and Regulations governing the Amateur Radio Service (Title 74, CFR Part 97) prohibit business communications (see Section 97.110); prohibit the transmission of messages for hire, or for material compensation, direct or indirect, paid or promised (see Section 97.112); and prohibit third-party traffic involving material compensation to any person and traffic consisting of business communications on behalf of any party (see Section 97.114). The Radio Regulations (Geneva 1982) require that transmissions between Amateur Radio Stations of different countries, when permitted, must be limited to "messages of a technical nature relating to tests, and to remarks of a personal character for which, by reason of their unimportance, recourse to the public telecommunications service is not justified." Section 97.111 of the FCC Rules reiterates this treaty requirement. There are, of course, exceptions to these prohibitions relating to disaster communications. The instant Bill, however, wisely also comtemplates exempting disaster communications from privacy considerations. Accordingly, no legitimate Amateur Radio communications demand the protection afforded by the Privacy Act.

"The instant Bill would, inter alia, vastly expand the present wiretap and oral communication interception prohibitions of Chapter 119 of Title 18, United States Code, to include "electronic communications" generally. The Bill does, however, contain a provision which purportedly exempts Amateur Radio communications from the general prohibition of electronic communication interception. Subsection 2511(2)(g) would read, in part, as follows:

(g) It shall not be unlawful under this chapter for any reason --

(ii) to intercept any electronic communication which is transmitted --

(III) by an amateur radio station operator or by a citizens band radio operator; . . .

In addition to the above, there are other provisions within Subsection 2511(2)(g) which could be construed to exempt amateur communications from the proscriptions of the Bill.

"Provided that the specific exemption for Amateur Radio Communications remains in the Bill and that the same is construed and intended to apply to all forms of communication by, between and among licensed amateur stations on frequencies allocated to the Amateur Radio Service, then the League's most basic concerns are essentially satisfied. Discussions with the Subcommittee staff, however, yield concerns that the Bill may be interpreted to preclude or limit the ability of amateurs to monitor those Amateur Radio communications involving telephone interconnection in which one party to the amateur communications speaks and listens through a telephone line "patched" to an Amateur Radio transmitter and receiver. It is via these "phone patches" that amateurs put overseas servicemen in touch with their families, notify police, fire and ambulance services of emergencies, notify the Coast Guard of ships in distress, and initiate and terminate health and welfare message traffic. Phone patching has been an integral part of Amateur Radio emergency and public service communications since at least the Korean War, when amateurs provided communications for wounded military personnel aboard hospital ships in the Far East. The propriety thereof has been acknowledged by the Federal Communications Commission.

"Amateur Radio Communications, including those utilizing telephone interconnect or Amateur Radio computer linked message systems, are certainly not those to which this "privacy of communications" legislation is aimed. It is thus respectfully requested that any report language to accompany this legislation clearly state that all Amateur Radio communications conducted on radio frequencies allocated to the Amateur Radio Service are exempt from the electronic communications intercept prohibitions of the Bill. If in the opinion of the Subcommittee the present language of the Bill does not sufficiently exempt all Amateur Radio communications, then the same should be amended to include, for example, an exemption for electronic communications transmitted "on frequencies allocated to the Amateur Radio Service" or the like.

"Finally, it should be noted that amateurs, in performing their public service functions, occasionally utilize communications of other services, such as NOAA weather broadcasts and the like. As such, many amateurs employ "scanner" receivers which are capable of receiving communications of many different radio services (including amateur VHF and UHF communications, typically). The use of, as an example, a multiband radio receiver by a licensed amateur should not subject the amateur to criminal prosecution or harassment in any fashion. Amateurs have legitimate reason to monitor frequencies outside the amateur bands. Many amateurs, for instance, are en-

rolled in the Military Affiliate Radio System and the Civil Air Patrol, which use frequencies assigned to the Department of Defense. Other are members of the Coast Guard Auxiliary using frequencies in the Maritime Service Allocation. Some 30,000 amateurs are part of SKYWARN, a system operated by the National Weather Service for tracking and warning of severe weather conditions, e.g. tornadoes; at times it may be required that they monitor Government frequencies in connection with their work. In short, there is legitimate reason for amateurs to have equipment which tunes beyond amateur bands. Amateurs must not be exposed to well meaning but uninformed enforcement activities under the proposed Title 18 revisions. Overall, it would appear that the Bill does not contain sufficient exemptions for legitimate users of the spectrum.

"On behalf of the more than 400,000 Amateur Radio operators of the United States, I thank you very much for the opportunity to participate in this hearing."

--HAM NIGHT AT GENERAL MOTORS--

The GM Assembly Plant will be the site of our March 4 meeting with the main event being a tour hosted by Ron ND5S and Sue N5GVK. Everyone is welcome to attend and enjoy the program. (Please refer to info printed elsewhere in this issue so you come properly prepared).

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-----NIGHT OWL NET MEETING-----

The final particulars have been decided, so here's the scoop:

Everyone who has any weakness for good food,

everyone who has listened to or participated in the net,

everyone who enjoys good company and meeting new faces, COME ON DOWN TO DODSON'S CAFETERIA on Sat March 15 at 6:30pm located at the Hillcrest Shopping Center, 2150 SW 59th. In case of problems, talk-in will be on the 146.07/67 machine.

****

Our gratitude is extended to Art, KF5DK for bringing to us the video presentation of "Look-ing Forward To Being Attacked." Those of us who attended enjoyed it, for it was quite entertaining. For those who missed out, the program was a very interesting self-defense seminar that was done by the Memphis Police Dept. Thanks, Art! (I hope another club asks Art for this program so I can see it again!)

SK KA5TSD

kay

The Emergency Communications Truck has now been converted to a pull trailer. This was done to eleminate a lot of expensive upkeep and maintenance. The back enclosure was taken off of the truck chassis and put on a trailer chassis. This will enable any member with a truck and trailer hitch to pullthe trailer where needed. All that remains to be done to get the unit into operation is to install the several radios and power system. The trailer was taken to the February meeting to let everyone there look it over. That didn't take too long because it was cold outside.

The club has been asked by CONOCO CEA to provide communications for their June 7 athletic competitions. Approximately 10 to 12 Hams with 2 meter capability will be needed to help out.

It won't be long until Field Day, so the club members started talking about what to do this year. It seems that everyone at the meeting wanted to have it at Lake Ponca and possibly a dinner at the site. If you know of another place that would be good for a Field Day setup, come to the next meeting and we will talk it over.

The March meeting will be held at the Pioneer Drive-In Bank at 7:00pm on March 20.

Bring a friend.

73

KE5XY

NIGHT OWL NET MEETING

WHEN: Sat 15 March 6:30pm

WHERE: DODSON'S CAFETERIA
Hillcrest Shopping Center, 2150 SW 59th (west of Penn.)

WHO: Anyone who wants to have some good food and good conversation. There is no program. Here's your chance to meet people you hear and talk to on the air and put a face to that voice!

Talk-in on 146.07/67

ALTUS AREA AMATEUR RADIO ASSOCIATION

The Altus Ham Club held its monthly meeting on Thursday, February 13, downstairs at the North Main Fire Station.

Present for the meeting were Mac, KB6FLG, Laura a visitor from Hobart, Ann, KA5WDY, Jim, KB5LS, Phil, K9PNT, Dave, KA0PRY, Lorem, WA5CBF, Dwight, WB5KRH, Mike, W5VXU and XYL Ann, KA5YWY.

Among the many things that were discussed were Loren who is working with two new prospective Novices, Ann, KA5YWY, who showed off her new Novice ticket and beginning to think about maybe upgrading some day soon.

Mike, W5VXU, gave a short program on traffic handling and the differences between the ARRL and various MARS message formats.

A reminder from Mike, the Club Secretary, that those of the members who are not paid up thru the end of this year need to get with him.

S C H O L A R S H I P S

THE DAYTON AMATEUR RADIO ASSOCIATION WILL AWARD TWO $1000 SCOLARSHIPS TO LICENSED ANATEURS GRADUATING FROM HIGH SCHOOL IN 1986. FOR FURTHER INFORMATION AND APPLICATION FORMS WRITE: DARA, P.O. BOX 44, DAYTON OH 45401. ATTN: SCHOLARSHIP COMM. COMMITTEE.

CLIQUE -- CLOCK -- BANG
(A letter in Ham-Hum)

I suspect that your trouble is that the same "clique" is running the club that ran it when I was President back in 1948. That "clique" is the same bunch that always runs everything. They come with their heads up, their ears open and their minds in gear. They have guts enough to stand up before the gang and take part in the meetings. They have ideas and are willing to express them and are willing to back them with work and expenditure of time to see that their efforts are a success.

I know those guys. They're the ones who always haul all the stuff to field day site and picnics. They're always putting up antennas, taking part in putting up repeaters, contributing parts and pieces to build them and money to run them.

Well, all I can say is I'm sure glad that old "clique" is still in there because if it wasn't I might have to get out there and do something myself! And I'm too old to start again.

TECHNICAL REPORT

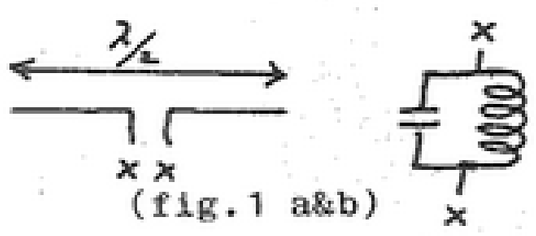
W5JJ

Some weeks ago on the Sunday QCWA Net, Carl W5JJ was describing an antenna article from t

Amateur Radio". As most of us know, Carl is a quite articulate fellow, and his description of the antenna sounded so interesting that a suggestion was forwarded that he write a short article about it for inclusion in C&E. Here 'tis:

THAT AUSSIE ANTENNA

Before talking about that particular antenna, let's review a chunk of sub-Novice level radio theory.

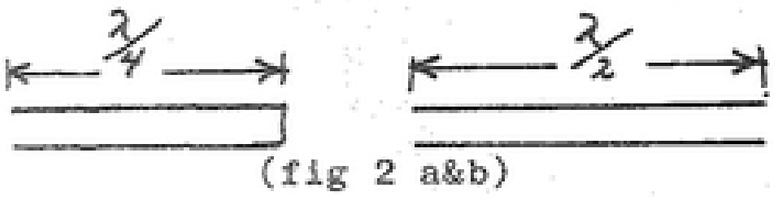


(fig.1 a&b)

Here are two resonant circuits. At resonance, each acts as a purely resistive circuit. That ends their resemblence. The one on the left is series resonant; the one on the right is parallel resonant. If the exciting energy fed into point X-X departs from the resonant frequency, each circuit behaves in a different manner. No longer is each a purely resistive circuit, but one becomes a complex circuit involving both resistance and capacitance. The other becomes a complex circuit involving both resistance and inductance. If the frequency departs in the opposite direction, the curcuits merely reverse their behavior.

Hmmmmm... That suggests some intreguing applications, doesn't it? Just suppose you combine the two, then one reactance would cancel the other and the joint curcuit would remain resistive.

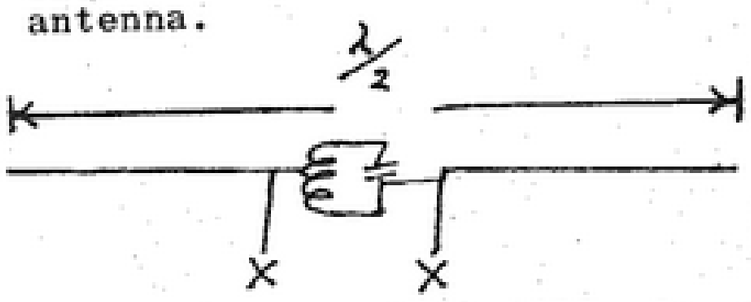
Now, let's jump to another look at that parallel-resonant circuit. Let's gander two versions that act almost exactly like the LC version.



(fig 2 a&b)

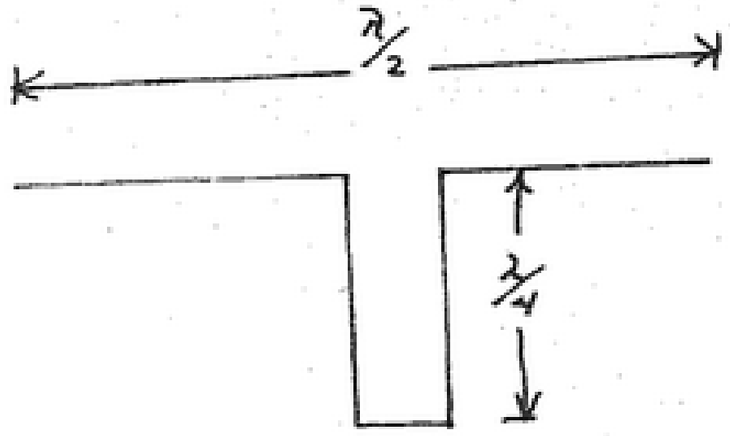
The one on the left, the shorted quarter-wave, is so very much like the LC version that it's often used in UHF transmitters. Now, if any of you who remember the bad ol' days when we used to try to use a high internal capacitance dual tetrode (like the 815) in a transmitter in the higher VHF and UHF region, you needn't be told that capacitance so loads a linear tanbk that its physical length becomes appreciably shorter for a given electrical length. (It became so short that it just about disappeared inside the 815, and you had to add an external half-wave to have enough circuit available for tuning and coupling!)

Now that we've completed the sub-Novice review, let's get back to the subject: An antenna.



Here's an antenna that'll do a fine job of being "nearly flat" across a wide chunk of frequencies. It's a bit of a task, though, to tune that parallel-resonant curcuit when it's up in the air.

How can we lure it nearer to ground level? Just try the next diagram.



Now it's closer to the ground and by making the shorted quarter wave a wee bit long and the shorting bar adjustable, you can tune it exactly.

Inducing RF into that shorted quarter-wave can present a small problem (not really bad, though); so you might want to use an open-circuit half-wave section. You can mnake it a bit short and "build it out" with a capacitor... a convenient method of tuning.

The Aussie version added some fancy touches. Like, for instance, making the radiator short (and reactive) and cancelling the reactance by the capacitor. Also, the author elected to use a balun at the fed end of the half-wave "parallel resonant" section and then placed the capacitor across the low-impedance (and unbalanced) side of the balun. Coax fed the balun.

Another touch was the use of cage elements for the two quarter-wave sections of the radiator. It's quite well known that increasing the diameter of a radiator (presuming a constant length) increases the "broadband" effect of that radiator. The large diameter can be achieved by a cage configuration, usually four to six wires. I've read hot arguments as to whether the far ends of the cage (or multi-wire flattop) should be shorted together of insulated from one another. The British government made extensive checks to ascertain which was preferable, but I no longer have their report available. Using a cage or multi-wire flattop radiating section results in a shorter physical length for a given frequency and also has some small effect on the feedpoint impedance.

Neither of these is significant unless the "flare" of the radiator is extreme.

So, you see, the Aussie antenna very cleverly combined two principles for broadcasting: The use of a large-diameter radiator and the reactance-cancelling effect of a series-resonant circuit and a parallel-resonant circuit mutually associated. Smart guys, tese Aussies!

While we're at it, you might be interested to know that the famed "folded doublet" really is a version of the second principle involved in the Aussie antenna! I've seen its evolution detailed in a college-level textbook. It takes a wee bit of redrawing... but it's relationship is shown quite clearly.

ALASKA'S GIANT WIRE

The Alaskan Oil Pipeline has an enexpected property. It could be described as a giant electric wire, says the London Times. As a result, large surges of electric current have been detected. It seems that magnetic fluctuations in the northern hemisphere are particularly strong, inducing current in the walls of the pipeline, as though it were a wire moving through a magnetic field. Currents of over 50 amps have been measured and up to 1000 amps are expected during periods of greatest atmospheric disturbance.

Scientists say that the only problems this would create are more rapid corrosion of the metal and interference with the pipelines electronic monitoring equipment.

HOME BREW 2 METER KW AMP

Using the commonly available T-282 PA chasis and parts.

In an attempt to get on EME, I needed not only an antenna system, but a 2 meter power amplifier capable of at least 500 watts output. I did not really want to buy a commercial amp, the two reasons being cost, and my desire to design my own unit using less accepted ideas. Here is my story:

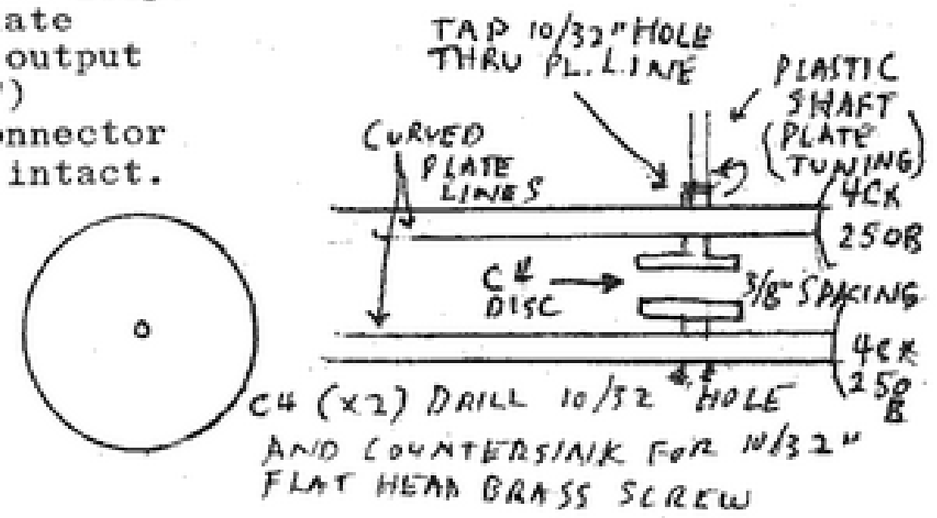
I purchased a military T-282, a 200-420 mHz transmitter from Jay Liebman, K5JL, for a chassis and available parts. I removed the power amp sub-assembly. I removed all internal components except I left the tube sockets in place and left the semi-circle silver plated grid lines and plate lines also in place. I removed the grid chokes and replaced them with ferrite beads and 1/2 w 150 ohm resistors. The same set-up using a 1 watt version applied to the screen grids

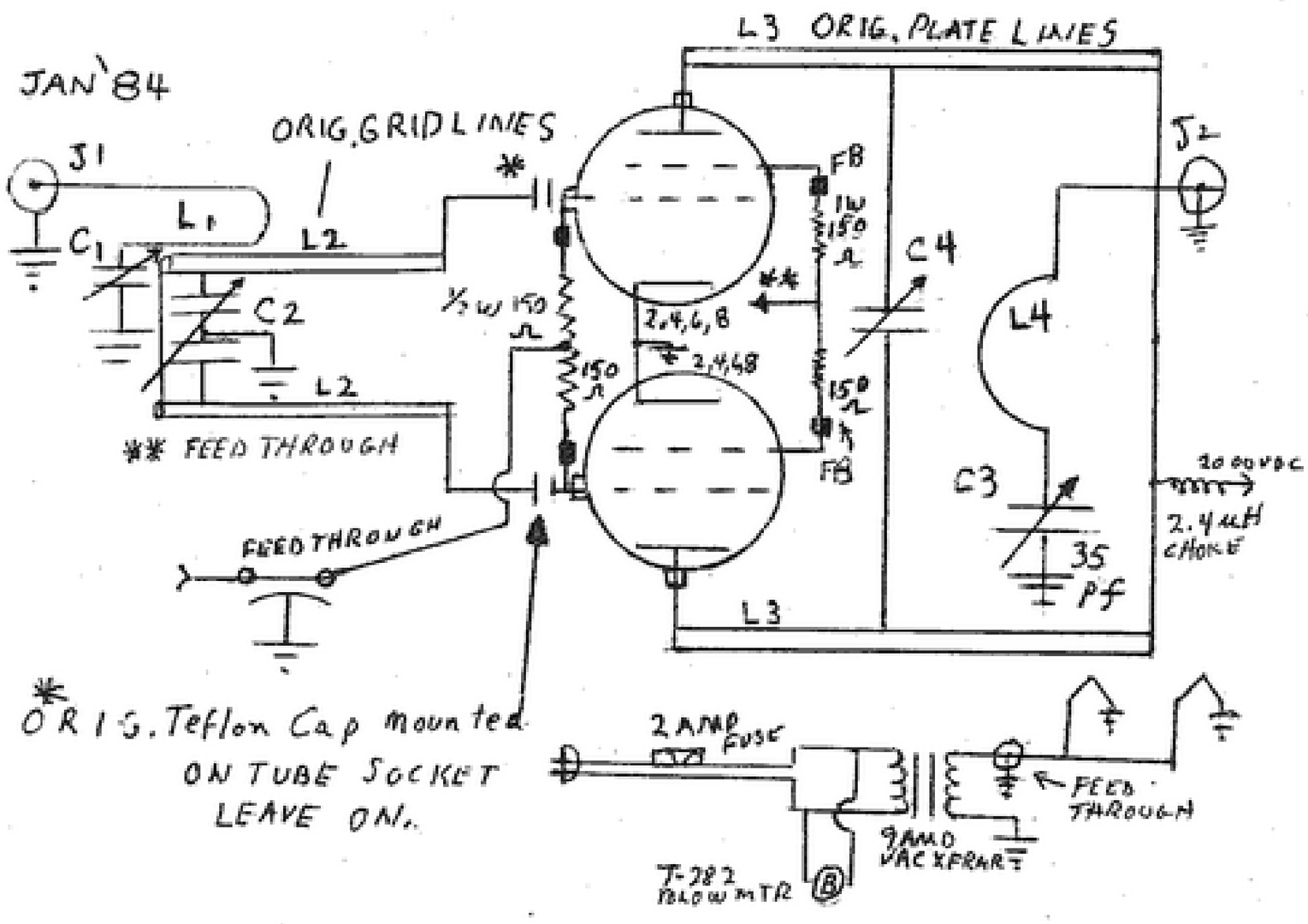
I also moved the grid lines and plate lines 3/8" total clososer to allow resonance for 2 meters. The shorting bars that were on the grid lines were removed (they used to slide up and down on the lines for continuous tuning from 220 to 420 mHz! The distal end of the rigid lines is left connected but raised from ground and insulated with teflon or other dielectric.

A 2 section (butterfly variable capacitor taken from the exciter section) is used with plates removed to obtain about 25pf per section the center of the shaft between the 2 sections is grounded. I also salvaged the 9 amp, 6 volt filament transformer for the 4 CX250B from the T-282.

The blower motor was taken out of the old T-282 and mounted in the top compartment right behind behind the tubes. This pressurizes the plate chasis and air is allowed to escape up through teflon chimneys mounted directly ontop of the anodes. This method offers efficient and excellent cooling of the tubes. C4 is 1/8" thick times 2 1/4" round aluminum discs mounted as near the tube sockets as possible. An insulated shaft was used to vary the distance between the discs. Spacing should be about 3/8". Large currents are present on the plate line and conductive grease can be used to prevent arcing. Add a top and bottom section of aluminum and a power supply and refer to the RADIO AMATEUR HB for tune-up or LUNAR LETTER MAGAZINE, July '82 p. 27. I did not experience any particular problems with neutralization; obtained equal "heat" from both tubes with a thermometer as I did not have separate screen current meters. My initial output was 500 watts with greater than 50% efficiency -- 650 watts maximum was achieved when driven with higher voltages and idling current. If efficiency ia lower, adjust output cupling loop spacing. Always turn off power supply when making adjustments or changes -- a nano-second of 2000 or so volts can be fatal! Good luck!

C1 7:30pf variable capacitor.
C2 25pf dual section, 25pf per section.
C3 35pf 1000 volt V.C.
C4 2 1/4" dia round alum disc 1/8 thick (See picture)
L1 5" single turn loop, 18 ga wire.
L2 Grid lines (left intact), Isolate distal end from ground w/teflon.
L3 Plate lines (Left intact)
L4 6" copper tubing, air cond type 1/4" single turn loop. Adj spacing from plate lines for greatest output (Approx 1/4 to 1/2")
J1 Type N, J2 Typen connector
F.T.Feed throughs left intact.





A man went into a coma after receiving a bump on the head and did not awaken for twenty years. After getting his bearings, he called his broker. His hundred shares in AT&T were now worth $8 million. His hundred shares of Xerox ahd advanced to $15 million, and so on. The man figured he must be a millionaire. Just the the telephone operator came on the line and stated, "Your three minutes are up, sir. Will you please deposit 75 thousand dollars."

REWARD OFFERED

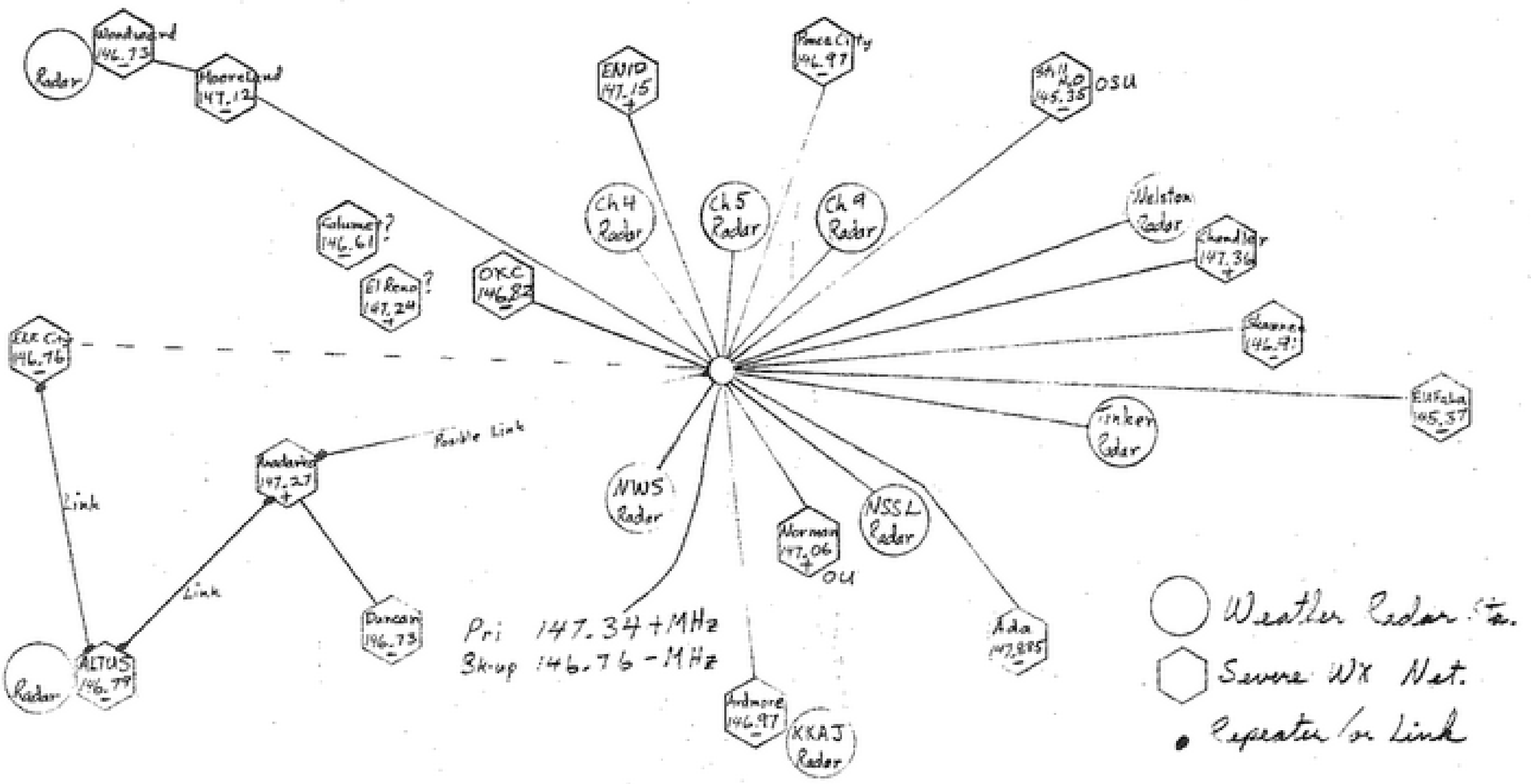
A reward is offered for information leading to the arrest of Eddy Current, charged with the Induction of an 18 year old coil called Milli Henry, found half choked, and with the theft of valuable Joules. This Unrecti-Unrectified criminal armed with a carbon rod escaped from Western Primary Cell where he had been clamped in Ions.

The escape was planned in 3 phases; first he fused the electrolite, then he climbed through a Grid despite the Impedanc of warders and finally ran to Earth in a nearby Magnetic Field. He has been missing since Faraday. Watt seems more likely is that he stole an A.C. motor. This is of low Capacity and he is expected to exchange it for a Mega Cycle and return Ohm by a Short Circuit. He may offer Series Resistance and it is a potential killer.

ALABAMA: YES ON 20 KHZ

Alabama's 146 - 148 mHz subband will be converted totally to 20 kHz spacing by July 1. This is the decision mandated by the Alabama VHF/UHF Council at its March 2 meeting. Repeater owners have been told that they must be in adherence with the 20 kHz plan byJuly 1 or face immediate loss of their channels.

OKLAHOMA SEVERE WEATHER REPORTING SYSTEM



This is a proposed system to be tried out this season. Any corrections or additions to this contact WB5TMW Dick 405-685-2867 or B 405-278-2080 as soon as possible. Information needed:

1. Frequency Net is held on.
2. Area Net covers.
3. Net Mgr. name, call, phone #
4. Net liaison " " " " "
5. Back-up Net Liaison

A corrected copywill be in the next issue of the C.& E.

Q. What is the purpose for Ham radio involvement in Severe WX??

A1.To provide accurate Spotter information for the National Weather Service, because it is their responsibility to issue warnings yo the public.

A2.To provide reliable back-up communications link for the WX Service to the public, and spotters, in the field.

A3.To provide an accurate log of events during & after severe weather, for analysis to improve situations in the future.

Now, your next question should be!! How can we, as Amateur Radio Operators accomplish this?

Inorder to provide accurate spotter information, we must first train the spotters in what to look for & where to look. This can be done by contacting the NWS in OKC & set up a spotters training class, which they provide free of charge. Many communities have already tried this, with much success.

In the past few years, we (the Amateur Station at NWS) have had a hard time getting information to & from some of the outlying area Nets for various reasons, couldn't make the distance, or off on another freq. for a different area Net.

NOTE: It is hard to point a beam in more than one direction.

To solve this problem, it will take everyones' cooperation in order to make this system work.

Each area has their own system formal or informal Net. Even if it's just two Hams talking about a dark cloud over Joe's Barn. This information doesn't do any good unless it is passed on to the proper authority (NWS),where it is NWS responsibility to issue "WARNINGS". One way to handle this, is to assign a Net Liaison to coordinate traffic between the local area Net, and the NWS. This will enable the Net to function independently with the local area spotters, & still provide vital information (complete & accurate) to the NWS as well as info. & Warnings to the Net without interruptions.

NOTE: The Liaison station must have 2 freq. capibility simo.

Now then, let's suppose there is more then one area effected by these storms. Tracking two or more storm cells is very hard to do on two or more frequencies, much less in different directions. One way to solve this problem is to have all Liaisons use one common frequency.

147.34+MHz = Primary freq.
1100 ft. on Ch5 TV tower. OKC
146.76-MHz = Back-up freq.
150 ft. top So.Comm.Hospital

Now we have vital information flowing between NWS & the local area Nets. How does the finished product get to the Public????

1.The NWS broadcasts all warning and information via NOAA Weather Radio, which by the way will start March 15, broadcasting the Thunderstorm Outlook for all the State at 3:00 PM local time.

2.The NWS broadcasts all warning and information via the weather-wire, which goes out to most all of the media, such as TV & Radio stations for emidiate broadcast to the Public.

3.NWS also broadcast this info. over the National Warning System (NAWS), which is also located at various Highway Patrol Hq. and redistributed to various Civil Defence Offices.

4.Also on OLETS which goes to all law enforcement agencies.

5.These warnings will be read on 147.34+MHz for all to copy.

OKC is unique in that we have at least 7 independant weather Radars within the OKC viewing area, two of which are Dopler. How could anything get past so many eyes??? * The first 3,000 feet cannot be seen by radar. *

Who was it that said " 2 heads are better than one"? Well, 7 radars must be better than one. But if all are operating independently, there might as well be just one.

If we were to place an Amateur station at each radar, and link them together on the same freq. with all the Net Liaisons and NWS, where severe weather traffic is passed, all information could be shared on a real-time bases.

NOTE: This Freq. should be limited to Weather Radar and Net Liaison stations only!!!!!

All direct spotter contacts should be made through the local area Nets.

TNX WB5TMW

HAM HAPPENINGS — REFER TO CLUB SECTION FOR SPECIFICS

SUN	MON	TUE	WED	THU	FRI	1 SAT
2	3	MORI 4 Great Plains	5	Aeronautical 6	7	COCO SCARS 8 ARDMORE
Wheatstraw 9	EDMOND CLUB 10	76'ers O U 11 OIDAR	12	ALTUS AREA 13 CP/M	14	VHF Club 15
EARS 16	VE EXAM RED CROSS BLDG. 17 6:00 PM	AUTOPATCH 18	19	KAY County 20 CIMARRON	COLLECTOR - EMITTER 21	22
23	24	CORA 25	26	27	28	29
30	31					

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

MARCH

PACKET RACKET

Operating HF on your 2 meter rig

No, I'm not kidding, with a simple 2 meter packet radio setup, you can work the world on HF. Here is how it's done.

Although, at the present time, the majority of packet operation is on VHF, a number of stations are now running HF, and in particular on 14.103 Mhz. The main difference between these packet transmissions and those on two meters is that they run at 300 baud (rather than 1200) and the frequency shift is different. Some stations, like Dave, KI0Q in Ames, have gone one step further. They are using two TNCs one on VHF and one on HF and tied them together through a BBS and call the hookup a "Gateway."

What this means to you is that you may connect with one of the stations on two meters, activate the gateway function, and you are now on HF. Once you are there, you can connect with other HF stations, ragchew, DX or whatever, get on BBS in far off places and should one of these BBS be set up as a gateway, you are in for another very special treat!

You may activate that station's station's gateway, which puts you on 2 meters in his local area. You may then connect with any station that he can reach on 2 meters. Should you do this through WORLI in Mass, all you need to do is issue a command to connect W1AW and the rest is done automatically.

By the way, as on VHF, you may digipeat through HF stations.

This means that if the 20 meter band is not open to an area you wish to reach, figure out a path and connect with the desired station via a station that is within the skip zone for both of you. I have worked the East Coast via California late at night when the skip is too long for a direct connection.

Additional gateways have the capability to connect via Oscar satellites. Now, this really opens up some possibilities.

Ray Dennis, W0DQ

A 2-METER HALF-WAVE ANTENNA

The September issue of Amateur Radio (Read it in the ACARC club room), in addition to a number of articles and photos of old-time Amateur Radio gear, has a description of an unusual antenna for 144 MHz.

This antenna can be constructed entirely from RG-58 coax, said coax being used for a capacitor, an inductor and the radiator. Its flexible nature adapts it readily to portable use. VK6FC sez it gives him reports of 15 dB above what he gets when using a "rubber ducky."

If you've been tempted to buy a Bearcat DX-1000 receiver, read ARs review on one, you might change your mind!

W5JJ

EXPERT: An ordinary man on someone else's rig.

You have to hand it to hams: They've just updated Cinderella. Instead of a slipper, they check her SWR.