CENTRAL OKLAHOMA RADIO AMATEURS
COLLECTOR AND EMITTER

50¢

Volume 9 NOVEMBER 1983 Number 106

INDEX

052.680-052.525	OKLAHOMA CITY	K5JL	147.720-147.120	GUTHRIE	KA5EOS
144.510-145.110	CLEVELAND	WB5MPU	147.720-147.120	GUYMON	KY5C
144.610-145.210	BROKEN ARROW	WA6HND	147.720-147.120	MOORELAND-NW	KA5CJG
144.630-145.230	BLACKWELL	N5ANV	147.750-147.150	SULPHUR	WB5WBB
144.650-145.250	CHOCTAW	WB5PNH	147.750-147.150	ENID	WR5ABW
144.690-145.290	ENID	WA7UIB	147.750-147.150	GROVE	K5PJR
144.750-145.350	STILLWATER	WB5KQL	147.780-147.180	SEILING	KA5CJG
144.770-145.370	EUFAULA	KD5KV	147.780-147.180	TULSA	WD5EVU
144.790-145.390	OKLAHOMA CITY	N5EBI	147.810-147.210	OKLAHOMA CITY	K5JL
144.830-145.430	OKLAHOMA CITY	KB5OB	147.840-147.240	EL RENO	KB5RJ
144.850-145.450	FAIRVIEW	K1SP	147.840-147.240	TAHLEQUAH N	WA6EAW
144.850-145.450	BROKEN ARROW	N5EHP	147.870-147.270	STILLWATER	K5FVL
144.870-145.470	TULSA	AB5M	147.870-147.270	TULSA	WB5WOW
144.890-145.490	OKLAHOMA CITY	WA5CZN	147.870-147.270	ANADARKO	WB5KVD
146.010-146.610	BEAVER	WR5ATW	147.900-147.300	ALVA	KB0HH
146.010-146.610	CALUMET	K5GDE	147.900-147.300	CONCHARTI MT.	
146.010-146.610	HUGO	WB5TTU	147.930-147.330	EDMOND	WD5AII
146.010-146.610	TAHLEQUAH		147.930-147.330	MUSKOGEE	WA5VMS
146.040-146.640	CAVANAL MTN.	WR5AII	147.960-147.360	BIG CABIN	WA5ICW
146.040-146.640	GRANITE	W5CHE	147.960-147.360	BYARS	WA5IGH
146.070-146.670	OKLAHOMA CITY	K5ELL	147.960-147.360	MOORELAND	WB0PGD
146.100-146.700	ARDMORE	W5RFX	147.990-147.390	MOORE	WA5TOO
146.100-146.700	OKLAHOMA CITY	WA5TSJ	147.990-147.390	TULSA	WB5NJU
146.100-146.700	TULSA	K5LAD	222.280-223.880	WAURIKA	WA6HGK
146.130-146.730	STILLWATER	K5FVL	222.300-223.900	TULSA	WB5BET
146.130-146.730	DUNCAN	WD5IYF	222.340-223.940	GROVE	K5PJR
146.130-146.730	WOODWARD	W5HGH	222.340-223.940	FT. GIBSON	WB5AOH
146.130-146.730	MIAMI		222.460-224.060	PRYOR	KC5FM
146.160-146.760	BARTLESVILLE	W5NS	222.500-224.100	BARTLESVILLE	KB5QJ
146.160-146.760	ELK CITY	WB5FBU	222.500-224.100	OKLAHOMA CITY	N5BEQ
146.160-146.760	OKLAHOMA CITY	KC5CR	222.600-224.200	TUTTLE, OK.	WB5SQC
146.190-146.790	WEWOKA	WB5OFC	223.340-224.940	ENID	WR5ABW
146.190-146.790	ALTUS	WR5ANX	223.340-224.940	TULSA	K5LAD
146.190-146.790	ARDMORE	W5BLW	437.250-425.250	EDMOND	W5LIL
146.190-146.790	MIAMI	WR5AHX	439.250-421.250	MUSKOGEE	W5EJK
146.220-146.820	OKLAHOMA CITY	K5JL	439.250-427.250	GROVE	K5PJR
146.220-146.820	TULSA	WA5LVT	439.425-427.425	TULSA	WA5LVT
146.250-146.850	MUSKOGEE	W5EJK	443.200-448.200	TAHLEQUAH	WA6EAW
146.250-146.850	OKLAHOMA CITY	W5PAA	443.650-448.650	DEL CITY	K6DBR
146.280-146.880	LAWTON	W5KS	447.350-442.350	BLACKWELL	N5ANV
146.280-146.880	NORMAN	N5MS	447.550-442.550	OKLAHOMA CITY	K5YGM
146.280-146.880	TULSA	WA5LVT	448.100-443.100	MUSKOGEE	WA5VMS
146.310-146.910	SHAWNEE	W5SXA	448.300-443.300	CLEVELAND	WB5MPU
146.340-146.940	DURANT		448.850-443.850	ENID	N5DUB
146.340-146.940	ENID	WR5ABW	448.900-443.900	EDMOND	WD5FEI
146.340-146.940	OKLAHOMA CITY	WA5YTI	449.100-444.100	ALTUS	WR5ANX
146.340-146.940	TULSA	WA5LVT	449.100-444.100	OKLAHOMA CITY	K5JB
146.370-146.970	ARDMORE	N5AD	449.100-444.100	TULSA	WA5LVT
146.370-146.970	CLAREMORE	N5TM	449.200-444.200	OKLAHOMA CITY	WD5AII
146.370-146.970	PONCA CITY	W5HZZ	449.200-444.200	TULSA	WA5BPS
146.400-147.000	MOORE	WB5GSZ	449.300-444.300	OKLAHOMA CITY	K5JL
146.625-146.025	OKLAHOMA CITY	KA5NUP	449.300-444.300	TULSA	K5LAD
146.655-146.055	BARTLESVILLE	W5NS	449.400-444.400	ENID	W5HTK
146.745-146.145	FT. GIBSON	W5EJK	449.400-444.400	FT. GIBSON	WB5AOH
146.775-146.175	MOUNDS	WB5NJU	449.450-444.450	TULSA	WA7HDR
146.985-146.385	PAWHUSKA	WB5DYR	449.500-444.500	CALUMET	WA5FLT
147.135-147.735	EDMOND	KC5GN	449.600-444.600	TULSA	N5ANY
147.285-147.885	ADA	WB5NBA	449.700-444.700	OKLAHOMA CITY	WD5FAM
147.600-147.000	TULSA	WA5YPT	449.700-444.700	PONCA CITY	W5TXF
147.630-147.030	OKLAHOMA CITY	WD5AII	449.800-444.800	EL RENO	
147.660-147.060	NORMAN	W5OU	449.850-444.850	CLAREMORE	N5TM
147.660-147.060	PRYOR	KC5FM	449.850-444.850	OKLAHOMA CITY	WA5CZN
147.690-147.090	CHOCTAW	K5EGD	449.900-444.900	STILLWATER	K5FVL
147.690-147.090	OOLAGAH	WA5LVT	449.975-444.975	MOORE	WA5TOO

CORA COMMENTS

First of all, let me introduce myself, in case their are some who do not know me. I am Reggy Whited, WN5NWX, and I have the pleasure of serving you as the President of CORA for this next year. What does this mean, you say?

This means that I am president of the organization, that will make all the decisions concerning HAM HOLIDAY 1984. We will decide where Ham Holiday will be - when it will be - how it will be - what programs will be presented - which ones will be turned down. We will decide how much the tickets will cost - how much flea market tables will be - how much the dealers will pay for their booths - etc - etc.

We, CORA, have a lot of very important decisions to make.

On the front page of the October 1983 C & E, I had the pleasure of finding a very interesting letter from W5JJ. You know what? I have to agree with you, sir. Ham Holiday has indeed progressed.

My first Ham Holiday was in 1980. My first year in CORA was 1981/82. It was at this time I began to realize just how many people really care at all about the Who - What- When - Where - and How's of Ham Holiday.

How did I arrive at this scientific conclusion? That was very, very simple. All those people who cared were at the CORA meetings. They were CORA representatives. They were there to WORK eleven months, so about 1200 people could have a Ham Holiday.

After serving as a CORA representative, I found out it wasn't all fun and games. I found out that one does not go down Friday afternoon and tell someone that "You sure are lucky, we are going to have Ham Holiday at your place this weekend". You don't go out Friday and find a hundred dealers lined up at the city limits to come to Ham Holiday. You can't go out Friday afternoon and get someone to print - mail - receive back - and correlate all the pre-registration by that evening. It's very difficult to go out Saturday morning and find 25 or 30 people and/or business to come that day and present interesting programs. No Sir, some of these things take about a year of hard work to get lined up.

Sir, if I understand your letter correctly, you believe some changes are in order for Ham Holiday 1984. I'll bet that there are other Hams in this area that also feel changes are in order. I'm sure some changes are going to be made. Are you aware of who is going to make these changes?? The CORA representatives. Are you one? These are the ONLY people that decide.

Did you by chance see the OTHER article on the opposite side of the page? Did you by chance read it? Did you by chance notice that the first paragraph of this "OTHER " article was a complete answer to our problem?

One of the most important CORA meetings of the year! Elections! Only, thirteen people to make these decisions!

Mr. Drumeller are you a member of any club in this area? Does that club have anyone who represents them at CORA? If not, would they want you as a representative? Have you told them how you feel?

W5JJ, I must admit, I have never had the pleasure of meeting you. I feel the intent of your article was good. I trust you will understand the intent of my article. We, CORA, have to make the decisions. We were only 13 last month. Will we still be only 13 this month? I hope not.

Remember! The ten most important little words in the English language, "IF IT IS TO BE, IT IS UP TO ME".

See you there,

Reggy, WN5NWX

THESE CORA MEMBER CLUBS PROMOTE AMATEUR RADIO

1 AERONAUTICAL CENTER ARC
MEETS: 8:00pm First Friday. Flight Standards Bldg., FAA, S. Macarthur

PR	K5LDI	Tom Mangham	677-5291
VP	AF5X	Jess McKenzie	329-1543
SE	KA5JCX	John Mooney	794-8519
TR	K5RJR	Larry Vorheis	789-9629
EDITOR: John Mooney, KA5JCX			794-8519

2 OKLAHOMA CENTRAL VHF CLUB
MEETS: 10:00am Third Saturday. Red Cross. 10th & Hudson(Back door) Okla City.

PR	WA5HTL	Paul Asplin	787-4286
VP	KD5IS	Jerry Wetmore	524-5080
SE	K5JB	Joe Buswell	732-0676
TR	W5KE	Ellard Foster	789-6702
EDITOR: Joe Buswell, K5JB			732-0676

3 MID-OKLAHOMA REPEATOR, Inc.
MEETS: 8:00pm First Tuesday. Okla City EOC. 4600 N Eastern

PR	N5EPV	Bob Allen	Unlisted
VP	KD5DL	Holly Stewart	
SE	KA5CXW	Fred Taylor	528-1537
TR	W5KOZ	Sid Gerber	737-1050
EDITOR: Susie Atkinson, KA5FED			842-8014

4 OKLAHOMA CITY AUTOPATCH ASSOCIATION
MEETS: 7:30pm Third Tuesday. Okla City Fire Training Center. 800 N Portland

PR	WD5FKF	Reuben Castleberry	691-1070
VP	WB5NDO	Kathy Whited	799-1457
SE	N5DLM	Vickie Adkins	722-6795
TR	KE5M	Ron Recer	341-7030
EDITOR: Kathy Whited WB5NDO			799-1457

5 OKLAHOMA UNIVERSITY AMATEUR RADIO CLUB
MEETS: 7:30pm Second Tuesday (Sep-May) 119 Wilson Center. 1334 S Jenkins

PR	KA5BAY	Luke Noah	325-1775
VP	KE5N	John Wustenberg	325-2382
SE	KA5COI	Peter Richeson	329-3217
TR	KA5LZN	Greg Smith	366-1641
EDITOR: Greg Smith, KA5LZN			366-1641

6 ALTUS AREA AMATEUR RADIO ASSOCIATION
MEETS: 7:30pm Second Thursday
North Main Fire Station (CD) Altus

PR	KA5MPK	Gary Alexander	482-0857
VP			
S/T	KA6RTX	Bill Flattery	482-1155
EDITOR: Bill Flattery, KA6RTX			482-1155

7 BICENTENNIAL (76ers) ARC
MEETS: 7:00pm Second Tuesday. OG&E Bldg. SE 3rd & E. K. Gaylord Blvd.

PR	N5BFD	Jim Hopkins	947-0043
VP	WD5JNT	Ted Vanlaningham	262-1675
SE	N5AUH	Jerry Sproul	354-2061
TR	WA9AFM	Tom Webb	737-6716
EDITOR: Bruce Goff, KC5CR			751-7192

9 WHEATSTRAW AMATEUR RADIO CLUB
MEETS: 2:30pm Second Sunday. Location varies. See club section.

PR	KA5FUU	Tom Johnson(El Reno)	262-5631
VP	KA5DUO	Leo Peil (Canton)	886-2996
S/T	WA5PFK	Ralph Wilder(Watonga)	623-4521
EDITOR: George Maschino, K5GGL			263-7614

12 SHAWNEE AMATEUR RADIO CLUB
MEETS: 8:00pm Second & Fourth Tuesday
Shawnee City Hall (EOC)

PR	KD5NX	Jay Tingler	273-3033
VP	N5CGZ	David Stanley	273-4226
S/T	W5TQZ	Herbert Holton	598-5934
EDITOR: Earl Couch, WB5ZBA			589-3212

13 KAY COUNTY AMATEUR RADIO CLUB
MEETS: 7:00pm Third Thursday
Ponca City EOC

PR	WB5YRN	Delbert Folles	762-4479
VP	WA5UBO	Marsh Pronneke	363-2526
S/T	KA5PUB	Glenn Bishop, Jr.	
EDITOR: Rick Long, WD4CEP			767-1871

14 CIMMARON AMATEUR RADIO ASSOCIATION
MEETS: 7:00pm Second and Fourth Mondays. Place varies. See club section.

PR	KI5P	Major Bailey	227-2061
VP	WB5ECM	Dennis Painton	764-3599
S/T	N5FMH	Nadine Painton	764-3599
EDITOR: Jack Day, N5FMQ			

15 SOUTH CANADIAN AMATEUR RADIO SOCIETY
MEETS: 9:30am Second Saturday. Red Cross Bldg., North OU Campus. Norman

PR	K5KDR	Bill Oliver	329-6333
VP	KA5MIZ	Bob Rabin	360-6996
SE	KA5EFJ	Ken Neptune	321-7789
TR	WD5GTC	Gene Johnson	321-6759
EDITOR: Sam Barrett, WA5RPP			321-2601

16 EDMOND AMATEUR RADIO CLUB
MEETS: 7:00pm First Thursday. See club section for location and type.

PR	WD5DYI	Mark Northcutt	755-4672
VP	WB5MLX	Glen Cochran	942-7148
S/T	WB5UIY	Stan Van Nort	Unlisted
EDITOR: Stan Van Nort, WB5UIY			

18 GREAT PLAINS AMATEUR RADIO CLUB
MEETS: 7:30pm First Tuesday
Civil Defense room, Woodward courthouse.

PR	WB0PGD	Ron Tice	994-2138
VP	KOCIO	Larry Ellis (316)	582-2889
SE	WB0QGW	Carla Tice	994-2138
TR	NC5C	Gerry Ford	256-5382
EDITOR: Carla Tice, WB0QGW			994-2138

10 EDMOND AMATEUR RADIO SOCIETY
MEETS: Varies. See club section

PR	N5DBM	Ken Stepp	341-4874
VP	KA5MJT	Mike Smith	373-1120
S/T	KB5RR	Clarence Dollmeyer	341-7163
R TRUSTEE		Bill Wright, KC5GN	341-6076
EDITOR: John Keeling, WA5ZGM			340-1253

20 ARDMORE AMATEUR RADIO CLUB
MEETS: 8:00pm First Wed. Red Cross Bldg. Informal, 8:00pm other Weds. 221 9th NW

PR	WB5VBK	Fred Innis	223-1709
VP	WD5FZD	John W Merlyn	223-9543
SE	W5JCX	Jim Chilcoat	226-6816
TR	W5BLW	Charles Dibrell	226-0589
EDITOR: Glen Hamilton KE5ES			226-4379

CENTRAL OKLAHOMA RADIO AMATEURS, Inc.
MEETS: 7:30pm Fourth Tuesday. OKC Fire Training Center. 800 N Portland

PR	WN5NWX	Reggy Whited	799-1457
VP	K2GKK	D. C. Macdnald	672-4947
SE	N5BEQ	Jim Buswell	236-0368
TR	WD0FTM	Linda Callison	751-3620

CORA Collector & Emitter (USPS 116=150) is published momthly ny CORA Inc., 1020 Arthur Dr, Midwest City OK 73110. SECOND CLASS postage paid at Oklahoma City OK
SUBSCRIPTION: CORA members $3 others $6 yr.

POSTMASTER: Send Form 3579 to:
CORA C&E, P.O. Box 15013, Del City OK 73155

MANAGING EDITOR:
Joe Harding, WA5ZNF, 737-1044

CIRCULATION MANAGER:
Bob Graham, WB5NSV, 677-8685

kay COUNTY ARC

First of all, I'd like to thank Delbert-WB5YRN for writing the last article for the C&E. I was stranded about 100 miles offshore in the Gulf of Mexico on a seismic boat at the time of the club meeting and the C&E edit date.

The rain sure has been coming down for the last week, but we got off lucky here in Kay County as compared to OKC & Norman. We needed rain alright, but enough is enough!!

There were 11 people at the October club meeting: Delbert-WB5YRN, Glen-KA5PUB, Marsh-WA5UBO, Dave-WN5LUI, Vern-N5ANV, Dr. Paul-KA5PYG, C.L.-W5ZWM, Gordon-N5ABT, Taco-K5FLL, myself, and Hank Kruckeberg, who is thinking about getting his license.

The December meeting will not be held on the 3rd Thursday. The meeting will be held on the 3rd Tuesday, December 19 at the Rusty Nail Steak House at 6:30 pm. As you may have guessed, this will be a dinner meeting.

The autopatch on the 97/37 repeater will be equipped with a private access tone decoder and should be in by the 1st of November. This access is being installed due to the misuse of the autopatch and the false activation by voice. So if you need to use the patch and are not a club member, just ask for assistance and one of the members will be glad to help. To be able to get the access code, you will need to be a Kay County ARC member and also pay the initial autopatch dues.

Marsh-WA5UBO presented the president of the club, Delbert-WB5YRN, with a wooden gavel that he made. He says that this will help keep order at the meeting. If that doesn't work, Delbert can always use it as a nut cracker!

Vern-N5ANV gave a short talk on his trip to the Houston Hamvention that was held in the early part of October. He said that most of the ham equipment manufacturers were represented and that they had all of their new gear displayed to where you could play with it. He also attended a forum that was about the tower in Houston that fell last December. The tower was 1200 feet high and when it fell it really did a lot of damage. Some pieces of the tower were found 60 feet deep in the ground and 5 people were killed in the incident.

Glen-KA5PUB is getting a whole lot of use and enjoyment out of his new rig, an Icom-730. He has made several DX contacts on 10 meters, one of which was Japan. He has also moved to a new house, which is only 2 houses from where he lives now, and has a lot more room for his station and his antenna farm!!

That about does it for this month's report, so I'll see you all next month and hope that everyone has a real good Thanksgiving.

I almost forgot....congratulations are in order for Vern-N5ANV for upgrading to Advanced Class.

73's
Rick-WD5CBP

MORE - BIG SIGNAL

ciously agreed to be our new CORA rep. Thanks Chuck, I knew the threat of all the ladies weeping would get you to say UNCLE!

Ham Holiday '84 is in the works. If you have any suggestions on this get in touch with representatives to CORA and let them know what you would like to see or hear this year.

As the winter months approach, I hope each and every one of you will continue coming to the meetings. I hope to have enough interesting programs that you want to come. If you know of some program that the members would be interested in seeing, get in touch with me and I'll see what can be arranged. As your president I will work with you in any way I can to make this a great year. OCAPA needs the support of all members.

IF YOU CARE, SEE YOU THERE, Nov 15th at 7:30 pm.

73's
Kathy, WB5NDO

P.S. eeeeeeeeeeeeeee this is for those who commented that they did not have a typewriter and trailer was misspelled. Please take these e's and position them carefully.

THE BIG SIGNAL NEWS
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

Gosh, the last 4 weeks have gone by fast. It's time again to write something for the C & E. I'm as unprepared this time as I was last month. Well, here goes!

We are sorry to hear that our President, WD5FKF, Rubin Castleberry, is moving to Denver, CO. He turned in his resignation, effective Nov. 1, 1983. We wish him the best of luck in his new job.

With Rubin's resignation, the Vice-President, WB5NDO, will take over the duties of the President and with the executive boards approval appoint a new Vice-President. The new V-P will be announced at the Nov. meeting.

Mike McElroy, WA5PDH, is the new Technical Committee Coordinator. This is a big responsibility and I'm sure Mike can do a great job.

Speaking of responsibility, I hear complaints about this repeater or that repeater not working right and why doesn't so and so go fix it? We have some of finest repeaters in this area! How do you reckon they stay that way? Unfortunately, it's not a not a matter of dialing up a secret code and the repeater fixing itself. I'm sure if that was the case, we would have plenty of volunteers for the job. We are fortunate that we have a dedicated few, who know what they are doing and are willing to be our repeater chairmen. They not only go out in all types of weather, but at times give up their lunch hour, their time after work, their weekend, to keep the repeaters operating. Most of the time, you will not notice when they are working on the repeater. Next time you have a complaint or feel that something should be done a certain way, instead of hitting these guys over the head, why not come to a meeting or get in touch with the repeater chairman. Most likely, they are aware of the problem and are trying to correct it. It's no little thing, keeping the repeaters operating, it's a Big Responsibility. All of the ones who work on the repeaters deserve a special thanks from us.

A special THANKS to Paul Asplin, WA5HTL. Not only did he make all the arrangements for the sell of the Gold Seal Coupon Books, he sold all of the books by his self. Part of the money received from the sell will go into the Antenna Defense Fund. It's amazing what one person can do with true dedication to a project. Thanks again Paul.

Members where are you?? Paul isn't even a member and look what he did for the club. If all of us had half of his dedication and determination on a project, just think , what would OCAPA be?

REMINDER: The club has established a Public Service Recognition Award. This award will be for contributions to the public interest, convenience or necessity within the State of OK. The acts must be directly related to amateur radio activities and should not be of a compensated nature. Membership in OCAPA is not required of the nominees or the nominator. The Executive Board is the sole judge of the merits of all nominations and may if it choses, reject any or all of the nominations in a given year if the services cited do not meet the boards judgement for adequacy. Members of the Executive Board are ineligible for this award. To nominate someone for this award submit a written resume, to the executive committe by July 1st. This award will be presented each year at Ham Holiday.

I hate to bring the subject up, but Christmas is around the corner and peeking at us. Our annual Christmas party will be at the Fire Training Center on our regular meeting night. It will be bring your own food, either to lay out buffet style and share with others or you can eat what you bring. This is a family party and all of the family is welcome. More on this next month.

AD1S and the dxpedition group will be leaving for Jarvis Island before long, we wish you the best of contacts. Good luck and have a safe trip.

Congratulation are in order for Dave, KA5CWT, and Kay. They will be getting married later this month. May they have a long and happy marriage.

With WN5NWX being elected as CORA president, this left a vacuity in the CORA reps. After being threaten, his arm twisted, his legs broken (well bent), K5NK gra-

THE BIG SIGNAL NEWS
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

GETTING TO KNOW YOUR FELLOW MEMBERS

Last month's article on K2GKK/5 went over so poorly that I decided to try and find a more interesting member to fill you in on this month. After some serious soul searching and sifting through the membership, it was decided to pick on, there I go again, let you know more about the beloved Henry Israel, N5IH.

Undoubtedly, Henry has to be one of the most popular hams in the fraternity, although perhaps not in the club. He has served in almost every known capacity in the club from head honcho to bouncer. With his sidearm in place, very few have been known to get out of line and give him trouble. He served faithfully for two years as president of the club but it was heard on the air that some were certainly happy that our constitution didn't allow him a third term.

Henry is an avid dx chaser. With his array of aluminum high in the sky, low enough to please the city fathers but perhaps higher than most hams, he is able to work far away places. Far away places such as his next door neighbor's tv and stereo sets.

Not only does he do his share of dx chasing, but he is also a great contest man. He has been known to operate three stations simultaneously, doing all operating and logging by himself. There are times that hearing a rare VE, he might call slightly out of band, unintentionally, I might add.

Speaking of Henry's antenna farm, some have criticized him for perhaps trying to reach up to the stratosphere and this is especially true of some neighbors. However, after being called on the carpet concerning such matters, Henry quickly convinced the powers that be that his primary reason for having such a tall tower was to protect his neighborhood from lightening strikes which could cause terrible catastrophes such as loss of homes and lives. He has been proven correct on more than one occasion when he was thoroughly zapped. The tower is also an asset to the neighborhood during tornado season, for it has taken the brunt of storms on numerous occasions and prevented damage to adjoining structures.

Power limitations have never bothered Henry. For years he ran a personalized amplifier and would have never thought of cranking out more power than the law allows you to crank in. Of the various times that the amplifier went on the blink, it was always due to the poor quality construction and not from over abuse. The only time that I can recall Henry possibly running a little excessive power was one night several years ago when he aimed his antenna down the throats of some local CB boys that didn't have their Yaesus calibrated correctly and had drifted up into the ten meter band.

Henry doesn't limit his hobbies to one single thing, such as amateur radio. He has been known to shoot a bird or two, raise a rose or two and do some farming on the side. He dabbles in insurance and is widely known as an excellent caller of square dances. Perhaps one of his greatest ambitionsin life though is to someday race in the Indy 500. He gets his practice in on the streets of Oklahoma City and the super highways of the state. Being a reserve Police Officer gives Henry the right to drive as he pleases and to get in all the practice weaving in and out of traffic that he desires.

Certainly one of Henry's greatest traits has to be his tactfulness and his ability to remain calm in almost all situations. Never one to speak his mind on controversial subjects such as bootleggers, freeloaders, and bogus check artists, he has become known lovingly as that @#$%¢& Henry. A typical example of his tactfulness is when he serves as net control on the weather net and his ability to not recognize check-ins wanting to say that the sun is shining or that it has stopped raining.

Another of Henry's fine traits is his love for all of mankind. His own nationality is a well guarded family secret, but he has been known at times to emphatically describe other people's ancestry with well chosen adjectives that might offend some if printed. He has lovingly described this writer's primary nationality as you "Dirty Kr--- or You No-Good Na--."

Henry is very intelligent. One doesn't have to spend much time around him to observe this characteristic. There are very few subjects that come up for discussion that he won't usually agree with everything that he has to say and usually disagree with what anyone else has to say. He appears to be an expert on everything.

What else can I say about the man? If you don't know him, you should by all means get acquainted. The next time you go to one of our meetings, look for that meek looking little fellow, usually standing off by himself and not saying much of anything, wearing custom-made boots and flashy western cut duds, that will probably be Henry. I consider him to be a good friend and I'm sure you will too.

K5NK

FOR SALE: Complete DRAKE STATION. TR7/DR7, PS7, R7 w/NB, 500Hz, 1800Hz, & 6kHz filters, SP7, plus L7 linear & PS. All manuals & cables included. High serial numbers and low use. Relocation makes sale necessary. Any reasonable offer will be considered. Call KU5B, Jack Bickham 360-2290.

FOR SALE: 2 kw Heath Amplifier, assembled and tested. $700.00. Call Johnny, 348-9426.

I HEARD: AQY THINKS NK IS MAD AT HIM SINCE HE DIDN'T MAKE THE I HEARD LAST MONTH. HE WILL BE MAD AT NK AFTER THIS MONTH, ROGER??.....SW TURNED CSM DOWN ON A COOL ONE.....GKK NEEDS EVERYTHING NEW ON HIS MUSKRAT EXCEPT A RADIATOR CAP.....JL CAN'T SHAKE A STICK..... CTT BOOING AND HISSING GKK.....CSM FIXING TO TIE ONE ON.....FEX's POLYGRIP WAS SLIPPING.....NWX MELTED.....M DOESN'T DRIVE FORDS CUZ THEY KEEP HITTING TRASH CANS.....CSM FIXING TO HAVE A QUICKIE..... SJV RAISING HIS PERISCOPE.....IH LIVES IN A TARPAPER HOUSE.....GKK TRYING TO SUCK HIS SWIMMING POOL DRY.... ETA BREAKING IN WITHOUT GIVING HIS CALL.....CSM USUALLY PASSES OUT AFTER ONE TODDY.....UGM COULD USE TIME DELAY.....GKK IS THE LOCAL RESIDENT PERPETUAL AUTHORITY ON RADIO QUALITY.....WM IS NEVER HUMBLE..... CSM GIVING DDB A BIG 10-4.....ETA BREAKING IN WITHOUT GIVING HIS CALL AGAIN.....JYT DOESN'T KNOW THE FRONT FROM THE BACK OF A MOBILE MIKE.....AQY ROGER ROGER.....GOM TALKING WITHOUT LAUGHING..... IH GOING FROM POINT B TO POINT C.....ISS's BLOOD SHIMMERS AND SHAKES.....CSM BOUGHT A FLOPPY THINGAMAJIG.....UGM IS GAME FOR ANYTHING.....AQY ROGER ROGER.....NDO LIKES VICE.....FM IS HAPPY OCAPA's CONSTITUTION WON'T LET IH BE PRESIDENT AGAIN.....SJV IS WILLING TO DO IT ONE MORE TIME.....ETA BREAKING IN WITHOUT GIVING HIS CALL AGAIN.....MLN IS SO FAR GONE HE WOULDN'T KNOW IT IF THE WORLD CAME TO AN END... .....NZS MAY HAVE TO GO ON WELFARE AND BECOME A FEDERAL EMPLOYEE.....BQX DOESN'T WANT A CADILLAC BECAUSE HIS HEAD WOULD GET TOO BIG.....NZS CHEWING ON SOME BUBBLE GUM AND TRYING TO DRIVE AT SAME TIME..... DDB HANGING.....BQX HOT HIT BY A SKEET.....GKK DOESN'T KNOW WHAT A BIRDDOG IS.....FM LITERALLY DEVOURS NATIONAL GEOGRAPHICS.....TAW LIKES TO WORK AROUND GOOD LOOKERS.....NWX YAWNING.....BJS LOST IN THE BOONIES NEAR MINCO.....M LIKES DRUNKEN BAR-ROOM BRAWLS.....GKK RUNNING A PICKUP SERVICE..... IH KEEPING A SECRET FROM GKK.....BJS DOESN'T LIKE PAPERWORK.....ETA THANKING SOMEONE FOR A COMEBACK.... DDB THINKS OF HIMSELF AS SUNSHINE.....S WORRIED ABOUT GETTING WET.....DLM IS WELL ROUNDED???????? JCB WASN'T LOST, JUST TEMPORARILY DISORIENTED..... NZS CUSSING BQX OUT IN SPANISH.....GOM's REAL NAME IS COUNT.....ETA ONLY TALKS WHEN HE HAS SOMETHING IMPORTANT TO SAY.....DDB IS AN AUTHORITY ON HOOTOWLS .....DLM THINKS S SHOULD AT LEAST TAKE HER TO HAWAII ON HIS DX TRIP.....DDB FOUND A GOOD LOOKING BLOND WHO DRIVES A YELLOW MERCEDES.....FEX ACCUSING DDB OF MAKING EYES AT HIS WIFE WHO IS A GOOD LOOKING BLOND AND DRIVES A YELLOW MERCEDES.....KWK DIDN'T THINK MUCH OF CSM's FLOPPY THINGAMAJIG.....DDB APPRECIATES CLASS, WHETHER IT BE A FINELY TUNED CAR OR A FINE WOMAN .....M WANTS TO BUY THE STATE OF NEVADA SINCE HE HAS ALREADY PUT DOWN THE DOWN-PAYMENT IN RENO..... DLM RECOVERING FROM A BIRTHDAY PARTY.....NZS FOUND HIS WIFE A JOB.....AND A LOT MORE, ROGER, ROGER....K5NK

The South Canadian Amateur Radio Society

SPECIAL EVENTS FOR NOVEMBER.....

November promises to be an eventful month for the members of SCARS, and the meeting of the 11th will be a very important one. Starting at the usual time on Saturday, November 11th, the South Canadian Amateur Radio Society will hold its regular monthly meeting at the Red Cross building in Norman. At the meeting, the members of SCARS will elect their club officers for the year of 1984. It is very important for all members to be present if at all possible.

After the meeting, through the efforts of John Nelson, W5AVK, all members of the club will be invited to tour the microwave relay station that is located southeast of Norman. John has obtained permission for the tour, and we would like to thank him in advance. Those wishing to look over the facility will leave the Red Cross building after the meeting is adjourned, and they will travel to the site in cars as a group.

ANOTHER SPECIAL EVENT IS PLANNED FOR DECEMBER....

SCARS will hold its regular Christmas Dinner this year at a new location. Please see the story about the dinner which is also on this page. At the time of this writing, the details of the dinner are secret to me, however Bob Fields, N5ALG, has been hard at work planning the event and has agreed to supply the details, so look elsewhere on this page for the exact details.

The Christmas Dinner is always one of the high-points of the year for me and I hope that all of you will plan to attend. It is always lots of fun and it will be great to see everyone.

-wa5rpp-

1983 CHRISTMAS PARTY NOTICE (ONE AND ONLY)

The SOUTH CANADIAN AMATEUR RADIO SOCIETY will hold its annual Christmas Party and Dinner at the Crossroads Resturant in Norman on the 9th of December, a Friday evening. Crossroads is located about a mile south of Lindsey St. on the east side of Hwy.77.

So that we are not all stuck with mushroom stroganoff (unfortunately, last year I only got the mushrooms, they left the stroganoff) we are listing 5 samples from the Crossroads menu with the prices. The prices quoted are for the meal, salad, rice or potato where appropriate, either coffee or tea @.60, and the required (for a group of this size) gratuity.

SELECTIONS:

Chicken a la Kiev, rice, salad, drink (what party would be complete without this)	$ 8.68
Teriyaki Chicken Breast with above (ah so, perfect for rice box owner)	$ 8.68
10 oz. Filet, potato, salad, drink (should have at least DXCC to order)	$13.28
Prime Rib, potato, salad, drink (DXCC should include Pitcairn)	$13.28
KC Strip, potato, salad, drink (only if Q.R. Zedd calls YOU)	$17.88

Make your selections for you and your companions or guests, total it up, and write your check payable to SCARS. Be sure to enclose a note stating which selections you are making and give it to Bill Oliver at one of the Saturday coffees or mail it to Bob Fields, PO Box 1199, Noble, OK, 73068.

6

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

Editor:STAN VAN NORT WB5UIY

NEXT MEETING NOVEMBER 3 - ELECTION TIME

November 3, the first Thursday, will be the next meeting night. Set for 7:30pm the location is tentatively made for the offices of KOFM at 1200 E. Britton Rd. This will be time for election of Officers. Larry Dillard is the cheirman of the nomination committee and will present his report that night. Also to be discussed is arrangements for the annual Chilli & Stew Dinner to be held in December.

STEREO HEADPHONES - NO INSURANCE - U TURNS

What do the above three items have in common? They are all illegal on Oklahoma City Streets and carry some pretty stiff fines. I have been wanting to spread this info around so our Amateur friends won't get into trouble.

On May 17, 1983 the OKC City Council passed an ordinance that makes it illegal to wear streo headgear while jogging, driving, bicycling, motorcycling, or walking on city streets. The ordinance carries a maximum penalty of $70.00. Pedestrians and joggers using earphones and headphones are required to remove them before leaving the sidewalk to cross the street or to temporarily walk or jog on the city streets. This was passed after a well publicized accident involving a team coach who was wearing headphones while jogging.

On July 1, 1983 a city ordinance went into effect requiring liability insurance while operating a motor vehicle. The state law went into effect at the same time and has received much attention on the news and some commercials. The are both basically the same, requiring proof of insurance and exempting certain government & fleet vehicles. However, a citation by the city ordinance is normally $30.00 with a maximum of $100.00.

The third item has been a city ordinance since approximatly 1960, however, I have found many people are not familiar with it. U-turns are unlawful at any intersection where traffic control signal lights are installed unless such turns are specifically authorized. This "authorization" is usually in the form of a sign that reads "U-TURN PERMITTED ON GREEN ARROW". These type of signs can be seen at Reno & Meridian and eastbound at NW 39th & Portland. This ordinance carries a regular(minimum) fine of $40.00 and a maximum of $100.00.

The above items are general descriptions of Oklahoma City Ordinances and should not be considered the actual law. If needed a citizen can get a copy of these ordinances, or any other, from the City Attorney's Office.

All reservations, selections, and money must be in our hands NO LATER THAN Monday, Dec 5th if you plan to attend.

KU5B has advised us that Q. R. Zedd will try to be there to buy everyone a drink, but in case he and T. Schwartz have some pressing engagement elsewhere, everyone is welcome to purchase their own at the bar starting about 7:00 PM. Dinner will be served at 8:00 PM.

And surprise of surprises----the man who dislikes speakers more than anyone else we know, Louis deStwolinski, W5UZD, has agreed to be the speaker for the evening. I wouldn't miss it for the world. N5ALG

O.C.A.P.A.'s THANKSGIVING DINNER

The Oklahoma City Autopatch Club held its Thanksgiving Dinner at Uncle Charlie Sullivan's Motel, operated by a darling little momma, whose name was Juliette London. Juliette was a quiet young lady, very good looking with long flowing snow white hair and crystal white teeth. She usually came to work driving her used German Mercedes which she had bought from her grand-daddy Luke.

Just as things were about to get started, Henry came bounding through the door wearing this turkey costume. He danced all around the room and yelled, "I'm Here." Jay couldn't believe his eyes when he saw Henry, and said, "Gosh Oh Mighty Henry, I've seen strange sights before, but I don't remember when." "You've gone mad."

Every table around the room was brightly decorated and was adorned with white zinnias and colorful tom turkey center pieces, appropriate for the season. As everyone settled down for the evening meal, Gandos Dominic Leopold, an unimployed Ethiopian took their orders. A few ordered the platter of nine dozen oysters, but almost everyone ordered the big juicy steak garnished with fried mushrooms. The vegetable of the evening was some yukky looking zucchini. The salad was great, which was juicy yellow tomatoes and watermelon, with some jalapeno peppers that were pretty darn hot.

Fuzzie Zellar's kids, known as the Four King Gorillas, provided the entertainment for the evening. Just as they started their program, Bob's son made a mad dash for the bathroom. As he was leaving the room, Bob said "Now be quick Xavier, or you'll miss the entertainment.

After the Zellar kids finished their five numbers, several members decided to do some entertaining of their own. Donald Duck brought his five monkeys to do their juggling act and they were pretty good. Kathy Whited kicked Reggie on the shins to wake him up so he could play his new white xylophone she had given him for his birthday. You should have seen Reggie. He was dressed in a skin tight neoprene zoot suit and every muscle in his body was bulging at the seams. As Reggie played, George kept kicking Vicki everytime she took a drink, for he knew that after one snort, she went completely out of her gourd. Mac kept telling Uncle Remus jokes, but nobody would laugh for they weren't as funny as his camel jokes. To wind up the program, Sue joined Vicki in leading the group in Jingle Bells to get them in the Christmas spirit.

It was quite an evening. No kidding, everyone had a ball. At last count, there were 40 members who attended, and they are all mentioned above, that is unless I missed someone.

K5NK

MORE "LETTERS TO EDITOR"...

ing. In case you no longer have your copy, I will repeat a part of the paragraph for your information. It states, "There were 13 representatives (that is from a total of 52 who were eligible) present." This is in reference to the September CORA meeting when officers were elected for the coming year. Were you there?

Carl, I believe you are a "charter" member and in good standing with the Aeronautical Center ARC. In case you are not aware, this club was responsible for handling the facilities of Ham Holiday 83 and the two fellows who worked did an outstanding job. They have agreed to be responsible for facilities again in 1984. How many times have you offered to help the club in this responsibility? How many CORA meetings did you attend during 1983? I could be wrong, but I don't recall over two representatives from this club attending a CORA meeting in 1983. Maybe they need a third member.

Carl, I don't like the "Cow Barn" any better than you, but until you and I and everyone else can find a better place, we had better be happy with what we have. Just because I don't like it, I'm not going to sit back and gripe about how "13" people worked so hard to put on something for around 1200 people who did enjoy H.H. 83.

So, why don't you make number "14" at the CORA meeting and voice your opinion there? You don't even have to take your own car. The only trouble is, the floor isn't carpeted at the Fire Training Center.

K5NK

Salem

SATELLITE PROPOGATION-THE UPLINK-DOWNLINK STORY

A frequent correspondent, Vince W5UXR, brought me a book the other day that he apparently dug out of the dempster someplace. I am not really sure why somebody would throw it away, but those types at the OU Library probably don't read NASA Reference Publications with a lot of enthusiasm. I mean, it really doesn't have a burning title that would put it on the top of any best seller lists. I, however, find it quite fascinating. "The Propagation Effects Handbook for Satellite Systems Design: A Summary of Propagation Impairments on 10 to 100 Ghz Satellite Links with Techniques for System Design." A Real Live Grabber.

Actually, this June 1983 Publication is a 450 page behemoth that has more angles and charts than you can imagine. It would not really be beneficial to describe any substantial amount of the material, but I found it very interesting to study what principal effects there are on satellite system propagation.

The book deals primarily with attentuation to systems in the above 10 Ghz range. There is not much significance for the normal amateur satellite use, and those of you who have TVRO systems might have a mild interest, but those of you who will invest in the DBS "TV Network Station in the Sky," might find it interesting, since it is pointed out that attentuation in this range can be occasionally so severe that it is simply not practical to achieve a normally reasonable level of circuit reliability (say 99%). The typical C Band system like those used for TVRO might suffer along with a couple of db's for say, for example, rain attenuation, but the numbers can become huge above 10 ghz. In fact, the problems become so significant that it frequently is necessary to consider diversity type reception where several earth stations might be used to overcome local attenuation propagation characteristics.

Perhaps one of the more interesting aspects of the book deals with concept that a majority of the attenuation associated with earth-satellite paths in the frequency range above 10 Ghz occurs in the last 20 Km right above the earth. It is in this distance which compromises about .05% of the total path that you will experience rain attenuation, gaseous and cloud attenuation, rain and ice depolarization, amplitude, phase and angle-of-arrival scintillation, and sky noise. Most of the work in analyzing and studying these paths takes place in this minute part of the path length. Of all of these, rain attenuation is the dominant effect. The book provides mathematical and experimental models for calculating path viability due to these various factors.

Propagation Impairments

There are a variety of factors that impair propagation. In general, they are dependent upon a variety of factors:

Operating Frequency. In general, the severity of tropospheric impairments increases with frequency. This is not true for the so-called oxegen absorption band which occurs around 60 Ghz. In this band, absorption of the radio waves by the oxegen molecules is very significant and might render a path completely unusuable.

Antenna Elevation Angle and Polarization. Satellite systems of any practical use are placed in orbit around the equator, genera lly in a geosynchonous "stationary" orbit. The higher in latitude above the equator translates to a lower elevation angle to "look" toward the equator. The lower elevation angle translates into interference possibilities as the antenna looks closer to the ground and greater attentuation from the atmospheric as the signals must travel through more of the atmosphere with the lower angle. The total propagation path also increases with decreasing elevation angle. Depolarization can also occur by such increasing path lengths. The increase ih the path length would not ordinarily be significant except that the increase is primarily in the portion of the atmosphere where most attenuation occurs.

Earth Station Altitude. Since less of the troposphere is included in paths from higher altitude sites, impairments are less when the receiver site is say, on top of a mountain, rather than at sea level.

Earth Station Noise Temperature. It is no surprize that the quality of the receiver being used is a quality factor. The Noise Temperature of the Earth S_t ation determines just what effect that the sky noise will have on the reception of the downlink signal and hence is determinative of the signal-to-noise.

Local Meteorology. The amount and nature of the rainfall in the vicinity of the Earth Station is a primary factor in determining the extent and frequency of most propagation impairments. Rain caused impairments depend on the rate of rain fall, so how the rain tends to fall (whether thunderstorm versus the steady showers) is an important factor and perhaps just as critical as the cumulative amount of rainfall. Remember, here we are dealing with questions concerning reliability of the communications over certain periods of time. The type and extent of cloud cover, and local humidity characteristics, are other meteorological factors that determine the magnitude of propagation impairments.

These factors contribute greatly to the impairment of an earth-satellite path. They are also effective for dealing with any microwave impairment other than satellite. These factors generally take the form of impairing satellite communications links for frequencies above 10 Ghz mainly in four ways:

Amplitude Reduction

Signal paths have attenuation. The amplitude of the received signal is reduced from the "free space" value through additional attenuation elements including the absorption and/or scattering by oxegen, water vapor, rain drops, and cloud and fog droplets. As was previously indicated, this effect is especially critical in the 55 to 65 Ghz band where oxegen absorption by water molecules of the radio signals make attenuation so great as to make Earth-Space communications (at least from the surface) virtually impossible. Below the oxegen absorption band, water vapor becomes the most prominent attenuating gas. There is also a weak absorption peak for water (usually less than 1 db on a vertical path, though this might depend upon the humidity) in a band around 22 Ghz. Above the oxegen band, both hydrogen and oxegen cause attenuation. Amplitude reduction due to clouds is relatively minor compared to that of rain, but probably should be figured in since it is present a much greater portion of the time. For those signal systems operating about 30 Ghz, it probably should be figured in as a part of the system, especially when rain might be rare in certain locations, but cloudiness is quite frequent. The same would be true for fog, but is even less

true since fog layers are generally quite thin.

Thermal Noise Increase

Basically, it is true in elementary physics that anything that absorbs electromagnetic energy radiates it as well. There is a whole bunch of material in the tropospheric region that absorbs radio waves from different sources. This includes oxygen, watervapor, rain drops and other hydrometeors. This media also radiates energy in an incoherent and broadband fashion. This "incoherent" electromagnetic energy is received by the earth link station along with any signal from the satellite and appears as thermal noice, which is indistinguishable from the thermal noise that is generated by the components in the receiver front end. This noise is generally compensated for in path calculations by adding a "sky noise" factor to the Earth station receiver noise temperature. Interestingly and logically enough, the "sky noise" is related to the attenuation of the path. That is, if the path has zero attenuation, then it it also has zero sky noise, since is there is no absorbing media such as rain drops, water vapor and etc, then there is no reradiation of the absorbed signal. This is true only if you disregard other extraterrestial sources such as sun noise which is a noise generator all its own. The effect of "sky noise" is to generally degrade downlink signal-to-noise ratios which is really the same effect as an amplitude reduction. The difference in the calculation is related to the fact that thermal noise is additive, therfore the magnitude of the effect depends greatly on the Earth Station noise temperature in the absence of sky noise. What this means more simply is that 2 db of sky noise would have a lot more effect on a very sensitive receiver (say 100 K system noise temperature) than a much worse receiver (say 1000 K system noise temperature).

Interference Increase

Satellites frequently employ cross-polarization in a technique known as "frequency reuse." Two signals very close in frequency, yet containing very different data are transmitter 90^{O} out of phase. Ordinarily, if they were in phase, they might interfere with each other, but since they are out of phase by 90 degrees (For example, one being polarized vertically and one being polarized horizontally) there is a channel separation that is included as a result of the polarization difference. The numbers generally work out to an additional 30 db separation between orthogonally transmitted signals. As a practical matter because of depolarization and signal scattering, the actual numbers on channel separation work out to about 20 db. This creates a form of self-interference as a result of cross-talk between the two signals of opposite polarization. The degree of self-interference is dictated by satellite and Earth station antenna performance and characteristics, and by the depolarizing effect of rain drops and ice crystals in the path. Again, just like path attenuation, rain depolarization increases with rain rate and frequency and actually correlates to rain attenuation. High type cirrus clouds where ice crystals are prevalent, and thunderstorms that also contain ice crystals can cause depolarization. This is not so unusual a thought when you consider that waves frequently bend and twist when they pass from one media to another. Depolarization also depends upon the types of modulation used. FM, because of its capture effect can tolerate a higher level of cross-polarization interference. Interestingly enough, it is significant to note that increasing system power does not increase the quality of the reception since the cross-polarization interference is present as a function of the path quality and depolarization capability. The increase in power, therefore, raises the level of the desire and intereferering signal.

Signal Modulation

The further north an earth station is located above equator, the lower it must look to see a satellite orbiting above the equator. The greater the path distance through the troposphere, the greater the potential for "scintillations" caused by tropospheric turbulence. These are nothing more than fast random fluctuations in the amplitude and phase of the signal. The effects of these "scintillations" is dependent upon the type of modulation used and the receiver AGC performance. FM is less susecptible to these AM type variations.

Interestingly enough, there are some mathematical models that can be used to calculate the actual path losses in earth-satellite communications. There have also been a large number of empirical studies that explain attenuations characteristics based on the factors that have been mentioned here. For example, the chart shown on the next page shows some computed values for specific attenuation for various rain rates. It can be easily seen that attenuation increases with increasing rain fall. This is no surprize since it can also be shown about how bad the attenuation is in relationship to frequency.

It is kind of fun to poke around with some of the sections in the book since they teach some principles and list some books that might be helpful to the student. Analyzing the factors that affect path loss at microwaves also contrib tes to some understandin in a way of propagation and how it occurs at the lower frequency. Anyway, thanks Vince, and give me a call again the next time the Library wants to unload books like this. We'll take them all.

Micheal Salem N5MS

A WATT SAVED IS A WATT EARNED
(Or Watt's down, Doc ?)

Those of you who tuned in late are not, after a quick glance at the title, to be subjected to a short discourse on the former Secretary of the Interior. Don't really have a lot I can say about him, but the topic of this article is conservation, a topic that might arise in a conversation about James Watts. More particularly, we are dealing with energy conversation. Once a person has set his mind to it, he can make considerable efforts at reducing his energy consumption. And science chips in with genuine articles and inventions that save energy. For example, I have always thought that Motorola was always in the forefront of energy savers with the remarkable design of their HT-220. I never understood how they could cram all the circuitry and small parts into a small box, then have it draw only a couple of mils (4.3 mills to be exact) in the receive squelch position.

The device for saving energy could be anything from a resistive load to the light bulb that is designed for longer life and higher output. But about three months ago, K5JB and I were talking about energy devices and he mentioned a new chip that we had both seen in the electronics new products magazines that was suppose to save energy when

used with an induction motor. It was evidently based on a design invented by Frank Nola of the NASA Marshall Space Flight Center and is described in U.S. Patent 4052648. The chip is manufactured by Harris and is designated the HV-1000 Induction Motor Energy Saver. An application note for the device came in the other day and after looking it over, I must admit that it is quite interesting. One thing that is evident is that for the average user, the energy savings are not significant, but for the industrial user, the savings go up and for the energy policy of the country, the savings can be very helpful.

For example, for a typewriter (a device that uses an induction type motor) consider one that is used for 60 Watts when plugged in. If it is assumed that it runs 8 hours a day, five days a week for a year, the motor is switched on for 2080 hours per year. With the IMES attached, the power consumed may go down to only 30 watts (By the way, IMES stands for Induction Motor Energy Saver)ı In an area such as New York City, where electricity costs about ten cents a KW, the savings might total about $6.00 a year or $18.60 over a normal three year payout. This number is really significant when you take into account the low energy consumption of typewriters. For a domestic washing machine, it might be possible to save 60 watt-hours over a complete cycle. Assuming that there are 10 cycles per week, the potential savings are about 36 Kw a year. For electricity costing about 7 cents per KW, the savings are about $2.54 a year or about $15 over a six year lifetime. If you take that same laundry machine and put it in a commercial setting where 100 cycles per week might occur, the savings ups to about $25.00 a year.

Savings such as this are typical with the normal consumer and light industrial type use of the IMES. There are other benefits that can occur such as the fact that motors run quieter with an IMES.

How does it operate? Basically, it comes from the fact that induction motors draw an almost constant current regardless of the load, as long as the motor is turning. When additional load is switched onto the motor, it responds by producing a a more resistive power factor, thus drawing more power from the line. The IMES is used for motors that have peak energy capacity required during only certain cyclical operations. For example, a typewriter, draws lots of energy only during the time that it is performing a function, but during idle ₁eriods, it draws the same amount of current. During these idle periods, the voltage could be reduced on the motor and it would still spin at the same frequency. If less voltage is put on the motor, then it draws less energy.

Only applications were the motor is lightly loaded part of the time are appropriate for IMES application. During these lightly loaded periods, it is only necessary that enough voltage be applied to the motor to drive whatever load is present. When the motor becomes heavily loaded, for example with a typewriter when a key is struck, the motor voltage must be quickly increased to produce the needed torque to perform the function.

Because the IMES can sense the increase in the resistive power factor as an induction motor becomes more heavily loaded, it can switch more voltage into the motor to accommodate the load and this continues until the load is removed, at which time the IMES drops the voltage to an appropriate value to corres pond to the change in load. The real key as to whether an energy savings can be accomplished is if the application for the motor is one in which the motor is capable of deliverying briefly, very high torque, and is lightly loaded for the rest of the time. The motor must be relatively lightly loaded most of the time compared to its real capability. There would be no savings if you cut the voltage to a heavily loaded motor, this might actually require more power and not less.

The circuit works by anticipating changes in power factor and changing the firing sequence of a triac in

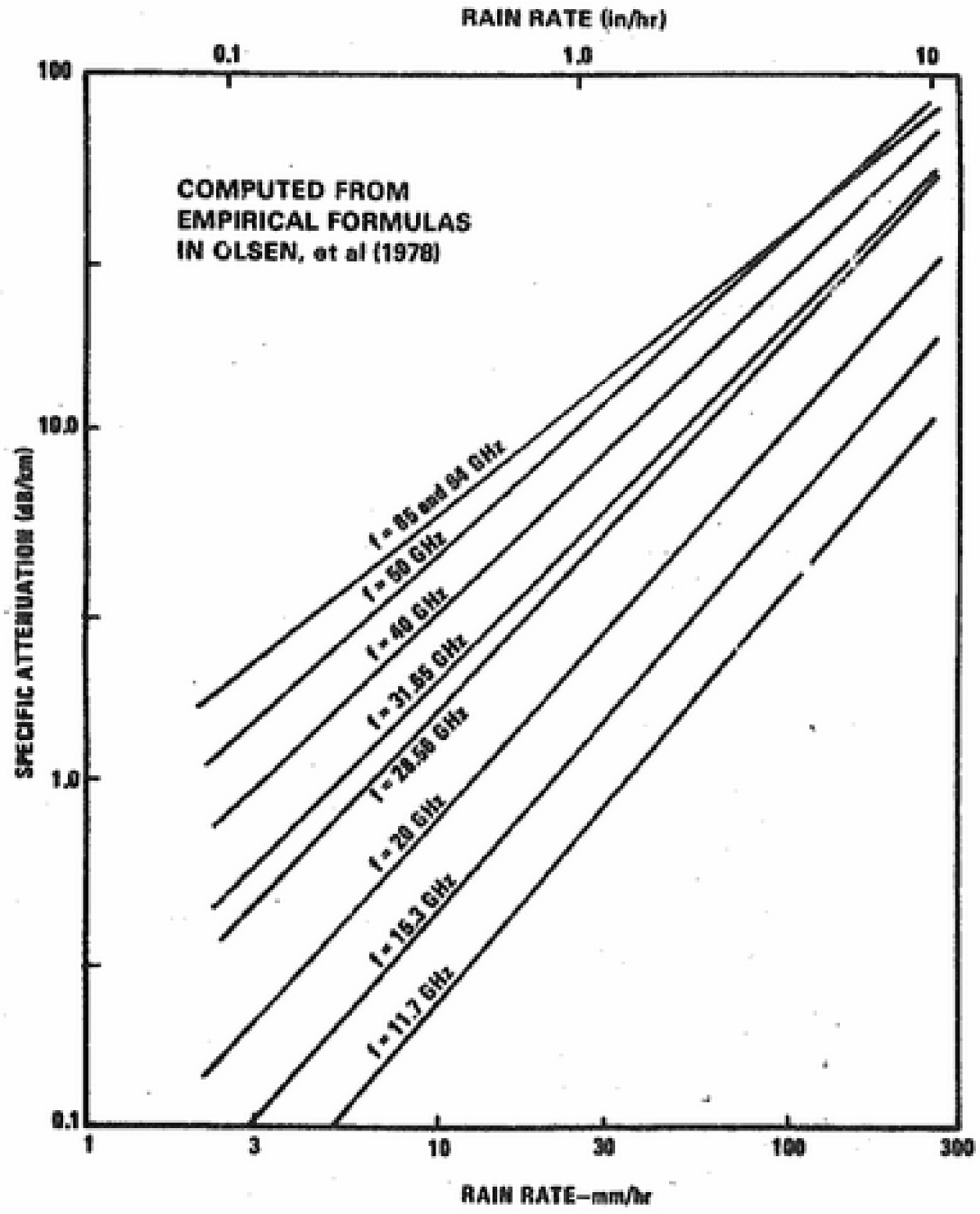
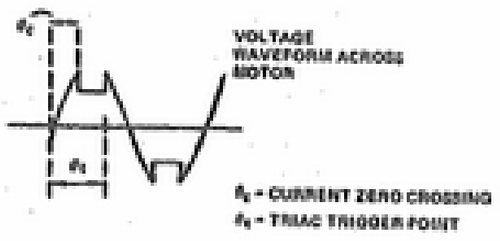


Diagram of Specific Attenuation versus Rain Rate for Common Earth-Space Frequencies. It can be seen that attenuation rapidly goes up as rain rate increases. This is consistent with the increase in absorption, noise radiation and depolarization that occurs in heavy rain rate situations. It can also be seen that attenuation increases with frequency.

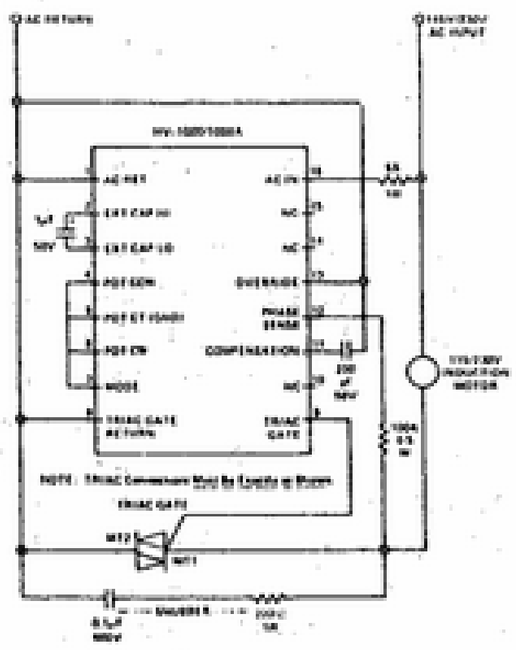
This chart was calculated from empirical formulas derived by R. L. Olsen, D.V. Rogers and D.B. Hodge from Volume AP-26 of the IEEE Transactions on Antenna Propagation. pp. 318-329. "The aR^b Relation in the Calculation of Rain Attenuation."

Note that diagram omits frequency in the 55-65 Ghz range where oxygen absorption has the largest effect with regard to attenuation. Attenuation in this band is so great as to make Earth-Space communications (from the surface of the earth) impossible.

series with the motor to produce less voltage across the motor. The voltage waveform would look a little like that waveform shown below:



It can be seen that the peak voltage is cut back and this would be the condition that would occur when the motor is in idle. When a rapid increase occurs in load, the IMES must rapidly produce full voltage to prevent a stall. This is done with what is referred to as an anticipator, a load sensing device that quickly senses that change in load and turns on the triac. The basic circuit for the Harris HV-1000 is shown below:



Basic Application Circuit For HV-1000

Interestingly enough, here is a circuit in which AC is directly applied to the chip. The motor is in series with a triac gated by the HV-1000. Response time of the anticipator is changed with different values of the capacitor located between pins 2 and 3 of the chip. The ability to select this cap is necessary because of certain instabilities that can arise with different motors. In the basic circuit, pins 4, 5, 6, and 7 are all shorted together, but for certain uses which could also result in instability, a potentiometer is placed between these pins for additional adjustment capability.

The capability of the IMES is important, it can be a significant energy saver when a number of them are constructed in the typical consumer item. I don't think that the individual consumer will realize all that much benefit from them. But the fact that they are now packaged in a chip and can be easily implemented in most induction motor circuits will make it a useful addition to future design of consumer items. In a way, it will be just like the Dolby noise reduction system. I t will be easy to implement and add a cost probably equivalent to the energy savings for one year or so. The effect on the national energy policy from all of these chips could be substantial. Nevertheless, the consumer must learn conservation. The energy savings from just one of these devices can be wiped out by the useless burning of one 60 watt light bulb.

Micheal Salem N5MS

LETTER TO THE EDITOR

I take a great deal of offence at the article written by W5JJ in the October, 1983 issue of the Collector & Emitter concerning Ham Holiday 83. I wonder if anyone but myself notices that the ones who usually do most of the bellyaching are the ones who never offer their services or who never attend the function in the first place? It's very easy to sit back and say "Let George do it, so I can gripe about the way he does it." This has always been the case ever since I have had anything to do with Ham Holiday. There are those who take great pride in getting on the air and bad-mouthing Ham Holiday and the way it is operated rather than pitch in and help those same few who put it together every year. They make life unpleasant for themselves and those who will listen to their bellyaching about some little matter that gets under their craw and doesn't please them so they get all huffy and refuse to have any part in it.

I'll admit that I did very little this year working on Ham Holiday. I have put in my share of hours on Ham Holidays in the past and know how much work and time goes into this annual event. But, I decided to just let George do it this year, so I could sit back and enjoy a Ham Holiday for a change. I do know of at least "13" people who worked their rear ends off this year and as usual, received very little thanks from the 1100 or so who attended and did absolutely nothing.

In the first place, I am truly amazed that Carl would call it "HAM" Holiday. Being so vehemently opposed to the term "HAM", I'm surprised he hasn't instigated an effort to get it changed to "AMATEUR HOLIDAY".

Granted, the "Cow Barn" as Carl calls it, isn't the most attractive place in the world to hold a "HAM" Convention. It is a massive structure and has drab walls which are undecorated and miles and miles of concrete floors. (Perhaps the concrete at 63rd and North MacArthur is softer where we take our morning strolls)????? Although there is ample parking, it galls me and everyone else to have to pay the parking fee when we arrive or leave and come back. I have looked the place over and I can't find a swimming hole anyplace. I suppose they could fill the arena floor with water. If anyone didn't want to use it for a swimming hole, it would sure water a lot of "Cows". The meeting rooms are on a different floor than the exhibits which means we have to ride the elevator or escalator if we want to attend any type of meeting. There's really nothing good about it, but alas, alas, it does have a room set aside with tables and chairs for us to rest our weary bones for a bit. A snack bar is open where you can get some high-priced hot dogs, some warmed over coffee, some watered-down cokes and even a cold beer if you prefer. Perhaps not as cozy as a wee drink with a buddy in the privacy of your own motel room, but not bad.

No, there isn't a motel in the same building as the "Cow Barn". I do believe, however, there is an excellent facility located just across the street to the north, accessible either underground through a tunnel or above ground in the bright July sun. It is located about three miles away, give or take about three miles. It is more like half a block. I understand from reports of those who have stayed there, that the rooms do have bathrooms and actually have carpeting on the floor. I even talked to a couple of fellows who had the good fortune of having the windows busted out in their automobiles so someone could steal their radios. This happened in the motel parking lot and not in the area provided for parking at the "Cow Barn".

And then there's the banquet. Yes, we did have to go a few miles to the motel for this, but I assure you that everyone who took the trouble to go will agree that it was probably the best banquet they ever attended at any Ham Holiday. It's not my fault or anyone else's that more don't turn loose a few bucks and attend this function where one can make new friends and renew old acquaintances. They even had a bar set up for those who desired to enjoy a wee drink with an old buddy. Oh, by the way, the parking lot wasn't carpeted, but once you entered the motel lobby, carpet ran all down the hall and even the banquet room was carpeted.

I suppose you read your article as it appeared in the Collector and Emitter Carl? In case you didn't, it appears on the front page. If you will carefully read the article directly opposite yours on the same page, you will notice the first paragraph is very interest-

Continued on next page.....

TRS 80C Central Oklahoma C★mputer Organization

*** NOTES ***

I've noted several people with cassette tapes at the meetings, so I thought a word about tapes might be in order.

If you save a program from a computer, in this case a color computer, to cassette and load it back into the same computer, it will load almost every time, error free. But take that tape to someone else, with the same kind of computer and it may or may not load. Why?

The problem is not the tape but tape player. A very slight difference in head alignment will give I/O errors. This can usually be over come by changing your volume and/or tone controls. Some recorders do not have a Tone control.

If you are going to someones house to copy a program, then take your recorder with you and save yourself time and trouble loading when you get home.

Those of you that may have someone elses tapes, all I can say is keep trying to load that program, don't give up the first time you get an error. Change the volume setting and try again.

Also I was surprised to find someone at the last meeting did not know that one could cut out a diskette so as to use both sides. Well, you sure can!

Look at your diskette, you will see a square notch at the top of the disk. This is the write protect notch, you will have to make another notch on the other side of the diskette. This is easy done by using another diskette as a pattern.

Hold the disk to be cut, as if you wish to insert it in the disk upside down. Hold another disk right side up next to it and with a felt marker, mark the notch. Now you can take a 1/4" paper hole punch and punch half a hole at that point. The notch does not need to be square.

You did good, but your not through yet! Look at the center of the diskette, there you'll find a big hole (the hub) and a small hole. We need to make another small hole through the paper only, on the other side of the Hub. You will NOT make a hole in the disk but only the paper jacket that holds the disk! Again use another diskette as a templet. The templet disk may need to be rotated within its jacket until a very small hole appears, with a felt marker, mark through this hole onto the disk to be punched.

Slide the paper hole punch between the diskette and the paper jacket at the mark you made and punch a hole. Now rotate the diskette so until the little hole appears in the hole you just made and using a straight pin, pierce the other side of the jacket through the little hole. Now if you turn the disk over you will see where to punch the last hole. Do just like the other side, through the paper only. You now have a disk that can be formated on both sides.

Man, reading that back, I'm not sure I would try that or not. That sounds hard! Will it's not hard are as complicated as it sounds. Do one step at a time and you'll be fine.

See YA' at the meeting: Holly

FLEX

If you are not aware of flex, let me tell you a little about it. Mind you it'll have to be a little, because that is all I know!

TSC first released FLEX back in 1977, then a 4K operating system for SWTPC's 6800 system. Frank Hogg Laboratory Inc. of Syracuse, new York Modified the Flex system to run in the Color Computer.

Flex is a Disk operating system (DOS), and runs over in the 64K side of COCO at address $C000. That is the same place as Radio Shacks DOS, so only one at a time can be used.

The Flex DOS is different from R.S. in that it's commands are on the disk itself and not in the program or ROM. When you type CAT enter (cat is flex equivalent of DIR), flex goes to the disk to get the CAT program, exec's it, then the cat program does it's thing. This makes Flex, Flexible -- which is where it got it's name to start with.

Up to this point, Flex had only one big draw back. That was the difficulty in making a master disk. A master disk is one that will boot up the flex system when you type 'RUN"FLEX". Only people with two drives could do it.

Well Thanks to Larry Bugg, that is no more. You can even make double sided masters if you wish. Larry wrote a program that will put a boot on any diskette (formated in Flex of coarse). Strangely enough it's call putboot.

To use putboot, first format a disk.
NEWDISKA,1 (the one denote drive number, use 0 if you are using one drive)
Newdiska, will prompt as follows:
DS ? (double sided yes/no)
DD ? (double density yes/no)
track (use 35)
Disk name (call it what ever you wish)
disk # (any number you wish)
After formating is complete, then type :
PUTBOOT.LDR,1 (use 0 for one drive)
putboot will ask if you are sure, answer yes. After the boot is on the disk, next you must put the flex system on that same disk. Do that, like this -- COPY,FLEX.SYS,1 -- after the flex system is copied, you must link the boot to the flex system. This tells the boot program where the flex system is. You do that as follows:
LINK,1.FLEX.SYS (use 0 for one drive)
When the link program is complete, you'll have a master disk and can start copying what ever you wish onto the disk.
This should make flex somewhat easier to use. One can make specialized Flex masters for modem use or for writing letters, ect.
Take care and happy computing:

ANOTHER WIDE-SPECTRUM ANTENNA

The Australian magazine, Amateur Radio, has published several articles on antennas de-designed to be usuable over a spectrum embracing several amateur frequency assignments. The July issue, to be found in the ACARC clubroom, has yet another.

This one is end-fed, only 22½ metres in length, and it has a nearly-flat VSWR plot of 1.8 MHz to 14.3 MHz. The feed-point impedance is matched(by a toroidal transformer having a rather odd ratio) to a 52-ohm coaxial cable. Unlike some multi-band antennas, this one does not depend upon any magical lengths of feeders.

The radiating portion, however, is a bit unusual. It's divided into two sections, each of cage construction, and of unequal length. They're joined by a 19-microhenry coil shunted by a 360-ohm resistor.

No mention is made of its principle of operation.

W5JJ

EDMOND AMATEUR RADIO SOCIETY 147.285/147.135

Isn't there a nursery rhyme that says "April showers bring May flowers"? If this last October was an example of current weather trends we had better look out for next April! It just goes to show that mother nature still has some tricks up her sleeves and as radio amateurs we should always be prepared to serve our neighbors with radio communication, or however we can help best.

One of our own EARS members, Cal KBØOU, got involved helping flood victims in Guthrie last month. He was there with the Baptist Brotherhood Organization. This organization sent a semi-trailer truck with food for displaced flood victims, as well as food for state highway patrol troopers and Red Cross workers. They also sent a radio equipped van to provide communications between Guthrie and the State EOC. Cal helped in the communications van for several hours on Friday, October 21, and again the next day. The only other name and call that I have is Ralph, WD5IRB, who worked in the state EOC.

These amateurs, as well as those whose names are not available, all deserve our thanks for their efforts. Incidentally the Baptist Brotherhood Organization has a net on 7275 MHz on 2:00 PM Sundays. If you are interested in helping, listen in and find out more about them.

While the rain was one surprise, October held at least one more surprise for EARS members. The Edmond EOC was not complete in time for our dinner meeting. Morrison's Cafeteria in Quail Springs Mall was chosen as an alternate location and Clarence KB5RR, Bob N5BUJ, and Bill KC5GN manned the phones and notified the members who hadn't heard on the air about the new meeting place. Apparently they did their job well as we had a good turnout.

At the meeting, I talked to one our CORA representatives, Linda WDØFTM. She mentioned her appointment as their treasurer, and I later learned that Linda and Cal have purchased a VIC 64 and printer. Now that is true dedication! They bought a computer to help Linda keep track of CORA records and they probably haven't even considered its other uses. On second thought, they may have briefly considered other uses, too. Anyway, congratulations on getting a new computer and on Linda's appointment as treasurer.

Linda also mentioned CORA preparations for next year's Ham Holiday. At our next meeting we need to discuss what EARS part will be and how we can best do it. The meeting will be held at the Edmond EOC on November 19, at 2:00 PM. Ken Stepp, N5DBM has personally gone on record that the EOC will be absolutely, positively, and without question, be ready for our November meeting. I would never put him on the spot in the newsletter though!

John WA5ZGM

Does anyone have the old club scrapbook? With the club's permission, I would like to update it and leave it at the EOC for display.

* *

Allan Watson W5ERY has a collection of antique telegraph keys and wonders if there are other local hams who share his interest and perhaps have some old keys or parts.

* *

The December meeting will be a party at the house of Bill Wright, KC5GN. Details at the next meeting and in the next C&E.

Central Oklahoma Radio Amateurs

The October meeting of CORA was long, got a lot of things done.

Among the things done, I'll leave out the things said, just the things actually accomplished, were as follows:

There was a lot of discussion on facilities for the next Ham Holiday. Among the things discussed was the possibility of moving back to the Lincoln Plaza. So that by the time you read this a committee will have visited them and will bring their recommendation back to the next CORA meeting, which will be November 22. Which reminds me, there were only only 10, yes that's right ten voting members at the meeting which brings up another subject.....

There are ten (10) clubs in the Oklahoma City Area. That makes thirty (30) representatives, so, where were the other twenty (20) reps? Could it be that they don't know where CORA meets now? Well, that is easily solved.

CORA meets the Fourth Tuesday of each month at 7:30 pm. Location, the Oklahoma City Fire Dept. Training Center, on Portland between Reno and Tenth Street. Pull in behind the building and come in the door on the right and there we are. Come on out next month and help the group decide where to have Ham Holiday next year. Then you won't have to make another meetng until the last of January since the December meeting has been cancelled. The committees have all been assigned so you won't have to worry about having to do anything, just sit there and make decisions---for your club.

The flea market was discussed. Do you think the price of the tables should be raised? Show up and let your opinion be heard.

On motion by Jim, N5BEQ and seconded by Mac, K2GKK, it was agreed without opposition to publish the following amendment to the Constitution; amending Article 3, Section C by adding a paragraph 3 to read: "The positions of Managing Editor and Circulation Manager of the Collector & Emitter are full Directors of CORA in perpetuity and each have one vote."

There was some discussion about the phrase in the ARRL concerning the award of transmitting equipment to non hams. It happened at the last Ham Holiday. That is another thing to be decided at the next meeting so Directors should show up.

That's about all that happened.

Joe, WA5ZNF

OK-DX didn't make it this month, George Adkins AD1S, is getting ready to leave for his DXpedition and just didn't have time to write a column and get it to me. More about the DXpedition next month.

The rest of the bunch will meet at Fred Gangs Restaurant on Monday December the 5th at 6 pm. Everyone is welcome to attend

FOR SALE: 50 foot heavy duty Triangular steel tower, 19" base, $150.00. TA-33 Jr. Mosley 10-15-20 meter 3 element beam. new, $100.00. John Whiten, W5EMB, 745,4751.

THUNDERBIRD WEINER - ROAST / CAMPOUT
NOVEMBER 19 AT SUNSET

Come for the weekend or just the weiner-roast but bring your own food. Little River State Park, Clear Bay Area, on SH-9 east of Norman.

Q. R. Zedd

IT WILL BE A TRUE THANKSGIVING:
THE GREAT ONE IS ALIVE AND WELL!

Bells pealed in churches throughout the world last week, women fainted and strong men wept, the United Nations declared an international holiday, and Coors stock went up sixteen points on Wall Street.

The rejoicing and return to world optimism came about as a result of news bulletins stating that Oklahoma's great Q.R. Zedd, the finest, truest, greatest DXer who ever lived, had been found alive and well in Vietnam.

A home-made crystal transceiver strapped to his chest with sticky stuff from a bamboo tree, the magnificent Zedd strode out of the jungles into the village of Ar Eff, near the Cambodian border, on October 13. He carried an electronic keyer constructed out of a broken beer bottle, pieces of an old army field kitchen, and fragments of bone from an ancient water buffalo. He also had an empty gin bottle.

With Zedd were his sainted momma, Constance Wilhemina Zedd, of Mena, Ark; Bill Blast, of the famed Blast Off DX Net; Bill Buckeye, Ohio DXer and confidante of Woody Hayes, and Boris Badenov, Russian amateur radio ace.

All were pronounced in good health by local officials, although Badenov was said to be suffering from potentially terminal Twinkie Syndrome when first taken to the hospital. Three cases of the banana-flavored confection were flown in from Australia, and he quickly recovered.

In Zedd's own words, here is the story of the expedition:

"Well, we were going along all right there, and then all heck busted loose. Mortar shells started coming in and all, tearing up our camp, so we high-tailed it for the cliffs where we hid out a while. Too bad, but our radio stuff got blown up.

"Well, after the smoke cleared and all, we decided we might as well tough it out, we had come this far, so I collected some trash around the area and made a one-watt transceiver, which was difficult because I didn't have a soldering iron or any wire. But it worked OK. Then this typhoon came in and blew down our dipole, which had got to be a nuisance anyway since it was made of kite string and I had to climb them hundred-foot trees every thirty minutes to pour more salt water on it to make it conduct and radiate, don't you know.

"That was when we decided to pack it in and call it a day. We worked about 25K, scratching the calls and times on tree bark with a busted pocketknife. So we started out. But on the way we ran into some natives that were real pore and didn't even have TV, so I stayed there a few days and made them a satellite receiving station and a few simple sets so they could enjoy theirselfs. They changed the name of the village after me.

"And that's about all there was to it. I'm sorry people got worried."

Badenov, waiting transportation back to Moscow, had a different version. He said Zedd was a capitalist swine who panicked at the first sound of gunfire, and he (Badenov) saved the expedition by rationing their beer and Twinkies.

Badenov also had some nasty things to say about the others on the DXpedition, Momma Zedd, Bill Blast, and Bill Buckeye. For a family publication these comments are not appropriate.

Momma Zedd was a different story.

"They should rename the country after my boy," Momma Zedd with characteristic modesty, relaxing on a Hanoi balcony in a crimson silk kimono, slit to the hip, silver spike heels hiked up on the bamboo railing as she did her nails. "He probably prevented a war by getting us out of there when he did, and then he carried through on making XV available to the world's deserving again, and then he saved all our lives. And all that Russky was was sit around and moan about not having any beer, and Bill Blast complained about no air conditioning, and Bill Buckeye moaned and groaned about injustice and Woody all the time.

"I tell you," Momma went on, "if there ever was any doubt, this proves it. My boy IS the greatest!"

At Honor Roll Ranch, just a hoot and a holler south of Norman, Tondelayo Schwartz, blonde, nubile, 20-year-old QSL secretary to Zedd, as well as his intended, ordered a 30-pound turkey slain and readied for the celebration.

"Ah jus' don't thank I've EVER been happier!" Tondelayo gushed.

If an editorial note may be allowed in view of the enormity of the events which had transpired, it must be this: Surely it is time for Oklahoma to take some official note of the splendor it shares as a result of having the great man in our midst. Texas has the Alamo. Washington has the cherry blossoms. Lancaster, Ohio, has a statue of William Tecumseh Sherman. WHAT does Oklahoma have?

To be sure, it has the Will Rogers Memorial and other wonderful shrines. But surely it is time to memorize the great Q. R. Zedd. A modest 200-foot stautue might be appropriate, about where the statehouse now stands. We think it should hide a multiband antenna, and include a dozen or so ham stations, along with a Wendy's and a cigar stand for the tourists. But details can be worked out by an international commission especially chartered for that task. Ours is but to call for this needed, this overdue, this certainly warranted action.

--KU5B

AN IMMORTAL STORY !

It seems the government is doing a lot of research into the value of porpoises, being that they are very intelligent and perhaps could be used for intelligence gathering purposes.

However porpoises only live a short time. It was discovered quite by accident that by feeding them the eggs of a certain gull living in remote Africa that the porpoises would live forever.

They got permission from the local Department of Natural Resources in Africa and went in to get the gulls for their eggs. They came out of the preserve, gulls all in cages, when they came across a lion in the road. All efforts to get the lion to move were in vain, so they ran the lion over.

They were arrested for transporting gulls across the staid lion for immortal purposes.

YELLOW THUNDER

SOMEBODY'S MIXED UP

Last year I ased a young lady to be my wife but she gave me very decided negative answer. So, to get even I married her mother. Then my father married the girl. Fine, except that when I married the girl's mother, the girl became my daughter. When my father married the girl, of course he then became my son. Since my father married my daughter, she then became my mother, right? Now .. if my father is my son, and my daughter my mother...who am I? My brother's mother is my wife and therefore now must become my grandwother. So, being my grandmother's husband, then I must be my own grandfather!! And there you are.

Indiana County ARA

MID-OKLAHOMA REPEATOR ASS'N.
WA5YTI

MORI had their m,onthly meeting (Sept 6) at the EOC. Ron, ND5S, presented us with a very interesting program--thanks Ron. We also had our fun, fellowship, prizes (thanks to June, N5ARV, for getting them), and, of course, refreshments. We also had an announcement of our Treasurer, Sid Gerber, W5KOZ, going into the MWC hospital. We hope and pray for a speedy recovery, and we have missed you.

Bob Allen, N5EVP, our Pres appointed the '84 CORA representatives and alternates. Sincere congratulations and deeply felt gratitude to this great selection: Jim, N5BEQ; Don, WD5ISS; Bob, W5HXL; Ron, ND5S, and Fred, KA5CXW.

NOTE: THE ABOVE IS NOT MORI MINUTES....

Here are a few of the October activities I have heard mentioned...One of the biggest events is the Hamfest at Lake Texoma. Keep it safe while you watch for ghosts, spooks, and goblins to appear...the Great Pumpkin will come this year...says Linus...Also keep in mind who you want for officers to be elected to offices in MORI for '84. I thought we had a very good slate this last year, and I'm sorry a few were unable to continue for the remainder of the year. But we should be thankful for people like Doc, KX5W, for filling in the remainder of the year. Also in Sid's absence, thanks to some of the officers for getting new members signed up...and a special thanks to those who joined up...and we're glad to have you aboard. In fact, thanks to all our guys and gals for being so loyal, cooperative and supportive. Everyone always plays a very special and important role...You make this Club...I have received several land-line calls this and last month regarding "ham" classes for Tech/General up-grading. I heard about one class in the south part of OKC and it was for Novice. So, a few of us got together and are trying to form a class for the North Side of OKC. We are in need of volunteers to help us with theory and code. If you are interested in helping us upgrade, please contact Susie, KA5FED, at 842-0077 or Chuck Kidson, KA5PRC, at 842-9562. We have not picked a place to meet yet, but we need an Instructor first.

On Sept 14, we lost a very dear friend and ham who was very active in public service. He was active in several clubs, and past VP of MORI. He was highly supportive of Civil Defense. Deepest and heartfelt sympathy are extended to his wife, Naomi, daughter, Ann and son Steve. Bob White, WB5PWZ, the Pink, White, Zebra will be greatly missed.

73, Susie, KA5FED

AMATEUR OPERATORS SERVE AT THE FAIR....
FAIR WEEK STARTED OUT A VERY ACTIVE AUTUMN FOR MORI MEMBERS... PUBLIC SPIRITED OPERATORS LIKE GEORGE GLASS W5ZRU, JIM BUSWELL N5BEQ, RON CRON WA5EAI, JERRY RADER, W5UGM; AND MYSELF KA5CXW PERSUADED HAMS TO STAND BY AS USUAL TO LISTEN FOR LOST CHILDREN REPORTS, ANYTHING AMISS WHILE THEY ENJOYED THE FAIR...SEEN WERE VERN [illegible] JIM WILLIAMS K5VRL (WHO SERVED AS NET CONTROL FOR A BIT), RON ST LAURENT ND5S, DON ROOKER K5SJV; AND OTHERS TOO NUMEROUS TO MENTION..THX FELLOWS, FOR THE FINE PUBLIC SERVICE SPIRIT. WE HEARD THANK YOU'S FOR OUR ASSISTANCE.

WE ARE SENDING OUT LETTERS REGARDING THE IDEA VOTED ON LAST MEETING, ABOUT PROCURING A NEW REPEATER CONTROLLER FOR THE 07/67 MACHINE.

Continued next page

Club
NEWS

VHF

Minutes of October Meeting

Meeting was called to order at 10:07 A.M. by President Paul, WA5HTL, with 11 members and guests present. (We were competing with the FAA airshow and the OU-OSU football game.)

Charlie, WA5JGU, gave the CORA report.

The club members voiced unanimous opinion that the Ham Holiday facilities committee explore facilities other than the Myriad convention center. It was their feeling that better accommodations would be worth additional expense.

Steve, W5VCJ, gave an ARRL national convention report. He was particularlly interested in the SMIRK (Six Meters International Radio Klub) program. He related his experience rubbing shoulders and swapping yarns with other 'Big Time' Six Meter Operators.

Meeting ajourned at 10:43 for coffee and donuts...Joe, K5JB, Sec'y

Whazzat? Say it again Packet!

Well, time is getting nearer to scheduled delivery of the first Terminal Node Controllers (TNC's) from Tucson Amateur Packet Radio, Inc. (TAPR) and I, for one am getting kind of excited. There are five of us in the area who are going to fire the things up and see how they work. Joe, WA5FLT, in Calumet; Leo, KOLOT, in Edmond; Mike, N5MS, in Normal; and Jim, KB5XN, in Tuttle are joining me in the first Packet experiments in the Oklahoma City area. With that kind of geographic dispersion we should have a lot of fun networking them.

In preparation for the arrival of the TNC's, I have been reading all the material I can get my hands on to better understand the technology behind this new (to me) style of communications. There have been a lot of good articles in the Amateur publications (see below) and I had a copy of the construction manual for the beta test TNC, but there were some fundamental questions left unanswered. Since I have just discovered a lot of new goodies, I'm gonna share them with you.

We all know what happens when a noise burst takes out part of our communications on the radio, sometimes we can guess what we missed, sometimes we ask for a repeat. On CW we might say "RPT AA MSG NR", or on phone we might say "&%!+?& QRM gotcha...say again." In any case, we have some methods to get retransmissions to fill in what we missed. For small noise bursts, we don't even have to ask for fills. The incredible computers nestled in our skull bones do remarkable jobs of associating what we heard and patching in what we missed.

When we rely for communications on machines like our old clanking Teletypes or our beeping upstart computer/teletype substitutes, we face a whole new set of problems, (particularlly when running Baudot and get the thing stuck in FIGS while LTRS are pouring forth). Sometimes we cannot piece things together without a code sheet. I bet that before someone put a teleprinter on a communications circuit, he had already started figuring out ways to increase reliability. Normally we do pretty good on the radio by holding frequency tolerances to within a gnats eyelash and using filters that would split that eyelash right down the middle. Then we send slowly enough that the little bullets don't knock big enough chunks out of the code to make them unrecoverable.

Some people aren't satisfied that enough has been done to reduce error rate. Going slower is surely not the answer. Crowded band conditions indicate need for greater efficiency which means higher speed along with fewer repeats. The commercial land line people have gone in all different directions to develop error detection schemes. Here is where I was a little lost, encountering many IBM four digit numbers, various protocols, and now the mysterious term "packet switching" and an international standards-making body working on a thing called X.25.

Well, here goes Error Checking 101:

The simplest form of error checking is repeating every character heard so the sender can verify correct receipt. Not at all goof proof, but it is pretty simple, you have to admit. Sometimes this is called 'echoplex'. The big drawbacks are the turn-around time required for the receiver to retransmit each character and the duplicate communication paths used (time, frequency, or other domain) to get the job done. This method is in common use on terminals that are used with main frame computers. The operator hits a key and if a different character shows up on his screen, he sez "Hey! What tha..?"

Another error checking scheme we have all used is word counting. Our ARRL message format includes a word count that the receiving operator can use to check if he got everything. He might not have copied the correct words but he knows when he got the right number of 'em. When information is being transferred in coded form, the arithmetic values of all the characters sent can be added and the result, or 'checksum' sent along with the rest of the information.

Another error detection scheme is parity checking. With parity checking, each character is coded so it can be checked by the receiver to see if it looks right. For example, the ASCII character set consists of seven binary digits (bits). If an eighth bit is added, it can be used to give each character some character, heh, heh.

If this eighth bit is set (high) when necessary to cause the number of set bits in the character to always be even, this error checking scheme is called "even parity". Conversely, if the eighth bit is set when necessary to make the number of set bits in the character always an odd number, the scheme is "odd parity". The receiving station can tell something is wrong if it is supposed to be receiving even parity and it receives a character with an odd number of set bits. The ASCII Teletype (TWX) machines use this type of error flag encoding.

AMTOR uses seven bit characters and can be considered as a six-bit plus parity system but the error checking is a little more elaborate than that. Out of the 128 possible bit patterns, AMTOR only uses the 35 combinations that have four high bits and three low bits. The receiver can tell something is wrong if the received character does not conform to this format. With AMTOR and other parity checking schemes described thus far, a single bit hit will be detected as an error but a dual hit can be missed unless additional checks are performed.

Now we get into Error checking 201.

The parity checking scheme just described is also called Vertical Redundancy Checking, or VRC. (The pop quiz at the end of this course is gonna have a lot of alphabet soup questions.) I only mention this because the next level of error checking has a similar name, Longitudinal Redundancy Check, or LRC. For an explanation of this I will rely on the sketch in Figure 1 on the next page.

The illustration is supposed to show what my call would look like if we took it a letter at a time and stacked each ASCII character on end with the least significant bit at the top.

Tacked on the bottom of each stack of ones and zeros (marks and spaces, highs and lows, sets and resets, or etc.) is the parity bit. In this case, the parity bit is set when necessary to make the number of one bits come out even, thus, even parity.

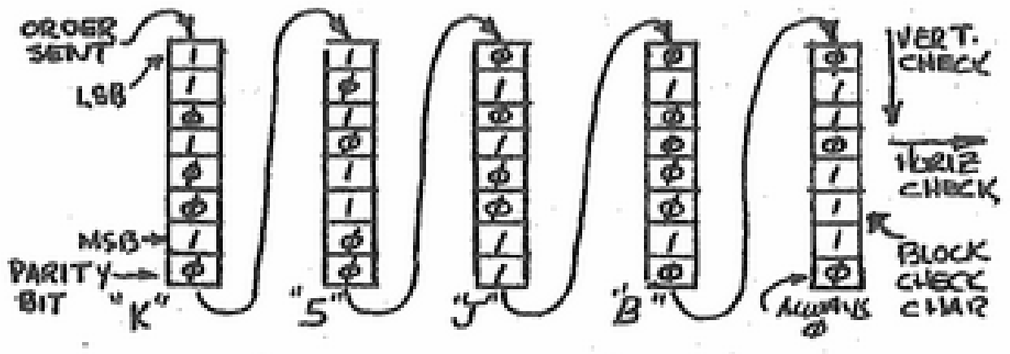


Figure 1. VRC, LRC, & BCC

If this group of four characters made a block, a fifth character, called a block check character (BCC) could be added to permit a parity check of all the bits in the first character position, the second character position, etc. Notice that the first two characters have the first bit set and the next two don't. It is unnecessary to set the first bit in the BCC to get even parity on the bits in the first position. The next ~~six~~ bit positions in the block happen to each have an odd number of bits*so the BCC contains a one in each corresponding position to cause the totals to become even. (In this example, the parity bits check out even*and the BCC contains a zero. The parity bit would not ordinarily be given a check bit in the BCC. Also, we could have just as well chosen odd parity. Each character in the BCC would have been opposite of that shown.) * FOUND ERROR IN SKETCH! JB

The reason for the name "Longitudinal Redundancy Check" should be apparent now. The check is run along the length of the data stream.

Normally the block of characters is much longer than four. It is usually some nice round number like 128, 256, or even 512. 128 is the most common. In some systems, the block is any old length the sender chooses, particularly the last block of the message. When it is the end, it is the end, that's all. Are you ready for error checking 301?

For the real worry warts, there's more. It doesn't take too much experimenting to figure out what combination of bits would go undetected in a message using both VRC and LRC. The statistitions have come up with a method that increases the probability of error detection to a very high degree. It is called a Cyclic Redundancy Check (CRC) and there are at least two common types in use.

One is the 8-bit CRC (CRC-8) and the other is the 16-bit CRC (CRC-16). The CRC-8 is performed by taking the whole stream of bits that make a block of characters, treat it as one BIG number, and divide it by a number having 9 bits. The number used as the divisor can vary, but in the example I got from one of the biggies, the number used was 100000001. The remainder will always have 8 bits. This remainder is the CRC-8 checksum. CRC-16 is done the same way except the divisor is a 17 bit binary number. Here again, in the example used by the biggie, the number was 1100000000-0000101. (If you think I have a good memory, you are wrong. That number is simply 2 to the 16th, plus 2 to the 15th, plus 2 squared, plus 1.) The result of this division is a 16 bit number that can be expressed as two hexidecimal characters. This two-byte number is the CRC-16 checksum. One popular micro-computer CRC-16 divisor is 2 to the 16th, plus 2 to the 12th, plus 2 to the 5th, plus 1; or 100010000-00100001, in binary.

In each of these examples, the receiver performs the same arithmetic as the transmitter and if it disagrees, it asks for a retransmission.

In the world of computers, CRC-16 is normally performed on the big daddys running EBCDIC (Extended Binary Coded Decimal Interchange Code). It is an 8-bit text character and control code which is usually used in synchronous communications. (Synchronous communications lends itself to block modes better than Asynchronous but I am getting ahead of myself.) One popular computer protocol file transfer method (Ward Christiansen) often uses CRC-16 between microcomputers. It is that protocol that uses the micro-computer CRC-16 divisor mentioned above. In Amateur Packet radio, the BCC is called FCS, for Frame Check Sequence. I wish they had called it Frame Check Character.

Now we are about ready for Error Checking 301 Asynchronous communications is sent a character at a time, the start of each one happening whenever you think of something to say. Synchronous communications is sent as a stream of characters, carefully timed so the receiver can look at precisely timed intervals for each code element and determine what it is. The advantage of synchronous transmission is elimination of the start and stop bits on each character and resulting increase in data stream efficiency. The tradeoff is the requirement for careful timing and a set of 'rules of the road', called 'protocol' in the business.

All the LRC and CRC stuff mentioned so far applies only if the message is sent in defined blocks. In commercial practice, blocks are used in BISYNC (binary Synchronous), SDLC (synchronous data link control), HDLC (high level data link control), and Packet switching. In amateur radio communications, blocking is used in AMTOR and Packet.

In recently published Amateur radio magazine articles there are several good illustrations of block transfer schemes. AMTOR is discussed in July 1981 QST by G3PLX and excellent description of three-character block transfers is given. AMTOR error checking depends on the intrinsic error detection available from the character coding that has been chosen. There is no block checking scheme like CRC or LRC, though there is a very rigid protocol, which we will discuss in Error Checking 401.

Packet articles in July and August ham radio and September and October 73 contain more on block transfers. Amateur radio packet is sent in blocks called frames. I am not sure how the Frame Check Sequence (FCS) is computed but since the system seems to adopt SDLC methods, it probably is a CRC-16. It should be mentioned at this point that SDLC and packet use modulation techniques that are different from the high and low bit patterns we have discussed thus far. They use what is called NRZI, non return to zero, inverted FSK or phase modulation. (The lower speed stuff uses FSK, the higher stuff uses polyphase modulation that crams more information into limited bandwidth We will get into that much later.)

NRZI reduces the number of transitions from mark to space and back by simply defining a change from zero to one, or a change from one to zero as a zero, and no change as a one. The receiving station is synchronized with the transmitter by getting in step when a flag character is sent. The flag consists of a pattern of bits that does not occur elsewhere in the data stream. In SDLC it looks like 01111110. In the data stream this character is avoided by inserting a zero after a string of five ones, should such a pattern develop. This is called 'bit stuffing'. The extra zero is removed automatically by the receiver. Once a receiver is syncronized with the transmitter, it begins looking at bit intervals for marks and spaces. Because of the bit stuffing it never has to wait too long for a transition to occur and thus keeps its sync refreshed.

The FCS contains the CRC that is computed

starting with the first information that is sent after the flag, and includes everything sent before the FCS. Another flag follows the FCS and tells the receiver that the previous characters (two bytes) were the FCS. The receiver does it's check and and if all is OK it does whatever it is supposed to do with the data received, and depending on the role it is playing, responds, or saves a reminder to itself to respond, to the transmitter that all was OK with that frame.

Now is time for Error Checking 401. Graduation is coming closer.

We have used the term 'protocol' several times without defining it. Protocol originally meant diplomatic etiquette. Rules of Protocol defined who was to bow first, etc. In communications we use protocol when we agree not to talk at the same time but to take turns listening. It is generally agreed that if the listener says "huh?", or even cocks his head and lowers his brow, the speaker repeats what he said. We never formally called it protocol, but the ARRL formal message word count, the preamble, the order of the message from the words "Message follows number..." through "...end of message and no more." is an example of protocol. The receiving station says something like "K5JB, Roger number 25. Back to Net Control." and he completes the protocol, or handshaking.

In order to save time on CW, we say QSL to confirm correct receipt of a transmission. In AMTOR the receiving station replys with control characters if blocks are received OK. Protocol also defines the behavior of the transmitting and receiving station. In AMTOR it is necessary for one station to be designated the master and other the slave. Third party stations that are listening must assume a passive role and naturally must not be sending acknowlegements!

In the more primitive computer data transfer protocols using ASCII, half or full duplex; even, odd or no parity; seven or eight data bits; echoplex; XON/XOF characters; send linefeeds and/or carriage returns; wait for linefeed; block length; check sums or CRC's; acknowlege and negative acknowlege characters; must all be understood and agreed by both parties.

You know, we take a lot for granted when sitting around the table in the coffee shop telling and listening to war stories. If we had to put any conscious effort into the process of talking/listening protocol, we would have little time left to compose our stories!

This situation of 'overhead overload' is serious in digital radio communications. In AMTOR only three characters are sent before a handshaking occurs. This is necessary because of the difficult nature of HF radio propagation and noise burden. On telephone and VHF/UHF noise-free circuits we can send much greater length blocks, or frames, without much worry of fading or interference. There will be a lot of experimentation on the HF bands using packets to determine what protocol must be establisked to get acceptable reliability.

AMTOR has been used to quite an extent thus far on HF. Under adverse conditions it just keeps trying and trying until it gets the message through. In G3PLX's experience, AMTOR kept plugging away and gave 99.3% correct copy on a path that was producing barely 20% copy with conventional RTTY. Because of the retries, the effective flow rate was down to 25 words per minute. Maximum transmission rate is 66 2/3 words per minute when there are no retrys. The seven-bit data characters are sent at 100 bits per second. Three data characters, a control code (responding station's) and 170 ms accumulated quiet time constitute a single block. Blocks are sent at a rate of 2.222 per second.

In July 1983 QST, AD7I described some of his operating experience with AMTOR and gave good description of it's various operating modes. Also contained in the article is a bibliography for those who might want to glean some additional information on AMTOR and it's kin.

AMTOR and packet radio cannot be compared on a "Which one is better?" basis because they were designed to give error free communication in two different environments. At the present state of development, AMTOR is intended for noisy, fading HF conditions while packet radio needs a relatively noise-free medium to function efficiently. The throughput on packet is considerably higher because it is designed to accomodate numerous users on a time sharing basis and takes advantage of high Baud rates permitted by the noise free communications medium in which it resides.

There are additional error detecting and correcting methods available to us but not in common use as far as I know. In August 1983 73, compliments of N5MS, an article by W9DJ/2 describes his experiments with what he calls "forward error correction". He is using a "twice-interleaved Reed-Solomon" code to generate check symbols that are added to the data being transmitted. Each block transmitted consists of a start flag, block address, seven data bytes, six check symbols and a 0.2 second marking wait. Throughput, under no error conditions at 110 Baud, would be about 41 words per minute. I presume that if the code took less than 20% hits (3 out of 15 in a block) the throughput would not be slowed. The receiving station does not acknowlege blocks that have more than three hits and they are retransmitted. This retransmission is what slows down the throughput. In his article, W9JD compares his system to packet but it should more properly be compared to AMTOR. As with dancing the Tango, it takes two to do it and one is much more likely to find AMTOR than someone using W9JD's method. He has software prepared for Digital Group computers and doesn't indicate whether he is selling it or giving it away. He also didn't indicate in his article whether he was willing to share the algorithm with others wishing to develop code for their own computers.

This sharing of information is the secret of successful communications methods. Can you imagine what a mess we would have had if agreement had not been reached on the international radiotelegraph code? A lot of work has been done in packet radio to reach agreement on details of the protocol at what is called levels one and two (the link level). The standard for amateur packet radio is called AX.25 and agrees, where possible, with the ISO (International Standards Organization) X.25 protocol. The most recent packet movers and shakers meeting to hammer out the AX.25 protocol was in March 1983 at the San Francisco ARRL packet radio conference. They are still working on the additional definitions to support higher levels of networking and working out differences between VADCG and TAPR TNC's (the software is willing but the hardware is weak).

AMTOR was developed in Europe by adopting an international standard (CCIR 476) and slightly modifying it to better suit Amateur practice. Hardware on the market adopts this standard and is presumably upward compatible with future mode inhancements.

I will continue to learn about packet as we get our TNC's on the air and will certainly be glad to share it. You who are interested might want to get it straight from the source by writing to, Tucson Amateur Packet Radio (TAPR), PO Box 22888, Tucson AZ 85734. Membership in TAPR is $12 a year and includes a monthly newsletter, Packet Status Register. Also, information is available from Amateur Radio Research and Development Corp., AMRAD, P.O. Drawer 6148, McLean VA 22106. AMRAD dues are $15 per year.

Joe, K5JB

U.S. Postal Service

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

Required by 39 U.S.C. 3685)

1A. TITLE OF PUBLICATION	1B. PUBLICATION NO.	2. DATE OF FILING
CORA Collector & Emitter	1 1 6 1 5 0	30 Sep 1983
3. FREQUENCY OF ISSUE: Monthly	3A. NO. OF ISSUES PUBLISHED ANNUALLY: 12	3B. ANNUAL SUBSCRIPTION PRICE: $3.00

4. COMPLETE MAILING ADDRESS OF KNOWN OFFICE OF PUBLICATION *(Street, City, County, State and ZIP Code) (Not printer)*

1020 Arthur Dr, Okla County, Midwest City OK 73110

5. COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OF GENERAL BUSINESS OFFICES OF THE PUBLISHER *(Not printer)*

Same as above

6. FULL NAMES AND COMPLETE MAILING ADDRESS OF PUBLISHER, EDITOR, AND MANAGING EDITOR *(This item MUST NOT be blank)*

PUBLISHER *(Name and Complete Mailing Address)*

Central Okla Radio Amateurs, Inc, PO Box 15013, Del City OK 73155

EDITOR *(Name and Complete Mailing Address)*

Joe K. Harding Same as above

MANAGING EDITOR *(Name and Complete Mailing Address)*

Joe K. Harding Same as above

7. OWNER *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)*

FULL NAME	COMPLETE MAILING ADDRESS
Central Okla Radio Amateurs, Inc.	1020 Arthur Dr, Midwest City OK 73110
A non profit corporation	
No stockholders holding 1% or more of	stock.

8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES *(If there are none, so state)*

FULL NAME	COMPLETE MAILING ADDRESS
None	

9. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES *(Section 423.12 DMM only)*
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes *(Check one)*

☐ (1) HAS NOT CHANGED DURING PRECEDING 12 MONTHS

☐ (2) HAS CHANGED DURING PRECEDING 12 MONTHS *(If changed, publisher must submit explanation of change with this statement.)*

10. EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES *(Net Press Run)*	1161	1000
B. PAID CIRCULATION 1. Sales through dealers and carriers, street vendors and counter sales	0	0
2. Mail Subscription	866	949
C. TOTAL PAID CIRCULATION *(Sum of 10B1 and 10B2)*	866	949
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	93	0
E. TOTAL DISTRIBUTION *(Sum of C and D)*	959	949
F. COPIES NOT DISTRIBUTED 1. Office use, left over, unaccounted, spoiled after printing	202	51
2. Return from News Agents	0	0
G. TOTAL *(Sum of E, F1 and 2—should equal net press run shown in A)*	1161	1000

11. I certify that the statements made by me above are correct and complete

SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER: Managing Editor

PS Form 3526 July 1982 *(See instruction on reverse)*

ARDMORE AMATEUR RADIO CLUB
COMMUNITY SERVICE SINCE 1948

The secret to the successful operation of any club or organization is to elect to any perticular office that person who complains the most about the lack of this or that. Just elect that person to the office whose responsiblity it is to provide that service or program. The newly elected official now faced with putting his money where his mouth is will bust a gut to prove how right he was and for a year you should have a pretty successful program. At the end of his or her elected office the complainer will find how really hard it is to accomplish these duties and to please every one and they will not complain again at least for a year or so. In this way you are able to accomplish three objectives, fill a thankless job, provide a hard worker who will do his or her best and quiet the person who did the complaining for a while so the rest of the organization may continue the business at hand. Our organization allows the vice pres. to provide the programs. If the VP. does a good job, he may move up the next year to president where he can relax, introduce the programs the VP. provides and in general take credit for all the projects that the members like, crack the whip on those who provide the services and keep the group in line. Well someone has to do it ! While the above is written in jest; if you read it a second time, there are a few underlieing truths.
In all fairness to our newly elected pres. "FRED INNIS", WB5VKB, who was VP. last year we had some very nice programs. I hope I can do as well. As last years editor I could not resist this fairwell address. I promised GLEN HAMILTON, KE5ES, that I would help him get started as our new editor. I don't know why he should need any help. He showed up at a Field Day, said "I am interested in this haming business, how do you go about ge tting into it ? A year later he is a ADVANCED operator. He is making many many nets every day. Good Luck and more power to you GLEN. JOHN WD5FZD

In continuing with this report I wish to thank Johnn for his words of confidence and also for his contribution to this column, and Johnn, will you please return the letter that you borrowed from my name?

Since we haven't had a report in the C&E since May, I want to briefly cover the events that have taken place since.

Our Field Day site this year held at a beautiful location on the NE side of town at Lumberman's Mill, and thanks to Howard, WB5FAJ for securing this location. We had a nice grassed and shaded area with a small lake that provided fishing for those who desired. We had a good turn-out and operated three stations. A good time was had by all those who participated.

On Jun. 21, Russ, WD5HCK, went to Dallas, and up-graded to General. Congratulations Russ, and many enjoyable QSO's.

July 1, was the day that Kem Russell Keeton and Kathy Lynn McLain met at the altar of matrimony. Russ made a most handsome Groom and Kathy was a very beautiful and lovely Bride. They honeymooned Eureka Springs, AK., and are now making their home in Ardmore. Russ has now returned to the classroom where he teaches electronics at the local Votech school. Kathy, be fore-warned, after being a Bride for a year you will automatically become an XYL. Our best wishes for the Newly-Weds

July was somewhat slow around here but many from this area did enjoy going to Ham Holiday with Charles, W5BLW; Jack, W5GM and Tom, W5HJ assisting with registration.

Our Club Treasurer, Charles, W5BLW, left on Aug 9, for an extended camping and hiking vacation. He spent time at Greenleef Lake in NE Ok., and at several State Parks in NM and also visited Davis Mountains State Park in SW TX. While in NM he visited his good friend in Alamogordo, former Ardmoreite, Taft Nicholson and his XYL Sarah. Charles returned from his well earned vacation on Sep. 22.

Ted Spurgeon, K5PJO, in the true spirit of a dedicated ham departed from Ardmore, in the local Red Cross van and headed for Houston, TX.and arrived there e few hours before the arrival of Hurricane Alicia. After settling for some needed sleep he suddenly discovered that he was missing the windows in his hotel room. He stated that it was an experience finding his way to the lobby, several floors below, without any lights, and of course no elevators. He remained in the area until Sep. 3, serving in the Red Cross Relif progrem in Galveston. Ted has some interesting stories to tell and will be giving a detailed report of his activities at our Nov. club breakfast.

Our Jr. Past President, Tom Banks, W5HJ, has recently moved from this area. The last week of Aug. found him busy with moving duties and one day while driving home from town another car forced him over a curb ~~XXX~~ causing him to burst two new tires. Sorry about the bad luck, Tom, and and hope the rest of your moving went well. You and Lucile will be missed here and we wish both of you the best in your new home in Las Cruces, NM.

On Sept. 3, the following ~~XXXXXX~~ (sorry, but this machine does make mistekes) hems provided communications for the annual Sun Run here in Ardmore: Jack, W5GM: Ernie, W5SMN; Gene, WA5IJA; Bob WB5VKA; Bob, WB5WBB; Russ, WD5HCK and yours truly, KE5ES.

Jack Gant, W5JM and Fred Innis, WB5VKB and their XYL's, Evelyn and Ellen respectively, recently returned from vacation where they spent a week~~"~~the Arkansas Ozarks. Welcome back and we're glad you enjoyed your rest and recreation.

At our Oct. club breakfast Charles,W5BLW, and Charmen of the Board of Directors of the local Red Cross Chapter, gave a most interesting talk on the partnership that exists between Amateur Radio and the Red Cross with the former providing necessay communications during times of emergencies.
Until next time, 73, Glenn, KE5ES
P.S. Oh, you're welcome John, and thanks for the return of my 'N'.

MORE mori

PLEASE GIVE THE PROPOSAL YOUR MOST SERIOUS AND THOUGHTFUL CONSIDERATION. THIS UNIT WOULD SOLVE MANY OF OUR WOES ON THIS REPEATER.

A CREW ORGANIZED BY BOB ALLEN N5EPV, WITH ILLUSTRIOUS DENNIS O. WB5ISN GETTING US STARTED, INSTALLED NEW CONTROL CABLES FOR 07/67 ON THE KTVY TOWER. AFTER DENNISCLAMBERED AROUND ON THE TOWER STRUTS, BREATHTAKINGLY..INSTALLING THE FIRST SECTION..RON TUTOR WA5GAM AND PERRY LANGHAM (SOON TO BE LICENSED) FOLLOWED DENNIS EXAMPLE AND WENT ON UP TO ALMOST 800 FT ON THE STRUCTURE. BOB ALLEN AND I WERE HAPPY TO STAY ON THE GROUND (MOSTLY) FROM 11:30AM TO 9:30PM. WITH THE WIND AND THE QWIVERING TOWER WE ALL WERE COLD AND MISERABLE BY THE TIME WE MET AT "DENNY'S". BOB'S CONTROL OPERATOR JUNE N5ARV AND BOBBI WILLIAMS WERE LOYALLY THERE THE WHOLE TIME SERVING COFFEE AND BEING A VALUABLE BACK UP CREW.(BLESS THEM). IF WE HAD THE CONTROL BOARD IN POSSESSION OF DAVE BAUGH KB5KT WE COULD HAVE HAD THE SYSTEM ON. DAVE IS TROUBLE SHOOTING THE CONTROL AND REWORKING IT. WE WERE MISSING KEN EASON K5VVZ, WHO USUALLY IS WITH US.

WE URGE ALL MEMBERS TO ATTEND THE NEXT MORI MEETING 1 NOVEMBER, TUESDAY..AT THE OKLA CITY EOC LOCATED AT NE 46 AND EASTERN..NEAR THE ZOO. WE WILL BE ELECTING OFFICERS FOR NEXT YEAR. IT IS EXTREMELY IMPORTANT TO CHOOSE PROGRESSIVE OFFICERS LIKE THOSE ON THE PAST, SO WE MIGHT SERVE THE HAM COMMUNITY AS WE HAVE. YOU ARE INVITED! WE HOPE TO SEE YOU AT THE MEETING.

WE ARE PLANNING A FANTASTIC CHRISTMAS PARTY ON THE 6TH OF DECEMBER...IT WILL BE HELD AT THE BUILDING JUST SOUTH OF THE EOC, AT 6:30PM, ON OUR REGULAR MEETING ± NIGHT. WE WILL HAVE A GATHERING OF THE CLAN, A REUNION WITH A SUPER PROGRAM. KEEP THIS DATE OPEN ON YOUR CALENDAR!!
PS. POT LUCK DINNER STYLE

FRED KA5CXW
SECRY..MORI

CIMARRON A.R.A.

EDITOR: Jack Day, N5FMQ

CIMARRON ARA

Well it's almost election time and by the time this is published we should have elected our new officers for the coming year.

There's lots of excitement over the new volunteer examination program. Club volunteers include WB5ECM, AB5Z, KD5YB, KC5OU, and Ki5P. All have received confirmation from the ARRL and are awaiting further notice.

October 25 will prove to be a big day for several Cimarron members. N5FUR, N5FUO, N5FUP and KA5QBE are converging on OKC with the intention of upgrading their licenses. Good luck to all.

Rumor has it that KA5DUO was recently seen running around barefooted on some rooftops in the Fairview area. It should also be noted that as soon as he started on his first roof up here, the drought was broken, but good!

The CARA net on 145.45 is alive and well on Thursday nites at 0200. Join us!

Sample and resume scan for the Icom 260A

Being the proud owner of an Azden PCS-2000 for several years, I came to really appreciate the advantages of a good scanner on two meters. The nicest feature of the Azden was its ability to resume scanning after the carrier dropped. (This I later modified for a 3 second sample and resume, see C&E Nov. 81) Here's where the real kicker came in with the Icom. Once the rig stopped on a busy frequency, that's where it stayed till manually restarted. This became a real drag in a hurry. If you're like me, when it stopped it would just sit there for hours till i'd realize it. Needless to say, I soon quit using the scan altogether. Finally the new wore off and curiosity got the best of me. I mustered the courage to sit down with the schematic and see just what it would take to make the beast perform the necessary functions of a civilized scanner. Here's a brief description: The SS/MW switch can either start or stop the scanner. Push it once to start and again to stop. Here's basically what happens, when a signal is received, the squelch voltage goes high removing the muting from the audio amp. When this happens, the squelch voltage is directed to the base of Q26 on the driver unit board. When Q26 turns on, C20 momentarily goes low, causing Q27 to conduct a pulse to pins 24 and 25 of U6, stopping the scanner. Restart is accomplished by applying a positive pulse to pin 3 of J18 on the driver unit board.

Modifications; Start by clipping R33 on the driver unit board, this defeats the original squelch circuit used for stopping the scan. Variable resistor VR1 connects to the body of R33 then. Be sure to move the clipped lead out of the way, otherwise glitches from the original circuit may stop the scanner, in which case it won't restart.

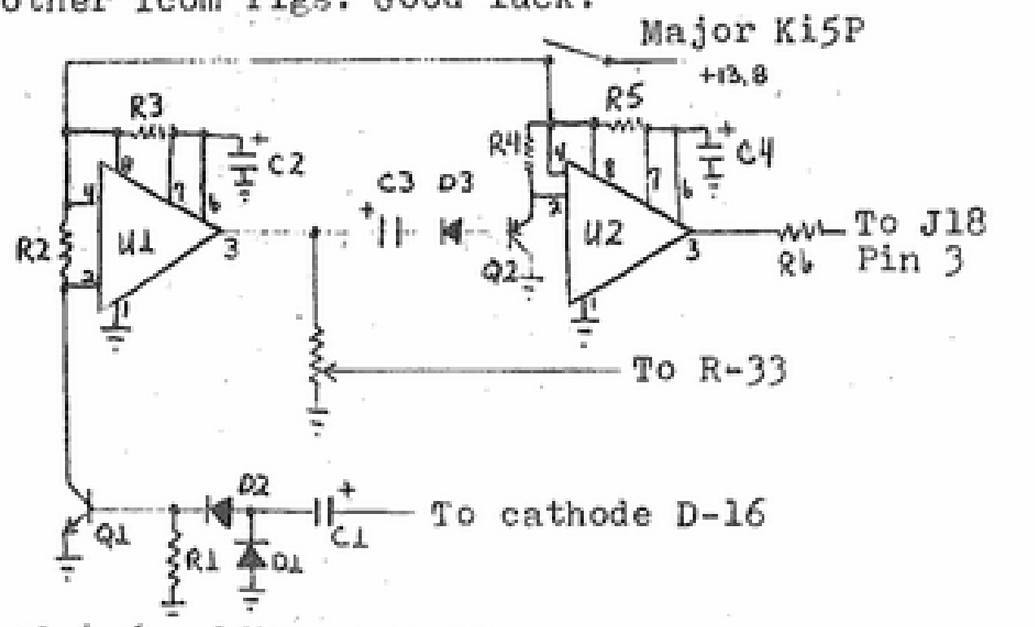
Circuit description; Positive voltage appears at the cathode of D16 (on the main unit board) when the squelch opens. A positive pulse is created by C1, D1, D2 and is applied to the base of Q1 triggering one-shot U1. The output of U1 provides two functions. First it provides the pulse necessary to stop the scan through VR1 secondly, when its output goes low it provides the trigger for one-shot U2 whose output restarts the scanner.

With this arrangement, anything which stops the scanner must also restart the scanner!

Construction; Space is at a premium on these rigs so the only way to make everything fit is the use of "cobweb" construction techniques. This means no board is used for parts mounting, everything is just soldered in place using space available. I do not prefer this type of construction but sometimes it's necessary. A good place to start is by soldering the ground pins of U1 and U2 to I.F. cans on the main board with their pins sticking up to allow for component placement.

Adjustment; The only adjustment is that of VR1. With the scanner running, adjust it to the point where the scanner stops when the squelch opens. The delay time of the scanner can be altered by changing the value of R3.

That's about the size of it. I think you'll really enjoy the change. It's like having a completely different rig on the shack's desk. This same circuit can probably be adapted to other Icom rigs. Good luck.



R1,4,6,- 10k VR1-50k
R2- 2.2k
R3,5- 220k
C1- 4.7 Uf
C2,3- 15 Uf
C4- 1 Uf
D1,2,3- 1N914
Q1- 2N2222
Q2- 2N3906
U1,2- NE555

Note; The best place to obtain 13.8 volts is from the AGC switch. This eliminates the necessity for an outboard switch since voltage is present at the rear switch lugs when the switch is depressed and the AGC function isn't operational on FM anyway.

The Wheatstraw Amateur Radio Club motored to Beaver Okla for the swapfest & covered dish dinner on Oct.9, 1983. Included in the caravan were K5GBN & WA5RLP and WA5JHB & WA5LZD who left Calumet at the early hour of 6:00 am. They were joined before sunup at Watonga by WA5FUU & Bertha, WA5FLT, WD5EGB & WD5JLA all in Tom's van, and by WA5PFK & Goldie. At Seiling they were joined by KA5DUO and W5MGZ.

The Oct. club meeting was called to order with various items of business discussed, including getting the repeater and its antenna worked over before winter and possible a foliage tour later this fall. The meeting lastuntill Woodward at which place it was adjourned with a break for refreshments. It was noted that WD5JNT, Ted was wearing a leg in a cast. He claims that he broke his foot when he got peeved at his dog. The dog was uninjured in the fracus. KB5XI & Joy joined us for coffee but they missed the mobil meeting. Also joining the caravan at Woodward were W5KFK & N5EOX We had lots of fun from there to Beaver. We arrived there about 10:15.

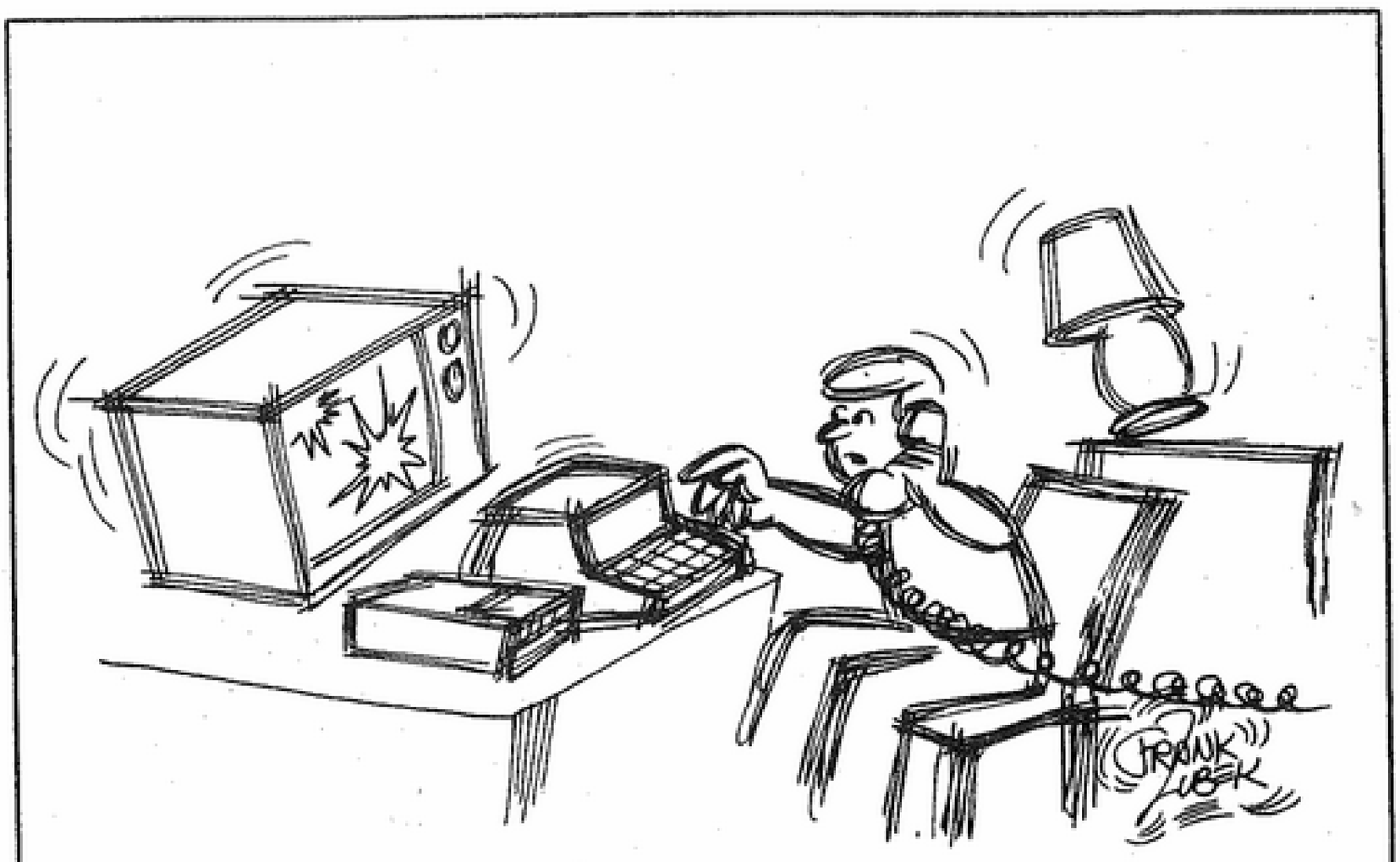
The swap meet and dinner were real good as was all the eye ball QSOs with old friends and new friends. After much visiting we loaded up at 2:00 or so and headed for home. All arrived back safe and sound.

The November meeting will be at Okarche. I don't know if they will let all of us out to go home afterwards or not as it will be at the Center of Family Love, which is the home for adult mental retarded. The meeting will be the 2nd Sunday or Nov.13 at 2:30. Come early and plan out who to railroad this year as it will be time for nominations for the upcoming election which will be at the December meeting

Ed WD5EGB is net control this month and he is doing a fine job.

We missed all of you that didn't get to make the trip, but we'll see ya.

Marvin WA5JHB
acting reporter this month



"I'll have to call you back—I'm in the middle of a war!"

GREAT PLAINS A.R.C.

Many activities have come and gone since my last article. I must apologize to GPARC members but as a special education teacher I am very busy in the spring and fall of the school year.

Many of us journeyed to the Hamfest in Oklahoma City this year and as usual it was great. WBØPGD and WBØQGW represented GPARC as we worked at the ARRL booth Saturday morning. A group of us also journeyed to the Wheatstraw covered dish picnic at Canton and had a marvelous time.

Ray Wangler and his lovely wife were here. He gave a most informative talk on ARRL activities. We had a home made ice cream and covered dish dinner in their honor. Everyone certainly enjoyed their visit.

One of the annual events is the Ellis weekend in September. The day started warm and pretty and continued through Sunday. Amateurs gathered Saturday afternoon for the transmitter hunt. From what I heard, they had lots of fun trying to find KØCIO and WBØPGD. The guys had pulled a sneaky and slipped back to the camping sight. However, the hunters were told they were just about 300 feet from the road! Saturday evening weather spotters and amateurs gathered for grilled hambugers and all of the trimmings. Sunday topped the week end with a covered dish dinner. There was lots of good times and good food. And, as usual, everyone had a ball!

On October 9 the group gathered to conduct the Simulated Emergency Test. We couldn't let the opportunity pass. You guessed it, we had a weiner roast.

The GPARC Christmas Party will be December 3 at K-BOB's in Woodward, Ok. An eyeball QSO will be enjoyed from 6:30 to 7:00. We will order from the menu starting at 7:15. The gratutity will be added to each check. Everyone is invited. I hope we see you there for a fun filled evening!

73's Carla WBØQGW

CHRISTMAS DINNER

The ACARC Christmas dinner will be held Thursday December 8 at the Heritage House on Northwest Highway. The cost will be $7.50 per person. Anyone wishing to attend should pay me no later than Friday December 2. My address is:

John Mooney
113 S. English Drive
Moore, Okla. 73160
phone 794-8519

HAM HORRORSCOPE

Libra Sept. 23 - Oct. 22 You are shrewd and unethical. You're the type of guy that starts rumors to throw the rest off the track, like getting everyone to listen on 14220 when DX is really on 14250. Having two transmitters on at the same time is a disgusting ruse.

Scorpio Oct. 23 - Nov. 21 You procrastinate a lot, which is one reason why your shack is so messy and your VFO drifts. But you are sympathetic and understanding, and people always ask you to help them with the messy jobs, like changing gears in their rotators. You do help them, too, when you get around to it.

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC. WA5PAA.

OCTOBER MINUTES

ACARC

The October meeting of the ACARC was called to order at 8:00 PM on Friday October 7, 1983 by Tom K5LDI with 29 members and guests present.

After introductions, Charlie WA5JGU took the floor, announced next year's CORA officers and confirmed that we will be responsible for facilities at next year's Ham Holiday.

The possibility of holding Ham Holiday at the Lincoln Plaza was raised and after a good discussion, motion was made and carried to ask CORA to investigate that possibility.

Harold Todd WA5VAQ and Charlie WB5JGU then exchanged questionable statements about some of Charlie's fishing pictures before Charlie announced that the Civil Defense is still accepting voluteers for RACES; if interested, contact Charlie.

Under Old Business, Tom K5LDI announced that the annual Christmas party will be held at the Heritage House on Thursday, December 8 from 6:00 PM to 8:30 PM. The cost will be $7.50 per person and anyone wishing to attend should contact me (John KA5JCX 794-8519).

Holly Holcomb N5ABL suggested that we should do something to help potential novices into amateur radio. A motion was made and carried to purchase some novice training kits to be made available on a sign-out basis with Holly to coordinate purchasing.

All business being taken care of, the meeting was adjourned at 8:50.

John KA5JCX
SEC

WHAT'S THE IMPEDANCE OF

A GROUND PLANE?

It's generally accepted that the feed-point impedance of a ground plane antenna is quite near to 35 ohms. This applies to the true ground plane, that is one having its "counterpoise" at least a quarter-wavelength above earth. Engineers and the inquisitive Radio Amateur have long known that there's no requirement for (and nothing to be gained by having) more than two elements in the "plane", presuming that these two are situated 180° apart.

The above is a lead-in to VK5JG's excellent article in the August issue of Amateur Radio, available in the ACARC clubroom.

Now let's shift to the September issue of Radio Communication in which G6XN and G3UUR present very convincing evidence to the that the impedance is close to 18 ohms.

This brings up one more point: Why doesn't someone build a quarter-wave ground plane antenna, mount it in the clear, run to it a feed-line having a multiple of electrical half-waves in length and use an antenna bridge to find out just what IS the IMPEDANCE? Or is it a lot more fun to sit back on one's haunches and bark loudly of what one THINKS might be the feed-point impedance?

In VK5JG's article, he writes of the directive effect of putting the two ground plane elements on one side of the vertical element. There's an excellent account of using this technique in a book published in 1905. It seems that Reginald Aubrey Fessenden used that system in some of his commercial stations in the very early 1900's. There's nothing like re-inventing the wheel. W5JJ

HAM HAPPENINGS REFER TO CLUB SECTION FOR SPECIFICS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		MORI Great Plains 1	ARDMORE 2	EDMOND Club 3	Aeronautical Center ARC 4	COCO 5
6	7	76'ers SHAWNEE 8	9	ALTUS AREA 10	11	SCARS 12
Wheatstraw 13	OK-DX 14	AUTOPATCH 15	16	KAY County 17	18	VHF Club EARS 19
20	A.R.E.S. 21	CORA SHAWNEE 22	23	24	25	26
27	CIMARRON EDIT CENTRAL OKLAHOMA RADIO AMATEURS COLLECTOR — EMITTER 28	29	30	NOVEMBER		