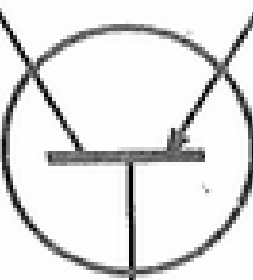


CENTRAL OKLAHOMA RADIO AMATEURS
COLLECTOR AND **EMITTER**



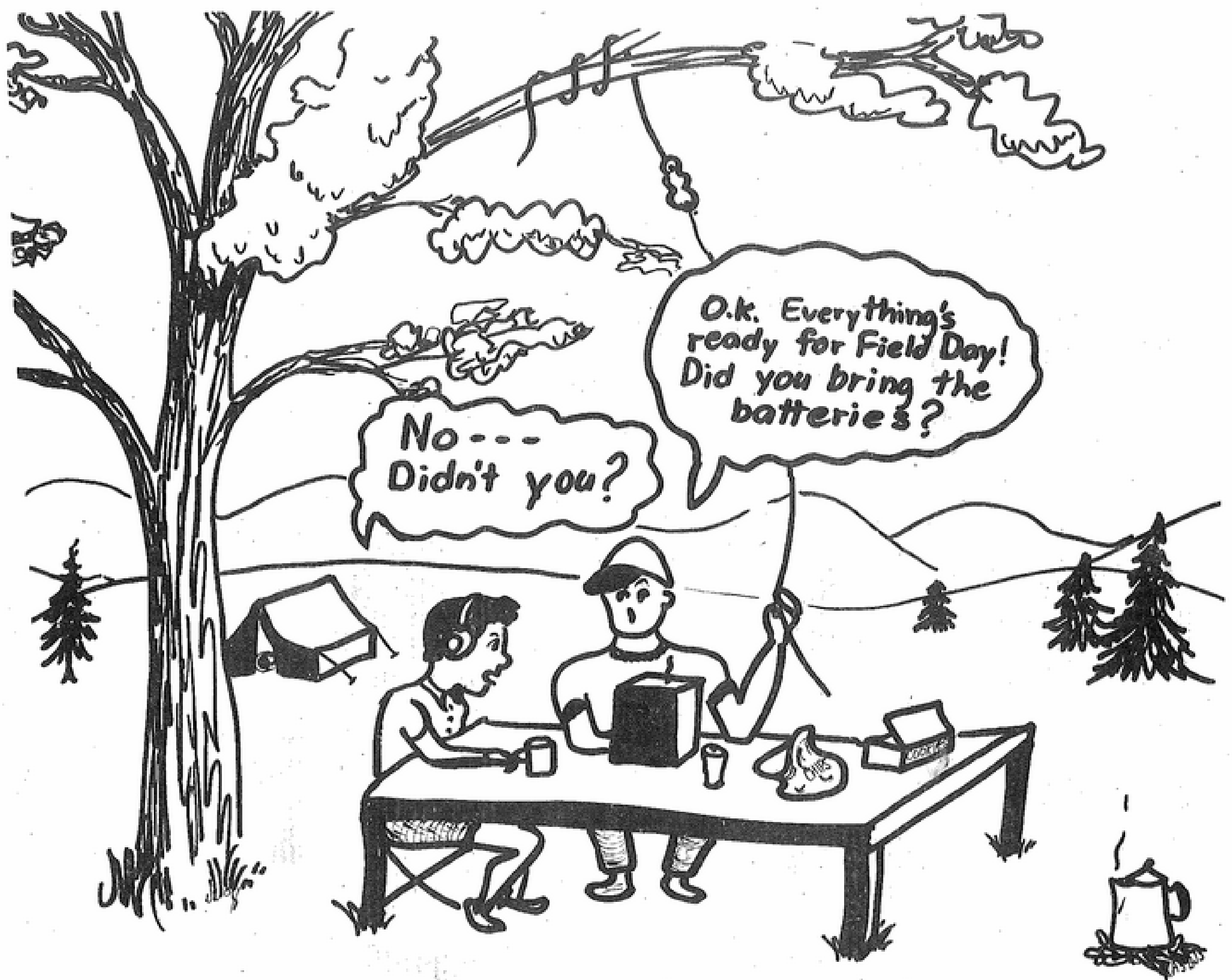
AR
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American Radio & Electronics Service

50¢

*LAST CHANCE
 To Pre-register*

Volume 9 July 1983 Number 102

MORE FIELD DAY REPORTS INSIDE



LAST CHANCE

**Don't Delay!
 Pre-register Today!
 Ham Holiday**



CORA COMMENTS

Due to a "last minute" change (we were outranked for our free meeting place) there were a few CORA Directors who never found where we were meeting. At least that appears to be the reason, so, all CORA Directors be advised that the next meeting will be on Tuesday July the 26th AT THE RED CROSS BUILDING. That will be the last one just before Ham Holiday and everyone should be there so any loose ends can be tied up before the big bang a couple of days later. There will be a special CORA meeting Saturday afternoon at Ham Holiday. It was pretty well attended by the out of town clubs last year and ALL Directors are urged to set 2:00 pm aside Saturday and make the meeting.

At the meeting Tuesday night all committees reported and it looks like everything is just about ready and that this one will be another good one. Programs reported that everything was "go" and there was another technical program which would probably be worked in if the guy could possibly make it from Denver. A tentative schedule is presented on another page but a few shifts may be necessary so be sure and get the up to the minute program sheet at the registration desk.

Our liability insurance runs \$75 a day so we will have to have everyone out of the MYRIAD by 4 pm Sunday so we won't have to take award money to buy another 24 hours worth of insurance for the rest of the day. Otherwise Facilities reported everything ready but they

would appreciate it if everyone would pre register and help them figure out how many flea market tables will be required.

Pre Registrations are ahead of last year but Bruce is hoping everyone will get their checkbook out, fill in the form on page 17 and get it in the mail so it won't all have to be done at the last minute.

A Barbershop Quartet will warm the crowd up at the Buffet/Banquet for a Real Live Band which will furnish the music for a dance to follow. Tickets should be bought when one pre registers to help with the planning. A limited number will be available on Saturday morning at the registration desk.

Commercial exhibitors, including one who says he will bring nearly \$100,000.00 in stock, have paid for 35 tables so far with several others having indicated on the phone that they are sending in their reservations. Looks like a room full again.

The program for ladies is again full, with something to do all day Saturday and on Sunday up to the awards ceremony at 1 pm.

That is about what happened, but then I had to leave the meeting room for a few minutes so something may have escaped me. Come to the next meeting - everyone, not just Directors, is welcome - and find out what is happening.

Joe, WA5ZNF

Stay off of two meters tonight - silence is often mistaken for wisdom.

Ben would have been a whiz with a key....

Whose voice have you heard that should be cultivated - and potatoes planted in it?



Mike's Cycle Salvage



2212 SW 29th OKC 631-7223

New & Used Parts

We Buy Salvage

Mike Kramer KA5NUP

146.025 / 146.625 REPEATER

FEEL FREE TO USE IT

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 Norheis 798-9629
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 N5IH Henry Israel 722-3848
VP K2GKK D. C. Macdonald 672-4947
SE WB5NDO Kathy Whited 799-1427
TR K5GL Guy Liebmann 787-9545
EDITOR: "Mac" Macdonald, K2GKK 672-4947

5 OKLAHOMA UNIVERSITY AMATEUR RADIO CLUB
MEETS: 7:00pm Second Tuesday(Sep-May) 119 Wilson Center. 1334 S Jenkins
PR KA5BAY Luke Noah 325-1775
VP
S/T KA5LZN Greg Smith 325-3218
EDITOR: Greg Smith, KA5LZN 325-3218

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 WA5PFX 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 598-5984
EDITOR: Earl Couch, WB5ZBA 589-3212

13 KAY COUNTY AMATEUR RADIO CLUB
MEETS: 7:00pm Third Thursday Ponca City EOC
PR WB5YRN Delbert Foiles 762-4479
VP WA5UBO Marsh Pronneke 363-2526
S/T KA5PUB Glenn Bishop, Jr.
EDITOR: Rick Long, WD4CEP 767-1871

14 CINMARON 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

19 SOUTHEAST OKLAHOMA AMATEUR RADIO ASSN.
MEETS: 7:30pm Second Monday. Location varies, contact a club officer.
PR WB5TTU Ron Henson 326-5418
VP WB5ULI George Weldon 326-5672
S/T WD5FUE Orville Kaley 326-3650
EDITOR: Ron Henson, WB5TTU 326-5418

20 ARDMORE AMATEUR RADIO CLUB
MEETS: 8:00pm First Wed. Red Cross Bldg. Informal, 8:00pm other Weds. 221 9th NW
PR W5HJ Tom Banks 226-3350
VP WB5VBK Fred Innis 223-1709
SE WA5YOM Tim Vandagriff 223-3582
TR W5BLW Charles Dibrell 226-0589
EDITOR: John Merlyn, WD5FZD 223-9543

CENTRAL OKLAHOMA RADIO AMATEURS, Inc.
MEETS: 7:30pm Fourth Tuesday. OKC Fire Training Center. 800 N Portland
PR WD5JNT Ted Vanlaningham 262-1675
VP K2GKK D. C. Macdnald 672-4947
SE N5BEQ Jim Buswell 236-0368
TR K5GGL George Maschino 263-7614

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CIRCULATION MANAGER:
Bob Graham, WB5NSV, 677-8685

Q. R. Zedd

TONDELAYO IS A BRAVE GIRL; SHE'LL SURVIVE

As the world now knows, the scheduled wedding of Mr. Q. R. Zedd, world's greatest DXer, and Miss Tondelayo Schwartz, nubile, blond, 20-year-old QSL secretary, did not go off quite according to plan last month.

But the world saw, via commercial and amateur satellite, that Tondelayo is a brave girl. She took the unexpected with courage, and will be back to eat her Wheaties another day.

For those few who did not witness the events on worldwide TV, or read any of the daily newspaper or weekly magazine accounts, we will provide a brief rundown of the shocking events which transpired.

Wedding day, June 18, dawned beautiful in Norman, and the honor guard of the South Candian Amateur Radio Society left the Cleveland County Red Cross building on schedule at 8 a.m., arriving at Honor Roll Ranch, just a hoot and a holler south of town, before 8:30. Guests were properly conducted to the linear room for the ceremonies as they arrived. President and Mrs. Reagan were a little late, but there was still room for their landing in the helicopter landing area. Barbara Cartland looked lovely in pink, and Queen Elizabeth's horse was "real lively," according to local horse people in the press tent.

The service began on time with the Mormon Tabernacle Choir doing its numbers, and getting an especially favorable reaction from the assembled dignitaries for its rousing rendition of "Ah, Sweet Mystery of DX," by Verde. After the high-speed CW demonstration by Mr. Zedd on tape and the darling tap dancing by Miss Schwartz, the Lawrence Welk orchestra played several ditties, AD1S showed DX slides, and the wedding party proper entered. Mr. Zedd and his groomsmen were attired in pale yellow bib overalls with red cummerbunds and orange baseball caps bearing the SCARS insignia along with their current DXCC totals. Bridesmaids, wearing home-made sundresses and five-inch spikes courtesy of Candies Co. of America, next entered. A cousin of the bride, whose name we did not catch, was ring-bearer. A distant niece of the groom, Jenny Lind, of Bangladesh, strewn flower petals down the aisle in front of the bride, who wore a white gown of heavy brocade with inlaid pearls and diodes, and a train of chantilly lace and nested transistors. The Rev. Billy Graham strode out of the side somewhere, wearing a white sportcoat and a pink carnation, and it appeared the ceremony was well under way.

Alas, word reached the press section that scanners in the Zedd radio shack had gone crazy with calls for him from all parts of the world. Someone had monitored a few of the messages and it seemed that the government of North Vietnam had just said it would allow DX operations from that country if the party included Mr. Zedd.

"Dare we break into the ceremony with this news?" the man from AP whispered hoarsely.

"They'll kill us if we do," said the reporter from UPI.

"They'll kill us if we don't, too," said the man from QST, who knew his onions about DXers.

Rev. Graham was saying a few introductory words, and seemed unaware of the situation. Mrs. Zedd, standing in a front pew, caught a few words and slipped over to the press section.

"What is it, boys?" she demanded.

The AP explained.

Mrs. Zedd paled and hurried out of the linear room. While Rev. Graham talked on CORA Collector & Emitter + JULY 1983

about the joys of the nuptial state, visitors could detect the faint sounds of high-speed CW coming from the radio area into which Mrs. Zedd had vanished.

In moments she was back, sweaty and disheveled, her eyes alight with rare excitement. She looked around wildly. Boris Badenov, the great Russian DXer, slowly munching his Fritos, watched her closely from a front area. Bill Blast, also toward the front, frowned mightily, trying to dope out what was going on. Only the lovely Tondelayo and the handsome Zedd seemed oblivious, facing the Rev. Graham.

"And so this is a highly holy state," Graham continued, "and one not to be entered upon lightly, or with hesitation. And yet I know these two children who stand before me, and I know their love knows no bounds, and it transcends all --"

"Q. R.!" Momma Zedd's voice rang out, startling everyone. "Vietnam!"

Zedd whirled. "What say, Momma?"

Vietnam says we can operate from there! You and the five other operators of your choice, but you got to be on the air in forty-eight hours or all bets are off!"

"-- other interests," the Rev. Graham went on. "Such love knows no delay, accepts no restraint --"

"Vietnam, Asia?" Zedd shot at his momma.

"Yes! Listen, honey, there's a flight for Tokyo leaving in two hours! We can take the cycle! What do you say?"

Zedd stared at heaven, and then into the face of his intended, the lovely Tondelayo. She must have sensed the turmoil coursing through his DXer veins, poor girl, for she went pale, and a slender hand stole to her throat. But she said not a word.

"It groweth like the wildflowers," the Rev. Graham went on, "and it overwhelms all trouble in its path --"

"What do you say, sonny?" Momma Zedd yelled.

"I don't know about him, but I'll go!" Bill Blast shouted, vaulting a pew and heading for the door.

"Da!" cried Badenov. "Great Mother Russia must be represented, too!" And he ran for another door.

Q. R. Zedd stood transfixed, torn between his love for Tondelayo Schwartz and his love for DX.

"This kind of love is forever," the Rev. Graham said, and put a loving hand on Zedd's shoulder. "Nothing is more important."

It was the ultimate stimulus. Zedd shook the reverend's hand loose. "Lemme go!" he said in a stentorian tone. "I got to hurry!"

"What? What?"

Tondelayo stepped back nimbly and was not trampled in the rush outside, where Momma Zedd's big bike coughed to life and then roared as she blipped the throttle. Those of us nearest the front of the press section just had time to get to the windows in time to see the Kawasaki roar away, spraying a huge cloud of dust and gravel.

Momma Zedd was, of course, driving. The great Q. R. Zedd was on the seat behind her, hanging on for dear life. Bill Blast perched uneasily on the handlebars, hanging onto his hat. Boris Badenov clung to the luggage rack. As the cycle veered around the far turn of the dirt entry road into Honor Roll, Momma Zedd almost lost it. Out of various pockets and suitcases hastily packed, flew two or three microphones, a couple of transceivers, some coax, and a soldering iron. Momma righted the bike, however, and it lurched out of sight, the song of its big engine fading as she racked it through the gears.

There was a brief commotion in the back of the linear room chapel, a fistfight between Dingfod Armstrong of Texas and Bill Buckeye of Columbus, Ohio. Poor Dingfod got his spurs tangled up in a coaxial cable and fell over backward. Bill Buckeye raced outside and hopped into his waiting 1960 VW,

N E X T M E E T I N G:
(3rd Tuesday)
19 July 1983

The July OCAPA meeting will be held at 1930 Tuesday, 19 July, at our regular meeting place. If you have not attended a meeting recently (or ever), we meet at the Oklahoma City Fire Department Training Center at 800 North Portland Avenue. Use the rear entrance and parking lot.

We had a fine program at the June meeting regarding a commercial weather information and warning system which is currently being installed to serve the Oklahoma City metropolitan area. Joe Gilliam (WB5LXW) from the Gulfport, MS area is an engineer with the company that is building this new super weather system and did the very comprehensive presentation. A combined Doppler and meteorological radar system is being installed in the vicinity of Wellston, OK along with an extensive radio communications network to forward weather information and warnings to individual subscribers within an area of about 20,000 square miles. A full-time, 24 hour per day staff of meteorologists will staff the master weather center at Wellston. Joe described the "Simulcasting" system of radio communications through which the warnings and information will be disseminated and the fantastically close tolerances which are required to make the system. After his presentation, Joe fielded many questions from the members and guests present. It sure sounds like a fantastic system. There might even be a job opening or two for radio technicians on such an extensive and complex system.

CQ FIELD DAY, CQ FIELD DAY, CQ FIELD DAY FROM K5NK!!! Well gang, we did it!!! Despite the doubters, scoffers, and even mockers, OCAPA successfully accomplished its first ever try at the annual ARRL Field Day competition. We met all of our objectives and then some. The generator on the club's emergency communications trailer worked great. We found some minor glitches that will be corrected in the near future but nothing of a serious nature. Field Day was actually the break-in time for the generator so oil consumption was a worry. We used one quart in the first 12 hours but just over one pint for the last 12 hours. We expect oil consumption to drop to less than one quart per 24 hour period when the engine gets fully broken in. The 40 meter dipole worked great with very low reflected power. The vertical has some sort of problem which will have to be sorted out in the near future. It was good that we had a good supply of antennas provided by several of the members. We actually had more antennas than we could erect due to lack of manpower.

What Field Day would be complete without Murphy? The old boy nibbled at us once but never actually got his teeth into the operation. The only equipment failure was a programmable keyer which decided to rest every so often. The weather held and we stayed cool and dry except for internally supplied moisture during the set-up and tear-down phases. A whole gang of people learned how different and difficult conditions could be during an actual emergency and sharpened their operating skills tremendously. Kathy (WB5NDO) and Judy (KA5BJS) accounted for almost one third of all the phone QSOs. Kathy, Judy, and Sue Wilhite ran all the men out of the phone position and held forth for 7½ hours.

Tondelayo Wide eyed

tearing down the driveway in a cloud of smoke and a hearty, "Hey, boys! Wait for me!"

Slowly the sound faded.

In the silence we turned back to view the altar.

Rev. Graham stood silent, shocked.

Darling Tondelayo stood drooping, like a wilted rose of days gone by, a sad sight.

But a brave one.

Wiping a tear from her pretty blue eye, the darling girl managed a wan smile. "There will be another day!" she said courageously. And with that, she signalled for Donnie and Marie to start singing.

In addition to the club-owned emergency trailer, various items of equipment were provided by KA5AQY, K2GKK, KB5M, WN5NWX, and AD1S. I am sure that I will miss some as a result of all the hustle and bustle of the occasion but here is a list of the participants that I can recall.

KA5AQY	KA5DAU	WN5NWX	WB5NDO	KE5M
KA5BJS	K2GKK	WB5LXW	WB5TXR	KE5M
KC5NC and wife B.J.	KJ5Q	N5CCW	NI5G	
K5NK and wife Sue	N5FM	Bob Northern		

All in all, it was a very good first effort. Next year will be even better. We know that several minor changes to the emergency trailer are in order. All of us need to get more contest operating experience so that digging the weak ones out of the QRM, QRN, and QSB becomes second nature. Two meter FM repeater operation does NOT prepare you for emergency conditions OR Field Day. Operators, as well as equipment need to be prepared. If you want to be better prepared for next year, it is suggested that you get in some participation in other contests such as the Sweepstakes, ARRL or CQ DX contests, or IARU Radiosport competition. An all-out effort is not necessary, but give it a try. As a result of the initial review of the first try at Field Day, we are confident that we could perform adequately in an actual emergency, but improvements are definitely needed.

You ask how well we did? I would suggest that you look in QST about the November issue and look about half way down the column in Class 2A to find our score. We had 561 SSB contacts and 350 CW contacts in the first rough count of the duplicate sheets. Final count may rise or fall a few when we do a recount, but our final score should be close to 2800. Wait 'til next year!!!!

HAM HOLIDAY: Things in the commercial exhibit area are coming along quite well. Sparky's Hats and Roger Arnold's engraving will return and so will Ellard's Ex-El and BCD Parts. Missouri Radio Center is bringing a BIG stock. Texas Towers is coming for the first time. Journal/20 (Commodore Computer Newsletter) will make an initial appearance and (for the ladies) a jewelry dealer from the Dallas area will have a display. Joe Harding told Judy that he has received some reservations from computer-related folks but I don't have the information on them yet.

That's it for another month. See you at the July meeting and/or Ham Holiday.

Mac
K2GKK/5

HEARD ON THE PARTY LINE by WOCCT

This month we'll be pointing some puns in your direction. Hope they aren't loaded. Okay, pun pals.

LIQUIDATE: Means taking that YL out for drinks.
EAR: You "ear" someone calling CQ.
MUMBO JUMBO: An elephant that can talk on 40 meters on weekends.
MHO: He's due at the radio club meeting in half a mho.
MAXIMUM: A G-2's buxom mother.
MINIMUM: A G-2's petite mother.
DECBIT: Deceit of de pants is worn out from sitting in the shack calling CQ.
CHECKERS: Chinese Checkers are from the Chunking FCC.
CANE: "Cane Chew Hear Me Calling, Caroline?" Calling CQ. CQ. CQ Caroline.
BEER: Beer with me.
BAWDY: Bawdy beautiful is the shape of some YL's.
AVENUE: "I anenue transceiver," said the happy ham.
LIP: Most hams shoot from the lip.
KEEL: We'll keel that guy on "my" frequency.
ACQUIRE: Acquire is a group of singers heard on the 11 meter band.
LID: "A lid'll go a long way" if he studies his Amateur Radio License Manual.
JADE: Old Chinese Amateurs never die; they just jade away.
ICON: Icon turn on the Icom.
HALLELUJAH: Our first Hawaiian contact on 20 meters was in the capito of Hallelujah.
FJORD: A fjord is what you go mobiling in.
HAM: "I ham what I ham."
GROUNDHOG: A ham with a lot of radials on his vertical antenna.
HAIL: A W4 says, "Hail is where all those dad-ratted Yankees will end up.

MEMORY MAP

Back in May I started a reprint of the memory map from the Color Computer magazine. I made it to HEX address 0046. So that's where I'll pickup.

Hex	Dec	Description
0047	71	MSB Seached-line link pointer
0048	72	LSB " " " "
		Sign of ASCII exponent
0049	73	
004A	74	
004B	75	MSB FN name Varptr
004C	76	LSB " " " "
004D	77	MSB Current string varptr
004E	78	LSB " " " "
004F	79	FPAC1 exponent
0050	80	MSB FPAC1.
		MSB INT.
		MSB Error line number
0051	81	MSB NSB FPAC1.
		LSB INT.
		LSB Error line number
0052	82	NSB FPAC1
		MSB Current string stack pointer
0053	83	LSB FPAC1.
		LSB Current string stack pointer
0054	84	Bit 7 = negative FPAC1.
0055	85	-1 if negative ASCII number
0056	86	MSB number Char. in string
0057	87	LSB " " " "
0058	88	MSB pointer to string start
0059	89	LSB " " " "
005A	90	
005B	91	Floating point carry-in (0 or \$FF)
005C	92	FPAC1 exponent
005D	93	MSB FPAC2
005E	94	NSB FPAC2
005F	95	NSB FPAC2
0060	96	LSB FPAC2
0061	97	bit 7 = negative FPAC2
0062	98	MSB STRING START POINTER
		Sign of FPAC1 * FPAC2
		Scratch usage
0063	99	LSB string start pointer
		Floating point carry-out byte
0064	100	MSB string end pointer
0065	101	LSB string end pointer
0066	102	MSB current line number
0067	103	LSB current line number
0068	104	MSB current statement pointer
0069	105	LSB current statement pointer
006A	106	comma column width
006B	107	Maximun TAB position
006C	108	position in line
006D	109	# char. per output line
006E	110	print device number
006F	111	"DEVNUM" 0 = console
		\$FE = printer \$FF = cass.
0070	112	0 = buffer unflushed
		\$FF = empty
0071	113	"RESET FLAG" \$55 on startup
0072	114	MSB "RSTVEC" reset vector
0073	115	LSB " " " "
0074	116	MSB MAX. memory
0075	117	LSB " " " "
0076	118	
0077	119	
0078	120	file mode 0 = closed
		1 = input 2 = output
0079	121	working tally of number of bytes in buffer
007A	122	MSB WORKING INPUT/OUTPUT
007B	123	LSB Buffer pointer
007C	124	"BLKTYP" 0 = header
		1 = DATA \$FF = end of file
007D	125	"BLKLEN" # of bytes in cassette block
007E	126	MSB "CBUFAD" cass. load
007F	127	LSB keyboard buffer pointer
0080	128	Cassette checksum
0081	129	cassette input status
		1 = checksum error
		2 = illegal load address

0082	130	cass. bit count
0083	131	cass. timing count
0084	132	cass. input polarity
0085	133	cass. last voltage out
0086	134	lo-res pixel information
0087	135	inkey\$ character
0088	136	MSB next cursor pointer
0089	137	LSB next cursor pointer
008A	138	MSB Zero constant
008B	139	LSB zero constant
008C	140	sound pitch
008D	141	sound duration
008E	142	IRQ count

That's enough of that for this month. Lets talk important talk!

If you have not heard what the Telephone Co. is going to do, let me tell you. First let me say that I do not know the whole story YET, but will soon -- surely by meeting time...

I think the best way to tell this is from the beginning. About the Tenth of June a TV report aired (channel 5) featuring Robert Braver, a young man in Moore, Ok. who has been running a bulletin board in his home paying residential rates and the Telephone Co. is raising his monthly bill to \$45. In the broadcast he said the Telephone Co. was going to charge everyone with a Modem this same monthly charge! Needless to say that started things happening.

I and almost everyone else called Ma Bell for more information and true to the big Company image they gave at least ten different answers. The Corporation Commission wasn't of help either, for they weren't saying anything at all.

On Monday 6/13/83 a Telephone co. representative called and seemed to know what he was talking about at least. Mr Ty Morassey informed me that the Phone Co. did in fact have a Tariff that allows a charge \$45.95 per month for anyone sending DATA over the phone lines. But-- they are at this time not going to pursue the issue. For those people who wish to have a "DATA LINE" then the monthly charge would apply, if you only wish to have a "RESIDENTIAL LINE" then your present rate will be unchanged.

This at least is what I wanted to hear but alas it was not to be. On Thursday 6/16/83 I attended a meeting that the Vic 20 Club hosted. Also in attendance and the main speaker was Charles Suiter from South Western Bell. Mr Suiter is that person at Ma Bell who writes, interprets and applies for tariffs. After a lengthy intro he slowly got around to the subject we were interested in, computers and modems.

The tariff we fall under (information terminal tariff) was written in 1965 and was obviously written for large computer companies. But as it is written applies to any COMPUTER. Note I said computer and not modem. It seems that is the rub, the Modem can be there at no extra charge as long as something other than a computer is attached to it. Mr Suiter said a Modem connected to a dumb terminal, teletype model 28, smart printers or even smart phones and answering services are just fine and will not be billed even though it was pointed out to him that all these accept the teletype has a computer brain (processor) no different from our computers.

Many very good questions were asked of Mr Suiter from the more than 75 people in attendance, few were answered. I got the impression that he was on a fact finding trip to see how many computers were tied to the phone lines and how we were using them, so a new tariff could be written to better cover this new source of revenue for the telephone Company.

GREAT PLAINS A.R.C.

The June meeting was called to order with thirteen members and three guests present. The treasurer's report and the minutes of the last meeting were read and approved.

N5CCV gave a report on the Gage Roadrunner Marathon stating that a receiver was set up at the starting line for the crowd to listen to. The idea was well received by the crowd. Four ladies ran this year with three finishing the race. Eighty-two year old Glen Denton finished in good time. It's marvelous to watch him and cheer him on! One gentleman was in a wheelchair. He also went the full distance. The runners committed on how well they liked the marathon at Gage saying they are better taken care of there than about anywhere.

Plans for Field Day were brought before the group. Since N5CCV is activities manager he will coordinate field day. Various members volunteered for specific phases of the set up operations.

It was reported that QST gave us and the Cimmaron Amateur Radio group nice recognition on the weather nets and the Woodward radar.

June 11 we were asked by the Woodward Chief of Police to help provide communications for the Run for Fun. So Saturday morning nine "hams" gathered in Woodward. The race is part of Woodward's Harvest days Celebration. There were two races this year. The short one was two miles long and had eight runners. The second one was 6.2 miles long and had 40 runners. The winning time was 34 minutes for the long race. Everyone made the full race except one person. WBØPGD's pickup was pulled up close to the finish line with the outside speaker on. The crowd certainly enjoyed listening to the fellows report on the race from each check point. We certainly enjoy the opportunity to help with these community projects. After the race we gathered at the coffee shop and "reran" both races!!

The new Woodward radar was turned on six times in May and five times so far in June for weather watch somewhere within the radar area. We are all settling into an organized body at the radar. The net controls and all the spotters in the radar net work are all doing an excellent job! We think we have a real good thing going here.

We had an auction here in Mooreland a few weeks ago. Next time any of you talk to KB5XI ask him about the saw he bought for his XYL. Even better, ask him about the table he bought for WBØPGD! N5EPO even got to buy a desk he really hadn't planned on. From what I hear the fellows were having a lot of fun!!

But there's another fellow that lives in the north land that is about to get in dutch! KØCIO bought a satellite system and is putting it together himself. Really guys, he's working on it, but he has received the word not only from his XYL Eleanor but also from his sons! He had better get it to going!!! As true friends will though, they have offered to come and help him put it up. I have a feeling the T.V. nights at the Ellis house may get mighty long!

73's Carla WBØJGW

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kay

COUNTY ARC

Hello! My name is Rick Long (WD4CEP) and I will be the new editor for the Kay County ARC section of the C&E for a few months. It seems that I was "given" the opportunity, so here I go.....

As most of you know, the last weekend of June is FIELD DAY and we here in Kay County plan to have a great time. Our location for FIELD DAY is the sailboat launch area of Lake Ponca. There will be two stations operating, one CW and one SSB. There will be plenty to do if it isn't your turn to operate such as swimming, fishing, boating, or eating. In the next issue, I'll give our results of the weekend.

Ham Holiday will be in July and several area hams plan to go, including me. This will be a good opportunity for anyone that has something to sell or if anyone has something they need to buy for that next project.

There will be a chance for hams to upgrade in Tulsa on August 9 & 10. Several area Novices and Techs are going to get together I think on 10 meters and have a code practice net. Delbert Foiles, WB5YRN, has volunteered to help run the net, so if anyone needs information about the net can contact him.

At the last club meeting, we had a visitor from France, Bernard Companiche -- F2IH, and he is visiting a local industry here in Ponca City. We hope he will be able to come to FIELD DAY and participate in the activities.

The main topic discussed at the last meeting was of course FIELD DAY and arrangements were made for the use of rigs, antennas, towers, and the evening meal, which will be covered dish.

I guess that does it for this month, so I'll see you all next issue. If anyone has comments or something that they would like to sell in the C&E, just drop me a line.

73

Rick WD4CEP

MORE COCO

is not going to back off this rate increase to the computer hobbiest. They have every intention to charge you \$45.95 a month to use your computer over the phone lines. It was also clear that you will get nothing more for you money. You will still have just a voice grade line even thro you pay the same rate as someone wishing a matched data line.

We have serveral options:

- One - Do nothing and pay the charge when Ma Bell finds your Modem
- Two - Disconnect the Modem/Computer from the phone lines
- Three - Lie and hope your not caught
- Four - Fight and try to change the tariff

One of the first Three choices is the road most people will travel, as for me, I'm a Fighter. I shall attend the next public rate hearing of the Corporation Commission. This meeting has been set at:

6/30/83 Thursday @ 7:00PM
Jim Thrope Bldg 3rd Floor

I hope the C&E reaches you before this date because we need you there! Numbers may be important. We shall try to have someone to speak for us all. I do not at this time know who this might be but we'll try to present our case as well as humanly possible.

See you either at the corporation commission hearing or at the Aug. COCO meeting. I'm sorry to say I'm going to miss the July meeting. I have a class reunion to attend. For those who were not at the last monthly meeting, the July meeting as been moved to the second Sat.(the ninth).

Take care and happy computing
Holly

CORA Collector & Emitter + JULY 1983

Salem

HOW TO HAMCOM--DALLAS REPORT

Oh, the hamfest season continues with the annual trek down to Dallas for Hamcom. This activity is just a little more than a regular sidewalk sale, but that is not bad. Yeh, they dress it up with some programs and commercial exhibits, but for the most part, the crowd and flea market about twice the size of the regular sidewalk sale group. I didn't get an exact count, but the group does seem to fill up the Dallas Inn. I really didn't do a lot to prepare, but a quick glance at the program revealed a not so spectacular collection of programs. I generally don't share a lot of interest in the DXpedition and stuff like that, but I would like to have stopped in on one of the antenna programs. Unfortunately, by the time I looked at the program, (about midmorning), it had already passed me by.

I had decided that this would be another quick trip down south in one day and return. To crew the airplane, Roger WA5JXX had promised a long time ago to go. He is usually good as his word and strangely enough, this time he kept it. Tim WA5LTM had also asked about it after returning from Dayton (Guess he couldn't go cold turkey all at once, although when you've been to the mountaintop, it's kind of hard to climb an anthill). This came in another Saturday morning doughnut session. I think that we transact more business than the United Nations while eating doughnuts, but then again, almost everybody does.

I have hung around Hamcom for two days and have not found it too spectacular on the second day. The flea market is down, and the crowd is down also. The best part of the second day is visiting with friends but duty called me back to Norman the next day. The airplane would make the trip into a total of 3 hours around trip instead of 6 plus, (another good reason to drive back on Sunday). I actually am not sure if using the airplane saves all that much time after arranging for ground transportation and everything, but it sure is a lot of fun and breaks the monotonous drive back.

I think that Tim went down for the purpose of acquiring a new transceiver of the solid state persuasion. He finally wound up buying an Icom 720, ostensibly because (he claims) that I owned one that had been hit by lightning and he wanted to know someone that makes house calls for repair. I have news for him. Treat the radio right and probably nothing will go wrong. Even so, it is possible to get a lemon right out of the box. Just about everybody I know who has purchased an Icom IC-4AT has had some original equipment problem. It happened to me. The radio was missing a ground in the receiver front end and oscillated like a banshee with a series of beeps and belches that would occasionally open the squelch. Despite the warranty, I couldn't resist opening the radio up. After checking a couple of things, I was able to tame the radio a little, but finally gave up and sent it in to the service shop at Dallas. They found a ground strap that was missing and sent it back in a tamed condition. This makes me wonder how it got past the quality control department, if any. Other problems cropped up including the PTT switch and a couple of no transmit conditions. The radio was still in warranty and I had no replacement parts, so I was once again stuck with returning it. The turnaround that time was several weeks because they were waiting for a part. Well, it was an ordeal.

Tim went to a lot of trouble to pick up an IC-4AT at Dayton. First, he did the legwork to isolate the most reasonable price (make that cheap). Next, CORA Collector & Emitter + JULY 1983

he had me come in and carefully examine the radio to see if it worked OK. I had an extra battery for extra use in the flea market and we put it on the air right away. Next, he extracted another promise from the dealer that if the radio failed anytime during the weekend that he could return it instantly for an exchange. Well, he used it for the weekend and it seemed to work OK, but he said that the audio was a little muffled. A couple of weeks ago, I slapped it on the service monitor and sure enough, while the sensitivity was spectacular, the receiver was also off frequency. The transmitter was OK, however. Just doesn't make sense with a synthesized rig, but the problem was in a receive crystal. I reassured Tim that it could happen to anybody and fortunately he did not cry. The radio was receiving about 5 KHz too low. Well, after returning from Dallas, he zipped it down to Dallas and got it back in a couple of days with a new receiver crystal. We checked it again on the monitor and it was right on.

I would think that Icom would handle these matters during manufacture rather than by service after the sale. My IC-4AT went back twice during warranty. Well, I don't think that the IC-720A is like this (except mine which was a basket case). Tim probably did a wise thing buying this radio, not only because of the price, but because I do have a service manual. Icom is also probably dropping the price on this jewel to make way for the new IC-751 all band transceiver. It is another arm and leg transceiver.

The plan for heading down to Dallas was to check the weather the night before and plan on meeting out at Westheimer International at about 6:30 a.m. Roger and I decided that we would have to make a doughnut stop about 6:15 a.m., then head out to the airport about a cup of coffee and a glazed doughnut later. The weather going down was no problem. It was smooth as a baby's bottom. Dallas has changed their regional approach frequencies and they were not reflected on my current sectional. I was just starting to turn around to stay out of the airport traffic area for Love when we finally got the correct frequency and sequenced in. Dennis WB5ISN had volunteered to come over to pick us up and we were heading for the site by 8:30 or so.

When we got to the site, the flea market was starting on the upswing. Jim WB5YWO had just gotten the flea market table in service and I had brought a few items to drop on the table. It was hot and muggy outside, but fortunately Jim had acquired a space inside close to the air conditioner vent. Jim recounted to me the problems he had had with the people at Northpark. When he made the reservations several months ago, he indicated that he wanted to be poolside. They said, no problem. And it was no problem until Friday morning when he called down to find where the room was. They said it was in the back barracks. He reminded them of their earlier promise. What promise? You guessed it. No poolside room. I was really disappointed too. We took a break over in Jim's poolside room last year and I tried out the new lense I had gotten to shoot a couple of pictures of the view. What a shot! I don't think that Jim was as disappointed as I was that he did not get a poolside room. Again, just as the trouble that I had with the people at Dayton Ramada, the people at the desk don't care. They really don't.

By the way, the people at the Dayton Ramada who stiffed us for \$48.00 did not get away with it. I wrote VISA about the overcharge. I got a phone call from a lady who was working the credit memos. She wanted to know if I had a letter I had sent to the people at the Ramada. I said that I did and I had sent it to her. She thumbed through the enclosure. Oh yeh, here it is. What about the

check I claimed they had failed to credit. Did I have a copy of it? Yes ma'am. Not only did I get one from Tim (it was his check), I had sent it too her. More paper shuffling noises. Yes, sir, here it is. Finally, she asked me, did I have a copy of the original letter I had sent them, asking them to credit the check. Rats, she had me. She said she didn't have that and as soon as I sent it too her, she would credit my account and debit Ramada for the difference. I told her that it would make no difference because I sent her a copy of the check from Tim with Ramada's endorsement. Besides, I didn't feel like I should have to wait for them to credit my account until they got a letter from me, I wanted that credit now. For some curious reason, it seemed important to get that letter. I said OK, then went to check my file. I found that my copy of the correspondence already included a copy of the letter she wanted. Oh well, I guess her paper shuffling thumb was tire. I sent it anyway. Of course, my previous letter to Ramada was never responded too nor did they even acknowledge it. I guess they couldn't believe that anybody would quibble over \$48.00. I might not have if their service had been any good.

While at the Flea Market, I got to visit with Dennis WB5ISN, Wendall WB5ISO, Howard W5UVI, and Larry WB5DUC. Dan K5FVL also was in the area. Lunch didn't consist of anything more than an exorbitantly priced ham sandwich. The people at Northpark no doubt realize that they can charge what they want. We had planned on making an evening of it with dinner with the gang, but the plan took a different turn after checking out the weather late in the evening. Part of the fun of Dallas Hamcom is a trip that evening to a good restaurant with a crowd of about 15 or so of us. Southern Kitchen has been a regular stop for this, but this year, it looked like it would be about 8 or so before we could get out. I had checked with the Flight Service Station and found that there was a line of thunderstorms that were fairly severe that were moving toward OKC. They were quite some distance away, but activity was building in the area. I wasn't particularly interested in waiting until after dark to see if we could sneak back in, so we got Dennis to drive us back to the airport and after checking out the plane and calling for a thorough weather briefing, I didn't think that it would be any trouble. And it wasn't. Nothing built in the area and we got back before dark.

Tim unloaded the 720A and took it right home to hook it up to his antenna. We ate first, though and I checked to make sure that he had an antenna tuner. He did and I heard him later on listening. On Sunday, we all listened to see if we could make contact, but unfortunately, I couldn't hear him. Ever mindful of his experience with the IC-4AT, he hauled the radio down to Norman and slapped it on Dean's Triband beam. Radio worked just great. A couple of contacts around the country convinced that the Icom quality control for the 720A was OK.

Hamcom was OK. Most of the usual fleamarket people who make it to the Dallas sidewalk sale were present. The commercial exhibitors were the usual. Kenwood had their new duoband FM radio. I am not sure why this radio creates any excitement. Drake did the same thing with the UV-3 several years ago. It is just that it was ahead of it's time. I seem to see them every now and then in the Dayton Flea-market and somebody is selling blank boards to build up your own UV-3. Nonetheless, the 7950 is quite the radio and the voice synthesizer is unique.

Icom is still touting their IC-751 all band HF transceiver, but nobody has yet to see one in the country. This radio should be quite a device. About the only thing that I don't like about Icom is that they are always

trying to obsolete their new radios before I have a chance to purchase one or even afford one. I still remember thinking that the IC-701 was about the neatest radio I had ever seen. Now, it seems that you can't give them away in the fleamarket. I definitely thought that the IC-720 would be the last transceiver that Icom would make since it was general coverage receive and transmit. It would even put out power (not much, grant you) down to 100 Khz. Actually, it was only a couple of milliwatts and you had to use the low band antenna.

Now, Icom has the 751, and of course, there was the 730 and the 740, but neither of these were general coverage. So I guess that it was inevitable the 720 would find a replacement.

There is a group of people around here who travel quite frequently to Dallas once a month for the sidewalk sale. I make it about every other month or so and it seems that the past year my average has dropped. The sidewalk sale started at the Electronic Center. They conducted it for years and years. When EC moved downtown off Ross Avenue, they took the sidewalk sale with them. It was a great traffic generator. No matter what I bought in the fleamarket, I always went inside and looked at what the store had. I have even bought some small items including service manuals and dipole center insulators. Well, EC got greedy or got irritated at commercial vendors who would set up at the sidewalk sale and sell commercially just outside their door and under their nose, so to speak. So they began to charge for the use of the parking lot. This started a rump sidewalk sale at one of the other ham stores. They, of course, have been waiting for EC to stub their ham toe, so to speak. So, nothing has been settled, and I have not been down in a couple of months, so I don't know what has happened in this continuing saga. They, of course, and for good reason, suspend the sidewalk sale during Hamcom so you might watch this space to see what develops. I just might try to go down on the first Saturday in July and I'll let you know.

Micheal Salem N5MS

AMATEUR RADIO IS HAZARDOUS TO YOUR HEALTH DEPARTMENT

All this talk about nonionizing radiation and towers falling on power lines ought to take a back seat to one of the latest threats to your health associated with amateur radio. A recent article in the newspaper told of a lawsuit filed by lady for the death of her husband who was killed when the terminal building at the Jefferson County airport in Beaumont, Texas collapsed on her husband and killed him. The crash occurred during a storm while her husband was at the airport greeting sports celebrities participating in a benefit golf tournament.

It seems the missus was upset at the firm that designed the roof and the contractors who built and the price of her upset was about a claimed \$5 million dollars worth. Unfortunately, when the storm blew up, the building was ordered evacuated, but her husband ran back into the building even when the terminal ceiling started to crack. He went back in to retrieve his ham radio gear and just like investing in the stock market, he got caught in the crash.

Now, I love my Motorola and a couple of my other radios, especially including my UHF 1 watt HT-100 with special touchtone front, but I am not sure I would run back into a falling building for them. More likely, since I always carry these radios on my belt and rarely set them down, I

would never have left the building without them, even if I knew that the ceiling was going to collapse. Now maybe he was concerned that somebody was going to steal them, but if this was the case, then he would have found out who since the ceiling would have fallen on any thief concerned. Besides, any thief who would go back into a building that had a falling ceiling to steal a amateur radio would probably deserve it. I am not sure that there would be many takers (errrr, make that volunteers) for this kind of thievery.

So assuming that the radio equipment was relatively safe from thieves, why did this fellow go back into the building to retrieve his amateur radio equipment? Well, may be he thought that it would be damaged in the crash. If that is the case, then he must have known that the building would collapse or else had a very good feeling that it would or he would not have felt that his equipment was in jeopardy. That is especially a good reason not to go back in since he definitely thought that the roof might collapse and he would have to know that if he didn't expect his radio equipment to make it, then he could be damn sure that he wouldn't survive. So, it still doesn't make any sense to go back into the building. But he did. Now, the survival rate of amateur equipment in buildings has got to be better than people. Maybe he didn't have any insurance. Well, I think that the Homeowners policy might have covered it or at the very least, the repair bill might have not been that much. I mean, it might need a new case or speaker or something, but that couldn't be that much.

Going back into the building might have depended upon the radio and what type it was. Well, for example, if it had been my IC-2AT, I might have left it. If it had been my HT-100, I might have gone back in since I can't get case parts for it. Maybe he had a schedule to keep and that was his only radio. Well, that's doesn't make any sense since a telephone call by a pay phone wouldn't possibly cost more than a quarter.

I can only conclude that in reality that the gentleman really wasn't an amateur radio operator going back into the collapsing building to retrieve his radio, but in actuality was a CBer. It only makes sense. I don't appreciate the newspaper getting this fact wrong and since I know a fellow who actually lives in Beaumont, I will ask him the next time I see him. I'll also find out what type of rig this guy had that was worth risking his life for. Must have been a Motorola.

Micheal Salem N5MS

CAPACITANCE METER--CHEAP VERSION DEPT

I have always yearned for one of those capacitance meters that read capacitance like an ohmmeter. The best I ever saw was a beautiful autoranging jobber made by ECD. I got to borrow this baby from a friend who had acquired it for his test bench. During the several months that I had it in my possession, I must have measured a thousand capacitors and then taped them to a piece of paper along with the value. The meter was especially helpful in tuning up walkie talkies. I remember during the time tuning up an HT in the commercial band on a hospital frequency for Roger's father, a doctor. To down band an HT requires a bunch of little capacitors that tack solder on the back of the board to bring the tuning coils in range. To keep the capacitors in the right range requires a precision capacitance meter since many capacitors are mismarked or the tolerance is too wide. I have seen 5 pf capacitors measure all the way from 3.8 to 7 pf. This will never do. The process is an incremental one and knowing the exact value of capacitor aids immensely.

After giving the meter back, I made an inquiry as to its price and was told that it was in the 300-400 dollar range and clearly outside of my range. Such a meter would be a luxury and not a necessity.

Since that time I looked for a capacitance meter substitute. I especially liked the LCD digital display on the ECD, so I rejected several analog meter designs. Popular Electronics featured an autoranging digital type meter, but the kit price was still almost \$250 or so as I recall. Besides the design was TTL and not CMOS like the ECD. There were a couple of designs that appeared in the magazines to modify a counter and they looked pretty good, but I was not really interested in cutting up my counter (actually a spare) for a capacitance meter. A couple of other meters by B & K and others looked OK, but didn't go down to the picofarad range I would need for HT conversion. This past year at Dayton, I finally found something that looked promising and it was reasonably priced. It was a capacitance meter made by Tenma Electronics and had resolution down to .1 pf. The price was in the \$75.00 range and I bought one immediately. Apparently the device is manufactured in J. A. pan because I have since seen an identical model advertised in catalogs and flyers with different names on it. I predict that this device will be a hit. It is not autoranging, but it is quite small. The Model is 72-202 and it has a zero adjust and measures up to 2000 ufd. The display reads either a 1 or 0 depending upon whether it is too high or too low. You then simply change the scale by hitting another switch. After I got it home, I popped it open and found that it had a tiny fuse inside to protect the input from charged capacitors and other voltages. The circuit uses a counter chip, a TSC 7106CPL and has a 32 Khz crystal and oscillator to run the counter. No schematic was included in the service information (really, there was none), but these instruments typically operate by using the unknown capacitor as an element in an oscillator which is then used to gate a counter. Smaller capacitors mean that the gate is open for a shorter time and consequently, the counter only counts a couple of pulses. Larger capacitors hold the gate open for a longer period of time and consequently a larger count occurs. By selection of timing parameters and the frequency that is gated, the count that occurs is equal to the value of the capacitor.

The meter can measure down to .1% which is pretty good resolution, especially for a capacitor. I have a capacitor that measured with the ECD many years ago when I had it and I wrote the value on the side of the capacitor with an indelible marker. The capacitor was a highly stable Tex Cap and measured .674 ufd. The marked value was .68 ufd and the value was within 1%. The capacitor was a Tex Cap Type 31 and was actually marked with a 5% tolerance. When I got home, I measured the capacitor with the Tenma and measured .673 ufd. Not bad for an inexpensive little brother. I have tried a bunch of other capacitors I measured with the ECD and found similar tolerances. An ambiguity in the last digit could easily account for the difference.

The ECD would measure larger capacitors up to 10,000 ufd or so. The Tenma only goes to 2000 ufd. It is possible to measure larger values by putting them in series with capacitors of less than 2000 ufd and of known value. By applying the appropriate formula it would be possible to get a fairly accurate reading. I think that this will be a useful addition to the work bench. Don't know if I ever really need to measure values above 2000 ufd with any precision. The size matches my Fluke 8020A. Now if somebody can come up with a device to measure inductance that is digital . . .

Micheal Salem N5MS

LIGHTNING PROTECTION FOR YOUR STATION AND HOUSE--AN ELECTRIFYING SUBJECT!

Electricity in moderation can be a servant of mankind. However, when it makes a delivery in large amounts in a short time, such as a lightning bolt, well, the results can be devastating. I have suggested to people that begin to bellyache when they see the 80 foot tower and triband beam going up that not only was the tower an electrical work of art, but the tower also formed a cone of protection underneath it beginning from the tip that protected the area from lightning. This is not a bad argument because it is true. Old Ben Franklin invented the lightning rod because he was playing around with lightning and found that it had a tendency to strike a high object. Early in 1920, F. W. Peek conducted artificial lightning stroke tests in which he found conical protection angles of 64° and 76° provided protective ratios of 2 and 4. Now, I am not exactly sure what a protective ratio is, but I would assume that the area protected underneath the cone would experience a lightning stroke maybe 1 out of 2 times for an angle of 64° and 1 out of 4 times for an angle of 76° . In any case, these values were adopted in the U.S. Lightning Protection Code NFPA #78 in 1932. In 1945, the National Fire Protection Association reduced the angles to 45° and 64° for ratios of 1 to 2. These values remained unchanged until 1980. At that time, because of further studies, thinking was revised on lightning protection and so was the NFPA #78. It was determined that the lightning arrestor doesn't prescribe a cone of protection exactly, but area underneath a circle tangential to the lightning device and the ground is protected and for certain conditions, the protection formed by the new code is for 99.5% protection.

Lightning Stroke Basics

A few preliminary explanations might be in order to discuss the basic mechanism of how lightning forms. WA5JXX has had a little study along these lines in the form of seminars and classes and posed the whimsical question to me one day, "Does a lightning stroke flash from the sky to the ground or from the ground to the sky?" I fortunately passed the test by suggesting that both occurs. A lightning stroke is formed in steps. A step starts in a cloud charge center, then progresses in segments of 10 to 80 meters long and at intervals of 50 microseconds between steps. The normal length of a step is 50 meters (just over 150 feet).

An object about to be hit by lightning will produce an electric charge path called a streamer. The final step and the streamer will meet between the striking point and last step. This provides an ionized path for the high current stroke which follows. The streamer (electric discharge) develops when the section gets within about 100 meters (328 feet) of an object of opposite polarity. The streamer goes from the object on the earth toward the oncoming step.

The downward step and the upward streamer meet somewhere between the two. The actual stroke occurs over this ionized path. Heavy current from the earth to the cloud neutralizes the source charge center. Restrokes often follow the same ionized path without the slow stepping of the initial stroke. Current magnitude of the downward step is about 100 amps while the return stroke averages 20,000 amps.

The last step can be critical for it is within this last 100 meters that most of us live and also within this area that exist objects that we want to protect. When the quantity of charge which collects on the earth below the lightning charge center is small, a smaller than average streamer is produced. This

causes the last step to be shorter and consequently, the striking distance for the final step is shorter. Normally lightning over this last step might be considered to be travelling in a straight line, but this could change when the stroke striking distance is shorter. A stroke with a shorter striking distance is more likely to come closer to earth before its last step. It also has a better than average chance of becoming a side flash. A side flash occurs when the stroke approaching the striking point comes in at an angle farther from the vertical. This means that the lightning stroke could come straight down and if the last step of formation is shorter, then it is entirely possible that the stroke could move off and strike something away from the vertical path the stroke might have followed had it continued to the ground.

The occurrence of side flashes makes the protection of objects and people on the ground a little more difficult. The various impedance paths that the stroke could take over the last step vary considerably and may also depend upon which object the streamer formed from. Lightning, as few will deny, can be an inexact science when it comes to predicting where it will strike. It is not an exact science in predicting where it will not strike also, because of the sideflash.

The BIL (Basic Insulation Level) of a component is its ability to withstand direct lightning hits. To protect equipment and its connecting lines, diverter wires and surge arresters may need to be part of the electrical systems. If equipment has a lower BIL than the connecting lines, surge arresters should be used. Since stroke-current magnitude is related or actually interrelated to striking distance (the distance over which the last step occurs), a critical radius is formed in which the stroke can occur on the last step. A couple of formulas and interrelations are shown in the following table:

Table 1: Development of critical radii from BIL

BIL	I_{oc}	$I_{oc}^{0.8}$	r_{sc}	r_{sc}
600	4.4	3.27	21.9	72.3
1000	7.33	4.92	32.96	108.8
1400	10.27	6.45	43.21	142.6
1800	13.2	7.88	52.8	174.2
2200	16.1	9.24	61.91	204.3

Legend:
Vocabulary—
 I_{oc} is the prospective stroke current. BIL is the Basic Insulation Level (negative potential).
 Z_{char} is the surge impedance of the conductor, (stroke path).
 r_{sc} is the striking distance in meters (critical radius).
Formulas—
 $I_{oc} = 2.2 \text{ BIL} / Z_{char}$
 $r_{sc} = 6.7 I_{oc}^{0.8}$

The average Z_{char} for a vertical or horizontal wire remote from the earth is approximately 300 ohms.

What is evident from the table? Well, we see that higher BIL means a greater stroke current I_{oc} . Applying this to the two formulas shown at the bottom which show that $I_{oc} = 2.2 \text{ BIL} / Z_{char}$ and $r_{sc} = 6.7 I_{oc}^{0.8}$ gives a critical radii for the striking distance. There is really no surprise, here since the longer the critical radii or striking distance for the last step, the obviously larger the stroke is and consequently, the greater the current discharge.

In summary, we find that the last step of the stroke is perhaps the most critical to determining whether an object will or will not get struck. This distance over which the last step forms (approximately 328 feet at the greatest distance) is perhaps the maximum critical striking distance over which the stroke will occur. A critical

radius is formed for the last step of the stroke based upon the BIL. The BIL is related to the ability of the component to withstand a lightning stroke. Obviously an arrestor has a greater ability to take a direct hit because it represents a low impedance (300 ohms) path to ground. Lower energy last steps of the stroke come closer to the ground and hence have a greater chance to form a side flash (stroke path deviates from the normal angle to the ground). A circle is formed from the point of where the last step of the stroke begins to form and from that point, the stroke can occur within that stroke to any point within the circle to a distance of 150 feet worst case depending upon the energy of the stroke.

This means that the area of protection is not really a cone, but the area underneath a circle that is tangential to various protective objects. Please refer to Figure 1:

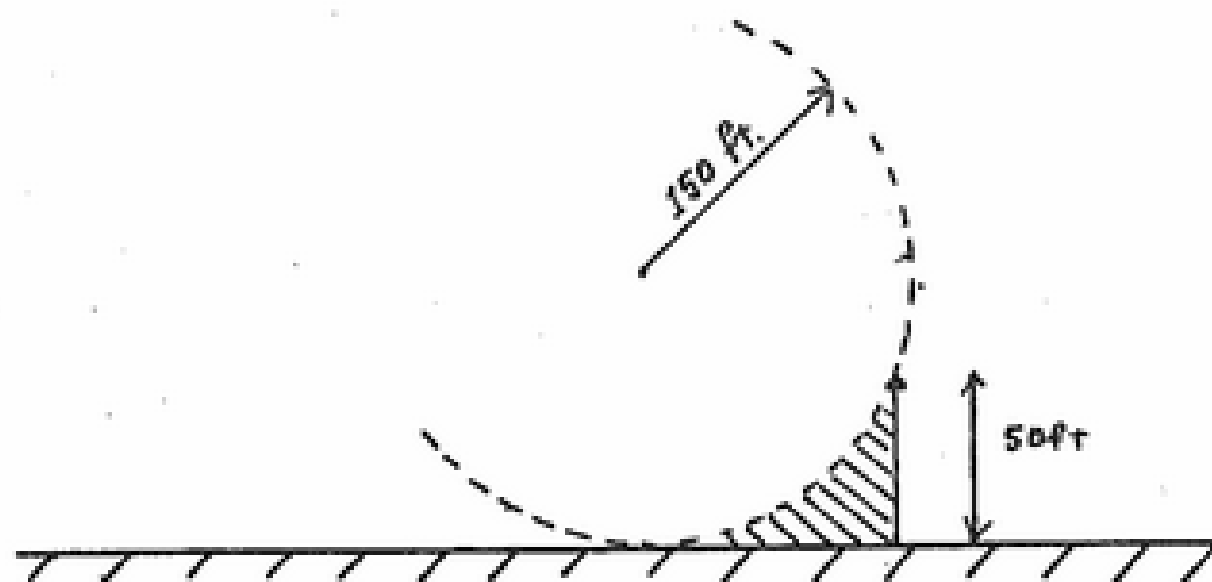


Figure 1. Area of protection for a 50 foot high grounded object (such as a grounded amateur radio tower) is the shaded area under the 150 foot radius circle formed by touching the circle to the ground and the tower. Anything inside of the protective circle is subject to being hit or being a part of the lightning stroke path within the worst case scenario.

By reference to Figure 1, it can be seen that the protected area (within 99.5%) is actually an area located under the circle at the shaded point. Assuming that the tower is grounded, what this means is that in the worst case, the lightning stroke is more likely to form its last step to the point where the circle touches the top of the tower rather than into the shaded area because the tower path represents a lower impedance to ground than a stroke penetrating into the shaded area.

Protection

This is actually a worst case scenario. For lesser protection levels or smaller energy strokes, the critical radii might actually be less. This can be demonstrated by a graphic technique illustrated below. This graphical technique can be used for smaller energy strokes based upon the data found in Table 1:

Figure 2. Illustration of calculation of area of protection by graphical method. Draw arcs (with the radius equal to the striking distance) of both the protecting structure and the object to be protected. If the intersection of the arcs occurs at a height above ground less than the length of the striking distance (as in the sketch on the immediate right), the protecting system is effective. If, of course, the intersection occurs above the ground at a height greater than the length of the striking distance, the protecting system may not be effective for a bolt of that particular energy and its equivalent striking distance.

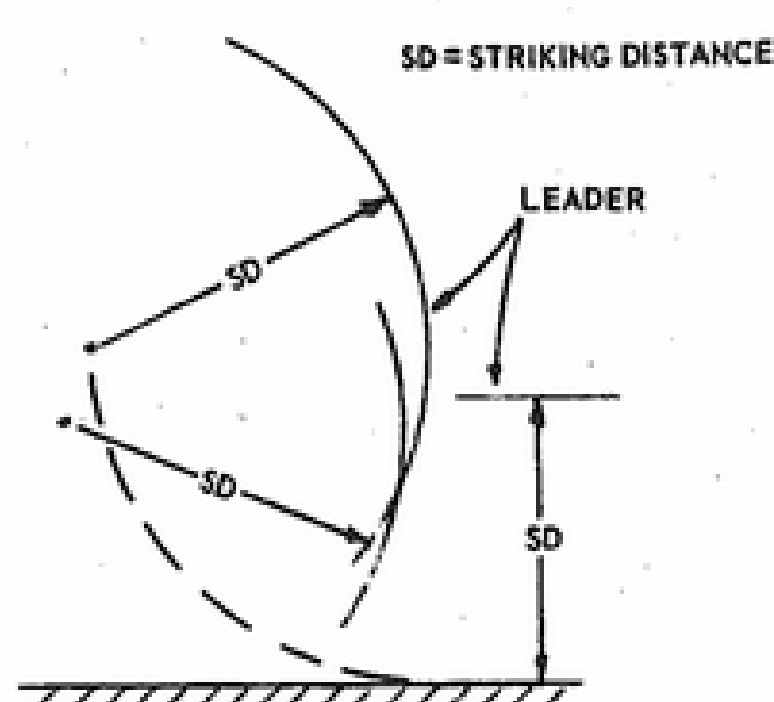


Figure 2A. Ineffective protection since intersection of arcs occurs above distance of striking distance above ground.

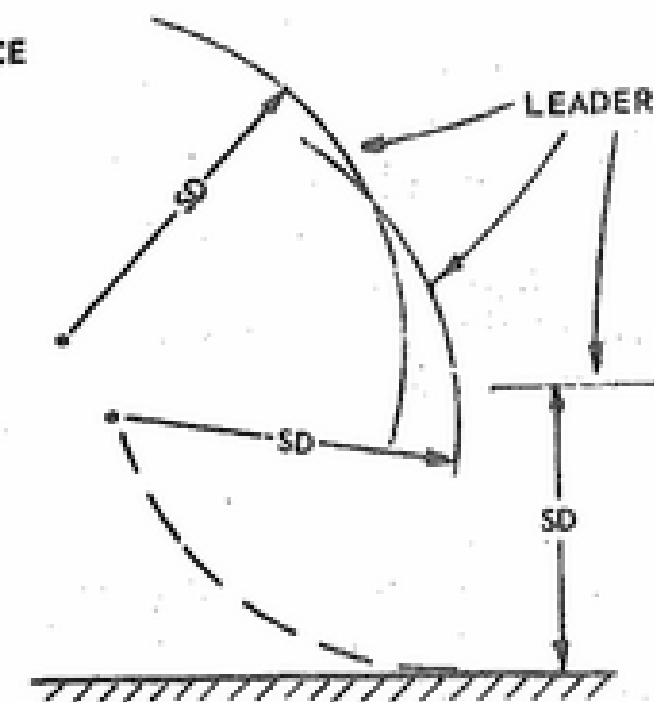


Figure 2B. Effective protection since intersection of arcs occurs below striking distance above ground.

As I indicated, this graphical technique can be used for various bolts and their related critical radii and striking distances. Figure 1 assumes a worse case bolt of high energy. This is the standard used by the modified NFPA # 78.

What this means is that it is possible that up to 150 foot protecting structures provide the maximum protection. Actually, there is an inverse relationship between the protection angle (not really an angle since it is defined by the arc of a circle and not a surface of a cone) and the height of the protecting structure. Reference to Table 2 illustrates the point.

Table 2: Protection angles for 99.5% protection

Height above ground	Protection angle
(25 ft)	(60°)
(50 ft)	(47°)
75 ft	33°
100 ft	20°
125 ft	10°
150 ft	0°
175 ft	-10°
200 ft	-20°

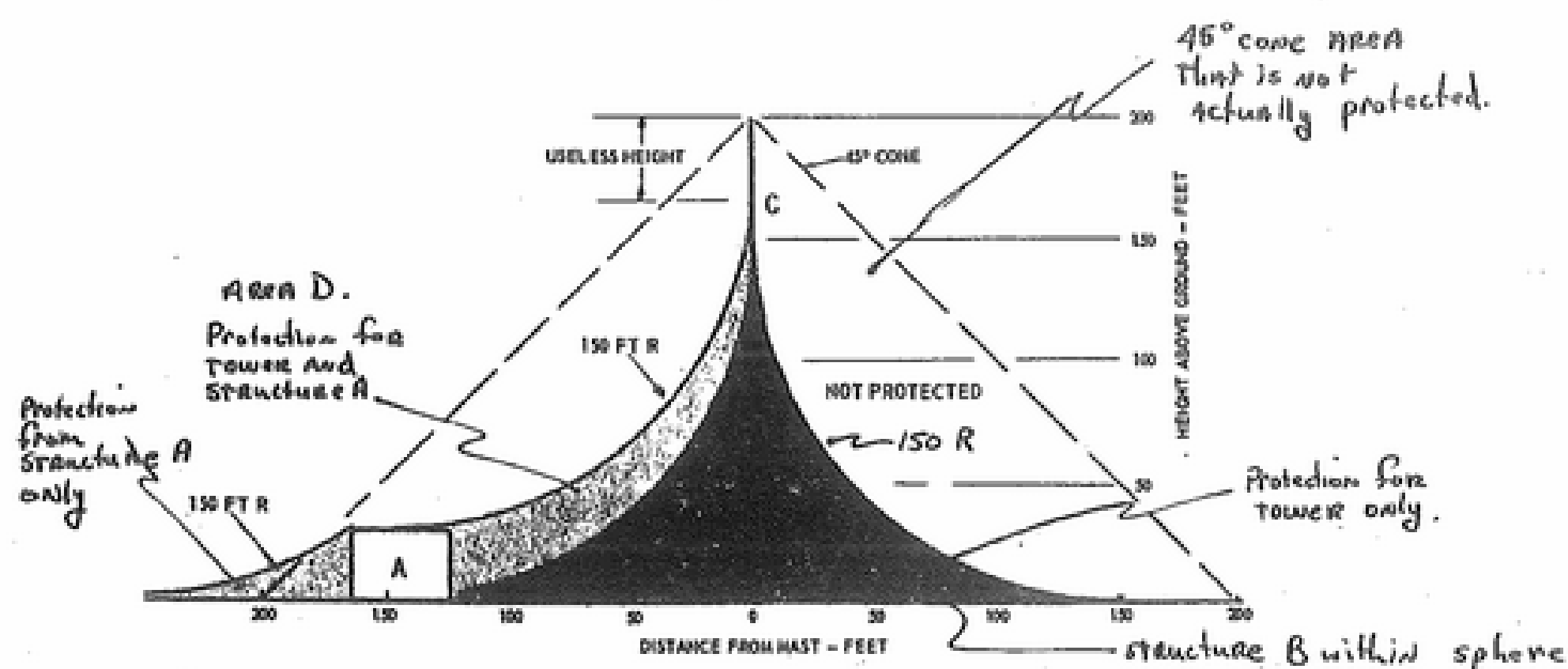
The 25 and 50 ft height values were extrapolated from the 75 and 100 ft values.

The reduction of the protection angle for height means that objects above 100 meters (328 feet) seldom protect lower objects! The protection angle actually goes to zero at 150 feet above the ground. What this means is that an object greater than 100 meters in height can not prevent the occurrence of side flashes outside of the circle above the point where the circle is tangential to the protecting structure.

In fact, protection seems to center on an arc of a circle with a radius of 150 foot tangent to the earth's surface at a point 150 foot from this zero protection angle point. This is a little hard to visualize.

A better way to look at it would be to imagine that a sphere with a 150 foot radius (300 foot diameter) is rolling across the earth and over all objects. Everything that the sphere touches could be directly hit by a lightning stroke, while whatever was untouched by the sphere could not be hit.

Now if you place the sphere tangential to the ground and the 50 foot tower shown in Figure 1, you can see that lightning can strike within the sphere, but not in the shaded area. Again, a side flash would be more likely to strike the top of the tower than to penetrate within the shaded area. If your house resided within the shaded area, you would be protected. If it did not, then it would be susceptible to a lightning stroke to those areas that reside outside of the shaded area. If part of your house were out-



outside of the shaded area, then it would not be protected.

Figure 3 is illustrative 150 foot radius circle. At points below the 150 foot radius curve (tangent to the ground and touching the mast) structures located in the dark shaded area are protected. Structures such as Structure A which is outside the dark shaded area are susceptible to lightning strokes. If Structure A is equipped with lightning protection, then it can become a protecting structure itself. Therefore it will add additional protection distance such as the distance to the left of Structure A.

If the ground should slope near a protecting point, the protective elements are affected. A 150 foot radius curve just clearing the point to be protected indicates the top of the protecting structure. This element must be higher when the structure to be protected is downhill rather than on level ground. Likewise, if the structure is uphill, the protecting element can be lower.

Protection between High Points

The earlier version of NFPA #78 gave no set rule for protection zones between two or more high terminals. Now with the method of analysis now in use, it is possible to define the area protected between two or more high points. Prior to 1980, the 45° linear cone principle was in effect. Now, the view is the 300' sphere method. Using the older method there would have been many areas that would not be protected under the sphere method that supposedly would have been protected under the cone principle.

Figure 4A and 4B illustrate the point. It compares the area of protection for the cone principle and the newer sphere principle. Figure 4A shows a 60 foot high 100 diameter tank between protected by a single overhead grounded wire (Point A). The 45° protection angle is also shown. To provide this angle, the grounded wire height would have to reach to a height of 110 feet. But the application of the 150 foot radius sphere principle shows that the 45° cone would not provide effective protection and in fact there are substantial parts of the building outside of the circle of protection. Since there is no provision in the

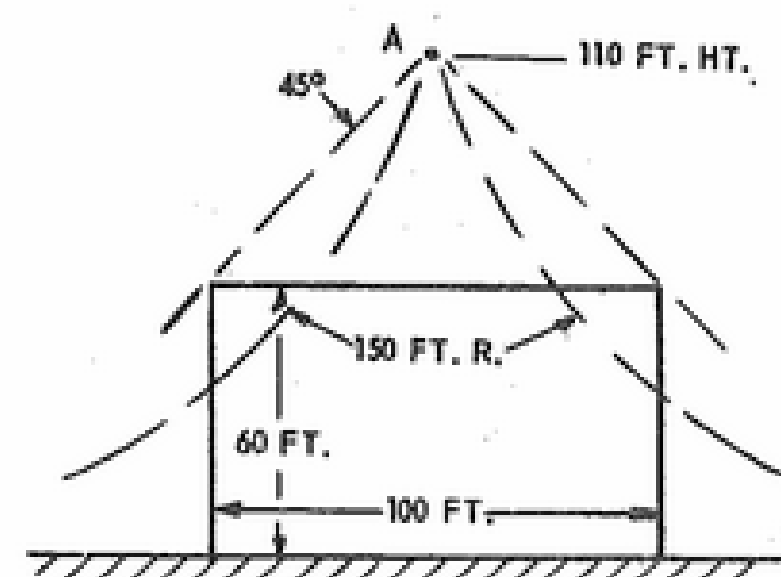


Figure 4A. A tank using the 45° conical shielding method show ineffective protection when compared to the 300 foot diameter sphere method.

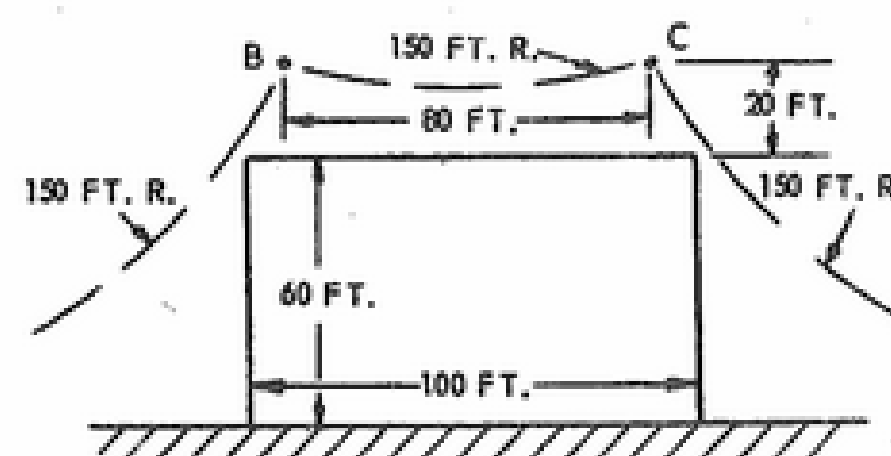


Figure 4B. Effective shielding is acquired by using the 1500 foot radial zone principle and applying the techniques of calculating protection between multiple high points.

in the old Code for figuring protection between multiple high points, it would take a single rod 110 feet high or multiple cones across the top sufficient to keep the structure in the cone of protection.

Under the new code and by reference to Figure 4B, we see two overhead grounded wire (Points B and C) placed only 20 feet above the tank and 10 feet in from the outer edge of the building or tank would provide effective protection. This is, of course, using the 300 foot diameter sphere rule).

In substance, the new principle takes away some area such as in Figure 4A that would not be protected under the 300 foot diameter principle, but

because it defines rules that permit you to interact more actively between multiple high points, it allows greater protection over wider areas with grounded conductors of substantially less height.

Another important factor is that for very tall towers or building, the "cone" of protection is no longer the applicable test. As indicated previously, using a mast that is higher than the critical radius levels will not give more protection. As shown in Table 2, the 175 foot and 200 foot height have negative angles of protection. This means that a protecting conductor at these heights would have to be placed beyond the position of the object to be protected.

How would this apply for example to a TV tower that is 1400 foot high? Well, since the 300 foot diameter sphere would only provide protection below 150 foot, this means that there is an awful lot of the tower above 150 foot than can be hit by lightning. Since the sides of the masts above such critical radius levels are not protected, objects located on the tower (such as repeater antennas or whatnot) could be damaged by heat of a lightning stroke. Why does this not happen as a practical matter? First, the guy wires around most TV antenna towers protect the interior of the tower from being struck because they form a more likely object to be struck since they are several hundred feet away from the tower. If you were to have a 500 foot self supporting tower (no mean feat but let's suppose) then the mast above 150 foot would be susceptible to direct lightning strikes. In this instance, the tower itself would form no protection for side mounted antennas and it is likely that they might receive a direct hit and suffer heat damage as a result. In this instance, the tower could be protected by placing rings or "collars" around the tower at various distances that stick "out" to provide direct stroke protection. These "radially disposed air terminals" keep the sphere of protection from contacting the mast itself. See Figure 5. The stroke is forced to hit the ring or collar which is capable of absorbing the stroke instead of picking upon the poor helpless repeater antenna located close to the tower. Since self supporting towers above 150 foot are not the normal, this is not a problem unless you are using a guying member that is not a conductor or is broken up by insulators. For the average amateur radio installation, this is not a problem.

Damage to Building Structures

Most damage by lightning to buildings is caused by the rapid (and I mean rapid) vaporization of water, either in structural (wooden) members, behind facings or within masonry joints.

It has been suggested that 10 KA or 1400 KV is the ceiling of strokes that are considered non-damaging to this type of construction. Twenty to thirty percent of all strokes are in the range of 10 KA and below. Protection against 10 KA strokes is achieved by the 150 foot radius zone.

How much protection under the "sphere of protection" can the typical amateur tower provide? Well, I am too much in a hurry to calculate it out, so I made a graphical solution. See Figure 6. If your roof top is 20 foot high, then you are safe out to about 37 feet. That is, any part of the roof that is above 20 feet and 37 or more feet from the base of the tower is susceptible. For a ten foot height protection zone, you could go clear out to about 55 feet. This would be actually 55 feet on either side of the tower so that if you mounted the tower in the middle of the typical residential lot, that if it were 100 foot wide, you would just about protect it down to about the 10 foot level with the typical 50 foot tower. This is not taking into account the antenna. Since the antenna extends out from the tower, it might change the 150 radius by moving it outward. However, since it

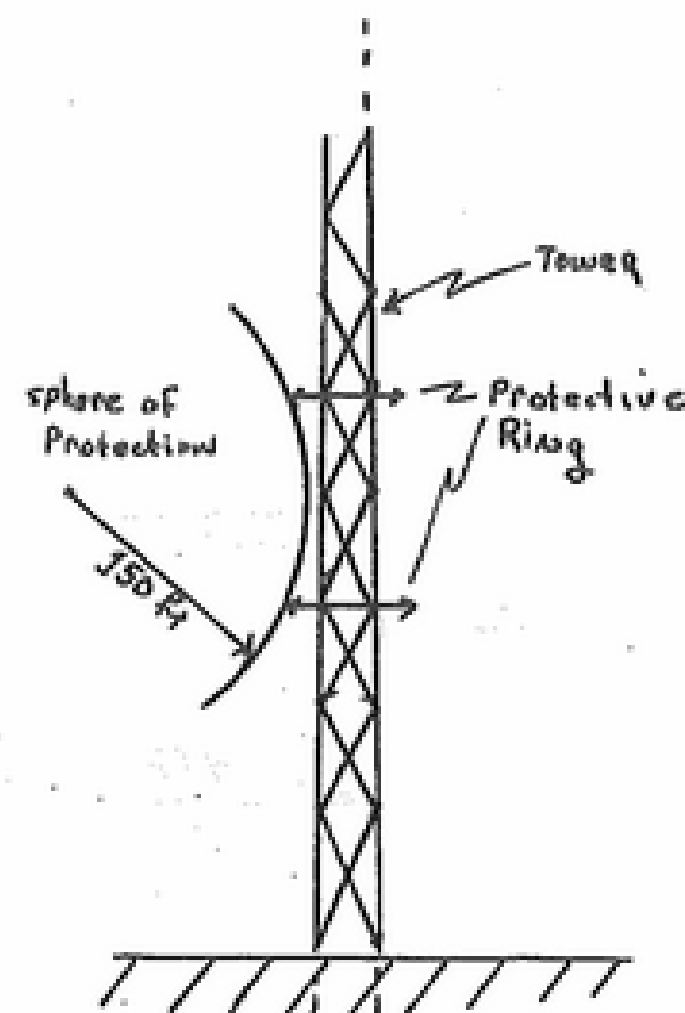


Figure 5. For towers greater than 150 foot, and are self supporting or using nonconducting guy wires, the installation of protective "spike" rings keep the sphere of protection from touching the tower and consequently keep strokes away from side mounted antennas.

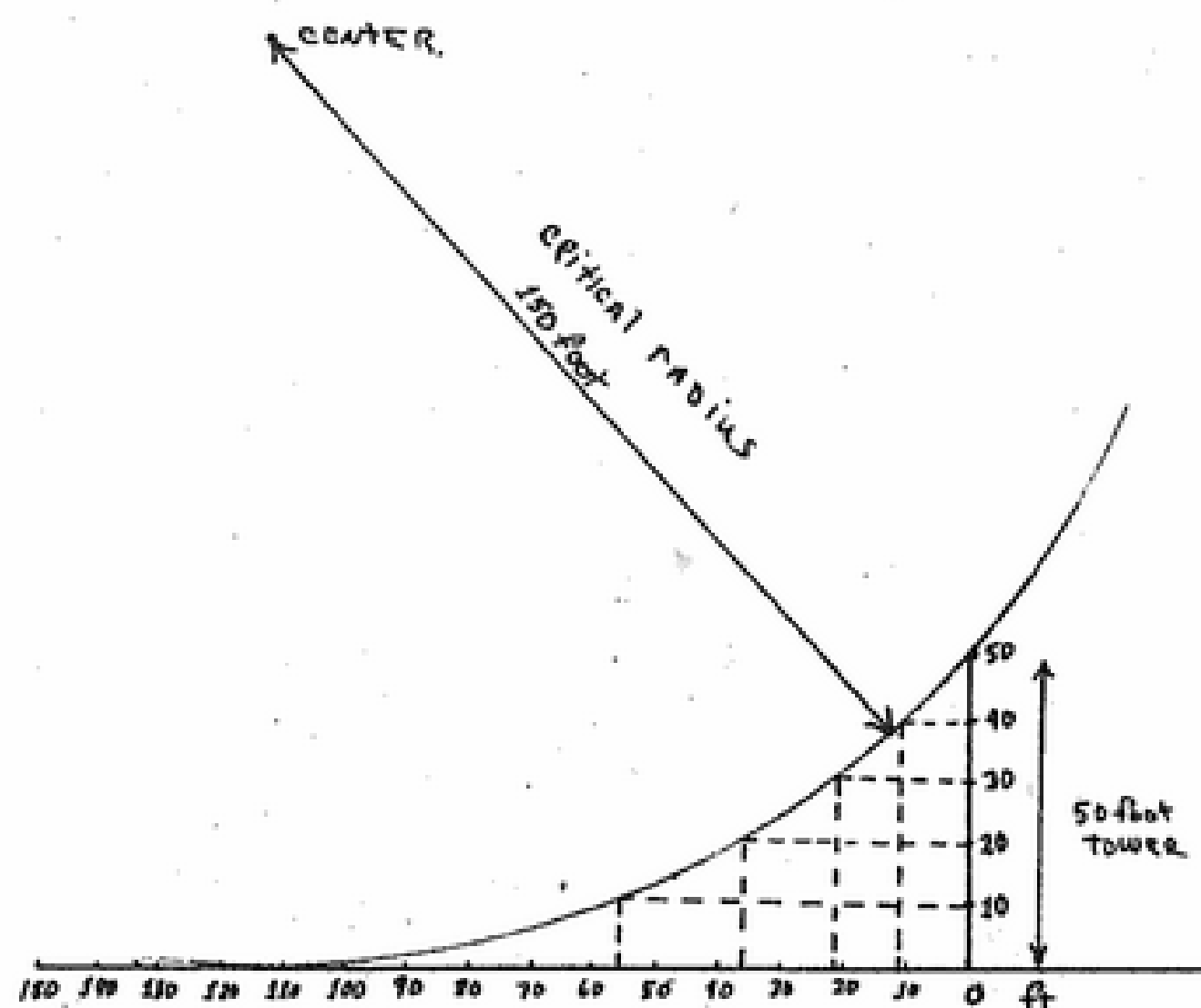


Figure 6. Graphical Representation of Sphere of Protection around a typical 50 foot high amateur radio tower. 20 foot is protected out to about 37 foot.

is not designed to take a direct lightning stroke, it should not be included within tower structure. This brings up the point of proper ground of the antenna during lightning storms. It does no good to go to the trouble of availing yourself of the Sphere of protection if you let the fire come right down the feed line. Install lightning arrestors outside where the cable comes into the house and take it directly to ground by the most direct route. Put a couple of turns in the coax before bringing it into the house, but after the lightning arrestor. Since a lightning stroke is a pulse function and composed of lots of high frequencies, even this little inductance will help keep the high frequency components out of the house. To protect people, base your calculations on a 50 foot critical radius protection zone and keep the people under it. Side flashes to the power line are not uncommon. It might not be a bad idea to pull the plug on the equipment during an electrical storm. Better a little inconvenience than a crispy critter IC-720. I can testify from experience of rebuilding one that took it in the electrical shorts. It aint fun.

Micheal Salem N5MS

Come to OKC early Friday, bring the whole family, and enjoy all that Oklahoma City offers. On Saturday while you are hamming and computing the family can sample some of the following.

- The National Cowboy Hall of Fame belongs at the top of your OKC itinerary. The worlds largest museum of Western history and art awaits you with priceless paintings, sculpture and memorabilia of the West. It sets the mood to "play cowboy" for a day.

- Head for Frontier City amusement park, and roam Main Street in a recreated Western town - with shops, saloons, dancehall entertainers and rides.

- Browse some of the biggest Western stores you'll ever see.

- Saddle up for an afternoon of horseback riding.

- Kick up your heels at a rollicking collection of world-class Western nightspots.

- Enterprise Square, USA on Okla Christian College campus is the sensational brainchild of experts in educational TV, theme parks and entertainment - with flashing lights, animation, sound effects and video screens, Enterprise Square is full of facts and fun.

- Catch the refreshing, rushing roar of White Water, one of America's largest water recreation parks.

- Visit the Kirkpartick Center and marvel at Omniplex - the largest hands-on science museum in the Southwest -- the Air Space Museum, the Kirkpatrick Planetarium, the International Photography Hall of Fame and outstanding art galleries.

- Tour one-of-a-kind attractions like the Firefighters Museum, National Softball Hall of Fame and 45th Infantry Museum.

- Meet nearly 500 species at the renowned Oklahoma City Zoo - recognized as one of the top ten zoos in the country.

- Take time to see rapidly changing downtown as extensive redevelopment continues.

- Schedule an afternoon in Historical Guthrie, just 30 minutes from downtown OKC. Oklahoma's first capital offers a taste of turn-of-the-century, boomtown grandeur.

- After dark your choices run the gamut from theatre and stage comedy to the HH Buffet & Dance with music from rock to jazz, to the down-home sounds of Oklahoma Opry.

- Over 1500 restaurants offer a colossal selection of menu, atmosphere and price range. And your hotel or motel stay will be a vacation in itself.

The programs weren't back from the printer when we had to go to press on this issue but they are all set and will please everyone.

PRINTED, UP TO DATE PROGRAMS WITH DETAILS OF THE

TYPE OF PROGRAM WILL BE PRINTED NEXT MONTH AND THERE WILL BE PLENTY OF COPIES AVAILABLE AT THE

REGISTRATION DESK.

SOME HIGH-LIGHTS*

Ray Clark will bring us up to date on SMIRK. Brad Rehm will discuss Evaluation of Ham Radio Equipment. George Adkins will take us on a DXpedition to Micronesia. Cox Cable Co. will help on cable TVI. Basic Digital Transmission will clear up modems, getting on the air etc..

There will be programs for those just starting, wanting to get started in computers and for those who have been around a while.

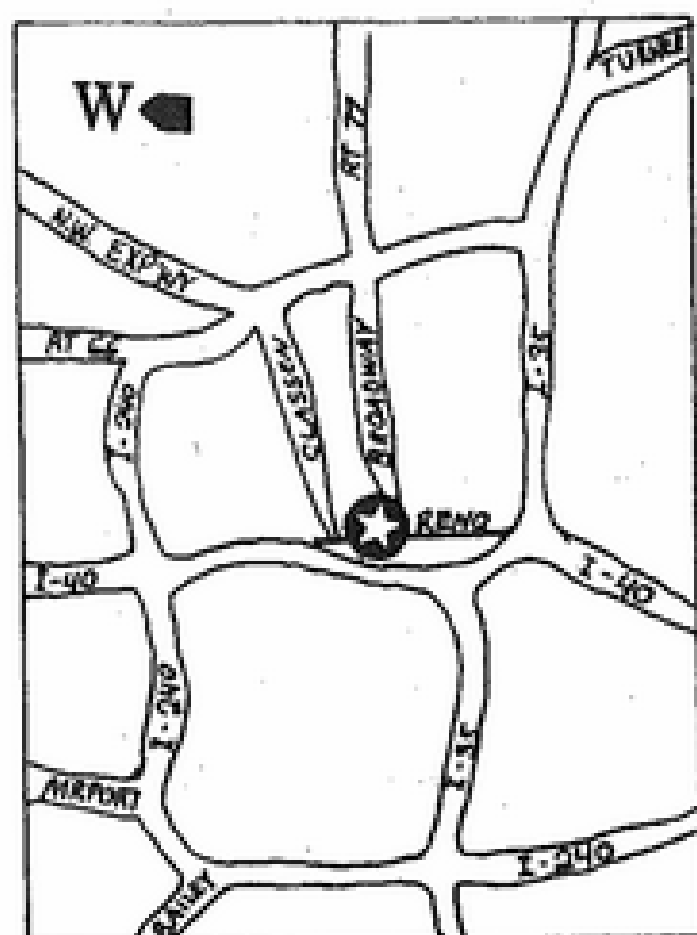
Annual meetings of The Okla Repeater Society, CORA, MARS, State CD people, and a host of others as well as a special FCC representative will be here to answer your questions and the ARRL Forum will bring us up to date on what has, is and probably will happen in Amateur Radio.

The ladies haven't been forgotten. Two full days of programs have been arranged. Join the JAZZ-ER-cise group if you care to. Microwave Magic with lots of door prizes will help you cook easier. There will even be a Tupperware party.

Saturday at noon will feature a brown bag style show - no you don't wear a brown bag - you bring it and go to Kerr Center a couple of blocks from the MYRIAD to attend a style show presented by the largest store in OKC. After "lunch" there will be a choice of BINGO or a bus trip to shopping malls. CPR training, save someone you love, will be conducted by the Red Cross at 3 pm.

On Sunday buy a ticket to the QCWA breakfast and find out what they talk about. Then at 9 am there will be a program to help the whole family understand computers, then BINGO. In case you carry away a lot of prizes a Self protection class will be held.

The members of Mid-Oklahoma Repeater, Inc. will host the Hospitality Room on the second floor of the MYRIAD. Coffe and snacks will be there to make your stay more enjoyable...



HOW TO GET TO HAM HOLIDAY

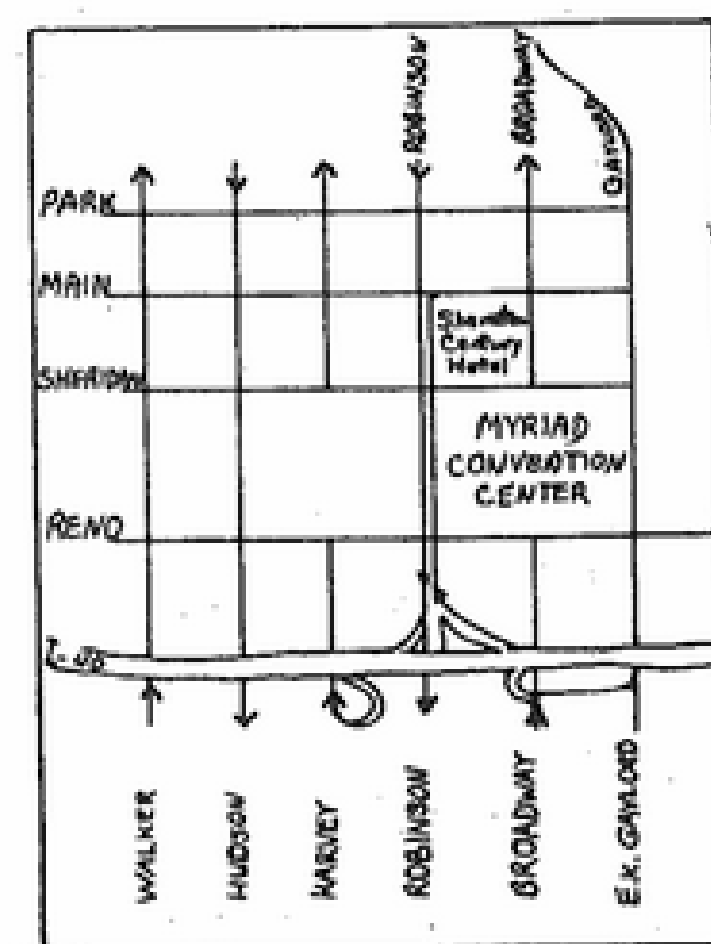
FROM THE EAST - Downtown Okla City will be on your right if you are on I-40. Take the Robinson off-ramp, turn right at the light for two blocks.

FROM THE WEST - Downtown will be on your left. Take the Harvey off-ramp, turn left under the Interstate to Reno, then right for a block.

FROM THE NORTH - From I-35 take I-40 WEST, then see FROM EAST.

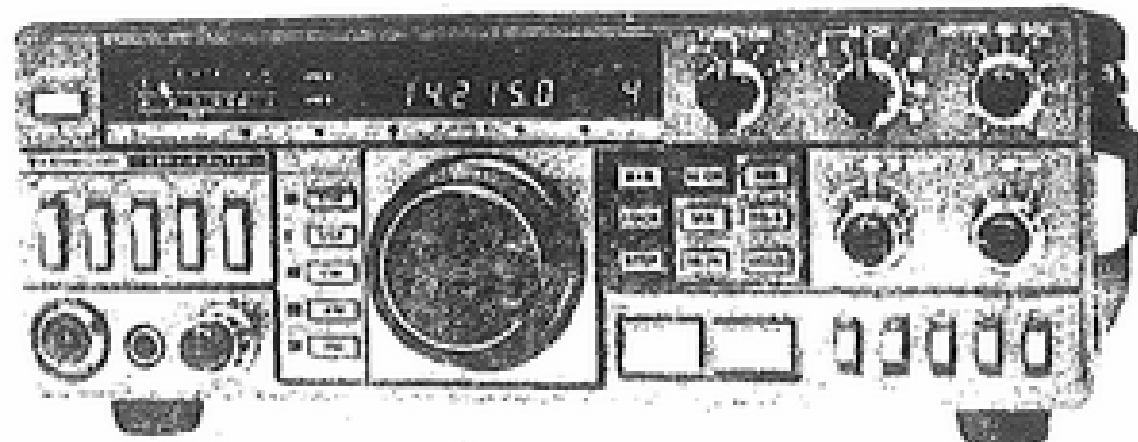
FROM THE SOUTH - From I-35 take I-40 WEST, then see FROM EAST.

Need more help? - TALKIN IS 146.34/94



- **HAM HOLIDAY '83**
- **COMPUTERFEST**
- **ARRL STATE CONVENTION**

**JULY
29,30,31**



**MUST BE
PRESENT
FOR ALL
AWARDS***

**GRAND AWARD - \$1200 Value
KENWOOD TS 430 S & Power supply**

PRE-REGISTRATION: \$6.00 with attached form. All envelopes must be postmarked not later than July 17, 1983 to be eligible for the pre-registration awards. Registration packet with badges and tickets will be held at the door. No limit on number of tickets. No refunds or confirmations. Winner need not be present for this award only.

ADMISSION: \$6.00 pre-registered; \$7:00 at the door. (Same price as last year.) This price is for everyone attending - visitors, wives and teenagers - licensed or not. Children age 12 or under admitted free with parent, but are not eligible for awards. Badges must be worn as proof of registration for entry into any area, including exhibit hall, flea market, coffee lounge and banquet/dance.

FACILITIES: Ham Holiday activities, except buffet/dance, will take place in the northwest area of the Myriad Convention Center in downtown Oklahoma City (same as last year). All events on Friday will be held on the main floor while commercial exhibits are being set up. Security has been arranged to protect the area at night. Upstairs meeting rooms will be open all day Saturday for demonstrations, forums, and ladies programs. The Buffet/Dance Saturday night will be held at Quality Inn, Reno at I-40, a few blocks east of the Myriad.

PROGRAMS: Something to interest everyone. There will be the usual displays, forums and seminars and amateur oriented computer programs from beginning to advanced levels. There will be programs on DX, antennas, satellites, FM, alternate energy sources and many others. Special groups will hold meetings: ARRL, Night Owls, Oklahoma Repeater Society, SMIRK, MARS and CORA, to name a few. There will be QLF and QRM programs. The ladies will have plenty of interesting things to do.

FLEA MARKET: (Non-commercial only) Every pre-registrant may buy one table for \$1.00. Additional tables listed on pre-registration form. The 30,000 sq. ft. area is indoors and airconditioned, with easy-access loading doors on Sheridan St. for setting up.

ACCOMODATIONS: The Sheraton Hotel, across the street, and the Quality Inn have offered reduced rates. Tell them you deserve the Ham Holiday rate.

AWARD POLICY: The winner and/or his ticket must be present to claim any award except the pre-registration award. You may sign your ticket for someone else to hold for you. Unclaimed registrations will not be deposited for the main drawing - only for the pre-registration drawing.

PARKING: Ample underground parking is available under the Myriad at their regular rates. In addition, there is substantial on-street and off-street parking close by.

See Other Side

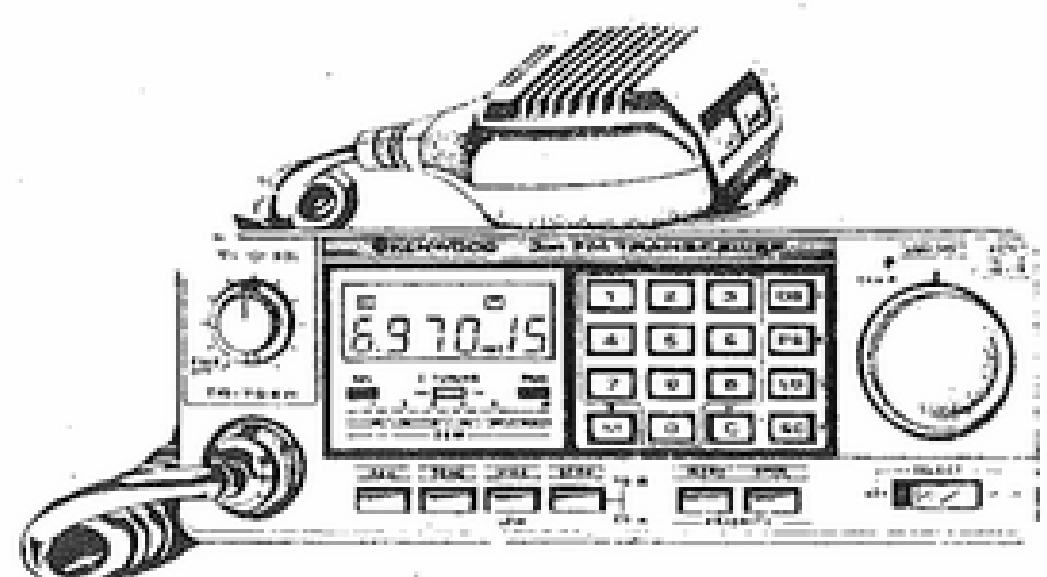
Preregistration Award

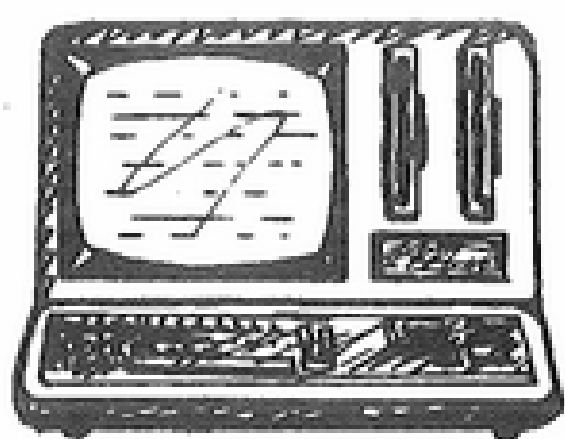
TAKE YOUR CHOICE

TRS-80 COLOR COMPUTER

OR

KENWOOD TR 7950





Computerfest



H H '83



State Convention

CENTRAL OKLAHOMA RADIO AMATEURS

proudly invite everyone to attend
our *bigger and better*

HAM HOLIDAY '83

JULY 29,30,31

Myriad Convention Center
Downtown Oklahoma City

See Other Side

PRE-REGISTRATION DEADLINE: Postmarked by July 17,
to be eligible for Pre-registration award

Registration packet will be held at the door. Please do not request refunds or confirmations.

USE THIS FORM TO PRE-REGISTER

You may buy as many registrations as you desire at \$6.00 each. All participants and all guests over age 12 will be required to register to enter any area. Tickets at the door are more expensive, so pre-register the whole family!

Please pre-register _____ people (over 12) @ \$6.00 ea \$ _____

Saturday Night Buffet & Dance _____ people @ \$11.00 ea Door Awards \$ _____

Dance ONLY Saturday Night _____ SINGLE @ \$3.00 _____ COUPLE @ \$5.00 \$ _____

ONE Flea Market Table @ \$1.00 (Strictly Non-commercial) \$ _____

_____ Additional Flea Market Tables @ \$4.00 \$ _____

NOTE: Flea market tables not reserved on this form will be sold
to door registrants @ \$5.00 ea, subject to availability.

Reserve my table(s) for SATURDAY SUNDAY (Circle one or both)
Total amount enclosed \$ _____

Name _____ Call _____

Street/Box _____ Apt # _____

City _____ State _____ ZIP _____

Names of additional registrants, paid for above.

_____ Call _____

_____ Call _____

_____ Call _____

PLEASE INDICATE YOUR INTEREST IN: (How many?)
QCWA Breakfast, Downtown Holiday Inn Everyone Welcome YES NO
LADIES Saturday Luncheon & Fashion Show YES NO
Bus tour to shopping center, Walking Tour of Downtown YES NO
Make check/money order (No Cash Please) to CORA Ham Holiday and mail to:
CORA, P.O. Box 14268, Oklahoma City OK 73113 before July 17, 1983

HAMS

PROGRAM

LADIES

REPEATERS, DIGITAL COMMUNICATIONS, COMPUTERS, DX, ARRL FORUM --YOU NAME IT !

We listened to your suggestions from the last few years and have lots for you this year.

SATURDAY

FLEAMARKET & EXHIBITORS open at 9:00

- 9:30 Okla CATV Radiation Committee - OR - C-P-R..Learn from the Red Cross
- 10:30 DX..where are the rare ones? DXpedition REPEATER SOCIETY..Take your choice.
- 11:30 LUNCH..The ladies are "brown bagging" to style show. You can join them or hit the eating places.
- 1 PM DIGITAL COMMUNICATIONS..Brian Wood, ARRL Technical program to update you.
- 2 PM SMIRK - OR - Annual CORA meeting
- 3 PM ARRL FORUM..Art Roberts, W1GOM and Ray Wangler, West Gulf Director.
- 4 PM FCC - TODAY & TOMORROW + Sandra Morris
- 7 PM BUFFET/BANQUET..Quality Inn, Reno & Eastern.
- 9 PM DANCE..Quality Inn, Reno & Eastern

SUNDAY

- 8 AM QCWA BREAKFAST..Buy ticket Saturday.
- 9:30 MARS Meetings CIVIL DEFENSE
- 10:30 EQUIPMENT EVALUATION

There will be fully detailed programs available at the registration desk to give you all the details. Some changes may be required.

✓ The FCC has been giving new Novices verbal permission to operate! We were assured that this is only a temporary matter. The delays were created by a form shortage -- the Commission ran out of the little slips of paper that amateur licenses are printed on.

This applies to all amateurs waiting for new station call signs. If you or any of your friends have been waiting for their new licenses (or call signs) for five or more weeks, call the Gettysburg FCC office at 717-337-1212. Remember that this is only a temporary opportunity.

REMEMBER THE FINE LADIES PROGRAMS LAST YEAR? Even a finer lineup of Lady Centered shows are on tap this year. The feature will be a "Brown Bag" Style Show in the park two blocks north of the MYRIAD

SATURDAY

- 8 AM TUPPERWARE-TUPPERWARE.. A party for the lady of the house.
- 9 AM JAZZ-ER-CISE.. Don't miss this great show.
- 10-12 MICRO-WAVE MAGIC..Door Prizes! Two full hours of demonstrations.
- 12 NOON STYLE SHOW..Presented by the largest department store in OKC. We will be at the Fountains and Amphitheatre of Kerr Park. "LUNCH"? Bring your Brown Bag.
- 1:30 BINGO at the MYRIAD --OR-- Catch bus for Crossroads or Quail Creek shopping malls.
- 3:PM C - P - R ..Red Cross Training.
- 7 PM BUFFET/BANQUET..Quality Inn, Reno & Eastern.
- 9 PM DANCE..Quality INN, Reno & Eastern

SUNDAY

- 8 AM QCWA BREAKFAST..Buy ticket Saturday.
- 9 AM COMPUTERS FOR THE FAMILY - OR - BINGO..Both at the MYRIAD.
- 10 AM SELF PROTECTION..For the home or street.
- The members of Mid-Oklahoma Repeater, Inc. will host the hospitality room on second floor of the MYRIAD where all but the Style Show will be held. Coffee and snacks will be there to make your stay more enjoyable.....

☼☼ HAM HORRORSCOPE ☼☼

☼ Cancer June 21-July 22 You are practical and persistent, dogmatic. Most people think you are stubborn. You keep on calling DX stations long after they have gone QRT. But this sometimes works and they hear you when they come on the next day.

SEE YOU AT HAM HOLIDAY/COMPUTERFEST
ARRL STATE CONVENTION
JULY 29, 30, 31



GENE NAILON - K5DLE
Avionics Manager

OFFICE 405-681-2331
HOME 405-341-8289

WANTS: AVIONICS TECHNICIANS FOR REPAIR AND INSTALLATION OF AVIONICS EQUIPMENT (NAV/COM, PULSE FLIGHT CONTROL) IN IN GENERAL AVIATION AIRCRAFT.

EXPERIENCE IN GENERAL AVIATION AVIONICS PREFERRED - - BUT NOT REQUIRED

CIMARRON A.R.A.

EDITOR: Jack Day, N5FMQ

A planning meeting was held Monday, June 20th for the Field Day to be held the last weekend in June. Everything is beginning to come together and the excitement(dread) is beginning to mount apace. Plans were made to circumvent the mosquitos, snake-bite, the inevitable rain, and coffee overdose...so success is assured? (sorry, I meant !) Denny Panton, WB5ECM and his XYL Nadine N5FMH hath prepared for us a place...a knob with only two trees and a view. Walt WD9BIT has promised to bring his bug zapper, and Major KI5P has promised to take the mid-watch...what more could a man ask?

Leo Peil, who recently up-graded to an Advanced ticket, has contributed a five band vertical for the occasion. Leo has decided to keep his two by three call KA5DUO. "Do Unto Others" is well known on the phone bands and Leo wants to keep it that way.

I made it to Belize/Honduras and back but was unable to take any radio equipment with me. Politically speaking this is not a good time to arrange these things. I want to thank David Harms HR/DHX in Tegucigalpa for his courtesy in helping me keep in touch.

Fred Simpson N5FUO and Ruth, his XYL, have the senior tickets in our group. Fred was working in a music store and repairing radios when he got his first call W5CFO, in 1932. Ruth's first ticket W5HLM is WWII vintage. Her call now is N5FUR. I don't think CARA could function without these two, and between them they have the most complete radio station imaginable. A Commodore Vic 20 is the latest addition.

Major Bailey KI5P is helping a lot of us old timers into the age of solid state electronics. He is the whiz kid of our group and Brad Bailey, his ten year old son, promises to be a chip off the old board! Brad was the first student of the present Novice class to pass his code test and is looking forward to getting on the air. Mother DeDe Bailey N5FUN, is going to have to really work to keep ahead.

I'm afraid Major's expertise is doomed to fail in the case of my XYL Betty, who is also in the Novice class. the code she digs but when she hears "ohms" there's a certain resistance there. She says that if God had wanted her to be a HAM He wouldn't have given her five toes on each foot!

We've had some good weather nets lately with GPARC, Woodward...and our own two meter Thursday nite net is passing a little t/c also. It's good to see the YL's shouldering the NCS duties along with the OM. Congratulations Nadine on being the first YL NCS.

73's from CARA! May you never have to spell Tegucigalpa on the air!

EASY TO USE DUAL TONE CONTROLLER

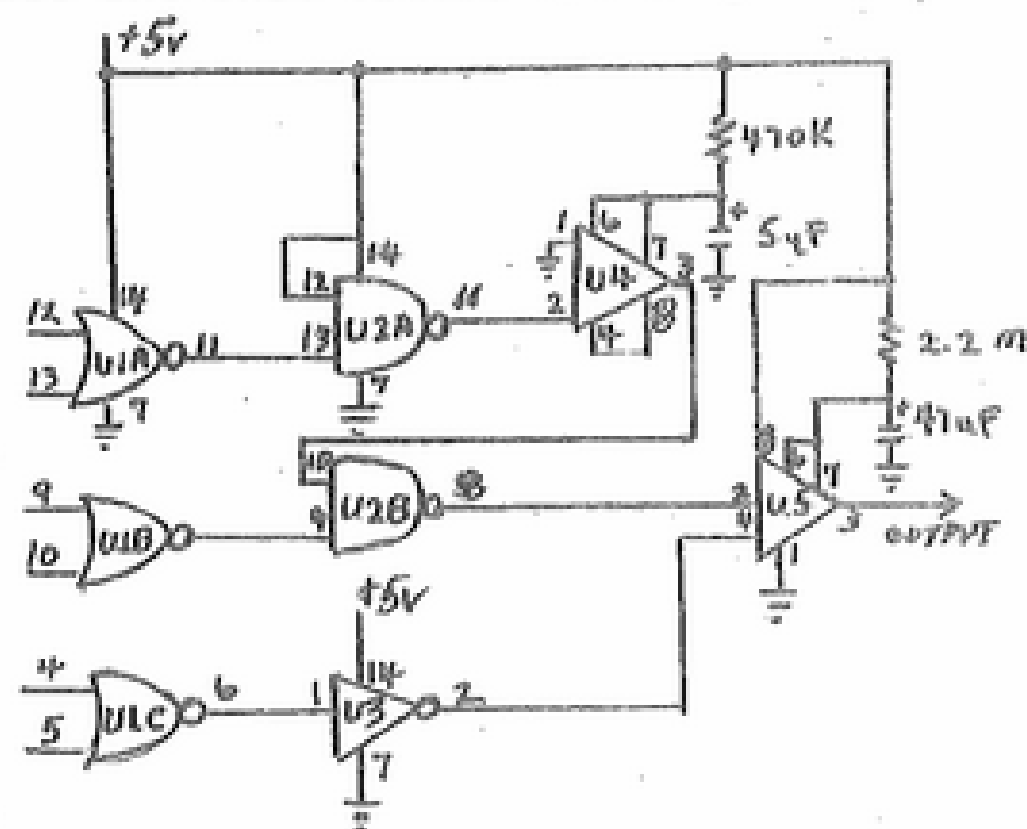
After trying several approaches to an auto-patch controller, I was left with a few more gray hairs and little success. How to overcome these problems?

First of all, a system was needed which was both simple and reliable. Please note that these two factors usually go hand in hand. Simple constitutes a minimum of components, reliable means the thing won't get you out of bed at two o'clock in the morning to shut it off because it locked up.

The following circuit is the culmination of these ideas. Let's run through the maze quickly and I'll explain it's operation.

TT audio is fed to the input of 5X-567 decoders, the 567 outputs are connected to the inputs of 7402 nor gates. To elaborate, if a star is to be used for the first digit of an autopatch up-code, one 567 would be tuned to 941 Hz another to 1209 Hz. The outputs of these decoders connect to the inputs of U1a. When both inputs of the nor gate are low the output goes high. The output of U1a connects to the input of U2a, a 7400 nand gate. OK, When both inputs of a nand gate are high, the output goes low. The output of U2a connects to the trigger of U4, a

555 timer set up as a five second one shot. Beginning to get the picture? The 555 output which is high goes to the input of U2b. Remember this. Now for the second digit of our access code. Two more decoders are connected to the input of U1b. When the output of U1b goes high, the output of U2b goes low. This triggers U5, another 555 one shot timer. The output of this



- U1- 7402
U2- 7400
U3- 7404
U4- NE-555
U5- ' ' '

timer, in this case three minutes, is used to drive a keying transistor relay etc.

Now that we've got the patch up and our call made, how does it shut off?

Well, if the thing stays up over three minutes, it times out, or if the down code is received, it releases the patch. Either way it resets the patch. Tricky, huh!

Down codes are usually one digit. In our case a #. Once again the decoder outputs are connected to the inputs of U1c. When both decoder outputs are low, U1c goes high. Now there's not much we can do with the output in a high state so we connect U1c's output to the input of U3 through a hex inverter. Now whenever U1c is high, U3 is low and vice-versa. U3 is connected to the reset pin of U5. When the reset goes low, that's just what the autopatch does, it goes off.

This is an extremely easy circuit to work with, and may be used for other repeater control duties besides an autopatch.

Don't forget that if the second digit of the up sequence isn't completed within five seconds, the process starts all over. This really makes things nice, and life much less complicated!

73's and try it you'll like it. This is the circuit being used on KI5P/R and it works like a champ.

Major

FOR SALE: Drake HW-7, SWR & wattmeter \$80.00.
2 meter ICOM IC22s with autopatch mike
\$135.00. Henry Radio 2KD-5 Linear amp \$695.00.
Heath Cantenna HN-31 \$15.00. Art, W5PTM, (405)
732-8401.

STOLEN: ICOM IC-R70 SW receiver serial number 18502375 and Kenwood R-1000 SW receiver serial number 1080058. If you have any information concerning these radios please contact the Midwest City Police Dept., refer to case no. 83-4853, or me, Mel Pratt 737-0373.

FOR SALE: Drake B-Line twins with power supply and speaker. \$375.00. George, W5NTL, 789-4070

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MINUTES OF JUNE MEETING

Meeting was called to order at 10 A.M. by president Paul, WA5HTL, with 15 members and guests present. Treasurer Ellard, W5KE, reported his experience in searching for a better deal for the checking account. No decisions have been made yet.

Charlie, WA5JGU, brought a tube checker and a Motorola Twin V, 450 mobile rig, donated by Jeff, WB5GWB, to be auctioned off. W5KE got the tube checker. Fred, KA5CXW, got the rig.

The Amateur Radio Technique (ART) Workshop was cancelled to free up people for working on the Red Cross Station antennas, including installing one in the van. Meeting adjourned at 10:26 A.M. Joe, K5JB, Sec'y

ERRATA

Twice, in last month's C&E, I erred on the amateur's call who was working the Texas Gulf Severe Storm Warning Net. The correct name and call is Mark, N5EIH. Sorry Mark.

A PORTABLE OPERATION STORY

During the last month, I haven't had much of an opportunity to do a lot of radioing, because of business travel...Bandera TX, (it rained) Norfolk VA, (rained there, too) and Washington D.C., (darned if it didn't rain there too!). The only trip worthy of note was the one to Washington D.C. That was fun because Robby, AA00, was there at the same time and we had a dandy dinner with Hoss, WA5ZAI, and enjoyed some good rag-time music.

During the course of the evening with Hoss, he related an old story of portable operation that gave me an idea for this month's column.

Once upon a time, there was an Amateur radio operator who used to enjoy all the travel brought on by his job. He (that's me) used to carry all sorts of HF radio gear around and operate from hotel rooms. In those days, airline travel was also something special and one felt rather safe checking bags and expecting them to be at the destination when he arrived. Thus, it was practical to check the trivial stuff like underwear and shaving kits and carry the radio gear aboard the craft. I could even carry a dis-assembled tank whip with a hanger hook to be hung in the closet aboard the airplane. Well, for various reasons, it is much more difficult to travel in such luxury (I now travel steerage class and closets are scarce) so I have to rely on memory for these stories.

Last month's article by N5MS indicated the lack of interest in this type of operation (no one else in the hotel was on HF) so there probably isn't much interest in my babbling about it, but here it is anyway.

One of the most memorable operations on HF from a motel concerned a contact I made with Hoss one Saturday morning from Bethesda MD, when he was living in Dayton OH. I just checked the map and it appears those two towns are about 390 miles apart. We had a schedule on 40 meters that morning and Hoss was calling for me and I could hear him fine but he couldn't seem to hear me. We were on phone and in desperation, I whistled out a call for him and he finally picked me up. With the crude CW, I was able to make a schedule with him for later in the day when we thought propagation would be a little better. We signed off to pick it up later, but never did make satisfactory contact.

The equipment I was using was a kit which I

finished building in the hotel room. (I wasn't that sure of myself, I just like to take chances!) The stay in Bethesda was for three weeks and before I left home I had started assembling a kit made by American States Electronics. It was a 40 meter SSB walkie talkie with a variable crystal oscillator (VXO) for frequency control. The receiver section seemed to be working fine but I found the crystal I had selected was smack dab in the middle of a foreign broadcast station and I knew operation would be hopeless. I had tried to contact strong stations (other than the FBC) and had failed completely to get anybody's attention. I called International Crystal and explained my plight and my immediate need for some Experimenter grade (EX) crystals. Now, they don't ordinarily give those things a whole lot of priority, particularly without cash up-front, but in this case they fired them off in the mail before the end of the day because I got them the next day in the mail!

Once in the clear, frequency-wise, I set out in earnest to make some contacts. I had feared that the whip antenna designed for the rig would be woefully inadequate so I had raided the nearest electronics store for the cheapest antenna wire I could find (unvarnished magnet wire) and strung up an inverted vee with the apex at my motel room window. I was still unable to get anyone to answer.

Because of the circumstances, my test equipment was pretty primitive. I had an RF probe and portable FET voltmeter for tuning the kit so I measured the voltage and calculated the output to be around three watts, which should have been plenty to talk to someone when band conditions were good.

One afternoon, I noticed an Amateur radio vertical antenna fastened to the balcony railing of an apartment house so I counted the floors and windows and set out that evening to find the owner. The first door I tried was the right one. After the surprised Amateur was convinced I really was who I said I was, he agreed to listen for me on 40 meters. I hot-footed it to my room and gave him a call to which he responded with a five-by-nine signal report. Of course, he was only a couple of blocks away, but I now knew that the transmitter was working.

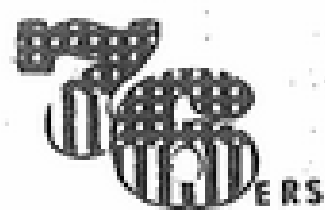
The next opportunity to try the thing resulted in the contact with Hoss. After that, I put the thing away puzzled because it wasn't working like I thought it should.

When I returned home, I found what was wrong when I put it on a spectrum analyzer. Output was three watts, but it was on the local oscillator frequency, 455 kHz displaced from the desired transmitting frequency. (Fortunately, it was not modulated and I wasn't found.) The spectrum analyzer showed a little modulated signal on the desired transmitting frequency. As I remember, it was -50 dB from the 3 Watt signal, which would make it around 30 microwatts!

The problem was caused by a solder bridge between two pins of the IC used as a balanced modulator. After that was fixed, the little radio had a booming voice and wasn't any fun anymore!

Now we come to the point where I explain why I looked up the distance between Bethesda MD and Dayton OH. Dividing 390 miles by 50 microwatts gives 7.8 miles per microwatt, or 7,800,000 miles per watt. How about that! I read in one of the Amateur radio periodicals recently that they give certificates for that kind of tomfoolery, and I only thought I had screwed up!

The real formula for that kind of performance is twofold: 1. A seasoned amateur who knows how to pull 'em out of the noise (that's Hoss); and, 2. A seasoned Amateur who has a lot of luck! (that's me). Joe, K5JB



BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

JUNE MINUTES OF 76ers

Meeting called to order by Jim Hopkins N5BFD at 7:15.
Secretary Report: The May minutes were approved as published in the C&E.

Treasurer Report: Still no treasurer report. Tom Webb, the new treasurer, has not received the books yet; however, if you have dues you need to pay or if you want to sign up for the 76ers, you can send them to Tom Webb WA9AFM, 3021 Big Oak, Midwest City, Okla. 73110.

Repeater Report: We are sorry to report that at this time the repeater is down with a bad power supply. Dick Baker is going to pick it up and bring it to his house to try to get it going. If you have a power supply that will handle about 30 amps and would like to loan or donate it, let Dick know.

Sick Bay: Joe Ramage WB5TDW is confined to South Community Hospital. We hope by the time you read this he will be out and doing much better. Joe is one of our former secretaries in the club.

Old Business: Programs for Ham Holiday 1983. Ted V. WD5JNT, our program chairman, is doing a fine job lining up programs. Ted gave us a rundown on what all is set up and we worked out some schedules with Mac K2GKK on the facilities for our programs. Ted also enlisted some "volunteers" for hosts to help the speakers in getting their programs set up at HH83. Sounds like we will have some good programs this year.

The schedule of programs will be printed elsewhere in this month's issue of C&E. Hosts for programs will be:

Jim N5BFD
Jerry N5AUH
Bruce KC5CR
Dennis WD5GTM
Ted WD5JNT

Break was called after programs report. After break:
Field Day Committee Report: By the time you read this, FD83 will be history and hopefully all the well-laid plans of Dick Baker will have gotten us a first place in our class. Things do seem to be a little more difficult this year due to inactivity in the club, however, we will try to do with what we have.

Motion was made to adjourn. Motion carried.

Jerry N5AUH, Secretary

Hope everyone had fun on Field Day weekend for 1983. The 76ers had their usual station setup at the Oklahoma City Community College (formerly South Oklahoma City Junior College and again did the "last minute setup" routine, which allows operation of for the entire twenty-seven hours of the contest. The boss this year was again WB5TMW, who got the entire operation off the ground (literally).

We again operated in the 2A class, with emergency power and low power multipliers. In addition, we had the good fortune to use the call sign K5OK, courtesy of Cecil Shelton. The tents were courtesy of the U.S. Air Force and Tom Webb, WA9AFM. In addition, Tom was in charge of public relations, and was able to get television stations KWTU and KTVY out to cover the operation. Several lucky ops got their big chance to be T.V. stars when our operation aired on Saturday and Sunday evening news, courtesy of channels nine and four.

There was some problems in getting the station operations started at 1800Z on the nose, (as a result of unpreparedness) but soon the phone, cw, and novice tents were all up and running. After getting the radios on the air, the beam antennas and towers were erected. This, of course, was a noticeable improvement over the vertical antennas that were used beforehand. Afterward, the tents were put up courtesy of Captain Butts and a few other helpers. All was accomplished within an hour.

The contacts seemed to come a little slower than the year before, but operations were quite smooth. The c.w. tent was definitely not as sharp as from the previous year, primarily because of the departure of KF1V back to the east coast. Anyone who saw CORA Collector & Emitter + JULY 1983

him operate last year will understand what I'm talking about. Anyway, several other high speed c.w. types were recruited and the loss was not felt too badly. In addition, there were several hours early Sunday morning when c.w. operators were not available. However, despite these shortcomings, around 550 c.w. contacts were made. Special commendations go to N5PS, N5OK, and especially K5HTF; without whose help a directional antenna would not have been possible.

The phone tent operations were faster, with Jerry N5AUH making sure that things happened smoothly and swiftly. Operations went on continuously throughout the contest period; with Dave WB5IMT operating throughout the night. Around 700 phone contacts were made.

Bonus points were awarded for various activities; including public relations, emergency power, natural power, low power, and WIAW message reception courtesy of N5EDT. In all, there were around 1300 hundred contacts made for a total of nearly 10,000 points!!! Thanks go to all who participated, and also those who made various temporary donations of equipment and time; including KB5XN, AE5N, N5BFD, N5EDT, WD5JNT, WODXA, K5OK, W5VZU, N5PS, N5OK, KB5BS, WB5TFM, WA5TAR, KA5IDQ, WB5IMT, K5HTF, K5EA, WB5ZGP, KA5GTM, WA9AFM, N5BEQ, K5UAB, N5AUH, and many others whose calls I don't remember. Hope it was fun for everyone.

Bruce KC5CR

I guess by now everyone noticed that the 76 repeater has been down for awhile. This is because one of the filter capacitors in the power supply superheated. However, the repeater was moved to Dick Baker's house and should be back on the air by the time you read this. It will, however, be at Dick's house until the entire system is overhauled; the new antenna system and control circuitry is installed. In the interim, coverage is reduced substantially, but it is hoped this will not last too long.

Bruce KC5CRH

NOTE: The above is the first time copy for the C & E was received by using a modem. After a few tries it transmitted and printed without Bruce having to drive half way across Oklahoma County. Anyone else want to try? Call me. Joe.

WANTED: For high power amplifier, air variable capacitor, 1500 pF, 10kV, Jennings or equivalent. Bob, KA5AFN, 341-2046

FOR SALE: Motorola HT-220, E model, VHF slimline, remote speaker-mike. Any reasonable offer considered. Jim, KB5XN, 381-2005.

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OK DX

De AD1S.

**NEXT MEETING:
JULY 11, 1983**

One of the most informative and delightful meetings of the OK DX Association was held last month at Mardee's Restaurant. Attendance was excellent, with some new faces and lots of information about upcoming DX!

This is an invitation to anyone who is interested in DX'ing to come to the July meeting, to be held again at Mardee's Restaurant & Club, N.W. 50th Street just East of Meridian Avenue in the Springdale Shopping Center.

We usually get there around 6:00 PM (2300 UTC), in time to enjoy the FREE boiled shrimp and hors d'oeuvres and yummie refreshments in bountiful proportions. Y'all come now, ya hear, and stay as long as you like. Mark July 11, 1983 on the calendar.... You, too- Dennis!

Don't forget HAM HOLIDAY is coming up on July 29, 30, 31, 1983. There will be some interesting programs again this year, including the show on last year's DXpedition to Micronesia by N5DLM and ole what's his name.

Some new slides (never shown before) were added to the show, plus the fantastic handicrafts of Yap, Palau, Saipan and Majuro will be displayed by Vicki and er... you know, ole what's his name. Hope to see you there. Check your Ham Holiday schedule for date and time.

The Heard Island cards are being shipped. The IDXF cards are in the mail and are being answered every weekend by a crew from New York who have obtained the logs for U.S. contacts. Keep your eye on the mailbox.

Speaking of the mailbox, the QSL's from BY8AA and BY1PK have again slowed to a trickle, according to scuttlebutt on the bands. This is good news and bad news at the same time. Both BY stations have been heard and worked around 0100 UTC on 21.050 and 14.050 Mhz, but the cards are dreadfully slow.

N5IH and AD1S worked BY8AA back on March 23, 1983. Still no QSL, but at least we have not received a rejection either. Fingers still crossed.

For the fortunate folks who worked TT8AB and TT8AC, the QSL's are also in the mail. Carl and Martha Henson, who operated the TT8 DXpedition in February, were guests at Ham-Com in Dallas, and gave a brief talk on their latest trip. Anyone for a 500 mile pleasure drive across the African desert?? Carl's photos of war-torn Chad were shockingly graphic.

Carl is still soliciting support for an anti-list campaign. Anybody who really HATES lists and/or list-takers should get together with Carl. Write him via the Callbook address of WB4ZNH.

We are hearing alot of flack about the ill-fated Spratly DXpedition of last April. It seems that two of the hams

work for West German Intelligence (read that SPIES) and somehow survived 10 days without food and water and did not even require hospitalization! Hmmm... Also, they managed to float 250 miles AGAINST the prevailing wind and currents. Draw your own conclusions.

ON THE BANDS

TAIWAN- BV2B has been having real problems since his antenna has been shadowed by a new high-rise building. Stateside stations can usually hear him, but Tim has a real alligator station now...you know, all mouth--no ears. Tim has been heard on Wednesdays, 14.225 Mhz from 1400-1500 UTC. He is still the only show in town when it comes to this country.

KERMADEC- ZL/K. Jim Smith, VK9NS (also P29JS and VK0JS of Heard Island fame) has returned home and is now planning a trip to Kermadec for next year.

Jim needs help to pay off the Heard Island venture plus salt some dollars away for the forthcoming effort. You can assist in the effort by joining the HEARD ISLAND DX ASSOCIATION. Full memberships are offered at \$25.00/year, but any donation is welcomed.

MALPELO- HK0M is planned in a BIG way for October, 1983. The Colombian Radio Club will operate multiple stations with about 15 operators on the island. This should be like shooting fish in a barrel...

KIRIBATI- T30, T31, T32 will be operated by Doug Blythe, T30DB starting very soon. Doug works for the Kiribati government (pronounce that Kiri-bas) and will be operating from all segments of the nation as he makes a trip from West to East on the way to Honolulu and San Francisco, U.S.A.

Propagation has been excellent into the Central Pacific most nights around 0800 UTC-- Yes, Elizabeth, that is 3:00 AM CDST! But if you are a real DX freak, insomnia is just a cup of coffee away.

UNITED ARAB EMIRATES- A6XJC has been fairly regular, when propagation is permitting, on Saturdays at 2300 UTC. There is usually a list taken at 2200 UTC by two or three Stateside stations and then John shows up an hour later. Listen around 21.310 Mhz.

RODRIGUEZ- 3B9FK is due there from noe through July 15, 1983. All bands.

PALMYRA ISLAND- KH5 will be active in October, but not from Palmyra Island. If you have been DXing for over 2 years, you may recall that George, AD0S (no relation) landed on Palmyra back in April, 1981 and gave many deserving what they thought would be a new DXCC country.

It seems that George did not have WRITTEN permission to land -- the island is privately owned-- and DXCC would not count his expedition. Mind you, AD0S was on the island with permission, but due to some legal entanglements, the owners' attorneys would put his 'verbal' permission into writing. They never have--and I suppose they never will.

Which leads us to KH5... What is

CORA Collector & Emitter + JULY 1983

OK DX

KH5??? Well, on the DXCC list, it says Palmyra and Jarvis Island.

JARVIS ISLAND is a U.S. Wildlife Refuge located near the equator about 600-800 miles WSW of Hawaii. Except for the 1.2 million birds and the dozen or so wildcats that call the island 'HOME', nobody in their right mind would go there.

Well folks, I know someone who has received a Special Use Permit to conduct a DXpedition on Jarvis and will go there with a scientific group in late October, 1983. Look for a multi-station effort, three operators and countless Hermit Crabs.

See me at Ham Holiday '83 and I'll tell you WHO, WHAT, WHEN and all that other stuff. Yuk. Yuk.

CONTEST- Don't forget RADIOSPORT contest coming up during the weekend of July 9-10, 1983. Lots of DX is usually around for this one... DXpeditions will be down at many of the Caribbean nations before, during and after the test. Keep listening.

BRING YOUR LIST OF NEEDED COUNTRIES to the OK DX meeting on July 11, 1983. We will swap lists and put them on the computer, and as soon as possible I will compile a Master List for everybody's use. If I hear something YOU need, I can call you at 3:00 AM to let your wife know that the Republic of Nauru is on the air. Won't she be excited? (Vicki says turnabout is NOT fair play!)

At the July meeting, let's discuss a HOSPITALITY ROOM for Friday night at Ham Holiday... We can see if a deal can be arranged with the Sheraton, and if so, we can have an open house for interested folks at HH83.

You can come downtown on Friday night to register at HH83, and then stop off for a toddy at the Hospitality room. Come with your opinions on this idea.

Good DX. De AD1S.

"AMATEUR RADIO" de VK

The March issue delves into night time VHF propagation. Also it has an unusual explanation of iambic (and even dactylic)keying.

In April there's a review of the much overblown subject of radiation danger. For the builder, one can read how to build a transmission line VSWR indicator.

Along with these two issues, which arrived the same day, there was a copy of a catalog from Emtronics that was a joy to see. Can you imagine a catalog that list transmitting type variable capacitors? Tapped and roller inductors? Cabinets? Sounds like the good old days.....and makes one wonder why no USA firm makes such items available. Can it be that we really have given up construction projects?

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ALTUS AREA



AMATEUR RADIO
ASSOCIATION

On 9 June 1983, the Altus area hams got together for a short session. A short summary, which follows, will describe some of the individual activities and club events which have taken place in the last couple of months. A hearty welcome and handshake goes to Jay Barnes, WB5CFS, of Frederick, Ok. Jay joined the club in April and I apologize for the late announcement. Looks like Shorty, K7BSY, has been more busy baling hay than hamming. Congratulations to Gary Alexander, KA5MPK, who upgraded to the advance class. Jim Molledahl, KB5LS, whom we don't see much, made an appearance and mentioned an interest in going to Ham Holiday. Others in the area who are going might want to contact him. Phil Mahnken, WA2JXD, is still busy trying to get his station set up. He's had several problems, hopefully nothing serious. Anyone wishing to help might give a call. Phil is also interested in 2-meter ssb dxing. Sounds like fun. On the weekend of 11 & 12 June, I was able to work several new states on 6-meters usb using 10 watts out. Also had two contacts in Altus, WA2JXD and WA5CBF. All in all, it was a lot of fun. The club is planning to have a fox hunt on 16 July 83. All Altus Ham Club members are welcome and encouraged to come. Registration will begin at 0900 in the North Main Fire House in Altus. Registration is free, but you must be registered to be eligible for a prize. The final rules will be announced at that time. Prizes: first - 2 meter, 5/8 wave, mag-mount antenna, second - 2 meter, 1/4 wave, mag-mount antenna, third - 1 year paid membership to the Ham Club and 1 year paid subscription for the Collector and Emitter. Come out and join in the fun.

We'd like to especially thank Les Brown for his time and for providing the equipment to make this transmitter hunt possible. Thanks to the planning committee: The McEndree's, The Simms', and Les Brown.

Thank you's go to The Altus EOC folks and all the other weather watchers who have donated their time and talents. Speaking of emergency traffic handling... the results of last years 5 day test of emergency traffic handling by amateurs and MARS operators was recently released. We are very proud of our locals who outperformed the whole country by achieving 100% in all categories of traffic handling. Participants included, but not limited to: Dwight Dennis WB5KRH, Sherwood Harris WASTXG, Charles Davis WA5PGV/AFF4AD, and Mike Schenkel W5VXU/AFA4XL.

The following is an official announcement. Due to an upcoming change in job locations, your present club secretary/treasurer will resign on 14 July 1983. You will have to elect a new official to that position. Fringe benefits include free club membership and CORA for the duration of office, having your say in the C & E, managing \$\$\$, etc.

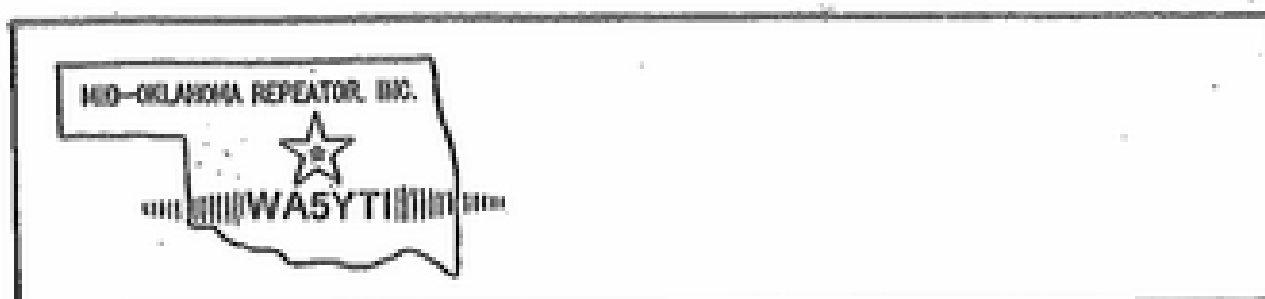
Due to the early editing of the special C & E for June, there were no minutes or other articles submitted by this club. The following attended the May and/or June meeting:

Herb Maas N5FQR	Shorty Moore K7BSY
Keith Pinson WA5ZFI	Joe McDonald W5CCV
Clyde Smith W5ZDI (Glad you're feeling better)	
Les Brown W5UVX	Gary Alexander KA5MPK
Ralph Gilmer WD5BBV	Mary Gilmer XYL
Paul McEndree WD5BBO	Deanna McEndree WB5UMH
Dwight Dennis WB5KRH	Jay Barnes WB5CFS
Jim Molledahl KB5LS	Loren Simms WA5CBF
Phil Mahnken WA2JXD	Dennis Ratzlaff KA5KVU
Bill Flattery KA6RTX	

Thanks again to Deanna McEndree and Joe McDonald for the refreshments at the last two meetings. The meeting adjourned about 2030hrs and shortly thereafter, a few hardy hams kept up eyeball QSO's to around midnite.

See you at the next meeting, 1930 hrs, 14 July 83, North Main Fire House, Altus, Ok. Thanks for the pleasure of being your sec/treas for the last few months. 73's.

Bill KA6RTX



.. Somehow or other Susie and I failed to get together and I didn't get her copy in time to include it but she told me on the phone that she had a "pot full" of news about MORI and I left a hole for the pot so now I am trying to fill it with some things I heard.

Attendance at the monthly meetings has held up in spite of summer being here, at least that is what the calendar says but as I write this it doesn't seem like it. However there were a few vacant seats so come on out to the EOC and warm them up and enjoy some fellowship and help guide the program.

The next MORI meeting won't need any seats warmed up since everyone will be at the picnic site on Tuesday July 5th and those concrete benches may already be warm, but who cares, a picnic is a place to have fun - hot seat or not. I hope I have the place right but I didn't write it down. Try Will Rogers Park or get on one of the repeaters and find out for yourself as to when, where, what time and what you are to bring besides an appetite. Fred said that everyone was invited, member or not.

Joe, WA5ZNF

The expression "Money Talks" is now obsolete - today it goes without saying.

We wouldn't object to some ops having the last word--if they would only get to it.

4:00 PM FCC FORUM

We are very fortunate to have a representative from the FCC with us this year. Sandra Morris from Dallas field office will be here to let us know what the Commission is doing, and she will explain the Commissioners side. She is very interested in hearing what we have to say and she will show us how to be heard at the FCC level. The Commission is making a lot of changes, not only with amateur radio but clear across the board. These changes are made to improve the system. They want to hear from us now, while they are in the planning stage, and not later, after it is already the law.

10:30 PM EQUIPMENT EVALUATION

Brad Rehm KV5V is in a very envious position. He owns Instrument Development Corp. which has a computer based instrumentation system which is used to check the performance of different units of commercial gear. What Brad has done is put this equipment to work on amateur gear. His evaluations might be very interesting. See how your rig compares with all the rest.



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JUNE MINUTES

ACARC

After an altercation between Larry K5RJR, and Harold W5VAG, over who got to sit next to Cecil W5QAC, and some discussion about a 5KW amp and Woody's W5FMX, van burning up, the June meeting of the ACARC was called to order with 26 present at 8:00 PM on Friday June 3, 1983 by Jim W5UHW.

Don K5SJV, gave th CORA report and reminded everyone that the CORA meetings were being held at the Fire Department Training Center at NW 10th and Portland and that anyone was welcome to attend. Also the last date to preregister for Ham Holiday is July 17.

Under Old Business, it was decided that a round of thanks was in order for Bob W5CJG, for his work on the repeater and for the work party that repaired the club antennas last month.

There being no New Business, the meeting was turned over to Holly N5ABL, who ran a videotape selected by yours truly, K5JCX. Its title was "The Biological Effects of Non-Ionizing Radiation" and it was extremely interesting and informative. Unfortunately Rosie K5ODI, and Gene W5SQC decided to become TV stars, and at 9:00 PM it was reluctantly decided to turn off the videotape and adjourn for coffee and doughnuts before anyone else started hamming it up.

John K5JCX
Sec ACARC

AS I SEE IT

Lately the repeater has been buzzing with the news that Larry K5RJR had been laid up. I visited Larry in the hospital to wish him well and to find out what had happened. He explained to me how, while working on the mast of his sailboat, he slipped, and caused a great deal of pain and suffering to be dealt to his body.

Now don't get me wrong, but I just can't help wondering if perhaps, there might be some other explanation of Larry's injuries. After a great amount of research, I have developed two other very plausible causes of his condition.

It is entirely possible that some of those in the underworld had finally gotten wind of "the other set of books" that our treasurer had kept and had decided to mend his ways (how else could he afford a sailboat on his wages?).

It is also possible that a certain co-worker of Larry's decide to even an old score, but because of his slight stature (the co-worker's), the punches did their mightiest damage just slightly north of Larry's shin. The co-worker shall remain anonymous in order to protect my hide.

All kidding aside, I would like to wish Larry a speedy recovery from myself and the rest of the club.

John K5JCX

KANTRONICS INTERFACE ENHANCEMENT
BY DINK STOCKMAN, W4SLNL

With all of the new, low cost personal computers, the Kantronics Interface and the Hamsoft software packages available, it seems as though everyone is using these devices to transmit in RTTY, ASCII and high speed CW. Probably one of the complaints most often heard about the Kantronics unit is that it appears to require an excessive amount of audio to receive. That is, to have all three of the LED's on at the same time. There are three ways to help this situation, and I would recommend the third way as being the best.

1) Use the highest impedance audio output that your set has, the higher the better. Use that 600 ohm audio outlet if your set has one. If your hf rig only has a 4 or 8 ohm outlet, then forget this step and try #2 or #3.

2) You can reduce the speaker (audio) volume gain by improving the gain of the first audio op-amp in the Kantronics unit. This is accomplished by replacing resistor R-9 (100K ohms, 1/4 watt) with a 470K or 680K ohm 1/4 watt resistor.

3) Add an automatic gain control (AGC) board to control the input to the Kantronics interface. The one that I found and installed is designed and made by C.W. Electronics (P.O. Box 8306, Van Nuys, CA 91409). I paid \$3.50 for the board and schematic less parts, postage prepaid. Depending on your junk box, the parts should cost no more than \$5.00 from your local parts store. The AGC amplifier will take input levels from 0.1 volt to 10 volts peak-to-peak and produce an output signal up to 8 volts PP.

Installation of the AGC amplifier should be in series with resistor R-8 (47K ohms). Adjust the output signal while receiving a signal so that all LED's are lit. I obtained the necessary 12 volt power for the amplifier from the Kantronics unit. For mounting, I wrapped the AGC board with foam, secured it with a rubber band and placed it inside the Kantronics cabinet. (Note: These modifications to the Kantronics Interface will void your 1 year limited warranty.)

- Reprinted from the San Antonio
Repeater Organization's
April 20, 1983 Newsletter

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7/1

SEE YOU AT HAM HOLIDAY/COMPUTERFEST
ARRL STATE CONVENTION
JULY 29, 30, 31

Fellow hams, if you are ever out too late following a club meeting, and a few brown 807's afterwards - here is a story to tell the YF: Call her on the phone and say, "Don't pay any ransom, dear, I escaped and will be home in a few minutes."

The South Canadian Amateur Radio Society

Space

SCARS MEETS FOR JUNE.....

The 11th of June saw the monthly meeting of the South Canadian Amateur Radio Society at the Red Cross Building in Norman. As is usual for this time of year, very little business was conducted. The club did decide to have a club picnic on July 9th. (More about the picnic below) The high point of the meeting was a talk on transmission lines by Leland, W5MCN.

MISCELLANEOUS.....

Many members of SCARS who are members of the Cleveland County weather net have been called out several times in the last month to watch the storms. Now that it has finally begun to warm up, we are finally receiving our belated springtime stormy weather. This season has seen somewhat more activity than the previous two years, and it is to be expected that some rough spots have cropped up. Those members of the net who have taken part in the watches have really fallen back into old form. Hopefully with the practice of this year, the net's former level of rediness will return.

Several members of SCARS went to Ham-Com in Dallas during the first week-end in June, but I havn't heard much from any of them about the trip.

GRIEVOUS OMISSION MADE BY SCARS CLUB EDITOR...

As is usually the case when preparing a story to give credit to the participants in an event, I have left someone out of the story of the new repeater in last month's C&E. Bill, K5KDR, was active in every phase of the repeater project. Bill made us aware of the availability of the machine, was closely involved in the negotiations, saw to the arrangements for obtaining the crystals, and was available to load and unload the repeater more than once on its way to be tuned and ultimately to its present location. With all of this effort, Bill probably deserves to be mentioned in a paragraph of his own, although it is a month late.

SCARS PICNIC PLANNED.....

A club get-together in the form of a picnic will be held in Saturday, July 9th at Lion's Park in Norman. Each family should bring their their own food, drinks, and etc. Some entertainment will be provided. The regular SCARS meeting will be held as usual.

NOVICE CLASS CONTINUES.....

The latest reports indicate that the Novice class is continuing and that the students are approaching the time for the exam. There still seems to be ample interest on the part of the members of the class, which is certainly encouraging. We should soon be hearing some new fists on the air from this area.

THE GREAT OKLAHOMA BALLOON RACE.....

SCARS has been asked to provide communications for The Great Oklahoma Balloon Race which is to be held in Norman on the week-end of August 27th and 28th. It is estimated that about 80,000 people will attend the two day event. Ken Neptune, KA5EFJ, has determined that about 30 operators will be needed for the race and the accompanying air show. Volunteers need not be members of SCARS, but should have a hand-talkie if possible. (This may just be the reason that K5KDR has been looking for to buy a hand-held) Anyone interested in helping on either Saturday or Sunday should contact Ken at 321-7785. -wa5rpp-

OSCAR 8 continues in a low-voltage condition in this period of minimal sunlight. The satellite is in Mode A. We are very impressed with and grateful for the cooperation of the amateur community in not using the passband. We welcome all telemetry reports, particularly those that indicate a change in condition. We'll report further developments as our telemetry study continues. Direct all updates and other communication to Bernie Glassmeyer, W9KDR, at ARRL Hq.

Update of STS-9/W5LFL "Ham-in-Space" mission: ARRL Satellite Program Manager Bernie Glassmeyer, W9KDR, is investigating the use of a 900 number for people to call in for information on the mission. ARRL will handle letters sent to NASA concerning the Amateur Radio aspect of the STS-9 mission. As we have done with AMSAT in the past, we'll have NASA forward bundles of inquiries to us and we will respond with an information packet that will, of course, include ARRL and Amateur Radio information. The 900 number will be announced when it becomes available.

There was quite a bit of discussion on the East Coast AMSAT Net last week concerning the KLM switchable polarization satellite antenna. Seems that the controls are wired "backward," that is, if the switch indicates right-hand polarization, the polarization is really left-hand. This should be of no real consequence -- the best way to use the antenna is to switch for maximum signal strength.

The AMSAT OSCAR 9 beacons have been activated on 7.050, 14.002, 21.002, and 29.510 MHz. The signals are alternating between 10 wpm cw and carrier. Reception reports are encouraged and may be sent to Martin Sweeting, G3YJO, c/o UOSAT, University of Surrey, Surrey, England.

Special ALINS launch "celebration" certificates are available for a #10 business-size s.a.s.e. sent to: ALINS/AMSAT, P.O. Box 27, Washington, DC, 20044.

OSCAR 10 is presently taking about ten and a half hours to make one complete orbit around the Earth; there are 2.27261 orbits per day.

Dr. Owen Garriott, W5LFL, still plans to operate 2-meter fm aboard STS-9. STS-8 will not have any Amateur Radio activity, nor does the postponement of STS-10 affect STS-9.

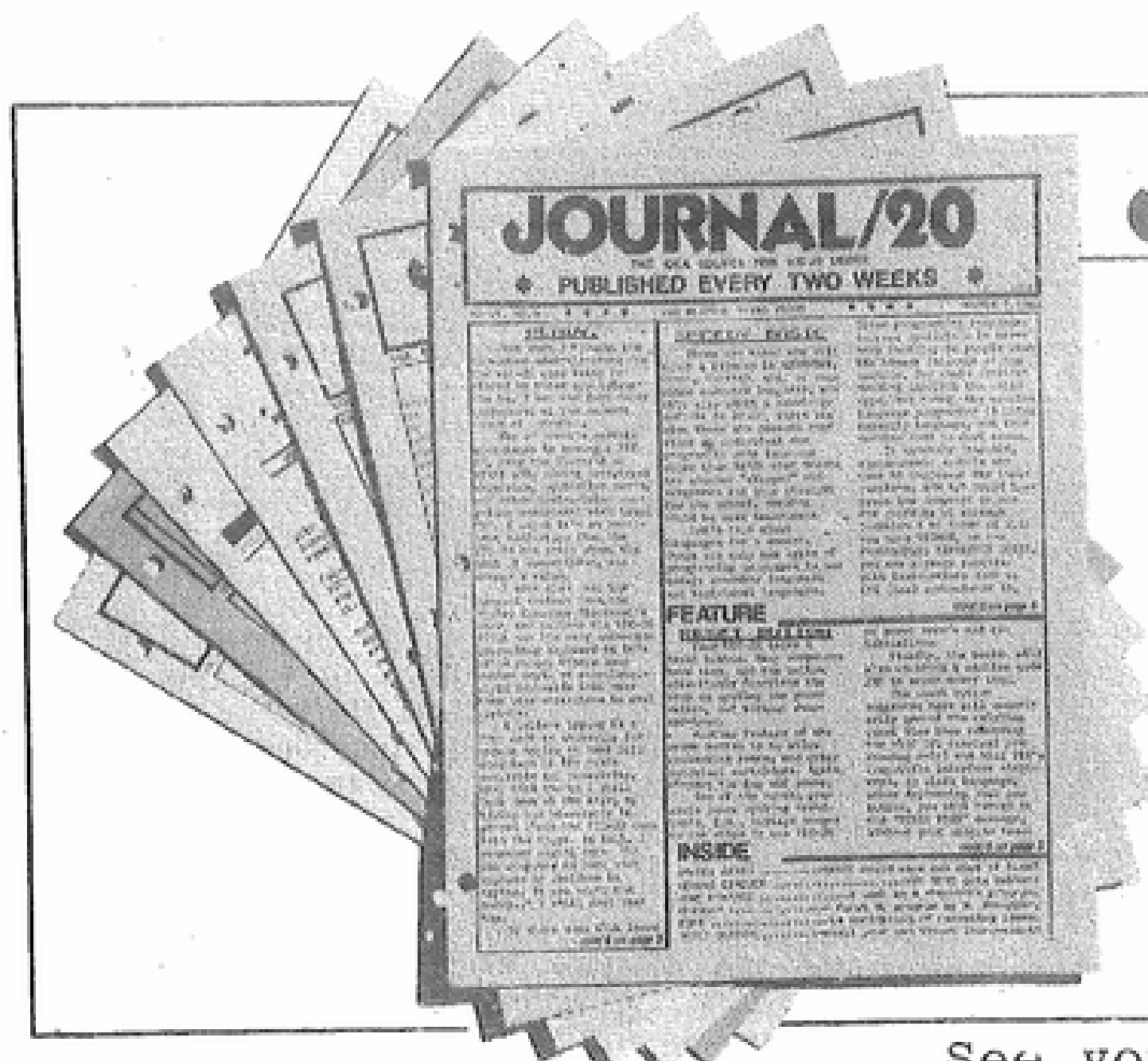
ARRL NEWSLETTER

RITING SKUL

SUBJECT: In Writing Research Reports, Do As I Say, Not As I Do!

1. Do not use no double negatives.
2. Make each pronoun agree with their antecedent.
3. Join clauses good, like a conjunction should
4. About them sentence fragments.
5. When dangling, watch your participles.
6. Verbs has to agree with their subjects.
7. Just between you and I, case id important too.
8. Don't write run-on sentences they are hard to read.
9. Don't use commas, which aren't necessary.
10. Try not to ever split infinitives.
11. It's important to use apostrophe's correctly.
12. Proofread your writing to see if you any words out.
13. Correct spelling is esential.
14. But, above all; always B! Cool!

ARNS



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If she jumps into your arms .. Receiver
If she jumps right out again .. Controller
If she gets steamed up .. Condenser
If she wants to eat .. Feeder
If If she seems a little off key .. Tuner
If she turns the wrong way .. Rectifier
If she starts to gain weight .. Reducer
If she wants her way too often .. Rugulator
If she wants to get married .. Resister
If she's heading down that Primrose Path ..
Conductor
If she isn't the right kind of girl ..
Transformer

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LISTEN TO THE SIREN SONG

Well, here we go again!

I warned you, didn't I?

Due to unprecedented demand, the following is herewith presented as your latest copy of an accurate, up-to-date and complete list of the Oklahoma City Civil Defense Sirens. Note the addition of two since publication in March (16 and 17) and the reversal of two numbers (82 and 86).

These sirens are tested semi-monthly, the first and third Saturdays at High Noon, weather permitting, and we gather reports on 146.34/94 beginning at 11:30 if all 47 sites are covered, 11:45 otherwise. See you there!

- 12 Water Tank, S W 89 & Linn
- 13 Fire Station #25, 2642 S W 59
- 14 John Adams School, S W 37 & Goff
- 16 Woodrun, W Reno & Czech-Hall Road
- 17 Westbury, 10200 S W 15 (@ Brinkenhead)
- 21 Southern Hills School, 7700 S Kentucky
- 23 Rancho Village School, 1401 S Johnson
- 24 McKinley School, S W 53 & Shartel
- 25 closed fire station, 3416 S Robinson
- 27 Penn-Moore Mid-High School, 9400 S Penn
- 28 OCPD Briefing Station, S W 89 & Santa Fe
- 31 Hayes School, 6900 S Byers
- 32 Hathaway Park, S E 38 & Lindsay
- 34 Bodine School, 5301 S Bryant
- 41 Lythe Park, N W 7 & Green Vale
- 42 Canadian River, 2200 S Portland
- 43 Jackson School, S W 26 & Villa
- 45 Westwood School, 1701 Exchange Avenue
- 47 easement, 901 N Oakdale (W of MacArthur)
- 51 OK County Courthouse, 320 W Robert S Kerr
- 52 Woodson School, 600 N High
- 53 Crooked Oak School, S E 15 & Eastern
- 54 Shidler School, S E 15 & Byers
- 61 4529 N W 36
- 62 Harlow Park, N W 19 & Harlow
- 63 closed fire station, 3801 N W 10
- 64 Madison School, N W 30 & Independence
- 65 Sequoyah School, 2400 N W 36
- 71 Ballet Center, 1236 N W 36
- 72 Hawthorne School, 2300 N W 15
- 73 Wilson School, 2215 N Walker
- 74 Jim Thorpe Building, 2102 N Lincoln Blvd
- 75 Fire Station #18, 700 N E 36
- 76 Fire Station #12, 2121 N Eastern
- 78 easement, 3045 N E 16 (rear)
- 81 Surrey Hills Elementary School
- 86 North Ridge Elem School, 8501 N W 82
- 83 Harvest Hills School, 8215 N W 104
- 85 Hefner Road (N W 108) & MacArthur
- 82 Wiley Post School, 6904 W Britton Road
- 91 Longfellow School, 1201 N E 28
- 92 Fire Station #17, 2716 N W 50
- 93 Burbank School, N W 65 & Independence
- 94 Fire Station #22, 1105 W Britton Road
- 95 Fire Station #15, 2817 N W 122
- 96 Coronado Heights, 5911 N Sapulpa
- 97 N Highland Park, N W 82 & Harvey

Lakes

1 - Draper / 2 - Hefner / 3 - Overholser

3 Mar 83, 2 Jul 83.

n5beq, jim



The second Sunday in June dawned bright and it started out looking very good for the wheat-straw club meeting. Rumors had been flying about indicating that WDSJNT was going to go to Red Rock Canyon about daylight to latch on to a suitable site for the meeting, but he was not heard leaving. Around 11:00 he was heard fooling around near El Reno. That caused Ray K5LLX to be the first one there, so Ray had to pick the spot. He found a good one too. It was a good place for our covered dish dinner. As usual, there was so much food that we could not do away with half of it, even though it was so good that we sure tried. The club meeting followed the dinner. We talked about field day and several other matters that came up including the meeting places we would be going to this summer. It looks like it will be kind of like last summer. That is, with many picnic type meetings. The August meeting is planned to be at Canton Lake and another one is planned in September. We had several members that we seldom see show up and also we had several friends visiting from the OKC area. They included Don K5SJV, Sue KA5CTT, Jack WB5SVN & Hua. There were about 26 or 28 there. If memory is correct, we had several fairly recent upgrades. Among them was Jim, K5VRL Glenn KA5OOX and Leo KA5DUO. I think they all made the class I don't have yet (extra) and Fran KA5OOY who is a general now.

The next meeting will be in El Reno at the Gold Room second Sunday in July. SEE YOU!!! Don't forget to check into the Wed nite net. 9:00 pm every Wednesday 01-61 repeater.

George K5GGJ

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George K5GGJ

George has a new printer for his computer and just had to show off. For those not familiar with the way we prepare copy for the C&E it is pointed out that everything is typed 4.6 inches wide and then reduced to 3 inches by the printer, George just pre-shrunk it. By the way he sells magnifying glasses at his TV repair business in Okarche.

ZNF

HAM HOLIDAY PROGRAM HIGHLIGHTS

7:00 PM

BANQUET

Don't dare miss the banquet this year. It will be at a new location. The Quality Inn at Reno and Eastern. The facilities here are more in tune for a banquet than they are at the Myriad. We will have a buffet dinner again this year. We are excited to have a representative from the FCC with us this year. Sandra Morris the field publicservice representative from Dallas will be giving a program earlier in the day and she has agreed to give us a short talk on "getting involved" with the FCC in their rule changing decisions. Come out and have a fun time with the rest of us. There will be mens and ladies door prizes and free admission from the banquet to the dance floor.

9:30 AM

Stan Wigh WB6UYG from Cox Cable

in OKC is very concerned about cable tv interference, especially on his amateur gear. He is more concerned about informing the public that they want to know of these problems and especially cable companys throughout the state that are not taking care of these problems. Stan is the chairman for the OK Cable Tv Radiation committee which covers the entire state. He is concerned when he hears of problems in the other states and he doesn't want this to be a problem here because nobody communicates with him. He will be going into detail on how the cable systems work, and the equipment and networks that keep it going.

10:30 AM

DX PROGRAM

Our DX PROGRAM this year will be hosted by NSOLM Vicki and her husband, George AD1S. Vicki and George left the day after "HAM HOLIDAY 82" for a 3 week dx-pedition to Micronesia, Meriannes & Marshall Islands, and Eastern and Western Carolines. They will be showing slides and samples of their native handicrafts, shells, Basketweaving and Woodcarvings.

1:00 PM

Digital Communications

Digital communications is the up and coming form of communication. With the popularity of the home computer, this form of communication is really becoming popular. The "MAIL BOX" system of leaving messages and retrieving them at times convenient to you instead of at pre-set times, which always fall right at supper time, is just one advantage. Brian Wood W0DZ the technical advisor from the ARRL will give us a program on basic digital transmissions. He can clarify different codes and formats that are used and the advantages and disadvantages of several of them.

2:00 PM

SMIRK

Mr Smirk himself will be here from San Antonio to conduct a program on 6 meters and above. Ray Clark is the original organizer of Smirk. He will introduce you to the strange propagation at 50 mhz. He has been asked to conduct the VHF and UHF forums at the ARRL National Convention in Houston, so you know where his interest is, and what questions he can answer.

3:00 PM

ARRL FORUM

Ray Wangal, West Gulf Director will be here to conduct the forum again this year. The League is in the middle of some changes that will affect us all. We need to be informed and up to date.

CONSTITUTION

ARTICLE 1 - NAME: The name of this organization shall be the Central Oklahoma Radio Amateurs, Incorporated, a non-profit organization hereafter referred to as CORA.

ARTICLE 2 - PURPOSE: The purpose of CORA is to coordinate group activities in the public interest between the Amateur Radio societies in Central Oklahoma. These activities consist of a statewide meeting of Amateur Radio operators to be held annually in the Oklahoma City metropolitan area (Amended 23 Oct 79); better use of communication skills in support of the American Red Cross, Civil Defense, and the American Radio Relay League; and the seeking of solutions to problems facing Amateur Radio licensees throughout the state.

ARTICLE 3 - MEMBERSHIP: Membership in CORA shall be as follows:

A. SUPPORTING

- Each of the several constituted Amateur Radio societies in the Central Oklahoma area, endorsing the purposes stated in Article 2 above and providing financial or other support to this organization shall be a SUPPORTING member of CORA.

B. ASSOCIATE

- By virtue of an individual's membership in a supporting member Central Oklahoma Amateur Radio society, s/he shall be an ASSOCIATE member of CORA.

C. DIRECTORS OF CORA

- A Board of Directors shall be established as follows:

1. Each SUPPORTING member of CORA shall duly appoint or elect three Directors to serve on the Board of Directors of CORA for a term of one year beginning in September of each year. Each director shall have one vote.

2. The immediate past President of CORA shall serve as an advisory member of the Board of Directors for a period of one year. He shall have a vote.

ARTICLE 4 - OFFICERS AND THEIR DUTIES: The officers of CORA shall be the President, the Vice-President, the Secretary and the Treasurer. The Directors of CORA at the annual September meeting shall nominate and elect the above officers to serve for a period of one year. Nominees for the above offices are to be only from the members of the CORA Board of Directors. They shall be elected by a majority vote and shall hold office beginning on 1 October (Amended 22 Nov 81) for a period of one year. There is no restriction on the re-election of any individual to an office s/he has held in the previous year so long as s/he remains a Director of CORA.

a. The President shall call and preside at all meetings and represent the organization in all official matters. S/He shall appoint all committees that may be necessary in the administration of the organization's business.

b. The Vice-President shall take over the duties of the President in the President's absence. S/He shall have all the authority of the President when acting in the Presidential capacity. S/He shall assist the President in performing all activities of the organization.

c. The Secretary shall keep a written record of the minutes of each meeting of CORA and originate correspondence as directed by the President.

d. The Treasurer shall receive and disburse all funds entrusted to CORA and keep an accurate record of such, shall be personally responsible for all funds entrusted to him/her and shall give an accounting of the disposition of all funds at each meeting of the organization.

ARTICLE 5 - FINANCIAL MATTERS:

A. CORA will receive financial support from each supporting Amateur Radio society as approved by each individual society. Funds for a specific activity shall be requested by the President from financial supporting societies upon approval of the Director membership.

b. Upon final completion of a specific project or activity by CORA, the financial supporting societies will be repaid their financial support if possible. Any liability for loss shall not exceed the amount allocated for that activity.

c. A complete accounting of the financial matters of any CORA activity or project will be made available to the financial supporting societies when funds are returned.

d. The CORA fiscal year shall be January 1 to December 31 (Amended 26 May 80).

e. In the event of dissolution of CORA, all wind-up expense, payment of outstanding obligations and distribution of excess assets shall be made as provided by law. In no event shall distribution be made to individuals (Amended 26 Aug 80).

ARTICLE 6 - EXPENDITURE OF FUNDS: The President shall authorize any expenditure up to an amount of \$25.00. Expenditures of funds above \$25.00 require the majority concurrence of CORA's Officers and Board of Directors in attendance.

ARTICLE 7 - VOTING: All matters of CORA shall be decided by a majority of the Director Members present at a meeting.

ARTICLE 8 - MEETINGS: Meetings of CORA shall be called by the President as may be necessary to conduct activities meeting the several objectives stated in Article 2 above, usually the fourth Tuesday of each month. advance notice of meetings including time, date and location, shall be given all Director Members.

ARTICLE 9 - CHANGE OF CONSTITUTION: This constitution may be amended by a majority vote of the Director Members present at any regular meeting provided that Director Members have received thirty-days-advance notice of the proposed change.

Approved and Adopted 28 May 1976.

Amended 23 Oct 79, 26 May and 26 Aug 80 and 22 Nov 81.

HAM HAPPENINGS REFER TO CLUB SECTION FOR SPECIFICS

REFER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JULY						
					1	2
	4	MORI PICNIC Great Plains	ARDMORE	EDMOND Club	Aeronautical Center ARC	COCAL SCARS PICNIC
3	Independence Day	5	6	7	8	9
Wheatstraw EL RENO	OK-DX	SHAWNEE 76'ers		ALTUS AREA		VHF Club
10	11	12	13	14	15	16
		AUTOPATCH		KAY County	HAM HOLIDAY '83 ARRL STATE CONV. COMPUTERFEST	
17	18	19	20	21		
HAM HOLIDAY	CIMARRON EDIT CENTRAL COLORADO RADIO AMATEUR COLLECTOR - EMITTER	SHAWNEE CORA				
24	31	25	26	27	28	29
						30



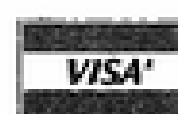
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