Central Oklahoma Radio Amateurs, Inc.
COLLECTOR AND EMITTER

Second Class Mail

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1993 MARKS 79 YEARS OF ARRL

Since the beginning of time there have always been tinkerers, and experimenters in all walks of life. Some had more vision than others.

Let's go back to the very early times of amateur radio as witnessed by Clarence D. Tuska. Clarence moved to Hartford, Connecticut when his parents enrolled him in the nineth grade. Hiram Percy Maxim had already made a name for himself.

Hiram could have ridden on his father's coattails, Sir Hiram S. Maxim, inventor of the Maxim machine gun, or his distinguished uncle, Hudson S. Maxim, inventor of Maximite (nigh explosive) , and for his invention of the Maxim silencer for firearms.

From 1909 to 1910 Clarence Tuska was in the rubber powered aeroplane craze. His first love was the wireless. He needed a little pocket change to build a wireless radio. He learned how to make two motor pusher, and sold them through Mr. Harris Parker's toy store when he wasn't busy with the wireless radio. The rubber-band motors were simultaniously wound by a converted egg-beater Tuska improvised.

When Tuska started school in Hartford, he had made an untuned spark coil and a Coherer-decoherer reciever, both with dipole antennas, that operated across the room. (The Coherer was a device used by early railroad companies to detect lightning. It formed the "detector" in Marconi's early untuned spark-gap radio system. -Ed.) He had a twoslide tuning coil and a E.I. electrolytic detector that did not operate because the Wollaston wire kept buring in two. It was not long before Tuska replaced these instruments with a homemade loose coupler, a crystal detector, and a pair of Brandes Phones. About that time the sales of aeroplanes ended and soon after, Tuska's pocket change vanished. To replenish his spending money, he built a wooden box just large enough to house a single slide tuner, a crystal detector, and a single telephone reciever. Mr. Harris placed the box of (iio equipment in the store window on consignment.

Parker's Toy store was on Tuska way to school, so he looked every day to see if it was gone. One day the radio was gone and Tuska was filled with excitement. He went inside Mr. Parker's store to collect his money. Mr. Parker said, "Son, I let a man take it. If it works to his satisfaction he will come in and pay for it. Give me a couple of days. If it does not he will bring it back. Two days later Tuska went in the store, there it sat on the counter. He was told,"The man that took it brought it back and said it was no good." Since Tuska had successfully operated it, those were fighting words. Tuska said the man probably didn't know how to operate a wireless. He probably failed to adjust the tuner or crystal detector. Mr. Parker answered,"Oh, I think jhe knew how. You see, this man was Mr. Maxim the inventor, and I am sure he'd know all about wireless sets."

When young Tuska got home his mother could feel something was wrong. Draging it out of her son, mothere replied "You go see Mr. Maxim and ask him to tell you what is wrong." He agreed to go if William Ball, his partner, would go with him. One day later the boys went to see Mr. Maxim without an appointment. It was after dark when they found Maxim's house. ringing the door-bell and waiting his enthusiasm was getting less and less. Finally the door opened, a middle aged man stood at the door with his hair standing straight up. Tuska came to the point, "I'm the boy who made the wireless set you got at Harris Parkers's store and you returned it saying it was no good and I want to know why!

Tuska thought they were going to get the door shut in their face. Mr. Maxim waw kind and always gentlemanly, asking the boys to come inside. He quickly explained:"I did not tell Mr. Parker that it was not good or did not work. I told him it would not serve my purpose and that I wanted something better, something more professional." Before they said good night, Ball and Tuska had Mr. Maxim's order or a loose coupler, a variable condenser, a crystal detector, and a pair of Brandes Navy Phones. The rig was installed in due course and gave satisfactory service for many years.

(Continued on Back Page.....)

CORA
Collector & Emitter

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Central Oklahoma
Radio Amateurs, Inc.

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Dear Subscriber:
PLEASE help us keep your information up to date. What time, where, when, who are your officers, editors, and their phone numbers. Check your entry, it can be changed. If there appears to be a mistake, check with your club official. We can't do a thing about it if you don't. Below is a sample label:

4 92/01 2
WILSON, MIKE WA5RTY
1234 W 49
MCCLOUD OK 74851

The "4" means Autopatch Club, "92/01" means he is overdue. The "2" is for postal rates.

Dear Secretary/Treasurer:
When you want a change of any sort to your membership, you must fill out completely a subscription slip. Watch for the date you received their money and the date subscription expires. Have your slips, or list of deletions submitted by the 22nd of each month. If there is anything about C&E subscriptions you need to know, please contact us.

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1. AERONAUTICAL CENTER ARC
Meets: First Thursday, Flight Standards Building, FAA, South MacArthur 7:30 pm.
PR Jack Iman, WB5SVN
S/T Brad Nelson, KJ0W
AsVP Harold Todd, WA5VAQ 685-3685
Asvp Charlie Greene, WA5JGU 943-5631
Editor: Jack Iman, WB5SVN

2. CENTRAL OKLAHOMA VHF
Meets: 11:00 am, 3rd Sat., Golden Skillet, 3401 N. Classen Blvd, OKC
PR Jack Muse, WB5ZKZ 691-1152
VP Fred Boardman, W5NL 427-2505
SE Joe Buswell, K5JB 732-0676
TR Ellard Foster, W5KE 789-6702
Editor: Joe Buswell, K5JB 732-0676

3. MID-OKLAHOMA REPEATOR, INC.
Meets: 1st Tuesday, 7:00 pm, Favorite's Cafe, 36th & S. Western, OKC
PR Scott Walsh, N5NYS 787-3804
VP Larry Benedict, N5VYC 728-7824
SE Tim Hanna, N5USM 842-3812
TR Robert Moose, N5QKI 720-0073
Editor: Dean Ward, N0PAD 681-4606

4. OK CITY AUTOPATCH
Meets: 7:30 pm, third Tuesday, Salvation Army, N.W. 50th & Penn.
PR John Guida, NJ1V 340-6518
VP Chuck Wilhite, K5NK 721-4926
SE John Brassfield, N5SAM 685-8070
TR Mike Begley, N5VIT 732-2827
Editor: Chuck Wilhite, K5NK 721-4926

6. ALTUS ASSOCIATION
Meets: 7:30 pm, Second Thursday, North Main Fire Station, (CD) Altus
PR Jim Romines, KI5YY
VP None
S/T Bob Heron, KE4BN
Editor: Jim Romines, KI5YY

7. BICENTENNIAL (76er) ARC
Meets: 7:30 pm 2nd Tues., 1801 N. Lincoln Blvd., Parking in Rear
PR Hank Stokes, KB5XM 376-1067
VP Chad Drewery, N5QIQ
TR
SE Jack Conley, AA5VU
Editor: Not Filled

9. WHEATSTRAW ARC
Meets: 2:30 pm 2nd Sunday, Location Varies, see Club Section for Details
PR Ray Barnes, AB5Z, Longdale 274-3334
VP Neal Kappus, N5KCO 262-1551
S/T Joe Garland, WA5FLT, Calumet 893-2660
Editor: Ralph Wilder, WA5PFK, Watonga 623-5421

10. OKlahoma DX Association
Meets: Quarterly - Hamfests, DX Net Saturdays - 1600UTC-7.195MHZ, Box 88, Wellston, 74881
PR George W. Adkins, AD1S
VP Darrell Reed, KF5DA
SE Paul Harrop, WB5NDN
TR Paul Wardell, N5PYD
Editor: George W. Adkins, AD1S 356-4101

11. EDMOND AR SOCIETY
Meets: Odd Months, 3rd Sunday, 2:00 pm, Edmond EOC; Dinner, Even Months, 3rd Friday
PR Ken Stepp, N5DBM 341-4874
VP Bob Long, N5KUE 373-2540
SE Lynice Hamlin, KB5FOH 427-2828
TR Ed Granger, KB5DZU 34[illegible]4
Editor: Bob Long, N5KUE 37[illegible]40

12. OKLA. PACKET RADIO ASSN.
Meets: At Major Hamfests, Green Country, Ham Holiday, and Texhoma.
PR Hank Blackstock, WA5JRH 722-0640
VP
S/T
Editor: Hank Blackstock, WA5JRH 722-0640

14. CIMMARON ARS
Meets: 7:30 pm, second Thurs., WX5Y Playhouse 827 S. 13, Fairview
PR Terry McColl, N5MLT (405) 227-3672
VP John Medley, N5WVU (405) 227-3534
SE Dennis Painton, WK5V (405) 764-3599
TR Nadine Painton, N5FMH (405) 764-3599
Editor: John Medley, N5WVU (405) 227-3534

15. SOUTH CANADIAN ARS
Meets: 9:30 am, Second Saturday, Red Cross Bldg., North OU Campus, Norman
PR Don Schader, KI5TP 321-9649
VP Mike Winkel, N5SOF 366-8639
TR David Gates, N5LCL 392-5677
SE Gary Skaggs, WB5ULK 799-5363
Editor: Ken Brown, N5KUK & Gary Skaggs, WB5ULK

16. EDMOND AR CLUB
Meets: 7:00 pm, Second Monday, Various locations.
PR Mark Northcutt, WD5DYI 755[illegible]72
VP Wendell Cochran, WB5ISO 94[illegible]8
S/T Kay Northcutt, WD5DYJ 755-4672
Trustee: Dennis Orcut, WB5ISN 340-0034

18. GREAT PLAINS ARC
Meets: 2:15 pm, First Sunday, Home of N5LRR, 2914 Osage Drive, Woodward
PR Bob Bayles, WB0GAX, Woodward 254-3561
VP Andy Taylor, N5LRR, Woodward 256-4017
SE Rod Ford, WB5OVT, Gage 923-7683
TR Freida Patterson, N5EOX, Woodward 256-2111
Editor: Phillip Perry, N5QCN 938-2453

CENTRAL OKLA RADIO AMATEURS
Meets: 7:30 pm, Fourth Tuesday, Salvation Army, Penn & NW Highway, OKC, (Back Door)
PR Frank Tassone, AA5GI 341-1124
VP Kathy DeGraffenreid, AA5RU
SE Jim Buswell, N5BEQ
TR Tom Mangham, K5LDI 677-5291
Editor:

Meeting was called to order at 2:30pm by our honorable President AB5Z, Ray. Self introductions were maade by 43 members and visitors.

Guest Terry and wife Roberta Roelfsema. They live in Dover. Terry is the minister of the Christian church. Terry is waiting for his technician plus ham license. Roberta is a housewife.

In the month of April, the club voted to travel caravan to Mooreland the fourth and have the meeting on the route up. We are to leave Watonga at 8am. People north of Watonga will intersept the caravan at junction 51 and 270, some at Seiling.

The May meeting will be held at Red Rock Canyon state park. From I-40 west of Cherokee restaurant a few miles there will be a sign to turn off and go south to Hinton. go on south through town, just out of town you can see the park sign on the east side of the road in the entrance. The date of the May meeting will be May 16th. It will be a covered dish dinner at 1:30 pm.

The Eye Ball QSO will be a covered dish dinner. When you get to Mooreland Turn north at the sign at south main go north across tracks turn west two blocks and you are there.

Both of these meetings take a two meter along. If you don't know where it is, give out a call on 146.52 simplex.

Our special guest for the meeting was Kathy Carlson. She is a park ranger with the U.S. Army corp. of engineers at Canton lake. Kathy brought a film of bird watching. Their habitat, and nesting of different species. She identified species the color of some of the eggs nature camouflaged to conceal them from preditors. Some of the small birds lead intruders away from the nesting area by acting like they were wounded. The film showed the birds leading and teaching the young.

After the film was shown, Kathy talked about feeding birds, the kinds of seeds different species eat. Making inexpensive, Blue bird, Bay and othere nesting boxes to be placed at marches and lake shores. Pointing out the bird feeders in the film were most inexpensive and simple to make at home.

'Green Bar Bill'dies at 92

by Earnest Doclar

In the 1940's, Earnes read Green Bar Bill's columns. He tried his to be the kind of a patrol leader GBB suggested.

Bill Hillcourt Numbered as friends not only his professional associates, but also the tens of thousands of volunteer Scouters and scouts from dozens of scouting associates around the world. He worked with and for every BSA Chief Scout Executive from the first, James E. West, to the most recent, Ben H. Love. Love said, "Bill's interests were unlimited, his enthusiasm unbounded. No one could ever deny that this Grand Old Dane always had the Scouting movement foremost in his mind and heart.

William (Bill) Hillcourt died November 9, 1992. Still a vigorous Scouter at age 92.

Hillcourt is remembered as the man who wrote the first HANDBOOK FOR PATROL LEADERS in 1929, and the Green Bar Bill column from 1932 to 1965. He wrote the sicth, seventh, and ninth editions of the BOY SCOUT HANDBOOK. After retireing he worked an entire year compiling that last volume.

One of his most noted accomplishments was the difinitive biography, LORD: BADEN POWELL: The Two Lives of a Hero, done in collaborating with Olave, Lady Baden Powell widow of the founder of worldwide scouting.

Hillcourt found time to compile a treasure of camping hints in a popular first edition of the Scout Field Handbook, which those of us who still own a copy keep closely gaurded. Born in Denmark, Hillcourt trained ot be a pharmacist, and was a boy scout leader, and scouting author in his native land. He came to America at age 26 and began working with the Boy Scouts of America.

Hillcourt was married once, widowed with no children, yet worked 66 years with the BSA. He was the least lonely man ever known. But how many men have millions of surrogate sons in every corner of the world.

Now, what are we doing, yes, you and I, to teach, guide, and direct our youth to be highly respected citizens of the future.

73 de WA5PFK,
Ralph

TheBIGSignal
Oklahoma City Autopatch Association

There have been many interesting comments made on the repeaters during the past few days by members of the club. I felt some of these were worth repeating so those who missed them would be in on the news.

It seems as though one of our club members has become rather dissatisfied with his choice of careers as a chemical delivery man to various oil field sites throughout the state and has decided he had rather do something different. With his growing fear of little harmless snakes he might happen on, he has found his health continues to deteriorate. Having read an ad in his local newspaper that the Joker's Club was seeking good entertainers he made a trip to the big city one evening for an audition and was accepted on the spot to close the nightly shows as their number one comedian. He wanted me to extend a special invitation to all his ham buddies to come out and hear his line. What's this about too many U-turns?

Another member who is becoming increasingly dissatisfied with the state of Oklahoma in general and particularly our drivers and the roads upon which they travel would prefer living on the waters in a big boat. He has been making all the boat and recreational vehicle shows throughout the state of Texas. After checking the prices of such items, he has decided that perhaps the thing for him to do is go in business as a dealer so he can get one at a cheaper price. It is understood he is in the process of choosing the location for his new business and will announce a grand opening in the coming months.

One of the regulars on the early morning net has great difficulty in determining what he can and cannot say on the repeater. This has become a great curiosity to him. Let it be known that this fellow has a lot of curiosity about a lot of things. On many occasions, he will start to say something and about the time the words start to come out of his mouth, he realizes that perhaps he can't say that, and states that to his listener. So, to ease his mind, he has decided to compose a list of all the things he would like to say but can't. Just out of curiosity, it will be interesting to see what all he comes up with.

One of our South Side members who has a good looking young daughter that is also licensed, seems to be having more trouble keeping up with said daughter that he would like. He is working on a project where her radio will be attached to her permanently and will call him every hour on the hour.

The great computer wizard of North-west Edmond is getting tired of being outdone. He probably has more computers than anyone around, but he doesn't like anyone having more cars or radios than he does. So, he intends to purchase a new Rolls Royce for his spouse and a new BMW for himself and install one of the new small Kenwoods in each vehicle. He also plans to install one of the best Ten-Tecs in each of his present vehicles. When all this is done, he intends to mount a new Icom two meter radio on his John Deere riding mower.

The professional golfer of the club is considering the start of a Bagel franchise in the metropolitan area. With his craving for bagels and the clientele he would draw, he figures this would be a good investment.

One local ham, who is not a member of the Auto Patch club, although sometimes a visitor at the Thursday luncheons, has some difficulty in reading the menu as well as other things. It is a great disappointment to him to hear others speaking of the curvatures of some local waitress in a well known eating establishment when he isn't able to enjoy such sights. Being quite good a reading braille, he would like to see them open a restaurant just for folks in his condition who could read the curvatures by means of braille.

What's this about one of our members deciding to go into the business and printing QSL cards and becoming a skiing instructor? It probably beats the job he now has.

I'm sure that most of our members are aware of the problems we are having with our repeaters and the need we have for some new feed line. With the bank account being a little low to purchase the needed equipment and have it installed, some are talking about having a fund raising function to get the necessary funds. One of our members has suggested gettingsome of the new feedline that is now being manufactured at a huge discount which is being offered to the club, and reselling it to members at a slight markup. This feedline is being produced by the RF Manufacturing Company in Edmond. The novelty of this material is that it is capable of handling the full legal limit of power and is very small in nature, being about the size of RG-58. It can be used both as Twin Lead or Coax, which ever the operator desires. When used as twin lead, it presents an impedance of 450 ohms, or if used as regular coax, it can be changed from 50 to 75 ohms by merely throwing a toggle switch at the transmitter site. It is strong enough that it can also be used as guy lines for towers and when used as such, these legs can be loaded up and used and used as inverted vee antennas. Feed line loss is minimal, being only 1 DB per 10,000 feet. It is reported that signal amplification is present for those weak signals. The outer covering will last indefinitely, therefore it should never need replacing during the life of the amateur. One of its qualities is that it is almost impossible for one's neighbors to stick a pin through the outer covering in case of TVI. Another feature is that any kind of connector can be used from a PL-259 to BNC or

anything that AFM might have around the shack. Scuttlebutt has it that it will be suggested to the club that they purchase 5 miles of the feedline for 25 cents a foot and resell it to members for $1.00 per foot, which is a real bargain. Should anyone be interested in placing an order, please contact one of the former treasures of the club and he will see that you are fixed up good.

One of our members is quite good at home-brewing antennas and transmitting equipment. Although it may not be as small as a TS-50, it is made with his own hands. Not only is this individual adept at devising such articles, he is quite articulate about most of the world matters, being very well versed on foreign as well as domestic affairs and how everything should run. He isn't as well known as Rush, but his beliefs are much the same. A committee is being formed to place his name on the ballot for the next gubernatorial election and if successful there, he should go all the way to the top, hopefully prior the next national elections

K5NK

Howdy! This is NJ1V. I guess everyone is looking forward to Spring, and all of those Honey-do's! (But, don't forget the antenna projects!).

I'd like to spend a little time discussing the recent change of Editors for the C&E. Scott, N5NYS, volunteered to accept the responsibility at the February C.O.R.A. meeting after the resignation of WZ3F. The day after that meeting, I received a telephone call from an OCAPA member, distressed that he had been told that, since Scott was a member of MORI, he (they - MORI) would use the position of C&E Editor to the detriment for OCAPA. I subsequently called Scott personally. As I was already certain, he stated to me that was not the case. He also assured me that his motives were to keep the C&E alive and well. I hope this helps ease the minds of those concerned. I encourage everyone to support Scott in his new role. TNX Scott!

Along the same lines, Scott and I discussed the "feud" that some believe is brewing between MORI and OCAPA. I certainly don't endorse any such action, and Scott assured me that is not a direction of the leadership of MORI. So Ladies and Gentleman, let's cut out the immature BALONEY, and learn to coexist with one another! There is no reason why there can't be several large clubs in the area, which very may be of benefit to each other. Besides, this is supposed to be a HOBBY, and FUN!

Anyway, I won't play that game! I encourage members of OCAPA and MORI to also not play that game. In fact, in an attempt to demonstrate my feelings on the matter, I recently joined MORI. I hope that more of you will decide to support both organizations, and more if you feel it serves your purpose.

Sorry I was not able to attend the March meeting, which I understand was another packed house. Besides the program on RFI presented by Doug Yeaman of OG&E, I was advised that money was approved for some much needed feed line acquisition, and additional severe weather net related equipment. I also understand that Brad KJ0W's class on 2 meter protocol was a big success, with approximately 25 attending. Hank, WA5JRH, will present next month's class relating to the use of Packet. The class will be held at 6:00 P.M. just before the OCAPA meeting, Tuesday, April 20. If you have any ideas for future classes please contact Brad or me.

Also at the meeting, Larry, KF5JN, reminded everyone that Field Day is soon upon us, and that we need to start our preparations so all can enjoy a great time, and we can beat last year's scores. Please volunteer to help in anyway you possibly can. You can contact either Larry, any of the other club officers, or me.

Guess that's it for now! C U at the April meeting!

73 de NJ1V ....."victor"

MINUTES OF THE OCAPA MEETING

In the absence on NJ1V, and K5NK, John N5SAM called the meeting to order at 7:30pm. Jim N5OHL introduced Doug Yeaman from OG&E's RFI division. Doug's presentation centered around line noise and finding the sources.

The minutes of the last meeting (November and December) were accepted as published in the C&E by John, N5SAM, seconded and passed.

Treasurer's report was read by Mike N5VIT reporting a balance of $2642.89, seconded and accepted.

TECHNICAL COMMITTEE - Hank WA5JRH reports that the feedline problems are causing the UHF preamp to blow fuses but replacement of the first 300' section will correct many problems.

FIELD DAY COMMITTEE - Larry KF5JN hopes that at least half of the club members make it to field day. Plans are underway for the 1993 event.

MEMBERSHIP COMMITTEE - Mike N5VIT reports that we currently have 291 members.

EDUCATION COMMITTEE -Brad KJ0W had 25 attend the first OCAPA class covering 2m repeaters. The April class is scheduled to cover Packet.

PUBLIC SERVICE COMMITTEE - Tom, WA9AFM, asked if anybody had (continued on page 11)

VHF Club
NEWS

W5LOW
The Elmer Goehler Memorial Station

Minutes of February Meteting

Meeting was called to order at 12:03 p.m. by president Jack, WB5ZKZ, with 17 members present. After getting approval for last month's minutes, and a Treasurer's report from Ellard, W5KE, Jack asked the nominating committee if there was a recommendation for President. Jerry, KD5IS, no sooner uttered the name, "J Fields, KB0QJ", when "Slam Bam! Thank you Ma'am!" J was nominated, acclimated, and installed as President. (The nominating committee was Jerry, KD5IS; Fred. W5NL; and Joe, K5JB.)

The group showed its appreciation to Jack, WB5ZKZ, for serving four years as president, by awarding him a suitably engraved gavel.

J kept up the momentum by tending to the election of Bill Noland, WA5FWD, as Vice-President; Ellard Foster, W5KE, as Treasurer; and Joe Buswell, K5JB, as Secretary. (No surprises on the last two!)

There was some discussion on alternate meeting places and the poll concluded that for the time being we will continue to meet at the Golden Skillet. Next meeting is March 20. The group begins to gather around 11:30 a.m.

The elections went by so fast that I almost forgot to note that Ellard advised us that there are currently 40 members. He mailed reminders to those who had not yet paid for this year. Ellard also gave a brief report of happenings at the last CORA meeting. The only significant business conducted was approval to reimburse Ellard for postage used to mail reminders. Meeting adjourned at 12:17 p.m.

Joe, K5JB, Sec'y

Minutes of March Meeting

Meeting was called to order at 12:12 p.m. by President J, KB0QJ, with 17 members and guests present. Secretary, Joe, K5JB, read the minutes of the last meeting since they weren't published in the C&E. Treasurer, Ellard, W5KE, gave his report. He related the hassle that the Bank of Oklahoma (previously Sooner Federal) started by charging a fee for the checking account. Ellard bought a CD from the bank to avoid the recurring charge -- Thanks Ellard!

Charlie, WA5JGU, gave the CORA report, including need for a volunteer to take the non-technical programs for Ham Holiday. Meeting adjourned at 12:30 p.m. so Steve, N5OWK, and Joe, K5JB, could do a "show and tell" on their FM deviation meters. Joe, K5JB

Packet Halitosis Cures

You say yer packet rocket yer mama bought you last Christmas isn't working so hot? You say your buddies seem to be ignoring you on packet, eh? You say that the only way you can seem to connect with anyone is by using your buddy down the street as a digi? Is that what is bothering you bucko? Is that what's causing you pain, Jane?

Well, this month, we have not only one way to solve your problem, we have two! The following two articles were prepared almost simultaneously by a couple of people who knew what your problems were and had solutions for them. Follow along, and follow up, and you will have a cure for your packet "halitosis", a term sometimes contracted to "packetosis" by long suffering packeteros. The first article is written by Steve, N5OWK, and the second by me. Joe, K5JB

Building a Deviation Meter

During the last couple of months I have been interested in measuring frequency deviation. My problem was that I didn't know where to set my packet TNC's audio level. I had several conversations with Joe, K5JB, about different ways of measuring it, and finally just began using an O'scope. This was actually a lot of fun. I started looking at commercial stations, pagers, and just about everything imaginable that used FM. What I found after looking at all those signals, was not very many of them were using the same deviation. One thing I did learn by viewing all of these signals, was that they had to be full quieting or very near to it, to give me an accurate reading. Norm, N0ELS, prodded me to get off my duff and make a meter that would be easier to lug around then an O'scope, especially out at remote sites. I had a schematic by N6MWS stashed away (73 Magazine, January 1990). I got that out and started stuffing parts into what would be a nice battery operated deviation meter that I could hook up to a portable scanner. (The original article contained features, like a calibrated zero-center frequency meter, which I decided I didn't need at this time.) The meter needs need a source of discriminator audio, and a scanner is a great way to get this cheaply. I won't tell you about the two days I wasted buying military surplus meters up at Worldwide! They each turned out to be custom movements. Get a 1 mA movement, and don't mess around with unmarked meters that look like they might work. The final circuit draws about 1 mA and should make the 9 volt battery last quite awhile. The schematic is shown in Figure 1.

I used parts from Worldwide Electronics on 16th street between Penn and Classen, and my favorite Radio Shack Dealer. The resistors and diodes are garden variety. The LM-324 is RS P/N 276-1711, the meter is RS P/N 270-1754, the case is RS P/N 270-627, and the BNC Jack is RS P/N 278-105. I spent a total of $18.22 on parts.

Well I now had a real nice meter, but what the heck was it telling me? In my O'scope days I just looked at Dave's (WB5FWE), station and saw that it

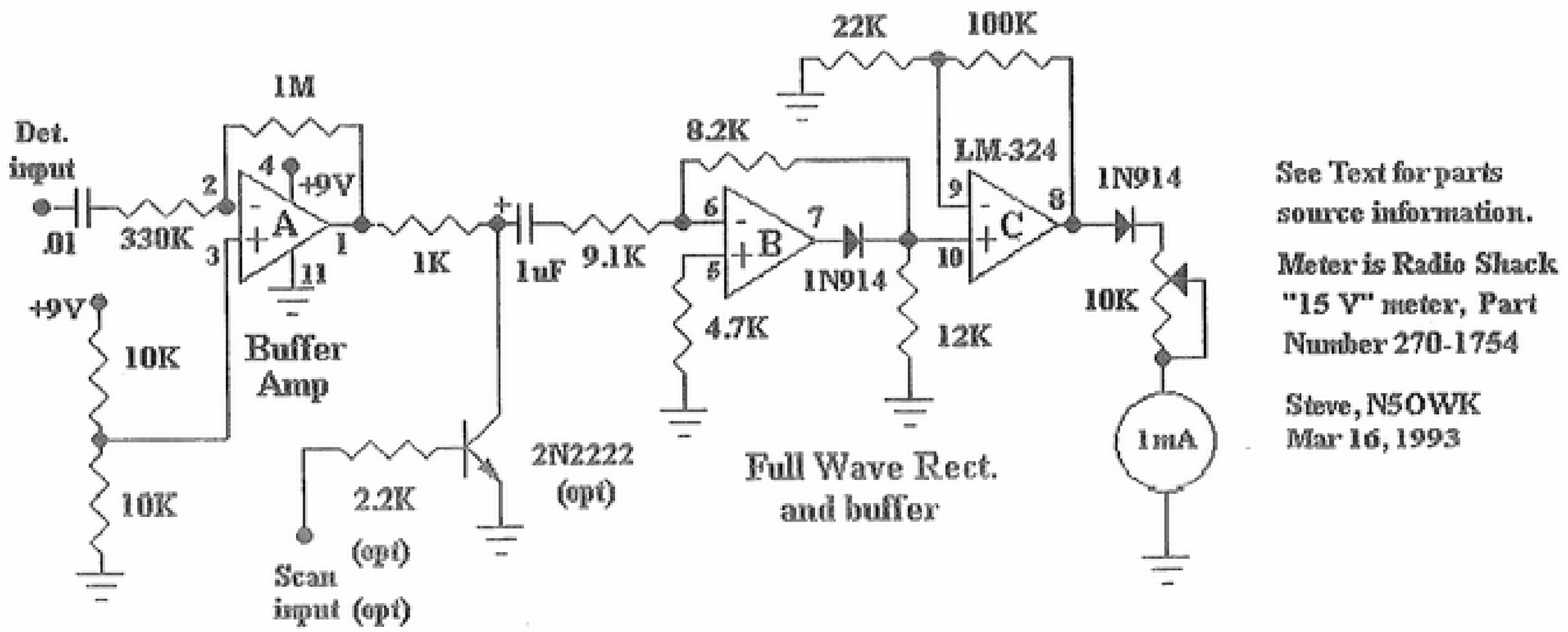


Figure 1. Deviation Meter with Full Wave Rectifier

gave me about 1 Volt Peak-Peak. I assumed he had it all tuned up correctly, so that the 1 Volt probably translated into about 3.0 kHz deviation. The meter is a little more complex, because with the calibration pot I can adjust it to read anywhere I want. I asked Dave if he could build me a couple charts for the Ham bands based on the output of a real service monitor transmitted through the scanner, and he graciously accepted. What he gave me was kind of confusing because it didn't match what I was seeing on the air. About the best I could hope for was to paint a green line from 6 to 9 on the meter. This wasn't a great state of affairs, so I was introduced to Dean, N5AMV and together with Joe and Mike N5MS, we plotted data points until the sun went down. We then spent two days trying to figure out what it all meant (well I did anyway). Joe and I discovered that you have to protect the receiver from strong RF fields to get reasonable results.

My scanner has a Motorola 3357 chip for a detector (pretty common in many scanners and Ham radios). Detector output is on pin 9. If you have a radio available that uses this chip you should get similar results to mine. Setting your deviation level is simple. Tune to an unused frequency, set your radio to low power, and connect it to a dummy load. Tune your scanner and remove the antenna. Set the deviation meter's calibration pot so that the meter reads 10 from just the noise level. Transmit some long packets and adjust the TNC level until the meter reads 8.5 and you're done. If you have a Kantronics (they cut costs here, so you'll have to finish the design for them), the best bet is to install a pot (either inside the TNC, or in the mike audio line going to the radio). Those stupid jumpers are producing either too low or too high deviation. Inside the Kantronics TNCs, 2.5K to 10K pots are usable. In the line from the TNC to the radio, a 10K pot is common.

I think this is an excellent spring project and an useful instrument for your shack. Thanks Dave, Norm, Dean, and Joe. Great fun, Steve.

Packetosis Cure, Part II

Tucson Amateur Packet Radio (TAPR) has been preparing a deviation meter design and has just announced availability of the kit for $90.00. It is the mother of deviation meters; self-calibrating, adaptable to various receiver designs, and capable of being attached to a telemetry device for remote reading of off-the-air signals. While discussing with me his project to build such a device he piqued my interest enough for me to throw one together also, and the friendly competition began. We have had enough success with the things that we decided it was time to make the construction information available in the C&E.

We are publishing both meter designs so you can take your choice, depending on your level of inspiration. The basic difference is that Steve's contains a full wave rectifier design and mine is half wave. His is AC coupled to the receiver and mine depends on the DC voltage on the detector to bias the OP amp. His should be adaptable to most receivers, and mine may only work on a receiver identical to the one I made it for. His circuit is built on sound engineering principles, and mine is based on dumb luck.

First, let's review a little background on frequency modulation and its detection. Whether an FM receiver has a descriminator, ratio detector, quadrature detector, or one of the modern phase detectors makes little difference as long as the output of the detector is proportional to the amplitude of the modulating

tone (its loudness). When a modulating signal is fed to the FM transmitter modulator it varies the frequency either directly, or indirectly by modulating the phase of the modulating waveform. Prior to this process though, in an FM transmitter designed for voice operation, the modulating signal is modified by a "pre-emphasis" circuit to boost the relative amplitude of the higher tones. This boost is normally around 6 dB per octave in two way telephony. The modulated signal is a variable set of sidebands which occupy a bandwidth that depends on the modulation frequency and the amount of deviation that represents the loudness. The limits set by regulation are intended to set the maximum bandwidth to around 15 KHz, but they don't. In the typical receiver, the IF filtering is designed around this 15 KHz figure.

A frequency modulated signal that has been deviated plus and minus 5 KHz, and with a modulating frequency of 3 KHz would have significant sidebands occupying 24 KHz. (Using Bessel functions to calculate bandwidth under these conditions results in 8 significant sidebands, for a 24 KHz bandwidth. If you loosen up the definition of "significant" and only count 6 sidebands, the bandwidth is 18 KHz. At a modulation index of 1.67, 4th sideband pairs are 32 dB below the carrier amplitude.)

If a single tone of 2200 Hz modulates a transmitter to a deviation of 5 KHz, the modulation index is 2.27; there are 10 sidebands, for a bandwidth of 22 kHz. (A 1200 Hz tone causing 5 KHz deviation has a modulation index of 4.17; causes 14 sidebands, for a bandwidth of 16.8 KHz.)

In packet radio, transmitting a signal with this wide a bandwidth is certain to fail. It is just too wide for the typical receiver to recover, unless it is so close that it is receiving a very strong signal, which has enough power to squeeze past the IF filter's "skirts". Communication with more distant stations will certainly be unsatisfactory. It is essential to set the transmit deviation level to obtain reasonable performance. (Packet radio is almost "plug-n-play", but not quite.)

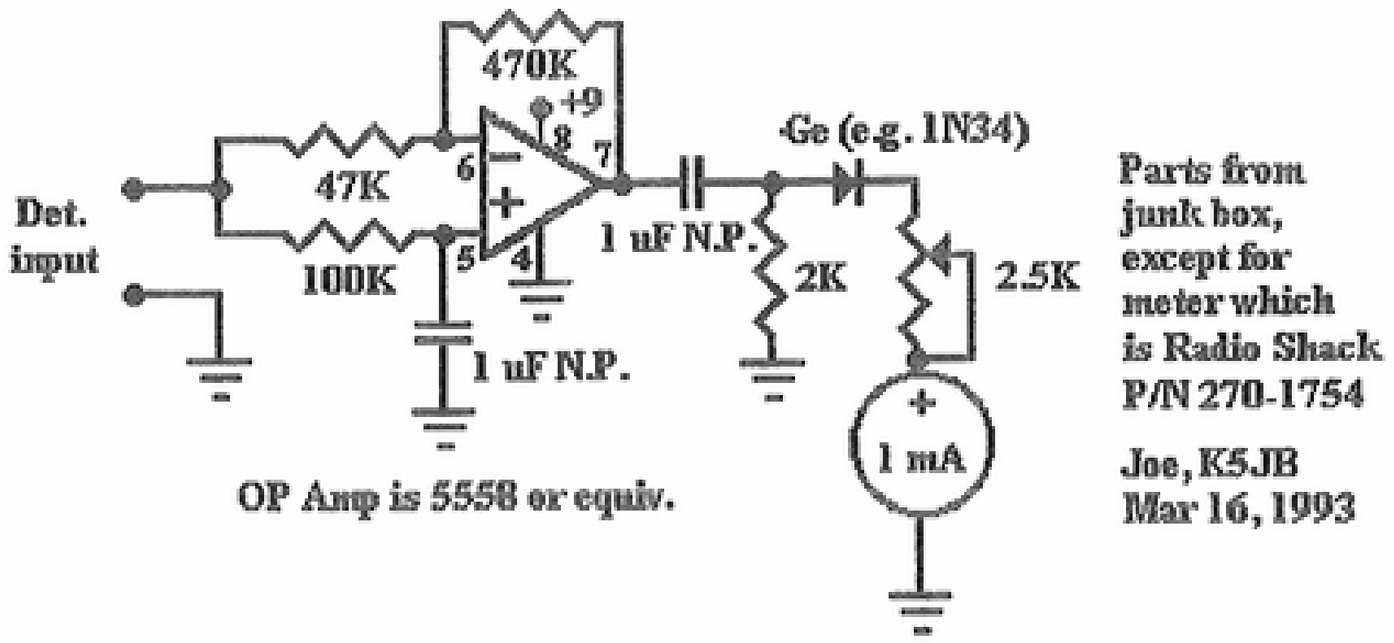


Figure 2. Deviation Meter -- Ugly Version

Lacking any other method, I always recommended listening to the transmitted signal with another receiver, and adjusting the TNC's transmit audio level to the point where a slight volume reduction from maximum is heard. At least, using this method your TNC is unlikely to drive the transmitter into deviation limiting , thus cause distortion from that cause. If you listen on the air to the signals that sound like a bull frog instead of a bumble bee you are hearing the result of transmitter deviation limiting.

As already noted, 1200 baud packet radio consists of 1200 Hz and 2200 Hz audio tones fed to the voice circuits of an FM radio.

After examination of the Bessel Function curves for significant sidebands on FM (arbitrarily choosing -40 dB for the significant sideband level), I came up with the following set of numbers:

Mod. Tone	Deviation	Mod. Index	Nr. sidebands	Bandwidth
1200	3	2.5	10	12
2200	3	1.36	6	13.2
1200	3.5	2.92	12	14.4
2200	3.5	1.59	8	17.6

It is clear that the 2200 Hz tone should be set to a point below 3.5 KHz deviation or there won't be any latitude for frequency error between a pair of stations. The rule of thumb to set the deviation to 3 KHz appears to be a good one. We will cover this more after we finish describing the Ugly Deviation Meter (UDM) that I built in competition with Steve. I'll reach back into Steve's circuit for a moment to explain it.

These meters are based on simple AC voltmeter principles. They pick up the AC voltage from the receiver's FM detector, amplify it, rectify it, and drive a meter movement. The circuit in Figure 1 is Steve's design. The first stage takes the AC voltage, blocks the DC, and amplifies it with a gain of 3 in the first OP amp stage. The next two OP amp stages form a clever full wave rectifier function. Positive going parts of the wave sneak around the second OP amp to the third and cause a positive pulse to the meter. Negative parts of the wave put the second OP amp stage into action causing it's output to put out a positive pulse to the third OP amp.

Steve uses his meter on either a Regency MX-7000 scanner, or (when he gets it calibrated) on an Icom IC-228A transceiver.

The UDM is simply a single stage of a 1458 OP Amp, wired for a gain of 10, and rigged with a half wave rectifier to drive a meter with current proportional to the average of the absolute value of

the deviation voltage. I used the same meter that Steve used because I wanted our scales to be the same.

This circuit may not be repeatable, because I removed the bias circuit for the non-inverting input, and saw more vigorous meter activity. The scanner I used is the Bearcat 220 which had a 2.7 Volt DC bias with about 0.4 VAC superimposed on it. (This DC bias is essential to the operation of this circuit.) The connection point in the scanner is pin 9 of an IC that appears to be an SC8780P or MC1357.

Mine uses a 9V transistor radio battery, and current draw is approx. 2.4 mA. One could add a push button switch and the 15K resistor that came with the Radio Shack meter to make a battery test circuit. The 1 uF capacitors don't have to be non-polarized, but I happened to have some Tantalums which I used for predictable time constants; but, all design rules went out the window as I started removing non-essential components. I just flattened out the leads of the OP Amp and soldered all the components to them. In the spirit of maximum kludginess, when finished I just tied the thing to the power switch with lacing cord. Sorry I didn't have time to replace the OP Amp with a transistor, heh!

The most fun part of this project was testing the things to see if they worked well enough to set packet deviation. The basic method was to set the meter rheostat to read some value with the noise voltage from the receiver while no signal was present. Since we both were using meters marked with 0-15, we decided the 10, or 2/3 meter deflection, would be a good set point for the noise. Then we would feed the receiver full quieting signals modulated with 1200 and 2200 Hz tones, at various deviation levels from 0 to 5 or 6 KHz, and on 2 m and 70 cm, and record the points to be later plotted to curves.

Steve gave his completed meter to Dave, WB5FWE, to calibrate with his service monitor. I took mine up to Mac, K2GKK, and both of us, squinting at the meters, jotted down all the numbers. When I got home and plotted the information, I was a little disappointed with some scattering of the data plots. Now Mac and I both wear glasses, and I have to admit that we did some squinting at the meters, but the scat-tering didn't look like errors in meter readings. They looked more like the deviation meter wasn't giving repeat-able results. The curves were smooth; but they had unpredictable slopes. Steve reported similar results, and the curves differed between our meters, and they shouldn't have, as I'll explain later.

I noticed that readings of my own transmitters' deviations varied from time to time, and was disappointed that the meter was not consistent enough for serious use. I was not satisfied that we fully understood what we were doing.

We decided to have a "shoot-out". To compare meters it seemed that we should calibrate them both together, using the same methods, and then compare results. We met on a Saturday afternoon at Dean, N5AMV's shop where he kindly let us use his service monitor. It was here that we began to learn the importance of two rules in using these devices.

My receiver is a Bearcat 220. It has a telescoping whip protruding out the top which is attached by screwing it into a fitting on the circuit board. It also has a Motorola socket for an antenna connection. I discovered that if either the external antenna or the whip were connected, the noise voltage was different from readings taken with both of them removed. It appeared that out-of-band signals were affecting the receiver and setting the meter to a "10" with noise was meaningless if the antennas were connected.

The day after our "shoot-out" I made important discovery number two: Don't douse the receiver with a bunch of RF while setting deviation! Meter readings were still inconsistent on my own transmitters until I put one of them on a dummy load. The strong RF field, even with the antenna quite some distance away, was saturating the receiver and causing my deviation meter to read quite high.

Once these two important points were discovered and respected, Steve and I began to have extremely close readings of off-the-air signals and started actually using the instruments to set up some of transmitter modulation levels.

In my instrument, the "UDM", the meter's time constant is quite short and you can see the variation in average deviation with different composition of packet signals, and during the interval of the packet, even an ACK. In fact, after watching it for a few minutes you can distinguish between stations by their "signatures".

Since there are bound to be differences between deviation meters constructed from different junk boxes, I will leave out most of the calibration data that I collected. Suffice it to say that once you have one of these things connected to a receiver it becomes immediately apparent which packet signals you hear are good and which ones are baaad! With no signal, the needle hovers around 10 on the scale of 0 to 15. When a packet starts it either drops to around 7 to 9, on a really good signal (2.5 to 3 KHz deviation), or jumps to 11 or 12 on an over-deviated signal (4 to 6 KHz). Rarely you will see someone come up with a reading of less than 6, or so, but even with readings down as low as 4 (1.3 KHz deviation) packets are still mostly readable. I can't read bad packets any better than anyone else, but with my equipment most packet signals in the OKC area are strong enough to swamp my receiver IF even if they are wildly over-deviated. The problem these folks have, whether they know it or not, is that they are like running around on flat tires; it's hard to "go fast"! Joe, K5JB

Let me begin this article with a fond, if belared, farewell to our former Vice Presiden and Editor, Bob Long, N5KUE. Bob and Darlena (KG5HM) and family (Hi, Robyn and Sheila!) moved last month, and like the cattle rustlers that they are at heart, they left town in the middle of the night with barely a "good-bye" to anyone. So, guys, if you're reading this (and I know you are), "Good-bye" from all of us at EARS. Thanks for all your years of service, as well as good advice to those of us who are new to ham radio. Best of luck in those greener pastures of western Arkansas. Hmmmm.....Farmer Bob.....kind of has a nice ring ro it.....

Now, down to business. Spring has sprung, and what does a ham's fancy turn to in spring? Why, severe weather, of course! (what else?) In preparation, EARS held a severe weather simulation on February 27. Approximately 15 people took part in this event, spending most of their afternoon chasing hot air balloons all over Oklahoma County. Everyone involved had a great time, and we all learned a lot about hot air balloons and all the different directions they can drift!

Also, the National Weather Service held its Severe Weather Training classes on March 4th. I'm not sure how many EARS members were in attendence (if I had known that I was going to be writing this article, I would have counted heads - sorry!), but Boy! was that room full! Glen, KF5XB, taped the seszion, which was as informative as always, and is now in the process, of making copies, so those of you who weren't at the training classes -- get with him!! Thanks, Glen, and by the way, was that clear sky or a wall cloud you spotted during the simulation? Really.....Inquiring Minds Want To Know.....

Another big THANK YOU goes out to everyone who helped out with the St. Patrick's Day parade in downtown OKC. The parade went very smoothly this year, in spite of the lack of cooperation from Mother Nature. Brrrrr.....

Some sudden changes in the EARS board to bring you up to date on: now that Bob is safely out of the state, several positions needed to be filled, primarily Vice President and club station manager. The board acted true to its nature, and after a VERY brief discussion, railroaded people into these positions. Pat Gray, N5SGV, is the new station manager, and the new VP is me, Terry, KB5RQT. I can't speak for Pat, of course, but I really didn't have to have my arm twisted too far behind my back. Still, that board moves FAST!!!

Don't forget the dinner meeting on April 15th at Pepe's here in Edmond. Hope to see lots and lots of happy faces there!!

DID YOU KNOW?? Some of the EARS members have been meeting every Saturday morning at Grandy's? Did you know that anyone and everyone is invited to come out and join us? You did? Well, then, what's you excuse? P.S. Ladies: these meetings are beginning to look like a "Men Only" kind of thing, and yours truly is beginning to feel pretty out of place, so.....Ya'll come. Please!

HAM HAPPENINGS

APRIL

3 Lawton Hamfest
14 EARS board meeting
16 EARS dinner meeting at Pepe's
23-25 Dayton Hamfest

Later! Terry, KB5RQT

THINK ABOUT IT.....

People are always saying how little time they have, how they can never get enough done in what little time is allotted.

Erma Bombeck wrote an article titled "I was going to, but....There wasn't enough time." It told of things I'm affraid all of us do from time to time. Oh, I know we don't mean to, and we don't even know we are doing it most of the time.

What is it we are all guilty of? I'll give you some examples that Erma pointed out.

*Mom had to wax the bathroom floor, so there wasn't time to read to sissy.
*Dad had to get the car tuned up, so there wasn't time to see brother's first school play.
*Grandma and Grandpa couldn't get anyone to feed the dog, so they couldn't come for Christmas.
*Dad had to fertilize the garden at the last minute, so there was no longer any time to go fishing.

The list could go on and on.

What if...Frank, with his full time job, 4 (or is it 5?) kids and college classes, didn't have time to be President of CORA?

...Jim didn't have time to chair a position at Ham Holliday?

Gee...I guess there wouldn't be a Ham Holiday.

Volunteer now for a technical or non-technical. I promise your ideas will be seriously considered and not just put aside or ignored (yes, I've heard all the complaints).

Just a little bit of time is all it takes to bring a lot of enjoyment into the lives of others.

See your club CORA rep., come to a CORA meeting, or contact the chairperson for the area in which you would like to help. Please, don't wait 'till the last minute. Kathy, AA5RU
Vice-President, CORA

The South Canadian Amateur Radio Society

S.C.A.R.S. met on March 13, 1993 (my Dad's 81st birthday!) at the Cleveland County Red Cross HQ on North Base in Norman. This being the usual time and place for the *official* club meeting, we had one. The new President, N5KUJ, David, called us to order at 15:38 UTC. He repeated his promise to hold meetings to 30 minutes or under (some campaign promises aren't broken!) and began by asking each of us to introduce ourselves and tell if we had something to swap, sell, or give away. There were 35 members and guests present. Several items were swapped and/or sold, and the secretary recorded for posterity that W5UZD was present for the donuts, but as usual, departed before the meeting.

In Old Business, the minutes of the January meeting was reported to have been published in the C&E, the treasurer reported that we had money in the bank, and there was a question regarding the in town receiver. WB5ULK dredged up past history on this last subject, and AFTER MUCH DISCUSSION, it was VOTED that the following members be approved as nominated by the President to be on a newly formed technical committee: N5UMH - Bill, N5KUG - Bob, N5LCL - David, WB5ULK - Gary, and N5KUK - Ken. Others voluteered to help after the meeting was over. This committee's task was to assist N5KUK in whatever way is needed with the technical aspects of the equipment for which the club is responsible, and to 'take the heat' off of any one individual. It was expressed that the club did deeply appreciate what it was that Ken did for us, but that it was time the club get off it's collective keester and help. The committee requests your input and comments. We don't read minds.

In other old business, KC5RI - Jud, reported that 18 people showed up for the testing session on the 4th and that 13 passed the no-code Tech, 1 passed the Novice, and several CSCEs were issued for the Novice written (several were in attendance at the meeting). Congratulations were expressed to Jud for a successful class and to those that had passed.

In social news, Tuesday coffee is still at the Kettle on Lindsay, 8:30 am until they quit, and non-official-club-meeting Saturdays are at the Ramada Inn. Listen on .06.

In New Business, NI8W - Steve, gave information regarding the upcoming 89er Stage Race (bicycle) to be held in Norman the first weekend in May. This is one of 12 nationally sanctioned races this year and so will draw top talent and quite a few spectators and media. Steve said that 15 drivers (preferrably with pick-ups) and 12 other operators are needed for this event for safety, first aid, and communications. He emphasized that you don't have to be a SCARS member to help. If you can help, give Steve a call at 329-0203.

There being no further business, the meeting was adjourned at 16:15 UTC.

Operators are still needed to man the NWS Ham station during severe weather. If you can help, give Jim Purpura, KB5YHT, a call at the NWS during business hours, 360-5928.

DUES ARE DUE. Contact any club officer, or send your $16 to:
SCARS
P.O. Box 720993
Norman, OK 73070

73 de WB5ULK ..._._

AUTOPATCH CONTINUED...
contacted any ham's in Bosnia or Herg????? (those guys in the former Yugoslavia). Let Tom know, because the news folks are really interested.

PROGRAMS/ACTIVITIES/CORA-Jim, N5OHL, tells us the program at the next meeting will be on direction finding and fox hunts.

NEW BUSINESS - Baron WZ3F said if you ordered an OCAPA hat, please pay for your hat, and that the Autopatch Association banners are still missing. If you have them, let a club officer know. Hank, WA5JRH, proposes replacing the top 600' of hardline ASAP. He has found 300' of hardline for $2 per foot and requested authority to complete the purchase.

MOTION - Bill K5SKA made the motion to purchase this 300' section of hardline for $600, seconded and approved. Hank also proposed the purchase of equipment to link the Enid repeater with 82. Hank thought a budget of $500 would be sufficient.

MOTION - B.R. WA5BQX made the motion to authorize Hank $500 for the expenditure withadditional expenses beyond $500 be approved by president or vice-president, seconded and passed with opposition. Bob KG5OE called for Aries members to help at the Emergency Operations Center. Hank, WA5JRH, asked for help on the interference committee. Mac, K2GKK, reminded us that the codes for 911 access on 82 are blocked as well as regular patch calls. The autodial numbers are operational.

Robert N5QKI moved to adjourn, seconded and approved.

ATTENDANCE 58
Meeting adjourned at 8:50pm

John Brassfield N5SAM
Secretary

OPRA NEWS...

OPRA will sponser two packet forums at the Lawton Hamfest. One on packet for beginners and one on networks (Net/rom, Rose and Texnet). We willalsohave a forum at the Green Country Hamfest.

Plans have been formulated to put a 9600 bps packet repeater in the Oklahoma City. This should improve the problems which are occuring with paths between the nodes in Oklahoma City on the 9600 bps backbone It will also expand the coverage are of the 9600 bps backbone and completly eliminate hidden transmitters.

Following is a list of network nodes in Oklahoma compiled by Jay, KB0QJ.

73 Hank WA5JRH @ WB5FWE.OK

Okla network nodes

Location	Firmware	Frequency	
Ada	TheNet	145.010	WB5NBA-1 ADA
Altus	G8BPQ	145.010	WB5MJS-2 $ALTS
Altus	G8BPQ	145.090	WB5MJS MJSBBS
Altus	TheNet	145.090	WB5KRH-1 AXS located on Mt. Headrick
Ardmore	ROSE Sw.	145.010	WA5YOH-5; address 405226; WA5YOH-4
Bartlesville	TheNet	145.010	N5JST-1 BVL
Chandler	TheNet	145.050	WA5BQX-5 CHN
Duncan	G8BPQ	446.775	WD5IYF-2 $DCN
Duncan	G8BPQ	446.775	WD0AJG-2 $DCNLK
Duncan	G8BPQ	145.090	WD0AJG-1 $DUNCN
Elk City	TheNet	145.010	WB5FBU-1 ELK
Elk City	TheNet	145.010	WB5FBU-2 $ELK
El Reno	ROSE Sw.	446.775	AC5C-6; address 405263; digi AC5C6
El Reno	ROSE Sw.	145.070	AC5C-5; address 405262; digi AC5C5
Enid	ROSE Sw.	145.010	N5UGA-5; address 405233; digi N5UGA5
Guymon	TheNet	145.010	N5MOG-2 GUY
Hobart	TheNet	145.090	WB5OOB-2 HBR
Hobart	TheNet	446.775	WB5OOB-3 $HBR
Kellyville	TheNet	145.050	KA5NVE-5 KVY Link to metro Tulsa BBS
Lawton	ROSE Sw.	145.010	WJ5Y-5; address 405248; WJ5Y5 digi
Lindsay	TheNet	145.010	KG5FV-2 LDSY
Lindsay	TheNet	446.775	KG5FV-3 $LDSY
Midwest Cy	IP Node	145.010	K5JB-10 MWC
Midwest Cy	ROSE Sw.	145.010	K5JB-5 port 0; address 405732; digi K5JB-6
Midwest Cy	ROSE Sw.	446.775	K5JB-5 port 1; address 405732; digi K5JB-6
Moore	G8BPQ	430.550	N0ELS-7 OKMOR Port 1 - 9600 b/s/link
Moore	G8BPQ	145.690	N0ELS-7 OKMOR Port 2 (path to Texnet)
Moore	G8BPQ	145.010	N0ELS-7 OKMOR Port 3
Norman	Net/ROM	145.050	WB5FWE-1 OU05
Norman	Net/ROM	145.090	WB5FWE-2 OU09 No longer active
Norman	Net/ROM	430.550	WB5FWE-2 OU96 New 9600 b/s soon
Norman	Net/ROM	446.775	WB5FWE-3 $NORM
Oklahoma Cy	Net/ROM	145.010	WD5HJL-1 OKC ???No longer active - ?gone?
Oklahoma Cy	Net/ROM	446.775	WD5HJL-2 $OKC2 ???No longer active - ?gone?
Oklahoma Cy	G8BPQ	430.550	WA5JRH-1 OCAPA Port 1 - 9600 b/s link NW OKC
Oklahoma Cy	G8BPQ	145.010	WA5JRH-1 OCAPA Port 2
Oklahoma Cy	G8BPQ	430.550	N5KXI-1 ROLL Port 1 - 9600 b/s link Piedmont
Oklahoma Cy	G8BPQ	145.070	N5KXI-1 ROLL Port 2
Oklahoma Cy	ROSE Sw.	145.010	N0ELS-5; address 405771; digi N0ELS5 SE OKC
Oklahoma Cy	Digi	145.050	K2GKK-5 GKK5; 38th and Lincoln OKC PBBS
Pauls Valley	ROSE Sw.	145.010	WB5CQU-5; address 405238; digi WB5CQU-4
Ponca City	TheNet	145.010	KD5FX-10 PONCA
Ponca City	TheNet	145.090	KD5FX-11 PNC09
Stillwater	TheNet	145.010	W5YJ-1 OSU
Stillwater	TheNet	145.090	W5YJ-11 OSU09
Tulsa	TheNet	145.010	WA5LVT TUL
Velma	ROSE Sw.	145.010	KB5OJR-5; address 405444; digi KB5OJR5
Weatherford	TheNet	446.775	K5LGW-4 $WFRD4
Woodward	TheNet	145.010	KD5JR-1 WRD

---------- TEXNET SITES

ALIAS	Callsign	Frequency	Location
MKOTST	WA5VMS-4	145.050 MHz	2337 Manila, Muskogee, OK
MUSKOGE	W5EJK-4	145.090 MHz	Honor Heights Hilltop, Muskogee, OK
FTGIBSN	WB5AOH-4	145.010 MHz	5 Mi. NE of Fort Gibson, OK
FTSMITH	W5ANR-4	144.910 MHz	Cavanal Hill, Poteau, OK
CLAYTON	W5CUQ-4	145.090 MHz	5 Mi. NW of Clayton, OK
PARIS	KO5I-4	145.050 MHz	Paris, TX and seems to have been dismantled
OKEMAH	WB5HLR-4	145.690 MHz	Okemah, OK Hmm, linked to CHOCTAW only!
CHOCTAW	AB5H-4	145.690 MHz	Choctaw, OK located at McCloud, OK at 150 ft.

MORI

MORI wishes to welcome the following new members:

KB5FDS	Dorothy
WD5JWY	Dennis
W5QMP	Bill
N5RJM	Ruth
KB5RVV	Chuck
N5TCG	Tom
N5TWG	Mike
NJ1V	John
N5ZHO	Bob

Dale Peters (pending)

WE'RE JUST ABOUT THERE . . .

We are now less than a month away from placing all of the receivers at their final resting place in the 1400 foot area. The transmitters for all of the MORI repeaters will be placed between 800 and 1200 feet. The weather has started to cooperate and we have started on what will be several full days of work to get everything changed.

WE'RE LINKED!

The 146.925 repeater now has a turn on/off link with the Anadarko 147.27 repeater which can be linked to the Lawton 146.91 repeater! When the link is on, there is continuous mobile coverage from OKC to far SW Oklahoma.

TRANSMITTER HUNTS . . .

N5WNR reports that the transmitter hunts are going very well and that many people want to have more difficult hunts. The following rules were decided upon by the Transmitter Hunting Committee to allow the hunts to be more challenging and still allow the newcomer to feel less intimidated . . .

Starting April 17, there will be a separate novice and intermediate transmitter hunt every Saturday Eve.

The novice hunts will be held on 145.27 and will start at 8pm and end at 9pm. The novice hunt will alternate between the North and South side of OKC. The borders for the Northside Novice hunt borders will be I-40 on the South, NW 63rd Street on the North, Broadway Ext./I-235 on the East, and I-44/Lake Hefner Parkway on the West. The Southside hunt borders are I-40 on the North, I-240 on the South, I-35 on the East, and I-44 on the west.
The Novice "foxes" will be using a simple 5/8 wave mobile antenna from a car. The novice foxes will hide in an area that will be relatively easy to find. You will be able to start from anywhere you want to and don't have to bother with a common starting point.

The intermediate hunt will be held on 144.67 and will start at 7pm and end at 9pm. The intermediate hunt will alternate on the North and South side just like the novice hunts. The borders are a little larger. The Northside hunt borders are Memorial Road on the North, I-40 on the South, I-235/ Broadway Ext. on the East and County Line road on the West. The Southside hunt borders are I-40 on the North, 89th Street on the South, Midwest Blvd. on the East, and County Line Road on the West.

The intermediate "foxes" will be getting a little trickier as time progresses. There will be an optional common starting point for these hunts for mileage checks. Check-ins usually will start around 6:45. Check on 146.67 before the hunt for the exact location of the check-in points.

After both of the hunts at 9pm there will be a common meeting place at a restauraunt for coffee, ect.

Hopefully these new rules will allow the hunts to be more fun for all of us. If you have any comments, suggestions, or suggestions, please call Rick N5WNR or drop us a line at
The following address:

Rick Masters, N5WNR
% MORI
PO Box 95013
Okla City, OK 73143-5013

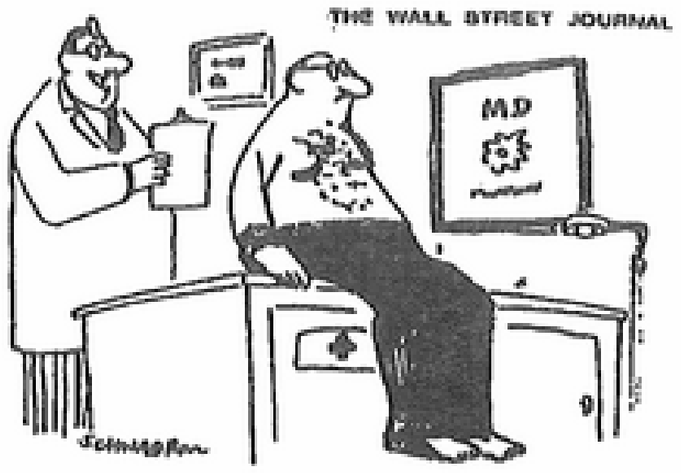
SO, HOW DO I JOIN?

Everyone has been asking how to join MORI . . . it's very easy, come to our monthly meetings which are held on the 1st Tuesday of every month at Favorites Resturaunt 3701 S. Western at 7:00pm. An early social starts at 6:30pm. If you can't make it to our meetings please call me at 720-0073 and I will send you a membership application and everything that you need to join MORI.

THAT'S ALL FOR THIS MONTH . . .

Hopefully we will see you at our next meeting on the 6th, or at the transmitter hunts, or at late Friday night coffee.

73 de Robert N5QKI



"You should last forever, Mr. Clemmons. The test results show you're full of preservatives."

BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

Sponsored by Oklahoma Air National Guard
ARRL affiliated

CQ CQ CQ..... CQ CQ CQ..... de the 76'ers club..... CQ CQ CQ..... de the 76'ers .....or what used to be.....

At the March CORA meeting, we received an alarming letter from KB5XM. He made us all aware that club participation has dwindled to a point that the 76'ers are no longer a member of CORA. The reason is simple. Hank can't justify paying dues to CORA from the 76'ers when they don't have any members to receive them. THAT'S RIGHT FOLKS!!! The only paid up member in the 76'ers is Hank himself.

...---... ...---... (SOS) This club needs members and fast. If there is anyone out there that thinks they can make the club grow and come alive again, please contact Hank Stokes, KB5XM. He says that he will leave the machine on for all of those that wish to use it. However, the repeater costs money. Without a membership to support this repeater, I am afraid it may soon go dark. Support this club! Call Hank and let him know that you don't want to let one of OKC's proudest clubs go under. His telephone number is 376-1067. Call him today!!!!

ALTUS AREA ARC

Altus Area ARA March meeting was a great success and we may have set a record for attendance. Following the Business meeting we were treated to an excellent presentation on antenna theory and construction by N1BEX, George Mateyko. The April program is planned to be a demonstration of some of the newest Ham "Toys", the Kenwood TS-50 HF mobile transeiver and the Yaesu FT-5100 Ultra Compact 2m/440 Mobile transeiver. This may reinforce the validity of the sign on my Hamshack door. "THE ONLY DIFFERENCE BETWEEN MEN AND LITTLE BOYS IS THE PRICE OF THEIR TOYS" AMEN!

The best news of the Altus Ham Radio Community occured on 12 and 13 March as "The world's friendlies repeater"(146.19/79) came alive with the happy voices of new callsigns. Welcome and congratulations to :

KB5ZCL	Mike	You are a wonderful addition to the
KB5ZCK	John	area and it's wonderful to hear so
KB5YWP	Doc	much activity. 73 Bob/KE4BN
KB5YWQ	Eric	
KB5YWR	D	
KB5ZDK	David	

From the Editor...

Why was the C&E late this month?? Well, it's a long story. I am glad to report, however, that the C&E need not be late again.

I have gone out and bought some upgraded software (Word Perfect 5.2 for Windows) that allows everything to be automatic. Now all I have to do is tell the computer which s tyle I need and it will lay everything out for me. The format is set up so that "what you see is what you get" and I can import fonts galore.

I also went out and bought a half page scanner. This allows me to scan pictures (if you have any that you think would be interesting send them in) and also lets me digitize the club headings so that they also fall into place. I can now scan letter quality text with no problem so the delay for typing should be reduced dramatically. No longer will I have to type for 8 hours strait. Now I should be able to type for an hour at the most and scan the rest in.

I found that I was having a problem with my machine hanging up due to a shortage of memory. I now have 8 megs. of memory to deal with and let me be the first to tell you, those extra megs of memory sure speed up my machine. They also let me multi-task much easier since everything doesn't get swapped to disk as much.

I want to thank Terry, KB5RQT, for helping me with the C&E this month and in the months to come. I am putting her name on the C&E as Circulation Manager because she deserves some recognition for all the hard work and ideas that she has had.

That's it! If you want to send me your article directly you can send it to: Scott Walsh, 600 Annawood, Yukon, OK 73099-2008. This will help me get your article in sooner. 73 de N5NYS.....

ALTERNATE CURRENTS:
No Stopping Me Now
By S.A. Kelly (N5VSG)

Happily tapping my foot, whistling a little tune, I dialed the phone.

La lala...la, la...lala.

Ever had it happen where the other person picks up the phone before you hear it ring, even though they said it did? I've always wondered about that.

Kinda spooky.

Dum dum dede...dum de dum, dede.

"Hello?"

"Hi. Guess what."

"Who is this?"

"It's me. Scott. Guess what."

"What?"

"No you gotta guess. You'll never guess."

"Well I'm kind of busy righ--"

"Okay I'll tell you. I'm gonna get on packet!"

"You don't say."

"I do! I am! I've got packet right here in front of me. I'm staring right at it."

"Well alright. Congradulations. If you ever need any help with that thing just call--"

"Excellent! Now what do I do first?"

"Well, like I said I'm kind of busy. Have you read the operator's manual?

"Operator's manual? Hell no I haven't read the operator's manual. If I was gonna do that I wouldn't have called you."

Big long pause. He probably went to get a beer or something.

"Well there's no way I'm going to be able to explain packet radio to you over the phone here. Its a lot more complicated than that you know."

"Yeah I know. I'll read the manual. If I can remember where I put it. I was just wanting you to help me get started."

"Well you...I mean...Well...Okay, I guess I've got a couple of minutes here.

Do you have everything set up?"

"You better believe I do! I've got a Bud longneck on the left side and a deck of Marlboro lights on the right. Let her rip!"

"You've got..." Another long pause. "I mean do you have everything hooked up? Which I guess you don't, since you haven't read the manual."

"No its all hooked up. I read that part of the manual."

"Before you tossed it and called me."

"Right."

He sighs. Probably didn't expect me to be this far along. But that's the kind of guy I am.

"Okay did you deconuberate the biscuit-woofer?"

"Say what?"

(Thats not really what he said but I swear to God it makes about as much sense).

"I said did you discombobulate the wicker-snookum?"

"Uhhh...yeah I think so."

"Okay, what do you have on the screen?"

"Nothing. Nil. Nada."

"T.V. on?"

"Ooops. Yeah. Hey...."

"Opening menu?"

"No its Night Court. Think I've seen this one though. God that's an awful picture."

"Okay flip it over to channel three."

"Done."

"Okay, do you have the computer turned on?"

"Do now."

"Okay, what do you see on the screen?"

"Uh, lessee here. Asterick asterick asterick asterick... Commodore 64 Basic V2... asterick asterick--"

"Okay thats fine. Now type S-Y-S and five three's and hit return."

"Okay hang on a second here...S-Y-S five three return. Okay. It says 'ready'."

"No. S-Y-S and five three's. Three three three three three."

"You mean S-Y-S and five NUMERAL three's?"

"Yeah. Right. Thats what I mean."

"Okay, hang on a sec here. S-Y-S three three three three three. Okay.

Nothings happening."

"You don't have an opening menu?"

"Nope. Its just sittin' there."

"Well try again."

"Okay, S-Y-S three three three three three. Nope. Nothing."

"Are you hitting the return key?"

"No. Was I supposed to be doing that?"

"Scott?"

"Yeah?"

"Scott? You still there? Hello?"

"Yeah I'm still here. Hello? Can you here me?"

"Scott? Scott? Well I guess our connection went bad. Hey, if you can hear me, read that operator's manual and call me back when you get your phone fixed. Talk to you later. Bye."

"Hey wait! Hello? My phone's working fine. I can hear you perfectly. You still there?"

"Hello?"

"Hello?"

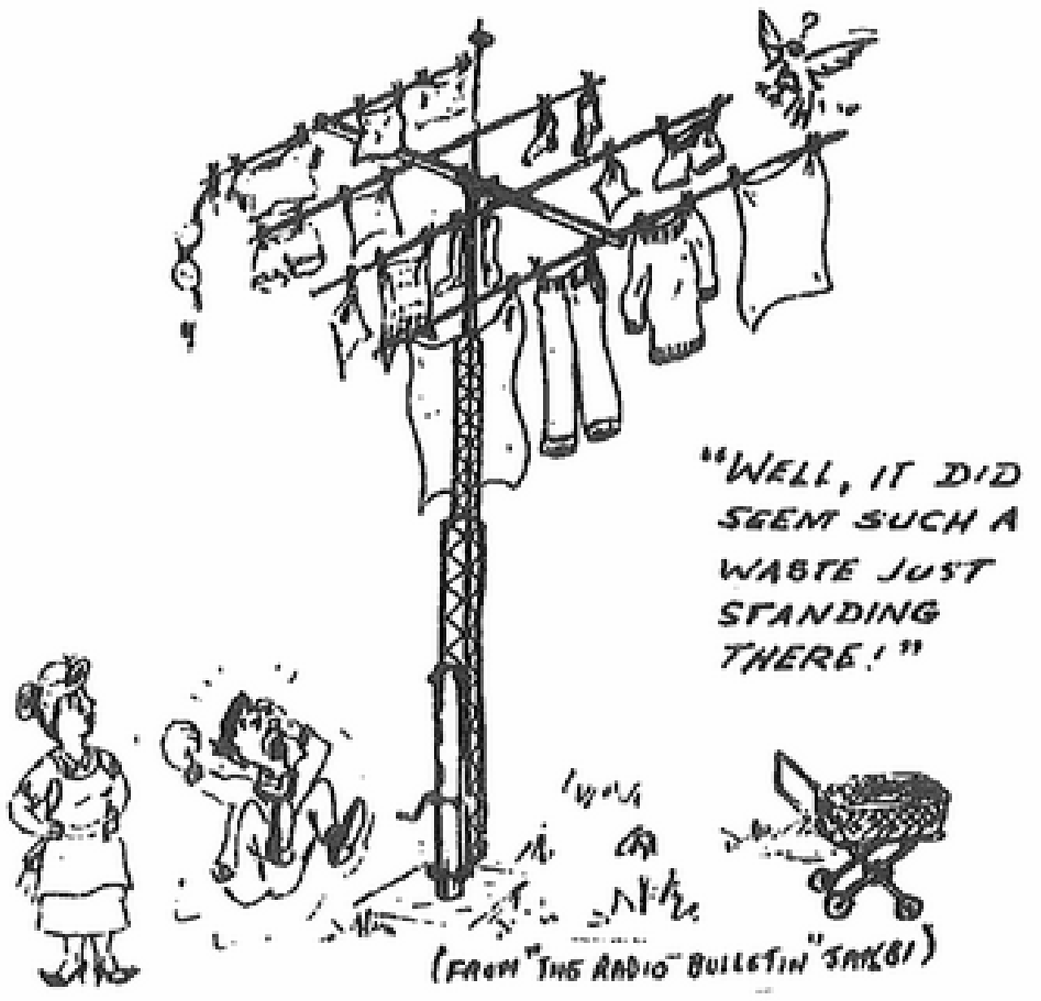
APRIL 1993

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1 AERONAUTICAL CENTER	2	3
4 GREAT PLAINS MORI VE TEST 1:30PM	5	6 **MORI**	7	8 ALTUS ASSOC. CIMMARON	9	10 SCARS
11 WHEAT STRAW	12	13 BICENTENIAL (76'ERS)	14	15	16 EARS	17 VHF SAT.VE TEST
18	19 CORA VE TEST 50TH AND PENN 6PM	20 OCAPA	21	22	23	24
25	26 C&E EDIT	27 CORA 50TH & N.PENN 7PM	28	29	30	3

Over the years Clarence D. Tuska's and Hiram Percy Maxim's friendship grew close as a father and foster son relationship. Maxim encouraged Tuska to go to college and took the time to drive him to Trinity College. Mr. Maxim and his young son acquired a spark coil transmitter and communicated wireless even before a license was required. The Radio club of Hartford was organized. Relay stations were in operation. Many advancements were made.

Soon, the law required a license to operate with call letters. Before the law came into effect, around Hartford every ones call started with SN then you could add you third letter as long as no one esle had it. It seemed no one had commercialism on their mind then. Everyone was only interested in radio as a hobby.

By August 1914, there wre over two hundred relay stations. One of the relay stations was owned by a man sixty-four years old. The others were owned by youths entering high school. In September, the League published a map of the United States showing the location of 237 stations in thirty two states and Canada.



In Late 1914, Maxim went to Washington D.C. to meet with the Commissioner of Navigation of the Department of Commerce to establish the League in official circles, and to secure the important concession of permission to operate stations at strategic points along the relay routes of the country under restricted special licenses. The licenses were granted with certain restrictions.

One might say Hiram Percy Maxim was the father of the League. He and Clarence D. Tuska founded the American Radio Relay League. The League grew slowly for the first ten years and then rapidly expanded its membership. Some thought that if the word "Relay" had not been entered, the League would not have made it. Hiram Maxim was born in 1869, died in 1936. His call was W1AW, may it live on forever.

73 de WA5PFK, Ralph