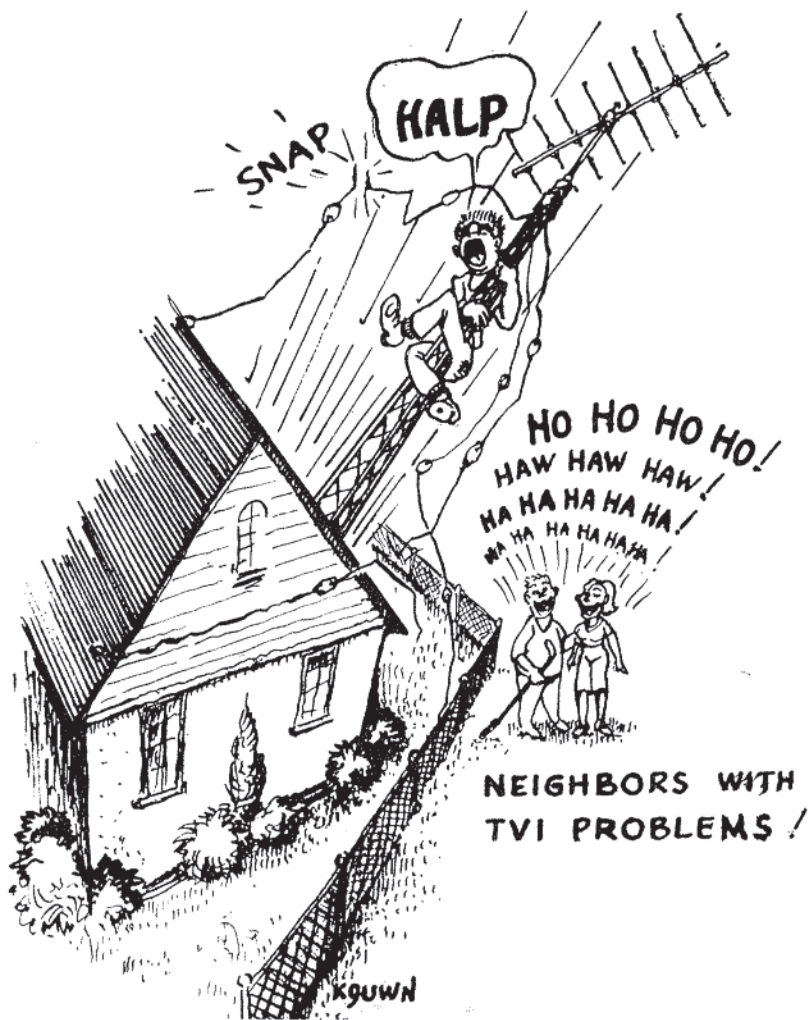


Ham Rag

Rockford Amateur Radio Association

APRIL 1985



President's Log

It was nice to see a good turnout for last month's meeting even though we didn't have a HAM RAG sent out in advance. I feel alot of our problems will be a thing of the past now, however, as John WB9SGF, has made arrangements at Ingersoll to have the HAM RAG printed from now on!! I'm sure the quality and timeliness will be super and I am looking forward to seeing this issue in print.

For those who might have missed last month's meeting on packet radio, it was very interesting as John Dewey, KA9CAR of Crystal Lake, Jim Deards, WD9HGI of Carpentersville and Larry Fournier, N9BDI of Lake in the Hills, explained to the group what packet radio is all about and then proceeded to show us by setting up three stations in the room and having an actual on the air demonstration. It was nice that they planned it that way as we were able to break into smaller groups and see exactly what was going on. Afterwards, we took the three out to Sams (had to show the Chicagoans that Rockford has night life...) for pizza. We kept them there until 11 or so. I think that it is real nice that they were willing to come so far to share their aspect of the hobby with us.

NOTICE - I've noticed that some of you need a cigarette break during our meetings. Rock Valley's regulations are that smoking is to be in the slate floor areas only. I feel we must enforce these rules among ourselves so we do not take any chances of losing such a nice meeting place. I'm sure everyone will cooperate on this matter.

Gene Duncan has some interesting ideas for upcoming meetings that I'm sure most of you will enjoy. If you have any suggestions, please let him know.

This month's meeting should also prove interesting as Ken Farver, KB91, is coming to Woodstock to tell us about duplexers, why they are needed, what they do, how to choose, etc. Again this month, it is a subject that most people are not familiar with (after all when is the last time you needed a duplexer?) so it will be interesting to listen to someone who has had to work with them.

See you at the meeting.

RARA Meeting - April 12, 1985
7:00 p.m. - Rock Valley College
Room 222 - Classroom Building 1

73
Gene, WB9MMM

Panning back to get the big picture reveals that the Coriolis force on a feedline has a very detrimental effect due to the Bernoulli constriction discussed earlier. Unless the coax is oriented in a TEM mode with respect to the local magnetic field, the closed surface integral of the Lorentz field will cause anticircular polarization of the radiated signal (and that's the truth). Getting simple again, the bottom line is that on this side of the equator, left footed telegraphers will have a 1.732 dB advantage until the R&D boys stumble across another major technological break through.

So what can Joe Ham who runs a barefoot transceiver into a low dipole do to squeeze every last milliwatt out onto the ether? Punt, Bunky, Punt!

73's---KB91W (and friends)

Potpourri



Whoopie!! Gertrude, KB9PC, is a happy grandma. Her daughter-in-law delivered a fine baby girl at 9:25 p.m. Tuesday, February 19. The new addition came into the world during the regular Tuesday night CW net. Do you suppose this could be a sign that someday little Gretchen might become a HAM/ Congratulations Gertrude.

On March 8 we had quite a "shocker" at the news of our good friend Kay, N9DRL. That morning while having breakfast at a local restaurant with some fellow teachers, she had a severe heart attack which landed her in St. Anthony Hospital. Her husband, Marvin KC9WF, had left about 3:30 a.m. for Kansas City. Moe, N9CCE, called Shari, WB9SFT about 10 a.m. that morning and gave her the news and asked her if she could get a relay started on 2-meters. She did this by calling on the Sterling repeater and relaying the message to WB9RVY, Ken. Ken in turn called the Davenport, Iowa repeater. About this time, during a QSO with Ken, Shari mentioned getting on MidCars on 7528. Ken offered to do this and with Shari listening on the side adding additional information when needed, Ken made contact with a ham in Kansas City who spread the word on their local repeaters and 52 simples. When Marvin drove into Kansas City and gave a call on 52, they were waiting for him. He got the health and welfare message only 3-1/2 hours after Shari received the call from Moe. Ham radio does render a good service occasionally and proves there is more to amateur radio than "rag chewing."

Incidentally, Kay is getting along nicely and is home recuperating. I am sure that we will be seeing her soon at a future meeting.

Classes for amateur radio licenses at the Harlem Community Center are off to a good start. Eight interested in ham radio were there as well as several amateurs with a desire to upgrade were present. Speaking of upgrades, John, N9EZM, upgraded to general at the last testing session. Anyone else? We would like to hear from you.

Cheers
N9CCH, Chuck

MEET K9LKA

Larry Kleber's introduction to the "King of All the Hobbies" came in 1919 when his cousin Chester, also a Belvidere resident, came back on the air after having his gear boxed and sealed during World War I. He spent many a night in his bedroom shack inhaling the ozone from his rotary spark-gap and marvelling at his ability to "talk" with other hams via his key.



First licensed in April of 1922 at the age of 14, it wasn't long before he had a rig on the air. No fancy rotary gap but a plain homemade one that worked fine and wasn't half as noisy. The aerial was a four wire flat top with 14-foot Spruce spreaders stretched between the chimney on the house and a pole on the barn 100' away. His first contact was Elgin 36 miles away. What a thrill!

DeForest had, of course, invented the audion tube. They sold for \$7.50, a lot of money in 1922 and it took him awhile to spare enough money to order one from Hugo Gernback in New York. In the meantime, he built the receiver planning to buy a 210 tube for the transmitter as soon as he could afford it. Finally the tube arrived and in his excitement, he reversed the A battery and B battery terminals and before he ever heard a sound, he had burned out the filament. Disappointment, of course, but with help from his mother, he soon had another tube. There was practically no manufactured equipment on the market prior to WW II and so everything had to be homebrew. His first commercial gear was an RME-9 receiver purchased used after the war.

By 1968, when Larry became seriously interested in DX, he had probably worked over a thousand DX stations, but didn't have QSLs from many of them because they were in countries where he had made many contacts. In 1968 he decided to try for the DXCC Award. It took about a year and a half to garner the ones needed to make 100. By 1973, he passed the 200 mark and the going got slower. It took another four years to arrive at the 300 plateau and in 1978, he made the Honor Roll. Larry's Honor Roll total is 313 with only two more currently needed. The Grand Total is 337 including the deletions. Larry has enjoyed every minute of his "hamming" for the past 62 years and is looking forward to many more.

On the personal side Larry and Grace have been married for 54 years. They have two sons and six grandchildren and one great granddaughter. Their son John, 48, lives in Rockford, and Chuck, 50, lives in Birmingham, Michigan. Larry and his wife spend their winters hamming and computing in Naples, Florida and their summers in Rockford.

The Better Half

Last month I said I would do something different--but--this is not the something different that I said I would do. This is a different something different. Oh well, you know what I mean.

Kay, N9DRL, caused a little excitement for me at the beginning of the month, and I could not concentrate on what I was doing. I already had plans, however, for the May HAM RAG and "The Better Half" is the result of it. The term "Better Half" now has a much dearer meaning to me.

Kay, N9DRL, is my "better half." Kay was first licensed as KA90IY in September, 1982. Her biggest thing is operating 2-meter mobile and RARA. She was secretary for RARA in 1983 and 1984 and is presently a director. Kay is a real good cook as one look at me can testify. HI HI!

Nancy, N9BZT, is the "better half" of Dale, KT9P. Dale is the one that always yells "Nine Pa Pa" into the mike when chasing DX. How she stands it is beyond me! Nancy did a good job at field day helping get breakfast for the guys. Nancy's biggest hobby is keeping Dale happy. She seems to do a good job of that.

Shari, WB9SFT, is the "better half" of Gene, WB9MMM, the 1985 president of RARA. Shari was first licensed on September 30, 1975 as WN9SFT. Shari held the offices of RARA secretary in 1977, vice president in 1978, and president in 1979 and is currently editor of the HAM RAG. She was also selected Ham of the Year in 1981. Gene and Shari have been very active in RARA for the past 10 years. Shari is now president of EARS for 1985.

Hanna, DK3XJ/W9, is the "better half" of Dick, N9UN. Hanna holds a German call and has amateur extra privileges in the United States. Hanna's parents back in Germany are also hams. I hear that Robby, her son, is taking the current novice class. You can see Hanna at quite a few of the hamfests around the area.

Jo Ann, KA9DNQ, is the "better half" of Dale, KB9WD. Jo Ann is well known for her duties of "chief pig cooker" for the RARA pig roast. Jo Ann was secretary of RARA when Shari was president and continued in that position when Gene Melton was president in 1980. In 1981 she was on the RARA board as a director. Jo Ann was a big helper on the field day breakfast crew. I know WD (Dale) would be lost without Jo Ann.

Not only are these wonder women hams and YL's to hams, they are also very good friends with each. This month it is "Hats Off" to the "Better Half."

See you next month.

73, Marvin, KC9WF

"The Bet"



Kay Becker, N9DRL



Sharon He



Nancy Mather, N9BZT

Photos by M

er Half"



Hannelore Steinhauser, DK3XJ



lan, WB9SFT



rvin, KC9WF

Jo Ann Tendis, KA9DNQ

SWR: Facts, Fallacy and Poignant Points

1. The last definitive work published on SWR was the series in QST by Maxwell. Since that time, as the cost of computers has come down with an increase in computing power and speed, further mathematical research has revealed deeper knowledge concerning the behavior of radio waves traveling up, and at times down, our beloved feedlines.
2. Bernoulli's principle--the pressure in a fluid decreases as its velocity increases.

Velocity factor--the speed of radio waves, is less in coax than in free space due to the dielectric contained therein. Obviously, the amount of dielectric (roughly proportional to the diameter of the stuff) effects the wave velocity, which according to Bernoulli, varies the pressure thereby giving rise to SWR. Expressed in layman's terms, if it ain't 'sposed to fit in there, it's gonna leak out all over the place. This means that any RF that leaks out at the beginning of the feed line will beat the real signal to the antenna and cancel part of it.

In terms of the real world, this statement means that the outside diameter of the coax dielectric must be the same as the RMS effective average value of the median of the element diameters of the antenna that the coax is feeding as a load. By computer simulation it can be shown that you just need to worry about the elements, things like Beta matches are just type and serve to confuse the signal. Further, the active element in the final amplifier circuit must also have the same diameter to keep the SWR to a reasonable and proper value. As far as a tube final is concerned, the plate should be a snug fit over the driven element. Further study has yet to be done to determine how a solid state final fits into the big picture. Initial results seem to indicate that transistors are far removed from the main sequence.

3. We all remember the Chinese finger grips that we played with as children. Poke your fingers into each end and you cannot pull them out again. The same principle applies in the case of excess SWR on a coax feedline. As the pressure increases and squeezes the dielectric because of the forces mentioned above, the radio wave finds it more and more difficult to travel down the line. Over the air this condition sounds a bit like a badly overdriven speech processor. If the piece of coax in question has a sheath of the old contaminating variety, the rotted and corroded braid will cause excess wear and tear on the dielectric during these constrictions. This condition, if not corrected soon enough, can lead to flattopping, key clicks and an honorary charter to the Iron Man group, most of whom should have been cut short (flat topped) long ago. These chopped off wave tops, if not properly drained in a furbulated drip loop at the bottom of the tower, can lead to all number and manner of problems, not the least of which is mushy back wave audio in the local repeater.

ARRL

On February 20, the FCC released a Notice of Proposed Rulemaking in Mass Media Docket 85-38. In the NPRM, the Commission proposed to update the cable television regulations in Part 76. Part of the proposal would increase the allowable leakage from 20 microvolts per meter at 3 meters to 50 microvolts per meter at 3 meters on frequencies between 54 and 216 MHz. In the news release for NPRM, the Commission stated that the original rules were adopted in 1972, when the cable industry was little more than a series of master antenna systems for communities, with its only competition over-the-air broadcasting. The rules were adopted to assist in the development of a nationwide series of cable systems that would provide reasonable levels of service to subscribers.

Since 1972, competition has increased from several sources, including video cassette recorders, satellite home earth terminals and multipoint distribution systems. The FCC concluded it was appropriate to re-evaluate the technical requirements at this time. The commission specifically asks for comments concerning whether the quality performance standards for cable television systems should be modified or removed; and whether the signal leakage limits for cable television systems should be relaxed.

The most useful type of comments in this proceeding will be those incorporating technical data concerning leakage which has caused interference to the Amateur Service. To solicit this type of response, Hq. staff sent a copy of the NPRM and a cover letter to all ARRL Section Managers, Technical Coordinators, members of the RFI Task Group and individuals who have formally registered complaints of harmful interference.

Comments in this proceeding are due by March 29, 1985, reply comments by April 15, 1985. As always, formal comment requires the filing of an original and five copies, but a single copy will be considered informally. Individuals filing comments are also encouraged to send a copy to ARRL Hq.

From THE ARRL LETTER March 14, 1985

Once again, it is time for our club to be asked to participate in local civic activities. This year, during the month of April, there are two walk-a-thons being conducted. The annual CP walk will be April 20; the March of Dimes walk will be the following week April 27. Volunteers are needed for both walks. If you have a mobile rig, handie talkie, or both you, are needed. N9EGF, Kevin, will be net control for both walks. If you can help, please call WB9SFT, Shari, either on the Monday night net or at her home phone, 398-2683.

REMEMBER CLUB DUES ARE DUE!!!

Next RARA board meeting will be April 23, QTH of WB9MMM

EARS general meeting will be April 21, 7 P.M., St. Anskars Church, 4801 Springcreek Road.

For a Few Chips More

In the September, 1984 Micro/Digital Corner, Gene, WB9MMM, told us about a chip called the 6801 that has RAM, ROM, serial and parallel interface and internal clock. That is a lot on one chip, but it also caused me to go scurrying to my back issues of Byte and Kilobaud Microcomputing, for what I remembered were very simple computers, I shall call minimal systems. Guess what I found; 3 different small computers using 3 different chips. The first one uses a 6802 which was described in Microcomputing back in 1980. This board uses 4 chips: the 6802 CPU with 128 bytes of RAM, a 2716 ROM (that's 2Kb of "permanent instructions, but are easily replaced by swapping EPROM chips), a 74LS138 address decode, and either 6802 or 6821 PIA (Peripheral Interface Adapter) or a 6850 ACIA (Asynchronous Interface Adapter). Based on one advertiser's current prices adding up the cost of these chips, I came up with a cost of \$16.80; add a few dollars for capacitors, voltage regulator, resistors and miscellaneous parts and sockets and your cost is still pretty darn cheap.

Minimal System 2 also appeared in Microcomputing in the September 1980 issue. This system is based on the 8085A and includes a 2708 EPROM for 1 Kb of ROM, buffered "buss," 8212 8 bit I/O port chip, two 2114 for 1 Kb of RAM and 825A PPI (Programmable Peripheral Interface). This article features 2 boards, one for a keyboard/display and the other for the CPU, RAM, ROM and associated chips. This system is going to be a little more expensive to build, but solves one problem of how to load and control programs with its keyboard/display.

Minimal System 3 is based on the 8088. This chip is the same one used in the IBM PC and appeared as a two part series in the March and April 1980 issues of Byte. The chip is unusual in a couple of respects.

1. Although advertised as 16 bit, this is only partially correct. The 8088 has an 8 bit external and 16 bit internal bus structure.
2. It has a pin on the chip that defines the usage of the chip in a minimal/maximal configuration. Thus, a system can be built around this chip with just a handful of chips, in this case 5, but will still give you a lot of programming power.

This last system features 1280 bytes of RAM, 2 Kb ROM, 38 parallel I/O lines and a 14 bit counter/timer. However, when looking at a \$25 8088, plus the other chips, this 16 bit power comes at quite a price.

So there you have three different microcomputers in addition to the 6801 presented by Gene. The one advantage offered by my system is that all the chips put their permanent memory or ROM instructions in separate chips, either 2708, 2716, or 8755A. This separate chip is an advantage, but you pay the price in extra real estate required for these chips. This price is quite small when compared to the space occupied by your linear, rig or numerous other pieces of equipment in our shack. One final usage for this type of system is as a security system and as such, was the basis for the series of articles in Minimal System 3. Now what I'm looking for is a Minimal System that costs \$10, will do all the mentioned functions, scans the bands (80-10) for Rare DX and keeps my logs for me. Well, maybe in a year or two.

Ham Mart

FOR SALE:

TS 520 Knwood Transceiver with digital frequency readout and desk mike - \$450.
Sencor scope with stand and probes. All like new - \$300
Call Gertrude, KB9PC at 963-4050

Heathkit Amateur Radio General License Course. 2 Vols. and 2 cassettes (for code practice) \$30
Call Joe 987-6027 (work) or 226-4554 (home)

Drake Twins-T4XC transmitter; R4B receiver, matching power supply and speaker. Covers 160-10 meters. Ten-Tec 580 D all band 160-10 meters solid state transceiver.

2 meter Motorola base stations; mobiles; and walkie talkies.

2 bearcat 8-channel scanners.

2 4-channel Delco mobile phones.

Gonset Communicator for 2-meters.

Gonset Communicator for 6-meters.

Hallicrafters SR42 2-meter transceiver.

Heathkit Seneca 6M and 2M-100 watt transmitter, VFD and crystal controlled; good for satellite work.

Complete Collins Station 32S1 transmitter; 75S3 receiver; 51S1 30-band receiver; 51J3 all bank receiver (30 bands); matching power supply.

Yaesu CPU 2500RK 2-meter, 2-30 watt mobile.

HR-212 Regency 2-meter crystal controlled 2-meter, 30 watts.

HR2A Regency 10W 2-meter mobile.

Channelmaster pocket scanner.

Call Herb, K9AMJ 399-6822 after 5 p.m.

Heathkit SB 303 and SB 400 with speaker \$190

Heathkit sixer \$25

Hygain 80-40 trap doublet \$40

Autek audio filter QF-1A \$45

MFJ 900 antenna tuner \$20

Waters Clipreamp \$10

Heathkit SWR bridge HM15 \$20

Heathkit antenna \$19

Call Steve, K9LLI at 399-9161

Cash paid for non working solid state color TVs, VCRs and TV parts (815) 938-2221 collect; (815) 233-0224 after 5 p.m.
Clarence Wilken, RR 2, Box 3, Forresteron, IL 61030



**ROCKFORD AMATEUR RADIO ASSOCIATION
P.O. BOX 1744 ROCKFORD, ILLINOIS 61110**

ADDRESS CORRECTION REQUESTED

**BULK RATE
U. S. POSTAGE**

PAID

**ROCKFORD, IL
Permit No. 230**

NETS;

28.7 Mhz. Monday 9:00 P.M.

50.4 Mhz. Nightly 9:00 P.M.

146.01/.61 Mhz. Monday 8:00 P.M.

BLACK HAWK VALLEY

TEN TEN INTERNATIONAL

28.925 Mhz. Wednesday 9:00 P.M.

21.130 Mhz. Thursday 9:00 P.M.