

Ham Rag

Rockford Amateur Radio Association

MARCH, 1983



**IRELAND ON 2 METERS?
Only a Leprechan could do that!**

President's Log

As usual, the February meeting was well attended and we even had good weather to-boot. We thank all of you who took the time to round up some equipment and bring it in. Everyone seems to enjoy the Auction night. We had over sixty in attendance, with some people making good buys. And the Club benefited some too.

Thanks once again to the Hawaiian Auctioneer who made it in for the occasion. In case anyone didn't recognize him, it was really Frank, WB9OGD, under all that get-up. By the way, in case some of you don't know it, Frank 'HAMS' it up another way also. An admiral way he spends some of his spare time is belonging to the Shrine Clowns. By the time we read this, he will have traveled to Texas for a national competition.....Way to go Frank!

I've been asked again about the QSL's and since we haven't said much about them lately I'll go over it now. As as affiliated club of the ARRL, we are able to take advantage of 'pooling' our individual QSL cards for mailing. The only requirement for using the service is that a club member also be a League member. When bringing your cards, sort them by prefix and include your QST mailing label. Our local club manager for this service is Gary, K9LJN.

As I said before, we would try to give you some idea of what is coming up this year for the club. Trying to find speakers with radio related topics is not always easy. Generating programs from within our own club can be most informative, and we do have people with expertise in many Amateur type fields. This can also lead to greater member participation. So, if anyone wants to share his or her special interests with the rest of us, let us know.

Tentatively, it looks like this April we will have a presentation on the raising of Milwaukee Channel 18 Antenna. May-History of RARA. June-Field Day. July-No Meeting. August-Picnic. Sept.-Antennas. Oct.-Hints and Kinks for the Shack. Nov.-ARRL Speaker. Dec.-Ritty & slow scan T.V. Some of these are, of course, subject to change.

For this month, March, the meeting will be a presentation by Cablevision. To my knowledge in this area, we have not had any interference from CATV or the other way around. But, there has been some writing about this of late especially out West.

Hope to see you at the meeting and let's hear from you. It's all of us that make the club go. Don't forget, this is the last Rag Issue unless your Dues are paid up.

73, Bob, WA9NTT

How Did It Happen?

May 1953 was the birth of the **ROCKFORD AMATEUR RADIO ASSOCIATION**. In honor of this anniversary, we would like to present a program on the history of R.A.R.A. at the May club meeting on May 13, 1983.

- ★ How did RARA get started?
- ★ How was involved?
- ★ How did the Ham Rag get started?
- ★ How did we get involved with Rock Valley?
- ★ Where did we have field day events?
- ★ etc., etc....

Do you have some club memoriabilia?

WE NEED YOUR HELP

— SLIDES — PICTURES — MOVIES — CLIPPINGS —

If you can help please call Bob Davidson/WA9NTT at 877-6274, or Gene Harlan/WB9MMM at 398-2683, or Gene Stankiewicz at 226-1806.

It will be fun reliving the memories!!!

Know someone who is interested in amateur radio? Tell them about our **NOVICE CLASS**. It begins Tuesday, March 1st at 7 o'clock p.m. to 10 p.m. Location will be at the Harlem Community Center. Cost will be \$15.00. Contact AK9N/Gene at 654-0675, or KI9G/Carol at 633-3249. Books are available at Canterbury Books.

RARA's third annual **AWARENESS DAY** will be April 9th at the North Town shopping mall. Jim Ambruso/WD9FVF, is chairman of this event. If you would like to help, give Jim a call.

Are your dues paid? REMEMBER THIS IS YOUR LAST ISSUE OF THE HAM RAG IF YOU HAVE NOT PAID YOUR 1983 DUES. Send your check to R.A.R.A., P.O. Box 1744, Rockford, Illinois 61110.

Due to the importance of the **NO-CODE** issue I have decided to use a four page **WESTLINK REPORT** news item. Read these pages carefully. If only one of us writes a letter commenting on the docket it might not make much difference, but if we all write, the impact would be much greater. **Comments can be made up to April 29th, 1983.**

Tech Topics

Here I am, on a perfectly good night to get on the Iron Man's net and talk ham radio, and I'm writing about it instead. Our friendly Editor says because I wrote a couple of articles for the rag recently I should be able to do it regularly. I said yes, even though it sounded like a commitment, and here I am. Your input and questions are welcome keep questions general in nature and interest if they get too difficult I'll pass them to Gene (AK9N) cause he's lied his way through more classes and questions than I have.

We all get involved with some technical items like it or not, whither ou love in tinkering, DX, or ragchewing. Some of those unavoidable subjects will be covered here in the future-even the guy that wants to be strictly an appliance operator can't avoid antennas, towers, SWR, etc. Antennas still need to be switched, equipment and towers grounded, and lightning protection is an often overlooked concern. Measuring antenna characteristics is a challenge, or at least tedious, so we'll hit that as soon as Gene and I finish our next construction project and build some antennas. Maybe I'll throw in some fox hunting tech tips, try to get some of the wires in the shack more organized, and anything built by myself or others and of general interest is fair game.

Given the above, what's on tap this month? Well, as I look around my neighborhood a short subject comes to mind. Right now I see at my place around seventy feet of tower and antennas all put up last summer, and in fine shape. At my neighbor's is a CB antenna, about 25 feet up, also installed last summer, that's now a shambles because of a recent ice storm. It's broken basically because it was lightly built. It also had a gimmicky matching system that looked neat, and added surface area.

Since we are approaching the antenna buying season, let's talk about how worried we should be about ice. I've run through a few calculations, based on my antennas. During the ice storm we picked up about 3/16 inch of ice. Based on that, my TH7 tribander got about 50 pounds heavier—that is two thirds of its dry weight! My 2-meter beam, a Hygain 208 gained 5 or 6 pounds, and it only weighs 4 pounds to start with. The elements really get stressed on that since they end up weighing almost three times their normal weight, which shows that thick ice hurts the smal diameter elements worst. An interesting point is that this weight, if the elements are horizontal, is equivilent to a 50 MPH wind on the 2-meter antenna. The tribander sees stress equivalent to a 35 to 40 MPH wind. If you get some wind on top of this stress (remember now the weight and area are up) the antennas can wave in the wind pretty easily, and down they come. Where does this take us? Buy sturdy antennas and make sure you get decent hardware on them. After all, when 5 pounds of ice falls off one side of an element it turns unless the hardware locks everything in place. Stay with the antennas the rest of the guys like, and if the one you are looking at gets too complex, make sure you get some added performance for the complication. Then, when the ice shows up, just rest easyand cross your fingers.

Digital/Micro Corner

All computers made today use digital logic. This month I will describe the operation of a few digital integrated circuits. First off, what is meant by digital logic. Digital logic is a circuit that looks for a condition to be either ON (logic 1 or +5 in TTL logic) or OFF (logic 0 or 0v). In my discussion if I refer to logic 1, I mean that the terminal has +5v applied to it, logic 0 means that the terminal has 0v.

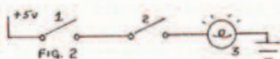
The first gate we will discuss is the AND gate. A 7408 integrated circuit has four AND gates in one package, each one having two inputs. A single AND gate looks like figure 1.



The gate works like this:

- A. If terminals 1 and 2 both have 5 volts applied, terminal 3 will be at 5 volts
- B. If either terminal 1 or 2 has 0 volts (or both are at 0v) the output, terminal 3 will be 0v.

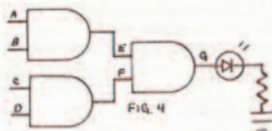
Digital circuits can be compared to switch circuits. In figure 2 you can see that if switches 1 and 2 are closed the light (3) will turn on. If either 1 or 2 or both are open the light will be off.



Another way of evaluating what a gate will do is with a TRUTH TABLE. An example is shown in figure 3.

INPUT		OUT-PUT
Pin 1	Pin 2	Pin 3
0	0	0
0	1	0
1	0	0
1	1	1

FIG. 3



As you can see, all possible combinations of inputs are shown, with the output for those conditions shown.

What if you need more than 2 inputs? Well, other chips are available with more than 2 inputs, but for this case let's assume that this is the only chip available. If we need to know if 4 signals are all on at the same time, the circuit in figure 4 will do the job.

If A and B are at logic 1 the E will be logic one. If C and D are logic 1 the F will be logic 1. When both E and F are logic 1 then G will be logic 1 which will light the LED.

If any one of A, B, C, or D is at logic 0, the LED will not light.

I guess I only covered one type of gate this month. Other gates I plan to cover includes the OR, NOR, NAND and exclusive OR. An understanding of these devices will help you understand microprocessors and interfacing them to external devices.

See you next month.



NEWS

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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See ML 1, FCC 515.9 20 JRS (1) C. Circ. 1975.

Report No. 17331 ACTION IN DOCKET CASE January 21, 1983 - PR

AMATEUR RADIO LICENSE WITHOUT MORSE CODE REQUIREMENT PROPOSED (PR DOCKET NO. 83-28)

The Commission has proposed to establish an amateur radio operator license class with no requirement of proficiency in International Morse code.

Posing two alternatives for the proposed codeless amateur class, the FCC said it believed there are intelligent, disciplined persons who can make a valuable contribution to the Amateur Radio service without proficiency in Morse telegraphy. They might include, it said, younger persons with a primary interest in computer technology and physically handicapped persons as well as others.

The proposed class would be an "entry" class, the Commission said, for which additional proficiency in radio theory, operation and practice would be required rather than proficiency in code. In that way, it said, individuals could prove that they have the ability and discipline to make a serious contribution.

The Commission proposed as alternatives either to change the requirements for the existing Technician Class license to eliminate the novice code examination (requiring proficiency of five words per minute) or to create a new Experimenter Class license without a code requirement and perhaps requiring demonstration of greater proficiency by written examination than the Technician Class does. The latter would be similar to the Canadian Digital Amateur Class Certificate.

The alternative proposals would have certain features in common. They would not confer operating privileges on frequencies below 30 MHz, since those still would require code. The Commission asked for comment on specific frequencies above 30 MHz to authorize for the codeless class.

Requiring code serves an important purpose for operations below 30 MHz, the FCC said. Also, upon ratification of the Final Acts of the 1979 World Administrative Radio Conference, the United States will be committed to a requirement that amateurs operating below 30 MHz (formerly 144 MHz) demonstrate code proficiency.

There is no intention to deemphasize code as a communications mode in the amateur service, the FCC said. Code's attributes of wide recognition and efficiency, it said, substantiate the belief that "code can stand on its own feet," without being made a prerequisite for amateur licenses operating exclusively above 30 MHz.

The Commission noted that code is seldom used in the VHF and higher bands. Beyond the understanding of radio communication and the regulations under which it operates, the FCC said it could leave to the individual the decision whether code would benefit his or her endeavors in amateur radio.

The Commission said it was aware that a codeless license probably is the most controversial matter that can be raised with the amateur radio community. For many amateurs, it said, code stands as the absolute cornerstone of the service.

It noted a survey conducted for the American Radio Relay League, Inc. (ARRL), an organization of licensed amateurs, showing that very large majorities of the amateur respondents believe code is essential or important for operator privileges.

Once an individual becomes involved in the amateur service, the FCC said, there will be a desire to learn more about radio and the offerings of the service. Codeless-class licensees may develop an interest in code, it said, just as other licensees usually develop interests in greater knowledge of radio theory and greater proficiency in code.

The codeless Technician Class license would retain the other current requirements for that class: examination on basic law and rules essential to a beginner's operations and sufficient elementary theory for their comprehension (Element 2 of the Amateur Radio Operator License Examinations) and general amateur practice, regulations on operations and apparatus and applicable laws, treaties and rules (Element 3). Those also are the examinations in theory, practice and regulations required for the General Class license.

The license would confer all operating privileges on all amateur frequencies above 50 MHz, as at present, including use of all emission modes.

The principal difference between a codeless Technician Class license and the alternative Experimenter Class license would be in the subjects and level of the written examination an applicant would be required to pass. For the Experimenter Class the Commission proposed a single new examination element, Element 5.

It asked for comments on the level at which the exam should test knowledge of regulations and theory. Suggesting that the new element might be composed of existing elements, it asked for comments on which elements should be contained or, alternatively, whether an entirely new syllabus should be developed.

The FCC proposed that the Experimenter Class license, if adopted, convey all amateur privileges on frequencies above 144 MHz. Yet it noted there is nothing to prevent authorization of the frequencies from 50 MHz to 144 MHz and said it intended to be flexible on the frequency issue.

It also noted that establishment of a new class would create a substantial administrative burden involving new or modified examinations, revised application forms and other publications and changes to data processing programs and procedures.

The Commission observed that both Japan and Canada have significant numbers of amateurs and that both provide for a license class without a code requirement. It said it was unaware of any resulting difficulty in either country.

The FCC declined ARRL's request that it delay action on the codeless license class for 18 months while a volunteer amateur license examination program, proposed in concurrent action (PR Docket No. 83-27), is put into effect.

Action by the Commission January 20, 1983, by Notice of Proposed Rulemaking (FCC 83-23). Commissioners Fowler (Chairman), Quello, Jones, Dawson, Rivera and Sharp.

For further information contact Steve Lett, (202) 632-4964.

THE WESTLINK REPORT

THE AMATEUR RADIO NEWSLETTER

prepared by the producers of the Westlink Radio News / formerly HR Report

Number 305

January 28, 1983

THE FEDERAL COMMUNICATIONS COMMISSION has released a Notice of Proposed Rule Making aimed at the establishment of a no-code Amateur Radio license in the USA. The matter figuratively whizzed through the open meeting held in Washington on Thursday, January 20th, with only Commissioner Mimi Dawson questioning the flexibility of frequency allocations that might be awarded no-code licensees. She had to be assured that final frequency selection would not be overly restrictive toward this class before the Commissioners cast their ballots on the measure. It should be noted that the recent Senate ratification of the 1979 WARC Treaty would permit assignment of no-code privileges to any Amateur band above 30 MHz, thus giving such eventual license holders possible access to the 6, 2, 1 1/4, and 3/4 meter bands, as well as those above.

The proposal is "twin-tiered." That is, the Commission has presented 2 possible alternatives which it may follow. It has the flexibility of selecting one, the other, a modification of one or the other or even possibly both. According to a Commission spokesman, the first of the two choices to be presented for commentary is a simple deletion of the current Morse Code requirement for the Technician Class license, while retaining all current operating privileges for that class. In other words, a person entering Amateur Radio as a Tech (if this route were selected) would have all the operating privileges now granted to Technician class operators who have passed a 5 WPM code test; this includes the right to own and operate repeater stations. Technicians licensed prior to the creation of this revised license would not be penalized with the loss of their existing Novice subband C.W. operating privileges as previously thought. Under this aspect of the proposal, all new, no-code Technicians would simply be assimilated into the ranks of existing Techs without any way to identify the fact that they are no-code licensees. This approach is believed to be favored by the Commission because of its cost-effective nature, as well as its believed ability to stimulate overall U.S. (and Japanese?) economic growth. Many equipment manufacturers, importers and distributors, as well as a number of Ham publications are believed to back it for money reasons as well.

The second option in the Commission's N.P.R.M. is the establishment of a totally new "Experimenter's Class License." This concept was brought to the Commissioners by Michael Marcus of the Office of Science and Technology and is aimed at bringing computer hobbyists and digital experimenters into Amateur Radio. It is quite similar to the yet unsuccessful Canadian Digital Certificate and provides for various forms of digital communications only; no voice privileges are included. Unlike its Canadian cousin, it would be a totally separate license, with exact operating privileges to be defined in the final release version of the text which should be available sometime within the next 10 days. At presstime, no N.P.R.M.

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(FCC Actions - continued from page 1)

number has been assigned to this document, but it will probably carry a 90 day commentary period, with an additional 15 to 30 days for reply comments. This second proposal is known to have the backing of at least 1 major Amateur Radio experimenters' organization as well as the home computer industry. It is not as cost-effective a method of bringing in new, non-code educated Hams into the Amateur Service as the no-code Tech because it would require the establishment of a totally new license class and the accompanying administrative costs to the FCC.

It is well known that the ARRL has opposed any form of Amateur Radio license that does not require an applicant to possess a knowledge of code, and there is little chance that this position will be altered in any way prior to the Board of Director's meeting scheduled for April. WLR has learned that some Directors are under pressure from their Division members to get the League to alter its position. However, unless the Directors decide to hold an emergency meeting before April (which is very unlikely), the directive to the ARRL staff is to oppose any code-free license. Westlink has also learned of the formation of a non-Amateur group calling itself "The American No-Code Alliance" which claims that it will become the "political voice" of future no-code licensees, should the ARRL and other Amateur organizations continue their no-code stand. At this time, we cannot vouch for the existence of this organization or its claims, but they have said they will forward literature to us in the near future explaining their structure and eventual goals. Also known to be in favor of a code-free license is publisher Wayne Green, W2NSD, who has expounding at length editorially on the subject in 73 Magazine.

Westlink Report believes that the creation of any new license class is a very serious matter, and deserves honest and careful consideration from all licensed Amateurs. This newsletter conducted a survey in July of 1982 on the question of a no-code license; we published the results in issue #373, August 13th. Of the 367 licensed respondents who replied prior to the cut-off date, 20% were in favor of such a license and 80% were opposed. Only 14.5% thought such a licensee should get phone privileges on 2 meters F.M., and 97% were convinced that the FCC would be incapable of policing a large influx of new operators.

The Westlink Report does not believe that the reason Amateur Radio has grown as slowly as it has is due to the Morse requirement for a license, but rather due to a history of bureaucratic red tape at the Commission itself. Why should Radio Amateurs be required to get Special Temporary Authority to experiment with new modes or higher baud rates? Instead of encouraging experimentation, it seems that certain Commissioners would just rather have more warm bodies in the Amateur ranks. More people will not result in technological development, just in more crowded bands. The Technician class license was created, if you remember, to encourage just the type of exploration of radio that this new form of license is designed for. The lowering of standards has never resulted in higher performance; it hasn't worked in our high schools or our colleges and universities and it won't work in Amateur Radio. Regardless of whether you agree or disagree with The Westlink Report, we encourage you to express your opinion to the FCC. Next edition, we will include an insert explaining exactly how to file your comments on this very important Rule Making Proposal. Due to the importance of this issue, Westlink Report hereby gives permission for anyone to reprint, but only in its entirety, pages 1 and 3 of this edition.

Novice Corner

Hello again from Little Toy Radio to all who might be reading this column. I hope that by now everyone has forgiven me for being late on getting out my article on the Novice Round-Up. The subject that I would like to discuss in this month's Ham Rag is — upgrading your license. In case any of you weren't at the meeting Feb. 11, I will share with you an announcement that was made then. I took a trip to the Federal Building in Chicago that day and upgraded my license from Advanced to Extra Class. So I feel halfway qualified to be able to talk about upgrading to my fellow ham friends who would like to upgrade their licenses.

I don't consider myself to have more than average intelligence so I figure that if I did it practically anyone else can do it too! Now then, with that statement I'll get down to the 'brass tacks'. There are two areas of study to work on in order to get a better license; the code and the theory. I'll try to share with you what worked for me in these two areas and maybe it will be of some help to you (I hope).

As far as the code is concerned, whether you are increasing your speed from 5 to 13 or from 13 to 20 wpm, it is best to realize that it's going to take some EFFORT on your part to do this. I found a few things that helped me get my code speed up. One of them was copying W1AW's code practice transmissions. Another help was the 15-meter Novice Net. Being the net control station, it's very easy for me to end any speed the other person might want. All I have to do is enter into my keyer the exact desired speed wanted and it will send that speed. This lets me send to the other person a little faster than what can be copied comfortably, helping to increase his copying speed. Another big help in increasing your speed is to listen for another ham that is sending somewhat faster than you can easily copy and start up a QSO with him. You may not copy every word or number but it will help increase your speed. When doing this, try to work a station that has a fairly strong signal, if possible.

Upgrading also requires learning additional theory that will be needed to pass the written exam(s). There are a few ways that one can go about doing this. Our club conducts General Class theory classes that you can enroll in. This gives you a chance to study with other, which can make learning easier and more enjoyable. If you are unable to enroll in a class, you can still do it by yourself, but as I just said, working with others can make learning easier and more fun.

Potpourri

Sometimes it takes a long time to receive a QSL card from a foreign land but, sometimes longer from a ham in the United States. In February 1981, I had a nice chat with a ham who wanted me to QSL which I did. Two years almost to the day I got his card saying how much he enjoyed the QSO. Maybe he ran out of cards and had a very slow printer.

At a recent Saturday morning breakfast in Roscoe, the gang surprised Dick, N9UN, by singing Happy Birthday to him. Many of the regulars were absent that day due to inclement weather. Even so everyone there was in good voice and wished him many happy returns of the day.

I wonder how many got a good look at the weird looking assembly that Gertrude, KB9PC, received at our January dinner party. It transmits on all frequencies and gives the 'Woodpecker' competition. Sure hope she doesn't use a linear with it!

As Gene, K9IKP, mentioned in the rag February issue, several of the local enthusiastic DX'ers gather for an informal meeting to talk about their contacts and exchange information which may help others to work the hard to get ones. If you are at all interested, you can contact Larry, KS9B, or Gene, K9IKP, about the time and place of their next session.

Many hams from this area went to the Arlington race track hamfest February 6th. Among the stalwarts who attended included AK9N, Gene, WD9FLO, Dean, and Steve, KB9IW. It's not unusual to get split up at times and a guy who doesn't have a watch loses track of time. Gene was always late meeting at the specified time so Steve and Dean bought him a wrist watch which solved the problem. Gene had no excuse after that and was always on time.

ROCKFORD AMATEUR RADIO ASSOCIATION, INC.
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