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# K9YA Telegraph



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# K9YA Telegraph

Robert F. Heytow Memorial Radio Club

Volume 11, Issue 4 April 2014

## CQ GC

*The Morse Net for Aspiring Generals*

**Philip Cala-Lazar, K9PL**

Looking back, as I so often do on these pages, I am reminded of my stint as Morse instructor for the Chicago Amateur Radio Club (CARC). At that time, the late 1970s, a radio club powerhouse with a large and active membership.

It was a mere 11 months since I had earned my General Class license when a friend and fellow CARC member, who was teaching the club's General license class, asked me to help his students achieve the 13-wpm code requirement. He didn't do CW so he decided that I, as a 100% CW and QRP operator, was just the ham to undertake the task.

I pondered a bit; after all, I'd been licensed only a short time, and wondered if I had sufficient knowledge and skills to share with a classroom full of eager General Class aspirants. All 15, or so, of the students were Novice Class licensees, so the basics were out of the way. Since my potential students had 5-wpm under their belts all that remained was to get them up to 13-wpm, preferably a bit faster for "passing insurance."

Mustering all my limited know-how I agreed to help herd my friend's flock of Novices toward their goal.

I was introduced to the class at a nearby city park field house where a classroom had been procured. Drawing on my experience as a check-in to the weekly Northwest Amateur Radio Club (NARC) net, what I learned there and camaraderie shared, I suggested a net as the best way to get the group up to speed.

On the air with a cohort of similarly skilled participants my students would ply a level playing field. That level playing field would help dispel on-air key fright and most flop sweat. Other advantages not realized in a classroom setting entailed actually getting on the air and making a successful contact at least once a week, learning basic net procedures, jockeying for spectrum with other operators in the then popular 15-meter Novice sub-band and learning to master or at least cope with QRM, QRN, QSB and weak signals. Leaning toward the successful NARC net example, we concluded a weekly 15-meter net was the best method for us.

Their 13-wpm would be learned beneath the Kenelley-Heaviside layer using ham radio RF gear, not in a dust-moted classroom using code practice oscillators with me calling the beat. Classmates would communicate in

real time and face many of the same conditions they would confront all the years of their ham careers.

I also informed the class that I was available to tutor anyone who felt they needed additional on the air practice.

*CONTINUED - CQ GC ON PAGE 8*

*"flop sweat"*



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# The Good Old Days; Grumpy Old Men

John L. Swartz, WA9AQN



It isn't difficult to find Grumpy Old Men on the amateur bands, decrying the loss of the "Good Old Days." Their QSOs invoke condemnation of the "new" generation of amateurs, generally referring to those who acquired their licenses in the 1980s and after.

What you hear is the association of increased numbers of amateurs from the ranks of former Citizens Banders with what the grumblers call the

progressive "dumbing-down" of the amateur exams. This is apparently causing the amateur radio version of the decline of Western Civilization. Ex-CB'ers are accused of having invaded the amateur world, not shedding their 11-meter lingo, not choosing to learn the technical niceties of real radio, lacking the operating skill and discipline to follow the procedures expected by the older amateur community, and, worst of all, not knowing how to properly solder a PL-259 onto a piece of coaxial cable. All this, even though the CB boom came and went two or three decades ago.

## Licensing Standards

The relaxation of licensing standards was supposed to bring more and more people into amateur radio without regard to whether they had the perseverance, skill, patience and intelligence to have met the former licensing standards. For some, the demonstration of receiving and sending International Morse code remains the quintessential skill that merits being recognized among the ranks of the worthy. Whether these grumblers actually use Morse themselves is another matter; Morse is just too much work for someone with a negative attitude.

Whether the exams themselves are any easier than ever is truly debatable. Many of us would have to study again to be able to pass them.

Of course, this reaction is not unlike the one any younger generation receives from its predecessors. Each generation has some qualms about its successors. (Each generation has qualms about its predecessors, but that is another editorial subject.) That is a mild way to describe what some of our elders thought of our "rock and roll" music. In this case, however, the term "generation" is not reflective of a year or period of birth, but the era of acquisition of an amateur license. There may be some reason to refine the term, and to find different characteristics within a radio generation depending upon the age at which the license is acquired, but that, too, is another issue.

## Grumpy Old Men

Who are these grumpy old men and what is wrong with them? What was it that we, the "elders," went through that gives us pause or reason to distinguish ourselves from our successors? What were the "Good Old Days" for those of us who are aging "Baby Boomers," or maybe just a bit older. More importantly, what difference does it make to the future of amateur radio, and, what, if anything, can or should we do about it?

In those "good old days," the Novice license was the entry ticket. One acquired the Novice license by first passing a 5-word-per-minute test in sending and receiving International Morse code.

If that element of the test was passed, the candidate could take a rudimentary multiple-choice written exam, which did contain a section requiring that a particular type of circuit diagram be recognized. The Novice ticket allowed privileges in select portions of the CW-only segments of three of the HF bands, and voice privileges on 2-meters. FM was not a popular mode on 2-meters in those days, SSB was only just coming into vogue on the HF bands, and the repeater was not common; voice meant AM.

## Incentive Licensing

When the ARRL backed the FCC proposal for a new licensing scheme in the 1960s, the League lost members. Prior to the 1968 "incentive licensing" program, the term of the Novice ticket itself was

*"...just too much work..."*



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the most effective incentive to further one's skills and knowledge, and to upgrade. And that one big step to General was all that had been needed for full privileges on all bands.

The Novice ticket was a one-year permit for very limited operation. It was non-renewable; the scheme was "up or out." You could go off at an angle, however, and become a Technician licensee. Then, even the Techs were required to demonstrate the ability to send and receive Morse at 5-words-per-minute. If you did not advance from the Novice ranks within one year, you lost your callsign and were off the air until you were able to pass the exams. To make that advance to the General Class, you needed to first demonstrate to the FCC examiner that you could send and receive Morse at 13-words-per-minute. So, the instant the Novice ticket arrived, we went on the air, not just because we could, but also because we knew we needed to get the experience necessary to be able to upgrade to that 13-word-per-minute level. At the same time, we rationed enough time to study so we could then pass the written exam, which was needed to acquire the General class ticket. For a teenage boy, it was a horrible choice, operate or study. The whole point of this adventure was to get away from studying, wasn't it (well, OK, the boring stuff we had to do for school)?

### Pass-Fail

Talk about incentives! There were no CSCs issued. If you flunked the 13-word-per-minute code test, you were not permitted to take the written General test. If you passed the code and flunked the written exam, you were done. You did not get a certificate saying your code speed was good for credit later. And, you were not permitted to take a second exam at that exam session, nor to return for another exam until after 30 days had passed. Your Novice ticket could expire in the meantime and you would lose your callsign. You were off the air. This system was incentive enough to drive most aspiring young Novices to study hard, practice their code both on and off the air, and begin taking the examinations as soon as possible after the Novice ticket arrived. Of course, for those of us who were teenagers and still living with our parents, this quest occupied so much time that we became too busy or tired to get into trouble, so our parents were immensely supportive of these efforts.

Additionally, there were technical operating constraints that accompanied the Novice ticket. Shedding

### "Your Novice Accent"

Additionally, there were technical operating constraints that accompanied the Novice ticket. Shedding

these constraints was another incentive to upgrade. Novice transmitters could only be crystal controlled. Most of us could not afford more than a few crystals. Transmitters and receivers were separate pieces of equipment. Graduation to General would allow the use of a VFO, so the transmitter could follow the receiver anywhere on the band. This limitation had the effect of making us hone our receiving skills, searching throughout the entire Novice band segment for a signal responding to our "CQ." A General who ventured into the Novice bands could zero beat us and hold a QSO with us on our transmit frequency, but Novices could not. So, we listened a lot, and learned how to listen.

Additionally, our transmitters were limited to 75 watts power input to the final amplifier stage. That meant we were getting a lot less out. It also meant that when we tuned across the Novice band segment for an answering station, we were searching for a signal of relatively modest strength. The combined effect of these technical requirements taught us great patience and listening skill; it was extremely rare to hear a station responding to a CQ on our transmitting frequency. We had to go hunting for each other.

All we had to do was tune down the band to the General segment, and we could hear, and almost taste, what awaited us when we upgraded.

### Technician Class

If you opted for the Technician ticket, you were off the HF bands altogether; there was no 10-meter segment for Techs, and they were not permitted back in the Novice bands. To many of us, taking the diversion to Tech so that we would only have to pass the code test later was like walking into a dead end. We did not want to get stuck on the VHF bands and not be able to get back to HF if we lost our momentum; it was not so easy to get your code speed up to 13-wpm on the VHF spectrum, or so we thought.

What became the "incentive licensing" scheme in 1968 added the Advanced class license and engrafted

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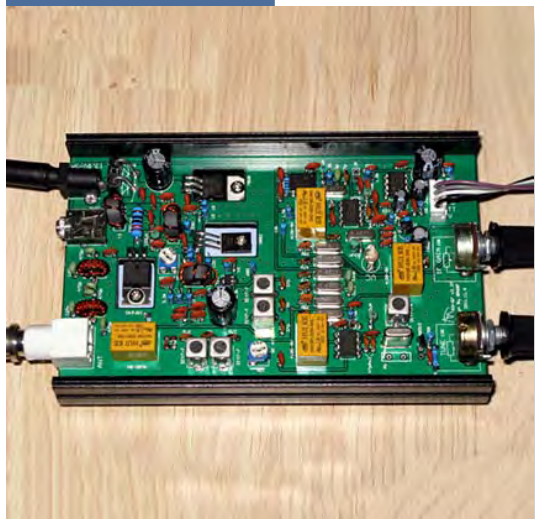
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# Some Thoughts About SSB

## Part II

Paul W. Ross, W3FIS



CR Kits - KN-Q7A  
SSB Transceiver

In the first article of this two-part series, we walked through the design considerations for a phasing-type SSB exciter. More than a few radios were designed with this technique. Do a “Google” search on the topic of phasing-type exciters to see what the early efforts were. If you are into “tweaking” your phasing type circuits for optimum performance, it will keep you out of cheap bars and off the streets for some time.

The other technique for generating a SSB signal requires much less mathematical “magic.” Interestingly enough, the early experiments in SSB transmission relied on filter techniques. If you can put the AM signal’s carrier on the edge of a nice “square” bandpass filter, you can “dump” the carrier and one sideband, leaving just the desired sideband. The problem is that tricky filter. If you use a balanced modulator to remove the carrier, then just put the undesired sideband off the skirt of the filter, leaving only the desired sideband.

### Mass Production

Jump forward to the last decade or so—we can now create excellent crystal multi-pole filters quite inexpensively. Simply do what we do with golf clubs or gasoline engine pistons—make a lot of them, and then select “matched” sets that fall within our desired parameters. Any of you who have built any of the remarkably small QRP CW transceivers have likely encountered these filters—three or four quartz crystals coupled in a chain to give a nice narrow, and quite “square” bandpass.

Use of a crystal filter makes the generation of a SSB signal quite straightforward. We can simply use a balanced modulator (for example, an NE602A chip), which also supports an oscillator mode (we can use this chip for all sorts of things!). Follow this

by a crystal filter—make it wide enough to just pass *one* sideband, and then heterodyne it with another NE602 to move us to the desired output frequency. As a receiver, we can use the same configuration, but now recover the SSB signal, and the first one to act as a mixer to heterodyne the incoming signal down to the crystal IF filter frequency.

### CR Kits

This is exactly what is done in the KN-Q7A kit I built, which precipitated these articles. It is available in kit form from CR Kits, whose Web site is <http://crkits.com/>, or in the USA from QRVTronics at <http://www.larvell.net/>. The price for the kit was hard to beat at \$125 plus shipping, with a nice speaker microphone extra at \$30.00. The kit is also available in assembled form for slightly more. The transceiver is available for a number of slots in the 40-meter band, I got one for 7.280 to 7.300 MHz, and so it would cover the QRP SSB calling frequency.

The 20-meter version is available only for 14.200-14.230 MHz.

*“a remarkably nice SSB transceiver...”*

So, what do you get? The kit comes with a very nice extruded black-painted aluminum case, and remarkably few parts for what the radio does. Assembly was straightforward, only requiring the winding of five simple toroids, two for the low-pass output filtering and three bifilar transformers

for inter-stage coupling in the RF chain.

In my case, due to lack of experience with SMD parts, the installation of the initial drive transistor in the RF amplifier chain was a problem. I got some help with this, and with a few evenings’ work, had a remarkably nice SSB transceiver, with at least 5 watts output.

I don’t have a good wattmeter, but comparing the output of the KN-Q7A with a “CB” SWR meter and a simple dummy load, the output seems comparable to my Xiegu Technology X1M transceiver, and Yaesu FT-817ND, running at 5 watts output. There are nominally three other SMD devices, but they are the

CONTINUED - SOME THOUGHTS ABOUT SSB ON PAGE 8



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## Scott Laughlin, N7NET

His call was N7JEU. His name was Jerry. Two decades have passed since I first heard his call on forty meters on that mid-November. It was past my bedtime. His signal was strong, yet very narrow. Without a doubt this fist belonged to someone who was very comfortable with Morse. I responded and we QSO'ed nearly two hours that first night and many more evenings thereafter.

I would learn later that Jerry was dying of lung cancer and he could no longer generate the wind to engage in a verbal conversation. But his fist did him proud. We chatted.

### QRPP

Bedfast, with a HW-8—the only radio he owned—and a J-38, Jerry shared with me many of his radio days, one character-at-a-time at about 12-wpm. His QTH was a thousand feet above Vista House, which put it about 2,000 feet above the Columbia River. “A choice place from which to launch my mighty one-watt signal,” he said during that first QSO.

I had exhausted the best part of a year in trying to achieve 13-wpm. I participated every night with the West Coast Slow Speed Net, but I was stranded on the infamous 12-word plateau. I'd grown more efficient at this rate than I wished. But that wasn't all a bad thing. In the process of this struggle I learned how to properly handle CW traffic. In short, I

*“...the infamous 12-word plateau...”*

have come to appreciate the slower speeds.

One might conclude that Jerry was incapable of higher speeds. Not so. He simply enjoyed a laid-back QSO, as much as I did.

### Jarhead

As a young man he enlisted in the Marine Corps where he became a radio operator and then a forward artillery spotter. Armed with a jeep, portable radio (as such back in that day), and a KY-116/U key clamped around his thigh, he reported where the last shell exploded. Then he hastily changed locations.

In spite of the fact that I only eyeballed Jerry once, we bonded. After Jerry was gone his YL called me on the phone. He had left me his “JEU Box,” the box that contained his HW-8 when he was still able to travel. It has seen much of the American Southwest while protecting my QRP radios and keys.

It has outlasted Jerry and there is no doubt it will outlast me as well.



Heathkit HW-8



KY-116/U Leg-Clamp Telegraph Key

### QRS

In retrospect, I've gleaned more pleasure from the slower speeds than I have from 20-wpm. That's why I'm pleased to share North American QRP CW Club (NAQCC) information and activities. As one can see, there is a slow speed net schedule for each time zone—Eastern, Central, Mountain and Pacific. By slow, I mean the NCS will QRS to accommodate the slowest person on the net.

There are many good things to be gained here. Participate when you can.

Here is the current NAQCC schedule of slow nets:

[http://www.naqcc.info/cw\\_nets.html](http://www.naqcc.info/cw_nets.html) ■



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Department of Commerce, *Radio Service Bulletin*, Issued Monthly by the Bureau of Navigation, Washington, August 1, 1924

## AMATEUR STATIONS AUTHORIZED TO USE SHORT WAVE LENGTHS

July 24, 1924.

*To all supervisors of radio:*

Effective this date you are authorized to issue general and restricted amateur radio licenses to permit the use of any one or all of the following bands of short wave lengths: 75 to 80 meters, 40 to 43 meters, 20 to 22 meters, 4 to 5 meters, in addition to the band 150 to 200 meters, provided application is made by the owner of the station, which station must be prepared to use the wave length or wave lengths requested.

The use of continuous-wave telegraphy only will be permitted on wavelengths other than 150 to 200 meters, and the antenna circuit must not be directly coupled to the transmitting circuit.

Silent hours will not be required of amateurs while using the wave lengths above 200 meters. They may be authorized to use the band of wave lengths 105 to 110 meters in addition to the wave lengths within the bands authorized for general and restricted amateur use where the special amateurs are engaged in conducting tests with Government or commercial stations.

General, restricted, and special amateur stations will be permitted to use the entire band of wave lengths from 150 to 200 meters employing pure c.w. spark and modulated forms of transmission.

It should be made clear to the amateurs that the authority granted above is necessarily tentative because of the rapid development taking place in radio communication, and the bands of wave lengths authorized may be changed whenever, in the opinion of the Secretary of Commerce, such change is necessary.

D.B. Carson, Commissioner.

Approved.

J. Walter Drake,  
Assistant Secretary of Commerce.

## Amateur Radio at the Movies

By Bob Cashdollar, NR8U

*FREQUENCY* 2000 rated PG-13 1hour, 59min.

The trailer on the *FREQUENCY* DVD poses the question, "What if?" That question is the film's central theme.

What if you could talk to your father, a New York City fireman (W2QYV, currently assigned to a club station in Lewiston, N.Y.) who died in a fire, thirty years after the event? The means to do this is the father's amateur radio equipment with an assist from solar flares.

What if you could change the outcome of the past and your father didn't die in a fire.

If you are a fan of science fiction stories, you might guess what happens when you change the past and how it affects the present.

### Amateur Radio In The Movie

There is some attempt to portray amateur radio in the opening scenes, but the narrative strays from radio and into a serial killer murder story.

The DVD offers many extras. "THE SCIENCE BEHIND 'FREQUENCY'" is chock full of interesting items including an explanation of how the sun and solar flares affect the Earth's magnetosphere. In addition, there is a section titled "HAM RADIO," with two amateurs offering a good explanation of real amateur radio. Bruce Nolte, N6TFS (N1BN), and Marshall Hall, K6MEF, do a great job with their thumbnail descriptions of amateur radio; Hall shows several QSL card-holders with cards easily readable.

Viewing the film on DVD, I wondered if the viewer should watch the extras first or the movie.

**T**his month's cover is all his fault.



[www.dashtoons.com](http://www.dashtoons.com)

incentives onto the upper license levels in the form of enhanced frequency privileges. Eventually, the FCC abandoned those features which made the Novice ticket such a wonderful inducement to advancement. Over time, the Novice license lost its “up or out” philosophy and received an extended term, it became renewable and the crystal control limitation was dropped. Technicians received privileges in the Novice segments of the HF bands, and both Novices and Techs eventually received phone privileges on 10-meters. What also happened was the elimination of any market for the specialized gear which young Novices could afford.

### Advanced and Extra

The big 1968 “incentive licensing” scheme changed the landscape and the culture of amateur radio. Previously, there had been an Extra class license with a much more difficult written exam and a 20-word-per-minute code test. But it carried no privileges above those granted to General Class operators. And before there was the Amateur Extra, there had been a separate Advanced class license. Its holders had had special and exclusive phone privileges, but by the late 1950s those who had held that class ticket also had no privileges greater than those allowed to Generals before the adoption of incentive licensing.

In adopting the “incentive” scheme, the FCC carved up the bands into distinct segments for the various classes of license. Extra class licensees had all the privileges previously held by Generals. There were distinct segments of each band set aside for Extra class phone and CW operators. Advanced class licensees were barred from the new exclusively Extra class segments, but the new Advanced licensees received segments to which only they and Extras were privileged. Generals were barred from the new exclusively Advanced and Extra class segments.<sup>1</sup> For most of us of that generation, this was our first experience with government taking away what we thought we had earned.

### Rebellion

The “incentive” then was to gain back what we once had. Some of us rebelled; we tore up our ARRL

1 This is a greatly abbreviated history of the licensing structure. A more extensive study of the history of amateur licensing is available in the series of articles by Bill Continelli, W2XOY, entitled “The Wayback Machine,” [www.ham-shack.com/history.html](http://www.ham-shack.com/history.html).

memberships and swore we would never give in.<sup>2</sup> After some sober reflection (taking some of us a few years longer than others), some of us realized that the juicy DX generally operated in the Advanced and Extra Class band segments, so we capitulated and upgraded. Some even re-joined the ARRL.

### VE

The new testing programs subsequently adopted also offered credit for test elements passed within the prior year. Eventually, the FCC shed itself of the license testing business and testing became much more widely available through the Volunteer Examiner program.

For a while, some amateurs claimed they had “real” licenses because they had taken their examinations at FCC field offices. But, candidates no longer had to travel long distances to attend test sessions at FCC field offices. Gone was the common bond of having to sit in front of a really grumpy old man who scrutinized every dit, dah, and space in between before the treasured ticket was awarded.<sup>3</sup>

This was the common, shared experience of the amateurs who obtained their licenses in the almost two and a half decades after World War II. The experience was a rite of passage; there was a challenge and it took determination to meet it. We felt we had earned our stripes.

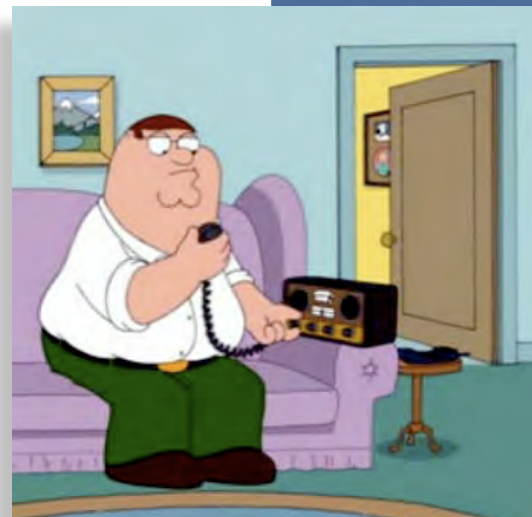
### Grumble-Grumble

A lot of what you hear on the bands is grumbling by those who feel that anyone licensed after that period has not earned their privileges in quite the same way. They didn't. So what? Well, what to do about it? Get over it! The bands are full of amateurs making lots of wonderful QSOs, making friends, experimenting with all the new

CONTINUED - GOOD OLD DAYS ON PAGE 8

2 Continelli describes the phases through which the incentive licensing scheme passed. In actuality, the ARRL had backed a more severe reduction of privileges to Generals in the reallocation of frequencies to Advanced and Extra class licensees than the FCC thought was prudent.

3 No doubt, some played the part well, cracking a smile when a budding youngster passed.



Family Guy on FOX™

*“distinctly  
laudatory”*



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voltage regulator and the two final transistors in the RF chain. These are large enough to be manageable, and are heat sunk to the bottom of the case.

Frequency control is done with a VXO oscillator. This strategy allows you to “pull” the frequency of a crystal oscillator enough to tune the selected part of the 40- or 20-meter band. The conventional varactor technique is used to provide the variable capacitance for tuning. Drift seems minimal after a few minutes warm up, which is to be expected in my previous experience with VXOs on various QRP CW rigs. Some quick checks with a calibrated receiver show that the tuning is quite linear. I marked the QRP SSB calling frequency with a dot of tape on the tuning knob for convenience.

Alignment and testing were very straightforward. At each major step, a testing procedure was suggested before you moved on to the next assembly step. An interesting alignment process was proposed for the receiver using your sound card and a freeware spectrum analysis program. This allowed you to adjust the BFO for optimum audio performance. “Peaking” the various RF transformers was easily done on “noise” or a received signal with a small screwdriver. To set the idling current on the final RF amplifier, I did need to use the current mode on my digital multimeter.

The audio output from the speaker microphone—a nice touch—was satisfactory. If you wish, you can connect headphones or an external speaker to the audio jack on the back panel. Power is connected with the usual 5.5 x 2.1 mm coaxial jack. Power draw on transmit is somewhere around two amps and receive at about 30 mA. With a SLA gel cell, or some lithium ion polymer batteries, this is a natural for field use and “picnic table portable” operation.

All in all, my efforts were rewarded with an excellent understanding of SSB techniques, and a very useful transceiver for both home QTH operation as well as in the field. I have made a number of excellent contacts up and down the east coast with my “attic” HOA compliant long-wire antenna. Assembly time was probably in the order of six to eight hours, spread over three or four evenings. ■

CONTINUED - GOOD OLD DAYS FROM PAGE 7

technology, and having a great time. Instead of sitting on the same old frequencies with the grumblers, move that VFO, change to a new mode, learn something new and join the fun. You’ll love it. Now, if they would just get rid of all these contests and DX-peditions, I could carry on an intelligent QSO... ■

Checking my logbooks for this article, I found our first net met the evening of 18 November 1977 on 21.175 MHz, with the call “CQ GC.” Over the net’s period of operation, three months, we had 12 stations regularly check in, mostly WD9s, a smattering of WB9s and a lone K9. The net ended only after all Novice participants had upgraded to General Class.

Our net reinforced that amateur radio truth, that the best way to improve your code is to actually get on the air and make some QSOs, the more the better.

### In the Log

Noted while looking over my early logbooks was how frequently impromptu nets or round robins arose in those days. Those get-togethers would start with a one-on-one QSO eventually joined by another operator, two or three or more. The joiners were most often locals, but it was not uncommon for an out of state station or two to join the community ragchew. How often does that occur today?

Also found was a two-word note under the date 13 December 1977, “PASSED ADVANCED.” Those paper logs certainly hold a wealth of information to jog the memory. ■

### Updated PDF Files...



Beginning this month, the *K9YA Telegraph*'s PDF files have been adjusted to an environmentally friendly, gluten-free format. Subscribers will notice no degradation in screen or print quality. If you choose to print the issue, we recommend the use of low-fat, vegetarian-based inks.

### Ham Lingo

DICK SYLVAN, W9CBT



© 1-10-05 "Dick" W9CBT

HOPE TO WORK YOU, "DOWN THE LOG."



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