

# HEADBACK

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## Message from the Editor

Hello again. Welcome to 1998. Another year has gone by and looking back the year had some very big successes. The charity auction raised the largest single donation the CNIB every received from a club, Field-day saw us come in just slightly behind BMARC and the scouts JOTA was a blast.

The GBARC two metre net which is held every Thursday night at nine on VE3OSR is always in need of check-ins. To keep things interesting, you are invited to join in with any subject you would like to hear discussed. The 80 metre net held Sunday morning at nine thirty on 3.783 mhz.(give or take a few cycles) , is worth checking into (for those with a basic qualification listen in, it is an enjoyable experience).

I look forward to seeing all at the club meetings

which are held at the Georgian Yacht Club on the fourth Tuesday of the month (with the exception of July and August) at seven thirty. Plan to get there early so you can get a good seat.

If you have a tendency to wake up with a hunger for good food remember the club breakfasts on the second and last Saturdays of the month. Breakfast is at Sonny's in Rockford at nine a.m. sharp (give or take half an hour)

For information write to : GBARC box 113, Owen Sound, Ont. N4K5P1

73 John VA3jrf

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remember that too much of a good thing is wonderful.....

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One of the college grad's first big discoveries is that jobs are handed out by some person who thinks and acts a lot like his or her parents.....

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**From Marcel Chapleau VE2GMZ:** "A few months ago, I decided to build my own J-pole antenna for two meters and 70 cm, instead of buying a considerably more costly factory-made unit. In going through my old ham files, I ran across a design that looked about right for my needs. The original was written up by John Post KE7AX and I copied his design for my first attempt.

"The antenna described by KE7AX worked out well, but I did notice two things that I felt could be improved upon. On a J-pole antenna, the coax cable is attached to the lower portion of each element (about two and one-quarter inches up from the horizontal connecting piece) while watching the SWR presented to the transmission line. At best, I could only achieve about 1.3:1 on two meters and 1.6:1 on 70 cm. Not bad, but there was room for improvement.

"Squeezing the 19-inch vertical radiating element closer to the 60-3/4 inch element (at the top of the 19-inch pipe) showed a drop in SWR to very close to unity. Based on this finding, I made up an 'L'-shaped angle bracket two inches long by one inch wide and with a one-inch drop-leg, and configured a one-and-one-half-inch slot across the top two-inch length. This allowed me to attach the 'L' section to the flat top of the 19-inch radiator's cap-piece with a single machine screw, and provided me with a 'Fine SWR Adjustment.' Now I can simply slide the 'L' piece back and forth on the 19-inch element until the SWR is as close to 1:1 as possible.

"With just that addition, I installed the dual-band J-pole at my home QTH and used it quite often for several months. I was able to reliably access a repeater 50 miles away, as well as the Russian *Mir* space station on a number of occasions. I felt, however, that the angle of radiation might be too high for good space communications (*Mir* was mainly only usable between 20 degrees to 65 degrees), so I decided to try something else. I constructed two

sets of four-spoked radials, one for two meters, and one for 70 cm. The 70 cm radials (each six and one-half inches long) were then positioned six and one-half inches down from the bottom of the 'J' crossover piece, and the two-meter radials (each 20 inches long), another 13-1/2 inches farther down (a total of 20 inches from the 'J' crossover). The details of the entire antenna are shown in Fig. 1. My reliable repeater 'reach' now increased to 95 miles

away, and I'm able to talk with a friend 45 miles down-range on simplex, just using the J-pole with its added radial 'skirts.' Communications with *Mir* were not as gratifying, however, and I suspect that perhaps the angle of radiation may now be too low.

"Needless to say, for terrestrial coverage, I've been very pleased with the results for my meager investment, and I thought my experiences may have appeal to others in the ham community."

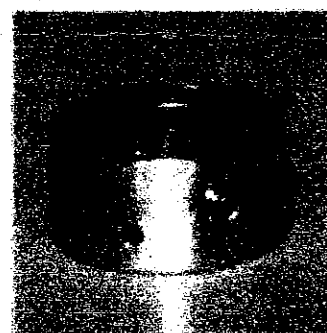


Photo A. VE2GMZ's radial mounting ring.

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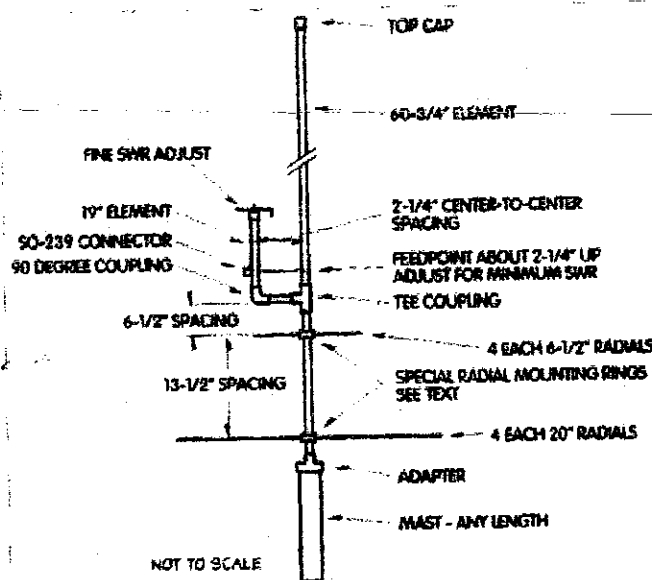


Fig. 1. VE2GMZ's "dual-band" J-pole antenna for two meters and 70 cm.

## *What happens when the year 2000 arrives*

Some commentators say it may cost billions of dollars to fix and many businesses may fail to take steps in time. The seeds of the problem were planted over 40 years ago. Published reports indicate this may be the technological equivalent of complete societal breakdown, a virtual descent into a digital purgatory. The focus of the concern is the year 2000, when a vast majority of computer software and hardware threaten to crash. The threat stems from a pervasive though seemingly innocuous standard that was adopted in the early days of computing. A programming detail that results in the failure of most hardware and software to recognize any year beyond 1999.

The Gartner Group, a U.S. consulting firm that specializes in helping businesses take advantage of information technology, has estimated that it will cost businesses upwards of \$600 billion to fix the problem and perhaps only 13 percent of those companies affected will even finish on time. One thing is certain: anyone who comes in contact with a computer, even in the most distant way, will be affected -- even those who don't have a computer in their own homes.

In the coming weeks, Evolutions will explore this pressing issue. We'll talk with programmers, business executives, and "Year 2000" experts in the information technology industry. It's a report that anyone who's ever turned on a computer should read.

### **Problem With a Triple-Comma Solution**

It's hard to believe, but some commentators are saying it may cost American businesses in the billions when computer clocks roll over to the next century. The deadline for "millennium compliance" may be sooner than everyone thinks -- as near as September, 1998.

### **Programmers Will Be Working Weekends**

Nobody is certain how many systems will be affected. The government, the airlines, small businesses -- not to mention safety systems -- all face system retrofits.

### **Why Attendance At Year 2000 Computer Conferences Is Going Up**

Millions of home computers will be affected (there's a test you can take to find out if yours is one). On a larger scale, what are the final ramifications and resolutions of this digital ticking clock.

Nine hundred and ninety seven years ago, in the year 999, all kinds of sorcerers predicted that strange evils would imperil the Earth when the calendar turned over to the second millennium. Would the sun give out and shroud the planet in perpetual darkness? Intellectuals of the era eagerly debated what would happen when the year 1000 arrived. History has recorded that the apocalypse was but a passing fad. But in the modern era, one where 21st century technology is a given, a more portentous, possibly calamitous deadline looms when the ball drops in Times Square.

The roots of the coming apocalypse date back to the early years of computing, when programmers began using two-digit fields to express the date (e.g. DD/MM/YY). This accurately identified the day, month, and year, but not the century (or millenium). This shortcoming was apparent to but a few astute software professionals. The two-digit protocol was followed faithfully during periodic upgrades -- from mainframes to minicomputers to desktops -- until information technology specialists realized that all sorts of systems could run amuck unless the code was rewritten to become "century rollover enabled."

Most of the code that has been written does not accommodate the simple fact that when the year 2000 is reached, computer systems will not differentiate between the year 1900 and 2000. Today, countless systems use software and firmware -- fixed instructions embedded in computer chips -- that are clock dependent. Financial services (banking, brokerage), insurance, retailers, building and plant management, just about every walk of automated life need to reconfigure their machines.

The fix collectively will cost American industry hundreds of billions of dollars, and it appears that programmers are prepared to lose a lot of sleep in the next 1400 days - even if all the potential glitches can be fixed in time. "Everybody in the industry knows about this," says Peter de Jager, an Ontario,

Canada consultant and lecturer who has turned into a cottage industry. "Nobody has done much about it because we're too busy trying to figure out how to hook your LAN server into a microwave oven."

"There's a certain magical, superstitious aura to the whole issue," says Nicholas Zvegintzov, a New York based software consultant, "much the same as in the year 1000."

So what's the reality? In the coming weeks, *Evolutions* will examine this pesky computer irritant. We'll talk to the experts and find out how businesses and people are coping. We'll even show you how to test your own PC to find out whether it's "millennium compliant."

### **Time, Time, Time... Waits for No Computer**

Goodwin is one of the low-key computer software gurus dealing with the coming dawn of the year 2000. A programmer and software consultant for 30 years, he publishes a small circulation newsletter called *years ago*, while working for a Wall Street firm, he noticed that 30-year bonds - as well as mortgage loans with long maturity dates - were someday going to have to deal with the potential confusion of two different centuries. "I allowed for the year 2000," Goodwin says. "I took care of the problem right then." But many others did not, perhaps because the year 2000 was out there in the indefinite future, or due to time, efficiency or storage and processing constraints. There were years, even decades, in which to get ready. Any time before the end of 1999 seemed reasonable.

As the 1990s have ticked by, the sense of urgency has risen. Upon initial reflection, many still think that the end of 1999 is the obvious target date for being ready. Yet, in some ways the urgency of the problem actually may be underappreciated. Manifestations of the problem will turn up a year earlier. Some software uses the number 99 as a sort of null character, or placeholder, to create dummy records, or to include or exclude records from searches. When the year 1999 finally arrives, its data will be the real thing but some systems may simply consider it another one of "their" phony 99s and ignore all the data.

Some think there is an even earlier deadline. Many of the potentially affected systems - such as those used in banks, insurance companies and brokerage houses - work on a calendar-year cycle. Because of their complexity as well as their interconnection with other computerized systems, all of which will surely not be made Year 2000 compliant at the same time, extensive testing will be necessary. Plus, software engineers will need time before the year 2000 arrives to resolve any problems uncovered by the testing or introduced by any programming changes. Thus, testing and reprogramming ideally must be finished by December 1998, which is only 28 months away. That way, new programming and system interoperability can be observed for the entire 1999 year, and previously undetected problems can be resolved well before New Year's Day, 2000.

One bank official told a story that quaintly illustrated how its software was "century roll-over challenged." He filled out an application for a woman who wanted to buy a certificate of deposit. After taking all her personal information, the computer politely informed him that it couldn't issue such a financial instrument for a three-year-old. The lady, however, was 103. Even more unsettling scenarios are surely lurking in other systems and mammoth databases around the world.

As the above illustrates, there are many facets to this topic. In coming weeks, *Evolutions* will delve further into the consequences anticipated in the Year 2000. One thing is certain, this is one deadline that cannot be extended!

The year 2000 is creeping up on us, plodding along at a relentlessly steady pace. Those special zero-zeros, which will be interpreted by the hieroglyphics of computer software, are waiting patiently, as some believe, to wreak havoc.

The impact on society of businesses, services, and institutions that don't meet the century-rollover deadline is unpredictable and incalculable. Questions that quickly come to mind have few if any satisfyingly concrete answers, so speculation abounds. There are thousands of clock-dependent

electronics -- in the dashboard of your car, in cash registers, and in much more complicated systems, many of them computerized. For instance, banks that fail to update their systems in time could lose track of critical financial information. Imagine receiving a notice telling you that your account is empty, because the bank's computer suddenly thinks you've never even opened an account. And what will happen to the patients of health care providers who fail to update their computer-based records systems? How many unintentionally expired prescriptions will go unnoticed by physicians on January 1, 2000? How valid will medical records be when their data is interpreted as indicating the patient hasn't been born yet? The very records that track and affect an individual's life could become unreliable.

Unfortunately, the cure is not an easy one. Some of the affected software has been in use for decades, and now few are knowledgeable about its inner workings. Many big mainframe computer systems will have to be revamped on weekends because they cannot be taken off-line during the week. Then, there are some who feel there just aren't enough weekends left between now and 2000 to get the job done. Newer systems are not necessarily immune either. Some client-server computers running sophisticated, modern software applications across networks do not handle the century-change correctly, even though they have been installed as recently as 1995.

Already potentially damaging situations are occurring. A U.S. consulting firm, reports that one financial services company has lost its competitive edge because it can't write certain loans beyond the year 2000, severely limiting its flexibility and product line.

Vic Fiegelman, the national director for Coopers and Lybrand's Year 2000 project cannot fathom some firms' cavalier attitude toward the rollover phenomenon. Fiegelman said, "We already had one situation -- I can't tell you the client -- but we have a huge company who's working for the U.S. Department of Defense, and their purchasing system just failed." The reason? It couldn't handle the year 2000. The worst thing about it, he added, is, "they

don't even have a sense of urgency." Some of Coopers' clients are utility companies. If they don't begin acting quickly, some electric companies could easily bollix the billing for thousands of customer. The consequences are ugly; in a few years, mistakenly shut-off electrical service could be de rigueur. Such impacts are not confined to any industry or even a few. Every date-intensive system will need to be audited, tested, and probably revised.

If revised, the software will need to be retested and integrated in context.

In our next and final installment, *Evolutions* offers the PC test and tells you what might occur even if you trade in your Mac, Compaq, or Dell for a newer, faster personal computer.

### *Why Attendance At Year 2000 Computer Conferences Is Going Up*

Perhaps one of the more dramatic aspects of the Year 2000 programming "detail," is its absolutely democratic presence among computers. Mainframe behemoths, super-minis, minicomputers, servers, workstations, desktop PCs, and laptops are all affected in some way. If you're skeptical of its pervasiveness, take what we call the de Jager Test, devised by Peter de Jager, the Canadian consultant who is carrying the flag on this issue. It's very simple. Set your Apple Macintosh or IBM-compatible PC's clock at December 31, 1999, 11:55 p.m. Then turn off the machine for 10 minutes.\* Turn it back on and check the clock. de Jager's machine came up with January 1, 1980 -- off by two decades!

Some 95 percent of the folks who took de Jager's test had PCs that failed. This behavior is generally not due to a particular CPU chip, but rather is caused by more mundane components such as the BIOS ROM or the CMOS clock. Yet, of the IBM-compatible personal computers tested, most 486's flunked, and only about half the Pentiums passed. All the Macs did fine. (Macs and IBM-compatible PCs are not the only computer platforms around, however.)

While millions of personal computers are on the verge of having all kinds of within the next three-and-a-half years, this will not cripple their

functionality. It's no worse than having your clock's battery give out. Still, de Jager makes his point. Nicolas Zvegintzov, a New York based software consultant, thinks the turn-of-the-millennium problem has been overblown, at least as far as the technical aspects go. Zvegintzov complained about the hype in an article in the February issue of American Programmer called "The Year 2000 as Racket and Ruse." "It's very clear what the implications are, but as a software problem it isn't very deep," he writes. "It would be a classic classroom exercise if there were professors who taught this kind of thing."

So far, nobody is teaching such a class, and each business must get up to speed on its own, or with the help of a consultant or a firm that understands the software that must be audited, tested, and probably revised. But while individual organizations are busy solving their own problems, other vexing questions will continue to arise. What exactly does "millennium compliant" mean in the technical sense? Will a consortium of information technology specialists devise a standard? If there's a pervasive systems crash, who will be responsible? Vendor, firmware designer, software author, manager -- everyone?

Only one thing seems certain: the days are ticking down. "It's a fixed deadline," says Peter de Jager ruefully.

- *A small percentage of computers may lose data in performing this test. It would be a good idea to backup your hard drive before conducting it*

(compiled from articles found on the internet)

### **The Internet-Repeater Connection**

By Murray Green, K3BEQ  
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mgreen@erols.com

The idea of Internet connections to Amateur Radio grew out of an article by James Millner,

WB2REM, in the December 1996 QST ("A New 'Band' For Your Radio"). Since then there has been a growth, albeit small, of repeater connections to the Internet by enterprising amateurs. These "pioneers" have combined Amateur Radio with cyberspace in a very direct way, creating new global gateways! There have been several articles in QST concerning the repeater-Internet connection, but none have WLIched on operational procedures.

#### Calling And Connecting

Amateurs calling into a repeater from the Internet should operate no differently than local users. Once the connection is established, announce your presence as you would if you were using a radio. It helps to let everyone know where you are and how you are reaching their system. "K3BEQ, listening via the Internet from Cheverly, Maryland."

If you're on the repeater side, remember that repeater access from the Internet is normally automatic and does not require manual intervention. An operator can pop on the air at almost any time. You may simply be listening one day and hear a call from, say, Paris. "F6ABC listening!" To answer the call, just pick up your microphone and respond as you normally would.

Repeater access to the Internet can only be done manually by the local interface operator. That is, you must ask the interface operator to make a connection.

Personally, I enjoy using the Internet to bridge one repeater to another. Then you have whole groups of people in distant locations enjoying roundtable chats. When the interface operator announces that two repeaters are

linked through the Internet, that's your cue to state that you are listening. Add your location to your announcement, especially if the connection is international. "K3BEQ in Cheverly, Maryland, United States, listening!"

#### Transparent

The actual connection to the Internet is transparent to the repeater's normal operation. In essence, the repeater is not connected to an Internet-based amateur until that amateur actually accesses it. Therefore, calling "-CQ Internet" from the repeater side is a waste of time. Unless your repeater is already linked to another repeater, no one will hear you. It's like yelling "Hello!" into the telephone before anyone actually calls you!

When the Internet link is in use, it doesn't tie up the repeater-unless a QSO is in progress, of course. An Internet user can connect to the repeater and just listen if he or she prefers; this has no impact whatsoever on the repeater. On the other hand, a connection from an Internet listener does prevent others on the Internet from connecting to the repeater. That situation may change very soon. New technology is available that will allow more than one Internet user to access the repeater simultaneously.

#### Delay Times

When an Internet amateur turns it over to a local station to transmit, there is a longer delay than normal until the repeater reset tone is heard. Please be patient and wait for the tone to avoid repeater time-out. The extra delay is created by the time necessary for the interface VOX to drop out first, which then

releases the repeater enabling the reset tone to be heard.

Conversely, when a local user turns it over to the Internet amateur, the repeater will usually drop out completely before he can begin to transmit. A short delay may also be experienced at this time before the Internet station begins to speak. This is caused by the various Internet connections including satellite relays. Based on our experience it varies from 5- 20 seconds after each transmission. As before, patience is the key.

#### Call Sign Checks

When an Internet amateur tries to access the repeater, software instantly checks the amateur's call sign "off the air" and permits or denies repeater access. The call sign search is usually conducted using an online data base such as QRZ, Buckmaster, UALR, etc. Although FCC Part 97 regulations do not specifically address Internet repeater connections, ample guidelines are contained on page 7-6 of The FCC Rule Book published by the ARRL.

#### It May Sound a Little Strange...

You'll notice a wide disparity in Internet audio quality. It varies according to which sound cards and audio interfaces are in use. Internet line delays (e.g. packet losses) may create an odd stuttering effect at times. That is, there may be a loss of syllables or words followed by a pause, with the words put back together when the audio returns.

#### Is it Just Apathy?

Internet-repeater networking has been overdue in this country. But despite the advantages, hams have been slow to warm up

to this new mode of communication. There may be several reasons for this... - A feeling among certain amateurs that this is not "real radio," but merely a sophisticated type of reverse autopatch.

New technology intimidation.

Fear of change.

Lack of experience in international conversations.

Limited number of amateurs operating from the Internet with the required software.

(This results in an insufficient number of contacts to inspire regular use.)

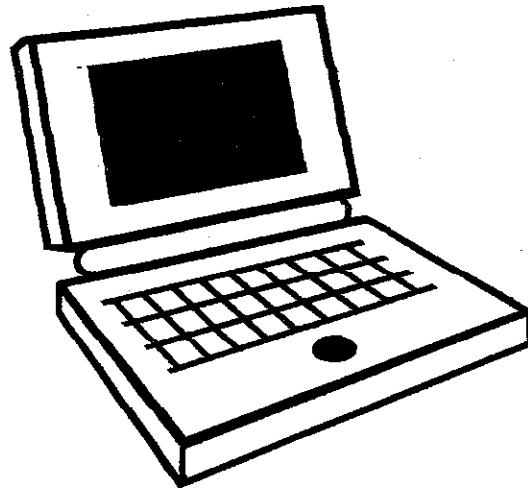
Explore and Enjoy

I don't believe that the Internet repeater connection will be as revolutionary as the repeater explosion of the early 70s-but it is a worthwhile technological addition. Internet linking offers a taste of DX to hams who might otherwise not have an opportunity. It also offers incentive to upgrade for those who are not presently licensed to operate HF. If you have an Internet-linked repeater in your area, try it! Explore this fascinating new technology.

Who knows? If you listen carefully you might just catch that heavy-set guy with the red suit and the reindeer. You never know who will show up on a linked repeater!

(QST December 1997 ) (found on packet 24 Dec. 1997)

E-mail addresses for gbarc members



GBARC: [gbarc@sbbs.gryn.org](mailto:gbarc@sbbs.gryn.org)

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### **Amateur license fees going up?**

Rumors persist that the federal government plans to increase the price of an Amateur Radio license in the near future. Industry Canada will neither confirm nor deny the rumors. Jim Dean, RAC's Vice President for Government Affairs, recently said the following in response to a question from one Canadian amateur: "In 1989, the Radio



Communications Act replaced the former Radio Act. As a result, it is necessary for IC to bring the Radio Regulations into alignment with the new act. This process was begun a number of years ago, and has been the subject of consultation with spectrum users. One of the things that could be affected by this realignment is the fee structure, and this would be true for all spectrum users, not just amateurs. Services provided by the Government affect the fee structure. IC has been working on the realignment of the regulations and they have just about finished. Before the changes are finalized IC will have to publish them in the Canada Gazette and seek comment." "To be realistic, I think we are in for a fee increase. IC is well aware of what amateurs in other countries are paying for their annual license fees. The costs of all Government services are going up, and Spectrum Management is no exception. Indeed, there is tremendous pressure on spectrum management due to new PCS licenses, DTH television by satellite, cellular and mobile telephones, etc." Stay tuned. As soon as there is any news, we will let you know.

*(Taken off the RAC Web Site ([www.rac.ca](http://www.rac.ca)))*

Have you ever wondered why we radio amateurs are called "HAMS"? Well, according to the Northern Ohio Radio Society, it goes like this: the word ham was applied in 1908 and was the call letters of one of the

first Amateur wireless stations operated by some members of the HARVARD RADIO CLUB. There were Albert S. Hyman, Bob Almy and Peggie Murray. At first, they called their station Hyman-Almy-Murry. Tapping out such a long name in code soon called for a revision and they changed it to HY-AL-MU, using the first two letters of each name.

Early in 1909, some confusion resulted between signals from Amateur wireless HYALMU and a Mexican ship named HYALMO, so they decided to use only the first letter of each name and the call became HAM.

In the early pioneer unregulated days of radio, Amateur operators picked their own frequency and call letters. Then, as now, some Amateurs had better signals than some commercial stations. The resulting interference finally came to the attention of

congressional committees in Washington and they gave much time to proposed legislation designed to critically limit Amateur activity.

In 1911, Albert Hyman chose the controversial Wireless Regulation Bill as the topic for his thesis at Harvard. His instructor insisted that a copy be sent to Senator David I. Walsh, a member of one of the committees hearing the bill. The Senator was so impressed, he sent for Hyman to appear before the committee. He was put on the stand and described how the little Amateur station was built. He almost cried when he told the crowded committee room that if the bill went through, they would have to close up the station because they could not afford the license fees and all the other requirements that were set up in the bill.

The debate started and the little station HAM became a symbol of all the little Amateur stations

in the country crying out to be saved from menace and greed of the big commercial stations who did not want them around. Finally, the bill got to the floor of Congress and every speaker talked about the poor little station "HAM."

That's how it all started. You will find the whole story in the Congressional Record. Nationwide publicity associated station HAM with Amateurs. From that day to this, and probably to the end of time, in radio, an Amateur is a HAM.

73's de Gerry WD4BIS

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#### Changes to Feedback

You may notice some changes in Feedback as I look for a format I like. Feedback will now be coming to you near the first of the month so there is time to read it before the monthly meeting. Thanks John