



The READOUT

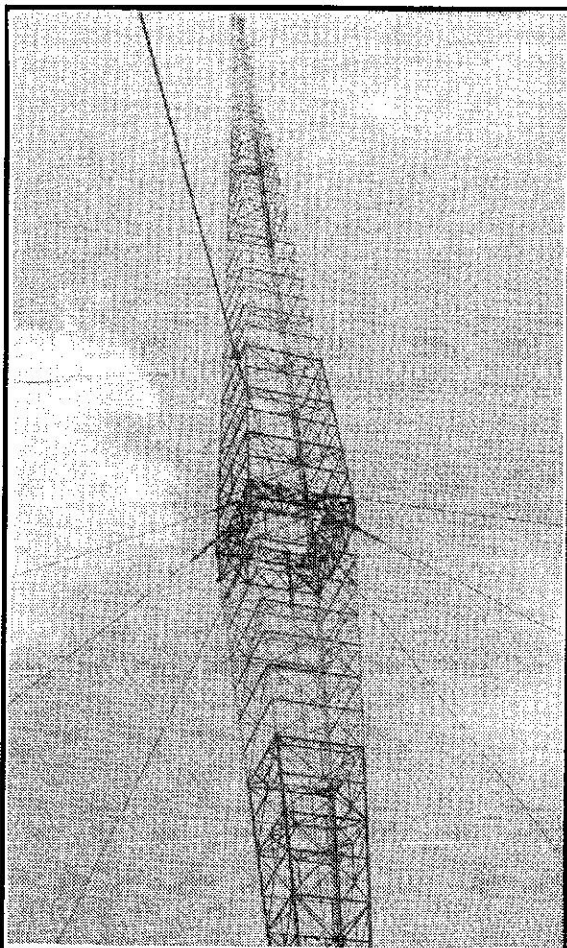
Year 12

Number 7

July 1991

Home Of The Grand Old Opry

By Pat Barthelow, AA6EG, Seaside, CA.



Completed in January 1932, the WSM cantilever tower is 878 feet high and is one of only three towers of this type in use today. The tower, along Hwy 65 outside Nashville, Tn., is clearly seen for miles in all directions.

Photo By AA6EG

What is 878 feet tall, 38 feet thick at the mid section, 2 1/2 feet thick at the base, has an antenna tuner as big as a house and you can listen to without a radio? Why, the WSM 5/8 wave vertical antenna, of course!

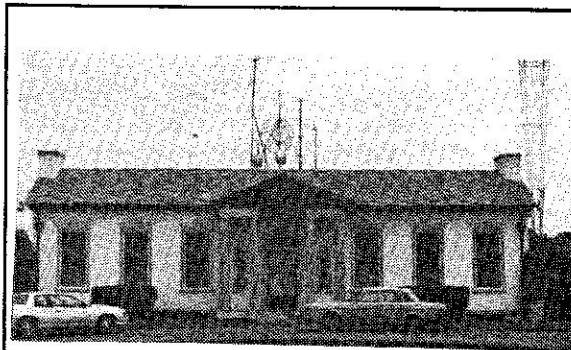
I had the pleasure of visiting the most impressive transmitter site I have ever seen, while travelling from Indianapolis to Huntsville AL. last May. I was riding with Professor of English, Patrick Karle from Seton Hall University, when I saw the monster antenna beside highway 65 in north central Tennessee. I shouted "Take this exit, its time for a stretch!"

We drove to a stately looking building and I knocked to see if anyone was home. I was

greeted by Everett Lawson, a tall slim gentleman, who spoke with a heavy "southern country" accent. He had a toothpick in his mouth, a shirt pocket full of pens and pencils with a pocket protector, and wore his watch halfway up his arm. Quite a nice character, he looked like a classic old time engineer. He was very cordial and when I introduced myself as a very impressed ham radio operator, he invited me in for coffee, and a tour of the site.

The station operates on a frequency of 650 Khz with an ERP of 50,000 watts. Their transmitters were manufactured by Continental using very large air cooled final tubes and

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WSM transmitter building built in the late 1920's at the base of the monster tower outside Nashville, Tn.

Photo By AA6EG

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220 Band 224.14 MHz WD6EJF

10 Meter 28.440 kHz USB

Tuesdays at 730

Contributions to **The READOUT** are always welcome and may be submitted to the editor by mail or via packet at N6REB-BBS on 145.79 MHz. The deadline for articles is the 15th of the preceding month. Articles regarding religion or politics are not accepted.

Editor

Bob Pinheiro, WA6ZLO

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Canadian Customs Make No Exceptions

By Jim Clark, WA6NSK

In June last year the wife and I set out of vacation headed to Canada. We arrived at Port Angeles, Washington where we caught the ferry to Victoria, British Columbia.

As we departed the ferry, we were directed in the Canadian Customs inspections area where my wife and I were asked for identification. She produced her driver's license and I showed my California Highway Patrol I.D. card. This immediately brought a reaction from the young female Custom's Officer. She quickly asked me if I had a gun, mace, tear gas or switch blade knife in my possession. I said no!

She became extremely hostile with my answer and announced to me, "I want to advise you if we find a gun in your possession, you will immediately spend seven days in jail. If you give me the weapon now we will just send it back to your department." I again told her I didn't have any weapons.

Before leaving home I remembered a memo put out to all officers regarding the possession of weapons in other jurisdictions and aboard aircraft. With that memo in mind, I decided to leave my off-duty weapon home.

My answer did not satisfy the officer and she ordered us out of the normal process line to a nearby inspection area. There we were contacted by a male and female Custom's officers.

They ordered us out of the car and told us to stand in front of the car. They proceeded to literally tear our car apart, opening all luggage and searching the entire

vehicle. Suitcases were just thrown back into the car and pressed clothing was thrown about.

I was not advised at anytime what they were searching for, but there wasn't any doubt what it was. Needless to say, no guns or weapons were found.

My wife and I were detained for almost an hour. During that hour my wife requested to use the bathroom and they refused.

By the time they finished the search, the entire ferry of 100 cars had emptied and the delay caused us to miss our scheduled tour.

The following day I went to the Canadian Customs office in Victoria and requested to talk to a supervisor. The superintendent in charge spoke to me and was very apologetic, but backed their action.

He said Canadian laws are very strict on weapons possession, particularly guns. He said some U.S. law officers have lied about weapons when asked at the border which has led to their policy of doing complete searches on all law enforcement officers entering the country. He noted that all persons admitting to gun ownership are routinely searched.

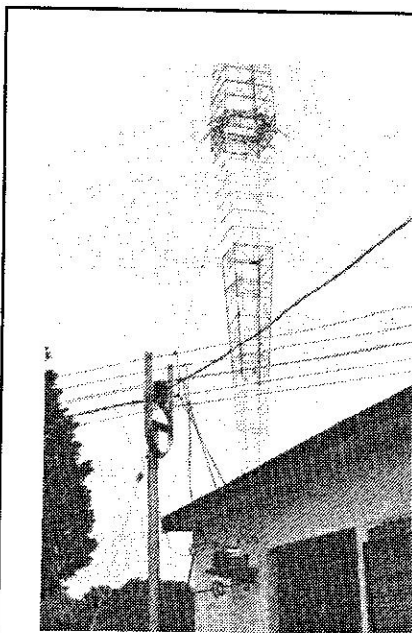
So, if you thinking about taking weapons in Canada, forget it! In fact, you would be wise to deny gun ownership and not identify yourself as a peace officer. This incident put a damper on our Canadian vacation which we otherwise thoroughly enjoyed.

73, Jim Clark,
CHP Tuolumne County.

all the electronic components are commensurately large. The transmission line is a 5 wire parallel open feed line with a 230 ohms impedance, running from the transmitter house 500 feet to the antenna tuning house at the base of the tower. (Imagine an antenna tuner as big as a living room of a Pebble beach home!) The matching section had a schematic that looked just like many ham tuner designs; however, the component sizes blew me away!

A variable capacitor as big as a refrigerator, several coils of copper and silver plated copper tubing, two feet in diameter and 3 feet long. In case of trouble with the main antenna, the station can switch to an standby antenna by throwing substantial knife type switch. The standby antenna is a 150 ft. tower not far from the main tower.

Mr. Lawson cautioned my friend and I not to touch anything in the transmatch house, as the station was on the air and all conductors were hot, (carrying 50 KW of RF.) About this time, my friend said "what's that sound I hear?" Mr. Lawson answered, "that is the radio broadcast". The 50 KW made the inductors and capacitors mechanically vibrate in sync with the transmitted audio! When this fact sank in, Professor Karle said "Pat, I'm going back to my car. Meet me there when you are done looking at this thing." and left hastily. We then went to visit the base of the 5/8 vertical for a looksee. It stood on a single ceramic conical insulator, surrounded by a

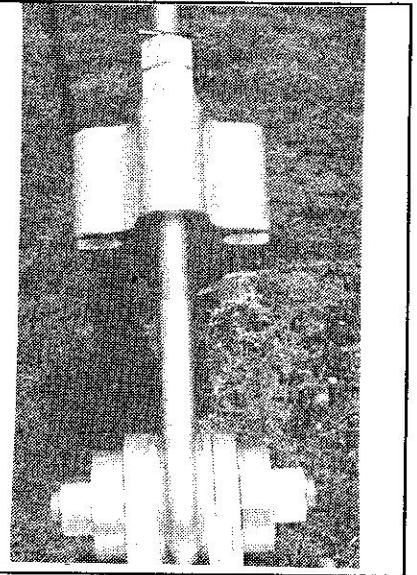


Open wire feed line leaving the transmitter building on it's way to the tower behind the transmitter building.

Photo By AA6EG

One of the eight massive turn-buckles attached to the guy wires which are anchored to a total of eight 54 ton concrete anchors.

Photo By AA6EG



brick wall. It was AWESOME! Everett kept this visit short, as he said the magnetic field intensity at the base was 900 volts per meter and said the medical effects of such a high RF field weren't really known. The tower was developed in the 30's and there were about five built in the country with only three still in use today. It would make an incredible 160 meter antenna. If you are ever travelling N-S through Tennessee on 65, be sure to stop by and have Everett pour you some coffee and show you around the home of the Grand Old Opry in Nashville, Tennessee.

Thanks to Pat , AA6EG, who wrote this story and provided us with the photo's included here. Also thanks

Historical Facts

When WSM, the Grand Old Opry station in Nashville, Tennessee, came on the air in the mid 20's, it was one of the first commercial broadcast stations on the air in the county. In 1930 the station decided to upgrade the station and it's coverage. They purchased land several miles outside Nashville allow Hwy 65, where they set about building their new transmitting facility.

Their first antenna was a 300 foot long flat top strung between two telephone poles. Engineers decided that one of the most important considerations was the antenna system. In those days it was customary to suspend an antenna, having a vertical and horizontal section between a pair of steel towers

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ranging in height from 100 to 400 feet. Independent engineering studies showed that a vertical antenna slightly greater than one-half wave length in height would concentrate the radiated energy along the ground where it would become useful instead of radiating a large portion upward into space.

Engineers of the Blaw Knox Co. and Bell Telephone Labs set to work to develop the structure. It would have to be practicable mechanically, and yet would approach as nearly as possible the ideal structure visualized by electrical engineers.

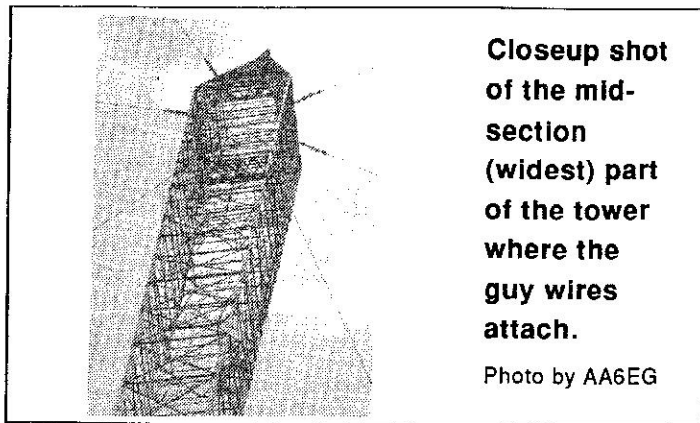
The most important requirements were, first, that the tower should be completely insulated from ground

so that the structure itself could be used as the antenna at a height equal to $5/8$ the wavelength of the transmitting frequency. Secondly, that no great amount of surface should be

near the ground. The second condition was met by designing the structure in the form of a hugh cigar (cantilever). A porcelain insulator at the base serves to isolate the tower from the ground electrically. The first tower of this type was erected at Wayne, N.J., for New York station WABC and was 665 high. WSM decided to install the same type of tower to operate on 650 kHz. This would required the tower to be 878 feet in height, which at time was the tallest on the North American continent.

To build the tower, 150 tons of galvanized structural steel was used. Eight sets of guys wires, two inches in diameter and fastened to the tower at its widest point were used to guy it. Each guy wire was broken into short lengths by porcelain compression type insulators.

There are eight 54-ton concrete guy anchors to which the guy wires attach making it possible for the



Closeup shot of the mid-section (widest) part of the tower where the guy wires attach.

Photo by AA6EG

tower to withstand winds of cyclone velocity. The anchors, as well as the tower footing, are dowed into solid rock. The structural sections of the tower, following the general cigar shape, taper from a width of only 2 1/2 feet at the bottom to a maximum of 38 feet at the 370 foot level, where the guys wires are attached. Above this point it tapers again into a width of 2 1/2 feet at the 758 foot level. A hollow telescoped steel pole completes the height of 878 feet.

Additionally, WSM believes in being ready for trouble. That is why they have two identical 50 KW transmitters and a backup tower should the main one fail for whatever reason. Additionally, AC power from two independent circuits is available at all times. A dual sub-station is located on one corner of the WSM property and steps the incoming voltage down to 2,300 volts that is fed through underground cables into the transmitter building to a switch-gear.

A great deal of ingenuity was exercised in devising an electrical "robot" that could transfer the entire load to the auxiliary power source in case the source in use failed. To this date, WSM, continues to operate from this site with almost the same equipment they started out with 60 years ago. They also continue to be the broadcast voice of the Grand Old Opry heard throughout most of the U.S.A. and Canada every Saturday night.

We Don't Have One!

In the forties, super-powered border-blaster radio stations popped up along the border in Mexico.

One of those stations was XED in Reynosa,

Mexico, which operated with nearly a quarter of a million watts. XED's signal drifted considerably and often snuggled up against WSM in

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...Blasters From Page 4

Nashville, hetrodying against WSM signal on 650 KHz and adding all manner of squeals to the Grand Old Opry on Saturday nights.

Finally, WSM's engineers are said to have called the XED requesting they check their crystal for proper operation. "It cannot be our crystal amigo!", came the reply. "We don't have one!"

After the WSM engineers recovered from the shock they offered to send them one free of charge. The offer was accepted and the crystal promptly dispatched and duly installed by XED. There was great joy in Nashville that night because the crystal was cut for a frequency far from 650 KHz and all interference was gone.

Dr. John R. Brinkley and his cures for prostrate troubles, using a solution made from the glands of goats, no longer competed with Roy Acuff, Minnie Pearl or Little Jimmy Dickens.

Broadcasting In The Year 2001

By Tim Low, N6ZUC

What does the future hold for communications? That can be defined in one word, digital. The future is quickly approaching, and it's a bright, clean, nearly interference free future. Guessing the future of any technology is a risky undertaking, but I've always been willing to open my mouth, and, as the old punch line goes, remove all doubt. So, here I go with both feet.

First I think it's best to define, in the simplest terms possible, what digital is. Everyone has heard the term, but many of us are really not sure what it is. All we know is it's supposed to be better. Actually, it's the simplest of concepts. In digital there are only 2 states, on or off, hi or low, yes or no. Doesn't matter what you call it, either it is, or it isn't.

The light switch is a good example of the simplest of digital systems. You can turn it on, electricity flows, or you can turn it off, electricity does not flow. CW is a method of digital communications. Either the transmitter is keyed, or it isn't. Simple digital communications.

Yes, but how does all this relate to voice and video communications? It does, but, it starts to get a little more complicated. Voice or video can be digitized. Changed from its analog world to a series of on/off pulses. Over simplified? Yes! There isn't enough space in this article, nor is it my purpose to teach a course in digital electronics. If your really interested, I would recommend a series of books found at your nearby Radio Shack store. These can explain the topic in more detail. These books are written in a very informal, easy to understand style.

What I want to do, is look at the future of mass communications. After all, the history of commercial radio and TV has always been linked with ham radio. Many of the developments in commercial broadcasting has been a direct result of pioneering by Amateurs. Let's go ten years into the future, and see what it looks like. Here we are in the year 2001. Your driving along in your classic 1986 Chevy. Maybe it's a convertible? Got the top down, sun's shining, (don't forget the sun block). You're thinkin' some tunes would be great. Reach down and turn on that Delco AM/FM stereo radio. What's this? Noise! Garbage! Hash! Where's Michael Jackson? Where's Madonna? (Gee, you think she'll still be around?)

Well, sorry, the commercial bands as we know them are no more. All the new cars have the combination digital satellite/ digital terrestrial receivers in them. You push the button for your favorite satellite music station. Now you can listen to that same station as you drive all the way 'cross country. From New York to Los Angeles, from Dallas/Fort Worth to Minneapolis/St. Paul. No local car dealers screaming, no grocery ads. Sorry, you'll still hear national

Thanks to J.H.DeWitt, Jr. Chief Engineer of WSM, now retired, and Everett Lawson (photo) WSM engineer, who assisted in the preparation of this story. If you're ever near Nashville, stop by and say hello. Maybe Everett might be on duty and will show you around one of the oldest stations in the country.



• • The FCC reports most Amateur Stations are not operating at minimum power as required by Section 97.313 (a). Are you one of them?

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SARA Minutes

By Ernie Rader, K6UVI, Secretary

The June 18, 1991 meeting of SARA was called to order at 734 pm by President Oliver, KJ6YZ. 32 members and guests introduced themselves. N6SAE gave the treasurers report. General Account: Beginning balance \$1,101.29. Three credits for \$372.74. Total \$1,474.03. Seven debits of \$630.14. Balance to date \$843.89. One adjustment of plus .9 cents. New balance \$843.98. Fund Raiser Account: Beginning balance \$1,045.71. Three credits of \$499.00. One debit of \$301.89. New balance \$1,242.82.

Education and Training Account: As of 5-31-91 beginning balance \$446.00. One credit of \$158.28. One debit of \$31.75. New balance of \$572.53. No new transactions reported as of 6-18-91. The report was unanimously accepted without corrections.

Minutes of the previous meeting were accepted as printed in The READOUT. Steve, N6EKV and Dave, N6YHZ, reported on the fireworks stands and pre-sales. Dave also reported on the upcoming Field Day activities at the Nile Garden school.

LeRoy, NV6S, reported on the repeater equipment. He said the autopatch is back in service and the links will be in operation shortly. The six-meter repeater is expected to be operational in about a month. The 440 repeater is sick. He hopes to get it fixed on the next trip up the

hill. The 10M digi is down for repairs. The unit and its new antenna are expected to back in operation soon. LeRoy mentioned the problems inherent in keeping the 2M and 220 machine linked together all the time as in the past. After discussion, it was decided by vote that the two machines will only be linked when needed for an autopatch call, emergency, or a QSO. Then it will be unlinked upon completion of the contact.

A discussion followed on the proper use of the autopatch. A new autopatch instruction sheet will be sent to each member in *The READOUT*.

The matter of properly selecting a new secretary was brought up. Ernie, K6UVI, had been appointed by the President. However, the bylaws require nominations and a vote by secret ballot. Dave, KJ6DL, placed K6UVI in nomination. Hart, N6TIV, motioned to close the nominations. The motion was seconded and Ernie was unanimously elected.

The President publicly thanked all those members who help provide communications for the Graffiti bike-a-thon held on June 8th. They included, besides himself, N6SAH and KJ6GE, N6TIV, N6SAE and N6KMR. The President also announced two more bike-a-thons coming up on October 5th and October 13th. The latter is in conjunc-

tion with the Riverbank Cheese and Wine Festival. Frank, N6YHY, announced that the equipment for the new 6M club repeater was being donated to the club by himself and Joe Robinson, N6OBP of Castro Valley. The repeater is a tube-type Motorola that will run about 100 watts. The system will have a notch cavity and will temporarily use a Ringo Ranger antenna. The long range plan calls for a three phased antenna array with a 6 to 8 db gain. There is talk also of possibly doing some linking with a system in the bay area operated by WB6FFC. One of the reasons for the machine is to provide communications for the mountains in case of fires.

Frank noted that the low frequency would do a better job in the mountains and that's one of the reasons the CHP uses low band radios in their units. The repeater frequencies are 52.76 TX and 53.36 RX, which is a 600 kHz split. The club station low band rig has been repaired by Yaesu. The cost was \$123.32.

N6SAE announced that all but two books of the original 1900 raffle tickets printed had been sent out. The remaining two books were quickly sold at the meeting. If all the tickets are sold, the club would make \$1900 gross.

Meeting adjourned at 940 pm. Respectfully submitted for the Secretary by Bob, WA6ZLO.

Rush For 220-222 MHz

The FCC has abruptly stopped accepting license applications for

the new 220-222 Mhz private land mobile narrowband channels recently taken from the Amateur service. Over 50,000 filings were received by the Commission despite using

modified procedures designed to curb speculation filings. The freeze is indefinite, but could be lifted after the initial batch of applications are processed.

Editor's Notes

By Bob Pinheiro, WA6ZLO

Cable TV companies apparently have a new tool in their fight against signal piracy. One company, American Cablevision of New York, found a way to not only put the finger on people who were stealing services, but also get them to reveal their identity within 24 hours.

According to reports, the cable company fired an electronic impulse called a "bullet" through their system to more than 90,000 subscribers. If the cable box was legally connected, nothing happens. If there illegally hooked up, the box blows out and is disabled.

Over 300 boxes blew out on the first try. Those people would then call the cable company for repairs and the company was able to identify the thieves. American Cablevision offered a deal to the thieves, pay a \$500 cash settlement to the cable company or face prosecution with possible fines of \$1,000 to \$110,000. The company filed 317 law suits in Federal Court.

• The Cable News Network (CNN) will soon have competition from the state run NHK broadcasting corporation of Japan. NHK plans to have GNN (Global News Network) on the air 24 hours a day by the end of the year. The network will focus on international TV news. The venture is expected to cost around \$1 billion to get it started with headquarters in New York.

• Attention Novices.....you can now work the SARA 220 machine. With the recent move to 224.14 MHz the input frequency of 222.54 MHz falls in the Novice portion (222.1-223.91 MHz) of the 220 band. The FCC rules address your transmit fre-

quency, not your receive frequency. So, as you can see 222.54 MHz falls inside the Novice band. Have fun!

• Drug dealers have long used pagers to keep in touch with their customers. Now, they are making extensive use of cellular phones. Some are using "black market" computer chips that allows them to make telephone calls that cannot be verified for billing and more importantly, traced by the police. As the chips became popular, the Secret Service stepped in and developed a special code that would render the chip useless. The first day the code was used at "PacTel Cellular" in Los Angeles, about 5,000 illegal phone calls were blocked.

• Congratulations to our club Secretary, Ernie, K6UVI, who upgrade to Extra last month.

• Welcome to new SARA member Ray Erickson, KC6TVC. Ray is a retired electronics technician.

• The Mount Diablo Amateur Radio Club (MDARC) has agreed to sponsor the ARRL Pacific Division convention, PACIFICON '92. The convention will be held at the Hilton Hotel in Concord October 16-18, 1992. The 1991 PACIFICON, originally scheduled for San Jose, had to be canceled when the Santa Clara Valley Radio club withdrew it's sponsorship.

• The U.S. position for the upcoming World Administrative Radio Conference (WARC '92) has been adopted by the FCC. Recommendations include the realignment of the Amateur and Broadcasting bands at 7 Mhz to eliminate the overlap between the two services while retaining 300 Khz of bandwidth

for Amateurs worldwide. A mobile satellite uplink at 2390-2430 MHz is proposed. Some spectrum around 2.3 GHz is proposed for a digital audio broadcasting (DAB). The exact frequencies are not known at this time.

• Be thankful you don't live on the southwest side of Madison, Wisconsin where spring brings both good and bad news. The good news is, of course, the warmer weather. The bad news is that as soon as the temperature climbs above 32 degrees, pieces of ice--some the size of 2-liter soda bottles -- break off from the top of the WISC-TV 1,105 foot television tower.

The chunks crash to the ground in neighbor's yards. Smaller chunks have broken windshields, dented cars and forced frightened neighborhood children to stay indoors. Larger chunks, one the size of a Volkswagen, crashed through the roof of the small building next to the tower.

Other times, 6 foot spears of ice fall through the air, burying themselves two to three feet into the ground. So far, the station, city officials and residents have been unable to find a solution to the problem.

• Following up on our story about getting your ham plates in last month's newsletter. I'm told you can no longer get the fancy looking plate with the picture of the rising sun. And if you want you plates reflectorized, you will have to pay an additional dollar. The total cost would be \$21.00 for the reflectorized plates. Enjoy your summer.

73, Bob.

Mysterious Dead Carrier

By Keith Beard, WE6R, Pacific Grove

While scanning the 402 to 430 Mhz band the other day my radio stopped on a very strong carrier on 426.8 MHz. It was a dead carrier. I checked several receivers thinking I was getting an image of my own receiver. But nope, the signal was there too. A-HA!, it must be the local oscillator of some other radio I have on around the shack.

After several minutes of turning off scanners, HTs, transceivers, the TV, my pagers etc., the signal was still there! Humm?, probably some link channel or the like, but after monitoring for most of the day and hearing nothing but dead carrier (and no ID), I became more puzzled. Not having time to DF it, I forgot about it for a few days and

when I checked it again, sure enough it was still there. So, I took my HT on my next trip across town (Monterey, CA.).

This has got to be a very high power, high level transmitter I thought as the meter was pegged the whole time. OK, time to check it out on my next trip to the Santa Cruz side of the bay. Wow, seems to be nearly pegged over there also, but a bit weaker. Maybe a spur from some transmitter on a peak overlooking the bay.

Back in Monterey and heading for Pacific Grove I drove through the tunnel near Fisherman's Wharf expecting the signal to completely drop out. It didn't!! In fact it continued to pegged the S-Meter.

Then it dawned on me. I reached down and turned off my 440 pager and just like magic the signal disappeared! When I had done the testing at home I forgot about this pager which is my second 440 pager. It was sitting across the room. It is tuned to a frequency of 444.7 Mhz. The local oscillator is 17.9. Now if you subtract those two figures it comes out to 426.8 MHz.

I felt kind of dumb but couldn't help but laugh at myself as I looked back at all the time I spent DF'ing a signal coming from the belt on my pants.

Thanks NPS Scuttlebutt,
Monterey, CA.

SARA Repeaters & Digipeaters

2 METERS:
145.39 MHz (-)

220 BAND
224.14 MHz (-)

440 BAND
440.225 MHz (+)

6 METERS:
52.76 MHz (+)
(Coming Soon)

2M PACKET DIGIPEATER:
145.79 MHz

10M DIGIPEATER
28.103 MHz.

New SARA 220 Frequency

The SARA 220 machine has changed frequency from 223.68 to 224.14 effective in late May. The move was precipitated by the lost of the bottom 2 Mhz of the 220 band to the Land Mobile Service. This in turn forced a reorganization of the 220 band plan and forced several repeater below 224.00 to move.

We now share this frequency with another repeater in the San Jose

area. So far, we have not had any interference problems reported to either system.

However users should be alert to the possibility if they live in areas that afford the opportunity for signals getting into the San Jose area. Report any problems to our chief engineer.

Novices can now work the SARA 220 machine as the new input frequency falls in the Novice portion of the 220 Band.

Repeater Etiquette

From time to time it's helpful to talk about some of our bad habits on the air. What with all the new Amateurs coming on board, this appears to be an opportune time to mention those bad habits we are all guilty of at one time or another. This article is not intended to offend anyone, only to make you aware of what you may be doing and may not be aware of.

Let's start with station identification and proper calling procedures. I know, it's a dull subject, but listening in on many repeater conversations will reveal some incorrect practices and many more superfluous ones. What does the FCC require? The basics are pretty simple if we consider voice or CW operation, which is ninety plus percent of amateur operations at this time. Section 97.84 of the FCC rules and regulations stipulates: "(a) Each Amateur radio station shall give its call sign at the end of each communication, and every ten minutes or less during a communication."

The only exception is section 97.115 which requires you to identify the station call of a station that you are exchanging international third party traffic with. Other than that, there is NO requirement (nor is there any NEED, under normal circumstances) to give the call sign of the station you are communicating with. Simply give your call at the end of your first transmission, every ten minutes or less during a conversation, and at the end of your last transmission. Why give it at the end of your first transmission? Because you don't know for sure if the other station will recognize you, and

therefore your first transmission may end up being your last by default. Since that is so easy and efficient, why do we hear so much "junk" when monitoring amateur radio frequencies? Much of it has to do with operating practices handed down from the days when equipment was not as exotic or communication paths not as reliable as we now experience.

Amateur radio has lots of old traditions. Poor identifying practice is one that should not be passed on to the newer hams. Some practices come from other radio services or

Babble.....

**'to talk idly,
irrationally, or
foolishly'.**

the military, such as MARS nets. They may be appropriate for their operations, but not for Amateur radio.

So, what things should we guard against doing and find repulsive when we hear them? Here are some examples of poor and superfluous identifying practices heard recently in this area. None of these are illegal, but remember they do clog the airwaves with useless signals. (Note all the calls used are fictitious and are not any Amateur station in particular): "W6XYZ, N6XY, AA6X and the group, this is N6XYZ...". A simple N6XYZ would have been sufficient. "W6XYZ and the SARA Net, this is N6XYZ returning."

There is NO additional require-

ment for identifying when operating in an organized net. Again, N6XYZ would have been sufficient. Here's another atrocious example: "W6X... er...N6X..Y...uh...uh...Gee, Joe, Heck, I've forgotten your call sign. How about giving it to me again so we can identify correctly? This is N6XYZ for identification.." That one probably sucked a good 15-20 seconds of repeater time for no good reason.

Lastly, "W6XYZ this is N6XYZ through WD6ABC repeater." The FCC rules require that a station in repeater operation identify itself, not the other stations using the repeater.

Here's another bad habit. You key up the repeater and make a proper call. You don't get an answer from the station you called. Instead, another station pops on without identifying with a silly remark such as, "Nobody want's to talk you today huh?" or "Well, it looks like you are going to have to change your mouthwash!" This may seem funny to the person making the comment, but it's very poor operating and a violation of identification rules.

When using a repeater you must remember that you are being heard by a large number of Amateurs over a large area encompassing the coverage area of the repeater. In the case of the SARA repeaters this means from Sacramento to Fresno and the area in between. That's a big area.

It's easy to forget this point and find yourself in a QSO with a friend or two that are close enough to work on simplex. Good operators would move to simplex and not tie up the

See "Babble" Page 10

'Babble' From Page 7

repeater. The next time you're on the repeater, take stock of your comments. It is poor practice to tie a repeater with superfluous comments. Example: "Well Joe, what did you have for breakfast this morning?" "I've been thinking about it, but haven't gotten around to it yet." "Well, all I had was a couple of pieces of toast and a cup of coffee." "I don't know what I'm going to do today, haven't given it much thought." This is irritating babble and should be avoided. Now for some do's and don'ts when using VHF/UHF FM repeaters.

Don't:

1.) "Kerchunk" the repeater. This means keying your mike without saying anything just to see if you can bring up the repeater. It's not only rude to operate anonymously but it's also illegal because of your failure to identify.

2.) Be long-winded. Keep your transmissions brief so you won't tie up the machine. It could be needed for urgent or emergency traffic.

3.) Talk over the repeater CW or VOICE ID. Some people want to know what repeater they're listening to and more importantly, the repeater is programmed to identify itself every 10 minutes which is required by the rules.

4.) Use CW abbreviations and most Q-signals. Instead of saying "QTH" say "location" or "home". Instead of "QSY", use "moving to (frequency)". Instead of "QRT" use "clear" or "out". Don't say "hi" to indicate laughter-just laugh if you have to. You have a name, not a "handle". Have you ever seen the word "destinated" in the English dictionary? It's not there! Simply say you have "arrived" at your destination. The bottom line is speak naturally. Abbreviations are not necessary, nor desired on FM.

Do's:

1.) Leave pauses between transmissions. This allows other stations to break in, especially emergency traffic.

2.) Pickup breakers as soon as you hear them. Turn it over to them as soon as possible to find out what they have to say. Keep your transmission short before turning it over.

3.) Remember to give your station identification at

least every 10 minutes.

4.) Give your name when you join an unfamiliar group; you'll be more rapidly accepted if you let the other repeater users know who they're talking to.

5.) Stick with normal English. No one's impressed by an ear full of muddled "ham jargon."

Simply put, the whole point is to communicate clearly and effectively. Guard against the impulse to preach or attack someone else's skill on the air. Always use good manners and common sense. Always guard against verbosity which put another way, is diarrhea of the month. If you join a conversation, do so because you have something to add to the topic, not merely because you wanted to say hello.

Breaking old habits is probably the toughest for those of us who have been around for years. Let's hope that newcomers learn better operating practices than some of us exhibit. Teach then correctly by example.

Chief Engineer's Report

I have made several trips up the hill to work on the equipment. Most of the time was spent trying to find a noise that was coming to the new ACC controller. I could see it on the scope at about .2 volts pp. It was a little gated burst of trash that sounded bad on the air.

After spending nearly three days hunting and trying to find a way to solve it I finally called ACC. They told me that was normal for the ACC and the .2 volts was exactly what was there.

The solution was to increase the amplification before the ACC and attenuate after the ACC. A 10k pot was installed across the output and adjustments made. It seems to work well now.

The autopatch is up and running. There is a slight hum from our PL tone that

can be heard on the phone but I think I can work that out as I have time. The links should be coming up soon. The 440 repeater has died sometime after my most recent trip. I'll fix that on the next trip to the hill.

The six meter repeater is being put together by Frank, N6YHY and should be ready for the mountain in about a month.

One last bit of information, in case you do not already know the 220 repeater has changed frequencies. It is now on 224.14. It is now open to Novices.

Many thanks to those who have helped me with the repeater work. The list is long and I'll not say more than they know who they are and I offer a very heart felt thanks to them.

73 LeRoy, NV6S

'Broadcasting' From Page 10

commercials, that's a reality. But you say you want the local news. No problem. Just put the receiver in the local mode. Push the scan button and watch the readout for the station ID. It will give you the call letters, QTH, general format, and even a short list of what programs are coming up next. Ah, there it is, a Modesto station, with local news comin' up next.

In the early part of the next century, the FM band will have died do to a lack of interest. The spectrum will be divided up for other uses. The AM band will have died and been reborn with a new digital transmission format. High powered digital terrestrial stations, will occupy the spectrum once inhabited by the "ancient mode" stations. This will be where your local news and information will come from. Some I'm sure will carry music too, but mostly I see it as an information media.

High powered satellites will be in geo-stationary orbit. These satellites will beam down hundreds of channels of full fidelity signals to be captured by the antennas weaved into the roof of your car. Digitally clean, full fidelity music. Spec's to rival the best present day CD players. The low fidelity FM receivers of today will not have been able to compete with this new technology.

What about at home? Fiber optic cable! Those same satellite music stations, terrestrial stations, high definition TV, phone, computer services and whatever else you can imagine, will be light beamed directly into your home via the "cable". You'll be able to ship, bank, send a

letter and plan your vacation, all on the "cable".

This new technology will also be the death of VHF/UHF TV as we know it today. Networks will abandon local stations for the direct access of the cable and it will be interactive. Maybe you feel like watching a movie. Just ask the cable to send you a list of what movies it has available. Want to see what NBC has to offer? Ask for the NBC menu. You can now watch *Cosby* anytime you want. You'll have your choice among cable only local news stations. Ever feel like telling that reporter off? Yep, you can do that too with instant feedback. Remember, it's interactive.

Time for me to come out of my trance and back to the present. It was a fun trip. This future could change though, as new technology is developed, maybe as a result of something being dreamed up right now by an Amateur radio operator somewhere. Anyway you look at it, the future is digitally bright.

Right now there are several companies poised with new digital transmission schemes. Some of them, the developers say, are compatible with today's broadcast technology. Some with present AM & FM, others with FM only. Still others are not compatible at all. What I mean by compatible is that the digital format may be broadcast right along with the present analog system, over existing stations. At this time the system with the most promise seems to be one called Eureka. It

was developed in Europe, and is now being tested both there and in Canada. The National Organization of American Broadcasters, is pushing for the licensing rights for the Eureka system here in the United States and would like to see it made the U.S. standard. The FCC has now given the green light to begin testing of digital transmission methods on a couple of UHF TV channels. The Eureka system will be one of them tested. The Eureka system is a non-compatible system, and would require additional spectrum. Wonder what Amateur band they'll want to take for that one?

I personally don't see the Commission setting any standard, fearing law suits from competing applicants. I think it will be given the same consideration they gave AM stereo and high definition television. The market place will decide and the public will choose satellite and fiber optic cable. Radio and TV will be dead. (R.I.P.)

Hope you've enjoyed this little trip with me. If you have any comments or ideas for future articles, or have a problem of a technical nature, I would be happy to help you get the answer. Just shoot me a packet at N6ZUC @ AA6QN. #SOCA. CA. USA. NA, or drop me a note in care of The *READOUT*. 73, Tim.



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Calendar

July 16, 1991SARA Monthly Meeting730 pm
Sept. 7, 1991SARA Monthly Meeting730 pm
Nov. 16, 1991VE Testing In Sonora900 am
Nov. 19, 1991SARA Monthly Meeting730 pm
Dec.7,1991VE Testing In Modesto900 am
Dec. 17, 1991SARA Monthly Meeting730 pm

SARA meets the third Tuesday of each month (except holidays) at the Stanislaus County Administration Building at 12th and H Streets in downtown Modesto. The meetings are held in the lower-level conference room starting at 730 pm. Visitors and interested parties are most welcome. SARA is an ARRL Affiliated Club and is affiliated with Stanislaus County and the City of Modesto RACES. The club owns and operates three FM repeaters using the club station call of WD6EJF. Frequencies are 145.39 MHz, 224.14 MHz & 440.225 MHz. The club's digipeater, WD6EJF-1, operates on 145.79 MHz. All repeaters and the digipeater are located on Mt. Oso, 18 miles SW of Modesto at an elevation of 3400 feet in the Coast Range mountains. SARA conducts informational nets each Thursday evening at 8 pm on the 2M and 220 repeaters.

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The Next SARA Meeting is July 16, 1991