



*For we have seen His star in the east,
and have come to worship Him*

NEWSLETTER

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OTHER STUFF

E-mail your comments, ideas, or submissions to marane@mara.net

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VIEW FROM THE TOWER

Nothing this month! Maybe in January.

ADVENTURES OF A NEW HAM

by N3IA

PART 3

Better Know How Before You Teach

There are a number of things we do in amateur radio that require a certain skill level, whether it's soldering a PL259 on a 9913 coax, or hearing a digital signal and knowing it is PSK31. One of the most needed skills in ham radio is the ability to teach. Now this is not to be confused with the ability to talk about ham radio, which seems to be universal in the hobby. I gained a renewed respect for teaching when I put together a Technician license class for our stake.

I did all the right things in preparation, like registering as an instructor with the ARRL (mostly for the discount it affords) and purchased teacher and student materials. I assembled suggested teaching aids including the Power-Point sets. I created a reading schedule for the students, even though this was wishful thinking. (Have you ever taught the Gospel Doctrine class?) I scheduled classes in two locations on different nights and solicited sign-ups. My class ranks swelled to 12 in one class and 6 in the other. Sure, there were a few drop-outs and 6 classes over 8 weeks was hard for people to make all the classes. Among the things I found most challenging were: the technical diversity of students, defining subject scopes and limiting the information to impart and STAYING ON TARGET for both time and subject. I also discovered the more visual aids the better. So, knowing is not enough; you must learn how to efficiently transfer knowledge to others.

Watch Out for the Nibblers

There's an old truism that a boat is a hole in the water into which you pour money. In part two I talked about using scenarios to limit the scope or focus of your ham activities. The next thing to watch out for is "the little things" that you happen upon for your ham shack. For some, it's the transceiver on ebay, but for me it has been having access to TWO ham stores which I go to for one thing and end up with three or four; or worse, when you don't need anything, stopping in just to look around. Or

going to the hamfest and buying that mobile antenna that has 2db more gain than the one you have now. The other "nibbler", as I call it, is the tendency to collect things like PL259 connectors, antenna wire or support lines, not to mention the yards of various types of coax. I haven't met a ham yet that didn't have boxes of this stuff and still think they could use more.

CULTURED CORNER

by ANØNMS

A PRESENT POEM

*Oh see the gifts under the tree
All wrapped in shining paper bright
Especially the nice sized one
A small tri-band transceiver might?*

*"You must not touch", the gift card says
Curiosity is killing
I can't wait 'til the twenty-fifth
A peek would be so fulfilling*

*She who must be obeyed says no
You shall not touch 'til time is spent
So patient I will be and wait
Trying so hard to be content*

*At long last comes the twenty-fifth
Gift wrap on present I un-peel
Sadly a rig 'tis not to be
More church ties, what a lousy deal!*

ar

The following comes off the Internet and was written by Jeff (N3JBH).

T'WAS THE NIGHT BEFORE CHRISTMAS

*T'was the night before Christmas,
And all through two-meters,
Not a signal was keying up
Any repeaters.*

*The antennas reached up
From the tower, quite high,
To catch the weak signals
That bounced from the sky.*

*The children, Tech-Pluses,
Took their HTs to bed,*

And dreamed of the day
They'd be Extras, instead.

Mom put on her headphones,
I plugged in the key,
And we tuned 40 meters
For that rare ZK3.

When the meter was pegged
by a signal with power.
It smoked a small diode,
and, I swear, shook the tower.

Mom yanked off her phones,
And with all she could muster
Logged a spot of the signal
On the DX Packet Cluster,

While I ran to the window
And peered up at the sky,
To see what could generate
RF that high.

It was way in the distance,
But the moon made it gleam -
A flying sleigh, with an
Eight element beam,

And a little old driver
who looked slightly mean.
So I thought for a moment,
That it might be Wayne Green.

But no, it was Santa
The Santa of Hams.
On a mission, this Christmas
To clean up the bands.

He circled the tower,
Then stopped in his track,
And he slid down the coax
Right into the shack.

While Mom and I hid
Behind stacks of CQ,
This Santa of hamming
Knew just what to do.

He cleared off the shack desk
Of paper and parts,
And filled out all my late QSLs
For a start.

He ran copper braid,
Took a steel rod and pounded
It into the earth, till
The station was grounded.

He tightened loose fittings,
Re-soldered connections,
Cranked down modulation,
Installed lightning protection.

He neutralized tubes
In my linear amp...
(Never worked right before --
Now it works like a champ).

A new, low-pass filter
Cleaned up the TV,
He corrected the settings
In my TNC.

He repaired the computer
That would not compute,
And he backed up the hard drive
And got it to boot.

Then, he reached really deep
In the bag that he brought,
And he pulled out a big box,
"A new rig?" I thought!

"A new Kenwood? An Icom?
A Yaesu, for me?!"
(If he thought I'd been bad
It might be QRP!)

Yes! The Ultimate Station!
How could I deserve this?
Could it be all those hours
That I worked Public Service?

He hooked it all up
And in record time, quickly
Worked 100 countries,
All down on 160.

I should have been happy,
It was my call he sent,
But the cards and the postage
Will cost two month's rent!

He made final adjustments,
And left a card by the key:
"To Gary, from Santa Claus.
Seventy-Three."

Then he grabbed his HT,
Looked me straight in the eye,
Punched a code on the pad,
And was gone - no good bye.

I ran back to the station,
And the pile-up was big,
But a card from St. Nick
Would be worth my new rig.

Oh, too late, for his final
Came over the air.
It was copied all over.
It was heard everywhere.

The Ham's Santa exclaimed
What a ham might expect,
"Merry Christmas to all,
And to all, good DX."

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GRANDMA MARA'S CORNER

MORE IMPORTANT THAN GIFTS

You know folks, Grandma has reached the age where presents don't mean what they used to. Oh, don't get me wrong, I still like things, but you can only use just so many hankies and scented candles! As time goes by, the visits from friends and family members mean much more than the presents.

So this month, get out and visit someone you know, but maybe haven't seen for a while. They'll love you for it.

Speaking of which, I haven't seen my Home Teachers or Visiting Teachers for several months! Maybe I'll have to light some of those candles under them!

Merry Christmas to you all,



PS. A hint to the grandchildren – Grandma would really like a dual band VHF/UHF antenna for my Harley. Give the hankies to someone older; and at my age burn-

ing the candles at both ends in order to use them up is just not possible!



TECH STUFF

by VE1VQ

KING OF THE BENCH - THE ANALOG TEST METER

The days are gone when the analog test meter was king of the lab or shop test bench. Every ham worthy of the name had, or aspired to have, a [Simpson](#) 260 or a [Triplet](#) 630, in the shack. Now, these have mostly been replaced by a [Fluke](#) or some other manufacturer's digital meter with no mechanical meter movement. Cost is one reason and versatility is another. In combination, it is easier and cheaper to make a test meter to do more things digitally than with analog technology.

It wasn't nearly as important (or at least it didn't seem to be!) with tube or early transistor equipment to know the voltage reading to the nearest tenth of a volt or better. A +/- 10% reading was good enough. Now with just about everything digital, things seem to be more critical.

It also seemed like you were more aware of your circuits then. You always tried to determine the polarity and magnitude before you connected the meter probes. If you didn't get the polarity right, you had to either disconnect and switch the test probes manually or change polarity with a switch on the meter. As for the magnitude, you always started at the top of the maximum scale for the reading you expected and switched scales downward until you reached a reading somewhere in the middle to high part of the scale. Now with an auto ranging digital meter, you simply set the unit to whatever you want to measure and connect the probes, and the meter does all of the work for you, indicating polarity and magnitude. Of course, you still have to know what the circuit under test is supposed to be, in its normal state, so that you can correctly interpret the meter reading.

Analog meters usually had a mirror built into the scale. This allows for the elimination of parallax and did away, for the most part, of the sideways viewing error of the pointer position.



Figure 1 - Triplet 630 meter. Note the mirror in the middle of the scales. This allows the user to read the measurement more accurately. The pointer and the mirror image are aligned so that the image is hidden by the pointer. The correct measurement is then read from the appropriate scale.

On the better analog meters accuracy was in the order of $\pm 1\%$ FSD (full scale deflection) with AC (alternating current) readings usually slightly worse ($\pm 2\%$ FSD). Less expensive units may be $\pm 5\%$. Cheap units usually do not list their accuracy at all! For a unit with $\pm 1\%$ a reading of 100 volts DC (direct current) could actually be anywhere from 101 volts to 99 volts. A meter with $\pm 5\%$ accuracy could mean an actual voltage of 105 to 95 volts DC.

Digital meters of the half decent portable variety typically have a ± 0.5 to 0.1% accuracy. More expensive bench types are in the order of $\pm 0.01\%$.

I remember when one of the guys in a lab where I worked got the first new Fluke in the place. He bragged so much about its ruggedness, that when he went to lunch, a couple of us switched it to measure resistance and stuck the probes into a 120vac outlet (the manual said it would not be damaged!). We were pleased to

announce to him, when he returned, that it had passed the test. Don't try that kids, with your Simpson or Triplet, or any other analog meter! In the best case, an internal fuse will blow and require replacement, and in the worst, the meter will be a candidate for the garbage can.



Figure 2 - Fluke 83V digital meter. The accuracy when measuring volts DC is $\pm 0.01\%$. The unit is auto-ranging. Simply set the switch to whatever you want to measure, apply the test leads, and the measurement appears. No switching to get the reading in the high end of the scale as you would with an analog meter.

Where the analog meter with a moving needle shines is in tuning a circuit for a peak reading. There's nothing quite like adjusting a capacitor or a slug tuned coil in an RF circuit and watching the meter rise from zero to the maximum; seeing it pass through a peak and fall again. Then swinging the adjustment until the absolute peak is found on the meter. Try that with your digital doofus! About now you are probably thinking that your digital meter has a variable length display bar under the number display that does the same thing. Well, it does and it doesn't! It does in that it will rise and fall with the input reading. It doesn't in that the resolution is not as fine as a good mechanical meter.

Digital meters certainly have the edge over their analog cousins when it comes to circuit loading when measuring voltage. Analogs are rated "ohms per volt". The number of ohms per volt is the reciprocal of the amount of current required to produce full scale deflection of the needle. A meter requiring 50 microamps for full scale

deflection has an internal resistance of 20,000 ohms per volt. The higher the ohms per volt rating, the more sensitive the meter or the less it will “load” (require current



Figure 3 - Simpson 260 meter. Like all analog test meters this one has an adjustment to 'zero' or adjust the zero resistance point when measuring resistance by shorting the test leads. This corrected for test lead resistance and internal battery aging.



Figure 4 - The British manufactured AVO Model 8 MkII meter (commonly called the 'AVO'). The name stands for Amps/Volts/Ohms. In 1970, a new Model 8-Mk4 sold for about \$175. Today the current version goes for about \$875. Better look on E-Bay! I used one of these in my first job in the late 1960's fixing car and two-way radios.

to drive the meter) a circuit under test. By appearing as a

resistor in parallel with the resistance/impedance of the circuit under test, an analog meter can dramatically alter voltage readings. Digital meters will typically have a 10 M-ohm nominal input impedance, and unless you are measuring a very high impedance circuit there will be negligible effect. Quite a difference!

Like most everything, you generally get what you pay for. In most cases, you will not need a top-of-the-line Fluke for jobs around the shack or house. A meter which measures DC and AC voltages and current, and resistance will do for most things. Units costing additional money are more rugged and will measure a wider range (lower and higher) of values, along with frequency, capacitance and temperature.

I still have a Simpson 260 in the shack, along with several digital meters. Each has its place in the world of testing and repair. I certainly don't plan on throwing the analog out just yet.



SWAP SHOP

List the items you wish to buy, sell, trade, or give away!



DI-DAH-DI-DAH-DIT

MAGIC IN THE AIR

This is a magical time of the year! I've said that many times over the years, and it hasn't changed for me in the least. Large (which describes me) as well as small children are affected by the spirit of the season.

People are friendlier. You notice strangers holding doors open in the mall stores for other strangers. I've seen people chase after others to return dropped money or purchases. Except maybe for the last few days before the twenty-fifth, when the pressures build to find just the

'perfect' gift, the last needed 'perfect' decoration, or the last food item to make it the absolute 'perfect' Christmas meal, I find that folks are just plain nicer.

A question for those of you who served or whose children served missions - do missionaries find it easier to teach at this time of the year, or are people too busy to listen? Is there so much "noise" that the Spirit cannot be heard? Or are people more likely to listen to the message? All I know is that I've not had any trouble giving Church DVD's at this time of the year. People seem genuinely happy to receive a gift testifying of the Savior.

Reach out to others, whether in person or on the radio, and share the Spirit and the spirit of the season by your actions, and by your words. Do it before the season is over, because on the twenty-sixth most everyone turns back into a grinch!

I hope that this time of the year will find you well in health, with finances sufficient for your needs, and surrounded in the love of friends and family. May the Lord bless you with everything you stand in need of. And know that a lot of your MARA, and other friends, have you in their thoughts, and in their prayers.

Until next month,
VE1VQ



IN JANUARY'S NEWSLETTER...

ADVENTURES OF A NEW HAM - PART 4

MARK IT ON YOUR CALENDARS



**May 2nd 2009 for the MARA
North East Annual Meeting
at the Nazareth Ward building,
Scranton PA Stake**