



HAMS

Keywite

February 2010 NEWS

www.marc.org.za

PO Box 1076, Hilton, 3245

M I D L A N D S A M A T E U R R A D I O C L U B



AFFILIATED TO
THE SARL & IN
ASSOCIATION
WITH THE NATAL
CARBINEERS

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The Chairman's Ramblings

Our February meeting was held in conjunction with the SARL HF field day at Illovo Beach on the South Coast. Those who attended had a very pleasant weekend with most arriving on Friday evening and returning on Sunday afternoon. The radio conditions were not good at all and the number of stations logged was low. But this did not diminish the nature of the occasion. The next field day will be in November and a venue is still to be decided. The camp site Villa Spa was very pleasant, well kept and secure. The weather on the coast was its usual February, hot and humid but not as bad as it can be. I certainly enjoyed the weekend.

The class A RAE course is now under way, thanks to Evert ZS5EFP and there are 8 candidates, most are currently ZU license holders. They will write their exams in May, we wish them every successes. We are also looking to hold a ZU course beginning in late March, those who wish to attend, I would ask them to let me know of their interest. The additional members who have joined the club in recent months have added much to the activity of the club and this is reflected in the volume of traffic on the repeater net work. It is a joy to be able to chat to someone during the day and even in early evening.

While on the subject of repeaters my thanks to all those who have made the network operate as well as it is. They a number people that have given up much of their time and effort to repair and install the equipment, our thanks to you all, it has really been worth the effort. What a boon to hear people as far apart as Durban and Swartberg chatting together on the same net work. We seem to have solved the Gilboa mystery and long may it continue to operate as well as it is doing currently.

I read with interest that the sun does seem to be coming back to life and that its activity is again on the rise. This should bring long distance communications back on our horizons and those interested in DX activity much pleasure.

May I wish you all a pleasant month ahead and may all your call be answered.

Mike ZS5BGV

Diary of Events

- 28 February PostNet Marathon. We need 7 Radio Marshals to help with the race. Please contact Mike, ZS5ML, if you can help, or send an email to info@marc.org.za
- 28 February New closing date for the Sumbandilasat essay competition
- 28 February Final date for entries in the ARRIS SAT project to be submitted to youth@sarl.org.za
- 5 March Closing Date for Tinus Lange Award
- 6/7 March Tour Natal Rally - we have enough operators already, but you can still help if you want to
- 7 March SARL Hamnet 40m Contest
- 20/21 March SARL VHF/UHF competition
- 27 March 2010 SA AMSAT Space Symposium
- 31 March SARL 80m Club Contest with PSK and RTTY
- 23-25 April SARL National Convention, Port Elizabeth

The M.A.R.C. Infrastructure			
Voice Repeaters (FM)		<i>Visit www.marc.org.za/pages/freq.htm for updates of this list</i>	
VHF	Tx	Rx	Equipment
Hilton	145.6625MHz CTSS 88.5	145.0625 MHz	SCR200 20W, Diamond X-200 rx and tx
Estcourt	145.700 MHz	145.100 MHz	Emcom SA256 25W, Diamond X-200 rx
Franklin	145.725 MHz	145.125 MHz	GE MVP 10W
Worlds View	145.750 MHz CTSS 88.5	145.150 MHz	Emcom SA256 25W, Diamond X-200 rx and tx
Greytown	145.775 MHz	145.175 MHz	Home Brew @ 20w, Diamond X-200 rx and tx
Underberg	145.7875MHz CTSS 88.5	145.1875MHz	Q8000 30W
Windy Hill	145.700MHz	145.100MHz	Hamnet repeater. Will be operational soon.
UHF			
Mt Gilboa	439.225 MHz	431.625 MHz	Vertex Standard VXR-9000, Diamond X-200 rx and tx
Zwartberg	438.775 MHz CTSS 110.9	430.175 MHz	GE MVP 15W
APRS			
The national APRS frequency is 144.800 MHz (Tx & Rx). The I-Gate is at Hilton (ZR5S). Fixed stations should beacon at approximately 30min intervals with a path of WIDE5-5. Mobile stations should beacon at approximately 1min intervals with a path of "WIDE1-1, WIDE5-5". We have aprs digi's throughout KZN. A PBBS (mailbox) is on ZS0PMB-1 for emergency use. A KA-NODE is on ZS0PMB-7			
Packet Radio			
No packet radio frequency. However, limited packet radio facilities are available on 144.800MHz			
ECHO-LINK "voip"			
Our node number is 244279 Call Sign ZS5PMB. This Echo-link facility is available on the Midlands linked Repeater network.			
E-QSO "voip"			
We are in the "101ENGLISH" virtual room, on the "repeater.dns2go.com" server. This is linked to RF at Blackridge on 433.000 MHz simplex.			
BEACONS			
Greytown	50.321 MHz (Tx)	ZS5SIX FSK	(off air)
WEB SITES			
MARC'S very own website	www.marc.org.za		
SARL's website	www.sarl.org.za		
HAMNET website	www.hamnetkzn.org.za		

Regular Events

The KwaZulu Natal Net (Early Birds):

Starts at 06h00 on 7.055 MHz. in winter and 3.650Mhz in summer and continues until 07h40. Colin ZS5CF hosts the net from 06h00 & Gary Potgieter (ZS5NK)-takes over later on.

MARC Sunday Morning Net:

Times: 07h45. Club bulletin is presented at 08h0.

Frequencies: VHF: 145.750, 145.6625, 145.775MHz, 145.725MHz, 145.7875MHz
UHF: 439.225MHz

Hamnet Bulletins:

Sundays at 07h00 on 145.625MHz and 3.670MHz
Wednesdays at 19h30 on 145.625MHz and 3.670MHz

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Natal Carbineers

compiled by Gudrun Lauterbach, ZU5GL

As a rule, our monthly meetings are held on the grounds of the Natal Carbineers. Always having had a passion for history, I was fascinated to come across a chapter in the book by Michael Clark, "The Saga of Sani Pass and Mokhotlong" about this regiment. I take the liberty of sharing it (somewhat edited) with you now.



The Griqua, tired of the fighting in the Griqualand West part of the country, had packed up and trekked across the mountains of southern Lesotho in an epic of hardship and heroism that is seldom acknowledged. They descended over Ongeluks Nek Pass into the fertile and unoccupied Mount Currie area, where they settled themselves under their leader, Adam Kok, who gave his name to Kokstad. The settlers around Fort Nottingham and along the wagon route to the interior however, were not very happy to have the Griqua with their warlike reputation near their southern boundaries. They feared that trouble would break out and sought to prevent this taking place. The country was still quite wild and untamed and there was constant fear of fresh fighting between the white settlers and the native tribes. Further to the south the Kaffir Wars were still being fought periodically along the Great Fish River, so it was understandable that they should want to protect themselves from what they perceived as a fresh menace.

Accordingly in 1852 they took their wagons and trekked down to the Kranskop area on the Tugela River where there were a lot of black people living under the protection of the whites. They collected as many of these people as they could, and offering them their own lands, they brought them up to the Umkomaas valley where they deposited them with instructions to settle the wide valley as a buffer between them and any raiders that might approach from the south. The idea was that they should also help protect the white farms from any depredations by the Bushmen who still lived along the Drakensberg and up in the mountain fastnesses of Lesotho. The place where they were left they called "Implendle" (the place where the impi camped in the open) and the village that has developed there is still the district headquarters to this day.

Unfortunately the people whom the settlers collected were not necessarily the best available. Most were refugees from the Zulu for one or other infringement of native law, and would have been killed by the Zulu had they been caught or not been protected by the whites. They were universally looked down upon by the Zulu who referred to them contemptuously as the amaNzantsi (those who live outside Zululand, south of the Tugela River), or the amaKaffula (the untouchables). To this day the true Zulu who lives farther north will not come and work in southern Natal as he considers the people there to be beneath his contempt.

Now, the amaHlubi, another tribe of peoples, had been dislodged by the Zulu and had moved down southward, encountering the Batlokoa in the process. They finally settled in the foothills of the Drakensberg between the Bloukrantz and Bushman Rivers in 1849. The central landmark of their new lands was the great flat-topped mountain of Nthabamhlope (white mountain) where they lived quite happily until the White settlers began to farm the lands around them and came into conflict with the tribesman. It wasn't long before complaints were being laid with the magistrate, then at Weenen, and Sir Theophilus Shepstone began to take a high handed attitude towards the tribes. As usual it was over a matter of taxes that the trouble started, the Government wanting more and more money from the blacks, and when this became a matter of contention, the Government attempted to remove all the guns in the possession of the blacks. Shepstone believed this would prevent resistance, but matters went from bad to worse until Langalibalele, leader of the amaHlubi, realised that he was being cornered and tried every possible to manoeuvre to defuse the situation. The authorities however refused to be reasonable and the affair turned into an outright rebellion.

On 16 February 1852, Piet Otto called a meeting at his farm "Saxony" where it was decided to raise a military force for their own protection. Some 40 members signed up and the unit was known as the Umgeni Rangers until the name was changed first to the Karkloof Carbineers, as most of the members came from what was known as the Karkloof only to be later renamed the Natal Carbineers. The Karkloof then extended far beyond its present boundaries and Lidgetton, and even Fort Nottingham, were included. The unit operated as a private army under an ordinance that allowed settlers to form such units for their own protection. Ten years later, in 1862, it was officially recognised by the authorities, but even before that it was called out to mobilise, as a show of strength against recalcitrant Chief Matzana in 1858, and again in 1861 when the unit was called upon to serve along the Tugela River as a warning to the Zulu chief, Cetswayo.

In 1873 matters came to a head between the Government and the amaHlubi tribe and the Government called out the Volunteers for an attack on the amaHlubi. Everyone was keen to have a go at them, the Volunteers looking for a bit of excitement, and the Levees only too keen to take part as they could foresee themselves obtaining numerous cattle with Government approval, as well as the enjoyment of some good fighting without fear of retribution later. Langalibalele however, was aware of what was happening and removed himself before he could be arrested. He left his home on the Bushman's River and accompanied by a great number of his followers took to the mountains where he thought he might be safe. He climbed the mountains by the Bushman's Pass just north of Giant's Castle, now known as Langalibalele Pass which was a fairly easy route, and leaving some men to guard his rear he marched some 50kms further west.

The British sent a flying column up the Drakensberg to try to seal off the passes unaware that he had already gone through. This column under Captain Durnford was composed of volunteers from the Carbineers and a number of African Levees. They also climbed the Bushman's Pass and suddenly met stiff resistance at the top. In this skirmish three of the Karkloof

Carbineers and two levees were killed, and these are considered to be the first battle casualties of the Natal Carbineers, a unit that was to develop from the original Karkloof Carbineers.”

This bit of history was of interest to me as it has explained not only the original history of how the Natal Carbineers came into being, and why, but also the creation of Impendle and the significance of the man Langalibalele whose name was used to rename our previously known Longmarket Street in Pietermaritzburg.

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Repeater Etiquette

Most of us are aware of repeater etiquette, even if we do not follow it to the letter. The parts we are most guilty of ignoring include

- not leaving pauses between overs to allow others to join by calling break or their call sign. The easiest way to ensure a decent pause is to put your mike down, or even better, hang it onto it's hook. When it is your turn to speak, wait for a second or two, and only then reach for your mike. This is especially important when speaking to Echolink stations, as there can be a lag of several seconds;
- when a mobile station loses contact with a repeater, we often don't leave a long enough pause when coming back onto the repeater. If you come back too soon the chances are that the other station is not aware that he dropped out of the repeater and could still be chatting away. If the station is still chatting and happens to come back within range of the repeater, you will double with the station. Rather leave a long pause, based on your estimate of how long you think he will still be chatting, and then come back with a short question whether the station is back;
- similarly, when the other station does not come back to you after your over, the chances are good that he/she has taken a phone call. Repeatedly asking him what has happened will not help - the station will probably turn the radio volume down to hear his telephone conversation. Rather wait it out until he comes back to you when he is finished, or carry on chatting to others, enquiring between overs whether the other station is back;
- not going “round robin”, and excluding some without first asking if you can ask or answer questions is out of order;
- when you hand the mike over to the next station (say station B) in an informal net comprising 2 or more stations, you are handing temporary control to station B. If there is a breaker before station B responds, it is up to station B, not you, to acknowledge the breaker and decide when to pull the breaker in;
- breaking into conversations out of turn and/or changing unfinished topics;
- making short out-of-turn quips between overs. On odd occasions these can be funny, but mostly they are annoying;
- not giving your call sign **every over** - many of us are guilty here;
- bad mouthing individuals, institutions and products;
- keying over existing QSOs on purpose (not only bad etiquette, but illegal);
- keep harping on repeatedly about bad experiences;
- making long QSOs without imparting useful or interesting information;
- giving RST signal reports on repeaters.

None of us are perfect, and sometimes deviate from correct procedures. Giving one worded replies like “yes” also requires the call sign to be used, but this is seldom done. It's unlikely that you are going to be prosecuted for this. Some leniency is shown, but we need to remember that we are allocated our various bands with the condition that we adhere to the rules and regulations which apply to our hobby. Whether we agree with them or not is immaterial.

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Editor's Waffle

It has been another eventful month. The 750 repeater needed repairs, and is back in operation again (thanks Shaun and Craig for the speedy turn around time). The repairs to Gilboa have stood up well to the storms and electricity spikes. It is also encouraging that the traffic on the repeaters has not died down and that you will get replies most of the time when you announce yourself on the network.

The hf weekend in Illovo was fairly well attended and was certainly a success. As always, we learn on these events such as antenna information, radio operating procedures, band conditions etc. But just as important, we enjoyed each other's company and friendship again, and made new friends. I have posted some pictures of the weekend on our website.

I would love to receive some articles for the HHN from you. Even with the internet, finding articles and inserting them here takes time, and any help is most welcome. We would also love to hear from you how and/or why you became a ham. These are historical reports, and all are interesting, however boring they might seem to the author. The ones we have published in past editions were certainly hits, judging from responses from some of you readers.

Last month I decided to write a little script to calculate leg lengths of dipole antennas, as the numerous ones found on the net mainly used imperial units. For the past 40 years or so we have been using metric units in this country, even though a lot of us still think in inches and feet at times. However, it soon became clear that the calculation used for the reduced lengths of the inverted V did not follow any pattern, and were probably deduced from measuring tuned antennas. Hence I have left it "unconcluded" and would like your suggestions and advice and put it to bed in next month's issue.

We had an interesting discussion at the end of our last Hamnet open indaba last Wednesday night. It revolved around the use of call signs. There were many opinions, ranging from using the call sign every 5 to 15 minutes. I know that our training manual says that you need to give your call sign once every over, and wanted to tie it in with the ICASA regulations. We managed to find the regulation "Telecommunications Act: Regulations Act No. 103 of 1996 (including amendments promulgated in February 2005)":

I'll quote Chapter 8, section G1: "ICASA allocates a call sign to a radio station. Such call sign shall be conspicuously displayed on the relative radio set by the licensee and **the call sign must be transmitted at least once during each separate transmission.**"

There is nothing difficult about the regulation. Some were questioning if this regulation applied to Hams, but could not provide proof that it did not, nor point us to the regulation stating specifically which regulation does. ICASA confirmed on the SARL web site that this regulation applies to us. "So, *there we go*".

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Dipole and Inverted V Antennas

by M Lauterbach, ZS5ML

Half wave dipoles perform well and are very popular. They are also one of the easier antennas to "design" and construct even if only basic tools are available. The most complicated part is the centre isolator. This can be fashioned from many different non-conductive materials. It can be as basic as a short piece of plastic pipe into which you can drill a few holes with a knife if no drill is at hand (even an old piece of conduit piping will do).

On either side of this you will need a length of wire, roughly a quarter of the wavelength of the design frequency. You can add more pairs of wires for other bands to make a multi-band antenna.

When the arms are horizontal and in-line with each other, the theoretical impedance is 73 ohms. When you drop the arms, the impedance drops as well and will be close to 50 ohm with an apex angle of 90 degrees.

The horizontal dipole antenna is slightly directional with the highest gain broadside to the wire. The inverted V is pretty much omni directional. These are balanced antennas and can be operated without a balun, even though a 1:1 balun is recommended.

The material for the antenna arms is not critical. Some maintain that it has to be copper wire, and claim that stainless steel wire does not perform well because of its lower conductivity properties. In reality, normal household insulated electric cable is often used. The 2 most popular sizes are 1.5mm² and 2.5mm². 4.0mm² is also sometimes used but becomes a bit heavy. Open braided galvanised and stainless steel wire is also successfully used. Whilst copper is better from a conductivity point of view, it does stretch over time (creep), thereby slightly altering the resonant frequency. But this is so small that it should not make a difference, especially if a tuner is used.

There are many dipole calculators on the web, but the calculations are dead easy: The physical length of a horizontal dipole is about 5% shorter than the electrical length due to the end effects of the insulators, supports etc. This means that each leg is 95% of the electrical quarter wavelength, ie $1/4 \times (95\% \times 299.792) / f$, where f is the frequency in MHz and the resultant length is in metres.

The formula thus becomes **71.20 / f [m]** per leg for the horizontal dipole.

As you lower the arms of the horizontal dipole, the resonant frequency also drops, necessitating the shortening of each arm. All calculators I found use the same table for shortening, and it is neither linear nor exponential. The figures were probably

obtained from taking measurements of a horizontal dipole, and dropping the arms, cutting them to adjust for the resonant frequency, and then measuring the arm lengths and the apex angle. The factors universally used are

<i>Arm angle from Horizontal</i>	<i>percent to be trimmed off</i>
22°	2%
30°	3%
37°	4%
45°	5%

This means that if you want to cut an inverted V for **7.100MHz**, having an apex angle of **120°** (30° off horizontal), each arm length will be

$$71.20 / 7.1 \times 97\% = \mathbf{9.727m}$$

It's that easy! You would cut the antenna longer though, and then trim it with your swr meter, to adjust for the conditions of your setup, until you found the lowest swr reading.

I was not happy though with the last table of lengths for the various apex angles. I searched the internet and found that all calculations were using the same table. As a result I modelled the antenna on EZNEC. I modelled it at 20m elevation, and used different ground conditions. The results were in contrast to the above table though. The program predicted an increase in length of 1.5%, not a decrease of 5%. The likely cause for these skewed results is that I used incorrect programming parameters. I have not found more time to play with it, and would like some feedback from those of you who are more experienced in antenna design than I am.

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Why a Balun? *Found on the internet site of K8GCU, to complement the above article.
by Kurt N. Sterba, originally published in the February 2010 issue of World Radio Online.*

While listening to a conversation on 75 meters, Kurt heard more incorrect information on baluns than he thought existed. Such a simple thing should not be made so complicated. It just adds to the hot air already on that band. Here is Krusty Olde Kurt's simplification.

The most popular, simple and effective antenna is the horizontal dipole. It is a balanced antenna, that is, the wires on both sides of the center insulator are of equal length. In the early days of radio it was fed with ladder-line, two wires in parallel spaced by insulators. It, too, is balanced. Feeding a balanced antenna with a balanced feeder works well. Many amateurs still use this method because of the very low loss of ladder-line.

But back around the time of World War II, coaxial cable was introduced. It has certain advantages over ladder-line. It is self-shielded and does not radiate. It can be routed next to metal objects or even buried in the ground with no effect on its operation. But it has a major defect in that it is unbalanced.

The coaxial cable has a center conductor and a surrounding metal shield. The center conductor connects to one side of the dipole and the shield to the other. There are equal currents in the center conductor and in the shield, so we expect equal currents in the two sides of the dipole. This looks simple and straightforward, but there is a problem.

The problem is caused by something called "skin effect." This tells us that, at radio frequencies, the current in a conductor flows just in the "skin" of the conductor and does not penetrate further into the conductor. This means that the current in the shield of the coaxial cable is confined to the inside of the shield. No current reaches the outside of the shield. Therefore, the outside of the shield is just like a third conductor. But this third conductor is connected to one side of the antenna, the same side the inner surface of the shield is connected to.

Now it is possible that not all of the current from the inside of the shield goes into one side of the dipole. Some may go down the outside of the shield. This can cause problems. With less current in the antenna, its radiated signal will be less. The radiation from the outside of the shield brings radiation closer to the house and may cause TVI. When the antenna is used for reception, there will be pickup from the dipole and from the coax shield. Most man-made noise is vertically polarized, so the horizontal dipole discriminates against it. The vertical shield, on the other hand, readily picks up the noise, so your antenna becomes noisier and reception is poorer.

Balun To The Rescue

The current flow down the outside of the shield can be eliminated by use of a balun, a balanced to unbalanced device. There are several ways to make a balun, but all of them place high impedance between the antenna and the outer shield. This prevents any current flow down the shield.

To make a very simple balun, you wind the top portion of the cable into a coil. This does not affect the currents flowing inside the cable but now the outside of the shield is a coil and just like any coil it has inductive reactance that presents an impedance

to any flow of RF. At low frequencies it is difficult to get enough inductance to be effective and the coil tends to whip in the wind and is physically unwieldy. But it works.

The "transmission-line" balun is much better. This is a short section of two-conductor transmission line wrapped around a ferrite toroid and connected between the coax and the antenna. The ferrite gives the coil high impedance so no current will flow through it to the coax shield and the antenna sees a balanced line.

Then there is the ferrite bead balun. Enough ferrite beads are placed over the coax to provide a high impedance to RF. This prevents any current flowing down the shield. This is a simple and effective balun and is in widespread use today following its initial introduction to radio amateurs in an article by Walt Maxwell, W2DU, published in 1982.

Matching Transformers

The baluns described above are 1:1 baluns, that is, their input and output impedances are the same. They are useful for connecting 50-ohm coaxial cable to dipoles or other antennas that have impedances close to 50 ohms. But some antennas have higher or lower impedances where an impedance change in the balun can provide a better match.

The transmission line balun adapts itself easily to 4:1, 9:1, 16:1 ratio step-up and step-down transformers. Other ratios are also available. Thus the impedance matching function can be built right into the balun.

At The Transmitter

We have been talking about the use of baluns at the antenna feedpoint. Another common use of baluns is at or near the transmitter. Quite often, ladder-line is used to feed the antenna. But it is difficult to run the ladder-line into the radio shack. So, a short length of coaxial cable is run from the transmitter or antenna tuner out to the ladder-line. At this connection, we have the same problem as before – connecting unbalanced coax to a balanced feedline. Again, a balun is required.

The ladder-line usually has 450-ohm impedance. Since we are connecting a 50-ohm coax to 450-ohm line, it would seem that we need a balun with a 9:1 step-up to get a good match. No, no, no! Remember that the 450-ohm line is connected to a 75-ohm antenna. If the line is a half-wave long we'll see 75 ohms at the bottom, not 450. At other cable lengths we'll see impedance's from less than 75 ohms, up to much higher than 450 ohms. So we are not at all likely to get a match. It is helpful, however, to have a step-up transformer and a 4:1 step-up is a good compromise value to use.

So what I learned....

- ▶ Use a 1:1 balun for balanced dipole antenna where both sides of the center insulator are of equal length.
- ▶ Use a 4:1 (or higher if needed) balun for antennas that have a higher or lower impedance change between the actual antenna and the feed line.

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Reminder re ICASA licences

ICASA has extended the grace period for licence payments to the end of this month (February), as renewal notices were sent out late. Theoretically you should have received them by the time you are reading this notice. If you have not receive a renewal notice yet, please check with Peter, ZS5PHL, ICASA - Dbn branch. Chances are good that they do not have your correct postal details. Hopefully it will not be due to non payment of your license for this last year, because then quite a bit more work will be required to get it reinstated. Please visit http://www.sarl.org.za/forum/topic.asp?TOPIC_ID=4680 for more detailed information.

If your licence fee is not paid by the end of February, you will loose your call sign, and there is no guarantee that it will be allocated to you again, and it could be a long and tedious task trying to ge your account current again. You can make the payment without the renewal notice - just make sure that you use the correct banking details for ICASA. Do not use your call sign as reference when making the payment even though some claim that this is ok. Only use your licence number. This information is straight from ICASA, who say that they will not guarantee that payments will be processed where call signs are used as reference. The payments are processed by the accounts department who do not have call sign lists.

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If you have any useful articles for this newsletter, please email them to zs5ml@marc.org.za for publication. Any articles of interest to Amateur Radio, both technical and non technical, will be well received

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Ham Bulletin Readers

28 February -ZS5BGV
07 March - ZS5CID
14 March - ZS5PJ
21 March - ZS5ML
28 March - ZS5BGV

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Tailpiece: (thanks ZS5JO)

A pastor concluded that his church was getting into very serious financial troubles While checking the church storeroom, he discovered several cartons of new bibles that had never been opened and distributed. So at his Sunday sermon, he asked for three volunteers from the congregation who would be willing to sell the bibles door-to-door for \$10 each to raise the desperately needed money for the church.

Jack, Paul and Louie all raised their hands to volunteer for the task.The minister knew that Jack and Paul earned their living as salesmen and were likely capable of selling some bibles. But he had serious doubts about Louie who was a local farmer, who had always kept to himself because he was embarrassed by his speech impediment. Poor Louie stuttered badly. But, NOT WANTING TO discourage Louie, the minister decided to let him try anyway.

He sent the three of them away with the back seat of their cars stacked with bibles. He asked them to meet with him and report the results of their door-to-door selling efforts the following Sunday.

Anxious to find out how successful they were, the minister immediately asked Jack, "Well, Jack, how did you make out selling our bibles last week?"

Proudly handing the reverend an envelope, Jack replied, "Using my sales prowess, I was able to sell 20 bibles, and here's the \$200 I collected on behalf of the church."

"Fine job, Jack!", the minister said, vigorously shaking his hand. "You are indeed a fine salesman and the Church is indebted to you."

Turning to Paul, "And Paul, how many bibles did you sell for the Church last week?"

Paul, smiling and sticking out his chest, confidently replied, "I am a professional salesman. I sold 28 bibles on behalf of the church, and here's \$280 I collected."

The minister responded, "That's absolutely splendid, Paul. You are truly a professional salesman and the church is indebted to you."

Apprehensively, the minister turned to Louie and said, "And Louie, did you manage to sell any bibles last week?" Louie silently offered the minister a large envelope. The minister opened it and counted the contents. "What is this? Louie, there's \$3200 in here! Are you suggesting that you sold 320 bibles for the church, door to door, in just one week?"

Louie just nodded. That's impossible!" both Jack and Paul said in unison.. "We are professional salesmen, yet you claim to have sold 10 times as many bibles as we could." "Yes, this does seem unlikely," the minister! agreed.. "I think you'd better explain how you managed to accomplish this, Louie."

Louie shrugged. "I -I -I re-re-really do-do-don't kn-kn-know f-f-f-for sh-sh-sh-sure," he stammered.

Impatiently, Peter interrupted. "For crying out loud, Louie, just tell us what you said to them when they answered the door!"

"all I - -said was," Louis replied, "would you like to buy this - for -t-ten -b-bucks or would -you just I-like me to stand here and -read it to you??"

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