

HAMS

Keywite

March 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

The Chairman's Report

CLUB COMMITTEE: 2009-2010

CHAIRMAN / TREASURER

Mike Boast (ZS5BGV)
Telephone: (033) 342-1241

VICE-CHAIRMAN, HHN & WEBMASTER

Mike Lauterbach (ZS5ML)
Telephone: (082) 372 0997

SECRETARY

Peter duPlessis (ZS5PJ)
Telephone: (033) 239 4426

REPEATERS & DIGITAL

Shaun Rudling (ZR5S)
Telephone: (082) 676 1488

TECHNICAL

Craig Dagleish (ZS5CID)
Telephone: (082) 802 0916

PUBLIC RELATIONS

Rob Billing (ZU5 ROB)
Telephone: (083) 656 2676

COMMITTEE MEMBER

Brian Lourens (ZR5BCB)
Telephone: (072) 157 7708

Time rolls on relentlessly and Easter is only a week away. The last club meeting on the 20 March went off very well and about 16 members attended. We had a lively discussion about Hamnet and emergency services and the role that ham's can play in disasters and emergency situations. We have been asked to assist the Provisional Disaster Management here in Martizburg with the FIFA World Cup when there are games on in Durban. I will be seeing the manager after Easter to see how we can assist.

I would like to take this opportunity to thank those that assisted at the recent Postnet Marathon, it was the largest field for this event and there were a number of requests for assistance and ambulance responses but fortunately no serious incidences were reported. Thanks guys you did a sterling job.

SAAMSAT are holding a Space Symposium on 17 April and this coincides with the Club meeting. It was decided at the general meeting therefore to move the next club meeting to the April 24th and not the 17th.

The Space Symposium should be an interesting event for those interested in satellites. It will be held at the UKZN Durban campus. I include a copy from their web site of some subjects to be covered: The symposium will run from 08:30 to 16:00 followed by the SA AMSAT AGM at 16:15 - 17:00

Topics include

- Lessons learnt from SumbandilaSat (Oscar-67) commissioning, what can go wrong and how to recover.
- AfriSpace: Thinking local. Acting orbital
- Building a 3U CubeSat at the Cape Peninsula University of Technology
- The String Vibrator Experiment (SVE), an Experimental Payload on SumbandilaSat
- Lalea - a around the world balloon project
- Building a SA AMSAT CubeSat
- The Durban University of Technology Indlebe Radio Telescope
- Satellite my next hobby in amateur radio
- FEES: Early bird bookings before 9 April 2010 SA AMSAT and SARL member R 70.00 Non members R130.00 . See the web site www.amsatsa.org.za for more information and booking details.

The preparations for the Radio amateur exams are progressing and any still wanting to join will need to hurry to catch up. Entries need to be in by 23 April and the exam will be written on Thursday 20th May.

I wish you well over the short weeks ahead, time to get on the air again.

Mike ZS5BGV

Diary of Events

27 March	Swop Shop, Monte Seal at John Fielding's qth
31 March	SARL 80m Club Contest with PSK and RTTY
31 March	Closing date for stage 1 of the SARL Construction Competition
11 April	President's Net at 19:30
17 April	2010 SA AMSAT Space Symposium, Durban
24 April	MARC monthly meeting at the club house at 11h00
23-25 April	SARL National Convention, Port Elizabeth
5 May	Closing date for stage 2 of the SARL Construction Competition

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.
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

-----*****-----

The HEX Beam

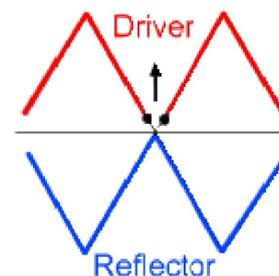
Compiled by M Lauterbach ZS5ML

There was some talk about the hex beam last month, and I decided to dig in a bit deeper to see how it performs. Most of the information comes from various information on the public domain, mainly from the the web sites of G3TXQ, K4LIO and DL710, who were all involved with designing different forms of this antenna. I considered building one, but due to time constraints did not venture this far. If any of you have one, or want to build one, then we would like to know more about it from your perspective.



The original, or classic hex beam looks like an upside-down umbrella. "By bending the Driver and Reflector wires into "M" and "W" shapes, respectively, it manages to achieve useful beam performance in a turn radius about one half that of a full-size 2-element Yagi. Traditionally it has been constructed of wire elements strung on fibreglass support spreaders. By "bowing" the spreaders upwards, wires for several bands can be supported at different heights; this allows a multi-band Hexbeam to be constructed without any of the normal compromises such as resonant traps, and it preserves a consistent Driver / Reflector geometry on each band."

	20m	15m	10m
Driver (half length)	5425mm	3592mm	2697mm
Reflector (half-length)	5537mm	3663mm	2756mm
Driver end spacing	196mm	137mm	142mm
Reflector end spacing	127mm	91mm	91mm
Vertical spacing from baseplate	1067mm	356mm	152mm



"The principles behind Hexbeam operation are no different than those of any 2-element "parasitic" beam. One element - approximately half a wavelength long - is "driven" by the transmitter; the other - also about a half-wavelength long - is placed close to the driven element. As a result of its proximity, currents are induced in this second element which result in power being re-radiated from it; because it is not driven directly this element is called "parasitic".

The relative magnitude and phase of the currents in the parasitic element result in the "re-radiated" power reinforcing the power from the Driver in some directions, whilst cancelling it in others - hence the antenna becomes "directional". In a Classic Hexbeam the Front-to-Back ratio peaks at the self-resonant frequency of the Reflector.

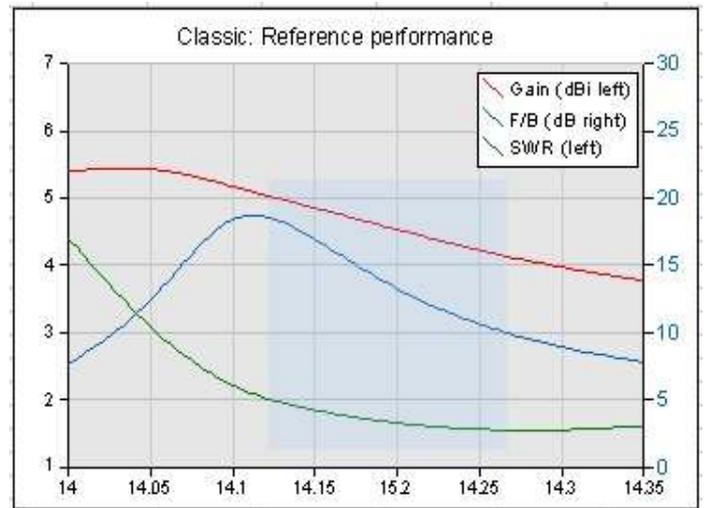
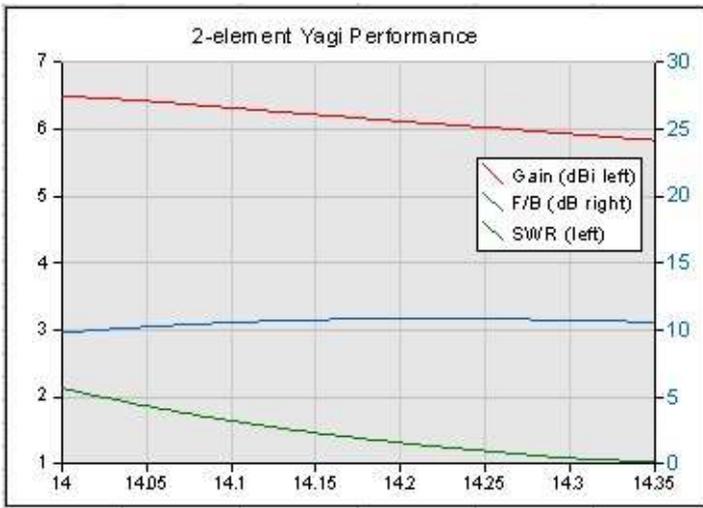
The challenge to the antenna designer is to control the "mutual coupling" between the elements in such a way that the relative magnitude and phase of their respective currents optimises the antenna's performance. In the case of the Hexbeam this "mutual coupling" is controlled partly by the general spacing between the elements, and, critically, by the gap between the tips of the Driver and Reflector.

If the designer had total control of the relative magnitude and phase at all frequencies, excellent Hexbeam performance would be possible over a wide bandwidth - gains in excess of 6.8dBi (4.7dB more than a dipole) and F/B ratios over 40dB. But of course in the "real world" such control is not possible, so before getting too carried away we need to manage our expectations!"

So what is the difference between a 2 element yagi and a hex beam?

"The first thing we see is that the Hexbeam has less Forward Gain than the Yagi, and the Gain falls by 1.7dB across the band - a result that is typical of end-coupled wire beams. At the top of the band, the Gain is 2dB (1/3 of an S point) below the Yagi, but we might judge this is a reasonable price to pay for the reduction in size.

The Hexbeam beats the Yagi for peak F/B at 18dB; however the F/B falls to 7.5dB at the band edges, and so maintains its advantage over only 60% of the band."

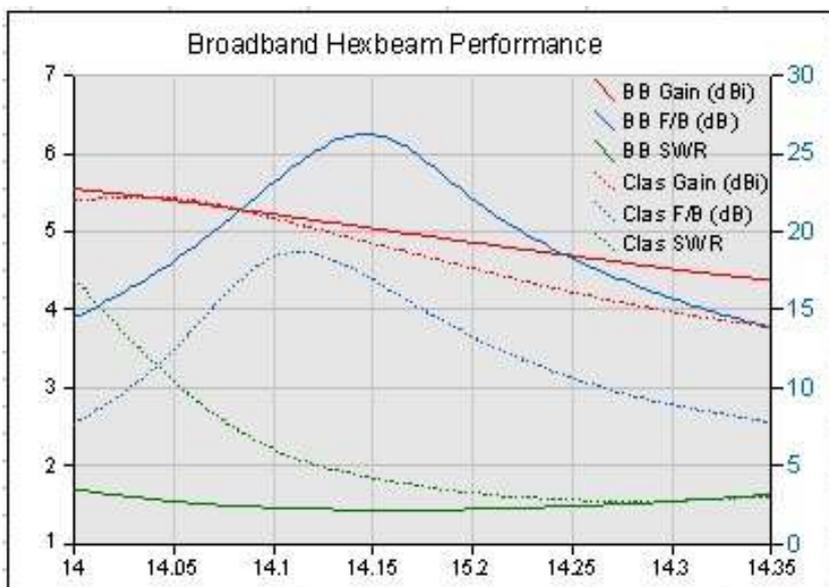
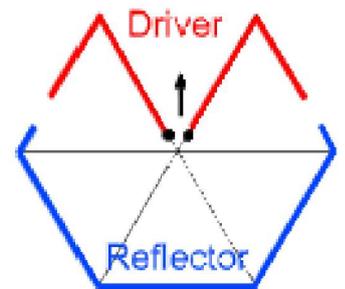


“The SWR falls quickly as the frequency increases, but is still over 2:1 where the F/B is best. It is important to understand this characteristic of the Classic Hexbeam; constructors who tune their beams for minimum SWR are likely to be disappointed by the directivity of the antenna. This poor SWR characteristics is caused by an abrupt drop in the resistive component of the feedpoint impedance at frequencies below the peak F/B.

If we define "useful performance" to mean Gain > 4 dBi, F/B > 10 dB and SWR < 2, we find that the Classic Hexbeam has a useful bandwidth of just 150 KHz on 20m as shown by the shaded area on the chart. This makes it imperative that we tune the antenna to optimise the performance at our preferred operating frequencies.

Despite the narrow bandwidth, the Classic hexbeam compares very well with commercial HF mini-beams. For example, according to figures published by Cushcraft, the 20m Gain of the MA5B is 3.6 dBi and its 2:1 SWR bandwidth is 90 KHz.”

What is interesting though is the redesigned HEX Beam by G3TXG , as shown on the right. It is easier to construct, and has a wider bandwidth and lower swr. It comes with a small penalty of having a bigger turning radius of about 400mm on the 20m version.



The graph on the left compares the Gain (red), Forward/Back ratio (blue) and swr (green) of the new hex beam (solid colours) to those of the original classic hex beams (dotted line).

If I had to build one, I would opt for the new G3TXG beam.

For more details, visit his informative web site at <http://karinya.net/g3txq/hexbeam/> He also has detailed design plans on his site.

How I became a Ham *by Shaun ZR5S*

Well, I remember tinkering with Morse code on an intercom (no wireless) when I was about 7 years old in Howick with my younger brother. He never got interested in it in spite of my encouragement to send "secret" messages to each other with no-one else being able to decode them. I never did ever learn the language by memory but I used to write out the msg in dits and dahs first on paper and then sending it to an inattentive sibling getting much annoyed.

A bit later when living in Wartburg at the age of 14 I got hold of an old am valve commercial receiver. Just the chassis, no cabinet. Got shocked once but only realize now how lucky I got not to be fried. It worked well and with a bit of wire I listened to the world. It was a romantic fascinating thing to do and I got totally lost in my little world. Listening to these far off stations tied in with my stamp collecting from all over the world.

We then moved on to commercial FM but I was not impressed much about what all the fuss was about. I mean, the stations where local!! Boring. But I was excited when I heard the first stereo fm transmission in about 1989.

I remember making my own small wire antenna and mounted it high on the roof. I had no idea about antennas and how the whole thing worked but I was hooked.

The farmers in our area used 29Mhz AM transceivers in their vehicles and when we got a farmer visitor to the house, I would sneak outside and listen by the bakkie window for any radio talk. Wow, it was exciting to hear that radio crackle into life. Once, while my mom was in at the doctors rooms I was waiting in the car in the parking lot. A farmer bakkie parked close buy and its occupants went inside the building. I saw the familiar 2-way radio antenna and immediately went up to the vehicle. I heard some life from the speaker and opened the door to sit in the vehicle to listen. (We NEVER locked car doors then) Sun spot cycles must have been good because I heard different languages coming through now and again. Now opening a stranger's vehicle and sitting inside was a very naughty thing to do and was punishable by "no TV for a week" but I was so desperate to satisfy my thirst for radio that I did it with much fear of being caught.

Looking back, it seems I was just born to be involved with radio from a very young age. This was no eni-mini-myni-mo hobby chosen randomly. I remember The Hub having a special on a CB radio. A Tedex with a Roger-Beep function. A LED channel display and 2 LED lights to indicate something or other. Now LED lights where cutting edge technology. Only the Durban bluff branch stocked this item and it was R399 if I remember correctly. I begged, pleaded, threatened and bribed my parents to get it for me. I said it could be my x-mas prezzie for the next three years. But they absolutely refused as they had no idea as to why I should get this radio. They saw no educational benefit or purpose for this expensive item. I got a 5-speed bi-cycle instead but I was still bitterly disappointed. I suppose R399 was a lot of money in those days.

My next big move radio wise, was when I joined the P&T as a TT (telephone technician) and earned a salary. I bought a GE cb radio 32 channel and was so engrossed with it. Sun spot cycle was still running high and international contacts where a breeze. Especially to Australia. I learnt to read a circuit diagram and repaired many faults on the manual "nommer asseblief" switch boards.

Then I got a big home-base SBS cb radio and I was in Charlie Bravo heaven. Only 12w ssb but I was cooking with gas now. Got into big trouble with my girlfriend for spending R1000 on it. But she still married me and she has not left yet despite many threats. Wendy could never understand why I would rather talk to strangers on the radio, than to her. I gave up trying to explain and she gave up trying to understand.

CB was everywhere. Truckers had it, many people had it in their homes, TV was full of it. Remember Chips, the police officer on his motor-cycle with that big microphone? I got a cb in my vehicle as soon

as my vehicle arrived. It is so difficult to explain the excitement of this radio hobby but I am sure many of you would have had similar experiences. Remember, to get a message through in those days, meant writing it down on a piece of paper and posting it. Ordering things from overseas took forever. Post went by ship. Airmail cost too much. The Telex machine came later. Oh, remember the Telegram-STOP-?-WELL I DO-STOP-MSGS WHERE SHORT AND ABBREVIATED-STOP.

At the age of 21 I finally decided to step up my game and wrote my RAE. Passed first time and was sooooo excited and proud. Suddenly, my cb mates slipped by as I communicated to "educated" hams. I say, dear Watson. How grand.

I had no equipment and remained radio-silent for a while. Went to Liebermann Electronics and HAMRAD many a time to dream. Got transferred to Dalton to work on the party lines. Then I went to a couple of weekly meetings at the Scout hall in Lindscott Rd. Yes, weekly Tues nights 19h30. With a braai and guest speaker nogal. Big turnouts. I only went in monthly as I lived in Wartburg. This is where I met ZS5RK, Rod Radford. He became my mentor and he got us newbies going with an Ex Escom Storno mobile radio. The thing was massive and consumed a lot of battery power but hey, we were on the 750 2m rprr and talking for R50.

Then came along packet radio. This totally gripped me and I soon became active with this mode. ZS5IC, Barry Hosford was instrumental in getting me going. He also ran the BBS in PMB. We got in via the Hilton digi. Now try understand that computers where a new invention. I had a XT PC with a monochrome 37cm monitor. I remember the excitement on upgrading the monitor to an amber monochrome. No more green.

It was all DOS based. No windows. The big floppy was a way to share software. There was NO internet to download anything. No e-mail. Just a pc with no connection to the outside world. So when we hams got the packet system working, it was big news. People where amazed. I could send a message to another computer in another town using no wires. Even to another continent via HF at 300 baud. The BBS would store the msg until the target recipient was ready to check his mail. We did not have to be online together.

Then we got VGA monitors. 16 colour 640x480 I think. Details are sketchy but I am trying to be accurate. Colour! Wow. Then the bmp was discovered. Yes, a photo picture could be viewed on this vga monitor. Then the packet radio hams worked out how to send files and pictures using packet radio. I remember being VERY naughty once. I somehow got hold of a picture of a topless woman. She must have been a prostitute to publically pose naked like that. Anyhow, I transmitted this image as a joke via packet radio to my friend ZR5SEM in Howick using packet radio. This was a first and he must have got a shock of his life when the image finally got through via simplex digital direct from Wartburg to Howick. Shhh! Don't tell on.

Soon I upgraded from An XT pc to a 286, then 386, 486, Pentium 1 etc etc. These steps took ages as technology progressed rather slowly. These days we have cars, phones and pc's outdated within 6 months of acquiring them. Windows95 was a big hit. We all knew our DOS commands and this new concept of having multiple windows open (multitasking) and using a mouse to click here click there was cutting edge technology.

Hey, did any of you do BELTEL banking when dial-up started? There was no real internet as we know it now. No Google Search. Just Beltel and your 1200 baud external modem. Then came 24.4, 48.8 and 56k modems. The 56k came in the internal version too. Anyone still using dial-up? Looks like dial-up is disappearing like the fax machine and post-man.

Please shoot me when I stagnate and become non-progressive. Signs of it are starting already when I ask my 13yo son to set up the dvd recorder or download new ring tones on my cell.

I remember being the first person in Wartburg to get a cell-phone. A huge big Siemens brick. Got it the

moment they put in a Vodacom tower. MtN came later. I hardly got any calls on it. But it was a neat toy to have. It had memory for 10 contacts. My friend commented he would never get one as the voice quality was not as good as a telephone. He never saw the usefulness of being in touch when mobile. You would just leave a message on the answering machine for when I got back. Mmmmmmmmmmm, they all have a phone now, including his young children. He even has 2 for himself, one for work and one for home. Never say never.

Packet radio lost its sparkle when the internet became faster. Packet is still on 1200baud. Still being used though, when the commercial comms jam up. Amateur Radio lost its sparkle with the advent of the cell-phone and sun-spot subsidence.

There is still a place for Amateur Radio in our society, as a back-up to all the fancy commercial communication methods. And also to an introduction into the electronic career field.

If you got to this point, I will say thanks for reading my story. I am sure it is not the end. It still has a fascination for many people. I just hope the Kenwoods of our world do not give up manufacturing such wonderful ham gear. We may end up making our own transceivers again like our forefathers did.

Please send in your radio memories. We would love to read them.

-----*****-----

Editor's Waffle

Reading Shaun's article above, I really implore all of you to send in your stories. Chris and others recounted on the forum recently about some of their experiences with 2m dx. These are all interesting stories, and ALL articles so far about how you became a ham were very interesting. They are all unique and don't have to be long or extravagant.

We had another interesting well attended meeting last Saturday. It was great meeting you Rod! Thanks for coming down from Ladysmith. Not to take anything away from the others, it was great seeing all. Mike opened up the interesting meeting with a presentation about Hamnet, and an informative discussion followed.

Rob had warned us in the previous week that the dipole antenna at the club house had "fallen down" when the army did some fence alterations. A few of us stayed on and repaired it, so operations on 40 and 80m are possible again from the club house.

Gilboa tripped during Saturday's storm (20/3). I only noticed this on Tuesday morning when it became silent when talking to Shaun ZU5DF on his way to Durban. Shaun and myself went up the mountain on the 24th and changed the battery charger and repeater power supply. Luckily that was the only damage we sustained - the surge arrester must have helped. I am led to believe that various operators who have equipment on the towers at Gilboa suffered serious damage.

With amusement I saw an article about cell phone ettiquitte in our local paper. It seems that more and more are disregarding what others see as good manners, like not switching cell phones off during meetings, and even church services. Isn't it amazing how we can't cope with life if our cell phones are switched off even if only for a few minutes?

The coming month can become busy - first there is a swop shop at John Fielding's qth on 27 March, then we have the SA AMSAT Space Symposium in Durban on 17 April, followed by our monthly MARC meeting a week later.

-----*****-----

-----*****-----

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

-----*****-----

Ham Bulletin Readers

- 28 March - ZS5BGV
- 04 April - ZS5CID
- 11 April - ZS5PJ
- 18 March - ZS5ML
- 25 April - ZS5BGV

-----*****-----

Tailpiece:

It is a slow day in the small Eastern Cape Province town of King William's Town, and streets are deserted. Times are tough, everybody is in debt, and everybody is living on credit.

A rich tourist visiting the area drives through town, stops at the hotel, and lays a R200note on the desk saying he wants to inspect the rooms upstairs to pick one for the night.

As soon as he walks upstairs, the hotel owner grabs the note and runs next door to pay his debt to the butcher.

The butcher takes the R200 and runs down the street to retire his debt to the pig farmer.

The pig farmer takes the R200 and heads off to pay his bill to his supplier, the Farmer's Co-op.

The guy at the Farmer's Co-op takes the R200 and runs to pay his debt to the local prostitute, who has also been facing hard times and has had to offer her "services" on credit.

The hooker rushes to the hotel and pays off her room bill with the hotel owner.

The hotel proprietor then places the R200 back on the counter so the rich traveller will not suspect anything.

At that moment the traveller comes down the stairs, states that the rooms are not satisfactory, picks up the R200 note and leaves town.

No one produced anything. No one earned anything... However, the whole town is now out of debt and now looks to the future with a lot more optimism.

-----*****-----