November 2015
Volume 69, Issue 8

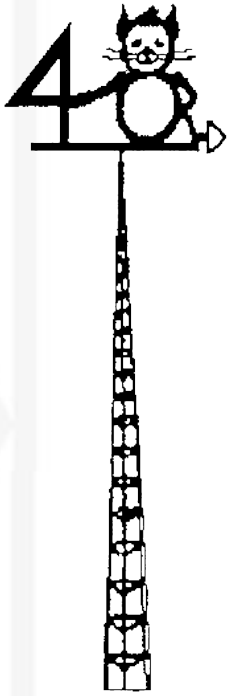
# The Cat's Whisker!

## The Wanganui Amateur Radio Society Inc., Branch 48 NZART

www.zl2ja.org.nz

### Club Officials 2015-2016

| Position | Name | Callsign |
|---|---|---|
| Patron: | Strath Davis | ZL2AAJ |
| President: | Jason Wallace | ZL2FT |
| Vice President: | Jeff Howe | ZL2THO |
| Secretary/Treasurer: | John Love | ZL2JEL |
| AREC Section Leader: | Paul Greenwood | ZL2GRE/ZK2ED |
| **Committee:** | Stephen Swartz | ZL2SWZ |
| | Ivan Horn | ZL2ATU |
| | John Love | ZL2JEL |
| | Paul Greenwood | ZL2GRE |
| **Publicity Officer** | **Jason Wallace** | **ZL2FT** |
| Net Controller, 690: | Ivan Horn | ZL2ATU |
| Financial Checker: | Leo Boyle | ZL2BGE |
| Equipment Officer | John Love | ZL2JEL |
| Awards Custodian: | Ivan Horn | ZL2ATU |
| Webpage/Newsletter Editor: | Colin Wilson | ZL2WM |
| Branch e-Mail Address | branch48@zl2ja.org.nz | |



## The Next General Monthly Meeting will be held:

**Monday 7th December, 2015**

**at the Hunters and Stalkers Hall, Peat St.**

**At 7:30pm**

**Business: General.**

**All Very Welcome!**

**Don't Forget to Bring Along Your Outgoing QSL Cards to the Meeting Too!**

*"Just the Cat's Whiskers"*

# President's Ramble December 2015

Not much to report this time around.

I would like to thank all the members who have helped out with events thru-out the year, it helps keep the club active and in the spotlight for others to know that we are still about.

I would also like to wish all members and the families all the best for the Christmas season and for the beginning of 2016.

A DX event of note is for the month of December is the ARRL 10Mtr Contest on the weekend of the 12th and 13th. Get out and give 28Mhz ago while there is still some DX to be had on this band.

Good DX and 73 from
Jason
ZL2FT.


http://www.daweeklycomic.com/

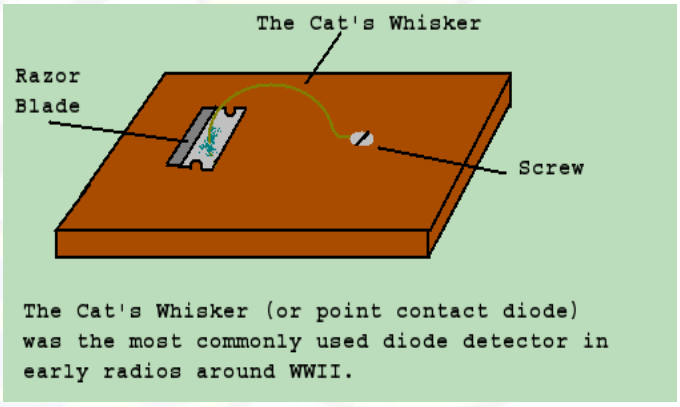
# From the Editor

Hello Everyone,

End of yet another year, where did it go?

Thanks to those who sent be leads for items for the Newsletter. Remember no item is too small! Need to fill small holes too!

Have started a "new" series of "Dead Electrical Dudes" by Phil KA4KOE, keep an eye out for them.




*De left plug connected to de right plug. De right plug connected to de next plug. De next plug connected to de next plug, and that's what it's all about. De A plug connected to de B plug, and 1,2,3..... that's what it's all about!* Ric Coleman ZL2RIC *via Facebook*

**From Radio Spectrum Management about the sale of amateur radio transmitters.**

**Main point**

**The obligation is on anyone selling such equipment to ensure it is only sold to an Amateur Radio Operator. Any listing must include wording that the equipment can only be sold to and used by an Amateur Radio Operator and proof of such a qualification will be required.**

**Also - Requirements for non amateur transmitters are more stringent, RSM actively monitors online trading and will take action when required**

Two nuns are ordered to paint a room in the convent,with a warning from the Mother Superior not to get even a drop of paint on their habits.

After conferring about this, the two nuns decide to lock the door of the room, strip off their habits, and paint naked...

In the middle of the project, there's a knock at the door."Who is it?" calls one of the nuns.

"Blind man," replies a voice from the other side of the door.

The two nuns look at each other and shrug, both deciding that no harm can come from letting a blind man into the room.

They open the door. "Nice boobs," says the man. "Where do you want the blinds?

# A new 5 MHz International Allocation

NZART Members who have been monitoring the various Amateur Reflectors will know that the allocation of a 5 MHz band to amateurs passed its final hurdle on Wednesday. The Plenary approved the global allocation to amateurs of a 15 kHz band from 5351.5-5366.5 kHz on a secondary basis from January 2017. In most parts of the world, the international regulations will show a power limit of 15 watts EIRP but for Mexico the power limit will be 20 watts and South and Central America it will be 25 watts EIRP.

What will this mean to NZ Amateurs?

The answer is that we will need to work with RSM (as we did regarding the 630 m band) to agree the conditions that will apply in New Zealand. In particular, we will need to discuss the frequencies and power that will apply in NZ.

Frequency: In the HF area the NZ administration needs to coordinate any allocations with Australia to ensure that we do not interfere with their fixed and mobile services and vice versa. I am aware that there are some services in Australia in this band so it may affect how much of the band we receive.

Don Wallace ZL2TLL Administration Liaison Officer.


# Beware of Fake Diamond Antennas On-Line!

## *[From Soungate News]*

There are seemingly many bargain price Diamond antennas on various online stores and auction sites. As the UK's only official importer and distributor, we know how much these antennas cost and when they appear online cheaper than the cost price, you have to ask questions.

Waters & Stanton (W&S) purchased several models from suppliers online (that do not purchase Diamond products from us) and one such example is shown in our blog posts. Not only does the packaging not look the same, the element section lengths are completely wrong and therefore, performance will NOT be as it should be.

BEWARE of these grey imports, some of the biggest names in Ham Radio retailing in the UK do not source their Diamond products from us and therefore, what you purchase may be suspect. If the UK distributor was Waters & Stanton, you know you have a genuine product, if not, it could be the case your cheap purchase may not deliver the goods.

*http://blog.wsplc.com/*

The W&S Team

*Source:*
*http://www.southgatearc.org/news/2015/november/beware_of_fake_diamond_antennas_on_line.htm*

# The Sky's the Limit for New Computers

## By Bruce Simpson


3 November 2015

When I started building my own computers back in the 1970s I never dreamed they would become so ubiquitous and their applications so widespread.

In fact, I recall reading a magazine (probably Popular Electronics or Electronics Australia) back in the '70s and wondering "why would anyone build one of these damned things?". After all, they were a mass of logic chips and wiring but all they could do was blink a few LEDs and even then, only after hours of labourious coding and switch-flicking.

Like many things however, the fascination was the fact that there was so much to learn and so many mysteries that were waiting to be discovered. Once I started tinkering around with microprocessors I was hooked and virtually all my spare time was consumed with hand-coding new programs consisting of hundreds of bytes of binary code -- each of which had to be converted from the symbolic representation into the individual bytes of binary that were then tediously but meticulously entered through front-panel switches.

When those LEDs blinked in the sequence you'd programmed, all those hours of hard work were instantly turned into an unusual elation at having conquered the beast.

Of course those around me just looked on with great concern that I would fritter away so much time in order to simply make some lights blink. I'm pretty sure they thought I was an A-grade nutter and, on reflection, I can understand why.

It may be hard for some younger folk to imagine but back in the 1970s there were no home computers. The systems I programmed were built by me, often from components that were imported -- at a time when personal imports were subject to duty and license. At one stage I imported a bunch of RAM, some CPUs, a keyboard and some other bits which came to quite a princely sum. The consignment was grabbed by NZ Customs who wanted me to obtain an "import license" and pay a huge wad of cash before they'd release it.

I did the math and worked out that it would cost less for me to have it sent back to Australia (from where it had been purchased) and then buy a return air ticket to go pick it up.

So that's what I did. It cost me less to travel to Sydney, spend an evening in a nice hotel, pick up the bits from the supplier and then jump on a plane and fly home, than it would have to comply with all the NZ Customs red tape and duties. That's how crazy this country was back in the 1970s and that's how valuable anything to do with computers was.

But here we are in 2015 and just about everything has a computer in it.

The $120 puny 8-bit CPU I bought back in 1977 (and those were 1977 dollars!) can be purchased for a few cents -- in the form of a microcontroller which also has RAM, ROM, EEPROM and lots of I/O built into it.

We're now also free to import up to NZ$400 worth of kit without the need for any type of import license and without the payment of any duty or tax on that stuff when it arrives.

Thank goodness for change!

The Internet Of Things (IOT) is supposed to be "the next big thing" and it is predicted to make all these "smart" devices accessible via the Net. Personally, I'm not so sure this will be either a good or viable way to go -- but only time will tell.

I never though for one moment that we'd have computers in our toasters, ovens, cars, watches, TVs, and so many other every-day

items, nor did I expect that everyone would be carrying around a mobile phone with more processing power than the average minicomputer from the 1970s.

Now a new frontier for computer application seems to be surfacing -- drones!

DJI, the company which manufactures the iconic "Phantom" series of drones, has announced that it is developing a "drone computer" which will effectively allow developers to create all sorts of cool applications and utilities for drones.

Based on a 4-core A9 Arm processor (likely a system-on-chip) and running Ubuntu Linux, this computer could become a key part of the company's product line.

The days when drones were interesting curiosities or simply a device that allowed you to carry a camera high above your head are gone.

These days, the applications for drones are growing at an almost exponential rate and critical to many of these new applications is a gob of easily used computer power.

DJI says their new computer will make it easier to implement complex image-processing, the creation of 3D models from 2D images, smart navigation and a host of other things.

I find this very interesting because it was less than a month or two ago that Qualcom announced it was creating a "drone" SoC chipset which would deliver all the smarts required to create drones.

Until now, drones have been much like those early home computers. People either built their own from a collection of parts -- or they bought a commercial model of limited functionality.

The DJI Phantom was the C64 of drones and now, DJI and Qualcom are preparing the necessary technology that will allow manufacturers to roll out the first IBMPC of the drone world. A machine that can actually be used for real work far more easily and with far greater flexibility.

Of course all this presumes that we're allowed to use these things.

Around the world, regulators are running scared of drones and have begun to engage in huge levels of regulatory overreach. Here in NZ you can't fly a drone (or RC model) anywhere but in areas where expressed permission has been granted and in the USA they're now rolling out a compulsory registration system which also includes traditional RC models.

I shudder to think exactly how much damage similar regulations might have done to the growth of computer technology if they'd been applied to those early microcomputers. Odds are that if you had to register your C64 or ZX81 with the government, or if you could only use them at authorised and registered venues (rather than in your own home), we'd still be using IBM PCs and 16-bit processors today.

And before anyone says "but drones pose a danger to the public, personal computers don't" -- well look at the stats. The level of crime associated with the use of personal computers exceeds the amount of crime and losses associated with the use of recreational drones by many, many orders of magnitude.

We do live in interesting times, don't we?

*http://aardvark.co.nz/daily/2015/1103.shtml*

# WANTED....Copy for the magazine.

If you think that your input is to small to make a difference.....then, try sleeping with a mosquito.....

## Secret Radio Stations by the Numbers

On Hackaday radio amateur Al Williams WD5GNR writes about secret number stations and how to receive them

There are actually several types of number stations, but the prototypical one is simply someone on the air reading lists of numbers (or sending them via Morse code). Some read off other coded messages (like phonetic alphabet letters) or have sounds in the background that may or may not be digitally-encoded messages. One even used a sound clip from a Yosemite Sam cartoon to separate bursts of data.

There are dedicated groups that try to locate them and even decode what they are saying. However, it is thought that most of them use some form of one time pad cryptography which makes trying to decode them a very long shot. It is pretty widely accepted, though, that the purpose of most (if not all) of these stations is to deliver clandestine messages.

*Read the full story at*

*http://hackaday.com/2015/10/29/secret-radio-stations-by-the-numbers/*

Source:
*http://www.southgatearc.org/news/2015/november/secret_radio_stations_by_the_numbers.htm*

## New Raspberry Pi Zero - $5 Computer!

Today, I'm pleased to be able to announce the immediate availability of Raspberry Pi Zero, made in Wales and priced at just $5.

Zero is a full-fledged member of the Raspberry Pi family, featuring:

A Broadcom BCM2835 application processor

1GHz ARM11 core (40% faster than Raspberry Pi 1)

512MB of LPDDR2 SDRAM

A micro-SD card slot

A mini-HDMI socket for 1080p60 video output

Micro-USB sockets for data and power

An unpopulated 40-pin GPIO header

Identical pinout to Model A+/B+/2B

An unpopulated composite video header

Our smallest ever form factor, at 65mm x 30mm x 5mm

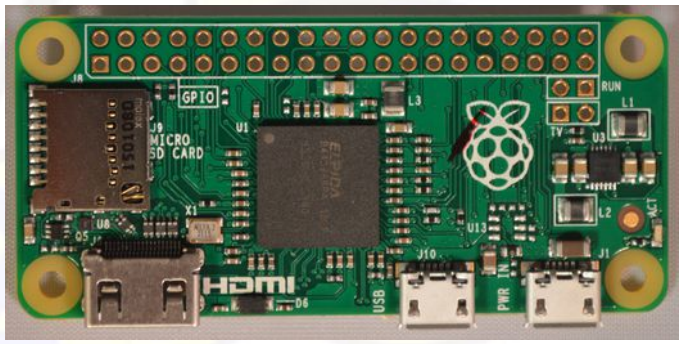
Raspberry Pi Zero runs Raspbian and all your favourite applications, including Scratch, Minecraft and Sonic Pi.

It is available today in the UK from our friends at element14, The Pi Hut and Pimoroni, and in the US from Adafruit and in-store at your local branch of Micro Center. We've built several tens of thousands of units so far, and are building more, but we expect demand to outstrip supply for the next little while.

*Read more at:*

*https://www.raspberrypi.org/blog/raspberry-pi-zero/*

Source:
*http://www.southgatearc.org/news/2015/november/new_raspberry_pi_zero.htm*

# Dead Electrical Dudes No. 1

By Philip Neidlinger (KA4KOE) on November 11, 2003

**This Month's Stiff: James Clerk Maxwell**
**Entered mortal coil: 13 June 1831**
**Assumed Room Temperature: 5 November 1879**

*Jimmy boy, wife Katherine, and unidentified dog.*

The homely individual pictured above is none other than James Clerk Maxwell, father of all that we hams hold sacred. Jimmy's mathematical formulas, which had as a foundation earlier research by Faraday on electricity and magnetism, predicted the existence of electromagnetic waves, i.e. radio. These formulas are quite complex, and even I, with a full year of college calculus under my belt courtesy of a questionable institution of higher learning (after all, they DID admit me, didn't they?), have difficulty digesting them. Here are the formulas below for your enjoyment;

*1. div E = 0*

*2. div H = 0*

*3. curl E = c x dH/dt*

*4. curl H = c x dE/dt*

*Where E = electric field strength,*

*H = magnetic field strength,*

*curl = rotation (or rate of change and vorticity),*

*div = divergence,*

*dH/dt and dE/dt are partial differentiations with respect to time.*

*x = multiplication*

Okay, you may ask, what does all this gobbledegook mean? Simply put, a changing electric current in a conductor will set up an expanding electromagnetic field propagating outward at the speed of light (this is the foundation on how transmitters work). Conversely, an electromagnetic field intersecting a conductor will induce a varying electric current (this is the foundation on how receivers work). A few years after Jimmy's death, all of this mess was proven to be true when a particularly bright German researcher, Heinrich Hertz, demonstrated the existence of radio waves via experimental means. Our hero was vindicated!

Maxwell was not a particularly good teacher at St. Andrews University in Great Britain. Maxwell did other important work on the orbital dynamics of Saturn's rings and developed the kinetic theory of gases. Maxwell's theories on electromagnetic radiation, however, were later considered to be the greatest contribution to science in the 19th century. Jimmy died quietly in bed, at peace with himself and his Maker.

# Blowing in Murphy's Wind

By John D. Dean, KØJDD
k0jdd@comcast.net

No matter how carefully you plan, Murphy will find a way.

Anyone familiar with technology of any sort is also familiar with Murphy's Law: "Anything that can go wrong will go wrong."

The field of Amateur Radio is not immune to the irresistible force and perfect truth of this epigram. To the contrary, evidence of the absolute nature of these laws abounds in our hobby.

Who among us has not heard of a $US150 Svetlana GU-74B Power Tetrode sacrificing itself in order to protect the life of a 29 cent fuse?

In Amateur Radio, Murphy's Law has many corollaries:

a) Any wire cut to length will be too short and at least one technician will try to rectify the situation by trimming off more wire.

b) A dropped tool will always land in a linear amplifier where it will do the most damage.

c) Interchangeable parts, don't.

In the same way that parents are inextricably bound to Laura's First Law of Parenthood, "A sick child will never vomit in the toilet," so we radio amateurs find ourselves under the pervasive influence and effects of Murphy. I now offer you prima facie proof of this, by relating a true story concerning the effects of Murphy's Law on Amateur Radio.

**Best Laid Plans**

I installed a 40 foot tower structure at my home in 2008. This installation was meticulously

planned and executed. As part of my pre-project research, I devoured every article, tip sheet, blog and tale of woe I could find on the subject of tower installation.

Being that my shack is located in a wooded part of my property, I was especially concerned with calculating the proper clearances on all sides of the tower to allow for safe rotation of the beam antenna. The tower was carefully sited to avoid removing any of my desirable Red Oak trees.

I calculated that I would need a minimum of twice the turning radius of my antenna (3 metre) to the nearest tree, in all directions from the centre of the tower, at a height of 12.65m. Higher up on the mast at 13.64m would be a VHF/UHF Yagi antenna, but the clearance for this antenna was not of primary concern; at 1.8m in length it was a full 33 percent less than the turning radius of the larger and more expensive beam.

I methodically measured and pruned until I was absolutely certain that the full 5.5m of clearance had been achieved in all directions, with a little extra cushion thrown in. On December 26, 2008 I triumphantly hoisted the beam antenna into its final

resting place and I embarked upon a wonderful period of HF operating bliss.

**Murphy's Maelstrom**

Fast forward to Monday, June 1, 2009. On this date the winds at my shack were sustained at20km/h from the south with gusts up to 38km/h. This was the day Murphy arrived. Did a tree fall into the tower wrecking my beautiful beam antenna? No. Was a limb that should have been removed torn loose and sent hurtling into my precious beam antenna leaving destruction in its wake? No. Did a mini-cyclone pick up a full grown rhododendron bush from the nearby nursery and plop it neatly and precisely on top of my pride and joy? No.

In actuality, nothing whatsoever happened to the beam antenna, but as the photographic evidence shows the VHF/UHF antenna was systematically and thoroughly ruined.

Precisely 7m to the south of the tower base stood a 20m poplar tree. (Some call this a quaking aspen.) Given that this tree was listing approximately 7° in a direction away from the tower and was a comfortable distance from ground zero, I had deemed it to be of little concern. I have since learned that 38km/h winds do in fact possess the power to bend a 20m poplar tree over into a 90° angle, at a height of 12m, without breaking said tree.

This miracle of nature is how the offending tree was able to repeatedly assault my VHF/UHF antenna from directly above, without any discernible damage to the tree.

All quaking aspen within 30m of the tower have now been removed and I have learned my lesson. With Murphy as my witness I vow that in the future, whenever working with towers and antennas, I will always endeavour to look in every direction — including straight up.

*http://www.arrl.org/blowing-in-murphy-s-wind*



# The Back Info Page

**(Links are "clickable" in the PDF version)**

## The Internet:

**The ZL2JA Webpage**:
http://zl2ja.org.nz/

**The ZL2JA Photo Gallery:**
http://zl2ja.org.nz/photos/

**Listen to the New Zealand National System (Live-ish):**
http://zl2ja.org.nz/listen/

**The Wanganui Award:**
http://zl2ja.org.nz/award/

**ZL2JA on Youtube:**
http://www.youtube.com/user/ZL2JA

**NZART (NZ's National AR Organising Body):**
http://nzart.org.nz

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Skype "Colin-ZL2WM"

## Branch Repeaters:

**"Wanganui 690"**
Output 146.900MHz, In -600kHz

**"Wanganui National System 9875"**
Output 439.875MHz, In -5MHz

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NZART
Devoted to Amateur Radio Since 1926