



# OXTALES

Newsletter of the Oxley Region Amateur Radio Club Inc.  
PO Box 712 Port Macquarie 2444

## March 2003

Compiled by VK2TT

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### President's Report

Have you ever wondered why so many apparently intelligent people go to extraordinary lengths to try and find out what the next day, week, month or year might hold for them? Horoscopes, tarot cards, ouija boards – our magazines and book shop shelves are stuffed with all the paraphernalia and mechanisms used to try to find what the future might hold.



Some suggest it is just our normal insatiable curiosity that sends us off on such a quest but I'm sure it goes a lot further than that.

I believe there is a deeply rooted *angst* or uncertainty that pervades the whole of our society and colours much, if not all, of our approach to life and our 'world view'. Of course, many will protest loudly that they don't have a problem and things couldn't be better but a little scratching below the surface often reveals that such bravado is only a cover for some very real, unexpressed concerns.

Recently I asked two of my pre-teen grandkids to list for me all the things they were afraid of. Terrorism, the possibility of war, financial insecurity, natural disasters, sickness, HIV, fear of death, family difficulties – the list went on for two full A4 pages! When I went through the list with them, there was hardly a sin-

gle concern that was not common to all age brackets! And there is no way that we can find a single clue about what is going to happen or when!

A good reason, I suggest, to find an anchor that will provide both stability and certainty in an age that offers little hope or assurance for the future.

And so to things of the moment. By the time this is read, the Wyong Field Day will have come and gone and some of our members will be the richer (or poorer) as a result. Always good fun, though. The Sea Rescue Group in Laurieton have expressed thanks to the Club for rectifying the break-through problem they were experiencing from Wilbur's 2m transmissions across the road. A trap filter on their receiver appears to have done the trick and we were able to welcome 2XXU back on to the Wednesday night net. Good PR, guys!

Alan VK2GD  
*El Presidente*

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## Down The Coax

**Friday Night  
Get-together  
Mar 14th & 28th 2003  
7.00pm**

**April Meeting  
Saturday 5th April 2003  
2.00pm**

**Friday Night  
Get-together  
April 11th & 25th  
7.00pm**

**May Meeting  
Saturday 3rd May 2003  
2.00pm**

## Net Controllers Roster.

**Sundays                      Wednesdays**

### March

VK2OA	Mar-02	VK2FSH	Mar-05
VK2JJ	Mar-09	VK2GD	Mar-12
VK2MAZ	Mar-16	VK2ATM	Mar-19
VK2TT	Mar-23	VK2AYD	Mar-26
VK2ZHE	Mar-30		

### April

		VK2HOT	Apr-02
VK2FSH	Apr-06	VK2MAZ	Apr-09
VK2JJ	Apr-13	VK2GD	Apr-16
VK2BZD	Apr-20	VK2HBM	Apr-23
VK2OA	Apr-27	VK2EI	Apr-30

### May

VK2AIF	May-04	VK2EJK	May-07
VK2TT	May-11	VK2ATM	May-14
VK2BZD	May-18	VK2ZHE	May-21
VK2EJK	May-25	VK2AYD	May-28

### June

VK2HOT	Jun-01	VK2DAL	Jun-04
VK2JJ	Jun-08	VK2EI	Jun-11
VK2MAZ	Jun-15	VK2HBM	Jun-18
VK2ZHE	Jun-22	VK2FSH	Jun-25
VK2AIF	Jun-29		

### July

		VK2GD	Jul-02
VK2TT	Jul-06	VK2ATM	Jul-09
VK2BZD	Jul-13	VK2DAL	Jul-16
VK2ZHE	Jul-20	VK2EI	Jul-23
VK2EJK	Jul-27	VK2HBM	Jul-30

## The Paulson Arc Transmitter.

(By Ernie Sloman—VK2BUE)

In 1929 I was a Boy Telegraphist on a country class cruiser and at the time of this "anodectal" situation, the location was Hong Kong. The main transmitter on the cruiser was a 60 Kilowatt CW "Monster". It was enclosed in a safety cage that had a door with contacts that made sure the gear was immobilised when it was "open".

The auxiliary circuits had huge relays and when CW was in use it was "bang-tiddy-bang-bang" ... very loud in fact.

There were five cruisers in the squadron. They visited such places as Shanghai and Hankow, 600 miles up the Yangtze River, and Wei-Hai-Wei off North China. Quite some distances apart.

Their 60W CW transmitters had a nice mellow valve tone. However, in the early part of the day when QRN was at its lowest during the summer months, they could QSO with base on about 120 KHz. (Short wave was still experimental in those days) but at night time, the QRN/Static was so intense, that the mellow tone of those "water-cooled" valves was unable to cope.

Hong Kong was our main base and there was always a large part of the China fleet there. There was a W/T guard on duty all the time. But during the summer months, the W/T guard wasn't much use at nights. Also there was a system of W/T intercom using a low power transmitter on most of the ships. The ships in Hong Kong usually consisted of a couple of cruisers, a destroyer flotilla, frigates, sloops, and submarines, plus supply vessels - boilers etc.

However this story is about a sloop called H. M.S. Clematis and was the oldest type of vessel in the fleet.

The power supply in the old sloop was direct current, whereas the modern cruisers and frigates had powerful alternators to supply the necessary "juice" to run their W/T equipment.

I'll reminisce a little here. I remember when we approached the city of Hankow, which was also a port (a long way up the Yangtze River). We contacted the port radio station - its call sign XGS - and it was fitted with a Spark Transmitter and it penetrated all "bands" and it was powerful too. I mention this because I want to talk about the gear

that followed the spark transmitters. It was the Paulsen Arc Transmitter, and remember, I was only 16 years old in those days. It's a long time ago, but I'm sure the readers will be quite surprised about what happened.

It all developed when for some reason an urgent situation arose to do with river gunboats up the West River at Canton. What ensued was due to the night-time static, the message failed to get through on the W/T guard's transmitter. Someone suggested try the sloop's transmitter, it's got a very high pitched note and might get through, so the message was broadcast several times and actually was received by the gunboat. The result of this was the sloop became the W/T guard during the night time.

So let's talk about this gear, "The Paulsen Arc". I have previously remarked about the sloop's DC supply in those days. Getting a higher voltage from a DC supply means using a vibrator. That's OK for a receiver, but a vibrator's power is very limited indeed. So forget the vibrator.

So how did they get enough power to run the Paulsen Arc Transmitter? The sloop's power is DC - you can use a lot of amperes, but not get high voltage.

The oscillator in the transmitter is powered by striking an arc across electrodes in the actual oscillator circuit. Just like a searchlight system. It produces a lot of power which is inductively coupled to the aerial system.

Unfortunately there's a few problems

- (i) How are they going to "key" the transmitter. The oscillator can't be keyed because the "arc" cannot be instantaneous. The oscillator must be kept running during transmission and reception.
- (ii) In those days a transmitter and receiver were completely separate.
- (iii) The oscillator must be screened
- (iv) You can't "listen through"

The only solution is to key the aerial system. This was done by using a small relay to operate a monster of a contactor. This limited the speed at which the operator could send. Yet the transmitter had an advantage over the valve transmitters. It had a very high pitched penetrative note that enabled reception to be possible.

This situation was short lived, however. The ships were soon fitted with short wave gear. So the Paulsen Arc Transmitter disappeared into the misty past and was only heard of as a museum piece, and in the modern sloop (if any)

the lights no longer dim when the transmitter is switched on.

My next story will be about other uses of the V.L.F. Systems etc.

**For Sale**  
**Transceiver. Yaesu**  
**FT-1000-MP in full working**  
**order.**  
**Purchased in July 1997. Little**  
**used. Includes 1 Hi-Mound tele-**  
**graph key.**  
**Complete with Handbook.**  
**\$1500.**  
**Interested purchasers will be**  
**required to inspect and try out**  
**at owner's QTH at Tenterfield.**  
**Contact Ernie Sloman on**  
**Tph 02 6736.1388**

### **WEIRD AND WONDERFUL**

(From the Pilley collection via QNEWS).

*An inter-species communications apparatus - as in a dog-to-person translator - is one of the winners of the 2002 Ig Nobel Awards.*

*What are the Ig Noble awards you ask? They are a spoof of the famed Nobel Awards ceremony and are given annually at Harvard University to recognize achievements that cannot or should not ever be reproduced.*

*For 2002 those victorious included the people behind the definitive study on bellybutton lint and an inquiry into what arouses ostriches. But by far, the dog to person translator was one of the most popular. It works by listening to the tone of a dog's bark converting that data into an interpretation of the dogs mood.*

*The device is already on the market in Japan. An English language version called Bow-Wow-Lingual - nope -- we are not kidding - Bow-Wow-Lingual - It may be on the market in the U-S-A in about a year. And we thought that you'd want to know.*

*For the Amateur Radio Newslines, with my dog Daisy, I'm Bill Pasternak, WA6ITF.*

Hmmmm. If it happens, we wonder what breed will be honoured with an Ig Nobel for being the first to dog to get a ham radio license and make DXCC.

More about the Ig Nobel awards is in cyberspace at

<http://www.improb.com/ig/ig-top.html>  
(Science Frontiers VIA arnewsline audio)

- David (VK2AYD)

## Digital Communications

Most of you will say it's been around for years. Morse code is digital - no argument but life has changed considerable from those early days a 100 years ago. Today digital mode is defined as one where we use a computer or computer terminal somewhere in the process of transmitting and receiving. And, before you say RTTY, I'm talking about TO-DAY.

Another word you may hear is FUZZY modes that is also digital.

With the decline in code, whether it be by Samuel Morse or Katakana, Radio Amateurs will be turning more to digital modes. So what are their advantages?

1. High sensitivity - not much power required.
2. Narrow bandwidth
3. Efficient where error correction is used.

So let's name a few that can be found around the H.F. bands. There are many.

Packet

AmTOR (there are 2 modes)

Clover 2000

Hellschreiber (at least 3 types)

MFSK 16, 8 & Throb FSK441

MT63

PacTOR

PSK31

RTTY

And some of the advanced modes include

PC-ALE, STANAG, 4285, 45239, Q15X25 Plus Digital Voice and SSTV

Facsimile is analog.

Some modes are 'chat' modes; others

'connected' or broadcast modes.

So let's have a brief look at some of them.

AmTOR - Amateur Teleprinting Over Radio. Developed early 80's from commercial SITOR (used by Marine) Used for both chat and broadcast

Full FEC (Forward Error Correction) and ARQ (Automatic Request Repeat) Bandwidth 400Hz. Baud rate 100  
Typing speed 6.6 cps (66wpm)  
Little used now.

CLOVER

Commercial system developed by HAL. Use's 4 sequential tones at 125 baud FSK. FEC.

Bandwidth 500Hz Baud rate 31.25  
Typing speed 3-50 cps.

HELLSCREIBER

Older than RTTY. Developed around 1920's. Used by Germany in WW II. Not commonly used by Radio Amateurs, although has been heard around 14.060. Sounds like a scratching hen! ICW  
Typing speed around 2.5 cps

MFSK - Multiple Frequency Shift Keying  
There are quite a few variations with this. For example MFSK-16 FSK using a convolutional FEC protocol.  
Bandwidth 316 Hz  
Typing speed 4 cps

MT63

This is the juggernaut of modes. Using a bandwidth of 1000Hz. It was originally a Motorola development that came to the Amateur interest around late 90's. This system cannot be identified by ear or eye and requires a special tuning display. You can find them operating around 14110. PSK (Phase shift Keying).  
Typing speed 10 cps.

PSK31

Today the most popular digi-mode. You will find Arthur, VK2ATM, on 14.070 most days chatting around the world using very very low power. PSK31 was developed in the mid 90's as a replacement for RTTY and is strictly a 'chat' mode. Only requires a band-width of 62.5Hz PSK. Baud rate 31.25 and Typing speed about 3.5cps.

RTTY - Radio TeleTYpe

Predates all but Morse and Hellschreiber and has been popular with the Radio Amateur since the late 40's. Baudot developed

this 5 unit code around 1874. It is very popular around 14065.

FSK Bandwidth 270Hz Baud rate 45.45 or 50. Generally a 'chat' mode system.

So there is just a few for you to think about. Why not try PSK31 on 14070, it is fascinating to realise just how little power you need. No TVI to worry about and lots of contacts around the world. As this is keyboard to keyboard, you do need a computer and you do need the right software which is available free of charge from the internet.

We'll talk about digital voice another time - it is in use on HF.

73

David VK2AYD

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### Light up the World LED and the OBE.

A friend of ours got the OBE last week, (or so he said), What's that? I said?, Over Bloody Eighty, Hi Hi.

Now what has that got to do with Light Emitting Diodes? Well within the next 10 years we are into the next oil crisis - which is predicted to be worse than the last. We are talking about saving energy and sustainable energy projects. Well what has that to do with OBE? Well even if you have the OBE you still have a reasonable expectation that you will see the next oil crisis!

LED have been around for a long time mainly used as indicators in electronic gadgets. Well they have come a long way. Instead of consuming 200milliWatt they are now available with consumption of 5Watt in a single chip. People are making a whole swag of different widgets and gadgets with them including motor vehicle stop tail lights. The 5 Watt version provides about 120 lumens. (roughly 20lumens per watt).

As some of you know Susan and myself have been sailing to Vanuatu for 4 winter seasons now. Vanuatu (ex New Hebrides) was a Condominium (some said Pandemonium) run jointly by British and French administrations. Vanuatu gained Political Independence in 1980. However they do not have Economic Independence.

In the course of our travels we have met

up with quite a few locals on relatively remote islands and have begun to investigate their problems with change, development and small business. How do you embrace the impinging developed world when you essentially have no technology experience?

Well the professionals in the aid organisations are finding it difficult, most lay-people would conclude that the people are lazy, many people think that a bit of money thrown at the problem will fix it, unfortunately it is not as simple as that and if we knew the answer then we could retire rich because we could save the aid organisations a lot of wasted money!

Very briefly the Vanuatu connection was what found us looking at the Alternative Technology Association on a recent visit to Melbourne. That is where we discovered the LED lights. The blurb for the Luxeon 1-Watt Star type DS23 is as follows:

"Luxeon is a revolutionary, energy efficient and ultra compact new light source, combining the lifetime and reliability advantages of Light Emitting Diodes with the brightness of conventional lighting."

The LED give 20-lumens per watt and my samples measured as follows:  
White, 300mA at 3.25V = 975mW.  
Red, 300mA at 2.5v = 765mW.

And as a few people at a recent meeting will attest they are too bright to be safe to look at.

The Star/O version has about a 25mm square base of Aluminium (which gets quite hot and needs a heat sink) and a cylindrical Acrylic Collimator and reflector about 16mm high. It will make a nice low power reading light.

Having said all that probably a 1Watt Tungsten filament lamp with an efficient reflector-collimator would also! But it would not be so reliable and long lived.

White, 18 lumens typical, Green, 25, Cyan, 30, Blue, 5, Red, 25, Amber 20.

Checking the internet for projects using LED yielded the following examples:  
Light up the World project,  
[www.lutw.org](http://www.lutw.org)

This was started by a Canadian professor who went to Nepal on a mountaineering

expedition. He noticed that the rural Nepalese were using lots of expensive kerosene for lighting in inefficient wicker lanterns. This goes on in much of the underdeveloped world. Using LED lighting combined with relatively small batteries and solar panels the domestic environment can be improved as well as health.

Solar lighting kit for about \$100. Oatley electronics put out a kit including Solar Panel for about \$100 for lighting up e.g. a caravan.

LED Caving Lamp array,  
[http://www.resurgentsoftware.com/Perfect\\_LED\\_Light.html](http://www.resurgentsoftware.com/Perfect_LED_Light.html)

Various people are using LED arrays for underground exploration lighting where you have to carry your batteries. LED enable more lighting hours to be carried or lighter batteries.

Switching power supply for efficiently driving LED. [www.ata.org.au](http://www.ata.org.au)

If you are using LED e.g. in a boat or caravan then the power supply is probably 12V. LED require from about 1.8 to 3.3v and constant current.

It is more efficient to use a switching regulator to keep the pulse current to an average suitable for the LED but not dissipate a lot of heat in resistors or linear transistor controllers.

LED halogen replacement kit - an array of LED that can be used to replace a filament lamp.

Simple constant current circuit.

The circuit can be used to drive LED from a varying supply voltage (not particularly efficient of course) and may be useful for experimenters.

Circuit Description - Take 2 NPN transistors, e.g. BD139 and BC337, 2 resistors e.g. 10k 1/4W and 33ohm 1/4W and between 1 and 3 LED needing 20mA.

Starting from 12V DC - connect 1, 2 or 3 LED in series to the collector of the BD139. (A small fuse might be useful here also).

Connect the base of the BD139 to +12V via the 10k resistor.

Connect the emitter of the BD139 to ground via the 33ohm resistor.

Join the BC337 into the circuit as follows:

Collector to Base of BD139.

Base to emitter of BD139.

Emitter to ground.

The circuit will crudely limit the current to 20mA but for large changes in voltage the 10k (R1) would have to be modified.

The circuit can be modified for up to 650mA with appropriate resistors and heat-sinking of the BD139.

$R2 = 0.65 / (\text{LED current})$ .

$R1 = 0.5 * \text{SupplyVolts} * 40 / (\text{LED current})$ . [40 is min gain of BD139]

The above circuit provides a simple experimenters circuit for testing LED.

Various LED flashlights for sale.

The possibility of a small torch that will run continuously for 22hours from 2 AA batteries.

<http://www.mitedu.freemove.co.uk/Circuits/Misc/torch.htm>

<http://shops.bizarsoftware.com.au/ATAShop/catalogue/category16>

Wind up LED torch project, <http://www.epemag.wimborne.co.uk/1000.htm>

"An occasional spin of the winder is all that's needed to power up our pocket-size torch. Our design uses a stepper motor as a dynamo, and Goldcap 1Farad capacitors as an energy reservoir, to illuminate a super-bright white LED. Helped by a lens, the torch offers 15 minutes of light for walking, or 90 minutes for reading. [presumably on one winding?] Batteries not included — or needed!"

Nichia LED compared with Luxeon (High output LED).

<http://www.hdssystems.com/LuxeonVsNichia.pdf>

A learned paper comparing the attributes of the competing devices.

LED dimmer

<http://radiolocation.tripod.com/LEDdimmer/LEDlampDimmer.html>

Pulse width modulation efficiently reduces power drawn from a portable battery powered lamp used for underground exploration.

Other Internet Addresses:

[www.luxeon.com](http://www.luxeon.com)

[www.lumileds.com](http://www.lumileds.com) Sell the Luxeon Brand.

[www.ata.org.au](http://www.ata.org.au) The Alternative Technology Association

[www.oatleyelectronics.com.au](http://www.oatleyelectronics.com.au) Kits and components.

I hope the above article has 'illuminated' you about the new possibilities for LED now that



  
**OXLEY REGION AMATEUR RADIO CLUB Inc.**  
**MEMBERSHIP REGISTER.**

(as at 24th February, 2003)

Cat.	FIRST NAME (Spouse)	SURNAME	CALL SIGN	TOWN/CITY	TPH. NO.	
1	F	JOHN (FLORENCE)	BAILEY	VK2KHB	PORT MACQUARIE	02 6582.2192
2	F	JOHN (MARY)	BAYLIS	VK2JB	LAKE CATHIE	02 6585.5703
3	D	ALAN	BELL	VK2BEL	COOLONGLOOK	02 6554.1689
4	L	BOB	BLYTH	VK2XIQ	PORT MACQUARIE	-
5	F	BOB (JOSIE)	BRODIE	VK2EJK	PORT MACQUARIE	02 6582.0592
6	F	BILL (AILSA)	BROOKE	VK2ZCW	PORT MACQUARIE	02 6581.0547
7	F	ROY W (JUNE)	BURGES	VK2YOR	PORT MACQUARIE	02 6583.9349
8	F	KEVIN (JUNE)	COULTER	VK2MAM	PORT MACQUARIE	02 6583.8325
9	F	CHARLES (PAT)	EDMONDSON	VK2FSH	PORT MACQUARIE	02 6584.0495
10	D	STAN (BETTY)	ELLIS	VK2DDL	TUNCURRY	02 6554.7996
11	F	BADEN (VALERY)	GLEESON	VK2MOQ	PORT MACQUARIE	02 6582.2018
12	F	LEWIS (PAMELA)	GREEN	VK2AG	PORT MACQUARIE	02 6584.9162
13	L	KEITH	HANLON	-	PORT MACQUARIE	-
14	F	DAVID (ISABELLA)	HARDING	VK2AIF	WAUCHOPE	02 6586.4980
15	F	"SNOW"	HODDER	VK2DV	PORT MACQUARIE	02 6583.7095
16	F	WILL	JAMIESON	VK2XXU	DUNBOGAN	02 6559.8622
17	F	JOHN	JONES	VK2JJ	LAKET CATHIE	02 6585.4522
18	L	LARRY	LINDSAY	VK2CLL	WAUCHOPE	02 6587.1155
19	L	HENRY	LUNDELL	VK2ZHE	PORT MACQUARIE	02 6582.2242
20	F	KEITH (GWEN)	LUTTON	VK2KDL	TELEGRAPH POINT	02 6585.0321
21	F	ALLAN (DAWN)	MADIGAN	VK2OA	WAUCHOPE	02 6585.2043
22	F	MARTIN	CRAIG	VK2ZCM	SAN CROX	02 6585.3452
23	F	JOHN	MCLEAN	VK2KCE	PORT MACQUARIE	02 6583.7400
24	F	MEEHAN	TERRY	VK2KL	PORT MACQUARIE	02 6584.2997
25	L	ARTHUR (WENDY)	MONCK	VK2ATM	PORT MACQUARIE	02 6583.1311
26	F	LAURIE (ROBIN)	NEWHAM	VK2ELN	PORT MACQUARIE	02 6583.5387
27	F	ALAN	NUTT	VK2GD	PORT MACQUARIE	02 6582.3557
28	F	DAVID A (DEE)	PILLEY	VK2AYD	KING CREEK	02 6585.2647
29	F	NEIL (VERENA)	SANDFORD	VK2EI	PORT MACQUARIE	02 6582.5830
30	F	BILL	SINCLAIR	VK2ZCV	PORT MACQUARIE	02 6583.9302
31	D	ERNIE	SLOMAN	VK2BUE	TENTERFIELD	02 6736.1388
32	F	DAVID (ROMA)	SMITH	VK2DAL	WAUCHOPE	02 6585.1004
33	F	DAVID (AILEEN)	TARRANT	VK2HBC	SPRINGFIELD	02 4365.5046
34	F	TREVOR (PHYLLIS)	THATCHER	VK2TT	WAUCHOPE	02 6585.2278
35	F	BRUCE (GWEN)	WALKER	VK2HOT	PORT MACQUARIE	02 6583.8360
36	F	JIM	WEBSTER	VK2BZD	PORT MACQUARIE	02 6582.4037

F = Full Member D = Distant Member L = Life Member

