



## **LLAIS Y DDRAIG - THE DRAGON'S VOICE**

### **CYLCHLYTHYR CLUB RADIO AMATUR Y DDRAIG NEWSLETTER OF THE DRAGON AMATEUR RADIO CLUB**

Gwanwyn 2012 Spring Rhif/No. 98

#### **PWYLLGOR/COMMITTEE**

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Web site: <http://www.radioclubs.net/dragonarc/>

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Cynhelir cyfarfodydd y clwb yn Neuadd Ebeneser Lon Foel y Graig, Llanfairpwll ar Nos Lun y cyntaf a'r trydydd yn y mis am 7.30 ar gyfer 8.00 o'r gloch. Croeso i ymwelwyr ac aelodau newydd.

Club meetings held at Ebeneser Hall, Lon Foel y Graig, Llanfairpwll on the evening of the first and third Monday in each month at 7.30 for 8.00. Visitors and new members always welcome.

Pob gohebiaeth at yr ysgrifennydd. All communications to the Secretary, Stewart Rolfe GW0ETF at:

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#### **Visit to Fort Perch Rock**

Fort Perch Rock is the site of an old Napoleonic fort at New Brighton, built to defend the entrance to the river Mersey. These days it is better known as the home of a number of museums, mainly devoted to the various aspects of radio and the Merchant Navy, including re-created MN Radio Rooms equipped with genuine old equipment – it may even bring a lump to the throat of ex R.O.s. Not only that, but they have their own fully equipped Amateur Radio room. With the permanent special event call sign - GB4FPR. I worked them from Penmon during the Lighthouse/Lightship weekend last August and they would be happy to see us in their 'shack' at Fort Perch Rock.

As you will know, for the past few years we have joined with the North Wales Rally Society to share the costs of a coach to attend events such as the Norbreck rally. I have been in contact with them regarding having the same coach sharing arrangement for a visit to Fort Perch Rock, and they seem very enthusiastic about the idea. The date is yet to be arranged, but will not be in April, as the Norbreck Rally is on the 15th. I know that it is early days yet, but if you are interested please let one of the Committee know in good time due to having to book a coach early.

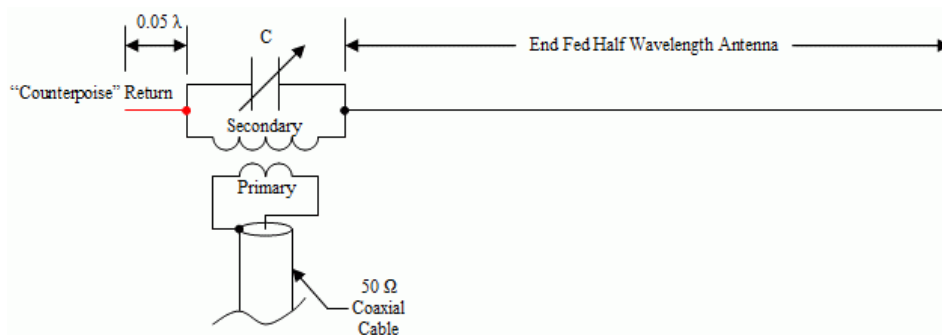
#### **Simple end-fed Antenna**

Not being a keen contester nor DX chaser, I normally use a very basic design of long wire antenna for HF, using a frame wound counterpoise. However, as Stewart 'ETF' persuaded me to have a go at

the CQWW SSB contest last November, I thought that a slightly better set-up was called for, particularly for use on 21Mhz. I have no tower, but I do have a couple of trees in the garden, one of which would be a good place to hang a half wave, end fed vertical for 15 metres from. The theory being that it would give good low angle radiation – just the thing for DX and the CQWW SSB contest.

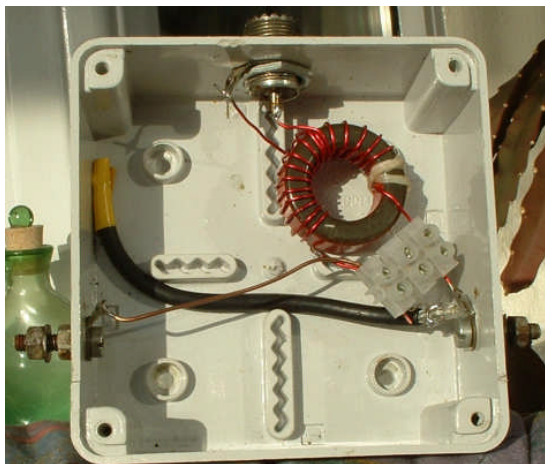
With a normal horizontal half wave dipole, ie two, quarter wave elements, the impedance at the feed point is, as we all know, approximately 70 Ohms. Similarly, if we rotate one of the elements to the vertical and feed it against earth, we have an unbalanced, quarter wave Ground Plane or Marconi antenna. The feed-point impedance is again low – usually much lower than the 70 Ohms in the horizontal dipole case, but it can be easily matched to 50 Ohm co-ax. One problem with this type of antenna is that the ‘earth’ resistance must be low to prevent serious losses. This is done by having a really good earth system and/or counterpoise. Either way usually requires a fair amount of wire, either buried in, lying on or elevated above the ground, unless of course you happen to live or be operating very close to the sea shore or a marsh!

Staying with the vertical antenna, if the length of the element is now increased to a half wavelength, then the feed-point impedance increases dramatically to something in the region of 3000Ω to 4000Ω, this gets over the problem of needing a low ‘earth’ resistance, but now we have to match this high impedance to 50 Ω co-ax. Remembering (from the Intermediate Licence course!) that the impedance of a parallel tuned circuit at its resonant frequency is high, this fact and a simple transformer, can be made use of to do just that very simply. See circuit.



If the inductor of the tuned circuit is wound on a suitable ferrite torroid, a simple two or three turn overwinding will match the 50 Ω input to the high impedance of the tuned circuit. The capacitor in the tuned circuit should preferably be variable in some way, as in general it's easier to tune the circuit to resonance by varying the capacitance rather than the inductance, (however there is scope for experimentation here!). If this matching device is to be used over a limited frequency range, when the circuit is tuned to the required frequency, there is obviously no need for the capacitor to be variable. One very cheap and easy method of achieving this is to use a short length of co-ax as a capacitor, trimming the length to get the required capacitance. This method is used in the ZL Special VHF aerial, etc. In this case I used RG58, which has a capacitance of 29 pF per foot. As the voltage across this ‘capacitor’ can be quite high, even with 100 watts of RF, make sure that there is sufficient insulation left on the cut end to avoid any possible flash-over.

The various components were fitted into a small waterproof plastic box. For the inductor, I used a 1¼ inch diameter (red) torroid wound with 18 turns of 18 swg enamelled copper wire, with 3 coupling turns. For the capacitor, I started with about 8 ins. of RG58, ending up at about 5½ inches.



The easiest and most convenient way to tune the circuit, is to use an antenna analyser, such as the MFJ which the club possesses, connected to the 50Ω input socket. Connect a 3.3 KΩ resistor across the tuned circuit and trim the capacitor (co-ax) for resonance, i.e. no reactance, at the desired frequency. The SWR is then reduced to 1:1 by adjusting the coupling turns if needed (I had to remove one turn). The final action, after removing the resistor, is to connect a short counterpoise of about 30 ins. and an aerial wire, starting with about 22 feet and trimming to regain a

1:1 SWR. The box being mounted approx. 5 feet above the ground.

Even though I did not achieve a high score in the contest, the aerial seemed to work very well, certainly much better than the long wire. I make no claim for any originality for either the design or the implementation of this very cheap, effective and simple aerial, as many versions have appeared in print. With acknowledgement to AA5TB (see his web site) et al.

Using the same principle, (though perhaps not vertical) i.e. end fed half wavelength **or multiples of half wavelengths**. With approx. 41 metres of aerial wire it is possible to make an aerial/ tuner to cover the 80 to 10 metre bands, without having to resort to long counterpoise wires, etc. One such is on the German 'QRPproject' web site. For further details (in English) see: [www.qrpproject.de/UK/multifuchs.htm](http://www.qrpproject.de/UK/multifuchs.htm)

## **IRCs**

After having written about International Reply Coupons in the Winter edition of this newsletter, it appears that Royal Mail have now discontinued issuing them, but by international agreement must still honour those IRCs sent from another country.

## **The Anatomy of a Contest**

A major amateur radio contest involves much more than just operating non-stop for 24 or 48 hours in the shack. For most the contest will break down into 3 distinct phases:- pre-contest preparation, the contest itself, and post contest analysis.

Pre-contest preparation involves planning and setting up the station and antennas as well as deciding tactics for the contest; this can go on for several weeks or even months. For a weekend event it may also include getting as much sleep as you can in the preceding week...!

The contest..!

Post contest analysis involves a detailed look at the log, comparing it to the opposition, and deciding how you could improve things. This may mean feeding back into (a) for next year's attempt.

For the past 2 years, 2010 and 2011, I have entered the CQWW DX CW contest in the Single Operator 40M Low Power (Unassisted) category. The choice in 2010 was governed by the desire to set a new GW record for this class; having achieved that I was curious to see if I could improve on that score the following year. The 2010 log would no doubt suggest many ways I could improve things but any antenna enhancements would have to be viewed in terms of the physical constraints that apply at my QTH – mine is no 'contest super-station'..! The situation at GW0ETF is a small garden surrounded by farm fields in an open location; the amenable farmer suffers my only permanent antenna, a 100ft doublet, to hang from an oak tree in his field at one end, and to put up temporary wires for contest weekends on his land. Verticals are a possibility but the sheep enjoy knitting any ground radials so I'm restricted to elevated counterpoises above head height of my woolly neighbours.

Operating in the same class in consecutive years can give an interesting insight into one's performance related to both your own scores and to that of the opposition. In 2010 I was placed 2nd in Europe to SP6OJE from Poland and a few hours after the 2011 contest I saw from the 3830 website that he had entered the 40m low power unassisted section once again, giving me some useful data to compare with my own performance over the 2 years in a sort of head to head. Let's use this to illustrate the 3 phases referred to above.....

In the CQWW DX contest 1 point is awarded for each contact within your own continent and 3 for those further afield; the points total is then multiplied by the number of DXCC 'countries' plus the number of CQ zones worked, the so-called *multipliers*. In 2010 my QSO total was higher than that of SP6OJE but my points score ended up being significantly lower; this is explained by an inferior points per QSO average (ratio of 3 to 1 pointers) and fewer multipliers being worked. In 2011 it was obvious I would have to concentrate on increasing the number of '3 pointers' in my log, and also up the count of DXCCs and zones as these were the factors that were dragging me down.

The pre-planning for 2011 began early on in the year and antennas were at the forefront of my thoughts. To a large extent maximising points per QSO and collecting DXCCs/zones is mutually

exclusive; by far the biggest source of 3 point contacts is the USA but this is worth just 1 DXCC and a maximum of 3 zones! Ideally you need to be able to beam a big signal into the USA for long periods but not at the expense of zones and countries across the rest of the world including Europe. In 2010 I used a  $1/4\lambda$  vertical with 2 elevated radials backed up with my trusty doublet and my plan of upgrading this in 2011 to a switchable 2 element vertical array never materialised for various reasons. Somewhat late in the day I decided to re-site the standard vertical to a higher spot in the field though the close proximity of a stock fence and power lines would be a bit of a question mark. My 2011 attempt began with a promise to myself to do more searching and less 'running' in an attempt to find those lost countries and zones; this would require some self-discipline as running can be quite addictive. Nevertheless, by breakfast time on the first day I was up by over 200 in the QSO count compared to 2010 and this advantage continued well into Sunday until the deteriorating conditions began to slow things significantly. Tuning the band didn't uncover as many new multipliers as I was hoping though I was reasonably successful at breaking some of the big pile-ups accompanying most of the rare DX stations. Every contest is at the mercy of conditions and Sunday evening this year was a disaster with both running and 'Search & Pounce' producing very few contacts. This was very frustrating as the previous year saw some of my highest 3 point run rates to the USA on Sunday evening which I put down to the 'after lunch casual contest gang' coming on to collect a few new DXCCs for their logs. In the end my QSO total was little better than 2010, though there was a slight improvement in multipliers worked. When SP6OJE posted his unofficial score on the 3830 website I saw that our respective positions had changed little from last year so it was time to get the calculator out and pry a little deeper.

	<i><b>QSOs</b></i>	<i><b>Points/QSO</b></i>	<i><b>DXCC</b></i>	<i><b>Zones</b></i>	<i><b>Score</b></i>
SP6OJE	1453 (1440)	1.573	133 (132)	36 (36)	395,291
	1.512	92 (92)	25 (24)	275,535 (259,260)	
<i>(Numbers in brackets are finalised adjudicated values)</i>					

SP6OJE	1424	1.837	121	34	405,480
GW6W*	1531	1.594	98	25	300,120

*\*(This year I decided to use the club's contest call)*

This 'head to head' clearly hasn't changed all that much from 2010 to 2011...! In fact the Points/QSO differential has worsened though this could be partly explained by the poor conditions on Sunday evening to North America. The real problem is clearly the differences in DXCCs and zones worked, although to be fair there is a slight improvement this year at GW0ETF compared to SP6OJE. You can't do much about conditions but antennas *are* under our control and the figures above are telling me I need to improve what's at the end of my feeders! If I were to attempt 40m again I now feel it would be imperative to go with the phased verticals, or failing that at least a loop pointed in the most advantageous direction to capture those needed countries and zones.

Whatever I end up with it's clear that the planning phase for next year's contest is already well under way...

Stewart GW0ETF.

## Demise of Snowdonia Radio Company

I am sorry to report that, due to economic pressures, the Snowdonia Radio Company based at Blaenau Ffestiniog, has announced that it is closing down.

In this present economic climate it must be very difficult for any small business to succeed even near large centers of population let alone in sparsely populated areas such as here in North Wales. We wish Simon all the best in any future enterprise.

## Membership List

It is some time since I included a membership list in the newsletter. Because a number of people have changed their details, call-sign, email address, etc. it was suggested at a recent club meeting, that it was time for a general up-date of all entries. Will you please check your details on this list and let me know as soon as possible if any changes are required. I realise that there could be slight problems with this method of checking everyone's details, but hope that in the end all will get sorted out. In the past, nobody has requested that their details be withheld, but if anyone feels strongly about it, just let me know, when only your name and call-sign will be shown on the next list, also please note that this list will only be sent to existing 'paid-up' club members, also we will not put it on any web site, including the club site.

### DRAGON ARC PAID-UP MEMBERS 2011 – 2012

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Cabban	Liz	GW0ETU	Garmonfa, Capel Garmon, Llanrwst, Conwy.	LL26 0RG	01690-710257
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Cariss	R John	G7ACD	'Ardwyn', Bwlch Llan, Lampeter.	SA48 8QQ	07816-643925
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## A Plea ...

One of the great things about this hobby is the way it attracts people from all walks of life, and exercises no distinction in such things as age, disability, political or religious views, ethnic background or even your ideas of which is the 'fairer sex'! In my many contacts with others in the amateur radio community whether face to face or over the air, I'm conscious that many will hold views on life that will be completely different to my own; but we have ended up in contact because of our love of amateur radio and this alone forms the basis of our 'coming together'.

Just very occasionally (and I do emphasise 'very occasionally...') I hear in the club an odd comment which though usually said in jest, is at the expense of some religious or ethnic group.

Personally I don't like to hear them (I grew up during the 1950s and '60s in Wolverhampton with Enoch Powell as an MP....) but my only concern here is for the club. In these days of inter-marriage, religious conversions and social tolerance who can look at a room full of fellow members and visitors and be sure that *no*-one will be offended by the joke or quip you're about to say. With a catchment area which includes an international University and a large hospital we certainly don't want to lose potential members to a misplaced comment no matter how rare that may be; and that potential recruit we may have lost might themselves be blowing it up out of proportion and deterring friends and colleagues in turn.

There is also a quasi-official side to all this in that as a club affiliated to the RSGB we have to show we are open to all and do not discriminate in any way at all. Some years ago we received a lottery grant and the award of that as well as any in the future depended on us fulfilling the same criteria of openness. Perhaps we should always keep in mind the motto based on our club call sign GW4TTA – Talk To Anyone – and remember the only thing that should concern us is our common interest in amateur radio. Stewart. GW0ETF.

That's all for now folks. Hopefully by the time of the next newsletter the weather will have picked up and we will be in 'Flaming June'. Don't forget the members list! Vy 73 de John GW3GUX.