

TDARS

Newsletter

Issue 229

May 2008

www.TDARS.org

Programme

www.telfordhamfest.co.uk

- May 14** *Ten Minute Technical Talks (by members)*
- May 21** *Social Evening with Food ! (TDARS HQ)*
- May 22– 27** *N. Wales TDARS mini-expedition. (Caernarfon area) Come when you like!*
- May 28** *Bring and Sell Auction with Jim G8UGL*
- June 4** *Open House & Committee. (The Huntsman)*
- June 11** *VHF NFD Planning meeting.*
- June 14-15** *Museums on the Air Weekend—at Enginuity site.*
- June 18** *Local Foxhunt on foot in Little Wenlock. 2 metres. From 7:30pm*
- June 25** *Informal Workshop evening. Further tidying & sorting. HF on Air.*
- June 25-30** *Friedrichshafen Hamfest trip.*
- July 2** *Open House and Committee. Station on Air available. (Village Hall)*
- July 5/6 weekend** *VHF NFD from Long Mynd. Reclaim our trophy ?*
- July 9** *Summer Portable—venue Little Wenlock Playing Field. Cover available.*
- July 16** *Down Memory Lane. Mini talks about something you bring along*
- July 23** *BarBeQue—Little Wenlock Playing Field (Entrance near the Huntsman)*
- July 30** *Practical Workshop Session at HQ.*
- August 20 (Advance Notice:)** *The story of Jodrell Bank—by Prof. Ian Morrison.*

G3ZME *Telford & District Amateur Radio Society. Founded 1969* **G6ZME**
Village Hall, Malthouse Bank, Little Wenlock, Telford. Shropshire. TF6 5BG

QJC? News & Information

The 39th TDARS AGM came and went peacefully at the end of March. As usual, the Minutes are available from the Hon. Sec. Following the traditional retiring Chairman's speech by Richard 'VXG, which nicely reflected the mood of the Members present, Jim circulated his Treasurer's Report—and a unique proposal was made by your Hon. Editor to reduce subs by £2 this year as a gesture of thanks to ALL members who had contributed to the remarkably smooth move of premises from Dawley Bank to Little Wenlock, as well as the remarkable success of the second Telford Hamfest last September which returned to a healthy (if not prolific) profit situation. Both these milestones in the Society's progress have only been possible due to the incredible support from the vast majority of Members, as well as the unstinting hard work of the Committee which you elected last year. Good time now to plug 2008/09 subscriptions were due from that AGM—**£28 normal membership, £22 non-earners and £14 for full-time students**. Pass to Jim G8UGL ASAP, although staged payments can be arranged in confidence—talk to Jim.



Also at the AGM, **Trophy presentations** were made by the retiring Chairman, Richard G0VXG: G3IMP Trophy for outstanding on-the-air operating to Bob M0RJS. Under-a-Fiver Construction Trophy to Tony M0TAW for his 'brass pounder', Main Construction Competition Trophy to Jim G8UGL for his battery re-cycler. Jack Hassall Trophy for significant contributions over the past 12 months to Martyn G3UKV. The DF trophy was not awarded, and neither was the Novice Construction Trophy as there were no valid entries. Kevin returned to form on the night, winning the Kippure Trophy, as he announced he had mislaid his TDARS keys, and yet was elected as the new Society Equipment Curator !

Finally, the **new Committee was elected**—see next page for the changes. Congratulations particularly to Derek G0EYX who was elected as the new Chairman of TDARS, and to Martin M3UWB (who lives in Little Wenlock) and joined the Committee for the first time.

The Club now has two HF antennas in the loft area. A LF loop for 40 and 80 metres, loaned generously by Simon G0UFE and a 20m dipole stapled to the rafters! A first QSO was made by Simon to Italy on April 30th, using his loop. G3ZME is operational again...

Make a note in your diaries / personal organisers: Guest speaker August 20th.



Photos: G8VZT

Masts on Brown Clea have lost most of the lower band microwave dishes recently—they look quite bare!



Jim's new 10GHz system goes LIVE !
Microwaves May 3/4 2008. Brown Clea.
L-R: Rachael (seated), M1RKH, G3UKV,
G8UGL

Balun Part 1 Update by Mike G3JKX

When Part 1 of this series on Baluns was published (Newsletter March '08), Martyn G3UKV, in a footnote, said that a dipole would register on an antenna analyser as being resonant on the frequency it was cut for, even if a balun was not used. This is perfectly true, because the element connected to the inner of the coaxial cable is a quarter of a wavelength long and the analyser would naturally indicate resonance correctly. However, without a balun, the other half of the dipole is now part of a long wire consisting of itself and the screening of the coax cable.

On HF using a balun is less important, provided you don't mind some vertical radiation from the screen of the coaxial cable. Use too much power though and RF currents on the outside of the screen will get back down into the shack! You certainly do not want unwanted RF getting into sensitive things like your microphone, telephone or your garage door opener!

What can you do about these unwanted currents apart from using a Balun? A good idea is to run the coax along the ground or, better still, *under it*. Thread it through some garden hose to stop sharp stones getting at it and seal up the ends to keep the water out. Connecting the screening to earth, *outside* the shack, would be good too. Some ferrites threaded onto the cable under the dipole and some more *outside* the shack will be beneficial too. Try to bring the cable away from the dipole at right angles if at all possible as this helps prevent RF radiated by the antenna being picked up by the screening.

Remember that a balun is essential where the dipole is part of a yagi array in order to preserve its gain, beam patterns and the back-to-front ratio. The ratio of the balun you need will be determined by the matching arrangements provided by the antenna manufacturers, but will be 1:1 usually. As with anything you buy, you get what you pay for and cheap is not an option with antennas. The best ones will be well built and come with a balun already fitted. These are well worth the money, as this means that the antenna which will then work as advertised. Cash spent on a higher gain antenna is much better than a cheap one with an RF head amplifier and the complicated switching which that involves. Using a better antenna with low loss (but pricier) coaxial cable means that you win twice, with less power loss on Tx and bigger signals on Rx.

And finally.....I am up to my ears with Level 3 Open University studies and will therefore be seen and heard a little less until October. **Meanwhile, vy 73 Mike G3JKX**

Information and pictures Web Site www.tdars.org

CHAIRMAN: Derek Southey G0EYX	(01785 604904)
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Committee: Richard M1RKH; Mike G4NKC; Simon G0UFE; Chris M0ECM;
Martin M3UWB; Tony M0TAW;

Trophies/Certs: G3UKV, M1RKH

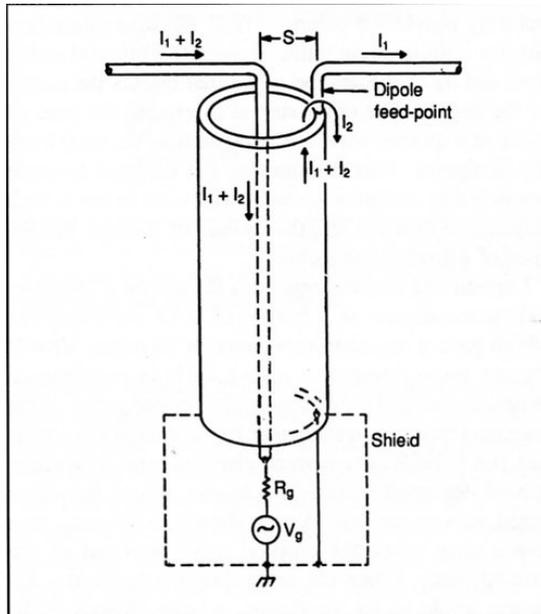
QSL Manager David M0EMM

Assistant Curator: Richard G0VXG (01952 883671)

***TELFORD & DISTRICT AMATEUR RADIO SOCIETY. MEETINGS EVERY WEDNESDAY
AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE
FRONT PAGE PROGRAMME. ROOM BOOKED FROM 7PM - 10PM. MEETINGS
USUALLY COMMENCE AT 8PM.***

Mike's piece on Baluns. Part 2

You will remember from Baluns Part 1 that when you connect a coaxial cable directly to a dipole, some of the RF is going to get down the outside of the screening and radiate. The balance of the dipole will be disrupted, because one element has become part of an inverted L antenna. If the dipole is part of a yagi the aerial pattern will be severely distorted and the back to front ratio will be much worse, as will the SWR.



This diagram shows the dipole at the top, the rig being the shielded box at the bottom of the coax.

I_1 is the dipole RF current and I_2 the inverted L or imbalance current. You can see that I_2 comes down the outside of the screening and could get back into the shack. Not good. Interestingly, the larger S is or the more the feed is away from right angles to the dipole, the more the imbalance at the feed-point and this makes the SWR a lot worse. To get round all these problems a balun must be used. Its proper name by the way is a Transmission Line Transformer.

Many yagi designs use the hairpin matching arrangement, basically an inductance and capacitance in series to match the dipole impedance to that of the 50ohm coax! The dipole impedance is down to about 50 ohms due to the presence of the reflector and director elements. So, here we need a balun with a 50 ohms unbalanced input and a 50 ohm balanced output. Ratio 1:1 of course. If you were feeding the yagi with a high impedance Y feed, then a 4:1 balun would be needed. Using a balun means that there will be no direct connections between the coaxial cable and the dipole elements, so the element balance, beam shape and back to front ratio remain unaltered. The SWR will be better too. Looking at the diagrams A & B you will see that to get a 1:1 ratio, 3 wires are wound together on a ferrite ring. For a 4:1 ratio only 2 wires are required. 4:1 baluns can be made using a half wavelength of coaxial cable but this results in bandwidth being reduced.

Use varnished solid or stranded wire inside different coloured sleeving; if not, put sleeves on the ends and number them. Then you won't wire up incorrectly. The drawings overleaf can be a little confusing. Wire ends 1 & 4 go to earth (the screening) The input coax inner goes to end 5. Ends 3 & 6 are joined and go to one element of the dipole and end 2 to the other (R_L) Be careful when doing this or incorrect results will be obtained. Again, make sure that the coaxial cable comes away from the antenna at right angles if at all possible.

Radio Man - Marconi Sahib by Mahrie Locket.

Book Review by Richard M1RKH:

I initially purchased this book on impulse as it came up in an Amazon search whilst looking for "Marconi and His Wireless Stations In Wales".

It's the story of a Merchant Seaman just after the Great Depression and then through the Second World War. The coverage of radios is fairly limited as the book is taken from his diary about his day-to-day life as much as about being a mariner and ship's Radio Officer at the time.

It gives some insight into the life of a merchant seaman being escorted during convoys and their feelings of being sitting ducks and targets and sometimes the forgotten souls whose function though was extremely important in providing food and supplies to the UK and around the world.

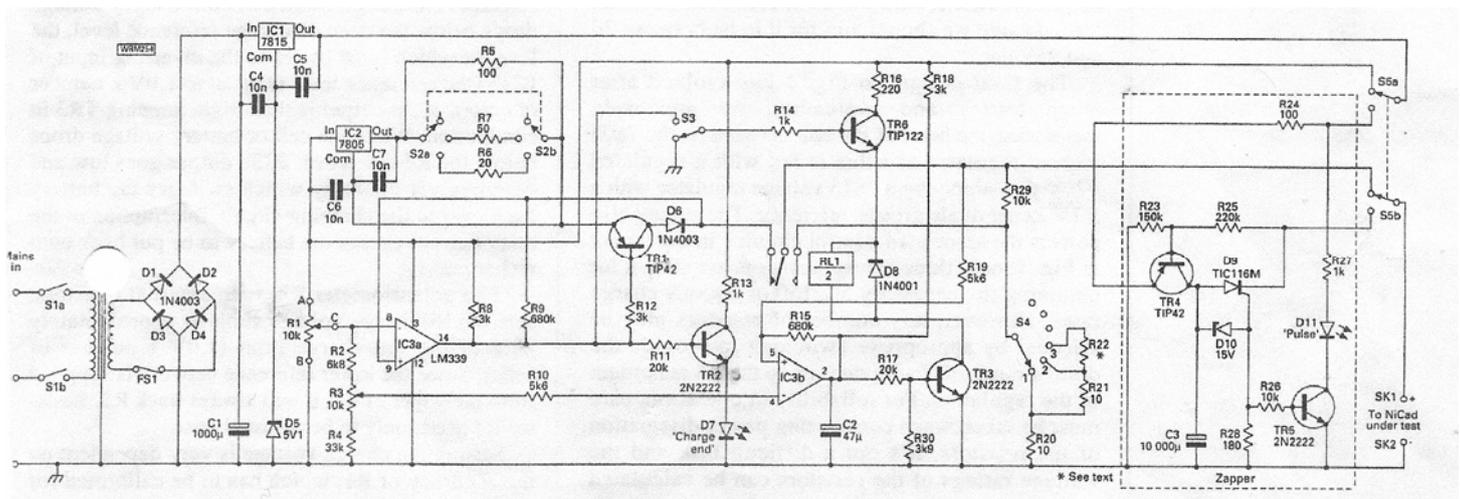
His travels take him not just across the Atlantic, but also down into Africa, India and China where it is apparent the giant British shipping and trading conglomerates are still as strong as ever. His travels in China see him on the edge of the Japanese joining the war in the Far East and the consequences for some of the countries invaded.

Overall it is a bit of a social commentary, highlighting in particular the caste culture and use of cheap labour in India. At one point he mentions that they didn't have machinery to unload a cargo of coal, rather they employed battalions of cheap labour to hand carry it, who if the machine were used would probably have ended dead in poverty. The title – 'Marconi Sahib' is how he was addressed by his "boy" who was retained by the shipping company (every officer had one or some on the Indian shipping routes) to look after him. His boy was in fact an elderly gentleman.

The author Mahrie Locket comments at the beginning of the book of her struggle to decide whether to censor what would now be considered racism out of her father's diaries; she decided to leave the diary intact as a window into a world that is now in the very distant past.



A number of Members expressed interest in Jim G8UGL's Battery Restorer (re-cycler) project at the annual Construction Competition which he won. Here is a scan of the original Practical Wireless circuit from 1990. If you want the full article—speak to Jim.



A couple of useful / interesting websites mentioned recently by Members. First from M1IHM <http://www.youtube.com/watch?v=6ypVUoRVv3U> describes how to use Bluetooth with a transceiver Secondly an incredible website from a local guy: <http://www.jetpower.co.uk> who has a fascination with real jet engines !

