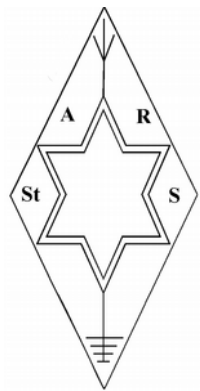


STARLITE

THE NEWSLETTER FOR THE STOURBRIDGE AND DISTRICT A.R.S.



**G6OI
G6SRs**



ISSUE NUMBER: MARCH 2018



G4CVH

**STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY
INCORPORATING
OLD SWINFORD HOSPITAL SCHOOL RADIO CLUB**

MEETINGS HELD AT

**OLDSWINFORD HOSPITAL SCHOOL
HEATH LANE
STOURBRIDGE
[8:00 TO 10:00 PM]**

VISITORS ALWAYS WELCOME

**THE SOCIETY HOLDS ITS FULL MEETINGS
ON THE 1ST AND 3RD MONDAYS EACH MONTH**

80TH ANNIVERSARY YEAR

[MARCH 2018 - MARCH 2019]

RSGB AFFILIATED SOCIETY

STARLITE

Telephone Enquiries to:-

Hon. Secretary
John Clarke M1EJG
[01562] 700513

Or by Email to:-
honsec@g6oi.org.uk

StARS Website URLs:-
www.g6oi.org.uk
<http://g6oi.ross-lewis.co.uk/index.html>

StARS Facebook Page:-
<https://www.facebook.com/groups/stourbridge.ars/>

All correspondence/enquiries should
be addressed to the Hon Secretary at:-

StARS
c/o The Mill House
21 Mill Lane
Blakedown
Kidderminster
DY10 3ND

Forthcoming Meetings

March 5 th	On Air? Informal. Digi Modes Group.
March 12 th	On Air? Informal. Digi Modes Group.
March 19 th	Main Meeting – ANNUAL GENERAL MEETING 2018 <u>StARS 80th Anniversary Year Begins</u>
March 26 th	On Air? Informal. Digi Modes Group.
April 2 nd	On Air? Informal. Digi Modes Group. Committee Meeting?
April 9 th	On Air? Informal. Digi Modes Group.
April 16 th	Main Meeting John Bills G3KZG : Talk/Demo Of Test Equipment
April 23 rd	On Air? Informal. Digi Modes Group.
May 7 th	On Air? Informal. Digi Modes Group.
May 14 th	On Air? Informal. Digi Modes Group.
May 21 st	Main Meeting – Subject tba.
May 28 th	On Air? Informal. Digi Modes Group.
June 4 th	On Air? Informal. Digi Modes Group. Committee Meeting?
June 11 th	On Air? Informal. Digi Modes Group.

Editor's Comment

Yet another year has passed and it's time, once again, for the **Annual General Meeting**, when you can vote for the Committee for 2018-2019. If you wish to help guide the Society during the next 12 months, you could stand for office. It's not a difficult job and your suggestions for improvement, promotion, etc., can be made at the Committee meetings, which are held every couple of months or so. In any event, it would be superb to get a 100% turnout for this most important meeting in our calendar.



Last October I began producing *Starlite* once again on an **interim** basis, but it seems as though I've lumbered myself with the job for an unknown time. Given conflicting definitions of the word interim, make up your own mind:

Collins Dictionary says: English: interim [adjective]

Interim is used to describe something that is intended to be used until something permanent is done.

StARS Dictionary says: English: interim = permanent or hard luck, you're lumbered!!!!

In this issue is an article sent by **Jim G4WAO** from his usual source at **VK2MB** "**Waiting For The Next Sunspot Cycle: 2019-2030**". Hope you find it interesting and not too depressing for what may be in store for us.

The annual **Constructors' Competition** was attended by 14 members. There were four entries, each presented/described by the competitors, as follows:

1. Tony M6AHW: 3-element 2m Quad with mast and rotator, all made from "junk box" materials.
2. Wayne M5LLT: 5 amp regulated battery eliminator for Baofeng hand-held.
3. Dr. Alan G7AXW: Wheatstone bridge – test equipment.
4. Geoff G0KVK: TRF or regenerative receiver for 7MHz. Updated from a G3RJV basic design.

After due deliberation by the judges, Tim G7TAC & Nick G6DQN, the worthy winner was announced as Tony M6AHW for the amateur spirit in making something for nothing.

Finally, Dr. Alan presented a bottle of Scotch to Tony for his win.

Well done to all the entrants for showing their individual projects.

Sorry to say, no photos to accompany this item!

Round Robin Membership Questions from James G7HEZ

1 When and how did you first gain an interest in Amateur Radio?

When I first attended [Old Swinford](#) back in 1985, there was an amateur radio club, run by StARS life member (although not been for many a year) [Clive G4IEB](#). The club met on a Tuesday for an hour after school. Originally it met on the top floor of [Founders](#) (with the clock on) and then the top floor of our current meeting location. In the late eighties I, also, started to attend StARS with Clive twice a month at Robin Woods Centre.

2 What was taking your course and exam like?

I enrolled at Stourbridge College during my fifth year at Old Swinford – they would not take anyone younger! Unfortunately, there were not enough to run the course and the course got rearranged to run at Old Swinford with the same tutor, [Phil G4SPZ](#) (who has given some StARS talks). Coincidentally, the course ran in the same room as we presently meet. This was the full [RAE exam](#) with 2 part multi choice Questions. I passed in 1990 with G7HEZ. Phil ran the course for a number of years and he also ran a Morse class. I only made it up to about 7/8 words a minute.

3 What has been your most interesting work job?

I have only really had 2 paid jobs. So rather than talk about my current job, I worked at Maplin Electronics on Saturdays (and holidays) when it first opened just outside Merry Hill. Had some weird and wonderful customers there. I remember the cars with Kilowatts of amps coming that shock the whole building. Also, not long after the shop opened, the break in where they came in though the wall.

4 Most memorable radio contact?

In my final days at Old Swinford, I remember working 10 FM into American repeaters and working mobile stations. Not sure conditions have been like it since. A number of contests took place in the shack at Old Swinford. I remember working all State Contests and manually filling in the callsigns onto a big board to ensure no duplicate entries. This was before computer logs! Bob G4XOM, Clive G4IEB plus Julian G7BVV? often took part as well.

5 Most frustrating electronic piece of equipment that you have ever owned or had to operate?

Not entirely the answer – I remember many years ago winning a [Philips Cdi machine](#). It was the first attempt at a kind of interactive video games console and would play videos as well (if you bought an extra adaptor card that cost £150 !!!). I would have been very disappointed if I had spent money on it.

6 What other hobbies are you / have you been involved with?

I do like to visit [Severn Valley](#) from time to time. I must admit I like Diesel Galas as a real vast array of Locos attend from the early days to modern mainline locos.

7 What has been your most memorable car you have owned /own?

My first car was a red [Fiat 126](#), air cooled rear engine, engine pull lever in-between the seats to start the car. I remember changing the [complete head](#), as the gasket had blown, I recall going with Dr Bob to a scrap yard to get the head off a selection of engines they had. My first really nice car was a [renault megane coupe](#), first car I had with a load of extras on, part leather, electric sunroof, air con, 6 CD player etc., and went very well too!

8 What event / activity / talk / visit from your membership of Stars is most memorable?

I remember going to [Madley](#), in the depths of Hereford, to the BT satellite station. It was at the time of the first Gulf war and seeing live images coming back. These days, I guess due to security issues, you would not be allowed in. Talk wise, the one I remember was the talk on Titanic. Although we didn't realise it at the time, it worked out to be almost 100 years to the day since it sank! I also recall taking part in a contest on the Sheepwalks, where we borrowed a 100 foot trailer tower. I had an Xenon strobe and sealed lead acid battery which was placed on the top. Think I was a factor of 10 out regarding how long it would last – don't think it made it to the night!

While at Old Swinford I remember we had a tour around the [Golf Ball on the top of Clee](#), a visit to [Wooferton](#), several trips to [Pebble Mill](#) and also to [Sutton Coldfield TV transmitter](#) – although we didn't climb the mast.

9 Which member of Stars (past or present) has been most influential in your amateur radio life?

I guess there are 2 – Clive whom I have already mentioned and, also, Dr Bob G4VPE. Many a time was spent on the roof at his old house playing aerals. For a period of time we, also, visited Dudley radio club when it met at Dudley Library. We attended a number of rally trips, [Gramby Halls Leicester](#) springs to mind and, also, Army Surplus Store in Derby.

10 What has been your most useful tool / piece of test equipment you own?

It's amazing what you can do with a good multimeter. I have a [tecktonic](#), which I bought for a ridiculously cheap price from a former Maplin's colleague who won it. It's also amazing and how powerful, things that you can find on the internet in how to fix – maintain, take equipment to pieces and put them back together and purchase spare parts. I am perhaps the last generation who went through education without the [Internet](#). Where would we be these days without it!

I nominate Geoff G0KVK to answer next month. I remove the car question (7) and replace it with:-

7 If you won £2000 on the lottery what would you purchase technology wise with it?

.....

Seen on You Tube

Mike Lewis MØXXM demonstrates how easy it is to build a mobile antenna for VHF.

<https://www.youtube.com/watch?v=rGbdPMZa9w8&feature=youtu.be>

VHF UHF antenna basics - DIY antennas from surplus 800mhz antennas for 2m 70cm and dual band

https://www.youtube.com/watch?v=_qw77Vls44s

Increasing the range of your Baofeng UV-5R With a Counterpoise

https://www.youtube.com/watch?v=N1_BrFOHY6U

Antennas 101 / How does an antenna work

This video is a tutorial that will describe how antennas work and the properties of different configurations. The common Dipole and 1/4 wave Monopole will be covered. Instructions on how to build your own Monopole at any operating frequency will be discussed.

<https://www.youtube.com/watch?v=oiBi9RbNBUY>

Got from t'Internet

I'm sure some [all?] of you like something for **FREE**. How about VHF/UHF Dxing? If so, this is for you **The VHF/UHF DX Book**. It's too large to include here [446 pages!], so use this link to download your very own copy.

http://www.trpub.net/assets/applets/VHF-UHF_DX_Book.pdf

Seen On 'HAM Radio QSO on 2M' Facebook Page

"Friday challenge. Have 3 QSOS through a repeater. Come on, let's get them repeaters buzzin'!"

This raises the question "Why only repeaters"? Why not FM simplex or SSB or CW?

After all, 2m does need livening up!!

Waiting For The Next Sunspot Cycle: 2019-2030

By Dr. Sten Odenwald

Forecasters are already starting to make predictions for what might be in store as our sun winds down its current sunspot cycle in a few years. Are we in for a very intense cycle of solar activity, or the beginning of a century-long absence of sunspots and a rise in colder climates?

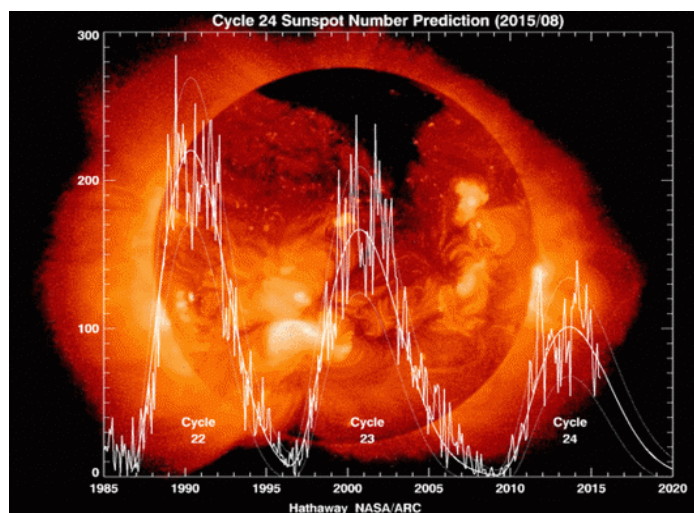


Figure showing the sunspot counts for the past few cycles.

(Credit: NASA/ARC: Hathaway)

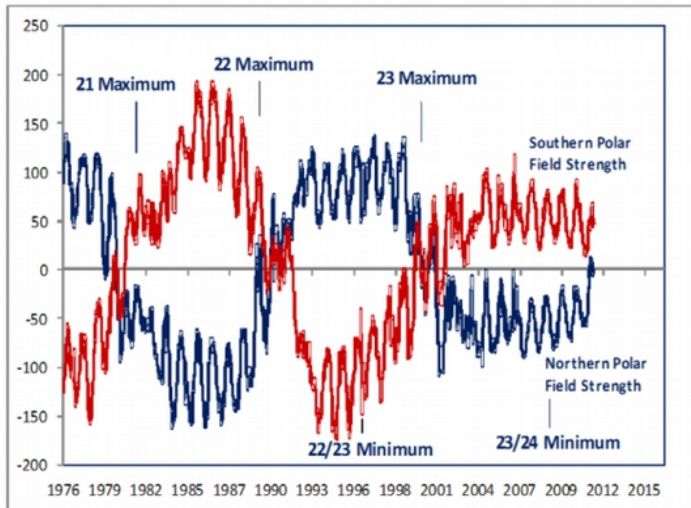
Ever since Samuel Schwabe discovered the 11-year ebb and flow of sunspots on the sun in 1843, predicting when the next sunspot cycle will appear, and how strong it will be, has been a cottage industry among scientists and non-scientists alike. For solar physicists, the sunspot cycle is a major indicator of how the sun's magnetic field is generated, and the evolution of

various patterns of plasma circulation near the solar surface and interior. Getting these forecasts bang-on would be proof that we indeed have a 'deep' understanding of how the sun works that is a major step beyond just knowing it is a massive sphere of plasma heated by thermonuclear fusion in its core.

So how are we doing?

For over a century, scientists have scrutinized the shapes of dozens of individual sunspot cycles to glean features that could be used for predicting the circumstances of the next one. Basically, we know that 11-years is an average and some cycles are as short as 9 years or as long as 14. The number of sunspots during the peak year, called sunspot maximum, can vary from as few as 50 to as many as 260. The speed with which sunspot numbers rise to a maximum can be as long as 80 months for weaker sunspot cycles, and as short as 40 months for the stronger cycles. All of these features, and many other statistical rules-of-thumb, lead to predictive schemes of one kind or another, but they generally fail to produce accurate and detailed forecasts of the 'next' sunspot cycle.

Prior to the current sunspot cycle (Number 24), which spans the years 2008-2019, NASA astronomer Dean Pesnell collected 105 forecasts for Cycle 24. For something as simple as how many sunspots would be present during the peak year, the predictions varied from as few as 40 to as many as 175 with an average of 106 ± 31 . The actual number at the 2014 peak was 116. Most of the predictions were based on little more than extrapolating statistical patterns in older data. What we really want are forecasts that are based upon the actual physics of sunspot formation, not statistics. The most promising physics-based models we have today actually follow magnetic processes on the surface of the sun and below and are called Flux Transport Dynamo models.



Wilcox Observatory solar polar field trends

(Credit: Wilcox Solar Observatory)

The sun's magnetic field is much more fluid than the magnetic field of a toy bar magnet. Thanks to the revolutionary work by helioseismologists using the SOHO spacecraft and the ground-based GONG program, we can now see below the turbulent surface of the sun. There are vast rivers of plasma wider than a dozen

Earths, which wrap around the sun from east to west. There is also a flow pattern that runs north and south from the equator to each pole. This meridional current is caused by giant convection cells below the solar surface and acts like a conveyor belt for the surface magnetic fields in each hemisphere. The sun's north and south magnetic fields can be thought of as waves of magnetism that flow at about 60 feet/second from the equator at sunspot maximum to the poles at sunspot minimum, and back again to the equator at the base of the convection cell. At sunspot minimum they are equal and opposite in intensity at the poles, but at sunspot maximum they vanish at the poles and combine and cancel at the sun's equator. The difference in the polar waves during sunspot minimum seems to predict how strong the next sunspot maximum will be about 6 years later as the current returns the field to the equator at the peak of the next cycle. The forecasts suggest Cycle 25 might continue the declining trend of polar field decrease seen in the last three sunspot cycles, and be even weaker than Cycle 24 with far fewer than 100 spots.

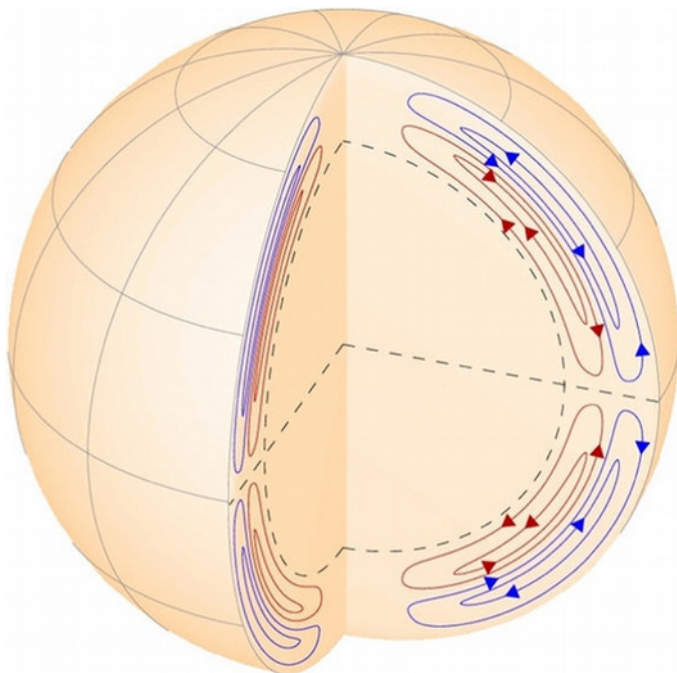


Figure showing the meridional circulation patterns on the sun.

(Credit [Zharkova et al](#))

So what can we bank on?

Statistically speaking, the current Cycle 24 is scheduled to draw to a close about 11 years after the previous sunspot minimum in January 2008, which means sometime in 2019. We entered the Cycle 24 sunspot minimum period in 2016 because in February and June, we already had two spot-free days. As the number of spot-free days continues to increase in 2017-2018, we will start seeing the new sunspots of

Cycle 25 appear sometime in late-2019. Sunspot maximum is likely to occur in 2024, with most forecasts predicting about half as many sunspots as in Cycle 24.

The bad news is that some studies show [sunspot magnetic field strengths](#) have been declining since 2000 and are already close to the minimum needed to sustain sunspots on the solar surface. This is also supported by independent work in 2015 published in the journal Nature. By Cycle 25 or 26, magnetic fields may be too weak to punch through the solar surface and form recognizable sunspots at all, spelling the end of the sunspot cycle phenomenon, and the start of another Maunder Minimum cooling period perhaps lasting until 2100.

But the good news seems to be that none of the current forecasts suggest Cycle 25 will be entirely absent. A few forecasts even hold out some hope that a sunspot maximum [equal to or greater than Cycle 24](#) is possible.

If you are an aurora watcher, 2022-2027 would be the best years to go hunting for them. If you are a satellite operator or astronaut, this next cycle may be even less hostile than Cycle 24 was! In any event, solar cycle prediction will be a rising challenge in the next few years as scientists pursue the Holy Grail of creating a reliable theory of why the sun even has such cycles in the first place!

WHAT A GOOD IDEA!

NEED A PP3 TYPE CONNECTOR?

If you are stuck for a 9v battery connection, for your construction then get an old PP3 type battery, and using a pair of cutters grip the top side on, pull downwards and peel the metal case away from the plastic connector ... then once opened, just cut the 2 wires, or in some cases a metal band and wire simply solder to these two contacts and insulate the back.

Please be careful of the sharp edges that can cut you once the battery has been opened. I suggest you wrap it up in plenty of news paper and dispose of it in the bin. Wash your hands properly, and if you feel it necessary to wear gloves, or eye protection then I suggest you do you just in case of any acid droplets. Hope you find the info useful .

SOLDERING OUTSIDE

When soldering aerial wires outside, clean and make the joint in your usual way. Wrap multi-cored solder around the joint, then wrap kitchen foil over the joint (one thickness is enough or it slows the heat transfer). Apply heat and you get a perfect soldered joint. If the wires are thin and it is a calm day, you may find a cigarette lighter will provide enough heat, but for thicker wires or a cold windy day you will need a small blow torch. You can tell when the solder runs because the flux burns with an orange flame as the gases come out of the tinfoil.

NEED A HEAT SHUNT?

If you don't own a heat shunt , then a heat shunt can be made out of a 4mm split pin , this is just slid over the leg of the component when soldering the rear .. in theory the heat will travel up the split-pin rather than heating the component up ..thus preventing it from burning out . a proper shunt is made of aluminium ,but the steel split pin heat shunt is better than none at all

MORSE KEYS

I've been somewhat short of inspiration of what to write for these pages, so I make no apology for showing the Morse keys I own, plus a couple of others.



These were my first two keys. The one on the left was cheap and nasty, costing only about £5, but it was good enough to learn with and make my first few contacts.

Then I wanted something better, so I got the one on the right, which didn't cost too much more than the first one. It has a much better "action" than the cheapie and made it easier to use.



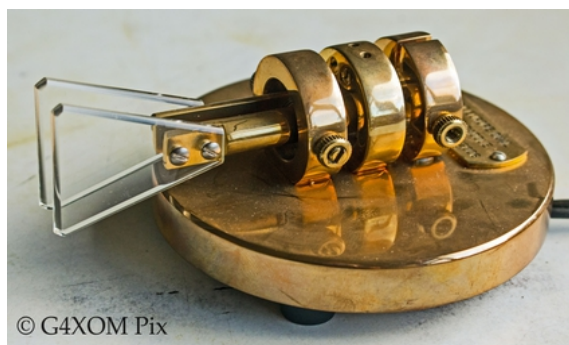
Some time later, I obtained this key. I never did manage to get used to this one and it stays unused to this day, but it is an interesting one to keep. Maybe I will try it again one day – if I ever find the motivation to do so!!



This one is my favourite key. I got it in the late 1980s [probably at a rally] and was my key of choice for contacts until I went QRT in 1996. I believe it is either ex-GPO or ex-WD. Its action makes it so very easy to use and when [or if] I get my speed up again I will choose this key first.

This key is, probably, an important one in my collection. It belonged to my dad, Den G0KZM, and was made for him by my brother, Dave G0BHR.

It is an extremely rare key, as there are only two in existence!



This final one belongs to G0BHR. As you can see, it is an iambic-type key and the legend on the plate says:

"CT Europe Dual Lever Paddle. S/N 187. 2006"

I hope you found this of some interest and I will try to think of something else for future issues. Editor.

DX NEWS [An occasional feature]

A Norwegian team will be active as Z2LA from Zimbabwe in march 2018. The team will be active from 160m through 10m band on SSB and CW.

The operation will be in holiday style from 2 to 11 March 2018. The crew is LA7THA Rune, LA7WCA Arne and LA9VPA Thor.

QSL info:

Clublog: <https://secure.clublog.org/logsearch/Z2LA>

QSL manager [M0OXO Charles](#): For OQRS; <http://www.m0oxo.com/oqrs/>
Please do not send your cards via the bureau, they are not needed.

A Facebook group Z2LA will be activated close to departure for live info.



DXPEDITION 2018 - CEDRO ISLAND

Cedro Island, the first activation. Dxpedit 2018 CabreuvaDx Group. Locator: GG76QW, Paraty City, Rio de Janeiro State. The Cedro Island is located in the Bay of Paraty, RJ, one of the most beautiful regions of the Brazilian coast.

DATE: 17 and 18 March 2018

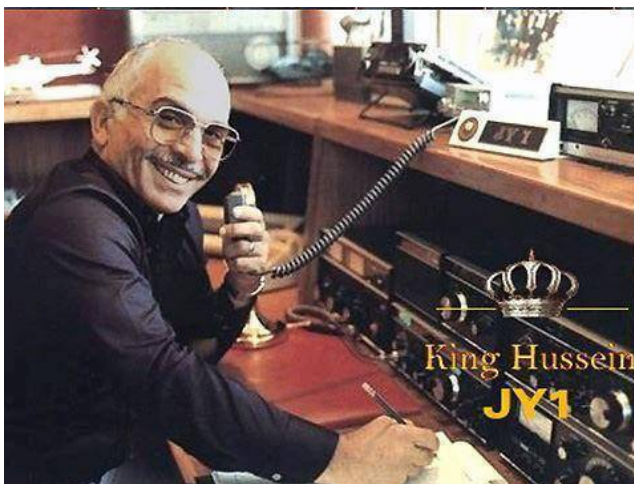
BANDS: 2m (Satellite also) 10m, 15m, 20m, 40m, 80m **MODES:** CW, SSB and FT8

IOTA: SA-029 **QSL:** USD\$2 PU2VCP Pedro Pioli (Manager)

POBOX 569 - ZIP 13.330-972 SP BRAZIL Or BUREAU



JY1 King Hussein of Jordan



JY1 was a real DX station, maybe not in terms of distance, but in rarity value.

Some of us will remember trying to get on the list to contact him. I tried several times, but my low power was not quite good enough on "kilowatt alley"!!

In the annals of DXing, JY1 was probably the most wanted and elusive station on the air. Even if we could hear him, it was so difficult to make the contact.

I doubt if anyone else would command the same interest and respect.

Build A 9dB, 70cm, Co-linear Antenna From Coax

Recently the RASON technical committee was hard at work at the repeater site repairing our 2 meter repeater antenna. One of the members commented to me that I should write an article about collinear arrays so that we could all build our own. While it is not always feasible to home-brew a commercial quality antenna designed to take hurricane force winds, it is very feasible to build a collinear antenna for average use. This article describes a collinear antenna made from very inexpensive RG58/U coaxial cable and encased in PVC pipe.

Before we start building we need to cover some ground about the characteristics of coaxial cable. First remember that there is something called the velocity factor for coaxial cable. For RG58/U coax it is typically .66. This means that when we calculate the length of $\frac{1}{2}$ wavelength in free space we need to adjust its size by multiplying it by the velocity factory. Simply put, RF slows down by the velocity factor when travelling through coaxial cable. All that aside now, lets calculate the $\frac{1}{2}$ wavelength of RG58/U coaxial cable with a frequency of 444 Megahertz:

$$\frac{1}{2} \text{ wavelength of coax} = 300 / F / 2 * V$$

Where F = Frequency in Megahertz

V = Velocity factory of Coax

$$300 / 444 / 2 * .66 = .2229 \text{ meters or } 223 \text{ millimetres}$$

To allow for cutting the ends of our coax, we will need to add 8 millimetres to each $\frac{1}{2}$ wave length for a total of 231 millimetres

To get started, we will need 8 half wave lengths (231 millimetres) of RG58/U coaxial cable to be cut and connected in the manner shown in Figure 1. First cut back 4 millimetres of the outer jacket, braid and dielectric exposing the centre conductor as in Figure 2. Now cut back the outer jacket another 4 millimetres to expose the braid and push the braid back about a millimetre to prevent it from shorting with the centre conductor. It is best to lightly tin the braid with solder at this point. Now solder each half wavelength as shown in Figure 1. Attach a few feet of RG58/U to the bottom of the array as in Figure 1 for feeding the antenna.

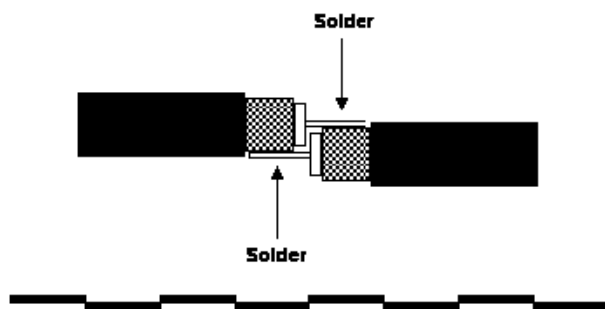


Figure 1

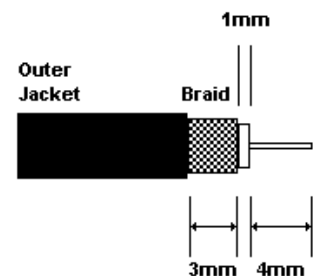


Figure 2

Now its time to add the additional elements to the top and bottom of the collinear array. First add a $\frac{1}{4}$ wave element to the top of the antenna as shown in Figure 3. Use #16 solid

wire or similar and solder it to the centre conductor only. The length of the $\frac{1}{4}$ wave element is calculated as follows:

$$\frac{1}{4} \text{ wavelength radiator} = 300 / F / 4$$

Where F = Frequency in Megahertz

$$300 / 444 / 4 = .1689 \text{ meters or } 169 \text{ millimetres}$$

At the bottom of the array we will slide a $\frac{5}{16}$ inch aluminium tube over the coax and crimp it to the braid of the antenna feed point only. If copper is used, it is okay to solder. The length of the tube is calculated as follows:

$$\frac{1}{4} \text{ wavelength of tubing} = 300 / F / 4 * V$$

Where F = Frequency in Megahertz

V = Velocity factory of Tubing. (Use .95 for $\frac{5}{16}$ " tubing)

$$300 / 444 / 4 * .95 = .1604 \text{ meters or } 160 \text{ millimetres}$$

Because a collinear antenna is hot with RF along the shield of the coax, it is necessary to prevent the RF from coming back through the coax. Slide three FT50-43 or almost any similar sized toroids over the bottom end of the coax as shown in Figure 3. The toroids should be placed about $\frac{1}{2}$ wave length from the bottom of the array. Use the same formula for calculating a half wave length of coax. If you prefer, apply RF to the antenna at this point and slide the toroids up and down until minimum SWR is found. Tape the toroids to the proper point on the coax using electrical tape or similar means.

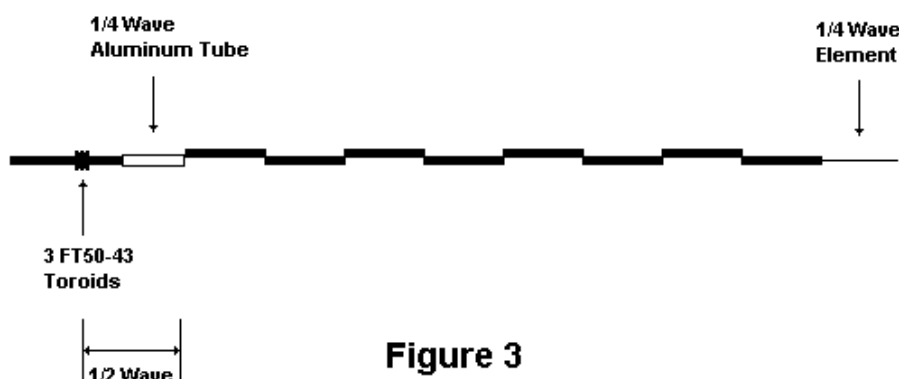


Figure 3

After completing the basic assembly of the collinear antenna, apply a small amount of RF with the antenna on the floor or ground. Relatively low SWR should be observed at this point. The SWR will be much lower once the antenna is mounted in the air. If the SWR is greater than 2 to 1 across the entire band, a connection may have separated or a short occurred. It will be necessary to correct the problem before proceeding. After good SWR is obtained, place heat shrink tubing along all connections or wrap tightly with electrical tape.

For final mounting, attach the antenna to a $\frac{1}{4}$ " wooden dowel using tie wraps about every 3 inches. It may not be possible to obtain a wooden dowel for the complete length so attach two dowels together by using a 1 inch sleeve of $\frac{5}{16}$ " tubing and crimping the tubing at each end. Check SWR again to insure that no connections have separated or shorted. Carefully insert the coax and dowel assembly into several feet of $\frac{3}{4}$ " PVC pipe for final mounting. Because of the tie wraps, it is not necessary to use spacers but may be necessary if larger size piping is used. Drill a hole for the coax at the bottom end cap and

place an end cap on the top of the PVC. Do not cement end caps until the SWR has been doubled checked. Cement end caps and water proof coax opening on the bottom. Use whatever type of coaxial connector is desired on the bottom of the coax end but do not use RG58/U for your complete feed line. Use a low loss coax such as RG8/U for the main feed line to the transceiver. Don't forget to water proof all coax connectors.

If the eight $\frac{1}{2}$ wave coaxial elements result in an antenna too long for your liking (over seven feet), then it is okay to use four $\frac{1}{2}$ wave coaxial elements but the SWR may be slightly higher (Attach four $\frac{1}{4}$ wave vertical ground radials at the antenna feed point to help lower SWR.). If 9 dB gain is still not enough for you then increase the number of coax elements from eight to sixteen. You will probably need to attach guy lines to the antenna. Although only a 70 CM antenna was described in this article, the formulas can be easily calculated for the 6 meter, 2 meter or $1\frac{1}{4}$ meter bands. Millimetres were used for many of the measurements but can be converted to inches by dividing millimetres by 25.4 for those who are not familiar with the metric system. After installing one of these antennas, be prepared to hear stations and repeaters that you never heard before.

Coming next month: A Coax Switch by PA0FRI



This space left intentionally blank for your contribution.

The Editor is praying to the Amateur Radio Gods for inspiration to write for these pages.

Of course, input from the membership is always encouraged and will be gratefully received.

So please send your memories, photos, projects, general chit-chat, etc., to the Editor: robq4xom@outlook.com

YOUR COMMITTEE

Subject to change at the A.G.M.



PRESIDENT
VICE PRESIDENT
SECRETARY
TREASURER
COMMITTEE MEMBERS

Tim Childe	G7TAC
Nick Moss	G6DQN
John Clarke	M1EJG
John Scott	G8UAE

Wayne Mocroft	M5LLT
Geoff Cooper	G0KVK
Mark Cadman	M0TCG
Keith Dixon	M0HPY
Ross Lewis	M6RLZ

STARLITE EDITOR

Bob Egan	G4XOM
Email:	robg4xom@outlook.com