# FIVE AND NINE PLUS

**THE OFFICIAL NEWSLETTER OF THE APPLEDORE AND DISTRICT AMATEUR RADIO CLUB**

**Club Callsigns: G2FKO and GX2FKO**

**Web Site : www.adarc.co.uk**

**CLUB'S OFFICERS**

| | | | | | |
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January, 2013

## EDITORIAL

Welcome to another 5&9 Newsletter.
I trust that you all had a good Christmas and on behalf of your Committee we wish you a Very Happy Healthy New Year.
This month's meeting promises to be extremely interesting as **John (M0JKL) will be describing the joys of the Hex Beam**. Hopefully the WX will be kind to us in North Devon compared to the rest of the country and I look forward to seeing many of you there.
I wonder how many of you got any interesting goodies in your stocking this Christmas and look forward to hearing about them during natter time at the Meeting. Chris treated me to an Android phone so dragging me into the 21st century and have struggled valiantly to get to grips with all that it offers. No doubt any of you with such phones or tablet computers will have found the Echolink App and had a play. I managed to talk to a VU3RRU in India via Echolink on the phone (big deal?!)
Now the New Year is with us it is that time to start thinking about the AGM so any of you itching to join the Committee or offer your services in any other way - please contact any Committee member. More on the AGM will of course appear in next month's February Newsletter.
Equally, G100RSGB is I'm told already being activated by various Clubs as indeed we will be doing in April. Laurence has already done much in preparation for the event and again, more details in a later Newsletter.
Enjoy the read

Terry (G4CHD)

## CLUB MEETINGS

Unless otherwise stated, Meetings are held at the Appledore Football Social Club starting at 7.30pm for 8.00pm. Visitors are always welcome.

| | |
|---|---|
| Jan 21st | Erecting & Installing a Hex Beam by John (M0JKL) |
| Feb 18th | Introduction to Software Defined Radio (SDR) byLaurence (G4XHK) & Dave (M0JAP) |
| Mch 18th | AGM |
| Apl 10/11 | G100RSGB Special Event Station at Laurence (G4XHK) qth |
| Apl 15th | Integrated Data Logging for RAYNET by Steve (G6SQX) |

For further information, contact Brian (M0BRB)

Jim in party spirit at the Tuesday coffee morning!

## REPORT ON THE DECEMBER MEETING

### CLUB CHRISTMAS PARTY

The Xmas Party was a great success with good attendance from members and family. The request for members to bring along a Raffle Prize was responded to most generously resulting in there being a good selection of prizes. Many thanks to Viv and Laurence for the huge amount of work they did both before the Meeting in buying the food and especially for all their work heating and presenting the excellent food on the night.
Also a big thank you to Dave (G0PGK) for preparing and doing his Quiz on the night.
The following photos are with thanks to Jim (M3VJM) together with some I took which help to capture the spirit of the evening.

Many thanks to everyone who helped to make this Club Christmas Party so enjoyable.

Terry (G4CHD)

## SUDOKU PUZZLE

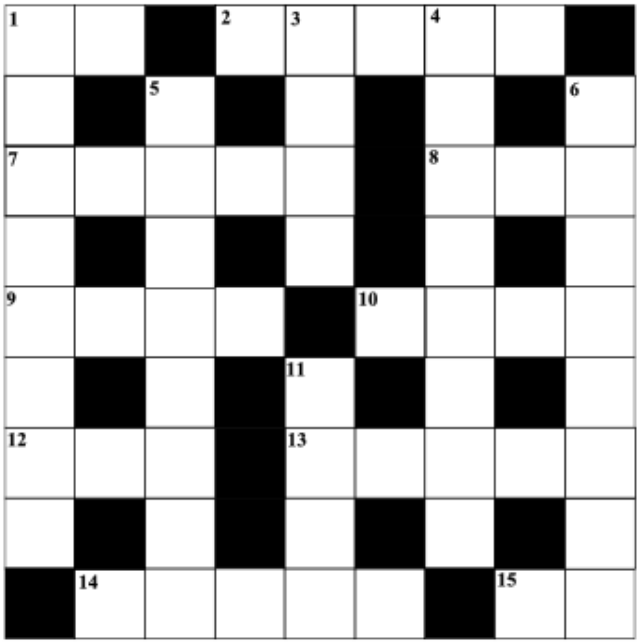
The aim is to enter a number into each cell so that **any column, or any row, or any block of cells contains all numbers from 1 to 9**. This month's puzzle is categorised as **Advanced** difficulty.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 5 | | 9 | | | | 6 |
| 2 | 8 | | | 3 | | 4 | | |
| | | | 7 | | 2 | | | |
| 9 | | | 5 | | | 8 | | |
| | 4 | | 3 | | | | | 5 |
| | | 3 | 8 | | | | 7 | |
| | | | 4 | 1 | | | | |
| | | 4 | | | 7 | | 9 | 8 |
| | 1 | | | | 3 | 5 | | |

Terry (G4CHD)

## CROSSWORD

This month's Crossword by Stuart (M1FWD).
The answers will be published in the next month's Newsletter.
Good luck !



**Clues Across**

1) 27 MHz radio (1.1)
2) The third - brightest star in a constellation (5)
7) Instrument for recording a quantity (5)
8) Compass direction 22.5 degrees (1.1.1)
9) A4 land (4)
10) Anagram of the American term for a radio valve (4)
12) Initials of GD island (1.1.1)
13) Geoff ….., 1966 World Cup hero (5)
14) To deposit (e.g. A corpse) in the earth (5)
15) Latin abbreviation for Queen Elizabeth (or King Edward) (1.1)

**Clues Down**

1) XU land (8)
3) Location of the Taj Mahal in VU land (4)
4) The HB9 land cheese plant belongs to this genus (8)
5) IT island volcano, so be it (4.4)
6) GB3DN for instance (8)
11) A drag on a wheel (4)

**Last month's answers :-**

**Across** 1) holly 5) Mull 8) turkey 9) Va 11) EU 12) Rudolf 14) snow 15) press

**Down** 2) litre 3) out 4) alfalfa 6) atheism 7) femur 10) joule 13) ion

## LOCAL SKEDS

**Zepp Net:** **Mon, Tues, Thurs : 145.450 MHz**
**Wed : via GB3DN 1600 local time**

**6m Net:** **Wednesday, 8pm, 51.5MHz FM**

**HF Net:** **Friday** at **1600** local time on **7.185 MHz ± qrm**

**Slow Morse:** This net run by Dave (G3YGJ) on **Tuesdays (suitable Beginners) and Thursdays (suitable more Advanced), 1900 local time on 145.25 MHz (FM) - has been suspended until there is a demand from members. Please contact Dave if you require Morse practice.**

## LOCAL REPEATERS

**70cm Handy Cross Repeater/Echolink (#221334) Gateway (GB3ND)**
**User**: Listen 433.35MHz– Transmit 434.95MHz
Access 1750Hz Tone (Timeout 4.25 mins)/ 77Hz CTCSS
Repeater keeper is Jeff (G4SOF)

**2m Stibb Cross Repeater (GB3DN)**
**http://www.g0rql.co.uk/gb3dn.htm**
**User**: Listen 145.6375MHz - Transmit 145.0375 MHz.
Access 1750 Hz Tone or 77 Hz CTCSS Repeater keeper is Tony (G1BHM).
Yahoo users group for general chat and banter at :-
http://groups.yahoo.com/group/GB3DN/

**MY FIRST SHIP (Part 14) - by Brian (M0BRB)**

The first night in Kawasaki. Every hour a bell would ring and I was never sure if there wasn't a train or a tram that either went pass or under the building or around, but it meant that we never got much sleep that night.
0630 next morning I had to think about getting back to the ship, with a Bike Rickshaw, so the three engineers had a race back to the ship, on the way we passed the old 2nd sitting on the pavement in his T/Shirt and Shorts and Sandals looking half drunk, so the 3rd stopped to give him a lift and I won the race.
On board for breakfast, then a shower using plenty of Dettol
Be fore going below for a day of work on Main Feed Pumps.
The next night the Captain and the Ship's Agent arranged a party ashore in a Geisha House, so now on best behaviour, Officer and Gentleman and all that, the Geisha is a high class Hostess, it was nice to be waited on and sang to and treated like a King , tho' one soon got bored with it, never the less I remained at the party because the Captain kept glairing at me to ensure that I remained on best behaviour.
We got back to the ship at 0100.
Waking up for breakfast for 0800, felt ok no bad head, and thinking ," I like Japan , I do like Japan". I could see my self living and working in the Country, kept on remembering that I had a family in the UK. Saturday Morning , only half day work to day, I ask the 3rd Engineer if he intended to go ashore in the afternoon , said he was going to rest up and go ashore after Tea.
The old 2nd didn't show up in the engine room, so the rest of us carried on with maintaining the plant ,I did hear the Chief and the 2nd having a hard word , I was determined that I would get ashore after lunch and get as far away from the ship as I could get. Checked with Dan the 6th that he wasn't duty engineer and invited him to come with me , the 5th Engineer had the duty and looked bad tempered about it..
So we both got another sub from the Captain and off we went, didn't bother with any sort of transport, just kept walking and getting completely lost, knowing that to get back to the ship , we would have to head west. Visiting a few Bars we soon got used to having a girl in company , and when asked what ship? They would consult paperwork and could tell us what Dock we were in and what Company she belonged to and the cargo we were discharging and number of crew on board , getting all this information from the Harbour Masters Office, of course.
When finding out that we were Officers, that made it even better, so we decided that we would not bother to go back for Tea, and thought that Breakfast time tomorrow would be nice.
We did , how ever get back closer to the Docks and around 1700 found the 3rd Engineer with 7th and the 3rd Deck Officer.
We spent most of the evening moving from Bar to Bar , while doing so, the 3rd Mate wanted to spend a penny and when we suggested that he waited until the Bar , he said that he would pop into a dark cul de sac, but it was an open sewer which he fell into , we could hear him calling for help, it took a while to find him in the dark, when we did , we were able to reach his arms and lift him out, and I might add, that he was in a bit of a mess and stinking to high heaven his clothes , he was wearing a light grey suit, as we all stood around him, he said " go on then have a good cackle ", so we did. Later we got him into a Bar and let the Bar Girls take him away to clean him up and through the night , they cleaned his suit, as well.
So we dropped anchor in that Bar and went back to the ship for breakfast the next day.
While we were ashore the 5th Engineer had fallen over and hurt his shoulder, I thought that he was skiving and looking for light duties, the Chief wanted to know,"if he had a touch of the Sun"? and I said, "more like Suntorie Whiskey " and I bet that he will go ashore to night", and of course, he did..
Now, it was my turn to do the stand by duty, so I had a quiet night on board, and apart from having to go down the Engine Room for about ten minutes had a quiet time , also had a Tot of Whiskey from the Chief , be for going to my Bunk.
Departure time, Noon next day, so it fell on me to insure that the Boilers were getting up to pressure, and get the steam to Main Engine and rock the Crank over and back and it fell to the 3rd Engineer and the 2nd to take the ship out.
Now two days out from Japan , bound light ship to Fremantle the Port for Perth in Western Australia to load grain for the UK.
All the crew had heard of the 3rd Officers fall into the open sewer, and when he was around members of the crew would keep sniffing the air, and some one typed a warning note and pinned it up on the ships notice board , with the warning to always stay up wind of the 3rd Mate.
Now all adjustment made to the Main Engine and Steam Valves and Control Pressure and Vacuum and working up to full speed of Ten and Half Knots sometimes nearly eleven knots, (hang on to our hats), and running light ship, we never had to work the Evaporator because we had plenty fresh and domestic water in our ballast tanks to top up the Boilers.

Brian (M0BRB)

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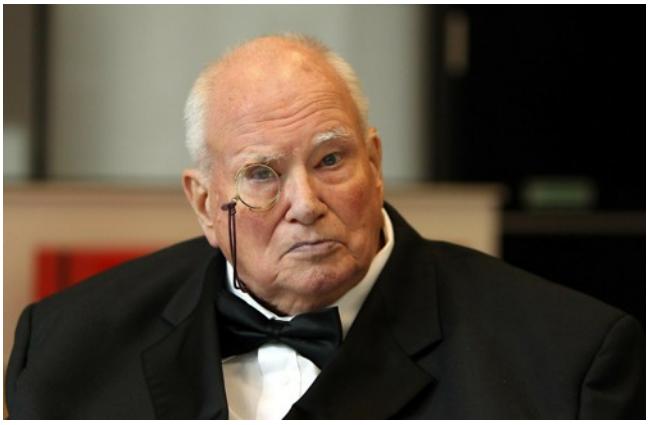
**BEEN THERE - AN ALL TOO COMMON AMUSING STORY**

Many thanks to Keith (G0AYM) for the following which will bring a smile to some members :-

**An elderly couple had dinner at another couple's house, and after eating, the wives left the table and went into the kitchen.**
**The two gentlemen were talking, and one said, 'Last night we went out to a new restaurant and it was really great.. I would recommend it very highly..'**
**The other man said, 'What is the name of the restaurant?'**
**The first man thought and thought and finally said, 'What is the name of that flower you give to someone you love?**
**You know.... The one that's red and has thorns.'**
**'Do you mean a rose?'**
**'Yes, that's the one,' replied the man. He then turned towards the kitchen and yelled, 'Rose, what's the name of that restaurant we went to last night?'**

## TRIBUTE TO THE LATE SIR PATRICK MOORE

Many thanks to Dave (M0JAP) for the following :-



Just after Sir Patrick died before Christmas, the excellent Last Word programme on BBC R4 contained this lovely, finely tuned poem by Murray Lachlan Young (The author spoke it, in fact – and with fine resonances to AA Milne's famous poem).
PS The punctuation below is exactly as defined by Young. I have not corrupted/(corrected?) it by retyping.

**The man who made maps of the Moon.**
**A tribute to Sir Patrick Moore, 4th March 1923 - 10th December 2012**
by Murray Lachlan Young. 13/12/12

Batty eccentric, Gentleman amateur
Clipped English tones, of an era gone by Dottiest 'boffin' and Crusty old Bachelor Pipe in your mouth and a glass in your eye

Terrible golfer, pussycat stroker,
Right-wing and radical, militant stoker
Serving the masses with lunar crevasses
Around for so long, gone away far too soon With an eminent place in our knowledge of space

As the man who made maps of the moon
The moon
As the man who made maps of the moon

You juggled gravity, built an observatory Gave a fried egg as a cosmic analogy Served up the feast well aware of the joke As we stared with you heavenward, viewing the yolk

Heavenly broker, grey matter poker
Martian and minstrel and avid Pipe smoker A voice and a knack with a rat a tat, tat Drilling deep in our minds to the great cosmic tune With dress sense to match, while you lifted the latch

As the man maps who made of the moon
The moon
As the man who made maps of the moon

Memories of empire, thoughts of old England Fade further now, as your atoms disperse In the final great joke of our temporariness And the black hole you left in our own universe
Where do atheists go when they no longer are?

When they pack up their trunk at the end of the show One could paraphrase you when you talked of the stars 'As in so many cases, we simply don't know'

With the feats of: Gagarin and Armstrong and all?
Amplified to the skies in the infinity's thrall?
Yes you stayed for so long but you left far too soon Yet your legacy orbits our own consciousness

In the maps that you made of the moon
The moon
From the man who made maps of the moon

As another side note, PM and my father were both navigator/bomb aimers in WWII, on Lancasters. I never knew if they met, as my dad died before I could ask him. Moore's suspicion of Germany remained far, far longer than it did for my dad – and unlike Moore, my father also took part as both a courier to (Transport Command) and participant in (as juror) one of the Nuremberg Trials.

Dave (M0JAP)

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## HF ANTENNAS FOR BEGINNERS - 30m AND BELOW

**by Gary Wescom – N0GW** (January 2, 2007)

I found the following article on the Web which I'm sure the author would appreciate being published and appreciated

For a ham who is new to HF operation, there is a number of new things to learn. Among them are the propagation characteristics of the various ham bands, the correct operation of their radio gear, and what to do about antennas. This article will focus on that last item.
Why a discussion on antennas is appropriate is simply that new HF operators don't yet know how critical the subject is. There is a lot to think about when starting out. Setting up proper antennas often slips to the bottom of the priority list. After a few years of experience, that would never be the case.
The next time you hear one of those 40 dB over S9 signals, think about this: he may be running a kilowatt output to his antenna but if he turns his amplifier off and drops back to 100 watts, he will still be 30 dB over S9. How do these "big gun" guys do it? Simple, they put up good, efficient antennas. These are not huge installations. Most of these signals are coming from simple dipole antennas. It is the care and thought put into their installation that makes the difference.
The subject of antennas is a source of great confusion. There is a tremendous amount of information available on the subject. Some of which is accurate, some not so. Adding to that confusion are the performance claims made by commercial antenna manufacturers in their advertisements. One company even claims their 3 foot tall product will out perform a full size 65 foot tall vertical on 80 meters. That claim, of course, is false.

So where is a fellow to start? With the basics of course! Those are fairly simple:

*1. Full size antennas work better than smaller antennas. Full size antennas typically offer higher efficiency and wider operating bandwidth.*
*2. Higher antennas work better than lower antennas. That is true up to about 50 or 60 feet for most operation. The effect at greater heights varies from band to band and the distance to the station you wish to talk to.*
*3. Antenna gain depends upon efficiency and directivity. An efficient antenna can only achieve gain in one direction by reducing the signal strength in another. An inefficient antenna cannot be counted on to have any useful gain in any direction.*
*4. There is no single best antenna. What works best varies from band to band and from location to location.*

For folks just starting out, those are not often the most pleasant things to read. They say you need to put up something big and high if you want to operate HF. These rules can be ignored but only when the consequences are understood. It can be very frustrating for beginners when their expectations for HF operations are not met because of an inadequate antenna system.

**What kind of antenna should you install?**

What kind of antenna should you put up? Obviously that depends upon a number of site specific factors including how much room you have for installing antennas and how tolerant your wife and neighbours are. Oh yes, and how much money you are willing to spend. The sky is really is the limit when it comes to antenna systems.

It is probably best for an HF newcomer to start out modestly. Simple wire antennas work well on the 10 MHz band and below. Ground mounted vertical antennas are also useable on these bands though they do require more effort during installation to obtain good performance. Concentrate first on achieving adequate performance with the simpler antennas before attempting more complex systems.

What kinds of antennas should the newcomer avoid? First off, avoid the shortened all band antennas. Horizontal antennas less than a quarter wavelength long and verticals less than an eighth wavelength high are inefficient, narrow banded, or both. They can be made to work but usually not by a HF beginner.

The problem with the shortened all-band antennas is that they look good in magazine ads.

The idea of a small, easily installed, do everything antenna is seductive. It can seem like the answer to a new HF ham's dreams. Unfortunately achieving the performance claimed in the magazine ads is possible only under special conditions. It is unlikely that those conditions can be met in an average backyard installation.

**The Safest Bet – A Dipole or Inverted Vee**

The safest bet for an antenna system for the bands below 20 meters is a simple half wave dipole. It should be resonant on the desired operating frequency, have a balun at its feed point, and be fed with RG-213 coax. Why a dipole? That is simple, it is among the most efficient antennas that can be built, its performance and directivity are well known, and it is so simple that it is nearly foolproof. Why an Inverted Vee? It is really just a dipole with its ends drooping down a bit. I'll explain more about the differences later.

**Dipole wire**

Let's discuss some of the dipole construction basics. It should be built with copper or aluminium wire, copper being the most common. The wire may be solid or stranded. It need not be bare wire. Antennas have traditionally been built with bare wires. That was the case because in the early half of the 20th century, wire insulation did not survive very well out in the weather. Modern insulation is much tougher. Use of insulated wire has become more common because of availability and reduced rain static.

Wire diameter is not critical but 12 and 14 seem to be the most common. Thinner wire is more fragile. Thicker wire provides wider operating bandwidth. Experienced HF operators will use thicker dipole conductors. It is not unusual for 80 meter dipoles to be made with old used RG-213 size coaxial cable. The shield and centre conductor are tied together and treated as a large diameter conductor. The coax, with its plastic dielectric, is much lighter than copper wire of the same outer diameter. The coax jacket provides rain static reduction. The larger diameter provides a broad low SWR bandwidth with a high efficiency.

**Balun**

Though not required, it is best that a balun be used at the dipole feed point. Its purpose is to disconnect the shield of the feedline from the antenna. Without the balun, the coax shield is directly connected to one side of the dipole and thus is part of the antenna.

Signals and noise picked up by the coax shield are heard in the receiver. They may not be the things you are intending to hear. Likewise, part of the transmitted RF is fed back down from the feed point along the coax shield and can interfere with equipment in your house. Some folks claim the coax shield radiation and pickup fills in any gaps in the dipole's radiation pattern. There is really no reason to expect this effect to be all that helpful. There have been many instances where it has cause noise and RFI problems.

**Feedline**

With coaxial cable, size matters. Some RF is always lost as it runs through coax. There is resistive loss from the RF current in the coax conductors. There is dielectric loss from the RF voltage between the coax centre conductor and its shield. The thicker the coax, the lower these losses are.

RG-58 50 ft.
RG-8X 75 ft.
RG-213 100 ft.
RG-8 Foam 200 ft.

The above table provides a rough approximation of recommended maximum lengths of the various kinds of coax hams typically use for HF operation. There are lower loss but more expensive kinds of coax available for even longer runs. Generally speaking though, exceeding the above listed lengths by a factor of two is OK as long as it is understood that coax feedline loss will be around 3 dB on the 10 and 12 meter bands.

Each kind of coax has a power limit that is determined by heating and voltage breakdown limits. RG-58 and RG-8X should be used at power levels less than about 500 watts. RG- 58 can overheat. RG-8X's foam dielectric has a low breakdown voltage. RG-213 and other coax of the 0.405 inch diameter easily handle the full 1500 watt legal ham power limit.

**Building a dipole**

Dipole construction is simple. Two quarter-wave wires are

connected to each side of the balun or centre insulator. Insulated support ropes or wires are attached to the ends of the wires. Most dipoles are installed with centre support for the balun or centre insulator.
That simplifies installation since only one tall support is needed. The weight of the feedline is carried by the centre support, not by tension on the the dipole elements. The element ends are simply pulled outward to convenient tie off points. When the element ends angle down more than a few degrees, the antenna is known as an Inverted Vee.
The connections between the feedline and the antenna wires must be both electrically and mechanically solid. A problem to solve is how to achieve this while allowing for the flexing that will no doubt occur from wind blowing the dipole elements around. Another big problem to solve is sealing the end of the coax cable to keep rainwater out. Any moisture that gets into coax will corrode conductors and contaminate the dielectric, increasing power loss and the reducing breakdown voltage.
As a general rule, insulators should be used at the outer ends of the dipole wires. High RF voltages occur at the ends of the dipole wires. When synthetic material string or rope is used, however, the support material itself is often sufficient insulation.

**Installing a dipole**

Dipole installation is straightforward. Connect the antenna wires and the feedline to the balun or centre insulator. Waterproof the connections. Raise the balun or centre conductor to operating height, preferably pulling it with a lanyard running through a pulley or eyebolt. Pull the ends of the antenna wires outward and temporarily attach their ropes to your predetermined tie-off points. I say temporarily advisedly.
Hanging a dipole is only the first step of installation. The next part is to carefully adjust the wire lengths to resonate the dipole at some desired frequency. That is usually the middle of the band. Occasionally a specific spot in a band is chosen when frequent operation on a single frequency is expected.
Dipoles can usually be made to work if they are simply cut to the 468 over frequency in MHz formula, provided your transmitter has sufficient output tuning capability. There are couple good reasons for not stopping there. Correctly adjusting the antenna will provide maximum transmitted efficiency and typically provide the best receive signal strength. It will also allow you to tell if the antenna has been damaged should the SWR suddenly rise.
The SWR on a resonant dipole is typically less than 1.5 to 1. What you want to see is a SWR reading of less than 3 to 1 throughout the frequency range you plan to operate, preferably with the lowest SWR frequency near the centre of that range. Dipoles with SWR readings higher than 3 to 1 are useable but will suffer additional feedline and antenna tuner losses, sometimes very high losses.
Take the time to get the resonance exactly right. It will probably take several trips from your shack out to the antenna and back shortening or lengthening the elements. Keep the lengths of the dipole legs the same as you are adjusting their lengths. Adjust both legs
each time you make an adjustment. You will be using that dipole for many, many hours.
A couple extra hours to fine tune it will pay off in both performance and piece of mind.

**What about a G5RV?**

The G5RV dipole has a mystique that is, for the most part, undeserved. This antenna is simply a 102 foot long dipole feed with 30 feet or so of twin lead with a length of 50 ohm coax added on. It was originally designed as a 20 meter antenna with radiation lobes in desirable DX directions from G5RV's back yard. The twin lead feed matched the high impedance found at the feed point on this band reasonably well to 50 ohm coax. It was never designed as a multiband antenna.
A properly installed G5RV will perform nearly as well as a single band dipole on 80 and 40 meters. The SWR is relatively high but most ham antenna tuners match the feedline impedance to 50 ohms as needed by our transceivers. Performance on other bands is not as reliable.
The problem is that properly installing a G5RV is more difficult than properly installing a simple dipole.
First of all, the twin lead feedline must be kept away from metal. In general, twin lead should be kept at least twice its conductor spacing from other conductors, including antenna support poles. Also, the twin lead must not lie on the ground or be coiled.
Failure to observe these limitations can reduce G5RV performance by 10 dB or more.
Second, many of the commercially manufactured G5RV antennas are supplied with 50 or 100 feet of small diameter coax connected to the twin lead. The loss introduced by this length of coax masks high SWR at the antenna. A relatively mild 3 to 1 SWR reading at the transceiver may actually correspond to an SWR of 10 to 1 or greater at the antenna. Having a low SWR reading makes the antenna look good to the buyer. The high loss means that only a small part of the 100 watts your transceiver is generating is reaching the 102 foot dipole wire to be radiated.
For use on 20 meters and above, the G5RV must be installed in a flat-top dipole configuration. Inverted Vee configuration for this antenna should be used only for 30 meters and below.
So, is a G5RV a good antenna? Sure, if you are careful when you install it. Will it work
as an effective all-band antenna? Nope. It can work well on some bands but probably not all of them. The G5RV is a compromise antenna.

**What about a Butternut or Gap vertical?**

There are several multiband vertical antennas that work reasonably well. Just remember rule number 1 from the first page. Antennas shorter than a quarter wavelength long physically are either inefficient or cover very narrow frequency ranges on the bands they operate on.
Though they appear simpler to install than horizontal dipoles, that is seldom the case.
They must be installed away from other structures. The vertical antenna itself is really only half of an antenna. You must create the other half by stringing or burying wire radials around its base. For maximum efficiency, 24 or more radial are needed for
ground-mounted verticals. Fewer radials are needed if the base of the vertical is a few feet or more above the ground but a minimum of two for each operating band is needed.
Tuning one of these multiband verticals can be tricky due to interaction between bands.
As long as the tuning approached as a challenge to be worked through over the course of a few days or weeks,

you will do fine.
Will a 30 foot Butternut perform as well as a 30 foot high horizontal dipole on 80 meters?
It probably won't for contacts out to 500 miles or so. It may not compete well with a dipole mounted at 60 feet out to 1000 miles. At greater distances, the vertical may win out… But not always.
Multiband vertical antennas are typically much shorter than a full quarter wavelength high on 30 meters and below. That obviously impacts their efficiency and SWR bandwidth on each band. With careful installation, they can perform adequately. Just make sure you understand how much work this takes.
What about the no-ground verticals?
There are vertical antennas available from several vendors claiming that no ground radials are needed. The trick employed is that of resonating these verticals as electrical half-wave radiators. The feed point impedance for a half-wave vertical is very high so a relatively small cluster of springy rods provides an adequate counterpoise. The physically larger products work well on 20 meters and above. On 30 meters and below, they are too short for efficient operation.

**What about the……?**

Let's face it. There are hundreds of different kinds of antennas that can be placed into service on the ham bands. Many of them work very well if installed properly. Part of the fun of ham radio is trying different antenna ideas. Most of us are constantly changing and adjusting our antenna systems. There really is no perfect final antenna installation.

**Ok, what should I be shooting for?**

There are two basic paths in HF operation: local and DX. Local includes net and rag chew operation with stations within about 1500 miles or so. DX operators often choose antennas that do not perform well inside that 1500 mile range. HF beginners should probably start with antennas better suited for local operation.
What would an ideal starting point be for operation on the 30 meters and below? That would be individual half wave dipoles at 30 feet or more above the ground for each band, centre fed with a separate coax feedlines. These dipoles can be in an Inverted Vee configuration. The centre half of the dipoles should be 10 feet or more from any structures, except their support mast of course.
Properly constructed dipoles, in the clear and up at least 30 feet, will equal the performance of 80% of the stations on the air. Raising the height to more than 50 or 60 feet is unnecessary for any but the most avid Dxer. If 30 feet proves difficult to start with, dipoles as low as 15 feet and clear of nearby structures will work adequately for communications out to several hundred miles. This is called NVIS operation.

**But I don't have room for all those dipoles!**

Welcome to the world of 90% of the ham population. This is where your individual inventiveness and technical skill comes into play. You will eventually find an antenna configuration to match your operating needs. The first step is to simply put an antenna up and give it a try.
There is a simple solution to the space problem. That is to put up a flat-top dipole of whatever length is available between two convenient supports. Feed the antenna in the centre with open wire transmission line and a wide range antenna tuner. Losses in the feedline and the antenna will usually be insignificant as long as the dipole is longer than about three-eighths of a wavelength at your operating frequency. Efficiency drops off
rapidly as the antenna length gets below about one quarter wavelength long.
As with most of the horizontal polarized multiband antennas, it is best if this random length dipole is installed in a flat-top configuration. That is, the entire length of the dipole should be run at roughly the same height. If necessary, the wires can be run at a horizontal angle from each other. That angle should be 90 degrees or greater. There will be some directivity and even perhaps a little gain on higher bands along a line bisecting the angle between the wires.
In general, multiband dipoles including G5RVs and ground mounted multiband verticals are compromise antennas but can be made work. They require care in installation and tuning to achieve adequate performance. Keep that in mind when you are choosing an antenna for your beginning HF operation.
The most important point about antenna work is to enjoy yourself. Some antennas work better than others but no antenna is best for all situations. The fun is in figuring out which will work best for your property, soil, neighbour, spouse, and financial situation.
Hopefully this article will help you avoid some of the failures the rest of us have experienced. Even with this advice, you will, no doubt, create some less successful antenna configurations. We all do. Those experiences always make for good stories at ham breakfasts.

Of course this was written by an American and perhaps the arguments on space available differ in the UK but an interesting article none the less.

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If any member has an article that they feel would be of interest to Club members, please send it in to me and it will make your Club Newsletter all the more interesting.

Enjoy the read Terry (G4CHD)