

THE NEWSLETTER OF THE KINGS COUNTY RADIO CLUB



February 2015

Volume 2, Issue 2

Next Club Meeting:

Wednesday, March 11th,
2015 at 7:30PM (Hopefully
Spring will have “sprung” by
then.)

Next Club Activities:

Executive Board Meeting
March 1st, 2015 at 1 PM at
The Methodist Hospital Exec-
utive Dining Room. Everyone
is invited to ask questions
and kvetch.

Our Annual Field Day Plan-
ning Marathon continues in
earnest. Try to come to our
upcoming monthly meetings
so that you can put your *two
cents worth* across on the
subject.

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Our weekly Nets meet on Sunday at 11 AM on 28.380 (10 meters) and Tuesday on 146.730 PL 88.5 (2 Meters)

KCRC Now Has a PayPal Account!

Do you have a problem writing a check and mailing it away for your annual KCRC membership dues, Bunkie!

Is that what's troubling ya, fellow?

Well, lift your head up high and take a walk in the sun with dignity and stick-to-it-iveness and you'll show the world, you'll show them where to get off. You'll never give up, never give up, never give up . . . that ship!

But seriously folks. Your membership dues can be paid quite easily using the KCRC's new PayPal account at treasurer@Kingscountyradioclub.com ! It's totally painless and very convenient.

You say you don't have a PayPal account yet? Well, welcome to the 21st century! Join the rest of us! The “*water*” is fine!

If you don't recognize these above words, check out: <https://www.youtube.com/watch?v=Qty7IP8wLXM> “The Old Philosopher”

KCRC Meetings Schedule Change Notice!

Due to scheduling problems, the KCRC has had to adjust their monthly meeting dates for the next three months. Monthly meetings are scheduled for Wednesday March 11th, Wednesday April 15th, and Wednesday May 13th, at The Methodist Hospital Executive Dining Room. Please make a note of these changes!

Also, an extra meeting is scheduled. It is primarily going to be a meeting of the Club's Executive Officers, but all members are invited to attend and offer their opinions. It is scheduled for Sunday March 1st at The Methodist Hospital Executive Dining Room.

The Kings County Radio Club is at www.KC2RC.com or
www.KingsCountyRadioClub.com

KCRC is an ARRL affiliated club (see: www.ARRL.org)

The Incredible Shrinking CQ Magazine

Things are still a bit for *rocky* for the folks at CQ Magazine. They have recently announced that they will be mailing out a combined January/February issue *any day now* (I just got my *December* copy the other day). They have fallen so far behind schedule that this is a good idea to *catch up*. They will credit all subscribers with an additional month's subscription to the magazine. An electronic version of CQ Magazine, CQ Plus, which included aspects of sister publications that have recently received *the axe*, is itself getting *the axe*! No more CQ Plus, they will be publishing an electronic version of the shorter CQ Magazine without anything extra.

We wish CQ Magazine well in these troubled times.

Hams Behaving Poorly

I don't know if you have ever let your VFO's roam near 14.313 MHz on 20 Meters, but it sounds a bit like the *Wild West*. A LOT of name calling, broadcasting of pre-recorded messages, QRMing each other and generally acting as old as their call sign's area numeral.

In the latest *wrist slapping*, one of the cast of characters, Brian Crow was fined \$11,500 for "intentionally causing interference to other Radio Amateurs and failing to provide station identification". There are at least another dozen players in this *pissing match* of "who owns this frequency". Apparently none of them are aware of *Variable Frequency Oscillators* and may only own one crystal that they use on 14.313!

We hope everybody there grows up fast, before they are paying the FCC for their sins.

But we won't be holding our breath.

Do You Need Any More Motivation To Study For A License Upgrade?

The next time you find yourself on QRZ.com (or any similar Call Sign database) check out KE0CRD. It will come up with a Technician license holder by the name of Colton Ragdale. What's so special about Colton (other than the "new age name")? Well, Colton is FIVE YEARS OLD. That's right, he just learned how to read and he has his Technician's License (by the way, he took it verbally). So maybe you should hit the books and upgrade your license to General or Extra. Or are you going to wait for Colton to get there first?

The FCC Brings You Less For More (Again)

Well, effective February 17th 2015 you won't be getting any paper to go with your license unless you ask "pretty please", and then you won't get it printed on some state of the art anti-counterfeit proof high tech paper. The FCC has decided it just costs too much, so they will be using some cheap recycled paper stock (probably from a local "Staples"). Their website will be changed to allow you to print out either an Official copy or a sample "Reference Copy". No doubt, if a police officer stops you and you show him your Call Sign listed on the FCC's website he'll be thoroughly impressed!

Rest In Pieces, Radio Shack?

Well, the other shoe dropped on Thursday, February 5th 2015, with their declaration of bankruptcy and intention to file for Chapter 11! This poor soul has been on life support for so long and in retrospect it should have issued a “Do Not Resuscitate” order long long ago. Brilliant idea, to turn it into a cellular phone store—we certainly needed more of those and more Starbucks too while you’re at it!

Radio Shack presently owns 4,000 storefronts. Rumors are that it will try to fob 2,000 of them off on Sprint, maybe a few more on Amazon and close the rest. “Insiders” suggest that Radio Shack will keep possession of 200-400 retail stores with the intention of “downsizing” and returning to the purveyors of electronic parts and gadgets—maybe even free monthly batteries! I would doubt this—it is very similar to the B.S. that some guys, that bought HeathKit’s name brand for a song, were saying about resurrecting that sadly lamented ex-Company.

Radio Shack “...has ceased to be! 'E's expired and gone to meet 'is maker! 'E's a stiff! Bereft of life, 'e rests in peace! If you hadn't nailed 'im to the perch 'e'd be pushing up the daisies! 'Is metabolic processes are now 'istory! 'E's off the twig! 'E's kicked the bucket, 'e's shuffled off 'is mortal coil, run down the curtain and joined the bleedin' choir invisible!! THIS IS AN EX-...” Company!!

Long Island Hamfair and Electronics Show



Well, it’s that time again, for LIMARC’s Winter Hamfest! It is scheduled for March 8th, 2015 at 201 Levittown Parkway, Hicksville NY. Doors open at 9 AM. For further information point your browser at www.limarc.org/fest .

It would be nice if KCRC could make a presence at the LIMARC Hamfest.

January VE Session Was A Great Success!

We had another great VE Session this past January! We had one examinee earn himself a Technician License. One Technician upgraded himself to a General License while another Technician upgraded himself to an Extra License. A General also upgraded himself to an Extra License. Everyone was a winner thanks to VE Liaison John WK2J and VE Examiners Eddie W2DEV, Adam NY2K, and Roy AC2GS.

We’ll let you all know when the next VE Session is planned!

Minutes of the February 2015 KCRC Meeting,

February 10th, 2015

The monthly meeting was called to order by our President, Howard N2GOT. Also present at today's meeting were Vice President Mitch N2RGA, Past President Eddie W2DEV, Treasurer Richard KA2KDQ, Executive Board Member Tommy KB2GTO, Bob KA2FXR, John K2BAG, and Roy AC2GS.

Over the past month we gained 2 new members—John K2BAG and new as yet unlicensed Associate Member.

Dues for 2015 were collected from Howard N2GOT and Tommy KA2GTO. Please get your 2015 membership dues to Richard, KA2QNK, our Club Treasurer as soon as possible. We are able to take your dues payments through our new PayPal account at treasurer@Kingscountyradioclub.com. Using PayPal to make these dues payments is as easy as it gets, but for any technophobes out there, a check will still do!

10 Meter Net—Juan KC2QNK (by written report) reported that the Net had over 48 unique contacts since last month's report, including nationally New Jersey, Texas, Colorado, California, Havana Cuba, Louisiana, Wyoming, Georgia, Oklahoma, and North Dakota. Greater Club participation was urged!

2 Meter Net—Richard, KA2KDQ reported that the 2 meter Net has been lightly attended recently. Club members are urged to participate! Everyone is invited! Mark it on your calendar for all Tuesdays but the second Tuesday of the month at 9 PM! The frequency is listed at the top of the Newsletter's first page.

Treasury Report—Presently our Club has a healthy balance of \$1,773.43! Our PayPal account is now in place and operational.

Old Business— The subject of Field Day was brought up. Other venues, other than Floyd Bennett Field were discussed and the option of finding a better location within Floyd Bennett Field was discussed. A tent enclosure was discussed with the need for some netting to limit the insect life within the operating tent was discussed. It was decided that a more organized series of "Thank you's" to Park Officials, that were helpful in obtaining a location, should be instituted. Scheduling a VE Session for the Sunday of Field Day was suggested.

Regularly scheduled bi-monthly Club sponsored VE Sessions were discussed. This will have to be discussed with our VE Liaison John, WK2J before we can lock down any specific dates.

A new site for our club repeater was discussed, but at this time no viable option was available and the subject was *tabled* for a later time.

The subject of investing in a new Yaesu DR-1X was discussed, and by a unanimous vote of all members present, it was decided to go ahead with the purchase. The new repeater will be ordered within the next few weeks.

Installation of the new Repeater antenna was discussed. Mitch N2RGA will assemble and test it in his house. Hopefully on a Sunday early in March, when the present inclement weather abates, a group of three to four club members will arrange to mount the new antenna at the repeater site. Stu WA2JNF has not yet been paid for his antenna. This will be corrected with all due alacrity.

Modification of our Repeater records with local frequency allocation organization, Metrocor, was again discussed. It was decided that Howard N2GOT will contact its last owner John KB2NQT to see if he had a copy of all the specific information required on the form.

New Business—Our monthly meeting will have to be moved for the next three months from Tuesday to the following Wednesday. We will spread the word via our weekly Nets, our Club web site, and our Newsletter, that the next three monthly meetings will take place on March 11th, April 15th, and May 13th, at The Methodist Hospital Executive Dining Room. An additional meeting has been scheduled for Sunday March 1st at 1 PM at the same Executive Dining Room for a meeting of the Club's Executive Board – all members of the club are welcome to attend and to voice any opinion or questions they might have.

Now that our club has a PayPal account for easy payment of dues it was suggested that we develop a Web based membership application and allow new memberships directly on our web site. It was also discussed to put links on the web site for donations to the Club and its Repeater budget through a direct PayPal link. Our web master Mitch N2RGA will make the necessary changes to the Club web site.

Presentations to be held during our monthly Club meetings were discussed. A discussion of Software Defined Radio and Morse Code were suggested. A general call to the membership for topics that they might be interested in hearing about, or members who might be able to present to the rest of the membership were made.

The setting up of a Technician License Class was discussed. The demand for such a class and who might be interested in performing this job have yet to be fully ascertained.

A new Membership Drive was discussed. All members were urged to tell local contacts about the club and suggest they come to a meeting to look around. Becoming a presence at local gatherings to promote the Club were discussed. Maker Fair conferences might be a good venue for such promotion. The type of promotion, what it might entail and who might be interested in doing the promotion was discussed and will be revisited.

Mitch N2RGA will be making the final arrangements for a promotional email campaign for Hams in the area.

—With that ,the session was closed.

Our President's message...

Hello friends and members,

I hope everyone is doing well and is ready to thaw out of February.

Last Tuesday's meeting was very productive and many ideas and proposals were discussed.

Field Day is only about four months away. I'd like to get more members and potential members to help us with this year's field day. We need more people to help us out with setup and dismantling.

I'd also like to propose another radio event at Floyd Bennett Field in May, just to get out and play radio and have fun. Perhaps we can do an event like the ARRL VHF contest. Permits are not required for just operating at the field when it is not conducted overnight.

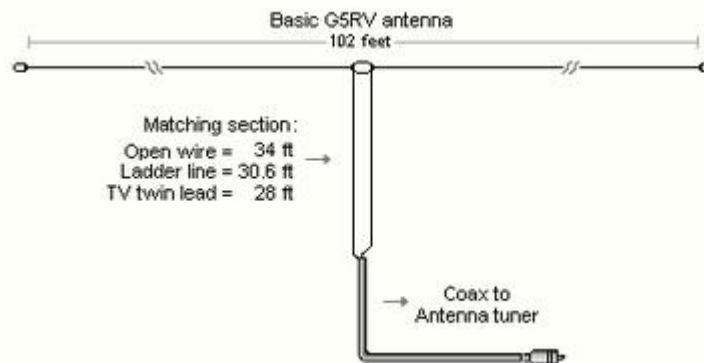
Hopefully, the weather will warm up within the next month, so we'll be able to replace our club's repeater antenna. We'll discuss more about the repeater system at our Exec and general meetings in March.

73,
Howard - N2GOT
President, Kings County Radio Club

Antenna Basics for Fun

Part Five - The G5RV - A Complicated Antenna Disguised As A “Simple” Dipole

Well, rather than get into another major variety of antennas on this installment, I thought I might address a specific antenna that has received a lot of good and poor reviews over the years - the G5RV!



This was invented (and promoted) by Louis Varney, G5RV/SK way back in 1946. It left such an impression on the Amateur Radio Community that it has taken on the name of its creator's call sign. Mr. Varney has *shuffled off this mortal coil* back in 2000, at the age of 89. Surprisingly, after his demise some Hams made a pilgrimage to Mr. Varney's Antenna Farm. It was, reportedly, full of all manner of antennas, but not a single example of his classic G5RV Antenna! I don't know if he had tinkered with it enough over the previous 50 odd years, or he was not as much a fan of this design as some might think?

A quick description for a G5RV antenna would be a 102 foot long dipole, fed with open line transmission line of a specific length (depending on the type of open line is used), connected to a coaxial cable, which would then be connected to an antenna tuner. G5RV's are multi-band antennas described as usable from 80 to 10 meters with a better *take off angle* on some bands than on other bands. Some designs recommend baluns, some do not!

The dipole portion is relatively straightforward - the higher the better, it can be horizontal or can be installed as an inverted "V", but most authors caution that its angle should be 120 degrees or greater. Some people crumple up the dipole's ends, but others discourage this compromise. Why 102 feet? That would be resonant somewhere around 4.72MHz!? Well, your basic dipole is *not* only resonant at half wavelengths - it will be resonant at *any* odd multiple of $\frac{1}{2}$ wavelength, i.e. $\frac{1}{2} \lambda$, $\frac{3}{2} \lambda$, $\frac{5}{2} \lambda$, etc. The G5RV is designed with a dipole length cut for resonant $\frac{3}{2} \lambda$ at 14.150Hz, and most G5RV owners are happy with their 20 meter operation.

The open wire segment is almost *black magic* - if real open wire is used, it should be cut to 34 feet long, if ladder line is chosen (with an impedance of 450 ohms) it should be cut to 30.6 feet long, and if

television twin line (with an impedance of 300 ohms) is used, it should be cut to 28 feet. Keep in mind that although open line has very little loss, it is very sensitive to any metallic objects nearby. Lay it against your metal gutters and your antenna might *screw the pooch!* Some people offer other length suggestions!

The coaxial cable attached is *black magic* too. Some suggest that its length is unimportant, while others swear that its length makes an incredible difference in its capabilities. Then you have to research if baluns are beneficial or detrimental and where they might best be placed. Be ready with a sturdy antenna tuner that can handle a 10:1 SWR or you might be out of luck trying to tune some bands.

For those that can't manage a 102 foot dipole there is a variant, called a G5RV Jr., which uses a 51 foot dipole instead. The junior variant is supposed to cover 7 to 28 MHz. It's another compromise, heaped upon a compromise antenna. *Your mileage might vary...*

So... how does it *really work?* Damned if I can be sure. The guys that run antenna simulation software for fun are often heard very loudly arguing what is really going on, to make a G5RV work on so many different bands, and why it may not work so very well with all those bands. The obvious explanation is that it is a much more complicated design than it looks to be. You obviously have the 102 foot dipole, then there is the feed-stub of the open wire transmission line AND the coaxial transmission line. Some pundits suggest that portions of the feed-stubs act as radiating portions of the antenna! That's why putting an RF choke style balun can foul up this characteristic. There are many fine articles on the Internet that discuss how each band uses a different antenna mode to *do its magic*. Many contradict each other, so I leave it as an exercise for the reader to *Google* the subject and find a description that they favor.

The G5RV was the miracle antenna of the late 1990's and early 2000's - they were many newbie Ham's first serious antenna (as opposed to a piece of *random wire* thrown out the back window). The Amateur Radio community has grown more disenchanted with the design in recent years. It's a bit of a *crap shoot*, if you will. If you get all the wire lengths right and they work for your location it can be a great compromise antenna. If one of these factors is off, you're stuck with a lemon. As Clint Eastwood has been known to say on *The Silver Screen*:

"...you've gotta ask yourself one question: "Do I feel lucky?" Well, do ya, punk?"

Einstein suggested that he didn't think that "God *plays* dice with the world..."

Well, I wouldn't *play dice* with my antenna system, but it's a free country - you decide!

So, that's it for the (in)famous G5RV - Some Swear By Them, Others Swear At Them (SSBTOSAT)!

On to the next topic for next month's installment!

-The Editor- (I can be contacted at TheEditor@KCRC.com)

Transmission Mode Efficiencies

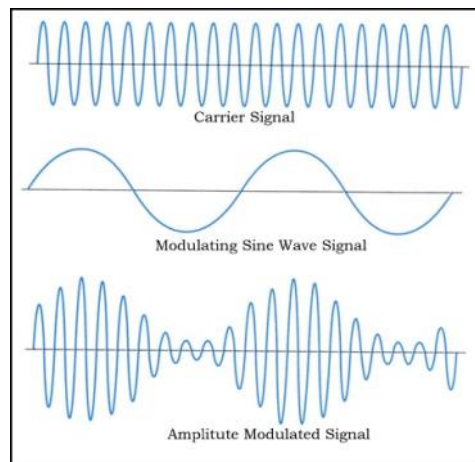
Or

Why The Hell Does Your CW Transmissions Reach More People Than My SSB Transmissions?

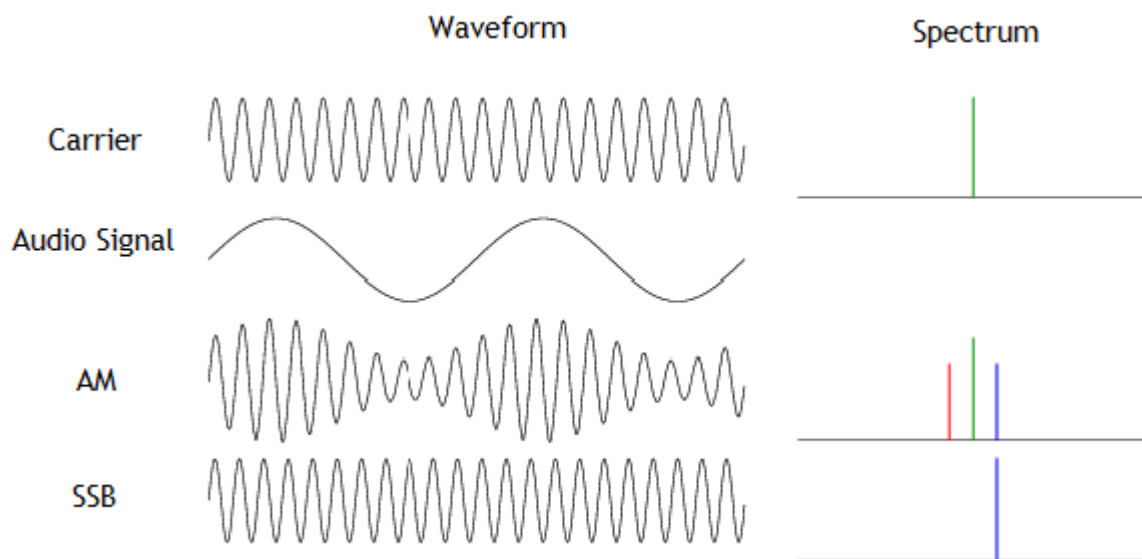
It's well known that low power enthusiasts (QRP-ers) prefer to use CW rather than SSB often because it gets them much better distances for their transmissions. What's so special about CW (and what's SSB's problem)? This is the subject of this article.

There are many modes of communication: AM, FM, SSB, CW, and a whole host of ever growing digital modes (that would be the subject of a multi-part article in itself). What's the difference and why do they have any effect on how far they can be received?

Let's take a look at Amplitude Modulation (AM) first:



AM takes a carrier wave (somewhere in the RF Band) and modulates it with an audio frequency signal wave (like your voice) and produces a wide spectrum of frequencies (ranging from the sum of the carrier and audio frequencies to the difference of the carrier and audio frequencies). The information from the audio frequency is completely absent from the middle *Carrier* portion of the AM signal. All the useful information exists as an identical pair of *sidebands* on either side of the original carrier signal.



Some bright guy figured out that you could get rid of the carrier signal and one of the sidebands and still have all the information that you would need (the idea of sidebands was known as far back as 1915, but a practical way to remove everything but one sideband was discovered in 1948 by those smart guys at Bell Labs). Doing that shaved off 2/3 of the required power for the same *effective* transmission strength. By effectively channeling all your previous AM signal into a single sideband, it was equivalent to *tripling your signal power!* Someone decided on the *gentlemen's agreement* that all amateur SSB below 9MHz would use the lower sideband and all SSB transmissions above 9MHz would use the upper sideband and the rest was history!

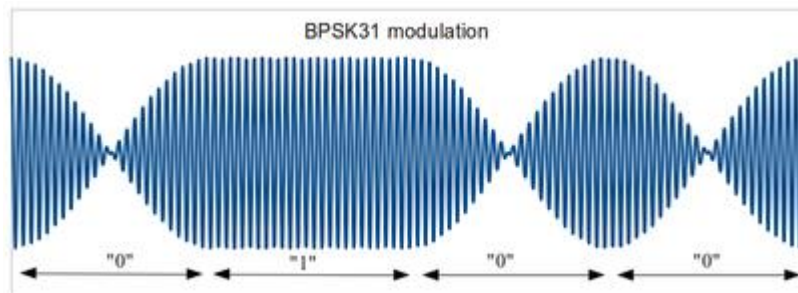
Okay, so that explains why SSB goes farther than AM, but what about the rest?

Well, the simplest way to consider transmission mode efficiency is to determine each mode's relative bandwidth - i.e. for identically powered signals, the narrower the bandwidth the greater the mode's transmission efficiency, the greater the *bang for the buck!*

Almost every source gives a different bandwidth for each mode and thereby gets slightly different dB gain or loss for a comparative transmission mode. Let's say that a SSB signal occupies 2KHz of bandwidth, a CW signal going at 25 WPM roughly takes up 100Hz (I will spare you the math involved). So the *gain* of CW over SSB would be something like 13 dB! That's better than most expensive linear amplifiers can offer for effective signal gain! No wonder there are still CW fans out there.

Have you ever wondered why FM was marooned to VHF and beyond like some redheaded stepchild? It's the bandwidth it hogs and the awful effective signal loss compared to other modes. We use an FM signal with 5KHz deviation on our repeaters. That's a bandwidth of 10KHz! That's an effective loss of -7dB over a SSB signal. There are other factors, such as FM's intolerance to the background noise that is a constant factor on the HF bands, but it's poor energy efficiency is an important factor as well.

How about *them there new fangled* digital modes that we OMs read about (what will *those youngin's* think of next)? We'll just use one as an example today - PSK31:



Well, that looks an awful lot like a CW signal and they are very similar. PSK is computer (or rig) generated and computer (or rig) decoded mode, no well trained operator is required for this mode. PSK comes in different speeds and as the speeds increase the bandwidth it takes up increases too. The bandwidth of PSK-31 seems to be under dispute. The ARRL feels it is approximately 60 Hz, but I have frequently read that it is 31 Hz wide. Even taking the more conservative bandwidth of the ARRL, PSK-31 has a 2.2dB gain over CW!

What about Nobel Laureate, Joe Taylor, K1JT's ultra weak signal mode, JT9? You practically don't have to turn your transmitter on with this mode! It has forward error correction (FEC) built into its design to improve its detection below the noise floor! But just on the basis of its miniscule bandwidth, I'll give you a hint, it only takes up 16Hz of bandwidth. You do the math!

So, go out and try one of those real efficient modes! Who knows, you might get the first QSL card from Mars <HI HI>!

-The Editor- (I can be contacted at TheEditor@KCRC.com)

Closing statements (from the Editor):

Here I go again pleading with you guys for ANY contributions—photos, short notes, or even articles on subjects which you are interested in and know more about than the rest of us. So far you guys have a perfect record— not a single contribution by any member other than myself! Amateur Radio is a wide area of interest and no two Hams have the exact same experience and knowledge in all its diverse aspects. Share your insight with the rest of us.

Or at least tell us what you like reading and what you don't, and subjects you would like to read about in future issues.

Until the next time...

The Editor (I can be contacted at TheEditor@KC2RC.com)

All original graphics and articles © 2015 TheEditor, Ltd (all "unoriginal graphics" should be considered a "homage" to more artistic people than myself, or people with more free time). If you wish, I would be more than happy to share the enormous bankroll I am given each month to produce these little masterpieces with those I've borrowed from...