



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume LX

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Number 7

PREZ

SEZ:

Another June contest at Camelback has come and gone. It was fun and the log has been submitted. I received many comments and observations, some good and some that tell me we need to improve some areas.

One comment mentioned was the yeoman job that Bruce WA3WUL and John K3MD did this year. It was thought that they warranted a special thank you from the club. Great job guys! But wait, there's more! Paul WA3GFZ, Ed WA3DRC, Al KB2AYU put many long hours operating at their respective stations too. This was Jim's KC3BVL, first year as coordinator and scheduler. I've heard many good things about the effort he put in. Michael KB1JEY was the 6 meter band captain and in addition he pulled together equipment from different Packrats for both 6 and 2 meters! Al KB3SIG was band captain for 2 meters AND he and Ben WA3RLT also managed to make and 18+ mile light contact between FN21 and FN20!

Another group that deserves our thanks is the Technical team of Phil K3TUF, Bruce WA3YUE and Gary WA2OMY who spent many hours before the contest getting our SS high power amplifiers and computers ready. These three Packrats then came to Camelback and spent time setting up "the bottom four" stations. Ed and Paul refreshed and tested the 903/1296 and the microwave equipment before coming to the mountain.

The infrastructure effort (power, towers, antennas, trailer and van etc.) was headed by Nick N3YMS. Nick hosted a work session in May, supplied his own van for our use and brought every imaginable tool we might need. Nick lead the group assembling the site and then directed tear down afterwards. The fact is many of the Packrats who came to Camelback also put in long hours before, during and after the contest.

Because of many "tower" changes in the last few years we were missing tower sections. Mike N3BBI took on this special project. He dug up several tower sections from a ham in the area, and then proceeded to design and build a rotor, mast support and a tower base for the 222/432 station.

Al and Ben weren't the only Packrats making light contacts. Burt K3IUUV was the W3CCX end of our LASER contacts.

Also ,both El K3JJZ and our newest Packrat Phil WF3W contributed to the Camelback effort in many ways.

I almost forgot to mention Guy WA3JZN. He had promised to deliver our OMNI antennas to Camelback since he had a trailer. Unfortunately his wife has had some medical problems lately but he somehow found several hours to pick up the antennas and deliver them. Thank you Beth (Guy's XYL).

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PACKRAT BEACONS - W3CCX/B

FM29Jw Philadelphia, PA

50.080 144.300 222.062 432.290 903.072 903.3 1296.264 2304.3
3456.200 5760.3 10,368.034 10,368.3 MHz (red = temporarily off the
air see Packrat web page for details)

MONDAY / TUESDAY NIGHT NETS

VHF/UHF Monday:

TIME	FREQUENCY	NET CONTROL
7:00 PM	224.58R MHz	WR3P FN20kb Ralph
7:30 PM	50.145 MHz	N3RG FM29ki Ray
8:00 PM	144.150 MHz	K3GNC FN20ja Jerome
8:30 PM	222.125 MHz	KB1JEY FN20je Michael
9:00 PM	432.110 MHz	WB2RVX FM29mt Mike

Microwave Tuesday:

7:30 Coordinate QSO's on 144.260 for all Microwave bands you'd like to work. Also setup Q's at w4dex.com/uhfqso or **Packrat Chat Page W3SZ.COM**

Visit the Mt Airy VHF Radio Club at: www.packratvhf.com or www.w3ccx.com

We also had several Packrats that visited the site and operated too. Thanks guys and gals. It's hard to single out any one Packrat or group **since many put in far more effort than we have a right to expect.**

I'm also sure I missed someone who also deserves special mention. But I guess that comes with the job – HI.



Another Packrat mentioned our overall score was not what it should have been. This year like some previous years we stopped early before the official contest end. The reason this year was the weather forecast. This was the right call but it did cost us. On a mid-day Sunday afternoon a single contact may be worth 10 or 20 points. Toward the end of the contest a contact may be worth far more and the score goes up quickly with each additional contact. Ending early really hurts the possible final score.

Another idea was a schedule of operators for each band. This has been tried with varying degrees of success in some of the prior years. The problem we had was lack of people coming to Camelback to operate. I personally made phone calls and sent emails to a number of Packrats in the weeks prior to the contest. Many had plans to operate from home or had other obligations.

On the not so positive side, as a club we need to look at the effort needed to go to Camelback. Can we find a way to “man” it so that everyone has fun and can not wait till next year? Many other groups have curtailed or ended their trips to the field. We need greater club participation. I know many like to operate from home especially after putting many hours into implementing their station. But – is this at the expense of Camelback? Do we need to eliminate bands?

To quote AI KB3SIG “For those who don't or no longer participate, what's missing? What does it take to get you to the mountain, even for a few hours? . . . Do we need beer and naked women (or men)? Do you want a guaranteed time on the band of your choice? “

73,

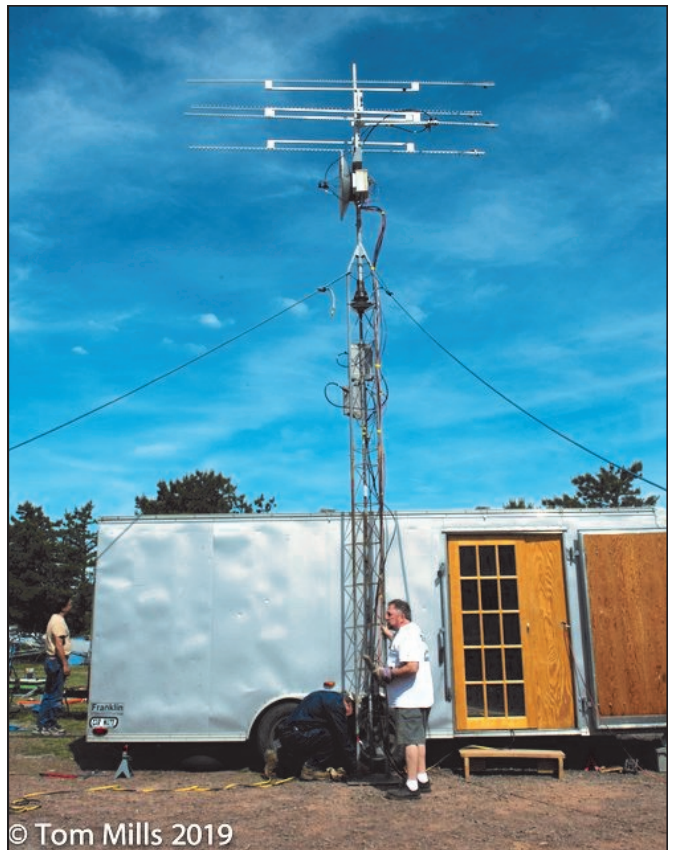
June Meeting Pictures



CAMELBACK 2019 PHOTOS



Thanks to Jim KC3BVL, El K3JJZ, John K3MD and Tom AF4NC for photos. Some of these could have been QST cover photos!!





© Tom Mills 2019



© Tom Mills 2019



For the Camelback June Contest, there were over 200 photos to choose from. Many more than could fit in Cheese Bits. These are just a few of the EXCELLENT ones!!

© Tom Mills 2019

Field Day 2019 At W2KV

It was nice having new and old friends participating in Field Day this year. Brings back fond memories as kids experiencing the thrill and excitement of being involved in setting up antennas and equipment, operating, socializing, consuming substantial quantities of W2KV's awesome contest chili, and tearing it all down by mid-day Sunday. After at least six straight days of torrential downpours here in central Jersey, the weather gods decided to be kind to us radio folks by mid-day Friday providing us 2 and half consecutive days of perfectly dry and sunny conditions. We used a FT-1000 plus one FT-991 networked via two laptops using Wintest software. A new Honda EU2200i generator made its debut and it didn't miss a beat. It was interesting to hear it grunt, hum, or its beat-note when the first or second transmitter was being keyed in various modes. Antennas consisted of an 80m dipole at 100ft fed with ladder line to be used on multiple bands via a Johnson 275W Matchbox. Other wire antennas were a 40m dipole at 75ft, and 20m dipole at 60 ft. I only missed one out of 7 shot attempts using a pneumatic tennis ball antenna launcher. We would have been 6 for 6, if it wasn't for the 5 gallon portable air tank dropping down to 40 psi after the 5th round. Initially, it was compressed to nearly 100 psi, limited by the capability of the compressor. It needed at least 50 psi for the last shot. I brought it up the final 10 psi by using a bicycle pump. The distance of the trajectory goes exponentially with linear change in pressure. We decided to add two small VHF beams, a ZL Special for 6 and 9 elements for 2 meters at 30 feet for us VHF fanatics. They were mounted on a "Penninger Radio Tipper Tire Mount" portable rotating 30ft mast. We were able to work a fair number of stations on 6m using mostly SSB via sporadic E and including one meteor scatter QSO with N0AN in Iowa using the MSK-144 digital WSJT-X mode. On 2 meters, we were able to work a few distant QSOs using mostly CW and SSB modes into New England, KD8UD and N4ASF in Virginia, and one in Ontario Canada, VE3ZV. Thank you for the contacts and making Field Day a fun event as always. Also, thanks goes to Dave, W2KV for hosting the Field Day site. Rats participating were WW2Y, W2KV, N2NC and W2BVH with help from N2NU and WB2WCO.

73, Peter WW2Y



18 MILES AND ANOTHER GRID ON A BEAM OF LIGHT

Al Wells KB3SIG

As reported in June Cheese bits, a solid QSO was made on June 9 between W3CCX in FN21 and KB3SIG/R in FN20 using MCW on a beam of light over a distance of 18.3 miles. The signals were strong and I am anxious to try longer distances. The equipment used was simple, and I'm hoping to ignite some interest in using the famous Packrat brainpower to make improvements. I didn't invent any of this stuff; I learned enough to make it work from the KA7OEI, K3PGP (and a few other) websites.

The Transmitter

The light used to transmit is a Luxeon Rebel Deep Red (660 nm) LED mounted on a Saber star base. A 8.7° beam optic was mounted on the star. The whole thing was mounted on a heat sink. Here is the list of things that I bought from Luxeon in Canada:

- MR-D0000-20S LED
- 3023-D-E-700 Driver
- LPD35-6B Heat Sink
- LXT-S-12 Thermal adhesive pads
- 10235 Carclo 20mm optics holder
- 10193 Carclo 8.7° beam 20mm optic
- LT-01 optics holder adhesive pads

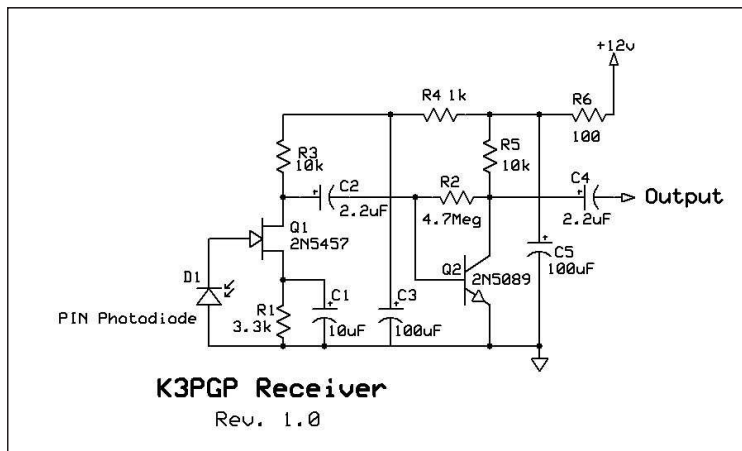
I later found that I can get the same Luxeon LED mounted on a similar star and all of the other parts from LED Supply in Vermont, usually at better prices.

The driver I used has an input for a 5v control signal. The LED is on when this input is low and turns off when the input is high. You can also control brightness with PWM. I used an Arduino to run it at a square 500 Hz, but it can also be easily run with a 555 free running oscillator like we use with the laser pointers. The specs for the driver say that it will run up to 10 KHz. If you have a good junk box, knowledge and time, you can do this without the commercial driver.

The Receiver

The detector is a BPW34 photodiode. A simple JFET front end was built using a proven design from K3PGP. This design has a narrow bandwidth and doesn't work well when there's other light, but it is very sensitive when used at night. There is a daytime version on K3PGP's website. I haven't tried it.

I built the front ends on perma-proto type boards and mounted them in small Hammond boxes (like the ones we got at the conference 2 years ago). I put the detector on the back side of the board, and mounted the board on standoffs in the lid of the Hammond box. I drilled a hole where the sensor is so light could get in. I was really concerned when I first powered up one of these without the box, as it was really noisy, even in the dark. Putting it into the box and grounding it to the box tamed it.

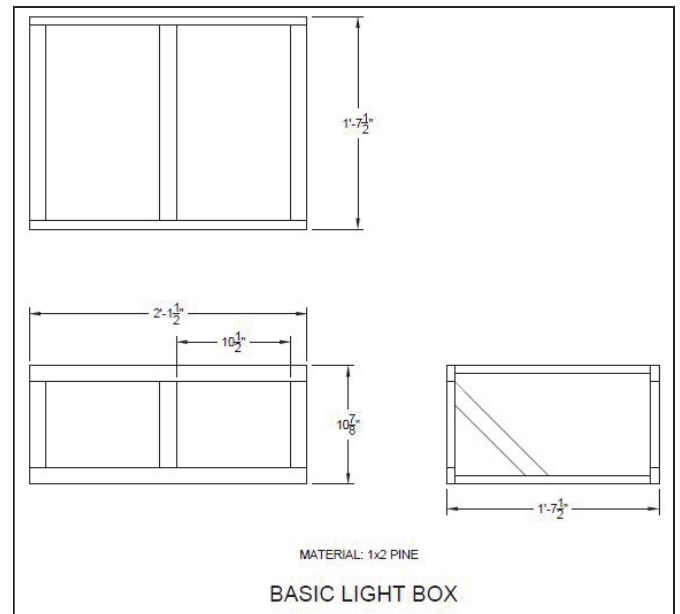


The output from the K3PGP front end was simply run directly into the input of the trusty Radio Shack amp/speaker that we've been using with the solar cell receivers. I have no idea if the level or impedance is correct, but it works well enough for now. The Radio Shack amps are getting scarce, and there is a complete receiver design on the KA7OEI website. This is what AF1T used in the boxes he demonstrated at the Super Conference, and is what will be used in my next version.

The Box

This is where most of the work is. The frame is constructed with 1x2 pine. After being completely frustrated with the cheap stuff, I moved up to select pine. The edges are more square, the boards are straighter, and the dimensions are more consistent. I played around a bit with aluminum angle, and decided that the cost was high and it was a pain to cut and attach without a proper cutoff saw and a milling machine or decent drill press. The equipment available was a small miter saw and a hand held electric drill.

The fresnel lenses used are full page magnifiers bought at Staples. They're plastic (probably acrylic), roughly 8.5x11", .080" thick and fairly rigid. The focal length is around 13.25", and that is why the boxes are so big. There are similar lenses available online, as well as smaller lenses and thinner flexible lenses. I tried the Staples lenses first and they worked, so I didn't experiment with others. At the Superconference, AF1T showed a much smaller box using color gun lenses from old projection TV's. I will be looking into these. I'm also looking at smaller but much higher quality round fresnel lenses.



The first problem I tried to solve was making both the transmit and receive lenses as exactly parallel to each other as possible. I did this by making one long front frame. The boards were cut, laid on a level concrete garage floor and glued together with Gorilla Glue. Screws were added after the glue had cured. With the front frame flat on the floor, the fresnel lenses were mounted using mirror clips I found at Lowes. These are designed for a 1/8" mirror, so I added double sided foam tape between the lenses and the clips, keeping the lenses flat against the frame. The clips also had to be trimmed a bit so they were not extending into the grooved areas of the lenses.

The rest of the work building the boxes was pretty straightforward. I just took care to make sure everything was as square as I could get it. I added some adjustable feet using 3/8" threaded rod, some brass wood inserts and some handles to allow leveling or aiming.

Mounting the LED and receiver posed a few problems. I found that the lenses will focus pretty well on light from 30 ft away that is not hitting them squarely in the center. If you move the light source up a little, you will still get a nice looking point at the focal distance of the lens, but it moves down. If you move the light left, the point goes right. I decided to just find the focal distance and mount the light and sensor at that distance lined up with the centers of the lenses.

I tested this by drawing a straight horizontal line on a piece of cardboard. I then drew 2 lines 90° to that line spaced at the same distance as between the centers of the lenses. I mounted a cheap LED light centered on the receive side crosshair with double sided tape. I placed the box on a table at one end of the garage, very close to a side wall. I got the box level and also got the front square to the side wall with a large carpenter square. I measured the distance from the floor to the center of the lenses, and also the distance from the side wall to the center of the closest lens. I then tacked the cardboard I'd prepared on

the far wall, with the horizontal line level and at the same height as the lens centers and with the centers at the same distance from the side wall as the lenses in the box. When I turned on the lights, everything was pretty well lined up. I guess I got lucky (twice, as I built 2 boxes).

In an earlier concept test, I tried looking at the alignment over a longer distance (about 200 ft.). I used a construction laser level to get both ends at the same elevation and set a taught string using the 3-4-5 triangle method to get the lens parallel to the surface I was shooting at. It lined up well enough with the initial 30 ft test to make me decide the longer test is a waste of time.



I mounted rifle scopes to the boxes at Camelback, as I was out of time at home. Since I knew the transmitter and receiver were aligned, I measured the vertical distance between the lens centers and the center of the scope lens and drew 2 crosshairs on a piece of cardboard, corresponding to the relationship between the center of the transmit lens and the center of the scope. The scope was mounted at the center of the box between the transmit and receive lenses. I got everything level, got the LED onto the crosshair, and then adjusted the scope to line up with the other crosshair. The idea is to get the sight parallel to the light path.

One thing to remember is to keep the lenses covered when not in use. If the sun gets into them the right way, they will fry your receiver and LED and possibly start a fire.

The system seems to be a bit forgiving of the lack of absolute precision. When I was finally ready to go on Sunday night, we moved a picnic table to get a good sight line to Blue Mt., aimed the box with the scope, and I left for the other end with the other box. When I got to Blue Mt, I got set up as it was getting dark. Ben (WA3RLT) was manning the Camelback end, and he told me that the back end of the table had probably settled and the aim didn't look good. I told him to go ahead and re-aim using the scope, which he did. I asked him to turn on the LED so I had something to aim at, and I believe my immediate words over the cell phones were "Holy ****, that's bright. I aimed and turned on my LED, and the response was "We hear you, go ahead and send". I sent the calls, and immediately heard Ben's reply, even though I had an insane amount of noise from the big lights in back of me that were being reflected



by the ground in front of me. We exchanged grids, RRR's and 73's quickly, and that was it. The signals were strong on both ends. We made an 18.3 mile QSO without any messing around. If I use Blue Mt again, it will be in the early morning hours when the lights are turned off. I also have another site scouted, with the help of Terry, the Camelback Mt caretaker.

I'm anxious to see just how far these things will go. The challenge is to find 2 accessible places at greater distance that have clear sight lines to each other. The boxes I took to the mountain were only finished enough to work. There were external batteries and clip leads involved. These boxes are too bulky to hump to ledges not accessible by vehicle. I think that there are other solutions, especially after seeing Dale's boxes at the conference. I really want at least 2 more grids.

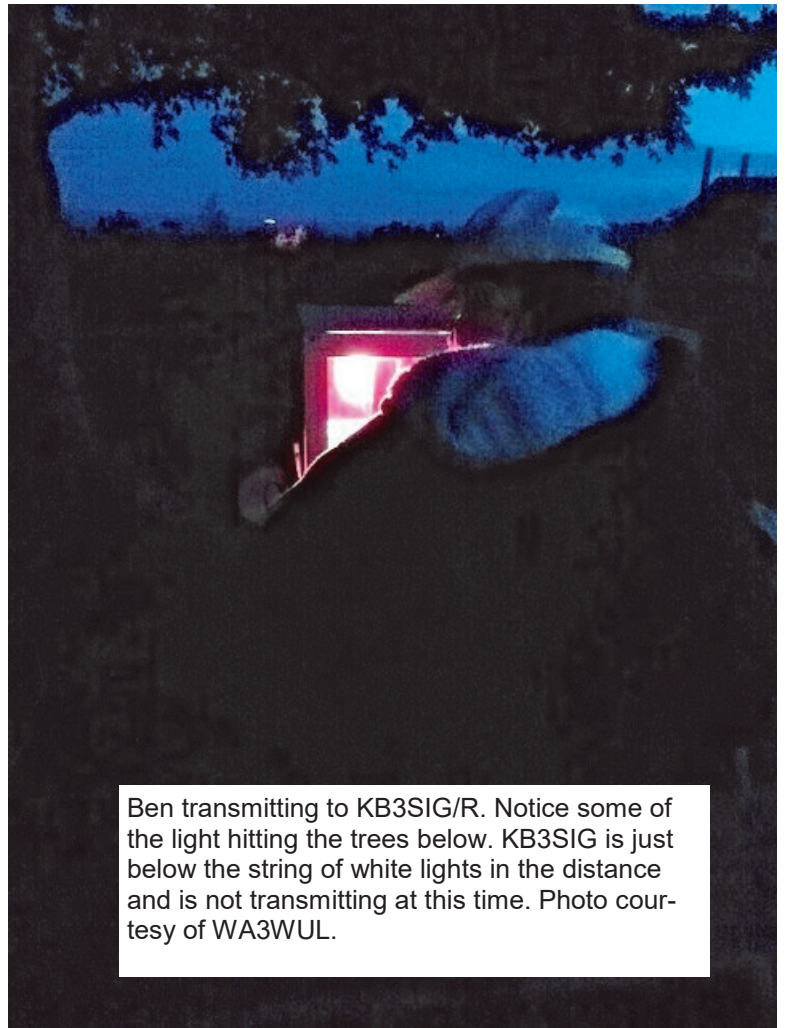
A good goal may be the design of a small easy to build second generation of the Pack Rat communicator that is easier to aim. There are cheap index card size fresnel lenses available, the K3PGP front end is cheap and simple to build, and I'm sure we can find cheaper lower power LED's to use. We have guys in the Packrats who can help come up with something better than what I cobbled together, especially in the electronics.

There is absolutely nothing wrong with the devices which have served the club well for almost 20 years. It has been proven that they conform to contest rules. There is newer and better technology available (and new contest rules) . Maybe we should look at it for new builds, but the old stuff is still perfectly usable.

I got a lot of help and inspiration from a whole pack of 'Rats, but I'd like to particularly thank Ben WA3RLT for his help with this. He manned the W3CCX end of the link, and also was there with manpower and brainpower during the tests that led up to this. He was a sounding board for my ideas and kept me pointed in the right direction. This is not to minimize the help and encouragement from many other 'Rats.

What's next? I think I need more portable setups that can be humped to remote locations. In doing so, the impact of the diversion of available personnel during a contest has to be considered. With limited personnel resources, the cost of a grid has to be evaluated and taken into account, no matter how much fun and excitement it is to get. My next DX effort will not be during a contest, and may not be in another grid. I want to see 50+ miles wherever and whenever I can get it. PWM with voice is also on the menu. I'm particularly interested in cloud scatter, and we'll be playing with that when conditions look right.

The light spectrum is a cheap and easy high points band to get on. We've only scratched the surface of what can be done.



Ben transmitting to KB3SIG/R. Notice some of the light hitting the trees below. KB3SIG is just below the string of white lights in the distance and is not transmitting at this time. Photo courtesy of WA3WUL.

Packrats Operate Field Day at the Warminster FD Site

2019 Packrat Field Day Group at Częstochowa (Warminster Amateur Radio Club) site.



Thanks Griff NE3I
for the pictures

NN3Q/r June VHF Rove

Again the preparation for the June VHF rove started in early May, and that was very fortunate due to a serious rear brake malfunction. The age of the van is now punching up more check list items for maintenance needs. The rear brake line developed a leak that needed immediate attention in light of the fact we operate from the top of mountains, and descend same. The brake issue was addressed then the van battery quit after five years, a few days before the June event. Other small maintenance items such as stiff hinges added additional time just to get the rover road ready (say that 3 times fast). Due to issues of moving the van to the repair garage, the front antennas (all lower four band antennas), plus the mast and the rotor had to be removed. This also added to the time it took to get the rover back to full operational status after the repairs.

Very little had to be done to the K3's but a new laptop had to be added due to a catastrophic screen failure of the old one. Software was updated and updated FT8 software were added. The 222 transverter was bench checked, realigned and calibrated after a series of glitches in the January 2019 contest. This necessitated complete removal of the 144, 222 and 432 transverters.

Trying to take advantage of the anticipated upswing in FT8 activity the microwave station was given the task of adding 6 meters to its overall duties. This required adding the 100 watt power amp to the inside of the K3/10 (making it a K3/100). It was a simple process that took just a few hours. This change added considerably to our score by adding grids we would have never worked on SSB or CW. Thanks Joe (K1JT) for adding this valuable tool to our contest operating strategy.

The rove took us to the top of Skyline Drive, FM08 to start the contest. The location is about 20 miles South of Front Royal, VA and located inside Shenandoah National Park. At 3400' asl, we had a commanding view as well as an excellent VHF location.

An overnight stay in Winchester VA didn't allow any on air time as we had hoped as the parking lot of the hotel was at the bottom of a hill (more like being inside the bottom of a bowl). The next morning found us running up I-81 and landing us at a nice spot inside FM09. We ran the bands for about 45 minutes until we had to move.

Our next site was FM19 in eastern York County atop the 900' hill of Samuel Lewis Sate Park. This site has a great open shot to NW through East and added a number of new grids.

FN20, atop Mount Penn, (Reading, PA) was the fourth grid and this always produces lots of Q's . We operated for two hours at this 1200' asl site until moving to our fifth and final grid FN10. Our site selection has a great path North through East and we easily worked the club station on all 10 bands. Very productive.

All weekend we noticed a marked reduction in activity on 6 and 2 meters, aside from the continual activity on 6M FT8, two meters was as quiet as a Western ghost town for many hours on Saturday evening and Sunday.

In All we worked W3CCX from four of our five activated grids, 6M to 10 Ghz.

Scoring: 5 Grids activated, 567 miles driven, 272 QSO's (61 Microwave 903 - 10Ghz), 211 lower four including FT8), Claimed score 35,405.

73, Allen & Russ K3WGR & NN3Q

NE3I Field Day

Fort Washington State Park site of NE3I's first 2.4 GHz Field Day Contact, (First 2.4 GHz Q ever period), NE3I/M Node to W3EX Node using "D-RATS Chat". Small table to left of mobile provided "Field Day Visitors Sign In Sheet" which many visitors signed but, to no avail, as Field Day Class "C" entrants (Mobiles) are not afforded the opportunity to earn Field Day Bonus Points for setting up in a public place. Oh well, 2.4 Gig! Cool!!

73, Griff NE3I



Some long ago pictures of a young (high school age) Bill Murphy W0RSJ. A handsome fellow. Bill's comment was "You're not the only one to operate in a white tee shirt" (referring to a similar picture of myself published in Cheese Bits a few years ago). [W2BVH, editor]



MY SWAN SONG

As I drove up the entry hill to Camelback, I was fascinated to see that there was once again a pair of swans in the lower lake, with the pen (female) comfortably sitting atop a large nest. The cob (male) was paddling his way around the lake. Once the cygnets are hatched, both parents will look after the babies for a year. My real swan song is likely a final June mini-rove this year, although with so many dedicated Packrats and the new communications van, there may yet be more. I'm also hoping that I can get assistance in putting my LimeSDR on the air this summer. That will likely encourage me to add some smaller microwave antennas and be capable through 10GHz again.

Because we are selling our home in Blue Bell, much of the radio gear was sold or moved to Florida, and the rest was boxed and stored at my daughter's home. When I saw that we had some weekend time for contesting, I was able to find two multiband rigs, a 222 MHz transceiver, my LASERs, a 2m mag-mount and part of a 1296 Yagi. A 35A Astron was also put into service for the home station. There is still a VHF log-periodic antenna in my attic and a G5RV dipole that I manage to use for 6m. From this assortment of gear my rover station used the TS2000x on 50-144-432-1296 with the 2m mag-mount antenna on all three of the lower bands and the 10 elements of the back end of the 1296 Yagi. Thanks to KB1JEY for the loan of a coax adapter and power cord to get everything going. I did not include a computer, so logging was done on paper and there would be no FT8 either. I enjoyed my visit with the mountain crew and especially was excited to see the new N3YMS air-conditioned radio van equipped for 6 & 2. After jawboning for a while, I headed down the hill and headed south toward home. When my "Ham Square" program on my smartphone showed that I had entered FN20, I took the next exit, found an empty lot and pulled off to work the mountain again. All signals were still 5x9 on all bands, even though the antennas were highly compromised and the 1296 Yagi was mainly inside the vehicle, only 3' above the ground with its nose pointed toward the mountain.

My intention was to make a clean sweep of my bands with the mountain from at least 2 grids and to make the local LASER QSO. Mission accomplished! After dinner and a visit with the family and grandchildren, I managed another few minutes with the rover from the local Nike site on Potshop hill and found WA3EHD for a 4-band sweep and KA3FQS for a few band QSOs.

On Sunday I activated the home station using my Yaesu FT100D on 50-144 & 432 and the ICOM for 222 with the antennas in my attic. Over the day and early evening in brief spurts, I put 32 QSOs in the log. Just enough to make the parties I contacted happy that they could add another call sign to their logs. On Monday I converted the paper logs to the W3KM VHF and Rover logs and since we don't have any WI-FI in our home at this time, I ran down to our clubhouse and got online to send the logs into ARRL. While I was there, I read the emails posted by others regarding their activities and results.

We know that change is a constant, and that seems to affect everything, including VHF contests. SSB and CW contesting is still enjoyable. Those who added the digital modes appeared to have good success in increasing their contact and grid totals. I'm sure that changes for next year are already in the minds of those who continue to enjoy the VHF contesting activity.

73, Rick K1DS

W3ICC, Winner of the 2018/19 Rover Recognition Award

The 2019 Rover Recognition Award has been given to W3ICC, Drex and Paul (W2PED) who demonstrated particular roving excellence throughout the year in 2018. Drex and Paul want to thank all those hams who gave advice, equipment and contacts to their roving efforts. With their consistent recent roving participation in the ARRL VHF contests, they are being honored as this year's recipients of the Rover Recognition Award. The award plaque was presented to them in front of the large crowd at the VHF Superconference, held near Washington, DC at the end of April. They are the 14th recipients of this annual award, sponsored by the Mt. Airy VHF Radio Club.

Their first roving outing was actually in the early 90's when the pair went down to Cape May for the January ARRL contest in lousy propagation and freezing winter conditions. This was back when they were using a pick-up truck. Even the bay was nearly frozen over! Since then, Drex W3ICC and his son Paul W2PED, have been diligently working together to make the W3ICC rover a competitive force. Drex acquired a retired television (news gathering)



reporting van in 2009, complete with telescoping mast and on-board 5KW (noisy) generator power. This '96 Ford E350 V8 1-ton van has taken several years and many outings to get outfitted properly for amateur radio roving. Since the basic 4 bands were operating well, the 1296 and 2304 microwave bands have made their debut. Persistence pays off, as much work was needed for the power distribution and replacement of the coaxial feed cables from the cabin to the newly installed 6m Moxon and 144, 222 and 432MHz Yagi antennas. The coax cable is almost 60' long as it spirals around the mast which raises to 37' above ground. Due to the losses in the coax at microwave frequencies, the 1296 3W transverter and the 2304 20W station are both mounted in a weatherproof box up on the mast close to the 45 element loopers. They make use of a FLEX 1500 as the IF for the uWaves, surely a boost to finding signals at those frequencies. Look forward to the addition of 902/903 soon. They are also LASER equipped. The generator power is used to raise the mast, however due to its noisiness, a pair of 12V marine batteries with a voltage booster are used for communication.

...Rover Award cont'd

The memory of Bill Seabreeze, W3IY, is honored with the Rover Recognition Award. The Mt. Airy VHF Radio Club, Inc. members were fortunate to have had Bill and his frequent roving partner, Christophe, ON4IY, operate the VHF contests and other on-the-air activities from Bill's rover van in grids adjacent to "Packrat territory" and were responsible for hundreds of QSOs, dozens of grid multipliers and thousands of contest points for the Packrats in each of these events.

The club voted to make Bill an honorary Packrat in 2004, and also awarded him a plaque in recognition of his efforts and achievements over the past several years. Not only had he been an active roving contester, but he stimulated significant microwave activity in the region with the consensus building for the designated "Microwave Activity Days," commonly referred to as MAD on the first Saturday morning and the first Monday evening of each month. Many of the rovers in the region try to get their vehicles out for these MAD periods, home stations are active, and all try to make sure that their gear is in working order, and possibly try out new modes, new paths and new bands. Additionally, Bill established an excellent web site as a resources page for rovers, including lots of pictures of his gear, rover vehicle and operating sites. There were also a host of links and other useful info on roving issues and how he had addressed them from his experience.

The Rover contest designation was established in the early 90's as a new option for stations that were mobile through several grids that would have otherwise remained 'unactivated' during the contest. Many clubs supported the early rovers as a method of increasing both the activity and scores. According to Dan Henderson, N1ND, Contest Branch Manager, ARRL, "...the rules change occurred in the '91-'92 contest season. The biggest reason of the establishment (of the) category was to open up the captive rovers and allow them to work more stations for score."

The Packrat Board of Directors reviewed the activity of the rover stations in all of the competitive VHF events throughout the year. Consideration was given to the effort, regularity of operation, bands operated, grids covered, contribution to the VHF community, unique factors, and operating characteristics that exclude pack roving and grid circling. Although total scores were factored in, they were not the most significant criteria for this award. The contest results as posted in QST and on the web sites of other contest sponsors enabled the award committee to form a list of candidates, and the Board of Directors of the Mt. Airy VHF Radio Club selected this year's recipient. Previous recipients are listed below.

Rick Rosen K1DS reporting

2006 for 2005	N6TEB
2007 for 2006	ND3F
2008 for 2007	K2TER
2009 for 2008	K2QO
2010 for 2009	AE5P
2011 for 2010	KJ1K
2012 for 2011	W1RT
2013 for 2012	VE3OIL
2014 for 2013	NN3Q / K3WGR
2015 for 2014	K8GP
2016 for 2015	KK6MC
2017 for 2016	KF2MR
2018 for 2017	AG4V
2019 for 2018	W3ICC/W2PED



The Wayback Machine **In CHEESE BITS, 50 Years Ago**

Nibbles from July 1969. Vol. XII Nr. 7
de Bert, K3IUV
(*author's comments in italics*)

OUR PREZ SEZ. K3GAS, Doc, congratulated the new officers (They included W3KKN, Ernie as president, and K3JJZ, El as vice-president). He thanked the various committee chairman, and members in general for their support in furthering the club objectives during the past year. He singled out K3ZPN, Lloyd for his support of the June contest operation at Hilltown.

FROM THE BOOK RACK. The book reviewed this month was "The Electronics Reference Databook," by N. Crowhurst. the review was very thorough, and concluded it was "an invaluable reference." Available in hardback (\$7.95) or paperback for \$4.95.

CHEESE BITS AWARD. This month, Cheese Bits received two awards from the Amateur Radio News Service. First Place for "Local Ham News Coverage," and Third Place for "Club Member Contributions." (A nice achievement for the club, and the editor, K3JJZ, El.)

RADIO RECEPTION, POLICE /FIRE. El printed the current PA and recently enacted Philadelphia laws relating to individuals receiving (or even having equipment capable of receiving) police or fire broadcasts. At that time frequencies involved were 154-156 MHz, and 453-459. Penalties noted were fines up to

\$500, confiscation of equipment, and imprisonment for 30-90 days! El appealed to the club lawyer, W3ISV, for guidance to the members.

PICNIC ANNOUNCEMENT. Notice of the annual picnic, scheduled for 8/16, at The Ft. Washington State Park. \$2.00 per ham, XYL's and harmonics no charge. Talk-in on 50.2. Chairman K3KTY announced that K3JJZ would organize games, and W3KKN, Ernie would bring sacks of peanuts. This annual event would usually attract hundreds of people, from up and down the East Coast.

JUNE QSO PARTY Pictures. A great collection of candid shots were included. Examples were: K3UJD working on the 2300 antenna; K3BPP adjusting the 1296 dish; W3LHF, Dave, on a ladder tapping into a power line; and K3JJZ operating the 6 meter station. Some 40 sections were worked on six meters from our site in Hilltown, PA. Other pictures showed the gear and antennas.

SWAP SHOP, by W3ZRR. Model 14 Teletype machines with power supplies, a TU (terminal unit), and a table for these. \$90 from W3CI, Sam. Also, a 6-meter transmitter, power supply, and modulator. "Just plug together," from K3GAS, Doc, for \$20. (Since Doc once won "the most miserable failure" award at homebrew night, I would have been wary of buying the package.)

NEXT MEETING. July 16, the annual Packrat white elephant sale.

Miscellany. *Postage for this copy (It was from Harry, W3CL) was two 6-cent Roosevelt stamps. (6 double sided, 8-½ x 11" sheets.) As usual, many "folksy" comments about members, their families, and activities were included in this edition of Cheese Bits. If interested, or for more detail on the above items, visit our website (www.W3CCX.COM) and read the full issue scanned by K3IUV (me), and posted on the website by W3SO, our webmaster. Remember, I have also posted the club Officers history, club Membership history, and Packrat Inventory (updated frequently) on the W3CCX website. These files are password protected, and only accessible to registered members. Have you registered? I hope you enjoyed reading these bits of nostalgia as much as I did in writing the article. If yes, you might let me know. Thanks to those that did.*



thirty, de K3IUV

Note: This month, Wayback was submitted to Cheese Bits from the cabin of a northbound boat on the Mississippi river in Louisiana. See you some time after the 12th of July. --Bert

"HAM RADIO IN 2036 -- (A PROPHECY)"

Marc N2UO sent Cheese Bits a reference to an article with the above title, published in the Australian magazine "Amateur Radio" in September 1936. The article describes what it thought might be the state of ham radio 100 years in the future. It includes a prediction of automated QSO's being the predominant mode. Something kind of close to WSJT. Pretty remarkable, since it was written before computer hardware was even invented. It was critical of this yet-to-be invented method of communication. It's still an interesting read and well worth a look. Just don't try and apply it's criticism too seriously to the current state of digital communications. (My 2 cents). --W2BVH

Find the article on Page 11 at <https://www.armag.vk6uu.id.au/1936-september-AR.html>

I want to thank the guys who took the time and trouble to get me on FT-8 for the June contest. Bob Fischer - W2SJ, Guy Gibbs - WA3JZN and especially Mike Pandolfo - N3BBI who spent the last 30 days walking me through the set up of the Yaesu 991A. I was debating with myself about using the Yaesu or the Kenwood TS-2000. In the end Yaesu won out.

In fact Mike was on the phone with me and connected to my computer. We didn't get it working properly until 4 minutes before the contest started. In the end it was a bad cable.

Thank you to all of my fellow rats. My score would not have been this good (for me) without your help. Now I am armed for the next contest.

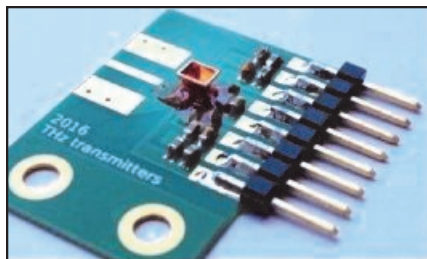
Here is a web site that will plot out a line-of-sight profile between any 2 points on a map. It's pretty easy to use and will give you an idea of what obstructions there are (if any) in the path you select. It even permits you to enter additional elevations to the topographical altitude so you can take into account the height of antennas above the point(s) on the map.

Find it at <https://www.solwise.co.uk/wireless-elevationtool.html> It's free.

"A 400GHz 28nm TX & RX with Chip-to-Waveguide Transitions used in Fully Integrated Lensless Imaging System" by Alexander Standaert & Patrick Reynaert

Abstract:

This paper presents a 400 GHz CMOS TX and RX chip with two different chip-to-waveguide transitions. A first design is based on a coupled microstrip to waveguide coupler and is integrated together with a 400 GHz oscillator in 28nm bulk CMOS. When this transmitter is combined with a micromachined horn antenna, it is capable of providing an EIRP of 1.26 dBm. In a second design, a folded dipole based coupler is utilized to make the transition between a waveguide and a 400 GHz mixer first receiver. This receiver fully integrates an on-chip LO, mixer and baseband circuits and achieves an effective conversion gain of 39 dB and a noise figure of 45 dB. Both chips are combined into a lensless active imaging setup with a spacial resolution of 2 mm.



[This description was sent to the Microwave Reflector by Jeff Pawlan. He didn't give the name of the magazine or journal it was published in, but it's still very interesting. Amazing how small that micromachined horn antenna is! W2BVH]

To Amateur astronomers, Mts. Wilson & Palomar have deep significance. Wilson was home to George Ellery Hale's first big dream, viz., the 100 inch Hooker telescope, where Edwin Hubble scooped Einstein a second time on the expansion of the cosmos.¹ Palomar doubled Hale's fame with *The Big Eye*, at 200 inches of light gathering power. My first trek up Palomar, instilled in me, the venerable expression of awe: *I have seen/been to the mountain.*

June contest re-introduced this high-water mark in personal experience, in depth. Aside from muscle-power, I spent concerted efforts, and calories, attaching names to faces, and then to call-signs. But it's the minds behind the combined Packrat problem-solving mix, where the neophyte Packrat learns secrets of the V/UHF domain. I want to group -hug the entire cohort of testers who made my future competence a possibility and exceeding my current level of — if you will permit — expertise, a certainty.

Good manners mandate thanking and complimenting, individual hams. But the list exactly matched the Amateurs present on the mountain! Such is the RF-pot — simmering or boiling — which contains the nectar of the 'Rats.

I learned that four tools can carry the most ardent antenna and tower erector, the entire weekend. More important, if you wait long enough, a Packrat will need a tool you packed - especially if you are the only other club member in hailing range.

I knew I was physically out-of-shape but, the day after I got

Events

For inclusion, please direct event notices to the editor.

Murgas ARC Hamfest & Computerfest - Hamfest - July 7, 2019. Plains PA. See <http://hamfest.murgasarc.org/> for details.

Sussex County (NJ) ARC Hamfest - Hamfest - July 14, 2019. Augusta NJ. See <http://www.scarcnj.org/> for details.

CQ WW VHF - Contest - July 20-21, 2019. See <https://www.cqww-vhf.com/> for details.

222 and Up Distance - Contest - August 3-4, 2019. See <http://www.arrl.org/222-mhz-and-up-distance-contest> for details.

10 GHz and Up Round 1- Contest - August 17 - 18, 2019. See <http://www.arrl.org/10-ghz-up> for details.

September VHF- Contest - September 14 - 16, 2019. See <http://www.arrl.org/september-vhf> for details.

10 GHz and Up Round 2- Contest - September 21 - 22, 2019. See <http://www.arrl.org/10-ghz-up> for details.

EME 2.3 GHz and Up - Contest - September 21 - 22, 2019. See <http://www.arrl.org/eme-contest> for details.

EME 50 to 1296 MHz Round 1- Contest - October 19 - 20, 2019. See <http://www.arrl.org/eme-contest> for details.

EME 50 to 1296 MHz Round 2 - Contest - November 16 - 17, 2019. See <http://www.arrl.org/eme-contest> for details.

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... cont'd from p.21

home, I was surprised, and pleased, the muscle power expended in setting-up and striking the stations, was an absolute balm to all symptoms from ignoring treadmill and weights. An old saying holds, the outside of a horse is good for the inside of man & woman. Expressing "extreme" PackRatism, replenishes your soul-of-hamming.

I had the unparalleled pleasure of getting to know guys — sorry gals — as sharing people. Special thanks to KA3WXV for laughing at my attempts at humor and serving as *The Mercedes* -sounding-board to my questions, ideas & thoughts. Being so forthcoming, helps me be a Packrat.

On *The Mountain*, first time in 28 years, I corroborated my attitude toward life-lived-in-the-fullest: **I'm never happier than when I'm learning something new²**

My only, unanswered questions are, who put the traffic cone in front of my tent; why it was necessary; where was everybody when I awoke to the bright, orange obelisk.

And, most of all, rounding-out my week-end's pleasure, was the rain on MONDAY!

¹ Einstein's equations told him the universe was NOT static, the dogma of the day, so he fudged his genius to conform. The first coup was proving those puzzling, gaseous nebulas, were actually galaxies

² Although this is a 123% original thought, I came across it in the book I am currently reading, *Origins: The Scientific Story of Creation*, by Jim Baggott. All his tomes are a feast on virtually all facets of physics

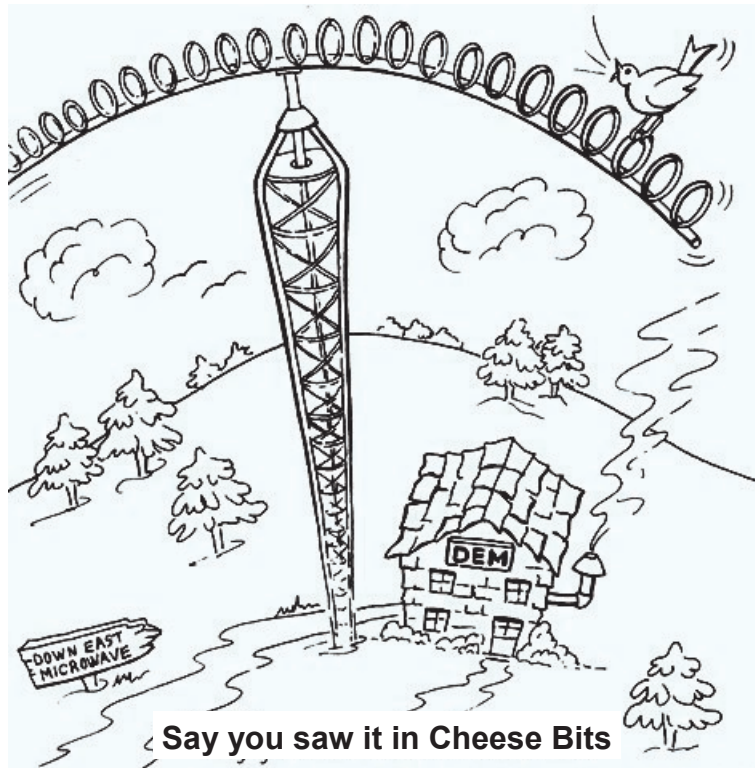
73, Phil WF3W

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