Dayton Hamvention Forum

Date: May 16, 2009

Time: 9:30

Room: Room 5

The 20th annual BMHA forum is set for Sunday, May 16th at 9:30 AM in Room 5. Mike Nickolaus, NF0N, is our forum moderator this year. Our featured speaker is Barry Bogart, VE7VIE/WV2J. Barry is an experienced tourist and will be on tour while attending the Hamvention. Barry is riding his folding bike and will be demonstrating his setup complete with APRS.

We are encouraging anyone to bring their setup and display at the Forum. We will set aside a portion of the forum time for attendees to roam the room and ask questions, take pictures and learn about how others have setup their bikes with VHF/HF gear and antenna systems. If anyone would like to present pictures or audio, we will have the necessary viewing equipment available. Bring your CD/DVD or presentations on removable media. Computer equipment will be supplied.

There will be a short BMHA business meeting and Q and A if time permits. Arnie, KA0NCR, the BMHA ride coordinator, will review the annual Hamvention Bike ride from Saturday. We are hoping for good cycling weather and to meet many of you on the ride.

See the BMHA web site at: www.BMHA-Hams.org or BMHA on Yahoo Groups for any last minute forum changes or additions.

The Dayton Hamvention website is located at: http://www.hamvention.org

Mike Nickolaus, NF0N
BMHA Forum Moderator
Dayton Hamvention - BMHA - Bike Ride 2010

Date: May 15, 2010  
Time: 3:00 P.M. Gathering / 4:00 P.M. Ride Start

Hello BMHA riders!  
I thought that I would put out the word that we are going to again have a BMHA -Hamvention bike ride on Saturday afternoon. I am looking forward to getting more people out on the trail this year, and also more people displaying their human powered mobile hamshacks.

As of right now, we are looking at doing things the same time and place as last year, as seen on the BMHA web site at http://BMHA-Hams.org/BMHA/Timely/hamvention_ride_2009.htm Looking at around a 3PM gathering time for eyeball QSOs and to check out the bikes, and a ride start of about 4PM. There is a very nice place to eat after the ride just across the street from the trail head parking lot.

I hope that you will give some thought to coming out and joining us on the trail! Lets chat this up to others who might be interested but are not on the BMHA E-group.

73 Arnie KA0NCR
Here is a copy of Page 1 of the April 1991 issue of the newsletter. How many remember when?
Bicycle Mobile Hams of America
Membership and Treasury Report

It's been quite a while since we have updated you with membership totals and fiancés of BMHA. Here is a brief update:

Current membership total: 351 members from 48 states, 2 European and 4 from Canada.

Current Treasury balance: $1055.75 plus $1555.96 in two Savings Certificates.

BMHA does not currently require yearly dues for membership and it is anticipated we will continue in this mode. Donations are accepted however. Our expenses consist of some website expenses, minimal mailing costs and occasional cost of supplies. Income from the Savings Certificates and donations is expected to fund our expenses for a number of years.

Bicycling and Hamming across Nebraska

One of my passions in life is bicycling which I have been doing now for about 50 years. Over the last twenty years I have usually done at least one or two week self-contained riding somewhere in the Midwest states. I had been thinking of doing a ride across Nebraska for some time and this year, 2008 seemed to be the year to do it.

Why not combine one of my other passions, Ham Radio, with bicycling. I planned with a cycling and Ham Radio friend to ride and operate across Highway 20 in northern Nebraska. Both of us actually have tadpole tricycles and Burley trailers. We planned to load the trailer with our riding gear including nice big tents that can accommodate the tricycle along with sleeping quarters. I fashioned my trailer with a rack and plate to mount two antennas with an umbilical cord from the trailer to the trike containing the power cord and antenna coax cable.

My daughter and son drove both of us to the Nebraska/Wyoming border using a trailer that my riding friend, KAØNCR had made for hauling the trikes and bike trailers. Our plan was to only ride 30 miles the first day to Ft. Robinson state park. My daughter and son camped there the first night with us and this gave us a chance to assess the first day ride and see if we wanted to continue as a team. Arnie, KAØNCR, decided not to continue as he was having some feet problems. Probably a good choice as the next day was a difficult one with some pretty good hills and heat. I continued the next morning by myself with Arnies radio, an ICOM IC-703 and all the rest of my own gear. I had one 7-amp hour battery and charger which turned out to be sufficient. The trailer with all the gear was about 70 pounds.
My first radio stop was at the county line of Dawes and Sheridan. I setup the Buddistick on the trailer and connected the radio and turned it on and the County Hunter frequency of 14.336 was very active. Shortly a net control asked if anyone wanted to run a county and I checked in and had a nice run on SSB working 21 contacts including LY2ZZ as the farthest DX. I then went to 20 CW and worked 12 on CW. After tearing down the antenna and repacking the trailer, down the road I went.

My next stop was at Merriman and after I showered and watered down, I setup again in the park and ran Cherry County. On both SSB and CW on 20 I made 13 contacts. Several days later I ran the Brown and Rock county line and made 18 contacts.

My final stopping point was at O’Neill as I had so many things to do in preparation for RAGBRAI, a family gathering and window painting that I needed to return home. My wife grudgingly picked me up. Total mileage was 320 miles at an average of 8.3 mph. I camped 2 nights and spent 3 nights in motels. Later I will go back and finish the last two days from O’Neill to South Sioux City, NE.

The enclosed pictures are from my Nebraska trip:

1. Unloading and setting up at the Nebraska/Wyoming state line.

2. Park in Merriman Nebraska and radio and antenna setup. The ICOM IC-703 is sitting on the seat. When operating, I sat in the seat simply holding the radio on my lap.

3. Burley trailer showing the battery and if you look closely you can see the power cable which runs back to the tricycle seat.
The next time you need to order new QSL cards, don't forget to include the BMHA logo in your design. Here's the official logo, as designed by Russ Dwarshuis, KB8U.

A Weekend Of Service
Norm N9ZKS
I have been participating in a great service opportunity for the last five years. It is the Houston to Austin Texas BP MS150 held every April to raise money to fund the eradication of Multiple Sclerosis. It is the largest fund raiser in the US for MS. This year they have $12,600,000 already and are hoping for $18,000,000 for a grand total. They limit the participants to 13,000 bicycles for safety and Jerry, WA0GLD has organized a group of better than a 100 motorcycle owners that vie for the privilege to support the bicyclists as communicators, medical support and mobile mechanical support. I say “vie” because Jerry opens the list for volunteers for the next year’s crew on Tuesday after the ride and as I write this there are 77 riders signed up for next year. We limit the number of motorcycles on the course to 90 to avoid excessive traffic on the road. Current requirements to join the team include having a ham license and having a dual band radio for communication. The ride depends on the ham clubs and repeaters of the area to provide communications for the entire support organization. There is an operation net, medical net, emergency net held on multiple frequencies each day and a scooter net held on a simplex frequency. When I was single, I rode down the first time taking a long route allowing me to ride a “Saddle Sore 1000” and a “Bun Burner 1500” which are 1000 miles in 24 hours and 1500 miles in 36 hours motorcycle rides. I also would plan routes down and back through the Ozark Mountains for the great riding and scenery. I’m thinking of returning to those routes next year with my wife. The ride itself is hard to imagine. Even with almost 100 miles for the day’s ride 13,000 bicyclists mean that one cannot find a section of road where there are not almost a solid string of riders in sight. There are movies on YouTube if you would like to see what I mean. Just Google “BP MS100”. You can see that the use of motorcycles for support is necessary as the presence of that many cars or vans on the road would severely threaten the safety of the riders. This is especially true when you consider

4. This is one county I went through, Brown county Nebraska.

Mike Nickolaus
Amateur Radio - NFØN
that the riders needing support are usually
the riders with less fitness and experience.
Sunday this year, I noted that before I got to
the first rest area at the 10 mile point, there
were riders at the 50 mile point.
The event is a spectacle with people setting
up entertainment along the route such as a
bag piper, fiddlers, and disk jockeys. Victims
of the disease place themselves along the
route to cheer on the riders working for a
cure for the disease. Teams place signs
along the route to motivate particular riders
as well as the team as a whole. At the end
of the day we see people walking up the hills
trying so hard to finish under their own
power.
We, the motorcycle Marshalls, have three
major duties. First, we provide
communication of any even information
regarding conditions, accidents or hazards
along the route. All communications are
linked by radio or IRLP to the MS150
headquarters in Houston. A number of the
vehicles are APRS (A system by which our
position by GPS is sent via radio) equipped
so that the HQ can see immediately where
we are.
Second, we carry basic first aid supplies to
offer to a victim of an accident although we
are not providing first aid unless we are
certified EMT’s etc. There are also a good
number of EMT’s riding the route on bicycles
who provide medical support until rescue
personnel arrive.
Third, we provide mechanical support for the
bicycle riders along the road. This is
hopefully the primary duty we perform the
whole day. We carry spare tubes, tools and
pumps so as to be able to fix minor
problems on the bicycles of the participants.
It is amazing how happy a rider is when you
ride up with a floor pump with gage as he
starts to change his third of so flat for the
day. It makes one want to see a return of
“tire savers” which were popular in the 70’s
to “wipe” bits of glass, thorns or other
puncture inducing material of the surface of
the tire before they worked their way into the
tube.
The final duty, and the one most of us enjoy
the most, is to accompany the last rider
across the finish line at Austin. Most of the
crowd which cheered the early finishers is
gone and the workers have started tearing
down the finish area. We and the SAG
Vans, and Ambulances follow the “Turtle”
across the finish lines with horns, sirens and
flashing lights to back up the PA announcer
cheering the rider for his hard work riding
the better than 150 miles during the two
days.
With that another MS150 is completed and
we head our separate ways. This year it was
a very successful MS 150 in that we had no
serious injuries requiring life flights. We
lucked out in that the rain missed the riders
for the most part with only a few sprinkles
during the ride. I even received an email of
thanks from a gentleman from Wales who
flatted as he rode across the START line
and again a few miles down the road. I had
given him my information since my son-in-
law is Welch and he knew the area. His
Australian friend also lost his seat bag with
credit cards and license that first 20 miles.
He did receive them back a couple of days
latter. Thanks to some honest Texans!
I’m planning to be back next year although it
would be a lot better if we found the cure
and could dispense with all the rides we
support that are looking for the cure for
diseases.
Wisconsin ride "GRABWAAR"

(Image of me in all my glory is attached)

Playing with an HT, a dozen or so repeaters and a score of fellow Hams sounds like fun, then add to it the joy of riding a bicycle 500 miles across Wisconsin. Then I helped prove that “when all else fails, amateur radio is there.” That’s my idea of a vacation.

Last June I participated in GRABAAWR (GReat Annual Bicycle Adventure Along the Wisconsin River) as a biker and a Ham.

GRABAAWR starts at the “top” of Wisconsin and makes its way to the lower left-hand corner following the route of the Wisconsin River. It follows the 427-mile length of the river as it winds through the northwoods, the central sands area and Wisconsin’s Dairyland. The ride covers seven days of cycling - an average of 70 miles per day. Daily distances range from 55 miles to 85 miles. Riders enjoy a combination of rolling hills, flats and a few challenging hills along the way. The tour is limited to 1000 cyclists.

My bike is a Volae Expedition, a Wisconsin-made recumbent, a lightening fast reclining lawn chair; my radio for the trip was a Yaesu FT-60R HT.

I’ve had a recumbent for 12-13 years, choosing comfort and speed over pain and agony. The Volae, manufactured in Stevens Point, puts the rider in a very comfortable position, not on a seat, but something of a chaise lounger. The rider is in an extremely aerodynamic position as well as a efficient position for pedaling.

The Yaesu is a durable two band hand held. Van Elston, WA9FIO, helped produce an adaptor to connect the radio with a half-wave antenna that was mounted on the bike’s rack. That set-up let me hit every repeater on the route nearly as well as the 50 watt mobile units used by Hams helping the ride.

More than a dozen Hams helped with communications for the week, some staying all week and some coming for a day or two. Most were ARES/RACES operators from throughout the state. Most were assigned to rest stops along the way; one operator drove a “sweep” vehicle and there was a “SAG” as well, looking for lost, wounded and tired riders. Communications was coordinated by a control operator set up in an old, small school bus.

I was the only riding Ham. My duty was to report on road hazards and rider conditions, but the reality for the riding Ham is the opportunity to work with a group of fine Ham communicators. Our “work” and occasional semi-work kept me company on the long boring stretches that occur on all bike rides.

Hams saved the day for one unfortunate rider. The rider was right in central Wisconsin not far from a couple towns and just a couple miles from a casino when he lost control of his bike on wet pavement, falling and breaking his pelvis. Some other bikers alerted the nearby rest stop which contacted me on the repeater we were using. I was riding in the sweep truck that day and had a mag mount antenna for the Yaesu. We quickly found the guy, but when others in the area tried to get first responders, no cell phone (representing three different carriers) could get out. My 5w Yaesu could, and did and help was rapidly on the way!

There are some logistics to participate. I had to drive to Muscoda – the END of the ride – camp over night in the school gym, then pack my bike on a semi and get myself on one of nine or 10 buses for the day-long trip to Hurley, the start of the ride. Then, from Sunday through Saturday, you ride your bike to get back to your car.

WA9FIO was the second person to greet me in Muscoda. His summer home is a short distance from the school so he dropped by to make sure me, my bike and my radio made it that far with no hitch.

 Riders may sleep in gyms, camp out on school grounds, or make their own arrangements for motels. Most camp. You may purchase a meal plan that provides good breakfasts and dinners at the schools. Lunch, on the road, is on your own. If you find pie, cookies or ice cream along the way, so much the better.
Generally, riding goes from 7 a.m. to 4 p.m., riders often going in small groups of those with similar paces and interests. If there is something to stop and see, then they stop and look. It is not a race, but a tour designed as a vacation and not an endurance event.

Bob Seaquist  
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INTRODUCTION

• My name is Dave Starkie and I am from the seaside town of Blackpool in England.
• My call is G4AKC which I have held since 1970.
• I am an engineer working on Ground Radio and Radar systems at BAE Systems at Warton and have been there since 1976.

OVERVIEW OF HF BICYCLE MOBILE

• I operate on 17 and 20M HF close to the sea water and work DX from bicycle and pedestrian mobile stations using both QRP, medium and high power.
• What’s more cycling is a good way to yourself keep fit! (that’s my excuse for doing it!)
• Myself and G7LPW achieved a recent world record contact between UK and New Zealand using only bicycle and backpack stations.
KEY POINTS FOR BEST PERFORMANCE

- Location is very important and when very close to the sea it can give 15-20dB increase to receive and transmitted signals.
- Optimising the aerial/ground current.
- Centre or top loaded to get the aerial current as high as possible.
- Use High “Q” large diameter mono-band coils to minimise losses.

GROUNDPLANE

- The ground plane for any vertical antenna is just as important as the antenna itself and it will dictate the overall performance of the antenna system. It’s the “other half” of the antenna system.
- The complete radiated beam only forms several wavelengths from the antenna so a large ground-plane like the sea is ideal.
LOCATION

- The saltwater of the sea creates a perfect ground-plane for the antenna to work against much like a sheet of copper stretching for many miles.

AERIAL CONSTRUCTION

- The antenna is initially constructed at home using an aerial analyser with the antenna working against a set of known resonant radials.
- The antenna is then placed on the bike or backpack and the braid of the coax at the antenna side is not taken directly to ground but via a parallel or series tuned circuit (dependant upon frequency and size of frame) and then back to the chassis or frame.
**EARTH TUNING BOX**

- The tuning box is made for each dedicated HF band.
- It is placed between the braid of the coax cable at the aerial end and the frame of either the car, bike or backpack.
- We have now designed a new ground tuning box which tunes all HF bands.

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**ANTENNA SET UP**

- Once the aerial is constructed it is then adjusted for resonance at home using 4 quarter wave resonant radials for the frequency of the antenna which raised above the ground.
- The antenna top section is then adjusted to resonance by using the aerial analyser.
- This resonant antenna is then fitted to either the bike, backpack or trolley.
- The braid of the coax at the feed end is then taken via the home made matching unit before it is connected to the frame of the bike, car or backpack. This is tuned to resonance when in the operating location.
- The length of the aerial is never changed to alter resonance.
WHAT ARE WE TUNING?

• When we tune the frame of the car, bike or backpack we are not just tuning the frame but we are tuning the surrounding area as well by capacitive coupling.
• When close to the sea we are harnessing what Keith likes to call “Gods linear amplifier” due to the gain when operating near to the water.

ADJUSTING THE GROUND CURRENT

• The ground conductivity determines how much ground current is flowing and hence if the tide is in, the ground conductivity is increased, so therefore the ground tuning has to be adjusted dependant on the prevailing ground conductivity conditions.
• A dramatic peak of both the received and the transmitted signal is achieved when the ground current is balanced when operating near to the sea.
**BASIC DIAGRAM OF THE ANTENNA**

**AERIAL CURRENT BALANCE**

- The use of a simple aerial current meter can be used to get the current balance correct as a change in ground conductivity changes the amount of ground current. A simple clamp on meter can be moved from the aerial to the earth line to verify current balance.

- A field strength meter placed in the far field is also very useful to optimise the antenna.
SIMPLE AERIAL CURRENT METER

AERIAL CURRENT METER

\begin{figure}
\centering
\includegraphics[width=\textwidth]{aerial_current_meter_circuit.png}
\caption{Circuit diagram of the aerial current meter.}
\end{figure}
• Living close to the sea gave me an idea of working a HF station from a bicycle and a couple of years ago I fitted a complete station to the bike, employing the same design antenna system.
• The system has continued to develop in the last five years.
CURRENT BICYCLE STATION

- Alinco DX-70.
- Four switchable 7Ah gel batteries.
- Roller coaster/switched capacitor earth matching.
- Top loaded antennas 10, 15, 17 and 20M
- Telescopic 7 metre fibreglass pole 40–160M
- Two way aerial switch
- Digital voice recorder
- Personal bike alarm
- Continually adjustable RF power output
- Trailer with KL500 linear amp 300 W pep
- Two 12 Volt 40Ah gel batteries
- Libretto laptop for contact logging

HIGH POWER BIKE MOBILE

- The KL500 linear amplifier mounted in a trailer is powered by two 40Ah gel batteries and can generate up to 30 Watts PEP on SSB on all HF bands.
- I do not always use the trailer as it is very heavy!
ALINCO MOUNT WITH HEADSET

EXTRA BATTERIES
RF FILTERING

- Due to the fact that all the equipment is in a confined space on the bike and particularly when using the KL500 linear amplifier, I have had to employ some home wound toroid filters to prevent any RF instability.
**GETTING THE BEST RESULTS**

- Location, as close to the sea as possible.
- Optimising the antenna and ground.
- Knowing which band and what time to work a certain area.
- Using programs such as VOA prop, which is an accurate propagation prediction program before going out.
- Using the grey line when possible.

**“GREY LINE” PROPAGATION**

- The grey line is a band around the Earth that separates the daylight from darkness.
- Propagation along the grey line is very efficient.
- The major reason for this is that the D layer, which absorbs HF signals, disappears rapidly on the sunset side of the grey line and as it has not yet built upon the sunrise side it provides a low loss path.
GREY LINE AND VOA-PROP

VOAPROP also provided us with the predicted path likelihood, frequencies and times of propagation all from live data.

What's more its free to download!
ON AIR RESULTS

• Incredibly ……
  the performance of either
  the bike, backpack or
  trolley when near to the
  salt water is comparable
  with a 3 or 4 element
  mono-band beam at 60 or
  70 feet.
• Many on air tests have
  been compared with
  stations using beams
  whilst working into USA,
  VK, ZL etc with stunning
  results.
• That is why we
  contemplated this
  ULTIMATE challenge …
• Blackpool to
  Christchurch New
  Zealand using..
• Bicycle to backpack
  pedestrian mobile and
  QRP backpack to
  backpack pedestrian
  mobile.

RECORDED BICYCLE QSO
0845Z

• VK4SU 15/11/07

• 18,100km long-path grey
  line contact.
• Location: Queensland
  Australia.
ZL TO UK LONGPATH
BACKPACK TO BICYCLE

0800Z

- G7LPW/ZL
  PEDESTRIAN
  MOBILE
  TO
- G4AKC
  BICYCLE
  MOBILE

- Long-path QSO Blackpool promenade to Christchurch New Zealand propagated distance = 21,100Km
- 15th November 2007 at 0800Z on 20 Metres SSB 50 watts PEP each end.
- Now listed in the “World Records Academy” as the longest distance bicycle to backpack contact.

ZL TO UK LONGPATH
BACKPACK TO BACKPACK

0815Z

- G7LPW/ZL
  PEDESTRIAN
  MOBILE
  TO
- G4AKC
  PEDESTRIAN
  MOBILE

- Long-path grey line QSO Blackpool promenade to Christchurch New Zealand propagated distance = 21,100Km
- Date: 15th November 2007 at 0815Z on 20 Metres SSB 14.3425MHz
- SSB 50 watts PEP each end.
QRP ZL TO UK LONGPATH BACKPACK TO BACKPACK 0820Z

- G7LPW/ZL/QRP PEDESTRIAN MOBILE TO
- G4AKC/QRP PEDESTRIAN MOBILE

- Long-path grey line QSO Blackpool promenade to Christchurch New Zealand propagated distance = 21,100Km
- Date: 15th November 2007 at 0820Z on 20 Metres SSB: 14.3125MHz
- 5 watts QRP each end!