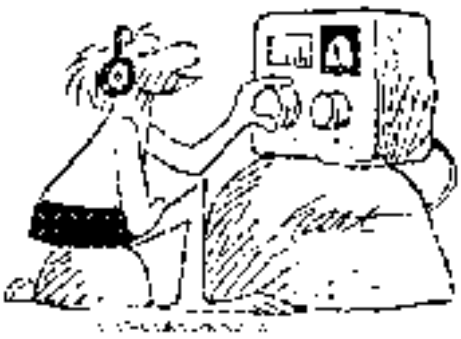

BARA Facts

Newsletter of the Binghamton Amateur Radio Association

September 2007

Website: http://www.wtsn.binghamton.edu/bara

The President's Corner

Two items of significance this month (plus one other note) and all have to do with Membership and Activity.

First, I remind everyone that we will have our Elections in November. At present, we seem to have members willing to run for the Board, but we need to fill the slots for President, Vice President, and Secretary.

Without belaboring the point, I urge you to consider running for one of these positions. If you have any interest, or if you have any questions about what the positions require, please feel free to grab me during the break at the General Meeting or give me a call at 607-754-3810. None of the jobs are burdensome, and those of us who are stepping down will still be around to assist.

Second, membership. It would be nice to boost our numbers and to bring some new blood and new ideas into the Club. How to do this is the $64 question. We kicked around an idea at the September Board Meeting and I'd like to float it by you and ask you to come 'on board'.

How to get out the word on BARA? There are lots of Hams in our area who may not know about us or who may never stop by a meeting because they don't think we have anything to offer them. We need to tell them who we are and we need to show them who we are. I propose that we plan an Open House (perhaps in February so we have time to prepare). Besides planning for refreshments and a program, we can get out the word on the repeaters and Nets and personally. We can also do a mailing to local Hams.

Now, I know that postage is expensive and expenses are always an issue.. That's why I suggest that one possibility of funding this is to 'build a kitty' — a donation box into which Members who want to support this effort can toss loose change (and tens and twenties too!) At the meetings leading up to Open House. We will send letters until we run out of postage. BARA's only cost would to pay for the copies and envelopes and (if someone cares to make a motion in that direction) perhaps even to match the 'Kitty'.

I think it's am idea worth considering. What do you think? Let's give some thought to this.

Third, Besides complaining, it's also my responsibility to recognize the fact that this Club keeps on going because of the efforts of our Members. All of you are part of that, *you* are, after all, the Club. But among our Members, are those who cover the little (and lot-so-little) jobs that need to be done:

Hedy, AA2MU, comes to mind here. Every month the *BARA Facts* is bundled up, addressed, stamped, and mailed by Hedy. She does this tirelessly and as quickly as possible and sometimes at the last minute when a delay in production or printing gums up the works.

Hedy is also our 'Social Director' and that is a job in itself. When we have a Picnic or Party Hedy is the one who makes sure that Food and Refreshment are available. She also covers the little details that nobody thinks about until they are missed. Believe me, nothing happens with a finger snap. It takes work and the willingness to do that work.

Jack, WB2GHH, is our Master Sergeant. He remembers and reminds and keeps us in line. Veterans know that the officers get nowhere without a good sergeant!

Our Webpage and Reflector keep us present 'on the web' and Bill, N2BC, and Ed, NE2W, keep them there. And they do look good.

Ford, AB2HS, and Brian, K2DLB, are two who keep us in the Public Service 'line'. If we are able to say that we fulfil our *Part 95* mandate as Emergency Communicators or to act in the Public Interest, Ford and Brian help to organize the events that gain us publicity and they document and publicize those activities. Is this

important? Just consider the agencies that offer support when an Amateur Radio issue goes before Congress or the FCC and remember that the two visible signs of Amateur Radio are our antennas and our activities. Without good press and goodwill, which image do you think people will give more consideration?

There are also those who speak to school and other groups on Communications and Ham Radio and those many who Elmer into and within our ranks. There are 'big' efforts like the General Class earlier this year and the 'little' one-on-one activities that are almost never publicized.

Now we get to more difficult ground: difficult because I don't know all the details and difficult because some things are just done quietly. In this group I include all those who 'take care' of an issue, 'remind' us that someone needs recognition or that it's time to do something, or 'cover' a job.

Long-winded? Perhaps, but necessary. Sometimes I need to use this space as a reminder of what is going right. Thanks to all of you for all you do. Please don't hesitate to remind me of anyone I may have forgotten. — *73, DE Ed, KB2SCF*

Change of Location September BARA Meeting

THE SEPTEMBER BARA MEETING WILL BE HELD AT THE NATIONAL WEATHER SERVICE FORECAST OFFICE AT THE BINGHAMTON REGIONAL AIRPORT (LINK FIELD; MT ETTRICK).

The NWS office is located at 23 Dawes Drive in Johnson City, NY. That's right the mailing address is Johnson City. The meeting will start at the usual time of 1930 (7:30 PM) and will be as short as possible. It will be a stand up meeting conducted in the reception area of the office and will be followed by a tour of the facility.

The NWS facility is quite an impressive place with all the computers, radar screens etc., but what makes this office even more impressive is a complete HF, VHF and UHF amateur radio station which has been established over the years to support SKYWARN operations. From this site all 24 counties in the area of responsibility of the Forecast Office can be contacted.

Directions to the office are as follows: Drive into the airport property as if you are going to drop off passengers, but do not enter any of the parking areas. Drive past the terminal building, the fire and rescue building, the new water tower and then prepare for a right hand turn on Dawes Drive. Proceed to the end of the road. You can't miss the facility or the tower. Find a parking spot but please do not park in any staff parking slots. If necessary, turn around and park on the south side of the entrance road. Close up the spaces between vehicles in order that the next car can squeeze in. (You don't have to worry about being blocked in because most us will be leaving at the same time.)

Mark September 19th as the day your going to get high (1,450 feet +/-) and head to the airport. Pass the word. Hope to see you there. — *DE Jack, WB2GHH*

A Splendid Time Was Had By All

Between thirty-five and forty Members and their guests attended the BARA Summer Picnic.

Food was available in abundance and variety and this correspondent found the dogs, burgers, deviled eggs, fruit salad, salad, veggies, snacks, and other goodies abundant and delicious. There was no shortage of food and drink!

Don, AB2HT, brought a number of estate items he is selling for the family of a Silent Key and several deals were 'closed' between bites.

As appetites were satisfied, everyone relaxed, chatted, and walked off the feast. Jonathan, KC2RIC, entertained the group with a demonstration of Radio Controlled Model Aircraft. Besides a "traditional" battery-powered monoplane, Jonathan also brought a Radio Controlled 'Balloon' and 'Disc'. It was an impressive demonstration and Jonathan has certainly honed his skills as a RC Pilot.

Brushless Notes

The model planes demonstrated by Jonathan, KC2RIC, at the August Picnic were powered by brushless DC Electric motors. Besides being much quieter than the old gasoline powered models, the idea of a "brushless" motor generated a bit of speculation around the leftovers table. In the interests of providing useful technical information (and filling up a few column inches) our Research Staff did a little bit of digging.

The first fact about Brushless DC Motors is that they are more expensive than ordinary DC Motors. They are also capable of delivering a fair amount of power for their size. How do they do this?

In reality the 'brushless' motor is a AC motor of peculiar design. The supplied DC is converted to one or more AC phases which then drive the motor. Although single phase motors are in use, a polyphase design is

more common. The multiple AC phases assure constant power output because at least one pair of poles is supplied with the peak (or near peak) voltage at any given instant.

Another feature of the design is that the motor must be provided with a set of sensors so that the position of the poles in relation to the field can be used to control the DC-AC converter. Thus, a given AC phase can be 'peaked' at the instant the peak voltage is required. The feedback between poles, field, and control makes for a more efficient and constant transfer of power. The feedback loop between sensors and DC-AC converter also implies that the motor must have a controller circuit and a brushless DC Motor cannot run without one.

Finally, the position of field and poles is reversed: The field (consisting of permanent magnets) is fixed to the shaft and rotates within the pole 'cage'. This eliminates the need for any brushes and the losses attendant in a brushed design. It also eliminates several sources of 'problems' in traditional brushed designs: The windings are stationary and there is no concern that rotational forces will cause the windings to fly apart; the mechanical attachment of the magnets to the rotor is the limit to shaft velocity; the dynamic characteristics of the rotor are less troublesome than those of rotating windings; and heat can be dissipated through the motor case.

Although the final design provides concentrated power in a compact package, there are trade-offs. First, a brushless DC motor is more complex and expensive than a brushed design. Starting is also more complex with the possibility of momentary rotation 'in reverse' before the controller is able to sense the position of the shaft with relation to the sensors. The windings are also more complex because the device is essentially a polyphase AC motor. Second, the DC-AC Converter generally provides a square wave (or modified square wave) output in most designs (although a Vector Controller can provide a true sine wave) and controller circuitry and motor can create RF 'hash'. This is, however, balanced against claims that the lack of brushes mean less 'hash' from commutator sparking.

In certain applications a brushless DC design can be quite attractive. Maintenance costs and requirements are generally lower in such systems and the motor speed can be varied over a wide range while providing constant torque.

This in a nutshell is a summary of the brushless design. There are a number of resources on the Internet where you can obtain additional details: Microchip Technology <<www.microchip.com>> has a wealth of information. Search for Application Note AN885 and you will learn a great deal about these motors. The hobby site <<www.alansmodels.com/main_site/engines/how_motor_brushless.htm>> has a nice short summary of the brushless design. You might also check <<www.wikipedia.org>>. Search on "brushless dc electric motor"

Changes to the SVARA Repeater System

We are advised by Ford, AB2HS, that the main SVARA Repeater (formally 146.82) is now on a different frequency.

THE WA2QEL MACHINE USED FOR MOST PUBLIC SERVICE COMMUNICATIONS AND LIAISON HAS CHANGED FREQUENCIES TO 146.265 MHZ IN AND 146.865 MHZ OUT (146.865 MHZ, NEGATIVE OFFSET). NO TONE IS REQUIRED FOR ACCESS, BUT A 146.2 HZ SUBAUDIBLE TONE WILL BE SUPERIMPOSED ON THE OUTPUT and it is strongly recommended that you program your radio to transmit a 146.2 Hz tone. Please *do not* transmit a 100 Hz tone as this can access a distant repeater on the same frequency pair. The location of the repeater will not change.

The 'existing' 146.82 pair will be moved to another location and will still be linked in the SVARA system, but coverage will be limited to a certain area.

Why these changes? There are a number of reasons: additional equipment will be added to the repeater and we want to lessen the interference possibilities, so now is the time to make the change. We hope to delay the time when tone access is required and we anticipate potential interference from more radio systems, digital TV and broadcasting stations.

SK Gene Nosowicz, WA2UKA

It is with regret that we note the passing of Gene Nosowicz, WA2UKA. Gene passed away recently after an illness and he will be greatly missed by those who knew him. Gene was a quiet gentlemen, but friendly and generous with his knowledge. He had been active in the IBM "Visiting Wizards" program in its heyday and brought excitement, sparkle, and interest to his presentations. 73 OM, FB!

Binghamton Amateur Radio Association, Inc.
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First Class

Club Officers and Committees			
President	**Ed Plesnar**	**KB2SCF**	**754-3810**
Vice President	**Jim Lawson**	**KC2JED**	**797-1583**
Secretary	**Blake McCabe**	**KC2GQX**	**748-9808**
Treasurer	**Paul Slocum**	**N2NCB**	**687-2057**
Directors	**Jack Connors**	**WB2GHH**	**724-8822**
	Warren Marks	**KC2NGR**	**648-6840**
	Bob McCabe	**KC2DSS**	**748-9808**
	Lee Savidge	**W3EFE**	**669-4188**
W2OW Trustee	**Mel Snitchler**	**WE2K**	**723-9612**
Newsletter	**Ed Plesnar**	**KB2SCF**	**754-3810**

BARA, The Binghamton Amateur Radio Association is an ARRL Affiliated Club

e-Mail Address: w2ow@arrl.net

Next General Meeting
7:30 PM, Wednesday, September 19th
National Weather Service (See directions in this issue)

Board Meeting
7:00 PM, Wednesday October 3rd
Broome Community College Campus, Office of Emergency Services (West Side of Campus)

Exam Session
7:00 PM Monday, September 24th
Vestal Public Library, Route 434 Vestal

BARA Dues
$18/year Single Member; $27/year Family

DX Cluster
W2OW on 145.070 MHz with a Data Rate of 1,200 baud; questions to n2bc@stny.rr.com

Local Repeater Nets
146.73 MHz STAR Net (NTS Feeder) Every Evening at 6:30 PM Local Time
146.82 MHz BRAT Net (Informal BARA) Sunday Evening at 8:00 PM Local Time