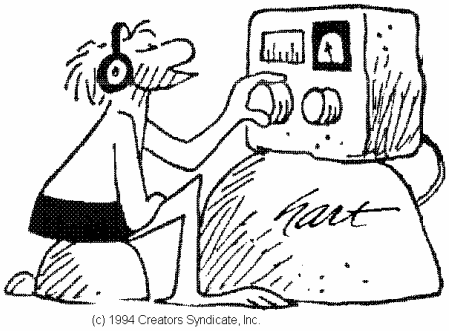

BARA Facts

Newsletter of the Binghamton Amateur Radio Association

August 2004

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

QST BARA

Important Information for All Members

There is Big News to report from our July General Meeting. Mel, WE2K, reported on negotiations with the Town of Binghamton for BARA to obtain permission to use a portion of a property owned by the Town of Binghamton. Tim Whitesall, Town of Binghamton Supervisor, was on hand to outline details on the property and the steps that we must follow to obtain use.

The property in question is the old Town of Binghamton Landfill off Hance Road. The entire parcel contains some 29.2 acres and we would like to negotiate a long-term lease for a three to five acre portion of the property. The Landfill is not in active use at present, but it has never been declared "closed".

Mr. Whitesall was very enthusiastic about the idea of BARA using the property and he remarked on both the Emergency Communications/Public Service aspects of Amateur Radio as well as the fact that BARA is a club with a long history in the *Binghamton* Area. Both he and Mel noted the excellent Amateur Radio presentation made by Jack, WB2GHH, at the last Town Meeting and noted its favorable and enthusiastic reception.

The property is very close in elevation to our former site on Milks Road and has the advantage of few neighbors and nearby electric power. Antennas would, of course, be permitted, although we would have to verify that there would be no environmental restrictions or engineering problems with respect to the foundation for Towers. These issues, however, are in the future because we must first obtain permission to use the property after which we can begin the practical details of further investigation.

This is where you—the Members of BARA— come in: On Tuesday, 17 August at 7:00 PM in the Town of Binghamton Hall (our usual meeting place for the General Meeting) the Town of Binghamton Board will formally take up our request and hear opinions for and against it. We would like to see as many BARA Members as possible at that meeting so that the Town Board sees who we are and knows what we represent.

As a Club, we also owe thanks to Mel, WE2K, and Jack, WB2GHH, for their work in pursuing this option and it would be thoughtless to forget the many others who have suggested and/or investigated other sites. This option is by no means a "done deal", but all indicators are positive and we have a real possibility at hand.

BARA Picnic

The Social Event of the Summer!

Don't forget that our August 18th General Meeting will be held at Ross Park (just down the hill from our regular meeting site) in the Small Pavilion.

The festivities commence at about 5:30 PM with our traditional Mini-Hamfest and Tailgate Party, so remember to load up the trunk and to park near the pavilion so that the "goods" can be easily moved from car to car (remember to remark to spouse or significant other on the carousel and museum, they might enjoy visiting them while you paw through that "boring stuff" in the trunks).

As usual the Club will be providing the meats and drinks, so bring along a side dish or dessert to pass. Spouses, Harmonics, Significant Others, and Friends are all welcome. There is a playground and plenty of space for the kids to run around and we are under cover so "liquid sunshine" should not be a problem!

Last year we put W2OW on the air in a small way and we would like to try again this year. If you

would like to bring along a Rig and Portable Antenna and do some operating (or just show off your stuff), then feel free. Last year we loaded the roof, let's see what we can accomplish this time around.

Non-Profit Advance

Paul, N2NCB, reports that the New York State Attorney General has approved BARA's application for Non-Profit Status and that we are now into the next round of (Federal) approvals. This process has required many forms and lots of work on our part, but we are past the most significant hurdle. Thank you, Paul, and thanks to the others who have helped collect and organize the applications we have filed.

Vanity Fee Increase

We see from the *ARRL Letter* of 16 July that a new vanity fee goes into effect on 6 August. Applications for New or Renewal licenses filed on or after 6 August will be subject to a $20.80 Amateur Radio vanity call sign regulatory fee for the 10-year license term.

SK Marlon Brando

Actor Marlon Brando, one of the best-known names in cinema, died in Los Angeles on 1 July at age 80. Known for his roles as Stanley Kowalski in *A Streetcar Named Desire,* a dockworker in *On the Waterfront,* and Vito Corleone in *The Godfather;* the twice-winner and eight-time Academy Award Nominee was also known by his Amateur Radio Callsigns KE6PZH and FO8GJ. Brando appears in the FCC database as a General Class Licensee under the pseudonym, *Martin Brandeaux,* while his FO8GJ listing indicates both his real and his assumed names. Brando was on the air occasionally over the years as FO8GJ from his private island in French Polynesia. In 1994 a CNN interview with Larry King, Brando affirmed his continued interest in Amateur Radio. In response to a caller's question, he said ham radio provided him with the opportunity to just be himself. — *from the ARRL Letter for 16 July*

Pretty Patterns

In the brief summary of Analog-Digital-Analog Conversions in the last *BARA Facts,* the overriding concept was that the Digital Signal — while in the digital parts of the process — existed as a series of discrete values that taken together approximated the analog signal. Now, numbers are useful for many purposes and computers are very good at comparing and manipulating numbers. In fact, we can summarize the entire basis of computer operations in three fundamental categories:

- Do Something (an imperative or directive).
- Examine the Relationship between Two Things (comparison or conditional).
- Do Something as a result of Examining a Relationship between things (branch or change flow-of-control).

If we allow that "Do Something" can include things such as numeric calculations and manipulation of numbers and other things, we have the beginning of a very powerful tool.

Digital Signal Processing (DSP) takes advantage of the fact that every type of modulation that we apply to a carrier can be described using mathematical functions. To given an example: Any Single Sideband (SSB) Signal can be described using a theoretical formula and although the specific details of the signal will depend on the words you speak into the Microphone, the resulting pattern will fit into an "Envelope" that is described by a mathematical formula (a Function) and the average characteristics of a Human Voice.

A Computer can be used to match the Digital Version of an actual SSB Signal against the computed Envelope predicted by the Model of a SSB Signal and the things that don't fit in the Envelope can be rejected and replaced by an Interpolation (a prediction for what the rejected value was masking). The result is a reduction in noise and interference to the Signal.

This is the basic function of Digital Signal Processing (DSP) and while it can be applied to a signal that is transmitted over a Digital Circuit, it can also be applied to an Analog Circuit by converting the signal to Digital (and then, after processing, back to Analog).

DSP can also model other functions that we have traditionally implemented directly through Electronic Circuits. If we recognize that the function of High-Pass, Low-Pass, and Band-Pass Filters is to restrict the range of frequencies output at (or input to) a particular Stage of a Transmitter or Receiver, then it should be easy to see that a Computer can manipulate the Digital Representation of an Analog Signal and provide the same functions that Electronic or Mechanical Filters provide. Furthermore, the Model used by the Computer can be as perfect as we please with absolutely vertical Skirts and Ideal "Q".

Again, what is happening in Digital Signal Processing is that we compare the actual signal against

a Mathematical Ideal and the we modify the Actual to conform it to the Ideal. Reducing a Continuous Analog Signal to Discrete Digital Values makes this "magic" possible. If our processing is properly designed, we enhance clarity and we reduce or eliminate noise.

Note, too, the significance of this processing because it can be separated from a Digital Circuit and used in purely Analog Applications. Moreover, the input to the Power Amplifier of a Transmitter can be processed as easily as the RF tuned by a Receiver so that we can use Digital Processing to improve a signal before it leaves the Transmitter.

Is this world perfect? No: The results will always depend on a careful matching of the Processing to the Type of Signal. Every Transmission Mode has its own unique pattern and Models must be developed for each Mode used. The gaps left by Rejected Data must be filled in smoothly so that the Signal does not become choppy and if the model does not match the information transmitted, these Interpolations will introduce their own distortions. Furthermore, the Processing takes Time. If it takes too much time, then we receive the results "after the fact" or outside Real-Time. This last point, incidently, is the reason why Real-Time DSP did not become practical until fairly recently: It might have been possible to "clean up" a signal in 1970, but it could have taken several hours of Computer Processing to clean up a minute of actual material. Applications were thus limited to analysis of recorded records in situations where the importance of the material justified the expense in computational time. Today we have closed the gap considerably and Real-Time DSP is a reality.

For further information it would be worthwhile to investigate an elementary text on Signal Processing. If you are "on-line", the SGC Corporation has an excellent overview *DSP Digital Signal Processing, Facts and Equipment* which can be downloaded in Adobe PDF Format free of charge from the *Publications* Link at <<www.sgcworld.com>>.

Review: *ARRL's Vintage Radio*

Through the kindness of Stu, K2RQV, I have the loan of a copy of this new ARRL Publication for review. I'd like to thank Stu for noting my request in the last *BARA Facts* and for bring a copy to the General Meeting in July.

When I first saw mention of *ARRL's Vintage Radio* I noted that it was a collection of "*QST* Articles about the lure of vintage Amateur Radio Gear" and I assumed that the articles would have been culled from the issues of QST stretching back to the 1920's and 1930's. In this I was disappointed because although the advertisements printed in the back of the volume do indeed include a few from the 1920's, the earliest *QST* article dates from 1977. That was a disappointment and I might have been tempted to end my review there, but for the fact that the articles (even the ones I remember reading "in the original") are almost without exception interesting and worth having. Besides some very practical articles on repair and restoration there are several very nice recollections or Elmers, First Experiences, and Well-Loved Radios. I have to say that I was disappointed that several of my favorite articles from the 1980's were missing and some will be disappointed to note that the famous (or infamous, depending on which experts you listen to) article on "The Dangers of Cathode Keying" is included. Fans of the "Old Radio" columns edited by John Dilks, K2TQN, will be happy to learn that the series is reprinted in the second half of the book.

Overall, I admit myself a tad disappointed in the book. I think that it might be of value to someone just bitten by the lure of the Boatanchor, but my personal feeling is that a lot of the material is "too new" in terms of appearance in *QST* to justify *me* buying the book. *Your opinion,* of course, might well be different.

ARRL's Vintage Radio (ISBN 0-87259-918-3) is available for $19.00 from ARRL.

What is Newsworthy?

As editor of the *BARA Facts* I'd like to take a moment to remind everyone that submissions to the *BARA Facts* are always welcome. I would be more than happy to receive contributions from any member who would like to share his or her notes, observations, or interests. You don't need to have a text polished to perfection and if you are not sure how to begin, please feel free to get in touch with me; I will be happy to work with you. The articles I write myself tend to reflect my own interests and studies, but there is a great deal in Ham Radio that I have not explored and I invite one and all to give their "take" on Ham Radio in these pages.

If you have a favorite Mode or Amateur Radio Activity that you would like to share or if you would like to review a piece of equipment you used or a book that you read, I will be glad to hear from you. Technical articles and suggestions as well as operating hints would be most welcome also.

If you have an idea or suggestion, please drop me a note (electronically at kb2scf@arrl.net or by US

Mail at my Callbook Address) or call me at (607) 754-3810 (evenings).

Club Officers and Committees			
President	**Bob McCabe**	**KC2DSS**	**748-9808**
Vice President	**Ron Reagan**	**N2RWK**	**722-6790**
Secretary	**Allen Lutins**	**KC2KLC**	**729-4817**
Treasurer	**Paul Slocum**	**N2NCB**	**687-2057**
Directors	**Bob Handel**	**K2FU**	**693-4310**
	Malcolm Heath	**KC2EOV**	**753-7248**
	Steve Orzelek	**N2MSB**	**775-0281**
	Mel Snitchler	**WE2K**	**723-9612**
W2OW Trustee	**Frank Scoblick**	**N2HR**	**729-4249**
Newsletter	**Ed Plesnar**	**KB2SCF**	**754-3810**

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

Next General Meeting

BARA Picnic at the Small Pavilion, Ross Park Zoo beginning 5:30 PM, Wednesday, August 18th. Ross Park is on Park Avenue, North of the Town of Binghamton Hall

Board Meeting

7:00 PM, Wednesday September 1st
Broome Community College Campus, Office of Emergency Services (West Side of Campus)

Exam Session

7:00 PM Monday, August 30th
Vestal Public Library, Route 434 Vestal
1:30 PM, Saturday September 11th
Endicott Fire Station, Across from UE High School

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

W2OW Repeater

147.390 MHz, 100 Hz CTSS. BRAT Net every Sunday Evening at 8:00 PM Local Time

Binghamton Amateur Radio Association, Inc.
P.O. Box 853
Binghamton, New York 13902

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