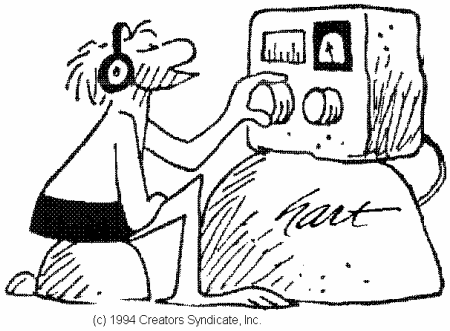

BARA Facts

Newsletter of the Binghamton Amateur Radio Association

February 2004

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

Continuing the Work

The big news this month is the ARRL Petition to restructure the Amateur Radio Service. A lengthy summary is given later and we will note the FCC Rule Making Number once it has been assigned so that you can comment pro or con on the merits of the proposal. Without taking sides, it seems appropriate to remark on several of pints raised by the League

First, the ARRL suggests an Entry-Level License Class that provides limited access to HF using various modes with the goal of "**integrat[ing] newcomers into the mainstream of Amateur Radio" and better introduc[ing] newcomers to more seasoned licensees who will assist them."** This is food for though and it would be well for all of us — no matter what our license class — to ask what we have done to encourage other Hams to advance their knowledge, develop good operating habits, and become full members of our ranks.

Second, the stated purposes of the Amateur Service include self-training and developing a pool of skills and skilled operators. For many years Amateur Radio was the primary tool for introducing a young man or woman to Electrical Technology and Engineering. Today we need to ask if our service retains its relevance in this area and if it does not, then we need to seriously consider what changes we need to make to restore Amateur Radio to its rightful place as a Technical Training Ground for the "next generation". Likewise we must identify and maintain our relevance so that there always remain solid and defendable reasons for allocating very valuable and commercially-attractive segments to Amateurs.

Finally, it seems counter-productive for the FCC to maintain in its Database License Classes that are no longer being issued. The current Novice, Technician-Plus, and Advanced Classes can only be renewed and it seems reasonable to consolidate them into the other classes. This may mean that some are granted additional spectrum "for free", but we need to seriously ask what solid purpose is served by maintaining those old classes as opposed to the benefit of a simplified and harmonized structure.

The Amateur Service is a valuable Training Ground and National Resource and it's worth noting that Federal Agencies (such as Homeland Security and the National Weather Service) have come to our defense and remarked on our value. It is important for us to maintain our position of strength in the public eye and one way of doing this is to continually examine our relevance and to present ourselves as a group that is dedicated to public service.

Thanks!

Our Treasurer Paul, N2NCB, reports favorably on the new Meeting Room at the Town of Binghamton Hall. Mel, WE2K, is to be commended for identifying such a nice location and for working to secure our access to the facility. We no longer have to work on setting up chairs and finding a place for the Coffee Pot. The facility is well-lit and we look forward to a long and happy presence at the Town of Binghamton Town Hall. Thanks again, Mel!

Restructuring Proposal

The 1999 FCC *Report and Order* to restructure the Amateur Radio Service seemed in the eyes of most Hams to be an unfinished work. It is probably fair to say that while many felt it want to far and equal number felt it did not go far enough, however just about all could agree that there was an unfinished air to the new structure. In light of the changes enacted by the 2003 World Radiocommunication Conference (WRC-03) the time is ripe for a careful review of the structure of the Amateur Radio Service and some 14 petitions have been submitted to the FCC since WRC-03 concluded. Most of these

petitions concentrated on modifying or eliminating the Morse Code Requirement which WRC-03 had left to the discretion of the individual Member Countries.

The ARRL has now submitted its own *Petition for Rule Making* to the FCC asking for amendment of *Part 97* rules to complete the Amateur Service restructuring the Commission left unfinished in 1999. The League wants the FCC to: Create a new entry-level license; reduce the number of actual license classes to three; and drop the Morse code testing requirement for all classes except for Amateur Extra.

Noting the changes to *Article 25* of the *International Radio Regulations* adopted at WRC-03 and the decision of the conference to leave the question of mandated Morse Testing for HF Access to individual countries, the ARRL emphasized in its petition that Morse code is not the central issue. "Changes in Morse telegraphy are one aspect of the proposal, and it would be insufficient for the Commission to address those issues in a vacuum," the League said. Calling its licensing proposal "a plan for the next decade", the ARRL said that its overall intention is "to encourage newcomers to the Amateur Service and to encourage those who enter its ranks to proceed further on a course of technical self-training and exposure to all aspects of the avocation."

Simply dropping the *Element 1* (5 WPM) Morse requirement, the ARRL asserted, would fail to address the critical need for an entry-level ticket other than the Technician. Calling the Technician license "a dead end" for many people, the ARRL suggested a new entry-level license (provisionally being called "Novice") which would offer limited HF phone, image, CW and data privileges at modest power output levels as well as VHF and UHF privileges on selected bands. The new License Class would require a passing a 25-question written examination, but no code test would be involved. The League asserts that "this structure provides a true, entry-level license with HF and other operating privileges which will both promote growth in the Amateur Service and integrate newcomers into the mainstream of Amateur Radio." It also suggests that the additional privileges would "better introduce newcomers to more seasoned licensees who will assist them."

Addressing the other existing License Classes the League proposal would consolidate current Technician and General licensees into the General class without further examination. Future General applicants would not have to pass a code test, but the written exam would remain the same. Current Advanced licensees would be merged into Amateur Extra class without further testing, and the Extra exam would remain intact. The ARRL proposal would retain the Element 1 Morse exam for future Extra class applicants.

Stating that its overall plan dovetails with the FCC philosophy and goals to simplify the license structure and to streamline the licensing process the ARRL noted that its plan would implement licensing requirements and privileges that are in harmony with each. Suggesting an Amateur Radio Licensing Structure that is designed to attract and retain "technically inclined persons, particularly the youth of our country" and encourage them to advance in areas "where the United States needs expertise," the League remarked that "the issue is not merely whether there should or should not be Morse telegraphy as an examination requirement, but rather what is the best overall approach for positioning the Amateur Service for future growth and incentive-based self-training."

A copy of the ARRL's Petition for Rule Making is available on the ARRL Web site at <<http://www.arrl.org/news/restructuring2/restrux2-petition.pdf>>. The FCC has not assigned a Rule Making (RM) Number to the ARRL Petition so it woulld be premature to contact the FCC with comments at this time. *— from the ARRL Letter for 30 January*

Empire State Games 2004

If you missed the January meeting then you missed an enthusiastic explanation by Bob Brackett, KD2IM, as to the expectations for and duties of radio amateurs assigned to Empire State Games (ESG) venues. Bob, the Amateur Radio Communications Coordinator for the ESG, kicked off the search for Volunteer Communicators for the 2004 ESG by passing out applications at the January General Meeting. Most in the audience of twenty turned in completed applications before the meeting ended. Broome ARES Emergency Coordinator (EC) Brian, K2DLB, and past EC Jack, KB2YEN, will be key to further recruitment efforts and have additional applications. We ask that you submit an application as soon as possible because early applications will help the planners provide for

Identification Cards (venue passes) and uniforms (color coded hats and T-shirts).

The Empire State Games will be a significant event for our area and we will need many Hams to cover about forty different venues during this four day event. Please don't wait until the last minute, volunteer now. Public Service is a Hallmark of Amateur Radio and, as Bob pointed out, "the ESG are the largest public service event in New York State." The ESG needs you!
— thanks to Jack, WB2GHH

A Digital Dash

Lately Digital Communications (including Digital Voice) have been getting space in the Amateur Publications and it seems a good idea to insert a few notes on the basics of Digital Communication. We hope that this material is relevant and of interest to our members.

The Digital World is quite different from the Analog World in which we live. An Analog Environment is one of continuous change — like filling a jug with water from a faucet. Once the flow begins it continues until it is cut off. By contrast, the Digital World would have us fill the jug one cupful at a time. Moreover, we would not simply pour in additional cups, rather we would add each additional cup as an entire unit.

If we were to convert something like the human voice to the digital world the easy variations of tone and intensity would be replaced by discrete transitions or steps. In the analog world we move from point "A" to point "B" by following an easy path with grades to move us from one level to another. In the digital world we move by steps and go upstairs and down. The "rules" we devise for our world may specify big steps or little and if we choose our steps small enough they will approach the continuous analog world, but they will always remain discrete steps.

A primary concept of Digital Communication is the idea of coding information for transmission. By information we mean nothing more than the content of a communication. This content has meaning to the sender and receiver, but it must be translated into a message in a form suitable for transmission before being committed to a Communications Channel for actual transmission. When the message is received it is decoded and the actual message content is recovered.

Aware or not, we use coding every time we speak: Our voices are a way of encoding (translating to code) our abstract thoughts into vibrations of the air. The key difference between a Digital Message and most "Natural Codes" is that a Digital Message is encoded using an alphabet with only two "letters". These letters (or Binary States) are often represented as "off" and "on", "zero" and "one", "minus" and "plus", or some other pairing of distinct states. In electrical terms we might use the conventions "current flow" and "no current flow" and it is here that we begin to see how and why a digital communications system might be useful.

Analyzing how a message is encoded is key to understanding how Digital Systems work so let us look at the oldest Digital Code used in Amateur Radio: Morse Telegraphy. We pick this example because Morse is well-known to Amateurs and also because it illustrates how coding can be more complex than first appears.

The Morse Alphabet is made up of ***dits*** and ***dahs*** and it might seem obvious to relate these to the Binary States, however this approach is incorrect and will lead to a loss of information in the encoding because it ignores the fact that a Morse Message is made up of several essential elements: (a) the ***dits,*** (b) the ***dahs,*** (c) the spaces between the ***dits*** and ***dahs,*** (d) the spaces between the letters that make up a word, (e) the spaces between words. Preserving each of these elements is essential to preserving the content of the message.

Let's now examine how we can relate (or map) the Morse Code to a Binary Alphabet and let us use the convention that a ***0*** will signify a period where no current flows while a ***1*** will signify a period where current flows. Thus, ***dits*** and ***dahs*** are encoded by strings of ***1s*** while the spacing is encoded by strings of ***0s.***

If we recall the convention in International Morse that (a) the length of a ***dit*** is taken as the standard unit for timing the characters we can formulate the remaining Coding Rules: (b) the length of a ***dah*** is three units, (c) the space between ***dits*** and ***dahs*** is one unit, (d) The spacing between characters is three units, and (e) the space between words is seven units.

To make the rules concrete, let's look at the coding for the General Call ***"CQ" — dah-di-dah-dit dah-dah-di-dah — 11101011101000111011101011 1.*** A complete message in International Morse can be encoded by following the same rules and it would be instructive to work out a few examples, however before we leave the subject for this month we note that the "message" in our example is read as a series of bits from left to right. In other words, the message is transmitted serially or one bit at a time. This is, in fact,

the way we receive Analog Messages, but in the context of Digital Coding this concept becomes more significant and we will begin to see why next month as we begin to explore the Digital World in greater detail.

Club Officers and Committees			
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	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

7:30 PM, Wednesday, February 18th Town of Binghamton Town Hall, 279 Park Avenue, South of the Ross Park Entrance

Board Meeting

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

Exam Session

7:00 PM Monday, February 23rd
Vestal Public Library, Route 434 Vestal
1:30 PM, Saturday March 13th
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

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