

**Piscataquis Amateur Radio Club (PARC) Secretary's Report  
Meeting, October 24, 2005**

Bob Wilson, KC1AU, President called the meeting to order at 7:05 PM. There was no secretary's report available. Margie Williams, N1UCN, Treasurer Pro Tem presented the treasurer's report, which was accepted as read.

Bob announced that there were only 2 EOC keys available to the club. For now, Ben Kittredge and Terry Knowles/Margie Williams would be the holders of the keys. Members are asked to call them to get access to the EOC.

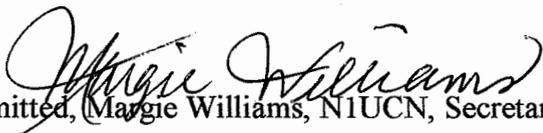
President Bob said the SET went well. He thanked those who participated: N1UCN, WA1JMM, N1RCU, WA1PBR, KB1EIX, and KC1AU. Bob discussed that the club should practice passing message traffic. Bryce Rumery, K1GAX, State Emergency Coordinator (SEC) wants to practice message traffic quarterly. Margie agreed to email the SET report once Bob sent her a Word document via email.

Reference Emergency Communications (ECOM), Bob stated that County's emergency management, FEMA, and MEMA are all taking a different slant. ARRL still has ARES/RACES. ARRL has ECOM classes online.

Bob Turnbull gave a quick class on bandwidth. He asked the group what subjects they would like to see taught in the future. The top selections were DX, Digital communication, and antennas.

Seven visitors were introduced to include 6 from the Metilly family and Josh Dillon. Ben, WA1PBR is again being an Elmer to this group.

The meeting ended with Margie sharing the birthday cake Terry made her with the group as it was her 50<sup>th</sup> Birthday.

  
Respectfully Submitted, Margie Williams, N1UCN, Secretary Pro Tem

PARC Attendees 10/24/2005

Name	Location	Call Sign
Margie	BJ	NIUCN
Don	Herman	WAZAKV
Ben	Milo	WAI PBR
Dan	DC	WIGHTH
Terry	Brownville Jct	NIRCY
Ray Roberts	Herman ME	NI MAT
Tom Cook	Winterport ME	WIFLY
RODNEY BERRI	Herman	NI TRQ
Isaiah Metilly	Milo	
Jonathan Metilly	Milo	
JOSH DILLON	milo	
Josiah Metilly	milo	
Andrew metilly	milo	
Bob T.	Athens	KIDDC
Gary Metilly	Milo	garymetilly@yahoo.com NIVFL
Nancy Metilly	Milo	nmetilly@yahoo.com
Bob Wilson	Monson	KCIAU

# CHANNEL CAPACITY

*Eccentric*

Edward Howard  
Armstrong,  
WWI

*Inventor of  
Prof at  
Columbia  
Univ.*

D Slepian, a colleague at the Bell Laboratories wrote:  
Probably no single work in the 20<sup>th</sup> century has more profoundly altered man's understanding of communication than C E Shannon's article, "A mathematical theory of communication", first published in 1948.

The Shannon-Hartley theorem states that the channel capacity is given by

$$C = B \log_2(1 + S/N)$$

*bits/sec*      *BW*      *3300hz*

Where C is the capacity in bits (binary digits) per second, B is the bandwidth of the channel in Hertz, the logarithm is to the base 2, and S/N is the signal-to-noise ratio.

A logarithm is the power (or exponent) to which we must raise one number to obtain another. For use in the above equation, we are interested in the logarithm of numbers greater than one. If we take the base equal to 2, we may construct the following table:

Number:	1	2	4	8	16	32	64	128	256	512	1024
Logarithm:	0	1	2	3	4	5	6	7	8	9	10

Note that in the absence of a signal, the channel capacity is zero. Note also that when the signal level is equal to the noise level, the channel capacity is equal to the bandwidth. For the channel capacity to be ten times the bandwidth, the signal level must be 1023 times the noise level.

The base of the logarithm specifies the units associated with the measure of information. If the logarithm has the base e, then the units are nits.

## References:

<http://cm.bell-labs.com/cm/ms/what/shannonday/paper.html>

An Introduction to the Principles of Communication Theory  
John C. Hancock, Purdue Univ., McGraw-Hill 1961

Presented by K1DDC at the Piscataquis Amateur Radio Club meeting on  
October 24, 2005.

*Faster  
The wider Band  
Stronger  
More bandwidth  
More cycle*

*CW  
bandwidth is  
small*

*Voice  
Large  
bandwidth*

*Vacuum  
tube  
invented  
wider base  
F.M. I.F.  
Ken Burns  
Empire of the air*

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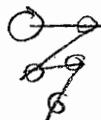
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**Piscataquis Amateur Radio Club (PARC) Treasurer's Report  
Meeting October 24, 2005**

<b>Date</b>	<b>Description</b>	<b>Receipts</b>	<b>Expenses</b>	<b>Balance</b>
September 26, 2005	Balance Monthly meeting	0	0	\$1202.16
September 26, 2005	Dues new ham, Bob, K1DDC (2006)	10.00	0	
October 24, 2005	Reimburse B. Kittredge, 2 meter radio and power supply for EOC	0	-296.00	
October 24, 2005	<b>Total receipts and expense</b>	<b>\$10.00</b>	<b>\$-296.00</b>	
September 26, 2005	Balance Monthly meeting	\$1202.16	0	
October 24, 2005	Balance	\$1212.16	\$-296.00	<b>Total: \$ 916.16</b>
				<b>Check acct: \$892.11</b>
				<b>Petty cash: \$24.05</b>

**Respectively Submitted**

**Margaret A. Williams, N1UCN  
Treasurer, Pro tem**