Code Breaking, Purple Magic and USN Security Group

Term: Fall 2019

About the Leaders:

Larry Bahill was the Minority Leader in the Arizona House of Representatives. He was a Commander in the U. S. Navy. He served 37 years in the U. S. Navy Security group. He knows a little bit about codebreaking.

Terry Bahill is Professor Emeritus of Systems Engineering and of Biomedical Engineering at the University of Arizona, (520) 742-5469, [terry@sie.arizona.edu](mailto:terry@sie.arizona.edu), http://[www.sie.arizona.edu/sysengr/](http://www.sie.arizona.edu/sysengr/)

Location: 4485 N. First Ave. We need the Ocotillo room because we will use the big map on the wall.

Dates: 4 lectures November 4 to December 9, 2019, Mondays from 1:30 to 3:30 PM.

Brief description: Terry will present the basic history of codes and cyphers. We presume that everyone knows all about the German Enigma machine: therefore we will not discuss it. Instead we will discuss in detail the breaking of the Japanese PURPLE code and the JN-25. As an application of codebreaking we will attack the Inca Khipus. Then, Larry will discuss his experiences with the U. S. Navy Security group.

References:

<http://www.ibiblio.org/hyperwar/PTO/Magic/JN-25/JN-25.1.html>

[http://www.vectorsite.net/ttcode\_07.html#m1](http://www.vectorsite.net/ttcode_07.html)

This paper is great.

Freeman, Wes., Geoff Sullivan, and Frode Weierud. 2003.  
PURPLE Revealed: Simulation and Computer-Aided Cryptanalysis of Angooki Taipu B, [Cryptologia](http://www.tandfonline.com/doi/abs/10.1080/0161-110391891739), 27(1) 1‐43.

It is described on this web site.

<http://cryptocellar.org/simula/purple/>

which also points to an excellent bibliography at

<http://cryptocellar.org/index.html>

Unfortunately, the computer simulations are no longer supported by Microsoft.

Of particular interest is William Friedman’s October 1940 summary of solving the B-machine

<http://cryptocellar.org/files/PURPLE_History.pdf>

Slideshows that are available for download from my web site.

<http://www.sie.arizona.edu/sysengr/OLLI/purpleMagic/Dreyfus>

<http://www.sie.arizona.edu/sysengr/OLLI/purpleMagic/purple>Magic

Course proposals

<https://uarizona.co1.qualtrics.com/jfe/form/SV_ehd60v41fYmi3l3>