



FROM **DISCOVERY** TO **DISCOURSE**

2019 SYMPOSIUM ON

CRYPTOLOGIC HISTORY

17-19 OCTOBER



Co-Sponsored by the NSA/CSS Center for Cryptologic History & the National Cryptologic Museum Foundation



2019 SYMPOSIUM ON CRYPTOLOGIC HISTORY

FROM **DISCOVERY** TO **DISCOURSE**

Co-Sponsored with the
National Cryptologic Museum Foundation

OCTOBER 17 – 18

KOSSIAKOFF CENTER, Johns Hopkins University, Laurel, MD

OCTOBER 19

NATIONAL CRYPTOLOGIC MUSEUM, Annapolis Junction, MD

The Center for Cryptologic History (CCH) and National Cryptologic Museum Foundation (NCMF) are delighted to send you the registration package for the upcoming Symposium on Cryptologic History. We hope you will be able to join us in October for this unique educational event. Enclosed please find the preliminary program detailing this year's speakers and topics, as well as registration instructions.

The registration rate is \$70/day (\$140 for the full program). The student rate is \$35/day (\$70 for the full program). Registration includes a light continental breakfast, lunch, and afternoon snacks. Please inform us of any dietary restrictions as soon as possible so that we can do our best to accommodate. Activities on Saturday, October 19th, are free for those who register for one, or both, days at the Kossiakoff Center.

Registration by check or credit card is due to the NCMF by Friday October 11, 2019

No refunds for cancellations will be issued after Monday October 14, 2019.

For registration questions, please contact the NCMF at 301-688-5436 or crypt@cryptologicfoundation.org.

For program, dietary needs, special accommodations, or other questions, please contact CCH at cchevents@nsa.gov or 301-688-2336.

For directions to the Kossiakoff Center see www.jhuapl.edu; parking is free and shuttle bus service will be available from the lower level parking lot. Unfortunately, we cannot provide hotel recommendations.

We hope to see you in October!



2019 SYMPOSIUM ON CRYPTOLOGIC HISTORY

FROM **DISCOVERY** TO **DISCOURSE**

PRELIMINARY PROGRAM*

Co-Sponsored with the
National Cryptologic Museum Foundation

THURSDAY, OCTOBER 17

KOSSIAKOFF CENTER IN LAUREL, MARYLAND

Registration check-in and continental breakfast available between 7:30 am – 8:30 am

SESSION 1 8:30 AM – 9:15 AM

PLENARY AUDITORIUM

Welcome	Mr. John A. Tokar, Chief, NSA Center for Cryptologic History (CCH)
Keynote Address	Mr. George C. Barnes, Deputy Director, NSA

SESSION 2 9:30 AM – 11:00 AM

SESSION 2A AUDITORIUM

Security and Conflict in Cyberspace: Uncovering the History

Moderator: Dr. Michael Warner

Mr. Jason Healey	A Fierce Domain: Conflict in Cyberspace from 1986–2019
Ms. Ruth Nelson	The Origins of the Cyber Security Model(s)
Dr. Thomas Rid	The First Digital Active Measures
Mr. JD Work	Beyond Monopoly: The Emergence of Privatized Cyber Intelligence and Cryptologic Capabilities under Hostile Pressure

SESSION 2B CLASSROOM B

Contemporary Discourse about Unbroken Historic Ciphers

Moderator: Ms. Laura Sawyer

Dr. Gregor Damschen	A Fibonacci-Based Lunisolar Calendar in the Voynich Manuscript (Beinecke MS 408, f68r3)
Mr. John F. Dooley	Who Wrote the Beale Ciphers Pamphlet? An Author Attribution Study
Dr. George Lasry	Modern Codebreaking of Siemens and Halske T52
Mr. David Oranchak	What Can Deep Learning Teach Us about the Unsolved Zodiac 340 Cipher?

SESSION 2C CLASSROOM C

Kagnew Station and a Stonehouse in East Africa

Moderator: Mr. Mark Nixon

Mr. Bob Doan	Selections from Dick Bernard's "The Stonehouse Story – Telemetry Collection from Soviet Space Probes – From Beginning to End" as read by Mr. Bob Doan
Mr. Don Dement	Technology in an Ancient World
Mr. Bill Semenuk	Permanent Change of Station (PCS) to Stonehouse

THURSDAY LUNCH SESSIONS 11:00 AM – 12:50 AM

DINING ROOM SESSION

11:30 AM – 12:00 PM

Ms. Liza Mundy

Reflections on Discovering Cryptologic History

AUDITORIUM PERFORMANCE 12:15 PM – 12:50 PM

The Parkway Chorale, Dr. Paul Nahay, Music Director, with historical commentary by Dr. David A. Hatch

SESSION 3 1:00 PM – 2:30 PM

SESSION 3A AUDITORIUM

From UKUSA to UK/US/CAN

Moderator: Dr. David J. Sherman

Mr. Anthony M. Rutkowski How WW1 SIGINT Shaped Future Cooperation and Treaty Instruments

Dr. C. J. Jenner Churchill, Roosevelt, and the Most Secret Agreements

Ms. Maria Robson Sharing Despite Asymmetric Capabilities: Canada's Inclusion in UKUSA

Dr. Wesley Wark Joining the Club: The 70th Anniversary of the Canada-US SIGINT Agreement

SESSION 3B CLASSROOM B

Immersive Collaboration among the IC, Academy, and Industry: A Case Study of the Laboratory of Analytical Sciences (LAS)

Moderator: Dr. Kathleen M. Vogel

Dr. Beverly Baker Tyler The Motivation of LAS and the Structure of its Academia-Industry-Government Partnerships

Dr. Jessica Katz Jameson The Challenges and Solutions that LAS has had in Implementing their Proposed Immersive Collaboration

Dr. Kathleen M. Vogel Examples of Tradecraft Development and Project Successes

Dr. Sharon M. B. Joines Development and Implementation of Interventions at LAS and Lessons Learned

SESSION 3C CLASSROOM C

Cryptologic Machines Up Close

Moderator: Ms. Jennifer Wilcox

Dr. Nicholas Gessler The American Brake Shoe Company "Cook" Cryptograph: A Comparison of its Mechanical and Electrical Implementations

Mr. Jim Oram The Enigma: A Demonstration

Ms. Jennifer Wilcox The Enigma vs. the Cryptanalytic Bombe: An Overview

Mr. Timothy Mucklow The SIGABA: An Overview and Demonstration

SESSION 4 3:00 PM – 4:15 PM

PLENARY AUDITORIUM

Government Communications Headquarters (GCHQ) History

Moderator: Dr. Bill Williams

Mr. Jock Bruce What Happened Next? British Army Sigint, 1919-1939

Mr. Tony Comer GCHQ Centenary History

Dr. John Ferris GCHQ during the Cold War

FRIDAY, OCTOBER 18

KOSSIAKOFF CENTER IN LAUREL, MARYLAND

Registration check-in and continental breakfast available between 7:15 am – 8:00 am

SESSION 5 8:00 AM – 9:30 AM

SESSION 5A AUDITORIUM

World War II Cryptanalytic Discoveries

Moderator: Ms. Brenda McIntire

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| Mr. Richard R. Lonergan | Re-Evaluating the Cryptological Dividends of the Battle of Nomohan at 80: The Impact of Soviet Breakthroughs into Japanese Code and Cipher Systems |
| Dr. Francis Jordan-Rozwadowski | OKW/Chi's Attack on Polish Intelligence Traffic – Inference from the Decrypts |
| Dr. Chris Christensen | Genevieve Grotjan's Discovery |
| Dr. David Kenyon | How Fishy was ULTRA? – The Role of Encrypted Teleprinter Traffic in the Intelligence for Operation OVERLORD |

SESSION 5B CLASSROOM B

Discovering Deceit

Moderator: Ms. Marlisa Smith

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| Mr. Mark Nixon | 60th Anniversary Overview of the Joseph S. Petersen Case |
| Mr. Samuel Stephens | The Ronald Pelton Espionage Case |
| TBA | The Pollard Case |

SESSION 5C CLASSROOM C

Discussions of Herbert O. Yardley

Moderator: Ms. Jennifer Casten

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| Mr. Jeffrey P. Rogg | Deciphering the American Black Chamber: The Rise and Fall of the Cipher Bureau |
| Mr. Gregory J. Nedved | Herbert Yardley Revisited: What Does the New Evidence Say? |
| Dr. Craig P. Bauer | The Langen-Yardley Correspondence |

SESSION 6 9:45 AM – 11:15 AM

SESSION 6A AUDITORIUM

The Timeless Need for Security

Moderator: Ms. Penny Horgan

Ms. Martine Diepenbroek	Aeneas Tacticus' Fire-Signaling and the German ADFGX and ADFGVX Ciphers
Mr. Ralph Sawyer	Secrecy: Historical Concepts and Practice in China
Mr. Marty Busse	COMSEC Lietuvos Partizanų
Sir Dermot Turing	The Typex Scare of 1943

SESSION 6B CLASSROOM B

Exploring Topics of World War II

Moderator: Mr. Emmitt Baker

Dr. Allyn Enderlyn	A Portrait of Arthur Enderlin
Mr. Klaus Schmeh	Steganography Used by Prisoners of War and Concentration Camp Inmates
Dr. Paul A. Thomsen	Terminating the Signal: How SIGINT Turned the Tide against Axis Submarine Predation in World War II
Mr. Robert J. Hanyok	Answering the Age-Old Commander's Question: What the Hell is Going on out There? – The U.S. Army's Signal Information and Monitoring Units and the Phantom Service

SESSION 6C CLASSROOM C

A Public View of Cryptology

Moderator: Mr. John A. Tokar

Dr. Katherine Ellison	From 1719–2019: Daniel Defoe's Legacy in the Public Opinion of Intelligence and Cryptology
Dr. David J. Sherman	The Codebreakers' War: David Kahn, Macmillan, the Government and the Making of a Cryptologic History Masterpiece
Ms. Sarah Mainwaring	Cryptography and SIGINT – Half the Picture Revealed?
Ms. Jillian Foley	Lessons from Teaching the History of Cryptography

FRIDAY LUNCH SESSIONS

11:15 AM – 1:00 PM

DINING ROOM SESSION

11:45 AM – 12:15 PM

Dr. David A. Hatch	Six Little Symposia and How They Grew: The History of History
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AUDITORIUM PERFORMANCE 12:30 PM – 1:00 PM

Mr. Bill and Mrs. Jew-Lee Briere	An Enduring Cryptologic Marriage: A Tribute to William and Elizebeth Friedman (A Reprise of the 2017 Presentation)
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SESSION 7 1:15 PM – 2:45 PM

SESSION 7A AUDITORIUM

Continuing Discourse on the Impact of World War I Cryptology

Moderator: Dr. John Ferris

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| Dr. David A. Hatch | The Other Zimmermann Telegrams |
| Dr. George Lasry | Deciphering German Diplomatic and Naval Codes from WWI |
| Col Greg Eanes USAF (Ret) | Covert POW Communications in the First World War |
| Mrs. Betsy Rohaly Smoot | Discovering the Cryptologists of World War I |

SESSION 7B CLASSROOM B

The History of Block Ciphers

Moderator: Prof. Jean-Jacques Quisquater

- Prof. Jean-Jacques Quisquater
- Dr. Nicolas T. Courtois
- Mr. Klaus Schmeh
- Mr. Marek Grajek

SESSION 7C CLASSROOM C

Topics from Cold War-Era Cryptologic History

Moderator: Mr. Trumbull Soule

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| Mr. Gabe Marshall | Innovation: From the United States Air Force Security Service (USAFSS) to the Twenty-Fifth Air Force (25-AF) – On Time Solutions in Cryptologic Operations |
| Mr. Mark Borgerson | Pony Express: Telemetry Collection aboard the 1033-Class Destroyers |
| Dr. John O'Hara | Analysis of Soviet Space and Missile Programs during the Early Cold War |

SESSION 8 3:15 PM – 4:35 PM

PLENARY AUDITORIUM

Concluding Remarks

Mr. John A. Tokar, Chief, CCH

Queens of Code: Women of Technology, Intelligence, and Secrets

Moderator: Ms. Liza Mundy

- Ms. Eileen Buckholtz
- Ms. Kathleen Jackson
- Dr. Nancy Welker
- Ms. Jessica Garrett-Harsch

SATURDAY, OCTOBER 19

EVENTS AT THE NATIONAL CRYPTOLOGIC MUSEUM, ANNAPOLIS JUNCTION, MD

SESSION 9 9:00 AM – 10:00 AM

MAGIC ROOM

Research Workshop: Working with Personal Correspondence Collections

Moderator: Ms. Rene Stein

Ms. Maren Read

Mr. Robert Simpson

Tours of the National Cryptologic Museum begin at 9:00 am and 10:15 am

**A final program will be available to attendees during the Symposium. Unless speakers say otherwise, they are speaking under a policy of non-attribution and should not be quoted or cited without their permission. Presentations are the views of the speakers alone, and do not represent those of the US Government or the National Security Agency. Speakers and their presentations are not endorsed by the US Government or the National Security Agency.*

OCTOBER 17-19, 2019 SYMPOSIUM ON CRYPTOLOGIC HISTORY

FROM **DISCOVERY** TO **DISCOURSE**

October 17-18 at Johns Hopkins University APL, Kossiakoff Center: 11100 Johns Hopkins Road, Laurel, MD 20723-6099

October 19 at the National Cryptologic Museum: 8290 Colony Seven Road, Annapolis Junction, MD 20701 (free for those who attend one or both days at the Kossiakoff Center)

Registration Rate: Fee includes daily lunch, plus morning and afternoon refreshments.

- Standard Rate: \$70/day
- Student Rate: \$35/day (with student ID)
- Non-US Government Speakers may receive a one-day free registration. US Government speakers must pay the standard rate.

Registration Deadline: Friday October 11, 2019

No refunds for cancellations will be issued after Monday October 14, 2019. For refunds, contact the National Cryptologic Museum Foundation directly at 301-688-5436 or crypt@cryptologicfoundation.org

Register Online (Preferred Method): <https://cryptologicfoundation.org/what-we-do/educate/conferences/symposium.html>

Register by Mail: Mail the registration form below with payment to:

National Cryptologic Museum Foundation (NCMF), P.O. Box 1682 Fort George G. Meade, Maryland 20755

Driving Directions: See www.jhuapl.edu; shuttle bus service will be available from the lower-level parking lot.

Questions: Registration Questions - contact NCMF, 301-688-5436 or crypt@cryptologicfoundation.org

Program, dietary needs, special accommodations, & other questions - contact CCH, cchevents@nsa.gov or 301-688-2336



OCTOBER 17-19, 2019 SYMPOSIUM ON CRYPTOLOGIC HISTORY

FROM **DISCOVERY** TO **DISCOURSE**

REGISTRATION FORM (Please use only one form per attendee)

MAIL THIS FORM TO:

National Cryptologic Museum Foundation (NCMF), P.O. Box 1682 Fort George G. Meade, Maryland 20755

Name: _____

Address: _____

Phone: _____ Email: _____

*Select the registration type & dates attending.

Registration Type	Thursday, 17 October	Friday, 18 October
Standard Rate (\$70/day)	<input type="checkbox"/> \$70	<input type="checkbox"/> \$70
Student Rate – with student ID (\$35/day)	<input type="checkbox"/> \$35	<input type="checkbox"/> \$35
Non-US Government Speaker (one day free registration)	<input type="checkbox"/> \$_____	<input type="checkbox"/> \$_____

Checks preferred; Made payable to NCMF.

Total Payment: \$ _____

NCMF also accepts ☐ Master Card, ☐ Visa, and ☐ American Express (check appropriate box):

Credit Card Number: _____ Exp. Date: _____ V-Code: _____
(MM/YYYY) (3 digits; AMEX – 4 digits)

Authorized Signature: _____



NATIONAL CRYPTOLOGIC
MUSEUM FOUNDATION

Presents

NCMF 21ST GENERAL MEMBERSHIP MEETING & ANNUAL SYMPOSIUM

16 October, 2019, JHU/APL Kossiakoff Center

11100 John Hopkins Road, Laurel, MD 20723-6099

9:00 a.m. - 3:00 p.m.

REGISTRATION COST

Fee includes breakfast (8:15 a.m. - 9:00 a.m.) and lunch (Noon - 1:00 p.m.). \$25 Members, \$50 Guests (includes 1 year NCMF membership). Registration Deadline is 11 October, 2019

REGISTER ONLINE AT www.cryptologicfoundation.org

If paying by check or credit card, please register with form below and mail to:

NCMF, PO Box 1682, Ft. Meade, MD 20755

Driving Directions: see www.jhuapl.edu

SYMPOSIUM SNAPSHOT, 16 OCTOBER:

RUSSIAN PENETRATION OF U.S. ASSETS

The NCMF symposium this year will feature an exposé of Soviet and Russian active measures to engage in political warfare and to conduct espionage against the US and others using close access and other means. Among the speakers are Dr. John Lenczowski, Dr. Terry Thompson, Dr Eric Haseltine, Charles Gandy, Jerry Roddy and James Gosler, all of whom were directly involved in working to thwart these security threats. In addition, the program includes information about NCMF and museum activities as well as an update on the new museum project.

**Please use only one form per attendee.*

16 OCTOBER REGISTRATION FORM FOR

“RUSSIAN PENETRATION OF U.S. ASSETS”

Please mail this form to: National Cryptologic Museum Foundation (NCMF), PO Box 1682, Ft. George G. Meade, MD 20755

Name: _____

Address: _____

Phone: _____ Email: _____

Checks preferred; Made payable to NCMF. Payment amount: \$ _____

NCMF also accepts ☐ Master Card, ☐ VISA, and ☐ American Express (check appropriate box):

Credit Card Number: _____ Exp. Date: _____ V-Code: _____

(MM/YYYY)

(3 digits; Amex-4 digits)

Authorized Signature: _____