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4-18-41 JA

GR 120

FROM WASHINGTON - NOMURA  
TO TOKIO - GAIL -  
17 APRIL 41  
- PURPLE -  
NR 239 3 OF 3 PARTS

26072 XX 39715 OXGAV

### AMERICAN CRYPTOLOGY

#### TWO CENTURIES OF TRADITION

F Y C H J S K Z F O V M S N O M S E Y X G L K M T  
 F Y L F O V R K F Y X N A N S X T L H X Y C H M N  
 P K R R Y C K O K O O O K X Z L K A T U D C C C F  
 T X K O K U N J N A N P C P T S U R U B Y R Y O K  
 U T E K I S I N S H U T U W A N I T I B X K A N N  
 O S E N S C N O D C K A S E N T O H A R U O S O R  
 E A R U W M T T X K O K U W A S O N O N A M P C P  
 T S U R K H A T T E N W A B Y R Y O K U N I U T T  
 C R U K O T O N A K U H X W A T E U I S H U D A N  
 N I Y O R U M O N O N A R U K O T O O H O S H C S  
 I K O R E N I T L C S I T E B K W G A W A P Y T T  
 X K O K U N O D C H M M P K R K X Z L T E K I S I  
 N S H U T U O S I J I S E N T O S U R U M U N E O  
 O K R N I S I T A R U M O N O N A R U G A T X K O  
 F U N O N A N P C H A T T E G W O B U R Y O K U N  
 I U T T A E Z A R U K O T O W A M I G I N I T O D  
 D M A R A Z U H O N R Y W A N Z E N P A N H O K I  
 S O O N A S U M O N O N A R I P F F O V S Y F Y  
 X T L H X Y C N O S X J I Y E K I A N T X P K S U  
 R U P Y C K O K U N O H S N C G F H O N K C P Y R  
 C S H V S H O K O K U W A K C S O K U S E R A R U  
 R U M O T X K O K U W A S O K U B A K U O U K E Z  
 U C C F N A O B K W E N O Y I M I N P T K T

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#### NATIONAL SECURITY AGENCY

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Although the National Security Agency is only thirty years old (established by order of President Harry S. Truman in 1952), the functions it performs have been part of human history for thousands of years. The need to safeguard one's own communications while attempting to produce intelligence from foreign communications has long been a recognized part of governmental activity.

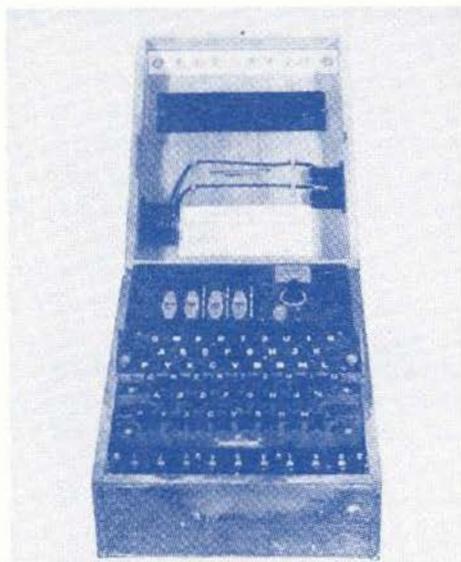
In the American experience, cryptologic efforts can be traced to the very beginnings of the American nation. George Washington employed Elbridge Gerry (later Vice President of the United States) to solve the suspected cryptograms of a Tory spy, Dr. Benjamin Church. Thomas Jefferson included the making of codes and ciphers among his many interests, putting his efforts to use in both private correspondence and public business. One of his inventions, the cipher wheel, has been described as being in "the front rank" of cryptologic inventions.

The American Civil War created a new urgency for techniques in both cryptography (the manufacture of codes and ciphers) and cryptanalysis (the breaking of codes and ciphers). It also introduced new elements into both processes — telegraphy and significant advances in the use of signal flags and torches. These methods of transmitting information permitted rapid communication from one outpost to another or from a commander to his subordinates, but also brought with them new dangers of the loss of that information to an enemy. Both sides considered telegraph lines major targets and attempted either to cut or tap them.

Cryptology again proved to be of great significance in the First World War, as evidenced by British decryption of the famous Zimmermann Telegram. In an effort to keep the United States from playing an effective role in the war in Europe, Germany offered Mexico the opportunity to regain Texas and other territories lost to the United States during the nineteenth century, in return for a Mexican declaration of war against the U.S. The telegram backfired, as its release by British authorities brought the U.S. closer to war with Germany. Tactically, the First World War introduced wireless communications to the battlefield, increasing flexibility but making codes and ciphers even more essential in guaranteeing security.



**U.S. Army cipher device M-94, developed in the 1920s. The M-94 was virtually identical in principle to Jefferson's cipher wheel.**



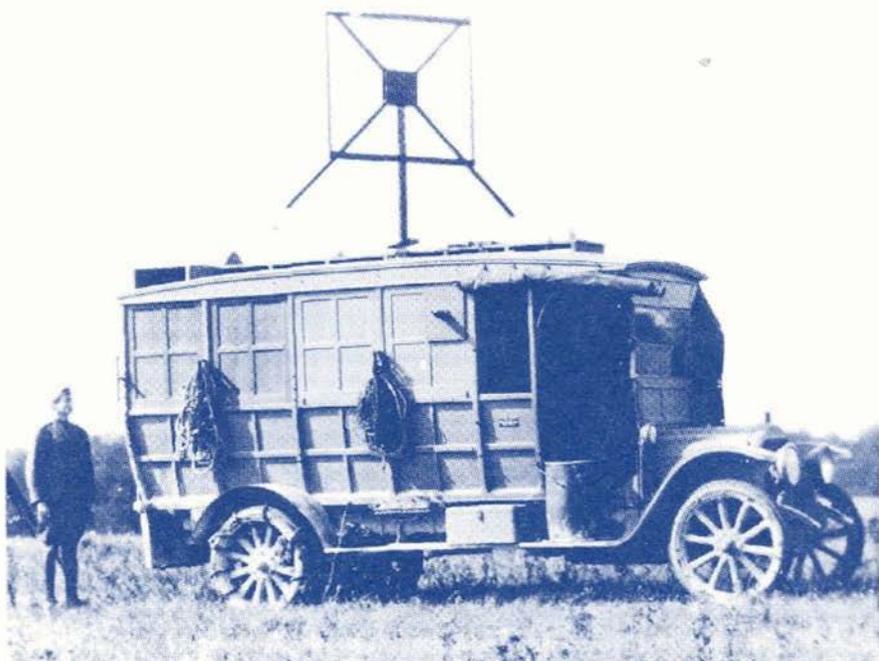
**German Enigma, Four-Wheel Naval Model.**

After the armistice of 1918, the United States maintained modest but significant cryptologic establishments in the Navy and War Departments, along with an interdepartmental effort conducted in New York and headed by Herbert O. Yardley. In 1929 Secretary of State Henry Stimson withdrew financial support for Yardley's "American Black Chamber," and communications security (COMSEC) and communications intelligence (COMINT) became once again a largely military function. Under the direction of William F. Friedman, the Army's Signal Intelligence Service and its Navy counterpart, Op-20G, overcame limited resources to make truly outstanding contributions to cryptology. By the time the United States entered the Second World War, American cryptologists had penetrated Japanese diplomatic ciphers, and during the war assisted their British colleagues in the exploitation of German communications, while at the same time providing secure communications equipment for American commanders and policy makers. In actions ranging from the great naval battles of the Pacific to the invasions of North Africa and Western Europe, American cryptanalysis and cryptography provided information vital to the eventual Allied victory.

The postwar era opened with an emphasis on "economy and efficiency," resulting in cutbacks in all areas of national defense, including COMINT and COMSEC. In some ways, this belt tightening proved beneficial, as steps were taken to eliminate duplication and adapt the cryptologic establishment to the realities of America's position as a permanent world power. The creation of the Department of Defense and the Central Intelligence Agency reflected the desire for unified national coordination and direction of important defense and security matters. In 1949, President

Truman endorsed the creation of the Armed Forces Security Agency, an effort to integrate where possible the operations of the service cryptologic establishments, augmented now by the creation of a separate Air Force. Even this proved inadequate, both in providing for central control of military cryptology and in meeting the needs of civilian agencies for communications intelligence and security. Building on the AFSA experience, a committee established by President Truman proposed the creation of a national-level cryptologic organization, a recommendation leading to the establishment of NSA.

Originally housed at former Army and Navy facilities in Virginia and Washington, D.C., NSA moved in 1957 to its current headquarters at Fort George G. Meade. Additional sites and activities under NSA control or direction are maintained at a number of locations in the United States and overseas. From these facilities, signals intelligence and communications security support is provided to military commands and to civilian policy makers. Though only thirty years old, the National Security Agency is the heir to two centuries of dedicated contribution to the defense of the United States.



**With the American Expeditionary Forces, France, 1918: U.S. Army Signal Corps Mobile Direction Finding Vehicle.**