

# WWII codebreakers supplied fateful intelligence for Allies

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Fifty years ago — and more than a year before Pearl Harbor — Americans scored one of their most brilliant victories of World War II.

The commander was a Russian immigrant and sometime geneticist named William Frederick Friedman. Friedman's troops were a motley assemblage of academics, math wizards and puzzle freaks. With a left-handed assist from William Shakespeare.

Together, after 18 baffling months of dead-end days and floor-walking nights, they broke the Japanese diplomatic code.

Their collective genius did not foil, of course, the sneak Japanese attack on Pearl Harbor that brought the United States actively into the war. But codebreaking by Friedman, et al, laid the groundwork for the pivotal victory of the U.S. fleet at Midway in June 1942 and the Allies' ultimate triumph.

The story starts in 1913 with Herbert O. Yardley, 24, a \$17.50-a-week State Department code clerk.

Yardley had been an indifferent student but had a flair for math. Today he would have become a computer hacker. Back then he was bored. So bored he began cracking incoming code traffic. He deciphered a message to President Woodrow Wilson from his top aide, Col. Edward M. House, in two hours. He joined Army intelligence in World War I as a lieutenant and cryptographer.

The Army had another such lieutenant, Friedman. He had been born near Odessa in 1891, was brought to America by his father to escape anti-Jewish rioting and eventually graduated from Cornell University as a geneticist.

He took work at Riverbank Laboratories in Chicago, hired by wealthy eccentric Col. George Fabyan.

Of Fabyan's passions was to prove that Sir Francis Bacon was the real author of Shakespeare's plays and sonnets. He had only to decipher the code he believed Sir Francis had encrypted in "Troilus and Cressida" to prove his theory and thereafter bask in the world's acclaim. He had hired two codebreakers: Mrs.

Elizabeth Wells Gallup and her assistant, Elizebeth Smith.

After Friedman arrived in 1915, he became fascinated with Miss Smith and cryptology. He married both for life.

While Sir Francis's hidden messages kept eluding Mrs. Gallup, the Army began sending cryptograms and coded messages to Riverbank for deciphering. Friedman broke one, keyed from a book, without even knowing what the book was. Impressed, the Army enlisted him into its primitive code apparatus when World War I broke out.

After the war, Friedman returned to Riverbank. He went back into service when the Army wanted him in 1921 to work up its codes. Mrs. Friedman eventually worked for the Coast Guard cracking codes of Prohibition rumrunners.

The government, meanwhile, set up Yardley in secret in mid-town Manhattan to run a codebreaking operation he called the Black Chamber. His first coup was to crack the codes the Japanese delegation was using at a 1921 Washington Naval conference.

Not to be outdone, the Navy in 1924 appointed Lt. Laurence F. Safford to head a new Research Desk in the Code and Signal Section. In the finest tradition of interservice rivalry, Safford's unit in the Navy Building never communicated what it was doing to the Army Building next door

on Constitution Avenue in Washington.

The lack of communication slowly changed, however, in the face of a technological revolution: Radio.

Radio direction finding — pinpointing the source and destinations of coded messages through triangulation — had entered the arsenal of modern warfare.

Codebreaking had become an intense activity, so much so that Yardley's Black Chamber had broken the codes of 19 nations by the time Henry L. Stimson became Herbert Hoover's secretary of state in 1928. By then State was financing Yardley exclusively. Stimson was aghast.

Even though Japanese militarists were already clashing with Chiang Kai-shek's soldiers in China, Stimson

closed down the Black Chamber with one of the most famous quotes in all cryptography: "Gentlemen do not read each other's mail."

In reaction, the Army created a new Signal Intelligence Service under Friedman to prepare codes, locate enemy radio stations and break ciphers. And Friedman began talking with Safford.

For his part, an angry Yardley told all in a 1931 best-seller, "America's Black Chamber." His book was his last, greatest and wholly unintended gift to American cryptology. It persuaded the Japanese to start using encrypting machines.

These were nothing new. An electrical enciphering machine named Enigma was sold for commercial users in Germany after the first war and in 1927 the Army Signal Corps bought one. It became the Nazis' Achilles heel throughout World War II. They complacently believed Enigma unbreakable. But the British, with the help of some brilliant Poles, cracked it, giving the Allies a fateful advantage.

The Japanese had the same confidence in 97-shiki O-bun Injiki — Alphabetical Typewriter 97. The Americans called the machine Purple. They had already broken a Japanese machine they called Red.

Cracking Red came with the help of an accommodating woman provided by the Office of Naval Intelligence who tarried in bed with Lt. Toshikazu Ohmae while agents rifled his briefcase. Then, a much more sophisticated machine, Purple, began to be intercepted by the Navy's listening radios.

Capt. Jinsaburo Ito of the Japanese Navy had developed No. 97. "Let America and Britain solve this cipher if they can," he said. Friedman's staff of 19 codebreakers was given the challenge.

Codebreakers, to say the least, do not come in tidy packages. America's cryptographers included stamp collectors, chess masters, a naval officer who accepted a tennis date knowing nothing of the game but learned it overnight from a book. Mrs. Agnes Meyer Driscoll, who was

a devotee of cryptic puzzles, taught many the tricks of the trade. And Friedman, who could see patterns where others saw only chaos.

Purple, in a world edging toward war, was something else.

Only in the major Japanese embassies could use Purple. On Feb. 18, 1939 Tokyo signalled these outposts Purple was going on line. It made the fatal error of sending parallel messages on the Red

machine to lesser consulates. Comparing the two, Friedman's crew decrypted 25 percent of the cipher in a few weeks. Thereafter: a brick wall.

Little steps, nonetheless, could be taken. The Japanese, a formal people, stick to proper and unvarying ways of address. Diplomatic messages, encoded, could be compared with the same messages when delivered to American diplomats in translation — if they were the same messages. Messages sent in Red were compared with Purple intercepts made about the same time.

Safford's people kept up a steady flow of radio intercepts. Japanese diplomacy sometimes came via American commercial cable companies instead of by radio. Rights to privacy notwithstanding, cable managers would pass on copies and times of transmission.

Then, sometime in August 1940, Harry Laurence Clark, one of Friedman's young cryptographers, had an insight that came to him in the night. He came to work the next day ecstatic.

"I wonder if the monkeys did it that way?" he is quoted by Friedman's biographer, Ronald Clark. "That way" was to use telephone stepping switches in the Purple machine, not electric wheels.

Friedman's crew began scrounging switches from telephone companies, even five-and-dime stores. By guess and by God and by genius they began piecing together a copy of the machine none of them had ever seen nor ever would see and which was talking in a language few of them knew.

It buzzed and sparked and wasn't lovely, but on Sept. 25, 1940, America's Purple machine decoded its first full message. Washington, again, could read Tokyo's hand.

As the Japanese Empire inexorably collapsed in on itself in flames, Purple machines were smashed into bits as embassies closed, garrisons surrendered or, more often, fought to the last man. One machine, partially intact, was captured on Guam. Of its hundreds of wired connections, only two were different from the sight-unseen Purple machines of William F. Friedman and his crew.

Even after the war was over, the Japanese refused to believe what the Americans had done. No, they said, they must have stolen a Purple machine somewhere.

They had. Out of the air.

# Effort to Curb Spy

By Bernard D. Nossiter

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What started life as an administration code to curb the misdeeds of the intelligence agencies is evolving into a license for wide-ranging secret activity at home and abroad.

This conclusion emerges from interviews with officials responsible for designing a new charter primarily to govern the conduct of the Central Intelligence Agency but also the FBI.

Their draft, still incomplete, is less a code of "Thou Shalt Nots" than a prescription for "Thou Mayest—Provided . . ."

Among other things, the agencies would be allowed to infiltrate domestic political and business organizations and spy on law-abiding Americans abroad. Unlike a proposed Senate bill, the agencies would not be barred specifically from overthrowing a democratic foreign government or employing torture.

As things now stand, the only specific prohibitions would block agencies from planting their people in domestic news-gathering and religious organizations; from using infiltrators to provoke political organizations into illegal acts or influencing the policies

of corporations; and from assassinating foreign leaders.

The draft, however, does not give the CIA or FBI carte blanche in other fields. Typically, the agencies would have to get presidential approval or a court order or both before engaging in the most controversial actions.

"The substantive battle" over the code's provisions "is far from over," insisted one aide whose boss, in the past, has been concerned with abuses by the CIA and FBI. But even this official acknowledged that "the code is being written to authorize what you can do."

"It has to be cast in those terms," this aide said. "The agencies need instruction. They have morale problems."

The draft must still be approved by a Cabinet-level committee and President Carter before it is sent to Capitol Hill to be enacted into law. Aides think this could happen in three to five weeks.

The administration's "Can Do" code reflects a striking shift in opinion towards the CIA and the FBI. Three years ago, both were on the defensive, exposed as violators of citizens' rights at home and abroad. The demand for

# Agencies Turn Into a Permission List

reform shaped by civil libertarians seemed irresistible.

Now, the CIA and FBI are among the staunchest supporters of the proposed code. They see it as a mechanism to legitimize conduct for which they have been sharply criticized.

At a meeting of alumni from

subcommittee on oversight. A leading liberal, he publicly praised the CIA for what he saw as its president reporting of the Vietnam-China conflict.

In the past, the FBI's planting of agents in domestic groups touched off a great outcry. But the proposed code would continue these practices, al-

whertapped or have its mail opened, the agency would need a court order and must assert that the information wanted is "essential to national security."

In the same way, agents could be planted in U.S. business firms or corporations, either to hide their identity or to gain information. Again, a court order would be necessary for "intrusive" spying.

Neither the CIA nor the FBI would be allowed to penetrate domestic news-gathering concerns or religious bodies, practices frequently used by the CIA in the past. The drafters are still debating whether foreign stringers or part-time correspondents abroad are fair game for CIA recruitment.

After heated debate, the drafters have tentatively agreed to allow the CIA to spy on law-abiding Americans abroad. But if the surveillance is "intrusive" — opening mail, tapping telephones, bugging rooms and the like — a court order will be required.

In contrast, the Senate bill would outlaw a lengthy list of controversial acts by the CIA. In addition to banning the overthrow of democratic governments and of torture, the list of

"shalt nots" includes creating shortages of food and water, starting an epidemic or flood, helping foreign police or soldiers to violate human rights and more.

Of the Senate list, only the ban on assassination survives in the draft. Instead administration officials would rely on "procedural safeguards."

Every covert project would be examined by a Cabinet-level committee of the National Security Council. Its recommendation would be approved, in turn, by the president only. If he found the action was necessary for U.S. security. The proposed scheme would then be disclosed in secret to the two congressional intelligence committees and the six Hill committees dealing with foreign affairs, defense and appropriations.

When the administration bill finally sees the light of day, it could spark an angry outburst from civil libertarians. But it will almost surely draw fire as well from hard-line supporters of the spy agencies who argue the CIA and FBI should have the freest possible hand. The two forces may neutralize each other and thereby permit the measure's passage.

## The new charter draft, still incomplete, is less a code of 'Thou Shalt Not's than a Prescription for 'Thou Mayest-Provided...'

schools of international relations here the other night, Adm. Stansfield Turner, the CIA director, spoke of the need for a charter and left his listeners with the impression that he saw it as blessing the CIA's works.

A new and more conservative Congress has played its part in the thinking of the drafters. Interest in reform has fallen so low that the House Intelligence Committee can't get members to meetings. Another measure of the shift was provided by Rep. Les Aspin (D-Wis.), chairman of the Intelligence

through under some procedural limits. The FBI would be allowed to infiltrate at will an outfit strongly linked to a foreign power and with foreign citizens composing most of its membership. An organization with questionable links to a foreign power — the Socialist Workers Party is cited as an example — could be infiltrated if there was no other means of obtaining information and if an official certified that that the information sought was important.

If such an outfit is to be bugged,