

## EXPLOSION ON A SUNNY SUNDAY

Hawaii's senior Senator, Daniel Inouye was 17 years old, and living with his parents in Honolulu when, on a sunny Sunday as they were getting ready for church, he saw {quote} "aircraft bearing the rising sun on their wings flying over my home. My Father rushed inside and turned on the radio to hear that Japanese planes were attacking our island. We both watched in horror as the planes climbed to the bluest part of the sky in neat formations of twos and threes, then dive-bombed and torpedoed ships of the U.S. Pacific Fleet moored at Pearl Harbor. What had begun as a leisurely morning of breakfast and church and turned into a nightmare of blood and terror."

It was, of course December 7th, 1941 seventy years ago last Wednesday, the day that awakened Americans to the truth of the world they lived in. It now was clear that Hitler's five year expansion of Germany's lebensraum and Japan's ten year record of conquering much of Asia had to be stopped; that the continuing isolationist stance held by a majority of the U.S. Congress would lead to a world controlled by madmen.

Tonight I'd like to focus on two questions:

What lead the Japanese to attack the US, which had done nothing as they attacked Manchuria, Korea and China? And why, with our sophisticated code and cipher detection capabilities, were we not able to detect the attack...or did FDR and some key leaders realize it was coming and know it was the only way we could move the isolationists to action.

On September 12, 1940, fifteen months before the attack, Joseph Grew, the United States Ambassador in Japan sent a cable to Secretary of State Hull that has been preserved as one of the key warnings of Japan's plan for the Pacific. Grew stated that, whatever the intentions of the existing Japanese Government, there could be no doubt that the military and other elements in Japan saw in the world situation a "golden opportunity" to carry their dreams of expansion into effect; that the German victories over the Netherlands, Belgium and France were "like strong wine" that had gone to the heads of Japan's Generals and Admirals;

However, the Ambassador went on, a gradual change could now be sensed in the summer of 1940, as the Luftwaffe failed to bring England to its knees and that quiet talk in Tokyo now allowed that Germany might not defeat Great Britain after all, but this alone wasn't enough to deter their Pacific ambitions..

Summing up ,,Ambassador Grew said that until the world situation - particularly the position of the United States - became clearer, Japan's "nibbling policy" appeared likely to continue.

The Ambassador urged us to firm up our response even though it was probable that, should we embargo sales to Japan of such important products as iron, steel and petroleum, these would be interpreted in Japan as significant sanctions, with serious retaliation to follow.

He believed that United States interests in the Pacific were definitely threatened by Japan's policy and that Japan would be deterred from only by our use of military power.

But the US Congress, which was perhaps sixty percent behind embargoes was almost completely against the use of American troops or naval vessels to slow the Japanese. So the firmness Ambassador Grew appealed for was not going to happen and embargoes only forced the Japanese farther afield in search of replacement oil, rubber and scarce metals..

On September 27, 1940 announcement was made of the Tripartite Pact between Germany, Italy and Japan. The three nations agreed that for the next ten years they would "stand by and co-operate with one another; their prime purpose was to establish and maintain a new order "to promote the mutual prosperity and welfare of the peoples concerned." They recognized each other's spheres of interest and undertook "to assist one another with all political, economic and military means when one of the three contracting powers is attacked" by a country not already involved in the war.

Prince Konoe, the Japanese Prime Minister believed that, with the support of Germany and Italy, Japan now stood on the verge of a new world and that, to secure its rightful place, it must create a new order in Asia. Calling this the "Greater East Asia Co-prosperity Sphere", Matsuoka publicly announced that this should also include Indochina (nominally French) and the East Indies (nominally Dutch). Quite secretly, within the government, it was agreed that Japan would now need to prepare for a military response from Britain and the United States.

While they were busy forming alliances with the Germans and Italians the Japanese continued their steady advance south. As they did this the Americans and British continued to add to the list of embargoed goods that could not be sold to Japan with iron, steel and scrap metal added when the tripartite pact was signed in September of 1940.

At this announcement the Japanese protested to Hull that this would be considered an "unfriendly act".

The Secretary replied to the Ambassador that it was really "amazing" for the Japanese Government, which had been violating, in the most aggravating manner, American rights and interests throughout most of China, to question the fullest right of this Government to impose such an embargo. To go further and call it an "unfriendly act", the Secretary said, was still more amazing in the light of Japan's conduct in disregarding all law, treaty obligations, and other rights and privileges and the safety of Americans, while proceeding to an ever-increasing extent to seize territory by force.

The Secretary made clear to the Ambassador our Government's view that Germany and Japan were undertaking to subjugate both of their respective areas of the world and to place them on an international order and a social basis resembling that of eight centuries ago.

So, between Hull's frank observation about the Japanese and German aggressiveness and Grew's warning three months later of the increasing power of Japan's military it was clear where we stood.

In July of 1941 the British and we added oil and petroleum products to the list of embargoed goods. Reliant on these two countries for 80% of its oil the Japanese were forced to decide between a total withdrawal from China – a condition to restore oil shipments – or the invasion of a petroleum and rubber rich country in the Pacific to obtain the needed resources.

Premier Konoe asked FDR for a summit meeting to discuss the issues. Roosevelt replied that Japan needed to leave China before such a meeting could be held. While Konoe was seeking a diplomatic solution to his dilemma, the military was looking south to the Netherlands East Indies and their rich sources of oil and rubber. Believing that an attack in this region

would cause the US to declare war, but knowing they were boxed into a desperate corner by their need for oil, they began planning for war with the United States.

Fleet Admiral Yamamoto ordered secret plans to be drawn up for a surprise, carrier based attack on Pearl Harbor's Pacific fleet. Many problems had to be overcome. For example, aerial torpedoes would be dropped in waters only forty feet deep. Normally they would plunge seventy-five feet before coming back up to attack depth. Thus new fin arrangements were needed. Refueling warships at sea in a rough part of the Pacific would also present major logistic problems.

And, perhaps most critical was maintaining the element of surprise for, without it, the American fleet would disperse and attack the Japanese who could not be resupplied with ammunition and planes four thousand miles from their home base.

On September 6<sup>th</sup> at an Imperial War Conference Japan's war leaders agreed to proceed to prepare for war with the US if no diplomatic solution was found by December 1<sup>st</sup>. However, in early October, Konoe was replaced as prime minister by General Hideki Tojo who also kept his position of minister of war. Known as *Kamisori* (razor blade) he planned for war in early December and would accept no more hypotheticals but only solid attack plans. {1357 11.5 mins}

By mid November the plans had been completed and the elements of a 32 ship fleet began showing up one by one in isolated Takan harbor in northern Japan. By the 24<sup>th</sup> all were assembled, the crews were informed of their mission and, on November 26, 1941 the Japanese attack force, consisting of all six of Japan's first line aircraft carriers, three battleships, six cruisers, nine destroyers and tankers to fuel the fleet set out on a northern route to Hawaii.

Admiral Chuichi Nagumo, commanding the fleet, had been given orders that, were he spotted prior to December 6th, he was to immediately turn back. If after that he was to await orders. In addition complete radio silence was ordered and enforced by removing and locking up all transmitters in each ship in the Captain's safe. No trash could be thrown overboard and complete blackouts were instituted at night.

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On December 6<sup>th</sup> the fleet arrived at a point 650 miles north of Pearl and here the ships increased their pace and made a high speed dash 420 miles south to the launch point for the attack. Air crews received encouraging messages from Admiral Yamamoto and the emperor himself and, on Admiral Nagumo's flagship *Akagi* signal flags were hoisted telling all involved that the "fate of the Japanese empire will depend on the issue of this battle".

After being notified that all diplomatic efforts had failed, Nagumo proceeded with the attack. From 230 miles north of Oahu on December 7, Nagumo began launching the first wave of 200 of his 400 aircraft.

As Nagumo's aircraft approached at 7:20, they were detected by the new radar station at Opana Point on northern Oahu. This signal was misinterpreted as a flight of B-17s scheduled to arrive from the US that morning and no planes were dispatched to investigate.

At 7:48 am, the first Japanese aircraft descended on Pearl Harbor. Using torpedoes which had been successfully modified for shallow water and armor piercing bombs, they caught the US fleet by complete surprise. Attacking in two waves, the Japanese managed to sink four battleships and badly damaged four more. In addition, they damaged three cruisers, sank two destroyers, and destroyed 188 aircraft. Total American casualties were 2,368 killed and 1,174 wounded. The Japanese lost 64 dead, as well as 29 aircraft.

In addition to Nagumo's fleet of 32 surface ships, twenty-seven I type long range subs had arrived offshore of Oahu and taken up their triple mission: conduct reconnaissance, transmit intelligence to the strike force and eventually hunt down and torpedo ships that escaped the air attack.

After a difficult seventeen-day journey in heavy seas they dispersed to take up their preassigned scouting and patrolling stations. Five of the subs moved to the harbor's mouth each to launch a midget two-man sub carried on its deck. Their assignment was to enter the harbor when the anti sub nets opened to allow ships in by moving by electric motor under the ship passing through. Only one of the five made it through the net and was successful in launching a torpedo against the USS West Virginia inflicting significant damage.

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It, along with the other four were eventually captured or sunk. The only one sunk by our efforts rather than hull failure was at 6:37 am when our destroyer, the USS Ward intercepted and sunk one of the midget subs thereby allowing the US to have bragging rights for an hour or so.

In response to the attack the United States declared war on Japan on December 8, after President Roosevelt referred to December 7th as "a date which will live in infamy", a phrase which has stuck in our history books. { 1974 16.5mins}

Coinciding with the attack on Pearl Harbor were Japanese moves against the Philippines, Malaya, the Bismarck Islands, Java, and Sumatra. In the Philippines, Japanese aircraft attacked US and Philippine positions on December 8, and troops began landing on Luzon two days later. Swiftly pushing back General Douglas MacArthur's Philippine and American forces, the Japanese had captured much of the island by December 23. That same day, far to the east, the Japanese overcame fierce resistance from US Marines to capture Wake Island.

In less than a month the Japanese had taken control of the Pacific north of Australia and west of Hawaii as well as much of the Asian land mass including Korea, Manchuria, the east coast of China, Hong Kong, and what are now Viet Nam, Laos, Thailand, Cambodia, Malaya and Burma.

So how were we so surprised? This question eventually led to six investigative hearings after the war and much of the material for this paper comes from the reports of those hearings.

The intelligence services of the US, Britain, Canada, Australia, and New Zealand all had what they believed to be sophisticated listening devices, deciphering and decoding services and analytical capabilities to figure out what the Japanese were doing. Yet none of these well manned services named Pearl Harbor as the site of an attack. As for the date it was not until December 6th and early in the morning of the 7th that we thought the 7th would be the date.

Two weeks before Pearl Harbor the Army's Chief of Staff, General George C. Marshall and the Navy's Chief of Naval Operations Admiral Harold Stark sent an urgent letter to Roosevelt reporting that they both agreed that

Germany represented the primary threat to American interests. Although mindful of the danger of Japan's aggressiveness they asserted that we didn't yet have the ability to fight two wars and didn't believe the Japanese were capable of an attack. They appealed for time to build ships, planes and tanks, to train new recruits and to beef up capabilities in the Philippines. Their letter concluded, "Precipitance of military action on our part should be avoided as long as consistent with national policy."

Marshall and Stark were relying to a great extent on their services' communications intelligence for their estimates. One of the more important breakthroughs occurred a year before.

On September 10, 1940, a 26-year-old Army cryptanalyst named Genevieve Grotjan was studying an encrypted Japanese message in Washington. She believed she had spotted a pattern among the characters and, within hours she and her team realized that they had unlocked one of Japan's most important diplomatic codes using an encryption system on top of the code. Of course years of work had led to the ability to see the pattern from a message consisting of nothing but five digit code groups of mixed numbers and letters. We named it Purple and believed it was used for messages between the foreign ministry and all of its embassies abroad. It was one of several Japanese systems called collectively "Magic"

Yet, fifteen months later in December of 1941, with two other significant exceptions, we were still working on Japanese military codes and ciphers without much success.

One exception was a cipher encrypted by a machine the Japanese had developed in the 1920s, which they believed to be 'unbreakable', and actually was, until we developed a duplicate or stole the plans. Parenthetically I cannot now, more than seventy years later, discover which we did, and believe that it's still considered too top secret to reveal even though the workings of the machine itself are available on the Internet. {2596 21 mins}

The second exception related to piece of cryptanalysis that was accomplished in part via a break in in 1920 by counterespionage experts (with the help of a professional safecracker) who broke into of the office of

the Japanese Consulate in New York. One of our Navy's female spies had been "dating" the Japanese Naval Inspector's assistant and discovered, by plying him with alcohol and sex, that a copy of the precious code book was held by the vice-consul in New York who, in fact was a Lt. Commander in the Japanese Navy on intelligence duty in the US

During the break in we cracked open the Consulate's safe containing the "fleet code" of the Japanese Navy, photographed it and carefully replaced the book in the safe and re-locked it. The secret held until after the war as the Navy allowed very few people in their service and none in the Army to know about it.

This ironclad secrecy made it difficult indeed to find someone fluent in Japanese who could receive a top-secret clearance. After more than a year of searching the Navy found such a person in one Emerson J. Haaworth, a former Quaker missionary in Japan and a teacher at Tokyo University. He was hired, along with his wife who acted as his secretary, her chief qualification being that she was the only person in the world who could read her husband's handwriting.

With some help from an American Lieutenant Commander Ellis Zacharias, the Navy's foremost linguist, whose job was to help on the military and technical terms in the codebook that, in most cases, Haaworth had never heard, either in Japanese or English.

The book was completely translated in four years and the English language version, called JN-1 was carefully handed to a few in Navy Intelligence concerned with Japanese intentions. For the next seventeen years, until December 1941, Navy cryptologists continued to intercept, study and analyze changes in the ciphers that were used by the Japanese in order – the Japanese mistakenly believed- to make the fleet code more secure.

The code was named the Red code after the color of the book and by the time Pearl Harbor was attacked twenty one years later had been modified twenty five times. Each time the Japanese changed it the Navy's cryptanalysts succeeded in recovering the changes without any need to break into the consul's safe again.

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So we had the Purple and Red codes, which probably comprised no more than a quarter of Japan's high level enciphering systems, and together were referred to in all conversations by the simple word "Magic".

Vital to the future of our communications intelligence efforts was the presence on our side of a brilliant and highly skilled cryptanalyst, William F. Friedman. Born in Russia in 1891 his parents immigrated to America two years later to escape the pogroms. Raised in Pittsburgh Friedman graduated from Cornell in 1912 and served in WW I with General Pershing's communications staff after which, as a civilian employee he rose to the top of the Army's cryptography group developing codes and ciphers.

Friedman coined several terms, including "cryptanalysis", and wrote many monographs on cryptography. One of these (written mostly in his spare time) was the first draft of his Elements of Cryptanalysis, which later was expanded to four volumes and became the U.S. Army's cryptographic main textbook and reference.

In 1929 the Army, under Chief Signal Office General George S. Gibbs hired Friedman as the first director of the newly created Signal Intelligence Service, later renamed the Army Security Agency where I worked twenty-six years later.

Friedman started with five men, soon expanded to nine and trained as many qualified students as they could find, whether in uniform or out. If they took to solving ciphers they were enticed into the SIS training office in Washington. By 1941 they had graduated 280 cryptanalysts and, although many were not still active they were all located and drafted into service after December 7<sup>th</sup>.

The SIS eventually could identify which country, which military service, the unit of the service and the person sending by his Morse key rhythm called "swing". They assigned names to the operators as none used their own. Although it's unlikely that any women were transmitting code, women's names were often assigned to keep things from getting dull. Betty Grable was, it was later discovered, an overweight, balding senior Japanese radioman in the Tokyo Foreign Ministry.

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Though, within Magic we had two important Japanese ciphers and codes and an undisclosed number of lesser systems we didn't know many of

their most secure military codes. So while we knew what the Diplomats were to say in a meeting the next week we didn't know what the Japanese Navy was doing the next day unless it used the Red Code which it was doing less and less and never for the Pearl Harbor attack.

Even if we had broken their important military codes, when the Pearl Harbor attack group they went into a complete isolation mode we had no radio communications, nothing overboard, no telephone calls and no mail in any direction.

On November 26th, when Admiral Yamamoto, commander of the Japanese Navy gave the order to set sail for Pearl Harbor he sent another Japanese warship group to the south from Tokyo. This group did not carry out radio silence and in fact had on board as operators, the radiomen who had for the last year and more been on some of the ships now sailing for Pearl Harbor.

Our Navy's listening posts proceeded to track and report a group sailing for either the Philippines or the Dutch East Indies. Naval intelligence dutifully warned the US Navy's Philippine base commander and asked him to share

the information with the Army's commander, one Douglas MacArthur. The word went around Washington, including to the White House, that the likely target if Japan attacked was the Philippines.

On December 6th we intercepted a message in Purple code to Japan's US ambassador. By the evening of the 6th we had intercepted 13 of what were stated to be 14 parts.

They spilled out the failure of diplomatic efforts in some detail and made it clear that the Japanese saw no alternative short of war. The Army's Colonel Rufus Bratton deciphered the thirteen parts and delivered them to the state department at 1 a.m. on December 7<sup>th</sup>. He instructed the State department duty officer to deliver the message to Secretary Hull even if he needed to be awakened.

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Bratton had instructed his assistant to wait for the fourteenth part and to call him as soon as it arrived. Early the morning of the 7<sup>th</sup> the 14<sup>th</sup> part arrived. It read: "Please destroy at once the remaining cipher machine and all machine codes. Also dispose in like manner all secret documents." Bratton's assistant turned it over to Lt. Commander Alvin Kramer, Chief of

the translation section of the Office of Naval Intelligence who was the senior staff member on duty. Kramer noted in his diary that the appointed time spelled out in the message to be delivered by Ambassador Nomura to Secretary of State Hull was 1:30 that afternoon which was 7:30 in the morning in Hawaii on December 7<sup>th</sup>. The first bombs would be dropping as the two met thought neither of them would know it until after the meeting.

Over the fifteen months when we were reading more than a quarter of Japan's mail not one intercept mentioned Pearl Harbor except as part of a group of US naval bases and none mentioned December 7<sup>th</sup> as an attack date. To that extent our cryptographers failed – or more properly the Japanese were too smart to ever use the name Pearl Harbor hiding it in a code word that was then enciphered.

Nevertheless, anyone who reads modern military history knows how many lives were saved in the Second World War by being able to read much of both Japan's and Germany's military messages.

---On a personal note ----

I became interested in military codes and ciphers as a member of the ASA, the Army Security Agency, during the end of the Korean war in 1954 and 1955. I was given a top-secret security clearance and then told that I couldn't discuss what I did at work with my spouse, parents, best friends or even the soldier doing the same thing and bunking in the same barracks.

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In "security lectures" we were instructed to say that we were in the Signal Corps (we did wear Signal Corps insignia) and were involved with "Radio Wave Propagation" and were allowed to explain it if anyone asked. The ASA's cover was blown in the early seventies when Time magazine did a

story on the NSA its parent, calling it the largest communications spy agency in the world.

I was assigned to Ft. Devens, outside of Boston, which had an antenna field spread over a square mile and visible to civilians outside of the gates. Once, when I was asked about what we did with all the antennae I told the person that we captured radio wave propagation. What was really captured by those nets were the military and diplomatic signals from both Europe and Asia

As for “capturing radio wave propagation”.... I haven’t a clue what that means

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