

SRH-081

INFORMATION

FROM

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by Director, NSA/Chief, CSS

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### Captain Safford

By way of background, I was licensed as a Radio Amateur in 1923. As such I was eligible to join the Navy's Volunteer Communication Reserve. In 1926, when I reached age 18, I enlisted as a Radioman 1C.

A monthly bulletin was distributed to regular and reserve communication personnel. Each issue included three cipher messages. One was in a simple substitution cipher, thus broadening the possibility of interest. Readers were requested to solve what they could and submit solutions to the Code and Signal Section. Captain S, 20-G and head of the section, used this as a means of stimulating interest in cryptanalysis and earmarking likely personnel, regular and reserve, for duty in that field.

Initially, I solved the easier problems and in a short while progressed to the more difficult. At that point, Capt S took an interest in my work, via correspondence. From time to time he asked me to submit outlines of methods used in reaching solutions and sent me copies of standard solutions.

By 1932, I had progressed to the point that he wanted me commissioned. He wrote me that Com 3 had been requested to examine my general qualifications. I was commissioned in 1932 and assigned to the CNO quota. This meant my war-time billet would be with 20-G or one of the field units.

I had 14 days of active duty in 1934, '35 and '40 at the C&S Section in Washington. Capt S was on sea duty in '34 and '35; he was on leave in 1940. He wrote me in mid-1940 asking whether I would volunteer for an indefinite period of active duty. I replied I could not without jeopardizing relations with my civilian employer, adding that he should issue orders as soon as he was in a position to do so.

(At that time volunteer reservists could not be ordered to active duty)

In December 1940 I received orders and reported to 20-G in early January 1941. This was my first meeting with Capt S.

When reporting, I was a LT(jg) but several months previously Capt S had put in a request to have me promoted out of turn to LT. This was bogged down at Com 3 but it came through in Feb 1942 with date of rank Oct 18, 1941. This promotion was initiated because my war-time billet called for a LT -- at Pearl Harbor.

In the years before Dec 7, 1941 Capt S was the prime mover behind the C&S Section. His plans and policies bridged his periods of absence for sea duty. He recognized the need for a strong crypt-analytic group comprised of regulars and reserves. He considered the latter particularly important, because in time of war, they could serve continuously without the breaks for sea duty or transfers required of regular officers to maintain or further their careers.

Captain S was responsible for the Navy's cryptographic systems. In the pre-war years limited funds were the determining factor. It was not a matter of getting the best that could be devised but rather the best that available funds could procure.

A major contribution of Capt S was a new cipher machine which greatly surpassed any known at the time. Limited funds eventually forced it to become a joint procurement project with the Army which, no doubt, had some say in the design. No doubt others made contributions but basically it was Captain S's machine. He fathered it and lived with it through the numerous problem of design, pre-production testing and finally production. Although it was very advanced cryptgraphically, the mechanical and electrical principles used were sound and well established. Thus, most of the usual difficulties and field changes were avoided. It was being issued to the field

There was a need to equip our allies with a cipher machine to ensure a secure, rapid and reliable means of communication. Capt S developed a version of his new machine for combined use. It afforded adequate security without using and thereby disclosing certain unique cryptographic features of his basic machine. Very little new tooling was required; machines were ready for distribution in a remarkably short time.

Capt S could see war coming and in the form of a sneak attack. There are several examples, starting with his recognition of the intelligence possibilities of the Purple System. Although diplomatic and technically not a military responsibility, the message content convinced him it should be put on an operational basis. Since breaking the Purple had been a Joint Task, the two services were assigned alternate dates of responsibility, based on the message date of origin. The Navy was responsible for odd dates. Capt. S set up a group to decrypt current as well as back traffic. This group worked the normal daytime working hours.

Shortly, Capt S set up the GY watch to decrypt Purple traffic on a 24-hour basis. (This was the first 24-hour watch in OP-20G). He stated his reasons to me as follows: if the Japanese start anything it will be over a week end and we'll be hung if we're sitting on unprocessed traffic. (The Army did not set up a similar arrangement until Dec 7th).

It wasn't very long before Capt S called me to his office and said: if things break we will be held responsible for unprocessed traffic we are holding, even though it is the Army date of responsibility. (The practice at that time was to turn over to the Army at 0800 intercepts received after 1800 the previous day; traffic received over weekends was turned over at 0800 on Monday. The GY Watch was instructed to decrypt Army date traffic after all Navy date had been

run. These decryptations were to be shown to GZ who would notify the Army if anything urgent was found. Otherwise the decryptations were turned over to the Army in the morning and distribution was made by the Army in the usual manner. Thus, the Navy was able to protect itself without encroaching on the Army's right to distribute even date traffic.

Captain S. still wasn't satisfied with the GY watch; daily keys were not always being recovered promptly and he didn't want an unrecovered key to run beyond a day watch. As strapped as he was for personnel, he assigned an officer to replace me on the watch list so that I could be in every day. A small point, perhaps but further evidence of Capt S's belief in the Purple system.

In early December Captain S put his own house in order by ordering Pacific Island Bases and Marine Detachments in China to destroy all but one crypto system.

Captain S's foresight in having the GY watch decrypt Army date traffic paid off on Sat Dec. 6 1941. With the Army closed at noon the Navy started decryption of the first 13 parts of Tokyo to Watchington #902. (Later in the afternoon Army personnel were called in to help with the work.) Otherwise the first 13 parts of #902 would have remained undecrypted until Sunday, when the 14th part and other traffic dated the 7th called attention to them.

Understandably, Capt S was completely floored by the Pearl Harbor attack. He felt that a wealth of intelligence had been provided and yet the result was a disaster. I was surprised to learn that he believed a Winds execute had been received on Dec 3rd or 4th and had been suppressed. He expected to prove it during the investigations which certainly would follow. Although I considered Capt S's premise highly unlikely and contrary to the facts as I knew them, he could have been right. However, whether he was right or wrong, he was

taking a course which was bound to damage him and his career.

Soon after Dec 7th, 20-G was split-up and Capt S retained only the production and distribution functions. There was a new 20-G in charge of cryptanalysis. Thus Capt S, probably the most capable officer in his field, was assigned to duties which were far below his capabilities.

In a short while he was assigned to head a new, long-range cryptanalytic section. It was to have a complement of 2000 and its assignment was unsolved enemy crypto systems. When a system was broken, it was to be turned over to 20-G which would process traffic, doing whatever cryptanalytic work was required for keys etc. This sounded like a sensible arrangement to me. I understand Capt S objected strongly to this assignment. However, he accepted and asked that I be assigned to him. This duty would certainly utilize his capabilities but it would take him out of the mainstream of cryptanalytic work-producing intelligence from enemy traffic.

My first task was to order office furniture and equipment for 2000 people and to start getting personnel together. No space had been assigned.

Before the equipment started to arrive and before space was assigned minds at the top changed and the new section, which had existed only on paper, was wiped out. Capt S was then assigned to head another new section -- Cryptographic Equipment (or Research or Engineering, I can't recall which). Ultimately it had about 15 officers and enlisted. I was second in command.

Captain S was well equipped to handle these new duties but obviously the assignment was far below his capabilities. After we were organized he spent much of his time devising and designing a new call sign cipher system, including a cipher machine for heavy traffic centers. He seemed content with these activities; apparently

he adjusted to occupying a minor position. For the most part I carried on the work of the Section, including relations with the other sections of OP-20 and the Joint and Combined Codes and Ciphers subcommittees. And so we carried on until the Congressional Investigation was to start.

I did not know the details of Capt S's testimony at the various prior investigations and inquiries. He did not seem very pleased and I presumed he had not made much headway with the suppressed Winds execute. I had made my position clear from the outset; I knew nothing of such a message. This caused no hard feelings between us.

Captain S viewed the Congressional Investigation as an opportunity to prove his point. He was in contact with Republican members of the committee who, no doubt, encouraged him.

He started to prepare as soon as the investigation was announced. Giving up hope of ever locating a file copy of the Winds execute, he decided to search intercept station logs. This would not turn up a copy of the execute. Captain S expected to show that a station or stations had copied broadcast transmissions on Dec. 3rd or 4th which might have included the execute.

Generally Capt S would work out times and frequencies and possible intercept stations based on his estimated propagation conditions. I would then check station logs which were on microfilm.

Captain S attacked this work with his usual great enthusiasm. Time after time he would think he had it worked out and I would have to tell him the logs did not support his theories. On several occasions I found negative information, indicating his theories were not likely or possible. Finally, he decided that the Navy's station at Cheltenham, Md. must have received the execute.

A few weeks before the investigation was to start Captain S asked me to attend the sessions with him to manage his papers. After

thinking it over I told him I thought it a bad idea, because as he knew I could not support him in all he was doing. I felt we would be very likely to call on me to resolve or confirm a point. This might lead to my being sworn and questioned. The fact that we did not agree in all matters would become known and it would damage him. I suggested he get an officer with no Pearl Harbor connections to assist him. He was crushed; I felt like a heel, even though my intent was to help him. I had no objections to appearing as a witness on my own. Although I would not support Capt S in all respects, I would have been just another witness and not his witness disagreeing with him.

In order to keep my files intact, I stayed on active duty well beyond the date I was eligible for release. I had testified at the Navy Inquiries and there was always a possibility Congress would look further at the GY watch. As soon as the likelihood of that had passed, I applied for and was granted release from active duty.

Capt S went on leave at the end of his testimony and I left Washington before his return. We had very little contact between my declining to act as his aide and the start of his testimony.

My thoughts in those days were much as they are today. Here was a man who had done practically everything right in the months and years before Pearl Harbor. He had built an organization which produced a wealth of solid intelligence, including that which made possible the Battle of Midway. Yet, through his dogged pursuit of the Winds execute, all of this was forgotten.

Capt S's primary purpose in pursuing the Winds execute must have been to prove it had been suppressed. I simply cannot believe he thought that its receipt on Dec 3rd or 4th, as he claimed, would have changed or prevented the events on Dec 7th, 1941. He must have had a good reason, knowing he was putting his career at risk. Perhaps it



was his only means to protest the failure to use the intelligence which was available. As 20G this was not within his responsibilities. However, he could protest if a message for which he was responsible was spirited away and suppressed. (This para is, of course, pure speculation on my part)

GY Watch Office 12/7/41

I was the GY watch officer on Dec 6 -- the 1600-2400 watch. (replacing a watch officer who was on leave). All Purple traffic had been decrypted and turned over to 20-GZ by about 2000. The key for Purple traffic dated the 7th had been recovered. Thus, we were in a position to decrypt incoming traffic as received and I could see no difficulties for the following watches. However, I was troubled by a loose-end; the 14th part of Tokyo to Washington had not been received. I stayed on for an hour or two after being relieved at 2400 but no intercepts came in (I hoped that station S hadn't missed it.)

After lunch the next day, the 7th, I decided to check things at the GY watch office and arrived a few minutes after word of the attack on Pearl had been received. The watch officer quickly brought me up to date: The 14th part had been received and #902 was to be delivered to Hull at 1:00 PM (local time); the Japanese Embassy in Washington had been ordered to destroy its Purple machine, remaining systems and documents; more or less as an afterthought he mentioned that a Winds execute had been received.

Early in the afternoon GZ came into the watch office and motioned me to one side. I was floored when he asked if we could encrypt a message in the Purple System for transmission. This was a requirement I had never even considered and had to do some fast thinking before saying we could but it would be a very slow process. Next, I can remember saying something along the following lines (probably needlessly): I hope that whatever this message is supposed to accomplish is of the highest importance. Ultimately, the Japanese will discover our ruse and certainly will re-evaluate all of their crypto-systems, including military. Years of work will go down the drain and we may

not be reading Japanese traffic for months or years. GZ nodded and left, saying he would let me know.

Although I cannot recall it, he must have returned sometime later and said it was off. Otherwise I would have contacted him before leaving for home.

I have no knowledge of the addressee or content of the contemplated message. I sensed it was not GZ's idea; it came from higher up. I did not question GZ about it then or later. I doubt that he would have told me -- I had no need to know.

Looking back after almost 40 years, I feel sure we could have encrypted such a message and turned it over to RCA for transmission. (We could decrypt the message on our machine to detect encryption errors). The weakest link was probably the ability of our translators to compose a text which would be accepted, without question, by the Japanese upon receipt. It seems likely that the subject matter as well as the time of receipt, would lead to close scrutiny.

## THE WINDS MESSAGE

My first knowledge of the Winds Message came while it was being translated by 20-GZ. As I recall, translation was not straightforward and several translators, including Army, worked on it. Since the message had been sent in an enciphered code, there could have been cryptanalytic difficulties as well as troubles with the language.

The message setting-up the Winds Code was Tokyo Circular #2353, dated Nov 19, 1941. Translation was made by the Navy and it was distributed by the Navy on Nov 28.

Army and Navy intercept stations were given assignments to cover the "execute"; other government agencies were asked to assist. The British and Dutch in the Far East were alerted.

Scanning the intercepts for the execute phases was the responsibility of GZ. The GY watch had the assignment when GZ was not manned. Since the GY watch officers could not read Japanese, this was necessarily a blind search.

There were a few false alarms which were evaluated as such by GZ. On Dec 4, I believe during the 1600-2400 GY watch, an intercept which received considerable noteriety was forwarded by the FCC. The GY watch officer decided it was valid. Instead of calling-in a G2 translator, he called the DNC (OP20), thereby skipping the intervening chain of command. This has become known as the "False Winds Message"

By the time translators had seen the message and had determined it to be an ordinary weather broadcast, news of its receipt was widespread. Had it been handled properly the word would not have gone beyond GZ. It is quite possible some people who heard of its receipt did not learn later that it was false. This might account for some

persisting beliefs that an execute had been received at about that time. On the positive side, at least this episode established that an execute had not been received prior to late on Dec 4

In early Dec I was on the GY watch list, replacing a watch officer on leave. (As the senior watch officer, I normally worked days). I had the 1600-2400 watch on Dec 6, the first part of which covered the decryption of the first 13 parts of Tokyo to Wash #902. This was completed by about 2000 and then I was free to start scanning the mass of winds intercepts which had accumulated. I found nothing and therefore conclude that an execute had not been received prior to 2400 on Dec 6. If it had, the GY watch would not have been searching on Dec 6 and on the following watches on Dec 7.

To my knowledge a valid execute was not received prior to Dec 7th. It was not until a few days later (after Dec 7th) that I heard rumors that an execute was supposed to have been received before the 7th, that it had not been written up nor circulated in the usual manner and that no copy could be found.

I did not attach much importance to the winds message. Perhaps that was because it was to be used in the event commercial communications facilities were denied. This would probably be very late in the course of events leading to war. I felt that our solid coverage of the Tokyo-Washington circuit would be much more productive. While we were waiting for the execute, this circuit produced the following:

On Dec 1 Tokyo Circular #2424 ordered the destruction of Purple machines in London, Hong Kong, Singapore and Manila, also advising that the machine in Batavia had been destroyed. This was consistent with the known southward movement of Japanese Naval forces. (I wondered why Manila was included). Clearly, by Dec 1 events in Japan had proceeded to a point which necessitated destruction of their top

cryptographic system in five major locations. This was an important step for the Japanese.

On Dec 1 Tokyo Circular #2445 ordered various offices to burn all telegraphic codes except two minor systems. When completed the word HARUNA was to be sent. Such messages from the U.S., Hawaii and other locations were received and forwarded by the intercept stations. Inclusion of U.S. locations pointed to the probability that the U.S. was involved in whatever was afoot.

In late Nov. and on Dec 1st Tokyo sent Washington specific instructions for the methods to be used in destroying its Purple machines.

On Dec 2 Tokyo ordered Washington to destroy one of its Purple machines, to destroy all codes except those used with it and to destroy its other codes but to retain one copy each of two minor systems. This move indicated the possibility that it might be necessary to "clean house" in a hurry.

And, of course, the Tokyo to Washington circuit produced considerable information on Dec 7th prior to the attack.

I suggest that, if possible, you obtain a copy of the original decryption of the Winds message (Tokyo Circular 2353) and obtain an independent translation. In particular the true meaning of the execute phrases, as intended by the Japanese, should be determined.

In order to assure world-wide coverage the execute would have been broadcast a number of time on several radio frequencies, permitting each location to select the best source depending on location, time, propagation conditions etc. I believe that had an execute been sent we would have received a number of copies from the intercept stations.

I suggest you investigate Tokyo to Washington #2354 which is quite similar to #2353 on which our search for the execute was based. Both were dated Nov 19 but #2354 was translated and distributed by the Navy two days before #2353. I have no recollection of seeing #2354 until noting it in material prepared by the Congressional Investigation.

To me #2354 would have been a better indicator of forthcoming events, since it did not depend on danger of shutting off commercial communication facilities and the execute words would stand out in the intercepts without mistakes or misinterpretation. I have no idea why this message was not used. Possibly we were not familiar with "General Intelligence Broadcasts" and were unable to instruct the intercept stations. There may be an explanation somewhere in the records. If I knew anything about it, I've no recollection at this time.