

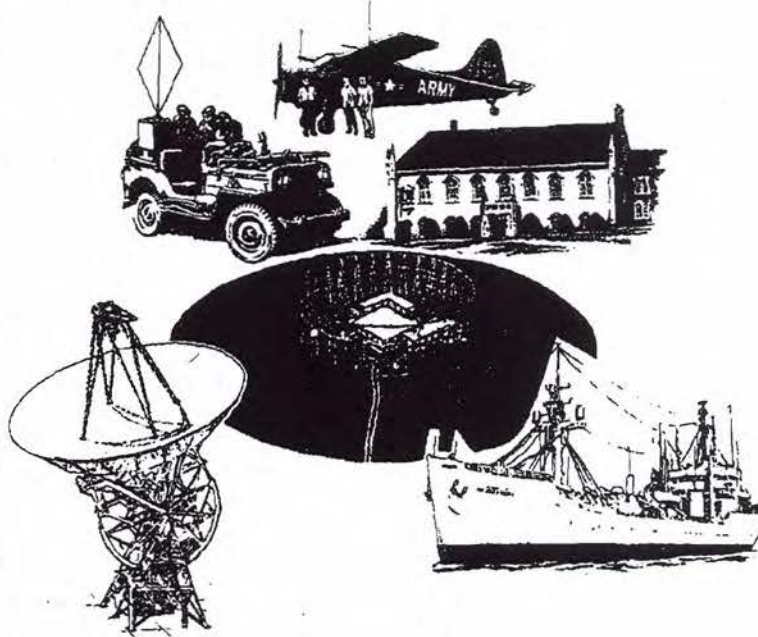
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UNITED STATES CRYPTOLOGIC HISTORY



American Cryptology during the Cold War, 1945-1989

Book II: Centralization Wins, 1960-1972



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UNITED STATES CRYPTOLOGIC HISTORY

*Series VI
The NSA Period
1952 - Present
Volume 5*

*American Cryptology during the
Cold War, 1945-1989
Book II: Centralization Wins, 1960-1972*

Thomas R. Johnson



**CENTER FOR CRYPTOLOGIC HISTORY
NATIONAL SECURITY AGENCY**

1995

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Chapter 8

The Kennedy Years

THE NEW ADMINISTRATION

In the long history of the world, only a few generations have been granted the role of defending freedom in its hour of maximum danger. I do not shrink from this responsibility - I welcome it. I do not believe that any of us would exchange places with any other people or any other generation. The energy, the faith, the devotion which we bring to this endeavor will light our country and all who serve it - and the glow from that fire can truly light the world.

John F. Kennedy, Inaugural Address, 20 January 1961

John Kennedy came to the White House with an abiding interest in foreign affairs and defense policy. His politics, forged during formative years of the Cold War, were hard-line anti-Communist and anti-Soviet. But unlike Eisenhower, whose instinctive conservatism drove him toward small government and small defense budgets, Kennedy wanted a liberal remake of the world. Under the driving and optimistic Kennedy, it seemed that anything was possible and that John Fitzgerald Kennedy could make it happen.

Kennedy knew little about intelligence when he arrived at the White House. He needed an interpreter but avoided the existing channels (DCI, secretaries of state and defense). Instead, he came to rely on an official on his White House staff who held the title of national security advisor. His choice for this relatively little-known office was McGeorge Bundy. Previous occupants of the position had been relatively obscure, but Bundy and his successors, Walt Rostow and Henry Kissinger, were to become household names. Power had shifted to the White House staff.

McNamara at Defense

For many years, the office of the secretary of defense had been weak and understaffed. The first secretary of defense had an office but little else. James Forrestal had no legal deputy, no staff, a miniscule budget, and no tools to curtail the interservice feuding which had erupted after the war. In 1949 President Harry Truman got a reluctant Congress to create a Department of Defense, with a staff and a budget to go with the solitary office of secretary. The Defense Reorganization Act of 1958 accorded the secretary more staff and more power. Subsequent secretaries (the despondent Forrestal having committed suicide) battled the three warring services through the Eisenhower years, and each was driven nearly to distraction.

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John Fitzgerald Kennedy

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No one quite anticipated someone like Robert McNamara when the Defense Department was established. He had come over from industry. Brilliant and driven, he had become CEO of Ford Motor Company at the age of forty-four. McNamara was a Republican and had been so far from Kennedy's inner circle that the two had never met. He brought with him new techniques for managing large organizations. He was a centralizer par excellence, and he ruthlessly beat back internal opposition. McNamara resembled less a secretary than a cyclone.

The new secretary brought with him a management team headed by Charles Hitch of Remington Rand. Hitch had had a hand in inventing a new discipline called Operations Research. Essentially, OR, as it was called, tried to quantify the basis for all managerial decisions. Using scientific methods, he would reduce all the variables of a decision to a mathematical quantity and choose the most attractive. Hitch institutionalized the PPBS (planning, programming and budgeting system), a seven-year planning cycle which is still in use. As DoD comptroller, he scrutinized every element of the defense budget. The largest intelligence package was the newly created CCP, and Hitch and friends examined it rather thoughtfully every year.¹



Robert McNamara,
secretary of defense
under Kennedy and Johnson

Kennedy was not happy with the doctrine of massive retaliation. He was an activist, and MC 14/2 (the document that codified massive retaliation in 1956) was essentially a defensive strategy. Instead, he opted for Maxwell Taylor's strategy of flexible response, which required conventional and unconventional forces to meet tactical threats. Finally codified in MC 14/3 in 1967, flexible response in fact dominated the strategy of both Kennedy and Johnson throughout the decade.²

NSA and the Cryptologic System at the Beginning of a New Decade

Flexible response caught off guard an unsuspecting SIGINT system that had been optimized over an eight-year period to warn of, and support, total nuclear war. Not enough

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attention had been paid to tactical SIGINT, not enough resources had been allocated. Servicemen had flocked to large fixed sites and had learned how to work strategic SIGINT problems. The weaknesses of the existing SIGINT system had been exposed [redacted] and the services were working on solutions. But no one was really ready for the decade of crisis and war that was to follow.

This became a decade of SIGINT centralization. Just as the McNamara Defense Department strove to tighten the reins, so NSA, bolstered by repeated recommendations by high-level boards, commissions, and committees, drew SIGINT control back to Fort Meade. True, there were countervailing forces, most notably tactical commanders in Vietnam, who strove for a decentralized system. But at decade's end, the SIGINT system was far more tightly knit than it had been ten years earlier.

Former deputy director Robert Drake once jokingly formulated a law that said, "Centralization is always bad, except at my level." NSA employed Drake's Law to centralize its own system, but at the same time fought a spirited rear guard defense against McNamara's people at DoD. Centralization was fine, unless it meant giving up any powers to the Office of the Secretary of Defense (OSD). Thus NSA tried to stave off the intrusions of Hitch's budgeteers. Succeeding directors fought the authority of the newly created Defense Communications Agency. The creation of the Defense Intelligence Agency (DIA), too, represented a threat that NSA constantly crossed swords with. And NSA rejected the idea (pushed by Kennedy's PFIAB) that the DCI spend more time coordinating the entire intelligence effort, including the intelligence components of the Department of Defense. CIA was still regarded as a threat.

Even to defense intelligence specialists, NSA was still an obscure agency in 1960. It entered the decade known primarily as a communications research organization which played with expensive toys and produced huge volumes of highly classified translations in a fairly leisurely time frame. Analysts still worked basically an eight-to-five schedule, and shift operations, when mounted, were highly unusual and tailored for specific crises.

But pressure was mounting to change things. SIGINT had proved to be of great utility on a widening variety of targets. It had become the most prolific producer of strategic warning information, and President Eisenhower had demanded that such information get to him faster. Kennedy was an activist president, who demanded even quicker and more accurate responses. He prodded the system, and NSA responded. By the end of the decade, NSA's world would change.

Enter the New Director

Vice Admiral Laurence H. Frost, who arrived at the end of the Eisenhower administration in 1960, was better prepared for the job than any other previous director. He had had three prior tours in intelligence, including a two-year tour as Canine's chief of

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staff, and he had been director of Naval Intelligence. In addition, he had achieved distinction as a ship driver in two wars. The Army and Air Force had had their turns as DIRNSA - now it was the Navy's turn.

Frost contributed to SIGINT centralization by revoking the independence of the Soviet Navy problem at NSA. A compromise device instituted by Samford to bring the SCAs more fully into the NSA system, it had resulted in divided loyalties and jurisdictional disputes. In March of 1962 Frost resubordinated the chief of the Soviet navy problem to DIRNSA, removing him from the Navy chain of command where he had been directly subordinate to the director of the Naval Security Group. The independence of the Soviet ground and air problems lasted not much longer than that.³ But Frost himself lasted only two years in the job, and aside from that organizational change, left behind no distinctive legacy (for reasons which will be made clear on p. 340).



Laurence H. Frost

People, Money, and Organization

By the time Kennedy arrived in the White House, cryptology had become the elephant in the intelligence closet. McGeorge Bundy discovered that of the 101,900 Americans engaged in intelligence work, 59,000 were cryptologists of one stripe or another (58 percent). Of those, about half worked in the Continental United States, while the other half plied their trade overseas at collection and processing sites. NSA had 10,200 assigned (17 percent of the total) but only 300 overseas billets. The field sites were still the domain of the SCAs. At NSA, the military filled 25 percent of the billets.⁴

Of the three services, NSG was still the smallest, with 6,900. AFSS, with 21,200, and ASA, with 20,400, dwarfed the Navy in size, although NSG made up in quality what it lacked in quantity. Cryptologic manpower was projected to grow through the decade until it would hit a peak of 93,067 in fiscal year 1969.⁵

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Within NSA's Production organization, fully 50 percent worked the Soviet problem. Another 8.4 percent worked in Acom (Asian Communist) while 7.6 percent were in Allo (all others, i.e., Third World). The remaining 35 percent was allocated to centralized technical or staff functions such as machine processing and collection support (including ELINT).⁶

NSA's complex at Fort Meade underwent a building boom in the 1960s. Ground was broken for the nine-story headquarters building, and it was occupied in 1963. (General Canine attended the ceremony, and his wife cut the ribbon.) The new COMSEC building was dedicated in November 1968, and the quarters on Nebraska Avenue were finally given back to NSG. In the same year, owing to a moratorium on military construction, NSA began to lease three newly constructed "tech park" type buildings at Friendship Airport (which later changed its name to Baltimore-Washington International, or simply BWI). The complex was called Friendship Annex and came to be abbreviated as FANX. In 1961 NSA acquired the buildings that had housed the old Fort Meade post hospital and moved the training school from downtown Washington. The training component, newly renamed the National Cryptologic School, was one of the first occupants of the Friendship complex, gladly abandoning the antiquated hospital structure.

A New Reorganization

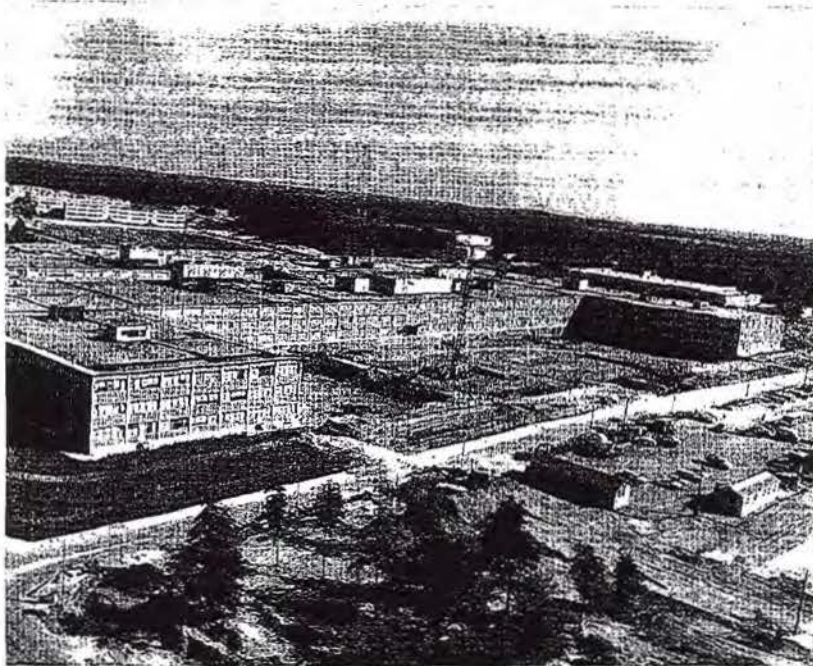
Following the Martin and Mitchell defection in 1960, the director established a management board to review NSA's organization. It was the first comprehensive review since the McKinsey study in 1956. This time, instead of an outside management team, Admiral Frost used home-grown talent. The board was chaired by Frank Rowlett (who had rejoined NSA during the Samford administration), Oliver Kirby from Prod, Brigadier General George M. Higginson, Maurice Klein (the head of personnel), and Dr. William Wray, with Dr. Milton Iredell as recorder.⁷

Its report, handed to Frost in July 1961, amounted to a reversal of the McKinsey approach. What was needed was not decentralization (a key element of the McKinsey report) but centralization. The director's staff had grown too small, and too many functions had been farmed to Prod. "The Board found no effective mechanism within the existing organization to exercise the strong centralized control of national policy, planning, and programming functions, which appears essential to insure concentration on and responsiveness to the Director's national responsibilities." Thus it created a policy staff to manage Second and Third Party affairs, to do central budgeting for the CCP and to effect systems planning and evaluation. It was similar in approach to that being used by McNamara's people in OSD (although probably no one at NSA would admit it).

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Groundbreaking for the new headquarters building



The Friendship Annex (FANX) complex

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The naming conventions for office designations was also tossed out the window. Martin and Mitchell had, at their press conference, reeled off a long list of NSA organizations, and it would be necessary to change to a new system. Out were the pronounceable syllables, in was the obfuscating alphanumeric system. Key components were to be designated by a single letter (R for R&D, P for Production, etc.), and subordinate elements would carry trailing numbers.⁸

PROD itself consisted of three key components:

- A the Soviet problem;
- B everything else, including former ACOM and ALLO;
- C technical functions such as machine processing, central reference, and the former office of collection (including, for the time, ELINT processing).

Included on a central PROD staff would be a permanent watch office and an office of cryptologic research (an early version of P1). The board also recommended that the arrangement come to an end whereby the chiefs of the Soviet naval, ground, and air problems were subordinated to their SCA chiefs. Frost (as noted above) acted on this the next year.⁹

The board recommended that R&D be strengthened to handle increased responsibilities. (This was in accord with, and partly in response to, DoD-level recommendations that NSA take a more active hand in the development of cryptologic equipment across the board.) The R&D organization should assume policy direction on major new projects such as the Air Force's 466L collection system and the space collection (Spacol) systems. The COMSEC R&D function, which historically shuttled between COMSEC and R&D, returned to the research organization.¹⁰

Finally, the board took another swipe at the continuing lack of a career civilian cryptologic service. This had been a big issue during the Canine years, and fragments of the system had been put in place. But a systematic professionalization system, with categories and criteria, had never been implemented. Under Samford the proposals had languished, and now another board made another recommendation. It was a continuing irritant.¹¹

Changing the Field Organization

While Europe remained stable, cryptologic organization in the Pacific was changing. The switch of NSAPAC from Tokyo to Honolulu, already mentioned, occurred under Frost in 1962. In the same year ASA and USAFSS moved their own regional headquarters to Hawaii to be in synch with military organization in the theater. This was also a time when second-echelon processing in the Pacific finally came together in In the fall of 1961 a new processing organization, Joint Sobe Processing Center, opened its doors.

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The first commander was an army colonel, Kenneth Rice of ASA, but there was also a large contingent of NSA civilians working [redacted]

[redacted] As time went on, it acquired processing responsibilities for North Vietnamese air, air defense, General Directorate of Rear Services (GDRS), and shipping.¹²

Bucking the trend toward centralization, AFSCC remained operating in San Antonio. NSA wanted to move it to Fort Meade but did not have the space. This problem would not be solved until the Friendship complex was leased in 1968. Meanwhile, AFSCC continued to work the third echelon aspects of the Soviet air problem, and it even acquired the [redacted] problem under an agreement negotiated with ACOM early in the decade.¹³

In the meantime, NSA continued to set its own targeting priorities. Systems were devised throughout the 1950s and 1960s to allow for the expression of customer requirements, but none really had any teeth, and they were so general ("copy and report the world") that NSA was forced to prioritize for itself.

The best indication of where NSA's priorities lay was the Agency's input to the new PPBS system in 1961. NSA thought that exploiting [redacted] was Job One, followed in order [redacted]

[redacted] It is fair to note that the Soviet problem encompassed four of the seven and that Cuba was not among the listed requirements. This omission would not last long.¹⁴

THE CRYPTOLOGIC MAP IN THE MID-1960s

By the time NSA was eight years old, the cryptologic map had exploded. NSA and the SCAs were in seventeen countries plus the Continental United States, Alaska, Hawaii, and Puerto Rico. The biggest growth was in Germany. The three SCAs had major field sites in thirteen locations, and NSA had a theater headquarters in Frankfurt. [redacted]

Europe

Although the Robertson Committee warned against vulnerability to Warsaw Pact forces, collection sites were still strung out in a wide arc east of the Rhine. [redacted]

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[Redacted]

ASA began occupying the "Rubble Pile" late in 1962 or early in 1963.¹⁵

Across Western Europe, new U.S. SIGINT sites were springing up. [Redacted] ASA and AFSS were building sites [Redacted] and AFSS had occupied land on Crete (a Greek possession in the Mediterranean) and Wheelus Air Base in Libya. (Wheelus was deactivated in 1960 rather than pay additional rent to the increasingly nationalistic Libyan government, and the mission was moved to Crete.) All these sites were important because of the geographic cushion they gave from the potential advance of Soviet divisions.

Turkey

As a base of [Redacted] however, no country was more important than Turkey. The Soviet missile testing program drove the Turkey option, and in the 1950s the administration became increasingly close to the Turkish government. In 1955 Turkey joined the Baghdad Pact (a long-forgotten Eisenhower initiative to knit together the pro-Western countries on the southern periphery of the USSR). Five years later a relatively antiseptic military coup placed the pro-American General Menderes in power in Ankara and ushered in a period of harmonious relations between the two countries.¹⁶

The United States had been frantically building collection sites in Turkey in the 1950s. [Redacted]

[Redacted]

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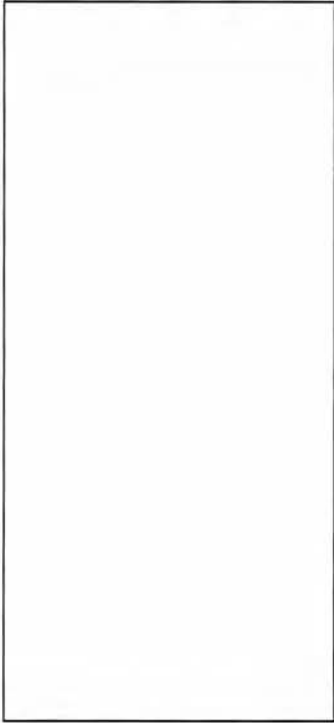
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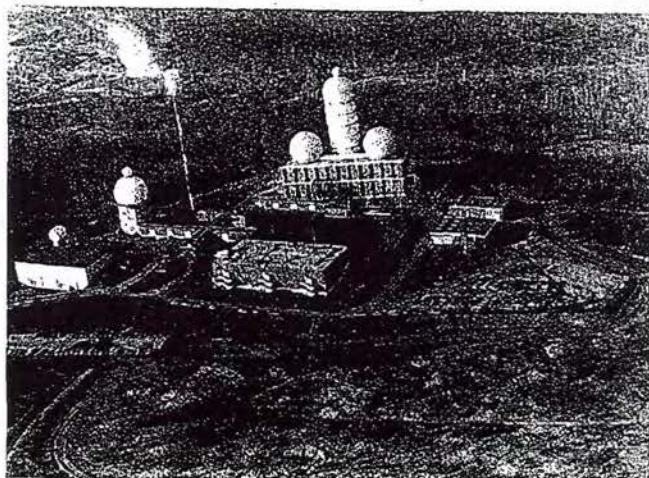
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ASA's first collection effort on Teufelsberg,
established in 1961, operated out of vans.



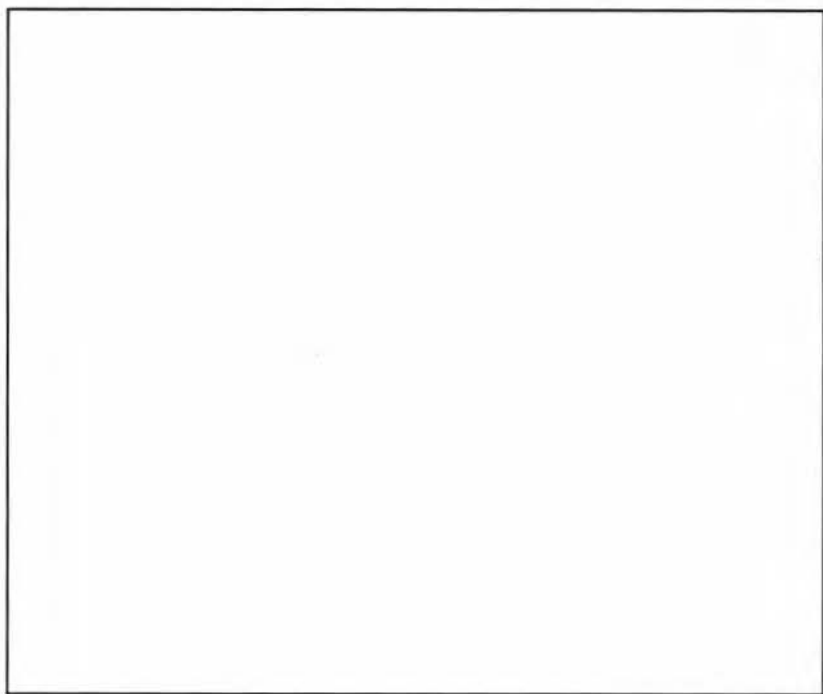
The Rubble Pile
(Teufelsberg, West Berlin, as it looked when completed)

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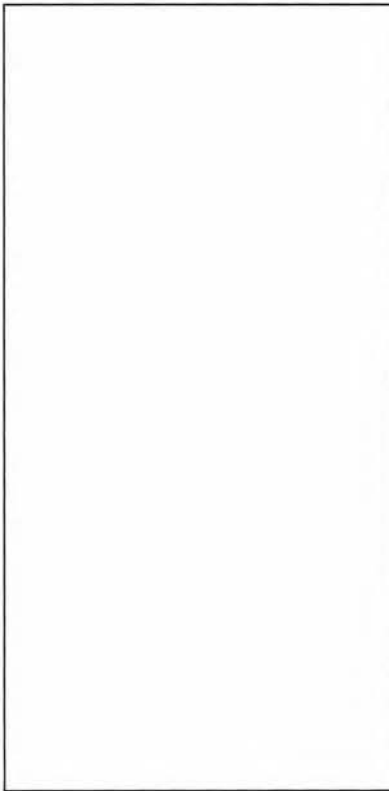
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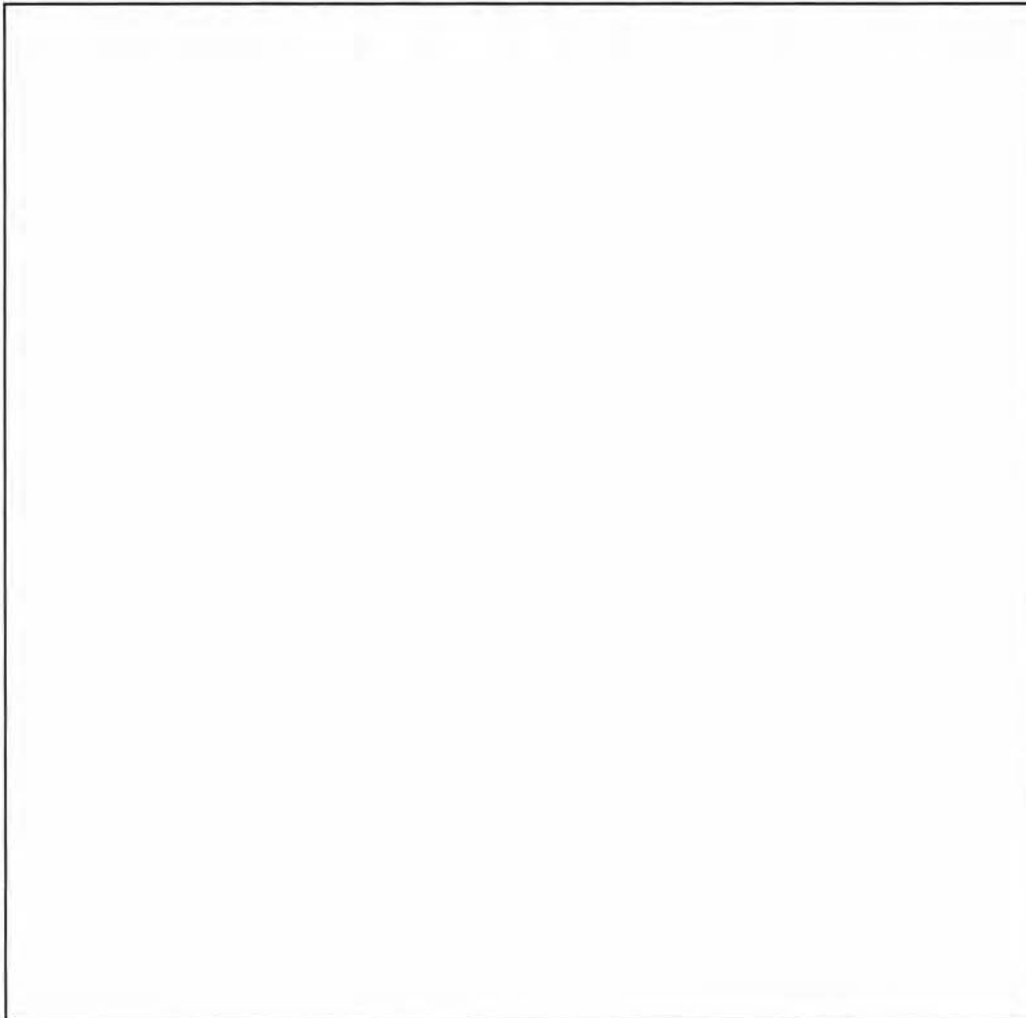
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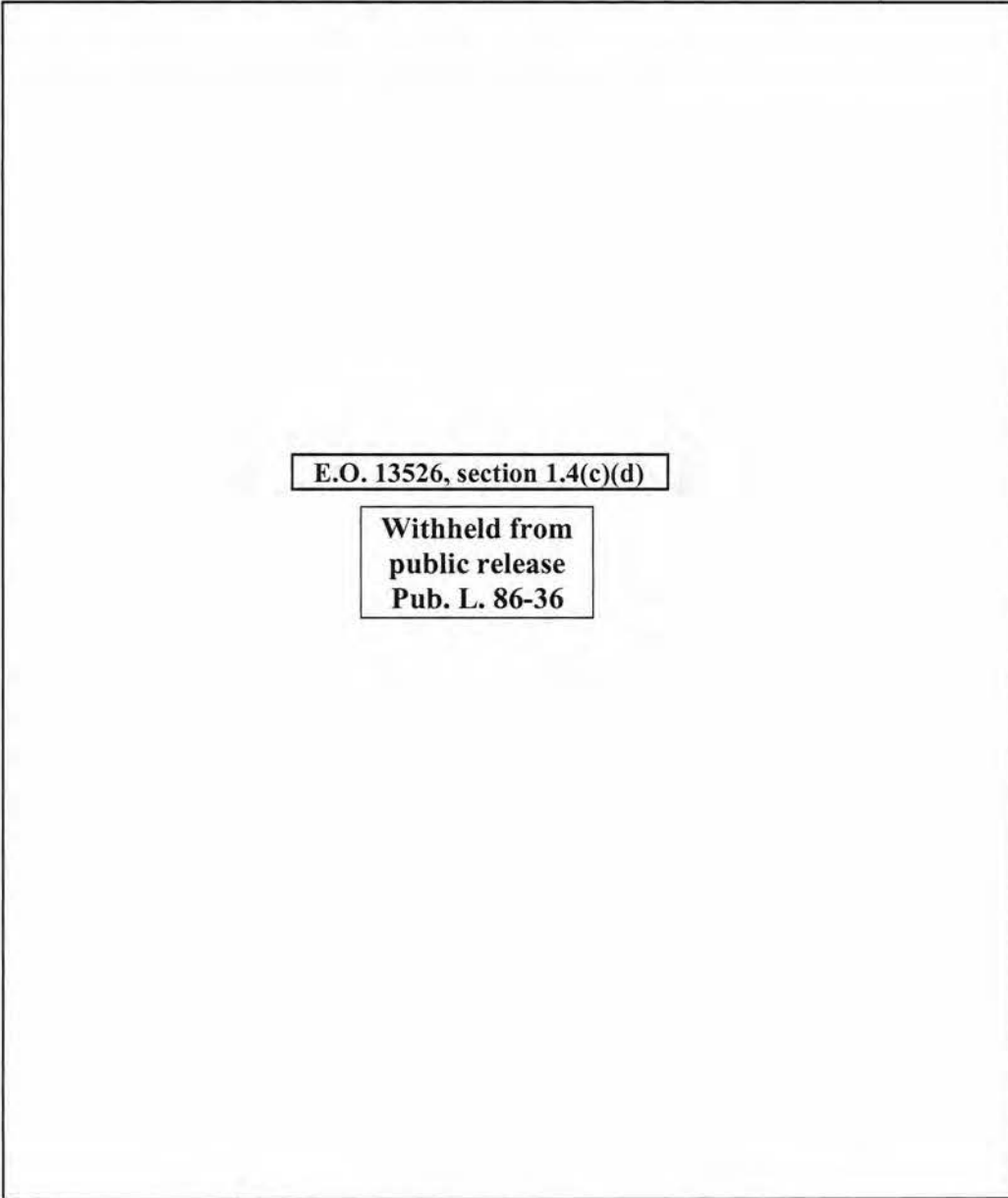
Like Turkey, Pakistan became geopolitically important to the Eisenhower administration because of its concern over the Soviet menace. Pakistan, Iran, and Turkey were lumped together by Secretary of State John Foster Dulles as the "Northern Tier of defense," and the administration cultivated all three. During the 1950s they were successful. Pakistan joined both the Baghdad Pact and the Southeast Asia Treaty Organization (SEATO). In 1954 Eisenhower announced that Pakistan would receive American military assistance.²²

John Foster Dulles had a friend in Karachi. His name was Mohammed Ayub Khan (normally referred to as "Ayub"), and he happened to be the military chief of staff. Ayub

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worked consistently in the direction of close American-Pakistani ties. When, in 1958, he took over the government in a coup, the Eisenhower administration was hopeful that relations would grow even closer. The signing of a mutual assistance agreement in 1959, whose wording appeared to leave no doubt that the United States would defend Pakistan against its enemies, seemed to be a harbinger of the future.²³



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The Far East

Diplomatic problems of the magnitude of [] and [] did not present themselves in the Far East. American SIGINT sites in the former American colony of the Philippines remained unquestioned and unnoticed at Clark Air Base, north of Manila, and San Miguel near the giant Subic Bay Naval Base. []

[] Okinawa had become a virtual aircraft carrier for American SIGINT collection, with sites at Sobe, [] Hanza, and Kadena (where the Air Force had begun an airborne intercept program). Processing operations were becoming centralized on the island, partly a result of the recommendations of the Robertson Committee in 1957.

Japan was like Germany - close to the enemy, an ideal SIGINT platform, and in a quasi-subordinate diplomatic status resulting from the American occupation. SIGINT sites at [] Misawa, and Wakkanai provided the Americans with excellent access to Soviet Far East, Korean, and Chinese communications, []

Korea, still reverberating from the late war, remained heavily outfitted with SIGINT sites. An early plan to close sites after the war was over had been scotched, and the peninsula was still dotted with tactical ASA and AFSS units.

On the Pacific rim, Alaska, Hawaii, and Guam rounded out the SIGINT structure. Hawaii was important as the headquarters of CINCPAC (with resulting SIGINT representation) and as a communications relay in the long HF hop across the Pacific. Alaska was far more important from the collection standpoint, fronting as it did the Soviet Arctic. AFSS virtually took over the SIGINT mission there, doing HF and VHF collection from various places, and flying ACRP aircraft out of Eielson AFB. The most famous (or infamous) site was on Shemya, a miserable, wind-swept island known affectionately as "The Rock," first occupied by SIGINTers in 1955. []

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In the Continental U.S., ASA maintained major collection sites on both coasts, at Vint Hill Farms in Virginia and Two Rock Ranch in Petaluma, California. These had been important sites during World War II, but they were gradually losing their importance to the more far-flung European and Pacific collectors. Navy SIGINT operations consisted primarily of DF sites along both coasts and remained fully as important as during the war because their targets, being mobile, came to them rather than the other way around. In the Caribbean, the Army dominated the Panama area with a site at Fort Kobbe, while the

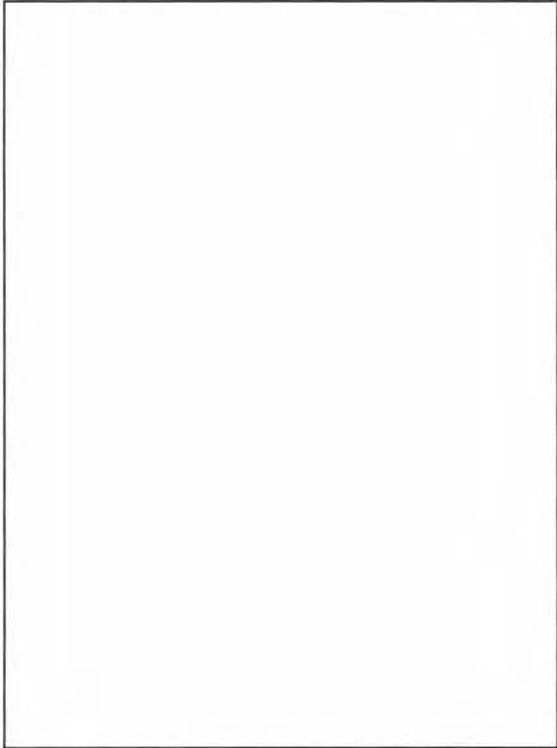
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Navy maintained collection in Puerto Rico. The nice thing about collection close to home was that it minimized costs (collection from foreign locations being outrageously expensive), and it was not burdened with diplomatic problems. But the disadvantage was hearability, and the U.S. collection base was slowly being eroded by the success of places like Peshawar, Wakkanai, [redacted]. The future (at least the immediate future) was in exotic (and expensive) locations. [redacted] E.O. 13526, section 1.4(c)

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New Collection Systems

All three services modernized their field site equipment to equip the new sites being built around the world. But during the 1950s no SCA was as aggressive as AFSS. The 1950s marked the birth of a major new HF and VHF collection system whose trademark became a huge Wullenweber-style antenna called the FLR-9. Its distinctive appearance came to symbolize SIGINT to the outside world.

The Navy was actually the first SCA to become involved with the Wullenweber design. NSG needed a worldwide DF system, and after having experimented with Wullenweber designs (chapter 4, p. 138), they settled on a system which came to be known as the FRD-10. A large circularly disposed antenna array (CDAA), the FRD-10 divided the HF spectrum into two bands, and thus it had double rings of antenna elements in a ring 873 feet in diameter. RF cables from the antenna elements were routed into an intercept building in the center of the array. This was a cheap and secure option but limited the size of the building. But DF, rather than collection, was the primary objective, and owing to an NSG strategy that scattered many small sites around the world (rather than concentrating into a few large ones), the size of the building was not a big issue.

Beginning its systems R&D work in 1956, NSG fielded its first CDAA at Hanza, Okinawa, in 1962. By 1966 they had built thirteen FRD-10 sites in three foreign countries, the U.S., and its territorial possessions.²⁷

Among the three SCAs, Air Force Security Service began life in the worst shape from an equipment standpoint because it simply inherited cast-off ASA equipment. But the Air Force emphasis on building its own, completely independent and self-sufficient SIGINT system resulted in very large amounts of money being poured into the USAFSS coffers. It also resulted in an AFSS R&D organization that was larger and better funded than the other two SCAs. In the early 1950s, AFSS set to work designing a new collection system from the ground up.

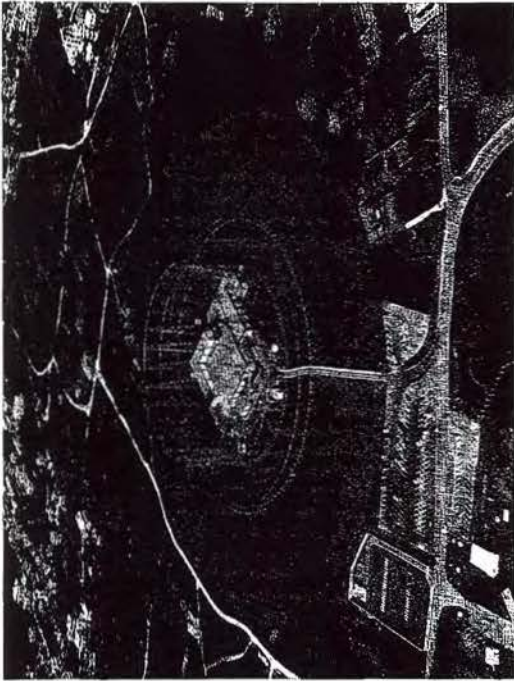
The proposal went forward as a package under Gordon Blake, the new USAFSS commander, in March of 1957. It was called Project 466L, and included three components:

- a. GLR-1, a VHF system, optimized for ELINT collection and first-echelon processing.

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FRD-10, Hanza, Okinawa

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b. [] the HF system, optimized for COMINT. The distinctive antenna was called FLR-9, but the package included more than just that.

c. [] a VHF airborne system. It never got past the prototype stage.

In addition, the 466L project came to include computers for second-echelon processing. It was a complete field system, minus the buildings. Sylvania won the contract to build the systems.²⁸

The most successful portion of the system was the FLR-9 component. With a circumference of 1,200 feet, it was the largest single antenna the U.S. ever designed for SIGINT. It was arranged in three circular rings, each with antenna elements optimized for a certain frequency band, and a 120-foot-high reflecting screen. Antenna leads were routed into a central "roundhouse" where complex beam-forming equipment and DF goniometers resided. From there a cable trench took coaxial cables outside the ring to the RF distribution room of the collection building. The distribution room looked a lot like the old manual "spaghetti boards" that predominated at standard sites, but without the people. An operator selected antennas by pushing a button on the position rather than calling to an RF distribution operator on an intercom to reconnect cables. Early in its life someone called it an "elephant cage," and the name stuck.²⁹

The above-HF portion of the system, called GLR-1, was to be optimized for ELINT collection and first-echelon processing. [] Hof, Samsun, and Wakkanai, with partial systems at Misawa (processing only), Trabzon, Shu Lin Kou, and Northeast Cape. At a projected cost of [] a copy, GLR-1 was hideously expensive. It was also fraught with technical risks which ultimately jeopardized the entire project.³⁰

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NSA Gets Involved

NSA watched from the sidelines in the mid-1950s as NSG and AFSS independently designed and fielded separate collection and DF systems. The Agency urged, with no result, that the two services compromise their differing requirements and develop a single system good for both tasks. Then in 1957 NSA became directly involved when it was asked by the Air Force to review the AFSS 466L proposal. The level of involvement increased in 1958 when NSCID 6 gave the Agency a more explicit role in guiding and coordinating service cryptologic R&D.

NSA opposed the way AFSS was proceeding with the project. Apart from the lack of agreement between AFSS and NSG on harmonized development, NSA was concerned that:

- a. The project, especially the GLR-1, was far too expensive;
- b. Major components were overdesigned (Again, GLR-1 was the culprit.);

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- c. AFSS was proceeding with a generalized requirement, while NSA believed that AFSS should proceed with a "special purpose" approach, and that this would reduce costs;
- d. Sylvania, selected as the prime contractor for the FLR-9, lacked experience in several important areas;
- e. AFSS had planned no test models of either system but had designated the initial sites (Hof and Samsun for the GLR-1 and Chicksands and San Vito for the FLR-9) as "prototype sites." Nonetheless, AFSS planned to contract for the follow-on sites before knowing how things were working out at the prototypes.³¹

In 1960 NSA took its concerns about the 466L system to DDR&E and convinced him to freeze money for out-year funding. At this point the 466L prototype design was thoroughly reworked by NSA and AFSS, and many of the GLR-1 "frills" were eliminated before the Wakkanai system was built. So extensive were the changes that the system was retitled and became known as FLR-12. The prototype sites were retrofitted to the new FLR-12 design.³²

Security Service planned originally for seven FLR-9 sites: San Vito, Chicksands, Misawa, Clark, Peshawar, Karamursel, and Elmendorf. As a result of experience with the prototype systems and NSA participation in the later R&D stages, the follow-on sites eliminated some of the features, such as automated DF flashing, that had made the earlier sites so expensive.³³ Owing to aforementioned diplomatic problems with Pakistan, the Peshawar system was never built.

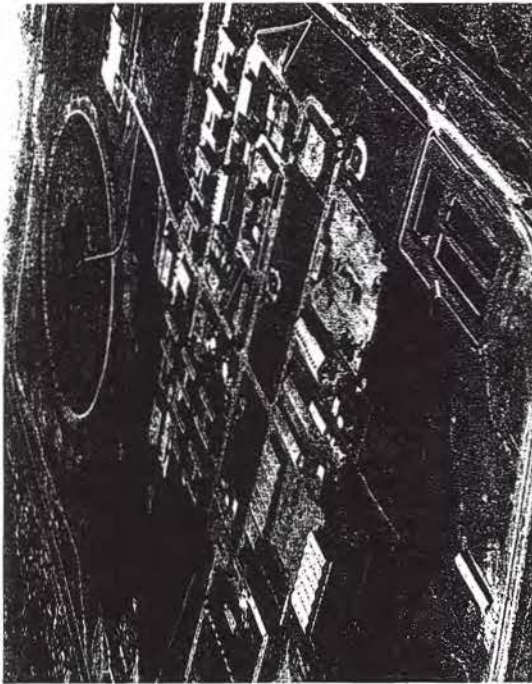
Alone among the SCAs, ASA showed little initial interest in CDAAAs. But by 1960 the command was looking more closely at the future of the FLR-9 and was attending joint-service planning meetings at NSA. Soon thereafter ASA decided that its newly planned intercept site at Udorn in northern Thailand would be a CDAA based on the Air Force's FLR-9 design. They named the project [redacted] and the new site (called Ramasun Station) was opened in 1965. When ASA began planning the consolidation of its three largest German sites (Rothwesten, Herzo Base, and Bad Aibling) into a single super-site, the FLR-9 was again the option selected. By coming into the game late, ASA avoided the substantial development costs that AFSS had incurred. They simply bought "off-the-shelf" designs.³⁴

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FLR-8, Ramasun Station, Thailand

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The Airborne System

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USAFSS remained the biggest user of airborne collection platforms. Called the Airborne Communications Reconnaissance Program (ACRP), the program then consisted of a fleet of nineteen RC-130s configured with ten COMINT intercept positions each. The emphasis in those days was on VHF voice, especially GCI communications. Most of the routes were along the periphery of the Soviet Union and China, standing well back from the border to avoid another shutdown similar to the 1958 incident over Armenia. The command never experienced another shutdown.³⁵

In the late 1950s Security Service began working on a new program that would bring the RC-135 airframe into the ACRP program. It was developed from the KC-135 tanker used throughout SAC. Owing to the fuel capacity, the aircraft could routinely fly in excess of sixteen hours (the RC-130 was generally limited to an eight-hour mission) at altitudes topping 40,000 feet. USAFSS initially funded three airframes, packing fifteen intercept positions into its innards. The flying partner was SAC, rather than a theater component command, and [redacted] positions were converted to ELINT, to be manned by SAC electronic warfare officers. The program was called [redacted], and it began flying out of Eielson AFB, Alaska, in early 1963. The RC-135 became the Cadillac of airborne collectors and eventually took over the entire job from the RC-130s.³⁶

In the 1960s SAC continued its own SIGINT airborne collection program. The SAC program [redacted] initially used RB-47s with a limited ELINT capability. Later the program [redacted] converted to RC-135s with ELINT collection being the objective. COMINT positions on board (manned by USAFSS operators, and [redacted] [redacted] served for advisory warning.³⁷

As for the Navy, it continued to rely on its fleet of seven EC-121s, although a newer and better aircraft, the P3 Orion, was first delivered in 1962. It would eventually replace the slower 121s, whose vulnerability was convincingly demonstrated when the North Koreans shot one down in 1969 (see p. 462). The Navy program also retained its specific fleet support role, and it was always regarded as something of a maverick by NSA because its tasking was entirely a Navy matter.³⁸

In the rush to collect Soviet telemetry, the U.S. employed a wide variety of collectors. Ground-based sites could never be certain to collect all the telemetry available, the most significant gap being telemetry that was transmitted on the pad before launch and immediately on lift-off. The information from this stage of telemetry was critical to an assessment of missile capability, and the only way to get it (before the advent of overhead collectors) was through airborne collection along the southern Soviet periphery.

[redacted]

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The airborne reconnaissance program occupied the thoughts of President Kennedy in the early days of his administration. He had learned that Khrushchev was planning to turn over the surviving RB-47 pilots (shot down in the White Sea in July 1960) as a kind of diplomatic peace offering to the incoming administration. But nothing had been done to avoid future incidents, and Kennedy was anxious to insure that Khrushchev not be able to again hold captured fliers as diplomatic pawns. The White House demanded action.⁴¹

At the time, six advisory warning programs were in existence in various theaters, all with different criteria and warning methods. Some airborne programs (the Navy being the most prominent example) still flew without any warning capability at all. In 1961 the Pentagon took two actions to try to establish a program that would satisfy the White House. First, it created the Joint Reconnaissance Center, which would be responsible for coordinating and approving all peripheral reconnaissance worldwide. Second, it directed that a USAFSS advisory warning plan be modified and adopted worldwide.⁴²

The USAFSS program, which had originated in the Far East in the early 1950s, had received NSA blessing in 1961. The chief impediment to its adoption worldwide was lack of agreement on a standard communications system. The Pentagon finally settled on the SAC single sideband communications system, which was a worldwide HF system accessible to all parties. The Navy held out until 1962, but finally agreed to the standard plan, and the new advisory system, called White Wolf, was adopted the following year.⁴³

The shootdowns dropped to almost zero - the only notable exception was the 1969 shootdown of a Navy BEGGAR SHADOW mission along the coast of Korea, an incident that precipitated the creation of NSOC. The danger of peripheral SIGINT airborne reconnaissance missions becoming diplomatic contests dropped almost out of sight, and a long-standing source of diplomatic embarrassment simply went away.

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The TRS Program

The Soviet SIGINT trawler program has been of such long standing and so visible that it is often forgotten that the United States, too, at one time had its own SIGINT trawlers. It was called the Technical Research Ship (TRS) program.

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[redacted] was the beginning. NSA had no collection [redacted] 1956, and, land-based sites being so difficult to acquire, it requested that NSG look into the possibility of building a floating collection site [redacted]. The Navy thought that the need could best be satisfied by taking some World War II *Liberty* ships (essentially, freight-haulers) out of mothballs and converting them to SIGINT use. The Bureau of Ships estimated that it could be done for about \$4.5 million per ship and would require eleven to twelve months.⁴⁴

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Defense budgets were slim in the late 1950s, and the first money was not in the budget until fiscal year 1960. The first ship selected, the USS *Oxford*, put to sea in 1961. She could do eleven knots [redacted]. Not much was happening [redacted] at the time, so the *Oxford's* first cruise was set for the west coast of Africa later in the year. Instead, in November it was diverted to the Caribbean to cover a burgeoning crisis between the United States and Cuba. Already, the TRS program, only one ship large, was showing how flexible it could be.⁴⁵

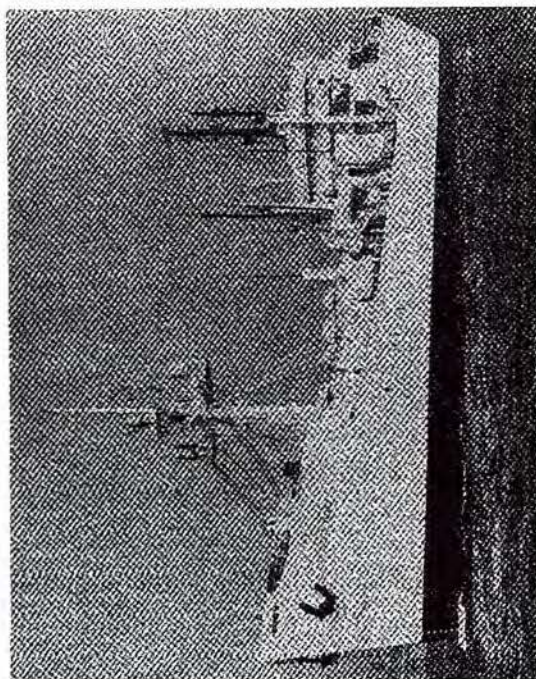
Enthusiasm over the potential of such floating collection sites led NSA to cut corners in order to get a second ship on line quickly. In early 1961 the Agency, beset with insistent collection requests by the DCI, found that the Military Sea Transport Service (MSTS) had a smaller, slower vessel that could be converted in fairly short order for only \$2.5 million. Despite being smaller, the *Valdez* was crammed with twenty-two positions, and began her first cruise, to Africa, about the same time the *Oxford* was deployed to the Caribbean.⁴⁶

There developed from this decision two sorts of TRSs. The first, of the *Oxford* class, was a wholly Navy owned and manned ship, larger and faster by a few knots. The second, owned by the MSTS, was a coastal type vessel with a civilian crew to go along with the NSG people in the SIGINT compartment. The Navy ships were designated USS vessels, and by mid-decade the navy component of the TRS fleet consisted of five ships: the *Oxford*, *Georgetown*, *Jamestown*, *Belmont*, and *Liberty*. The smaller maritime vessels were designated USNS and consisted of only two ships: the *Valdez* and *Muller*. In 1968 a third was added to this list: USS *Pueblo*.⁴⁷

As for intercept positions, the ships did not vary much. The *Oxford* class typically carried, when fully outfitted, between twenty and twenty-five positions, while the *Valdez* class had between eighteen and twenty-one. Where they differed was in speed and general seaworthiness. Clearly, the *Valdez* class represented a less capable, but cheaper, option.⁴⁸

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USSB Valdez

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One variant of this program was established specifically to monitor [redacted]. In late 1961 there arose an urgent requirement to monitor a [redacted]. An MSTTS charter vessel, the *Robinson*, was hastily converted in only a few days and sailed from New York in January 1962. Its SIGINT manning was unique for a vessel - it was a combination of NSG and ASA operators in a partnership similar to the [redacted] program [redacted] at the time. In February the *Robinson* relieved the *Valdez*, which had been pressed into emergency service [redacted].

In May 1963 there was another urgent collection requirement. The *Robinson* was headed for port after a long cruise, and so JCS arranged for NSA to use an [redacted]. USAFSS provided an equipped van and ASA furnished ELINT operators for the cruise. [redacted] stayed on station through July, when the *Robinson* returned. So began a collection program that was to result in the [redacted] vessel which became an important [redacted] collector in later years.⁴⁹

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THE CUBAN MISSILE CRISIS

We were eyeball to eyeball, and I think the other fellow just blinked.

Dean Rusk, 28 October 1962

About the greatest crisis of the Cold War, three things can be said that concern cryptologists:

1. It was very definitely not precipitated by SIGINT warning. It was, and always has been, regarded as a crisis initiated by photographic intelligence, and there is nothing in the historical record to alter this statement. It marked the most significant failure of SIGINT to warn national leaders since World War II.
2. SIGINT played a very significant role in the unfolding crisis, a role which subsequent publicity and declassification of documents have not fully revealed.
3. It marked a watershed, like the 1956 event, in the way cryptologists do business.

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The Cuban situation began on its own. Years of poverty and political repression on the island ended in a young revolutionary, Fidel Castro, marching into Havana in January of 1959. But hopes that it would develop into a pluralistic, liberal-style government were quickly dashed, as Castro put in place more and more institutional trappings of a solid Communist dictatorship. Experts eventually conceded that he had probably not been driven into the arms of the Communists by American hostility, but had planned it all along. Diplomatic contacts with the USSR had begun almost immediately, with the arrival of Soviet foreign minister Anastas Mikoyan in February of 1960 to open a Soviet trade exposition. Formal diplomatic ties were established in May.



A young Fidel Castro only days after his guerrilla army marched into Havana in 1959

The SIGINT Effort

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SIGINT also tracked burgeoning trade between Cuba and the Soviet Bloc. Although cargo manifests were rather vague, it was becoming clear through SIGINT (as with a variety of other intelligence sources) that much of the trade was military. In July 1960 the first substantial military aid arrived in Havana, and it included Czech small arms and ammunition and five MI-4 helicopters. Soon thereafter Cuban pilots were noted in SIGINT training in Czechoslovakia, originally on piston-engine fighter trainers.⁵⁰

The tiny Cuban shop at NSA [redacted]

[redacted] lived off intercept from the Navy site in Puerto Rico and the ASA station at Vint Hill, Virginia, and had virtually no traffic from Cuban internal nets. Requirements against Cuban military targets were almost nonexistent.⁵¹

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NSA had indications through contacts in the commercial world that Cuban internal communications would eventually go to microwave. [REDACTED]

But the target, while audible, was too weak to be copied at that distance. A new approach was needed, and NSA requested that the Navy try to intercept the microwave system from one of its afloat direct support units (DSUs). The first hearability testing was done by NSG operators aboard the USS *Massey*, which circumnavigated Cuba in July 1960.⁵²

The Defense Department already had non-DoD competition. [REDACTED]

[REDACTED] Following Castro's successful revolution, it was used primarily to support CIA's covert operations in Cuba.⁵³

By the Bay of Pigs failure of April 1961, NSA's level of effort had increased [REDACTED] people but was still not a large-scale effort. At that point the Kennedy administration began directing a major concentration of intelligence assets against Cuba, and SIGINT resources increased rapidly. A year later [REDACTED] people were involved, and by October 1962, [REDACTED] were allocated to the Cuban problem.⁵⁴

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The Berlin Wall

Although it began as a uniquely Caribbean phenomenon, Cuba quickly became a part of the international struggle between the U.S. and the Soviet Union. It came to be a pawn in the Cold War, a piece of Communist real estate located within the American sphere of geographic influence. On the other side was Berlin, Western-owned property clearly located within Khrushchev's zone of control. Khrushchev understood the relationship between the two territories and exploited them adroitly.

Berlin as a crisis first erupted in 1948 when Stalin cut off land access to the city. The resultant Berlin Airlift lasted for just over a year and marked a significant test of American resolve. It remained a potential sore spot, and in 1958 Khrushchev announced that in 1959, lacking an overall settlement of the Berlin problem, he would give control of East Berlin to East Germany. Although the Eisenhower administration managed to talk the problem nearly away, it was clearly only a temporary respite. In 1961 Khrushchev again increased pressure on the city, and it seemed that Berlin, rather than Cuba, would be the flashpoint for war.

At midnight on 11 or 12 August 1961, heavy trucks and troop carriers rumbled to the demarcation line between East and West Berlin. Construction crews jumped out and, under the guard of East German soldiers, began flattening a thin strip of land and

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stringing barbed wire in the middle of the zone. The Berlin Wall, soon to become a high concrete and cement block barrier, was begun.

Kennedy was vacationing in his yacht off Hyannis Port, and he was not notified until noon on the 13th. He was reportedly furious, and he summoned CIA director McCone to examine the intelligence failure. CIA, in sifting through everything that had been available, did find one significant bit of information. A 9 August COMINT report of an East German Communist Party message discussed plans to begin turning all foot traffic back at the sector border, and the Watch Committee assessment had stated that this might be the first step in a plan to close the border.⁵⁵ McCone could come up with no other predictive information; the Berlin Wall was still regarded as an intelligence failure, despite the existence of fragmentary COMINT.

Kennedy denounced the Berlin Wall, and American-Soviet relations worsened. On 1 September the Soviets ran their first nuclear test since 1958, breaking an informal moratorium that had been in place since the middle of Eisenhower's second term.

But the one bright spot was in comparative strategic strength. The so-called Missile Gap, which had loomed so large in 1960, had become a proven chimera. In September 1961 Lyman Lemnitzer, the chairman of the JCS, briefed Kennedy that the U.S. enjoyed a 7 to 1 advantage in strategic nuclear delivery capability. The Soviets still had only ten to twenty-five operational ICBMs, and Kennedy could launch more than 1,000 delivery systems carrying 1,685 nuclear warheads, compared with 253 for the Soviets.⁵⁶

The Buildup to Crisis

In late 1961, as a result of the Kennedy administration's continuing concern with Cuba, the intelligence community was directed to increase its efforts against the island. NSA instituted a rapid buildup of the problem, almost certainly in response to this edict.⁵⁷

NSA's initial plan was forwarded to McNamara in November. It included manning additional positions at the Navy site in Puerto Rico, bringing TRS resources into the picture, and instituting a new program for translating Cuban communications. This and an augmented plan presented in February of 1962 were pushed rapidly ahead.

Given the go-ahead, NSA assembled cryptologic resources with remarkable speed. The most significant addition was the *Oxford*. This first TRS had been launched in 1961, and the early plans were for an African coastal cruise. But NSA diverted the vessel to copy the new microwave communications in Cuba. [REDACTED]

[REDACTED] The *Oxford* conducted a hearability survey off the coast of Cuba in December 1961, and it soon began forwarding [REDACTED] intercept to NSA.⁵⁸

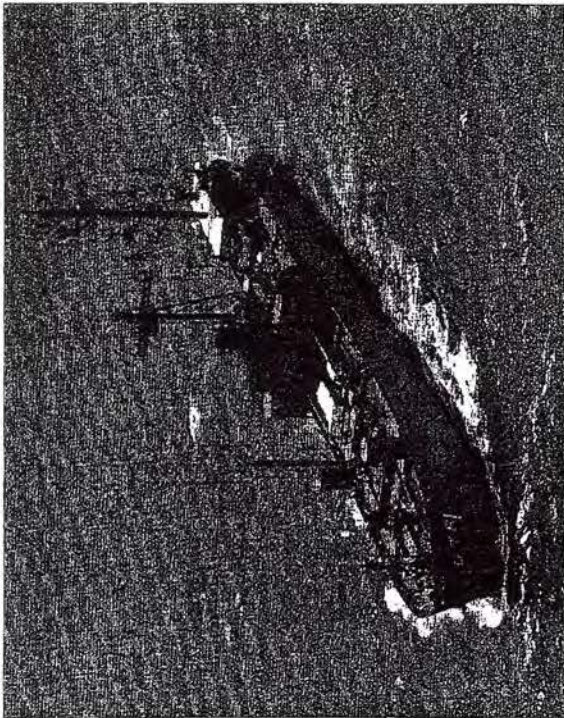
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The Oxford

The first TRS, the *Oxford*, "won its spurs" during the Cuban Missile Crisis.

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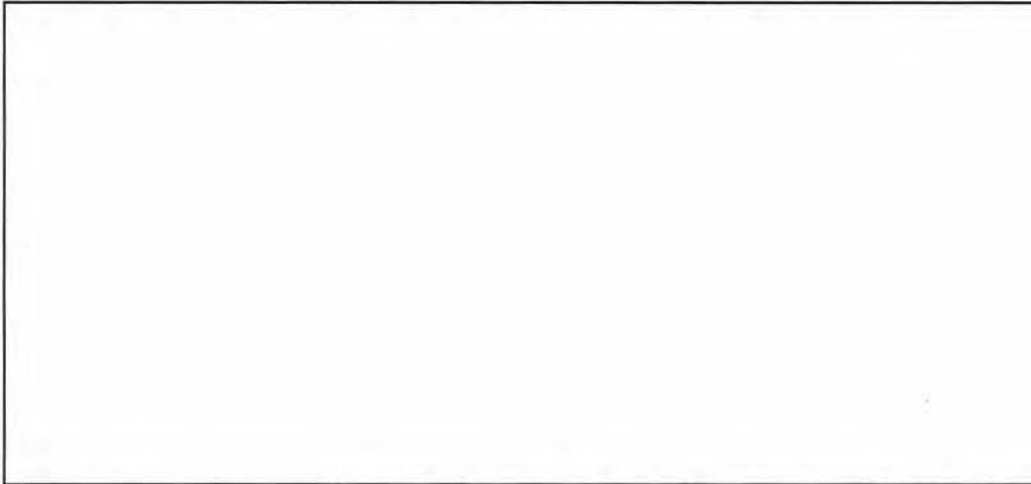
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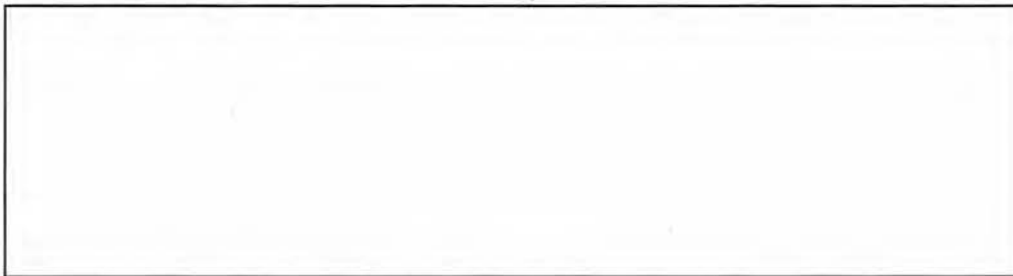
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The linguist project, called [redacted] (because it occupied quarters in the old Fort Meade Post hospital) employed native Spanish speakers in a semicleared status until their expedited clearances came through. They were employed translating the huge volumes of Spanish voice intercept being collected by the *Oxford* and the ACRP (see below).⁵⁸



All this was accompanied by explosive growth of NSA's Cuban shop. At the time the Cuban problem was worked in an organization called B1, whose chief, Juanita Moody, had arrived from the Soviet problem in July 1961. Moody would become a central figure in NSA's Cuban response effort, presiding over an effort that went from [redacted] analysts in April 1961 to [redacted] people in October 1962.⁶¹



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The SIGINT Contribution

The first important SIGINT contribution to the Cuban problem was the reporting of Cuban commercial ties with the Soviet Bloc in mid-1961. By early 1962 [redacted] was reflecting extensive Cuban trade with the East Bloc and Canada. Soviet communications revealed very large cargo shipments, but the cargo manifests were conspicuously missing, and this, in and of itself, was an indicator of sensitive military cargo. SIGINT, photography, and HUMINT all combined to form a very accurate mosaic of the increasingly close commercial and arms ties.⁶³ The U.S. government was kept fully informed of these developments through intelligence sources. [redacted]

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The Cuban military problem also began to take on distinctive East Bloc overtones. Intercepts of Czechoslovak communications showed, as early as the fall of 1961, that Cuban pilots were training in East Bloc fighters. Still later, Cubans were discovered [redacted] to be training in IL-28 light bombers in the North Caucasus Military District. It came as no surprise, then, that photography began showing various MIG fighters and IL-28 bombers in Cuba in mid-1962.⁶⁴

In June 1961 the first ELINT intercepts from Cuba showed that they had Soviet radars, and before the end of the year there were both early warning and AAA fire control varieties. By May of 1962 Cuban air force communications reports [redacted] Just a month later NSA reported intercept of the first airborne intercept radar in Cuba, definitely indicating the presence of MIG fighters on the island. Soviet controllers were being heard on VHF frequencies in heavily accented Spanish, instructing Cuban pilots and controllers in operational procedures.⁶⁵

The Soviets became progressively more active, both in numbers and in degree of control over the Cuban air defense system. USAFSS field sites intercepted the first Cuban grid tracking on 9 October - it employed the classic grid system used by the Soviet air defense system. After 27 October (the date the U-2 piloted by Rudolph Anderson was shot down; see p. 329), the Soviets virtually took over the air defense system, and Cubans, who had been in the center of things from the beginning, moved to the sidelines.⁶⁶

By mid-August [redacted] reports began to refer to objects that sounded like SA-2s. On 29 August the first SA-2 construction was noted in U-2 photography. In September NSA confirmed operation of a SPOON REST radar, often associated with the SA-2 system. At least one site appeared to be nearing operation.⁶⁷

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The crisis itself did not begin with the 14 October U-2 flight that found the missile construction sites, nor with the 22 October presidential broadcast announcing that fact to the world. It had been building all summer, and each escalation of Soviet assistance to Cuba brought the White House more directly into the picture. The president was deeply concerned about Soviet military assistance, and the reports he was getting (primarily CIA HUMINT sources) indicated that the technicians accompanying the military equipment were really Soviet troops disguised as civilians.

The confirmed arrival and operation of SA-2s brought the crisis to a new level. CIA director McCone contended that the only purpose he could see for such a modern defensive armament would be to protect something of very high value, and that something, he felt, would be offensive missiles. So from August on, the intelligence community focused quite specifically on that possibility.



John McCone,
Kennedy's DCI,
was virtually alone in predicting
that Khrushchev would introduce
offensive weapons into Cuba.

To try to head off a crisis, Khrushchev on 4 September dispatched Anatoly Dobrynin, the USSR's ambassador in Washington, to the Oval Office to reassure Kennedy that offensive missiles were not in Cuba. On the basis of this reassurance, Kennedy authorized Pierre Salinger, his press secretary, to announce the arrival of the SAMs, but to stress that they were not offensive in nature. But, Salinger added, the gravest consequences would result from the introduction of offensive missiles. On 11 September the Soviet newspaper *Tass* buttressed Khrushchev's confidential communique on 4 September with a public announcement that the weapons in Cuba were defensive.⁶⁶

On 31 August politics intruded. Senator Kenneth Keating of New York, a Republican, reported in the Senate chamber that he had evidence that there were 1,200 Soviet troops in Cuba, and "concave metal structures supported by tubing" that appeared to be for rocket

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installation.⁶⁹ To this day no one knows where Keating got his information, but CIA had at the time a profusion of unsubstantiated HUMINT reports dealing with such possibilities from their HUMINT interrogation center at Opa Locka, Florida.⁷⁰

The overt result of Keating's charges was political. The congressional elections were due in November, and Kennedy obviously wanted to hang onto as many Democratic seats as possible. He was keeping his hands off Cuba with Soviet assurances that no such missiles existed there, but the clamor for action on both sides of the congressional aisle was considerable. Any revelation that affected the equation could become politically explosive and might alter the balance of seats during the election. In this atmosphere the White House became extremely sensitive to any intelligence that might bear on offensive arms in Cuba.

Meanwhile, on 7 September Kennedy was confronted with a new crisis. Major General Marshall "Pat" Carter, the deputy DCI (who would, three years later, become DIRNSA) showed the president U-2 photographs of a surface-to-surface missile complex under construction at the Cuban coastal town of Banos. The installation was for a short-range naval coastal defense missile, and Ray Cline, CIA's director of intelligence, speculated that it might be for the purpose of insuring that the *Oxford* stay well offshore. But in view of Keating's recent charges, any surface-to-surface missile might be misconstrued as offensive (as Kennedy at first did), and such information had to be held very closely. So Kennedy directed that any indication, however tenuous, of the introduction of Soviet offensive forces in Cuba, be kept tightly compartmented. Huntington Sheldon, the assistant deputy secretary for intelligence (and CIA's top liaison on SIGINT matters) designed a compartmentation system, which was subsequently approved by USIB.

The result of this decision was an overly tight compartmentation at NSA. Information on the subject was extremely limited in distribution, and SIGINT reporting on the subject was to be specially flagged "Funnel." This was on top of an already rigid compartmentation system for U-2 photography, so secret that even Juanita Moody, the chief of B1, and her chief of staff, Harry Daniels, were not brought into the picture (although Moody was told about the impending 14 October overflight by William Wray of NSA the morning that it happened). During the crisis SIGINT analysts were forced to work in a vacuum. (However, some of the A Group analysts on the Soviet problem knew about the photography program.)⁷¹

SIGINT was coming up dry. Intensive effort by both B1 and A6 analysts revealed no indication whatsoever that the Soviets were bringing in offensive missiles. But unknown to NSA, CIA, or the White House, the materials for the missile sites were already in Cuba. Since the end of the Cold War, top Soviet officials have revealed that the decision to place offensive missiles in Cuba was taken in May, and this was followed immediately by the preparation and shipment of site construction materials. The first materials arrived in Cuba in mid-August, followed, the first week of September, by large pieces of equipment for the MRBM sites. The Soviets assessed that October would be the month of maximum

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vulnerability - site construction would be visible from the U-2, but the missiles would not be ready to fire, and Cuba would thus still be vulnerable to U.S. military action.⁷²

NSA did not have the information, but neither did anyone else. The matter of the Soviets introducing offensive missiles in Cuba was considered by the intelligence community no fewer than four times in the first nine months of 1962, and each time the assessment was negative.⁷³ On 19 September, during the middle of the building crisis, National Intelligence Estimate 85-3-62 assessed that such activity "would be incompatible with Soviet practice to date and with Soviet policy as we presently estimate it. It would indicate a far greater willingness to increase the level of risk in U.S.-Soviet relations than the USSR has displayed thus far. . . ." John McCone was out of town at the time, but indicated that he did not concur with the assessment of his own estimates shop.⁷⁴

In early October CIA got photos of crates on board Soviet ships bound for Cuba, which probably contained IL-28 light bombers. These were clearly offensive (if a bit deficient in real offensive punch), and Kennedy directed that the information be suppressed. McCone "stated that this was extremely dangerous," but he was overruled. He and Kennedy then agreed that such information be disseminated to the principals of USIB (which included NSA's director, Lieutenant General Blake), who would in turn restrict it "to their personal offices."⁷⁵

Since the first of August, CIA had mounted seven U-2 flights over Cuba, and it would have flown more but for Secretary of State Dean Rusk's constant protests that overflights were diplomatically risky. (Those protests were given additional weight when, on 8 September, a U-2 on loan to the Chinese Nationalist government on a special CIA program was shot down over western China.) Those that were flown carefully skirted Cuba's periphery, darting briefly into Cuban airspace for a quick overhead photo. Much of the island was thus going unphotographed.

McCone persisted and finally got authorization for overflight of an area west of Havana which, according to some fairly coherent HUMINT reports, was undergoing construction for what looked like missiles. Bad weather forced several postponements, but the flight finally took off on 14 October and flew directly over the suspect area. The National Photographic Interpretation Center (NPIC) got a look at the pictures the afternoon of 15 October, and the CIA analyst, Victor DiRenzo, found what looked like six SS-4 MRBMs at a construction site. Looking at the photos on a light table in the Steuart Building in downtown Washington, NPIC's director, Arthur Lundahl, turned to the photo interpreters huddled around the light table and said, "We are sitting on the biggest story of our time."⁷⁶

It was seven days before the president would go before the world and announce the presence of the missiles and impose a naval quarantine around Cuba. Back at NSA, it was a frantic seven days. The Soviet and Cuban shops concentrated their resources on communications that bore on the problem. The A Group element that was working the

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Cuban air defense system (controlled by the Soviets) physically moved into B1 spaces to facilitate interworking. A and B issued independent product reports, but they also issued periodic combined wrap-ups in order to tell a coherent story. Upwards of [] A Group analysts and linguists joined the new combined outfit.⁷⁷

NSA needed a command center for the crisis. As it happened, A05, headed by Colonel [] (USAF) and NSA civilian [] had recently taken over a small room across the hall from the A Group front office to receive and display compartmented information like photography (TK). During the crisis this became the new command center. [] hurriedly outfitted the room with telephones and employed A Group analysts to begin publishing a new product, the [] a daily electrical report detailing the status of [].⁷⁸ The director, Gordon Blake, kept the *Oxford* on station throughout the crisis, and AFSS upped its ACRP flights off Cuba []. Blake directed that ASA get its SIGHTERS [] as soon as possible and that the shipment of new equipments to the existing SCA intercept sites [] be speeded up.⁷⁹

The most valuable intercept came from [] There being no processing capability in the field, all this was shipped back to NSA; there the []

[]

Throughout the crisis new and better equipments were added to the mix for faster and more complete processing.⁸⁰

The Soviets and Cubans had their own separate communications systems on the island. As the Soviets set up military operations (SAM sites, naval surface missile batteries, air defense networks, etc.), they maintained separate communications, supplying to NSA strong evidence that they were not integrated with the Cuban armed forces. NSA intercepted no cross-net communications. There must have been points at which the two sides talked - for instance, in Havana there was a command center housing both Soviets and Cubans, and it was served by communications of both countries. But there were no instances in which Soviets were intercepted talking to Cubans on the same communications facility. NSA concluded that the Soviets controlled all their own facilities, including their SAM and air defense systems, and this conclusion was accepted at the national level.⁸¹

The [] intercepts provided a wealth of command and control information, and when married with photography, supplied a good picture of what was happening in Cuba. []

[] although photography showed

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MRBM site, Cuba

CIA photos like this one convinced the president to act.

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microwave radio relay equipment being readied at three of the six MRBM sites and two of the three IRBM locations.⁸²

Once Kennedy went on television (22 October), Soviet communications in Cuba lit up. A new air defense-associated net went on the air immediately. (This was what prompted the A Group processing element to physically move into space in B1.)

The crisis continued to deepen over the next two days. Soviet merchant ships steamed toward Havana, heedless to the looming catastrophe. But early on 23 October the Navy intercepted a broadcast from Moscow to all ships headed for Cuba to stand by for an extremely urgent cipher message. The message came through an hour later, and the intelligence community waited tensely for the reaction. Although undecipherable, it appeared to contain some sort of instructions.

Late the same day NSG direction finding indicated that some of the Soviet merchant vessels heading for Cuba had stopped dead in the water, while others appeared to be turning around. At this point, according to CIA's Dino Brugioni, the Office of Naval Intelligence (ONI) felt that this information had to be verified before it was reported. John McCone was awakened in the middle of the night and informed that the Navy had unconfirmed information, but this was not passed to the White House or the secretary of defense until around noon of the following day, once ONI had "confirmed" the information. When he found out, McNamara was furious, and he subjected Admiral Anderson, the Chief of Naval Operations, to an abusive tirade. So many years have passed that it is impossible to determine why the Navy held up information that seemed critical to the president's decisions.⁸⁴

On 27 October the crisis reached its climax. At that point, Soviet ships had turned away from Cuba, a clear indicator that Khrushchev was wavering. But so far the two nations had not resolved anything. That day a U-2 piloted by Air Force major Rudolf Anderson (SAC had taken over U-2 flights from CIA on 12 October) was shot down, and NSA reported that an SA-2 from the area around the naval base at Banes had been responsible. Based on COMINT intercepts, the U.S. believed that the SA-2 sites were manned and controlled by Soviets.⁸⁵ The shutdown of Anderson was a wide departure from the caution the Soviets had so far shown. Was it a major escalation?

The shutdown of Anderson precipitated an ultimatum. In a meeting with Dobrynin that day, Kennedy told him that the United States would attack the missile sites in Cuba by Tuesday morning unless there was firm evidence that the missile sites were being dismantled. That gave the Soviet Union only forty-eight hours to resolve the crisis before air attack, which would be followed by a full-scale invasion. Khrushchev caved in, and he sent a frantic telegram to Kennedy that very night promising to remove the missiles.

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The Aftermath

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NSA learned two years later that Cubans might have been in control of the site that fired at Anderson. In digging through the intercepts, NSA analyst [] pieced together some fragmentary SAM-associated multichannel communications from the Banes area, and discovered that the Soviets at one of the SAM sites were talking about a firefight at one of the other sites on 26 October possibly involving invading Cuban military forces. Soviet security forces at neighboring SAM sites had been summoned, and it appeared to [] that the fight was over by the morning of 27 October when Anderson's U-2 was shot down. But he could not be absolutely sure that the Soviets were back in control, and the possibility remained that Cubans had actually "pulled the trigger." This story created a sensation when, in 1987, investigative journalist Seymour Hersh published an account of the incident, as related to him from an unnamed analyst from an "intelligence agency." Internal evidence from Hersh's article points away from any NSA analyst as a source of the information, but the basic story line was correct.⁸⁶

The Hersh story appeared in conjunction with a series of conferences on the Cuban Missile Crisis, which came to include Soviet as well as American participants. During a conference in Havana in January 1992, a Soviet general claimed that the Soviet commander on the island, one Issa Pliyev, had been given authority to launch nuclear missiles if Cuba were attacked. If true, this would have brought the world much closer to nuclear war than anyone suspected at the time. Robert McNamara, who had been secretary of defense at the time, uncritically accepted the Soviet's story, as did most other observers at the conference. The issue was sensationalized in the press.⁸⁷

It made good press, but it was not true. A search of declassified Soviet documents relating to the crisis showed that precisely contradictory orders were issued to Pliyev. (Even the general who made the statements, Anatolii Gribkov, eventually backed away from his earlier assertions.) All evidence now supports NSA's long-held contention that Soviet forces were subject to monolithic central control and that local commanders, particularly in situations involving nuclear weapons, were strictly controlled through central release authority similar to that in the U.S. armed forces.⁸⁸

The U-2 flights over Cuba had not been receiving advisory warning support from the cryptologic community. It occurred in that interregnum between the JCS decision to impose a standard, worldwide warning system and the actual publication and implementation of the resulting White Wolf plan. After the Anderson shutdown, Juanita Moody and Harry Daniels directed the hurried implementation of a warning system for the Caribbean area, and it was subsumed the next year under the White Wolf program.⁸⁹ The shutdown undoubtedly increased pressure for the system that soon emerged.

One of NSA's major jobs during the crisis was watching Soviet force readiness. On 11 September the Soviets suddenly went into their highest readiness stage since the

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beginning of the Cold War. Although the units at highest readiness were generally defense-related, the alert included some unprecedented activity among offensive forces, too. Of greatest concern was a total standdown of the Soviet long-range air forces. It also coincided with marked standdown of activity in the GSFG (Group of Soviet Forces, Germany), a highly realistic major exercise in the Far East, a major maritime communications exercise, a dispersal exercise by Baltic Sea Fleet elements, a major exercise in the North Sea Fleet involving apparent nuclear dispersal actions, and the first ever western Atlantic patrol by a Soviet submarine. The alert may have been called because Moscow suspected that Kennedy had found out about the missiles. [redacted]

The 11 September alert was cancelled ten days later, but on 15 October Soviet forces went into a preliminary, perhaps precautionary, stage of alert. This was followed a day later by Soviet reporting of North American weather. Once again, this readiness was likely due to Khrushchev's supposition that the U.S. had discovered a missile site. (He knew the White House would find out; the only question was when.)⁹¹

Following Kennedy's Oval Office speech on 22 October, Soviet forces again went into an extraordinarily high state of alert, similar to the September event. This time, however, with nuclear war threatening, defensive forces were primary. Offensive forces avoided assuming the highest readiness stage, as if to insure that Kennedy understood that the USSR would not launch first. Long-range aviation units continued normal training, although some precautionary steps were taken, such as insuring that the Arctic staging bases could be used. (Bombers were not deployed to the Arctic.) PVO (air defense) units went into the highest state of alert ever observed, as did Soviet tactical air forces.⁹²

Although Soviet offensive missiles and IL-28 bombers were pulled out of Cuba following the end of the crisis, a Soviet garrison force remained, [redacted]

[redacted] The air defense system which the Soviets had imported to the island was slowly turned over to the Cubans, although during the crisis the Cubans had had no say whatever in its operation (which might in turn have led to the 26 October attack at Banes). The SIGINT site at Lourdes was activated during the crisis [redacted]

[redacted] The Soviets maintained their western Atlantic submarine patrols until the mid-1980s. In later years Soviet TU-95s flew regularly between the Soviet Union and Havana, [redacted]

Cuba remained a bastion of Soviet influence and military force presence until the collapse of the Soviet Union itself.⁹³

As for the cryptologic community, temporary sites became permanent. [redacted]

[redacted] It was a permanent diversion of SIGINT assets, contributing to the overall SIGINT force buildup during the decade.⁹⁴

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SIGINT warning, so highly touted during the Eisenhower administration, failed in Cuba. Although SIGINT detected some of the troops and equipment as they were moving, the key elements of the movement that would have given the Kennedy administration decisive information about offensive capabilities did not come from SIGINT. In a 1963 post-mortem, the National Indications Center faulted the entire intelligence system for failure to detect those key elements. Soviet communications security was almost perfect.⁹⁵

Although SIGINT failed in its job to warn, it was an integral link in the chain of intelligence that supported the administration during the crucial days of decision-making. It gave the United States its most timely and specific information about the movement of troops and supplies to Cuba. It provided the only information about force command and control - absolutely critical in making decisions about Soviet involvement. It gave the White House the only timely information that it had about Soviet reaction and military force alert posture. And it provided most of the hard information about the air defense system, should the invasion (set for 30 October) proceed as planned.⁹⁶

The response to the crisis at NSA was more coherent and orderly than in 1956. The six-hour SIGINT wrapups, including both Soviet and Cuban activities, were the first such attempt by NSA. Agency reporting gave a better overall picture to customers than it had in earlier crises.⁹⁷

Within the intelligence community, the crisis precipitated a debate about NSA wrap-up reporting. Roundly criticized in the fall of 1962 for exceeding its supposed reporting charter, NSA defended itself in USIB circles by pointing out that no other agency was performing the essential function of summarizing developments as seen through SIGINT. In the months following the crisis an unrepentant NSA began putting out a daily wrap-up of SIGINT events, called the *SIGINT Summary*. The name was customarily abbreviated to the term "Sigsum," but many just called it the "Green Hornet" (because it was distributed under a cover of dark green paper). It survives today as the *SIGINT Digest*.⁹⁸

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Chapter 9

The Post-Cuban Missile Crisis Reforms

The CCP review process has, in the judgment of NSA officials, become a vehicle for various OSD and outside DoD elements to manipulate resources assigned to the Director, NSA and a forum for the encouragement of opponents of a centralized SIGINT structure....

NSA internal memorandum, 1967

Intelligence reform did not, of course, begin after the Cuban Missile Crisis - significant soul-searching had begun after the Bay of Pigs. But the events of 1962 made the matter more imminent. Kennedy demanded a responsive intelligence system to get him information when he needed it. The emphasis was on speed.

At CIA, the Bay of Pigs ended the intelligence careers of both DCI Allen Dulles and Richard Bissell, who had supervised the invasion attempt. Owing perhaps to the rather small SIGINT involvement, it did not end careers at NSA, but it definitely hastened the pace of centralization.

PFIAB, which had been told to get the intelligence house in order by a disturbed president, reported in June of 1962. Its SIGINT emphasis was on further centralization of the system under NSA. PFIAB wanted NSA to corral fugitive SIGINT efforts and to exercise strong central management over those it already headed. Noting that ELINT centralization directed in the 1958 NSCID 6 had been a failure, it suggested ways that NSA could gain control of the process. It specifically wanted a National ELINT Plan with stern NSA management of resources under the plan.¹

In 1964 it reported on progress over the two-year period. The board was intensely unhappy about ELINT, which remained frustratingly decentralized. As for internal NSA management, PFIAB made several technical recommendations for strengthening the research and development process, for rationalizing SIGINT requirements, and for establishing an operations research discipline at NSA similar to that which existed at the DoD level. PFIAB especially wanted NSA to expand its influence over the cryptologic research and development process then performed by the services. The SIGINT effort was expensive, and PFIAB felt that a stronger NSA could reduce duplication and bring down the cost.²

Studies of the cryptologic system in the 1960s by the PFIAB, by DoD-level committees, and by the Bureau of the Budget all came down heavily on a more centralized process. The emphasis was always on doing more with less, but in fact, cryptologic budgets increased steadily during the decade. What happened in practice was that NSA did more with more.

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The National Security Agency was only too happy to oblige. Beginning in the early 1960s, NSA management began working on a plan to centralize cryptologic operations in the United States. Field operations would be reduced, especially at the theater level; SCA processing centers would be phased out; and, using the new digital data links sprouting up in the DoD communications system, data would be brought back to the States for processing. Using the PFIAB's recommendations as a hammer, NSA could achieve a degree of centralization dreamed of, but never achieved, in earlier years.³

The Dilemma of Centralization

Whenever there is a major foreign policy crisis, the response of an administration is usually to tighten up. The Kennedy administration responded to the Bay of Pigs and the Cuban Missile Crisis with a series of actions which resulted in an ever-tighter centralization of the intelligence mechanism. The effect on the SIGINT system was to further centralize a process which had been on a course toward centralization ever since World War II.

But centralization meant the same both upwards and downwards. As NSA further strengthened its hold on the cryptologic system, McNamara got a firmer grip on the Defense Department, including NSA. The Agency had never had to answer in detail to anyone about its program - certainly Graves B. Erskine's miniscule staff in OSO could not police a system composed of tens of thousands of cryptologists working in over twenty countries, with a budget of hundreds of millions of dollars. But McNamara did away with OSO in 1961, and in its place he put the director of defense research and engineering (DDR&E), Dr. John Foster, in charge of cryptologic matters. (The post of DDR&E had been created by the Defense Reorganization Act of 1958, as a response to the *Sputnik* crisis.) Foster in turn delegated the job to his deputy, John Rubel. The reform measure was accomplished without even contacting Admiral Frost at NSA.⁴

McNamara brought with him a team of "whiz kids" and a whole new management superstructure. Instead of dealing with just Graves B. Erskine or just John Foster or just John Rubel, Frost suddenly found himself talking to all sorts of subalterns like an assistant secretary for comptroller, an assistant secretary for management, an assistant secretary for international security affairs, ad infinitum. Each one felt he owned a piece of NSA. None was experienced in cryptology, and few managed to attain any appreciation for the arcane business of breaking and protecting codes: and the flip side of the coin was increasing OSD control over NSA. McNamara's staff bore down hard on the Agency's programs, placing each one under a microscope. As the CCP made its annual pilgrimage through the OSD machinery, increasing numbers of officials came to question cryptologic

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programs. NSA's existence became a constant battle to educate the legion of noncryptologists on McNamara's staff.

Cost control was a dramatic example of the dilemma that successive directors of NSA had always found themselves in. Late in the 1950s the Eisenhower administration introduced the concept of centralized cryptologic budgeting, in which the SCAs would send their annual budget recommendations to NSA, which would consolidate the inputs, add its own, and produce what came to be known as the CCP. This changed NSA's role from that of coordinator to centralizer. The SCAs were now beholden to NSA for their very livelihood. When the Agency looked down its nose at a major SCA procurement, as it had with the Air Force's 466L program, that program was in trouble.⁵ The new CCP was not fully implemented until fiscal year 1961, but in the two years in which it was being phased in it had already changed the landscape significantly.⁶

McNamara arrived with a new cost management system called the Planning, Programming, and Budgeting System (PPBS). There were, under PPBS, nine major military programs. Cryptology, which began in Program Seven (general support), was soon switched to Program Three, general-purpose forces, where it stayed. Within each program there were five cost categories: R&D, procurement, personnel, O&M (operations and maintenance), and military construction. The cryptologic budget itself was in turn divided into fifty-six cost categories, called subelements. All cryptologic expenditures, both for NSA and the SCAs, had to fit into one of the fifty-six.

This new process gave NSA substantial power. The subelements were managed at NSA, and the SCA budgets had to be structured and submitted to the subelement managers for their review. After DDR&E and the secretary of defense approved it, the plan became the approved cryptologic force level. NSA could then change the mission of each cryptologic component, right down to the collection site, to fit the program. The entire process resembled a gigantic funnel, in which the most significant narrowing took place at NSA. It effectively ended SCA independence.

NSA's influence came to extend even to the equipment on collection positions. In a spate of technical control never before achieved, NSA wrote a document (TECHINS 1037) which dictated what equipment must be on each position to make it conform to the program. It was up to the SCAs to get their positions in line with the edict.

Most directly involved were Jack O'Gara, who managed the cryptologic program at the OSD level, and Dr. Eugene Fubini, who became deputy director for research and engineering under McNamara. O'Gara had a cryptologic background, but Fubini was a scientist. For the first time, the director's cryptologic staff found itself arguing individual line items at the OSD level with people who wanted to know why it was necessary to have more than one position targetted on the North Vietnamese Navy or why two positions at different locations remained targetted on the same case notation. NSA was forced to provide proprietary personnel and facilities information to GSA (General

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Services Administration) and the Bureau of the Budget, and the Agency frequently discovered that outside organizations were auditing NSA's operations without its concurrence, or even, in some cases, its knowledge. In 1967, Director Marshall Carter charged that ". . . the CCP review exercise became a means for various DoD elements to manipulate resources assigned to the Director, NSA . . . an undesirable feature of this Office of the Assistant Secretary of Defense for Administration (OASD (A)) review is that these officials are not SIGINT-oriented and they frequently make unrealistic comparisons of agency positions to those in the Defense Agencies." Each director in the 1960s, from Frost to Blake to Carter, claimed that McNamara's OSD staff was micromanaging NSA.⁷

Everywhere NSA turned, there were new restrictions on its independence. Allen Dulles's replacement as DCI, John McCone, did not share Dulles's aversion for centralized management of intelligence resources. McCone moved aggressively to place the extensive Defense Department intelligence assets under CIA's general coordination. His newly created National Intelligence Programs Evaluation (NIPE) office was an early attempt to establish an intelligence community staff; it gave the DCI a way to inventory and evaluate all intelligence programs. He never achieved control of DoD intelligence budgets, but under him CIA was clearly headed in that direction.⁸

A New Director

The hard-driving McCone was partly responsible for the relief of Admiral Frost as director. Frost was not a driver. His soft-spoken manner and laid-back style were not for McCone. He did not have Canine's "presence," and at USIB meetings would speak in a voice so low that he could scarcely be heard. One very senior NSA official who worked directly for Frost said, "He was a professional SIGINTer, he knew about SIGINT, but somehow or other he did not project that he was a knowledgeable, dynamic leader for the SIGINT effort." Nor did he fare well with McNamara and his staff. People like McNamara and Fubini expected clipped, precise answers to specific questions, and when they did not get them, began to look



Gordon Blake

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elsewhere for a director. Frost was relieved on 30 June 1962, more than a year before his term was up, was reduced in rank by one star, and was placed in charge of the Potomac River Naval Command. Such was the ignominy that Robert McNamara could visit on someone in his personal doghouse.⁹

Frost's relief, Lieutenant General Gordon Blake (USAF), had shuttled between air operations (he was a command pilot) and communications assignments his entire career. His only intelligence assignment had been as commander of the Air Force Security Service from 1957 to 1959, but that had at least given him an introduction into the field which Canine, for one, had lacked. Blake, like Samford, was exceptionally good at personal relations and was very highly regarded in Washington. He had been in the job only three months when Cuba erupted, and he established high marks in the White House during the crisis. It has been said that no one disliked Gordon Blake, but even as smooth an operator as he still acknowledged difficulty getting along with McNamara's staff.¹⁰

NSA's Community Relationships

USIB, which in 1958 had become preeminent in intelligence affairs with the disappearance of the Intelligence Advisory Committee, became honeycombed with committees in the 1960s. Instead of dealing solely with COMINT, as had USCIB, it dealt with general intelligence matters, and it assigned SIGINT to the dual COMINT and ELINT committees. By the time Kennedy took office, USIB already had twenty-six committees, and most of the work was done there rather than in a committee of the whole.

In 1962 John McCone combined the COMINT and ELINT committees into a new SIGINT committee and chose John Samford to head the new panel. Samford was an ideal choice; he lent prestige to the committee - never before had such a senior person been chosen to head a USIB committee. Samford spent a lot of time trying to rationalize SIGINT requirements, and it was he who first proposed that COMINT requirements be related to CCP line items. His overhaul of the antiquated requirements system in place paved the way for a new system introduced in the mid-1960s, the Intelligence Guidance for COMINT Programming.¹¹ Throughout this period the day-to-day influence of USIB became more pervasive, and it operated as yet another check on NSA's independent authority.

The dark days of the Canine-Dulles feud were over, but that by no means ended the problems between the two agencies. CIA still had intercept operations spread throughout the world, and by 1970 it was reputed to have

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In 1966 Huntington Sheldon of CIA studied CIA SIGINT operations to determine the proper size and to allocate funds. He found that CIA had [redacted] people doing SIGINT, with a budget of [redacted]. The result, which became known as the Sausage Study, was the first to document the truly significant CIA stake in SIGINT.¹³

In 1961 a new competitor arose. The Defense Intelligence Agency (DIA) was created to centralize defense intelligence matters. DIA began life with a headquarters in the Pentagon but with subordinate offices scattered all over Washington. Arlington Hall's A and B buildings housed much of the effort.

The fragmented physical situation in which DIA found itself came to symbolize its participation in the intelligence business. DIA had stepped into a department whose intelligence was fragmented and decentralized and whose intelligence programs were managed under feudal baronies with great power and internal cohesion. None was more powerful than NSA.

DIA began churning out intelligence reports and estimates in competition with the existing organizations. But ultimately the organization had to carve out its own unique turf, and one of the first areas it chose to invade was the private game preserve of SIGINT. In 1963 DIA proposed that it, rather than NSA, should run the COMINT dissemination system. The next year it wrote a draft directive which would have the director of DIA become the principal advisor to the secretary of defense "concerning the security, use, and dissemination of COMINT." DIA would take over the SSO system, including the communications apparatus. McNamara accepted the proposal, and the SSO systems of the SCAs were turned over to DIA in 1965.¹⁴

The post-World War II SSO systems managed by the SCAs had long since become more administrative than substantive, and by the time DIA got hold of them, they were serving as little more than communications and security managers. In their place, NSA was in the process of establishing a network of SIGINT representatives. This network consisted of two components. The first was the official representation system, which NSA managed at Unified and Specified levels, and the SCA's represented SIGINT to the component commands. This system took some working out, and resulted, especially in the early (post-1958) years, in turf battles between the SCAs and NSA.

The second type of organization was the CSG (see p. 264). This was where the interpretive function was performed, and it closely resembled the functions performed by the World War II SSO network, minus most of its dissemination control (i.e., housekeeping) features.

DIA's demarche into the SSO field accelerated the creation of CSGs. The first CSG, called NSAEUR/ISS, had been around since the late 1950s, and it served as a model for

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others. In 1964 Brigadier General John Morrison, NSA's representative in Hawaii, heard about NSAEUR/ISS and journeyed to Paris to see how it worked. He liked what he saw and created what he called the NSAPAC NOG (NSA Pacific Operations Group). The idea of having CSGs spread quickly and was incorporated into JCS Memo 506-67, which became the bible for SIGINT support to military organizations. By 1974 there were eight CSGs, with two additional CSGs in the process of being formed.¹⁵

CSGs became effective because of the access they had to the SIGINT system. To a great extent they depended on the growing network of Opscomms to get them that access. Every CSG began life with an Opscomm circuit to NSA. With it, the CSG could get quick and accurate information to the supported commander.¹⁶

ELINT (Again)

While COMINT was coming under increasingly centralized control, ELINT was still fragmented. A study commissioned by McNamara in 1961 concluded that little real control over ELINT had been instituted in the three years since NSA had been given the charter. Theater commanders were still running their own ELINT operations, and in many cases they were proliferating processing centers without coordination or control. Their Third Party ELINT relationships continued unabated, and their collection assets were pumping low-quality and often inaccurate ELINT into the processing system, unaffected by any sort of quality control.

The study group concluded that there should be a strict apportioning of ELINT assets between the U&S commands and NSA, and that the Agency should institute stringent technical controls over all DoD assets. NSA should take control of all Third Party ELINT arrangements. Theater-level ELINT processing centers should not be established willy-nilly, but should conform to some overall plan. That plan should be coordinated by NSA, which would accept inputs from the military commands and crank out the final product. It would be called the National ELINT Plan (NEP). But the bottom line was that it would have no teeth. Coordination, not direction, would be the modus operandi.¹⁷

A National ELINT Plan finally emerged in 1966, after several years of bureaucratic struggle and false starts. It marked the first real attempt to organize and control ELINT; but since it was not directive, it had only a minimal impact on the actual course of DoD ELINT.

Meanwhile, NSA and DIA tried to negotiate a system of ELINT tasking which would conform to DIA's new charter to centralize all DoD intelligence requirements. They worked out a complex system in which all parties to the National ELINT Plan (including CIA) would forward ELINT requirements to DIA for registry. NSA would maintain a complete list of all ELINT collection assets (including those that the Agency did not control) and would assess the capability of relevant assets to satisfy each requirement (called a

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SICR, Specific Intelligence Collection Requirement). NSA would then return the requirement to DIA, which would task the appropriate U&S command, while NSA would task assets under its own control.¹⁸

Attempts to rationalize theater-level ELINT processing centers were only semi-successful. Proposals for NSA control were opposed by theater commanders and thus went unimplemented. The best NSA could achieve was to appoint a technical assistant to the director of the theater processing center and to transfer CCP billets and NSA people into the center to help maintain quality control, as was done in Europe, in the Pacific, and in the Atlantic Command.¹⁹

Successive directors felt that the job of managing ELINT was simply too much for NSA. General Blake felt that "a National ELINT Plan [was] neither desirable nor practical." Given the job of writing the plan, General Carter found that NSA was not set up internally to manage such an effort, and he had to create an ad hoc group, which he called Dagger, to write it. Looking back in later years, Carter called the NEP "unworkable." Difficult relationships with the Unified and Specified commands, disputes over ownership with DIA and CIA, and internal dissension over how the effort should be organized within NSA all contributed to the sense of frustration.²⁰

News from the ELINT front continued to be gloomy throughout the decade. In 1964 PFIAB launched a rocket at theater ELINT centers: "Meanwhile new centers from ELINT analysis are being established without coordination, terms of reference, or technical guidance from our proven competency in established programs." CIA, which had retained a tenacious hold on telemetry, opened a new telemetry center called FMSAC (pronounced "Foomsack": Foreign Missile and Space Analysis Center), which became, as was intended, a direct competitor with NSA's efforts. ELINT requirements were in a chaotic state, and local commanders were constantly confusing the situation with overlapping demands.²¹

The 1968 Eaton Committee (see p. 479) found that the NEP was a marginally effective document negotiated to compromise among various competing power centers. NSA had never been given tasking authority over many ELINT collectors - SAC airborne assets came immediately to mind. There was no central budget review process for ELINT and no way to deconflict competing assets. There was no effective quality control, resulting in parametric garbage cluttering disparate databases managed by widely separate organizations that did not talk to each other. Despite the 1961 recommendation that NSA should take over Third Party ELINT, nothing of the kind had taken place, and those relationships were still being managed by CIA and the theater-level component commands, as well as by NSA.²² No wonder NSA directors were so ambivalent about the task which NSA had shouldered for ten years running.

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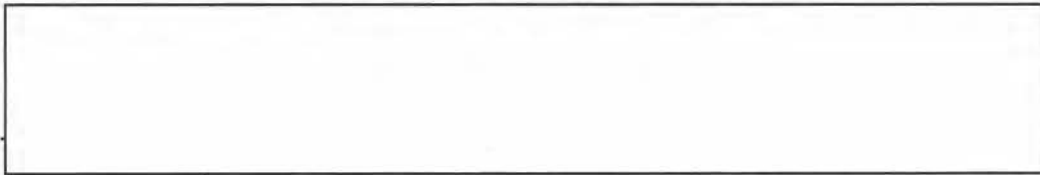
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DEFSMAC

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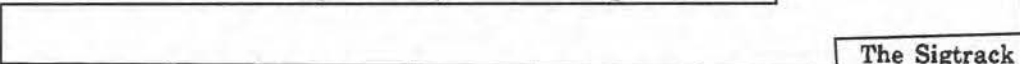
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Occasionally the demands of centralization resulted in measurable steps forward, relatively unaffected by bureaucratic rivalries. The 1964 creation of the Defense Special Missile and Astronautics Center (DEFSMAC) was such a moment.



A41 had two round-the-clock operations centers. The A41 Operations Center (Opconcen), located next to the A41 offices on the third floor of the operations building, was the nerve center. It had Opscomms to the primary warning sites and had established a tip-off system so that warning information [redacted] could be flashed back to A41. That organization, in turn, alerted [redacted] that were standing by. By 1962 the Opconcen had six Opscomms to collection sites. It was further linked by Opscomms to customers, notably NORAD (North American Air Defense Command, which had responsibility for tactical warning of missile launches) and the Washington-area organizations.

Downstairs in the computer complex was the Sigtrack center. [redacted]



The Sigtrack center was in close touch with the Opconcen, but, although there were plans to consolidate the effort, they were still physically separate.²³

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When the consolidated facility, the Space and Missile Analysis Center (SMAC), was created in January 1963, it had Opscomms to sixteen facilities, plus the customers. Several different organizations had mounted twenty-four-hour operations, but SMAC and NORAD were far and away the major players - others simply fed off the information generated through the air defense and SIGINT warning systems.²⁴

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The disorganization in the missile warning business led, in 1963, to a full DoD-level review. The team surveyed the entire problem, talked with every organization involved, and made field trips to warning facilities like SMAC and NORAD (in Cheyenne Mountain, outside Colorado Springs). They found that NSA had the only coherent, centralized program, and, at the suggestion of A4, they took SMAC as the organizational model for a new, combined facility.

It would be called DEFSMAC, would be located at NSA, and would be jointly staffed by NSA and DIA people. The chief and deputy chief would be selected jointly by DIRNSA and the director of DIA. Because most inputs were SIGINT-based, NSA

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possessed virtually the sum total of technical expertise. DIA was charged with integration, reviews, and nontechnical analysis of findings. DEFSMAC would have the same inputs, through the same Opscomm net, that SMAC had had. But because its official charter was established at the Department of Defense level, it carried with it far more authority than had SMAC. DEFSMAC had tasking and technical control of all DoD intelligence collection activities directed against foreign missile and space activities. It provided technical support, including tip-offs, to all DoD missile and space intelligence collection activities. The only exception to its virtual blanket authority was that it could not launch airborne collection platforms on its own - that required a JCS go-ahead.²⁵

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At its creation in 1964, DEFSMAC had [redacted] NSA billets, to twenty-three for DIA. Its first director (and all thereafter) was an NSA official, Charles Tevis, while the deputy was a DIA official.²⁶



Charles Tevis

The Advent of the Command Center

Present-day NSOC and the plethora of round-the-clock watch operations that Agency workers know evolved slowly over a long period of time. The key date in its evolution was October 1962 - the Cuban Missile Crisis. But the development began years before that.

AFSA had had a shift operation, established originally to monitor developments in the Far East during the Korean War. It was part of AFSA-25, the organization that dealt with customers, and, within that organization, the publications and distribution branch. Manned originally by a staff of two junior officers and several analysts and enlisted communicators per shift, it scanned outgoing messages for release and maintained a liaison group to answer requests for information. After NSA was created, it became known as the Prod Watch Office, or PWO, but proposals to give it executive powers were scotched whenever they came up. In 1954 it became responsible for the director's daily intelligence briefing, and when the Critic program was created in 1958, the PWO insured that all Critics had the correct external and internal addressees. But when real horsepower was needed, the PWO called in day workers.

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The COMSEC organization also had a watch office, charged specifically with responding to reports of compromise. Although small, it did a good job of quick response, and over the years kept potential compromises from becoming major hemorrhages.²⁷

Through a succession of reorganizations, the PWO became the PIWO (PROD Intelligence Watch Office), and more civilians were added. In 1962, the last year of its life, the PIWO consisted of [] people, ten of whom were civilians. But its functions still remained procedural rather than substantive. NSA's method of handling round-the-clock responsibilities bespoke the way that the organization viewed itself. NSA thought of itself as a long-term reporting shop, a concept which had become completely outmoded by the Soviet strategic threat and the role of SIGINT in warning of that threat.

The vision of NSA as Sleepy Hollow ended abruptly in October 1962. The new director, Gordon Blake, realized that he did not have a command post, and his assistant director for operations, Major General John Davis, created one during the middle of the crisis. The chief of the new shift operation was known as the SNOO (Senior NSA Operations Officer), and he had [] analysts on duty. The original command post was located close to the PIWO and the communications center and had telephone connectivity to both.²⁸

After the dust settled, General Davis decided that he could not continue to operate on an ad hoc basis, and early in 1963 the Command Center was made permanent. With eight bays of space and \$50,000, the reporting staff headed by [] and [] fashioned a command post look-alike, with situation maps, multicolored telephones, and pony circuits from the communications center. (This came to include a KY-3, which permitted secure voice contact with the White House, CIA, DIA, and several other Washington consumers.) The PIWO was wiped out and the bodies transferred to the Command Center.

Although the Command Center became a nerve center of sorts, it never became what its creators had hoped. To begin with, the SNOO did not represent the director; he only represented the assistant director for production. Executive decisions above Production required that other deputy directors be called in. Second, even within PROD the Command Center was to some degree emasculated. This owed to the refusal of the analytic groups to contribute skilled analysts. The Command Center wound up with a personnel cadre, but the real power remained within the analytic groups themselves, each of which, over a period of years, established various watch operations. These "puddles" (as they were called) tended to arise during crises and simply continue. Thus it was that the B Watch Office was set up in 1965, when Vietnam heated up, and the B1 Watch was established as a result of the *Pueblo* capture. G Group established no permanent watch but continued to call analysts to duty during crises.²⁹

Regulations governing the Command Center carefully circumscribed the authorities of the SNOO who, after all, was only a grade 13 or 14. He monitored the Critic program,

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and could change distribution, but he could not change the text or issue a new report. He could not call a SIGINT readiness, did not have direct connectivity to field sites, and could not modify field site collection instructions. A and B Groups had "coordinators" in the Command Center, but whenever a problem arose, either referred the matter to one of the "puddles" or called someone in.³⁰

Centralization of Theater Processing

As the Vietnam War heated up, Robert McNamara began looking for money. He put considerable pressure on all DoD elements to become more efficient. In the early 1960s Gordon Blake was under considerable pressure from McNamara's staff. According to them, the SIGINT system was too big, too costly, too spread out, and inefficiently organized. If McNamara needed money, they thought they could sweat some of it out of the SIGINT budget. And anyway, they believed that centralization was inherently good as well as cost-effective. McNamara's point man in this effort was Dr. Eugene Fubini,

In 1964 Blake was directed to take a close look at theater processing. Fubini believed that there were too many theater processing nodes, especially in Europe, and so NSA turned its attention to the European theater. Studies in that year turned up quite a complex of centers spread across Germany [redacted]

The Air Force had centralized SIGINT processing at Zweibrucken, which by 1964 had become a complex of over [redacted] people, IBM 1401 processors, and Opscomm connectivity [redacted] over Europe [redacted]. The reporting operation alone was the busiest and largest reporting center ever put together up to that time. It was the hub for timely reporting [redacted] an absolutely irreplaceable asset.

[redacted]

The Army operation, centralized in Frankfurt, had a very different focus. Its COMINT Processing Center (CPC) concentrated on preliminary processing of the increasing volumes of [redacted]

[redacted] ASA refused to join [redacted] and it maintained its own development effort in [redacted]

NSA's theater focal point was also in Frankfurt, where NSAEUR had put together a processing effort called JNACC (Joint Non-Morse Acquisition Control Center). [redacted]

[redacted]

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[Redacted]

In July 1964, under continuing pressure from Fubini, Blake named Benson Buffham to chair an ad hoc committee to produce an austere SIGINT posture in Germany. This group wrestled with the problem of the competing power centers in Frankfurt and Zweibrucken, and it finally came down on the side of Frankfurt. But the committee went much further. It decided that ultimately much of what was going on in Germany would be done at Fort Meade.

The interim European architecture would close Zweibrucken and create two separate but closely related organizations [Redacted] in Frankfurt. The first, [Redacted] would take over theater processing operations [Redacted]. The second, called [Redacted], would take over the timely reporting functions then exercised at Zweibrucken. Manning for the new facilities would come directly from the hides of ASA and AFSS, with a significant NSA admixture.

The panel was looking at far more than reorganizing theater assets, however. It began to consider a longer-range plan of closing theater operations and moving them to Fort Meade. NSA would establish a high-speed (2400 baud, high speed for the mid-60s) data link from Frankfurt to Fort Meade. Frankfurt was clearly a way station on a much longer journey.³⁴

The plan to close theater functions also included JNACC. NSA decided to establish a worldwide printer steering group at Fort Meade. Called the COC (Collection Operations Center), it functioned much like JNACC, interacting with field sites through a network of Opscomms. When opened officially in 1969, COC began using a new reporting system, called [Redacted]. The basis of [Redacted] reporting was a short, preformatted report resembling a [Redacted].

[Redacted] The reports were formatted for computer input and formed a database on all printer intercept worldwide. COC adjusted collection of [Redacted] links based on the [Redacted] reporting and daily contact with cryptanalysts in A5, the office of [Redacted]. It was not finally phased out until 1993.³⁵

Back in A Group, the planning committee came up with two schemes: Plan A and Plan B. Plan A assumed that processing functions would be moved to Fort Meade but that basic timely reporting would remain in the theater, at [Redacted] and [Redacted]. Plan B assumed that these centers would eventually be closed and the functions moved to Fort Meade. General Carter favored Plan A, but his staff favored Plan B. Ultimately, the reluctant director was persuaded to sign Plan B, and the residual organizations in Frankfurt were doomed.³⁶

The adoption of Plan B required drastic changes in A3, the analytic organization responsible for the Soviet problem. A3 was basically a term reporting organization, but

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under the new scheme it would have to split into two camps, the term shop (A7, material older than seventy-two hours) and the current shop (A8, material not yet seventy-two hours old). The current shop, A8, would have to pick up responsibility for a number of daily summary reports produced by Zweibrucken. More significant, it would have to create a shift effort to monitor timely reports like spot reports and Critics. It would interact closely with the [] which would retain some of Zweibrucken's reporting functions. The [] would be an emasculated [] retaining substantial authority for coordinating timely reporting on U.S. reconnaissance flights, but without the reporting or collection management authority that Zweibrucken had exercised. A3 would pick up some [] billets in order to mount the required reporting effort.³⁷

CSOC

The A8/A7 split was the genesis of a new organization, called the Current SIGINT Operations Center. CSOC, as it was usually referred to, was formed by Walter Deeley of A05 from a group of A Group analysts and reporters who had been in proximity to, but not an integral part of, the Command Center. Deeley believed that, by integrating processing computers with communications systems, he could create an analytic and reporting center in which all activity was electronic. He later popularized this as his "paperless environment," a concept that was adopted when NSOC was created.

Deeley planned to reterminate the [] reports from Zweibrucken to CSOC, but instead of the reports being dumped onto a Teletype Corporation printer, they would appear on computer screens, where analysts could manipulate them. A communications interface computer would be required to receive the incoming [] reports, sort them according to type of activity, and route the sorted reports to analysts who were trained to watch different types of activity. CSOC would have the same reporting and collection management authorities that Zweibrucken had. Deeley wanted a new name for the tip-off reports, and he came up with the name KLI EGLIGHT, which would be used into the 1990s. The computer Deeley selected was a Univac product, which was the best machine at the time for communications interface. The TIDE software system, which managed the KLI EGLIGHT database and routed reports throughout CSOC, was written for the Univac computer.³⁸ A8 was established officially in June of 1967.

CSOC guaranteed that [] would die. It was put into operation a year prior to [] and by the time Frankfurt was ready to assume Zweibrucken's reporting responsibilities, CSOC had already proved it could do them. Real authority thus bypassed Frankfurt and went directly back to Fort Meade.

Moreover, CSOC proved the feasibility of a global SIGINT view. Now there was a reporting center that had inputs from all SIGINT sources on the Soviet problem. Army, Navy, and Air Force data flowed into the new center, and CSOC could see the

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Walter Deeley

He was the driving force behind cryptologic centralization and the automation of timely reporting.

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interrelationships between activities in differing Soviet military forces and theaters of operation. The idea that SIGINT might get a handle on Soviet force posture by such an across-the-board look took hold, and A8 analysts William Black, [redacted] and others began looking at activity level indicators from various areas of the Soviet problem.

Just as [redacted] was in its death throes, [redacted] was under threat. The high-speed data link, called the DLT-5, permitted SIGINT to flow back to Fort Meade at the then-incredible rate of 2400 bauds per second. Cecil Phillips, who was placed in charge of processing operations in C5, was told to try to duplicate, as near as possible, the operations then existing at [redacted] Phillips even used the same computer, an IBM 1401, to receive the data and format them for follow-on processing on the IBM 7010, which was an upgraded version of the 1410 used at [redacted] Originally he used the same software package in use [redacted] As long as the DLT-5 was operating, [redacted] was superfluous. NSA had succeeded in duplicating the field processing center.³⁹

SIGINT at the White House

All presidents since Pearl Harbor had a mechanism for timely notification of crises. In the 1950s intelligence warning was funneled through CIA, which was responsible for alerting the president through his military advisor. The Army ran the White House communications center, which in turn served the military advisor. This placed CIA in the position of deciding what the president saw and when he saw it. By the time of Kennedy's inauguration, the alerting mechanism in the White House had come to be called the White House Situation Room. It was basically a communications handler - no substantive analysis was performed in the "Sit Room."⁴⁰

Following the Bay of Pigs incident, Kennedy decided to put some teeth into the Situation Room. [redacted] CIA was brought in to create a truly round-the-clock intelligence center. The Situation Room began taking a more active hand in crisis alerting and in keeping the president informed. It was basically an arm of the CIA, however.⁴¹

All SIGINT product of interest to the president and the National Security Council staff passed through CIA, which forwarded key items after it had taken off the NSA header. SIGINT reports arrived in fairly significant volumes, but NSA was not directly involved. It produced only "information," not "intelligence." Some of the products got to the White House because they related to impending or ongoing crises. Other reports were forwarded simply because the intercepted messages mentioned political figures by name.⁴²

During the Cuban Missile Crisis, the "White House" (presumably National Security Advisor McGeorge Bundy) was unhappy with the delay experienced in getting certain SIGINT reports. The incident involving McNamara and the DF of Soviet merchant

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ships (p. 328) was emblematic of the problem. But CIA remained the choke point as long as Kennedy lived.⁴⁵

Things began changing under President Johnson. In late 1965, [redacted] began meeting with Deputy Director Louis Tordella and Chief of Policy John Connolly, along with representatives from CIA and State. The president wanted direct distribution of certain SIGINT, and he wanted it immediately. CIA and State protested that NSA did not produce "intelligence" and that it should not send things directly to the White House. [redacted] was adamant - they could protest all they wanted, but the president had already decided. A direct circuit to NSA was already being installed, and [redacted] and Tordella had developed a procedure to courier especially sensitive material to the Situation Room.⁴⁴

The White House wanted direct distribution for Critics. Moreover, it wanted to see product reports that quoted or named White House people, including the president, his key advisors, and cabinet secretaries. (This was the material that Tordella was having couried to the White House.) Late in the year, Tordella appointed Edward Fitzgerald as the first NSA liaison officer to the White House.⁴⁵ The White House concern may have been spurred by SIGINT product reports detailing [redacted]

[redacted] Placing the White House on direct distribution for these reports, and cutting off other addressees from normal distribution [redacted]

It is difficult to know what John Kennedy thought about SIGINT, if he ever thought about it at all. His national security advisor, McGeorge Bundy, seems to have used it as part of a larger intelligence mosaic, and he acceded to the CIA method of organizing intelligence, in that it came to him only after it had been massaged. Bundy appeared to violate this scheme near the end of his stay at the White House by demanding direct infusion of SIGINT. This was partly to keep a better handle on late-breaking events, but it was also to [redacted]

[redacted]

But Kennedy was assassinated in November of 1963, and the new president, Lyndon Johnson, replaced Bundy with Walter Rostow in 1966. Rostow had worked in England during World War II to plan the strategic bombing campaign. He learned not to accept filtered intelligence and worked directly with SIGINT every day.⁴⁶

Lyndon Johnson was the most avid consumer of intelligence ever to occupy the White House. He consumed it voraciously, chewing through stupendous piles of intelligence reports every day. Johnson did not like to be briefed - as former DCI Richard Helms once said, "President Johnson, when he had something on his mind, simply wasn't listening to what one had to say to him. . . . But when he read, he read carefully, and he hoisted aboard what he read. . . ." ⁴⁷ Johnson insisted on direct information. He had a great variety of

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direct information feeds, including a three-screen television set for all three networks, tickers, and other devices to stay on top of things.⁴⁸

During crises (and his administration seemed to be one long series of crises), he would sidle down to the Sit Room and pour through the intelligence reports. If a key military operation was about to be launched in Vietnam, he might stay nearly all night, so that he could get the latest information, or he might come in early the next morning to read the latest news. He resembled no one so much as Abraham Lincoln in the telegraph office, waiting for the news of battle to come off the wire. Even when he vanished to the Oval Office during the day, he would often call the Sit Room to receive updates, and he knew many of the officers by their first names. He was totally absorbed in military operations and intelligence reports.⁴⁹

Under Rostow, the trickle of direct SIGINT reporting into the Sit Room widened to a freshet, then a flood. SIGINT reporting on Vietnam was highly regarded in the White House. Sometimes it was used to cross-check other sources, other times as a stand-alone source. During the secret negotiations with the North (which occurred more or less continuously through three administrations), SIGINT was a highly prized source of information

[Redacted]

The main target remained the Soviet Union,

[Redacted]

The Agency processed the material ahead of everything else and sent it directly to the White House. Rostow got the information raw, analyzed some of the data himself or employed members of his staff to do it, and sent the conclusions to the president.

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Lyndon Johnson confers with Robert McNamara
in 1967, during the height of the war in Vietnam.
(Secretary of State Dean Rusk is in the background.)

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