

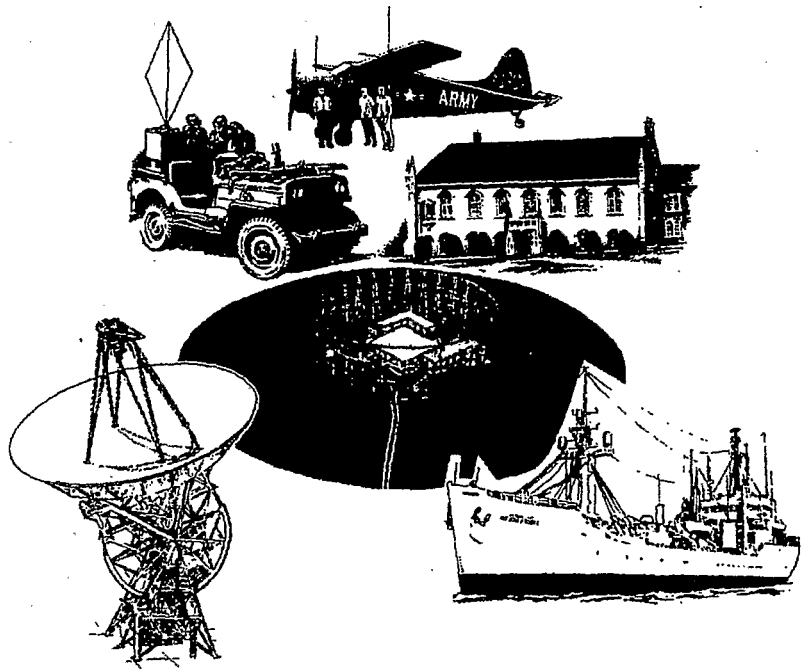
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NO. 1666

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.<sup>1</sup>



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.<sup>2</sup>

#### 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.<sup>3</sup> 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.<sup>4</sup>

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.<sup>5</sup>

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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).<sup>6</sup>

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.

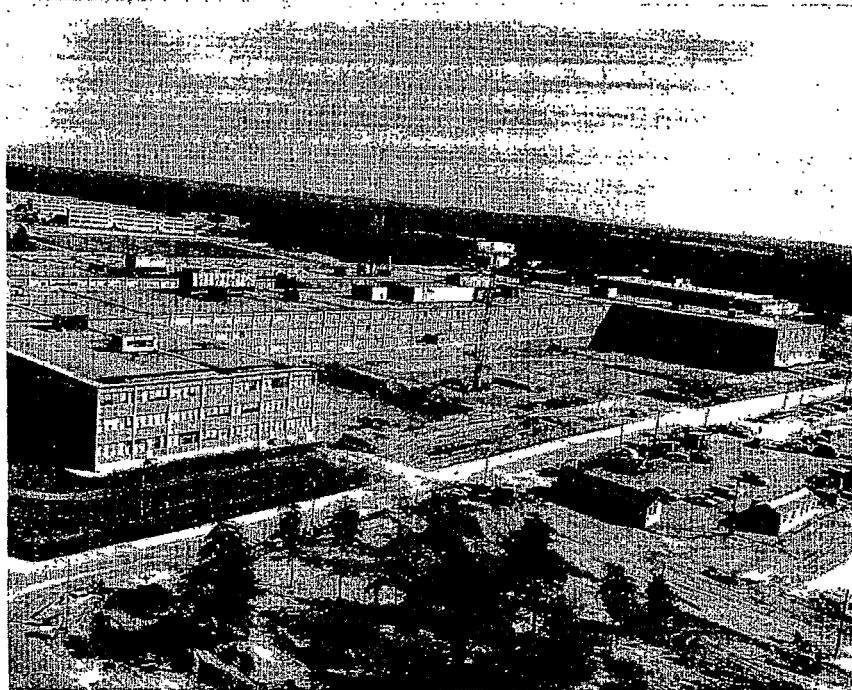
#### **A New Reorganization**

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.<sup>7</sup>

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.<sup>8</sup>

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.<sup>9</sup>

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 [ ] 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.<sup>10</sup>

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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.<sup>11</sup>

### 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, [ ] 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.<sup>12</sup>

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.<sup>13</sup>

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 by [redacted]

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

EO 1.4.(c)

EO 1.4.(d)

#### 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 [redacted] The three SCAs had major field sites in thirteen locations, and NSA had a theater headquarters in Frankfurt. [redacted]

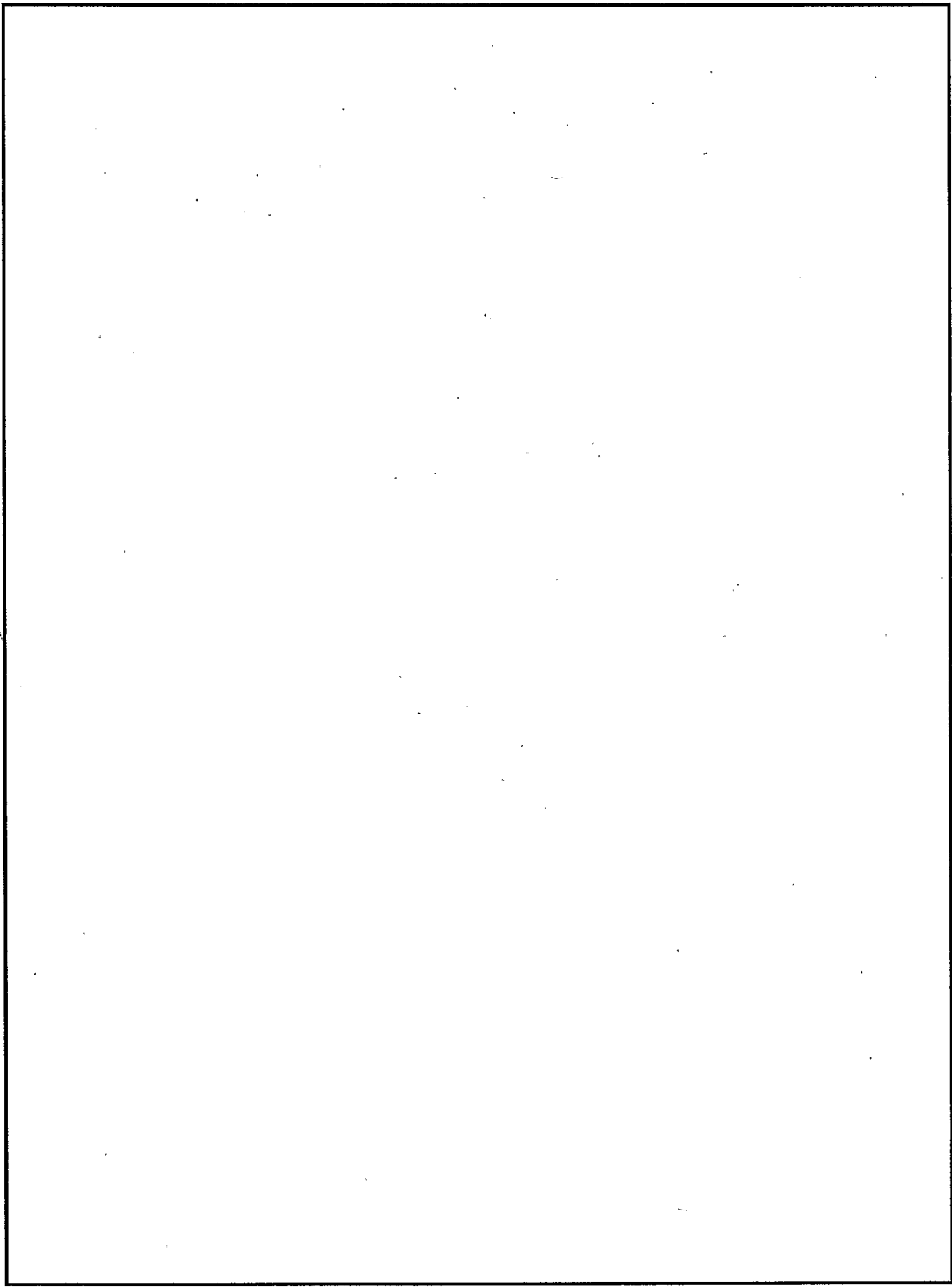
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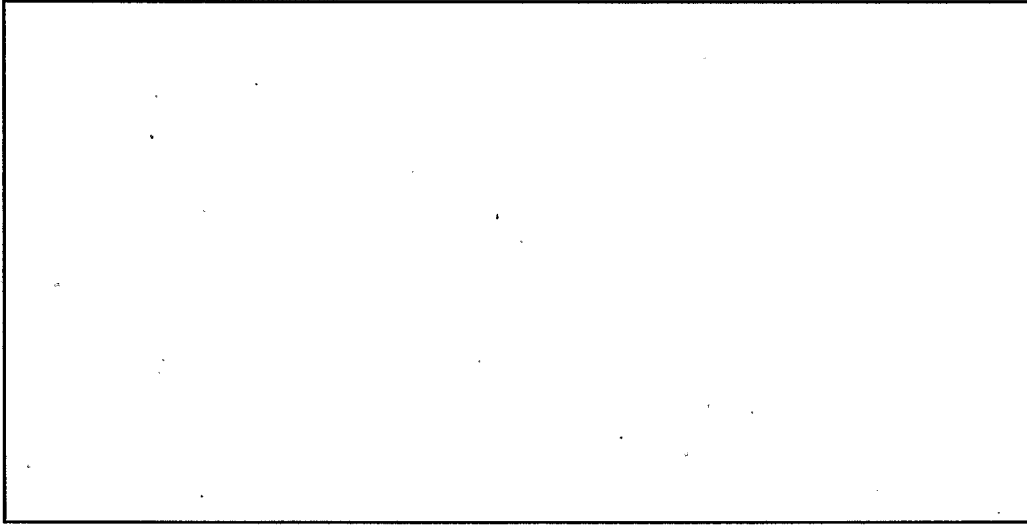


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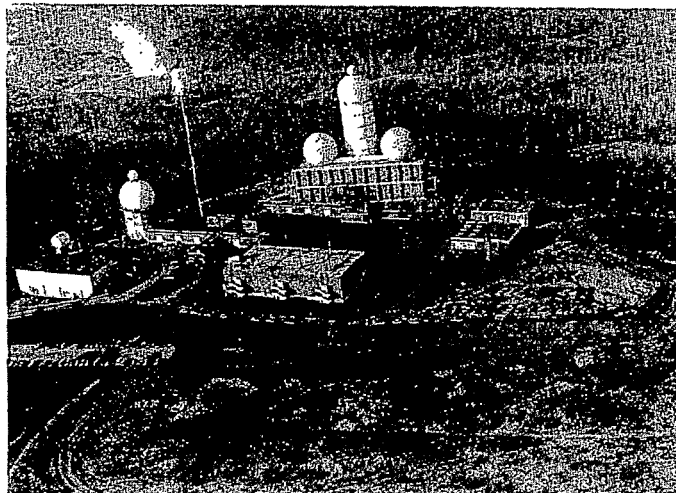
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**ASA's first collection effort on Teufelsberg,  
established in 1961, operated out of vans.**



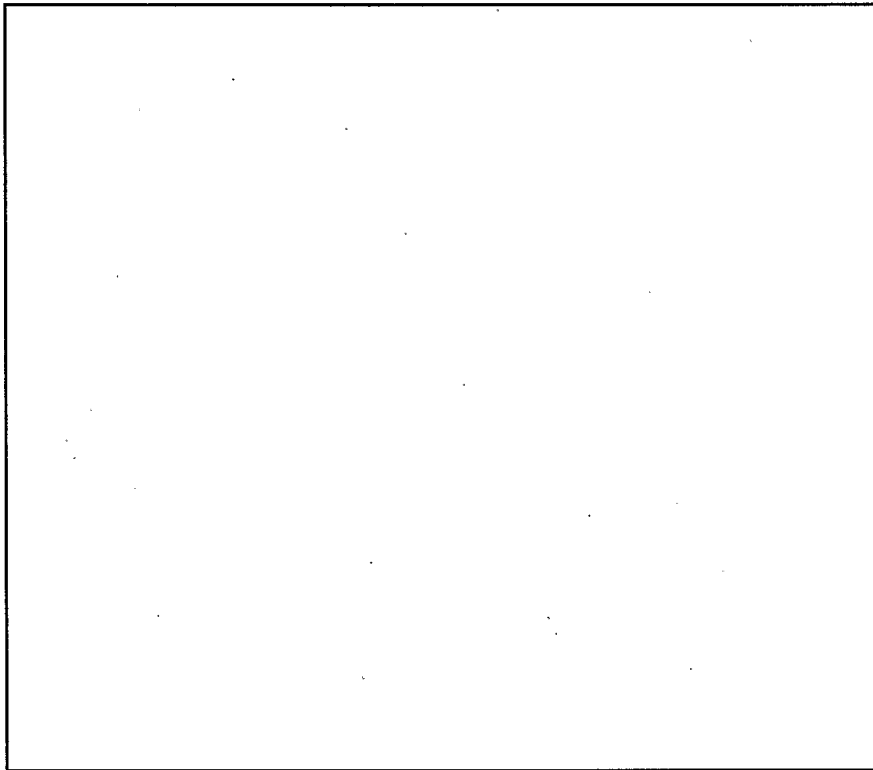
**The Rubble Pile  
(Teufelsberg, West Berlin, as it looked when completed)**

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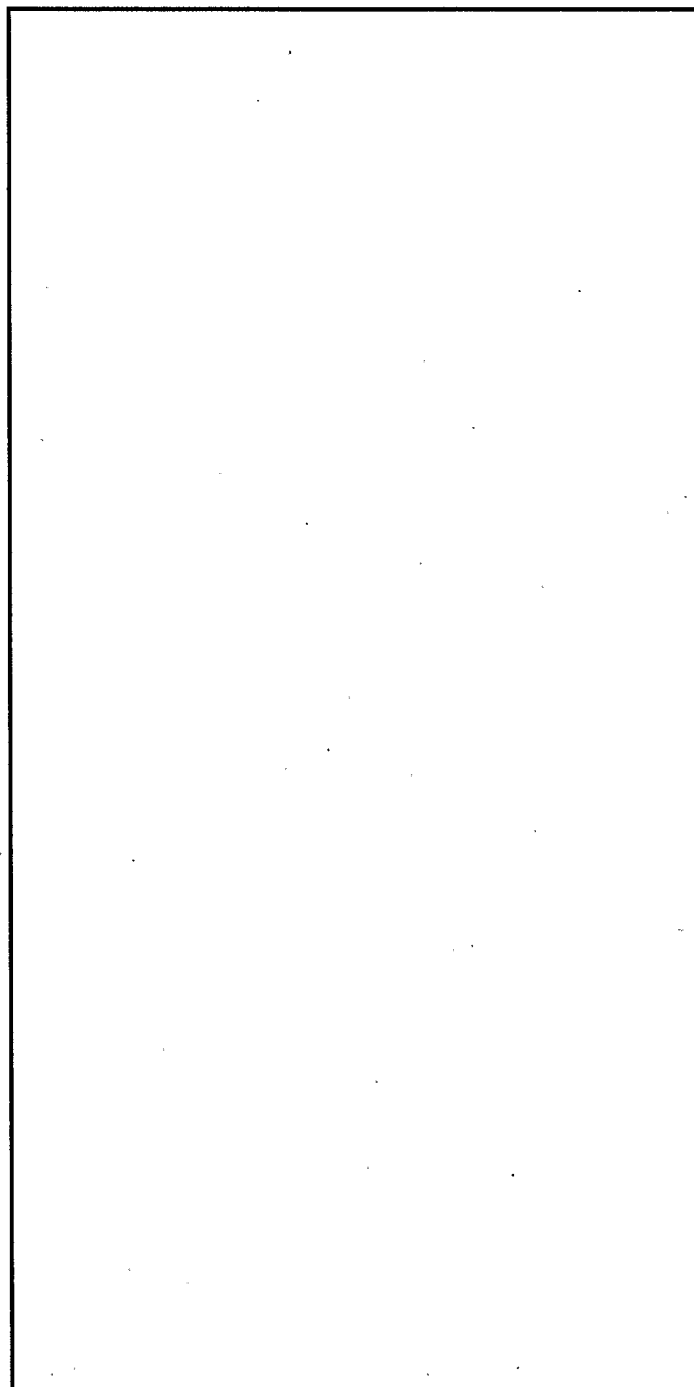
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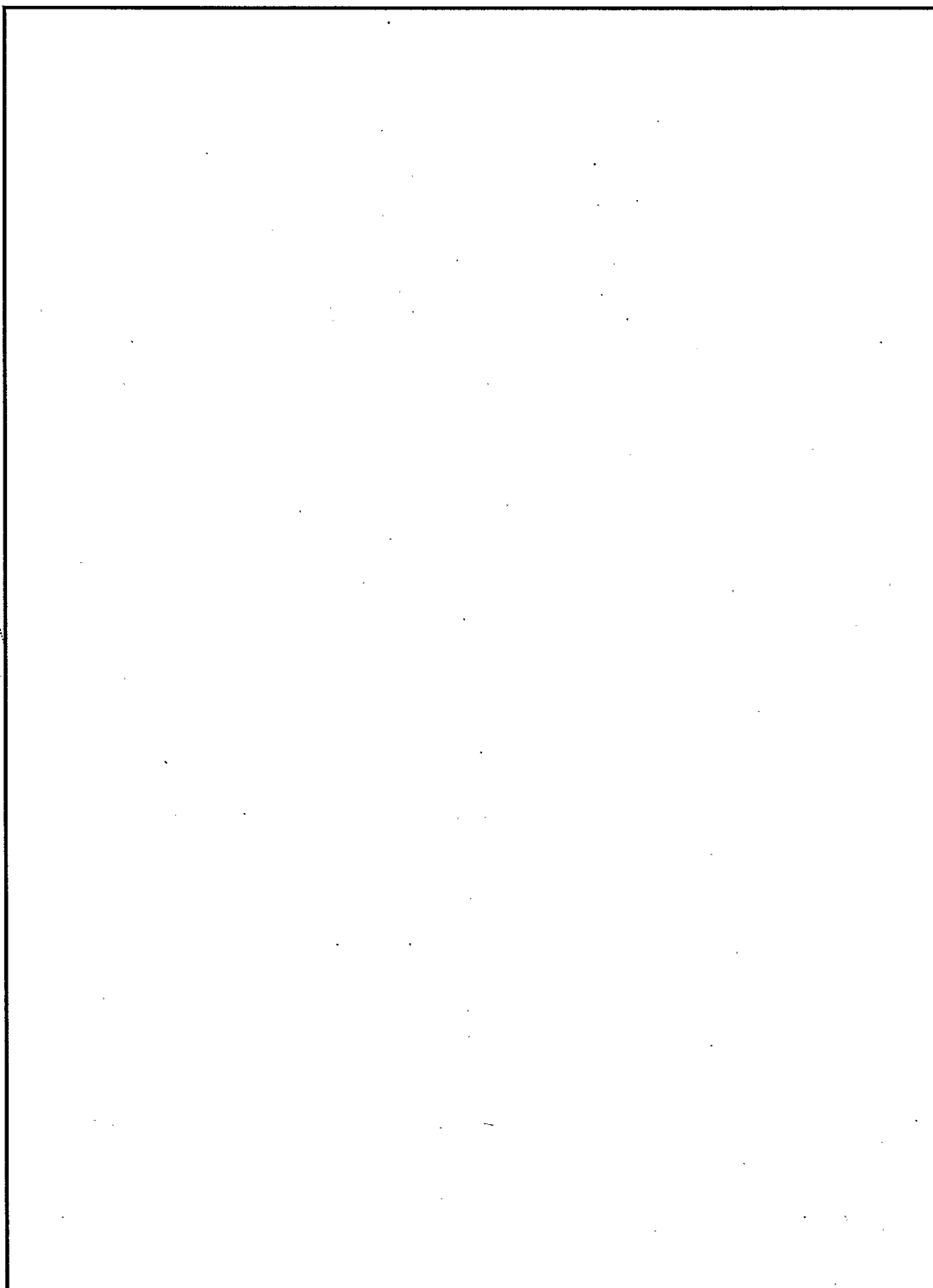
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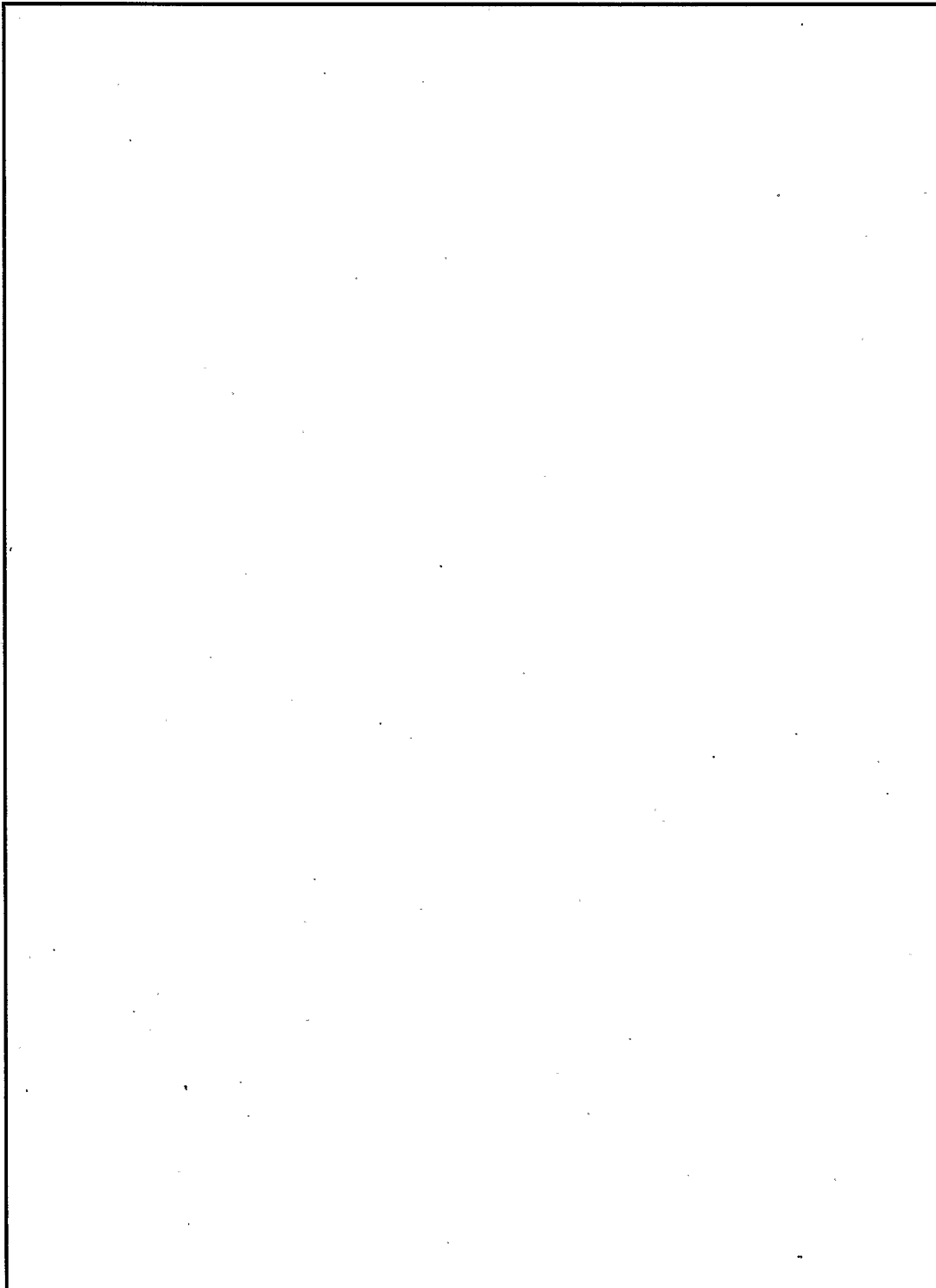
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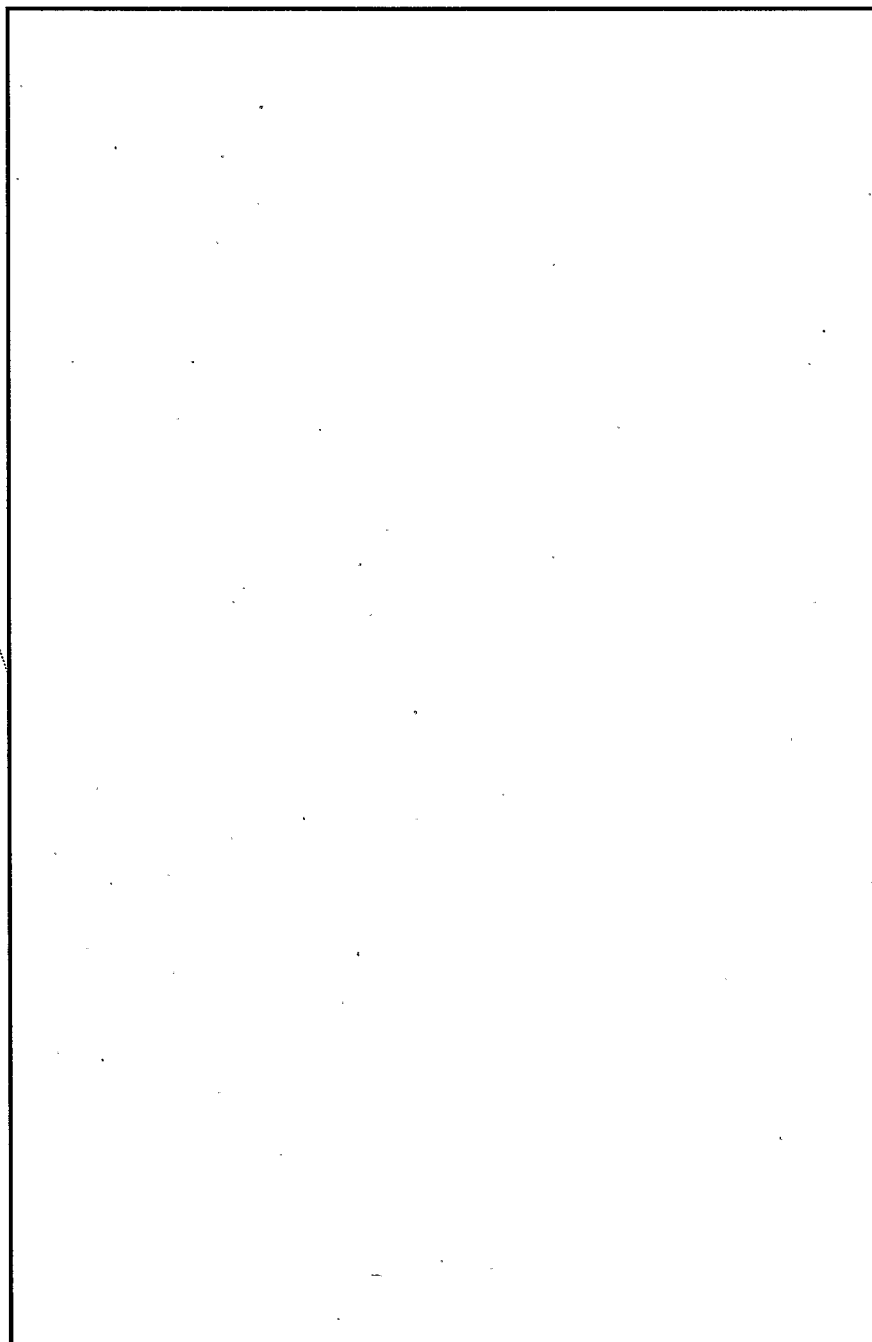
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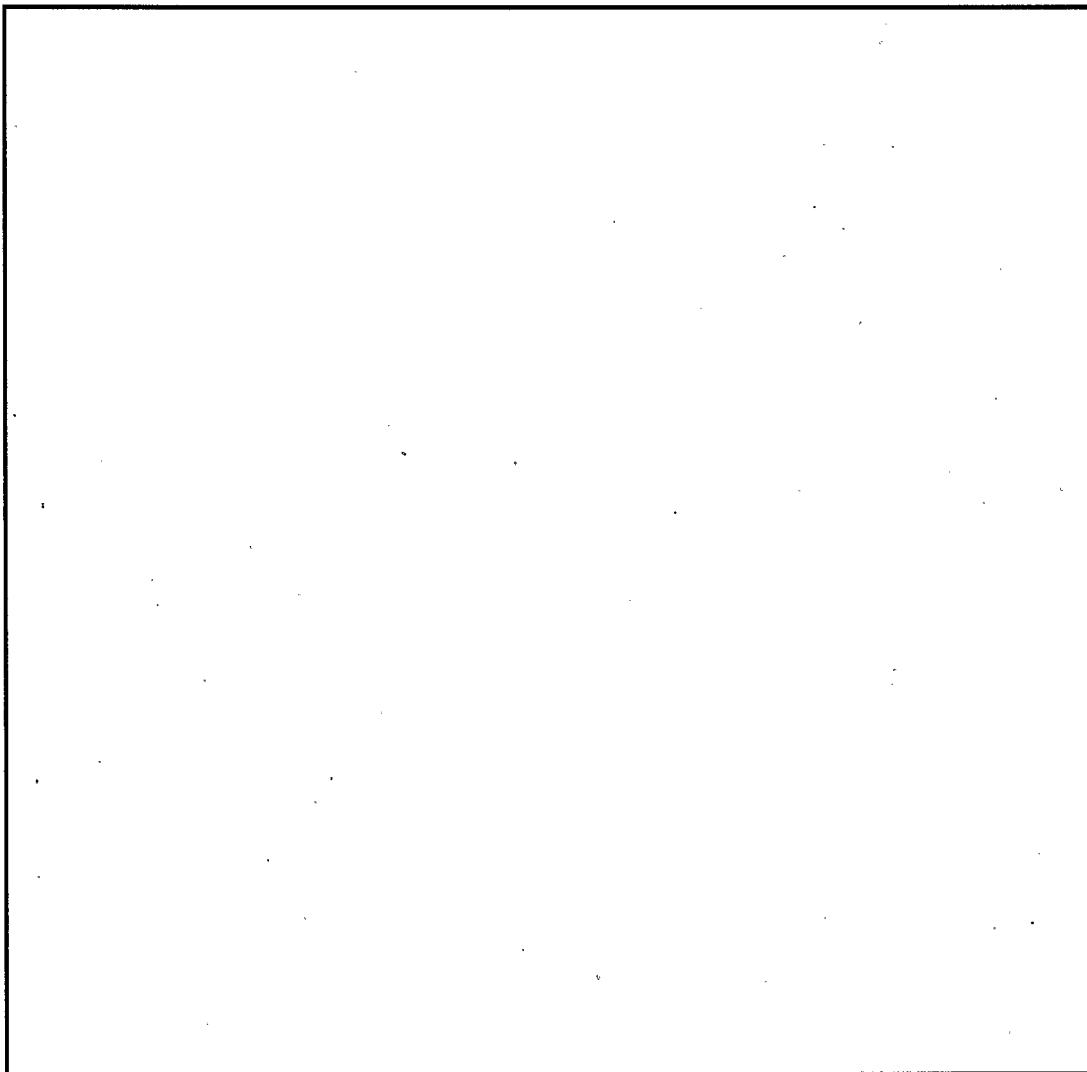
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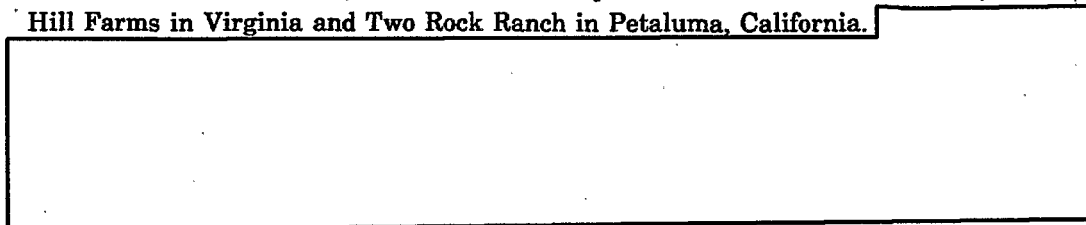
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### **Back Home**

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.

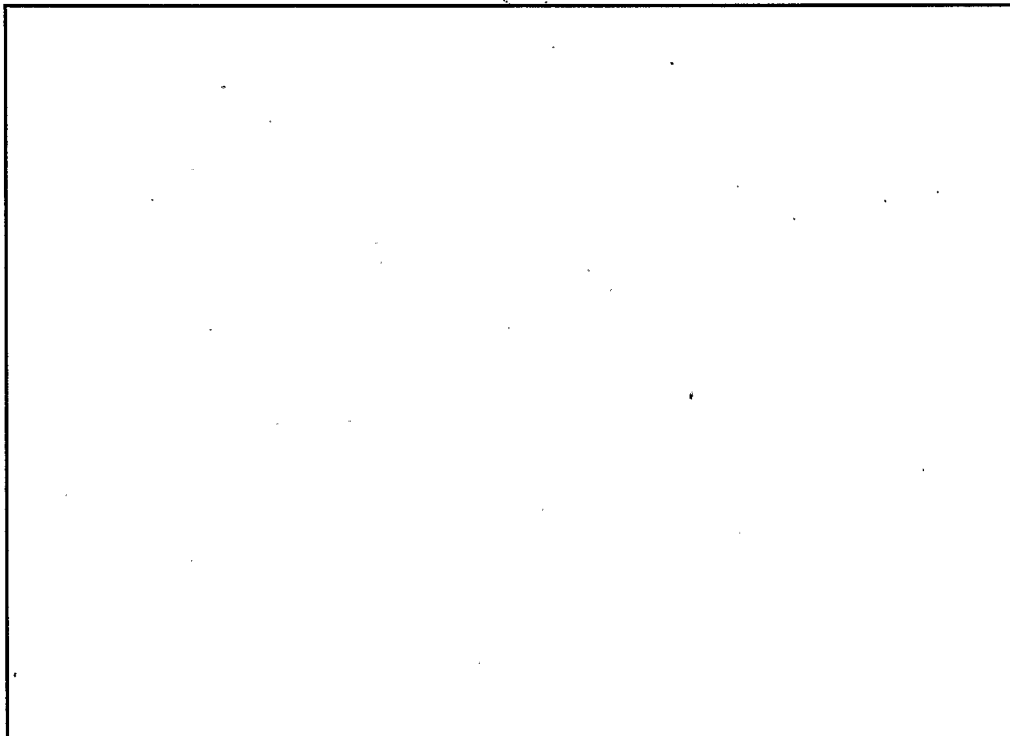


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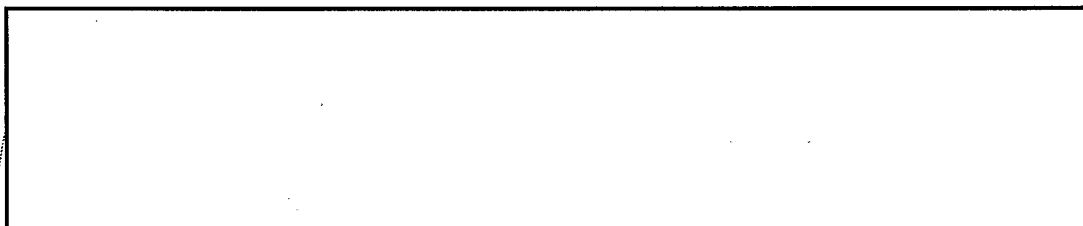


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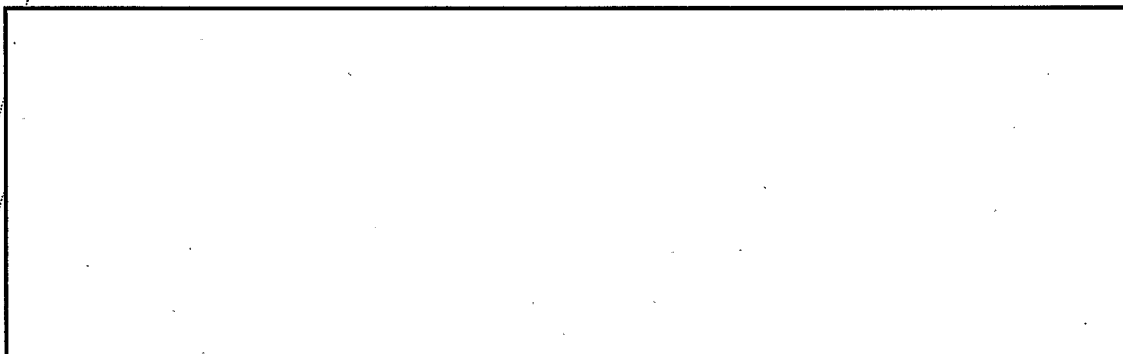
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### New Collection Systems

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



Beginning its systems R&D work in 1956, NSG fielded its first



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 [redacted], and included three components:

a. [redacted] a VHF system, optimized for ELINT collection and first-echelon processing.

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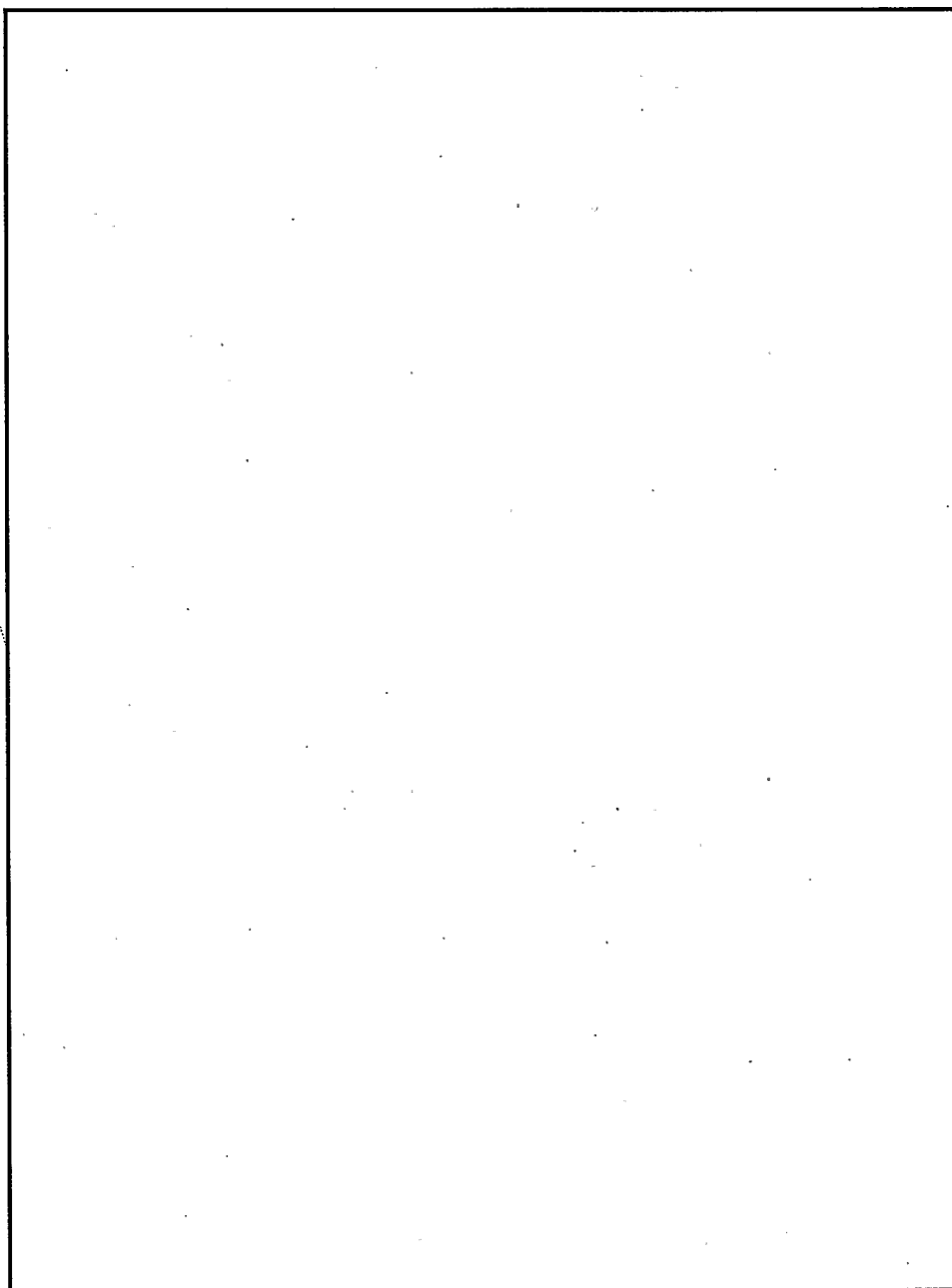
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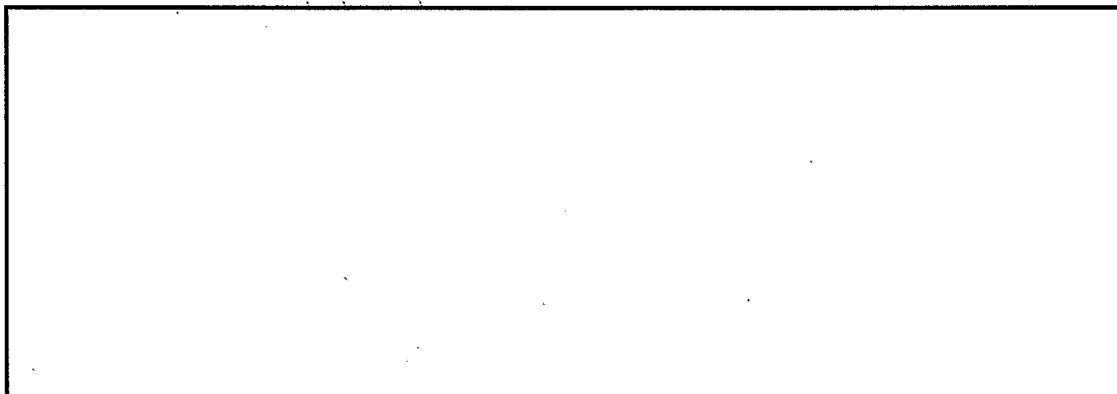


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b. [ ] the HF system, optimized for COMINT. The distinctive antenna was called FLR-9, but the package included more than just that.

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

In addition, the [ ] 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.<sup>28</sup>



The above-HF portion of the system, called [ ] was to be optimized for ELINT collection and first-echelon processing.

[ ] At a projected cost of [ ] a copy, [ ] was hideously expensive. It was also fraught with technical risks which ultimately jeopardized the entire project.<sup>30</sup>

#### 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 [ ] 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 [ ] was far too expensive;
- b. Major components were overdesigned (Again [ ] 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 [redacted] 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.<sup>31</sup>

In 1960 NSA took its concerns about the [redacted] system to DDR&E and convinced him to freeze money for out-year funding. At this point the [redacted] prototype design was thoroughly reworked by NSA and AFSS, and many of the [redacted] "frills" were eliminated before the [redacted] 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.<sup>32</sup>

Security Service planned originally for [redacted] FLR-9 sites: [redacted]

[redacted] 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.<sup>33</sup>

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 [redacted] would be a CDAA based on the Air Force's FLR-9 design. They named the project [redacted] and the new site [redacted] [redacted] was opened in 1965. When ASA began planning the consolidation of its three largest [redacted] sites [redacted] 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.<sup>34</sup>

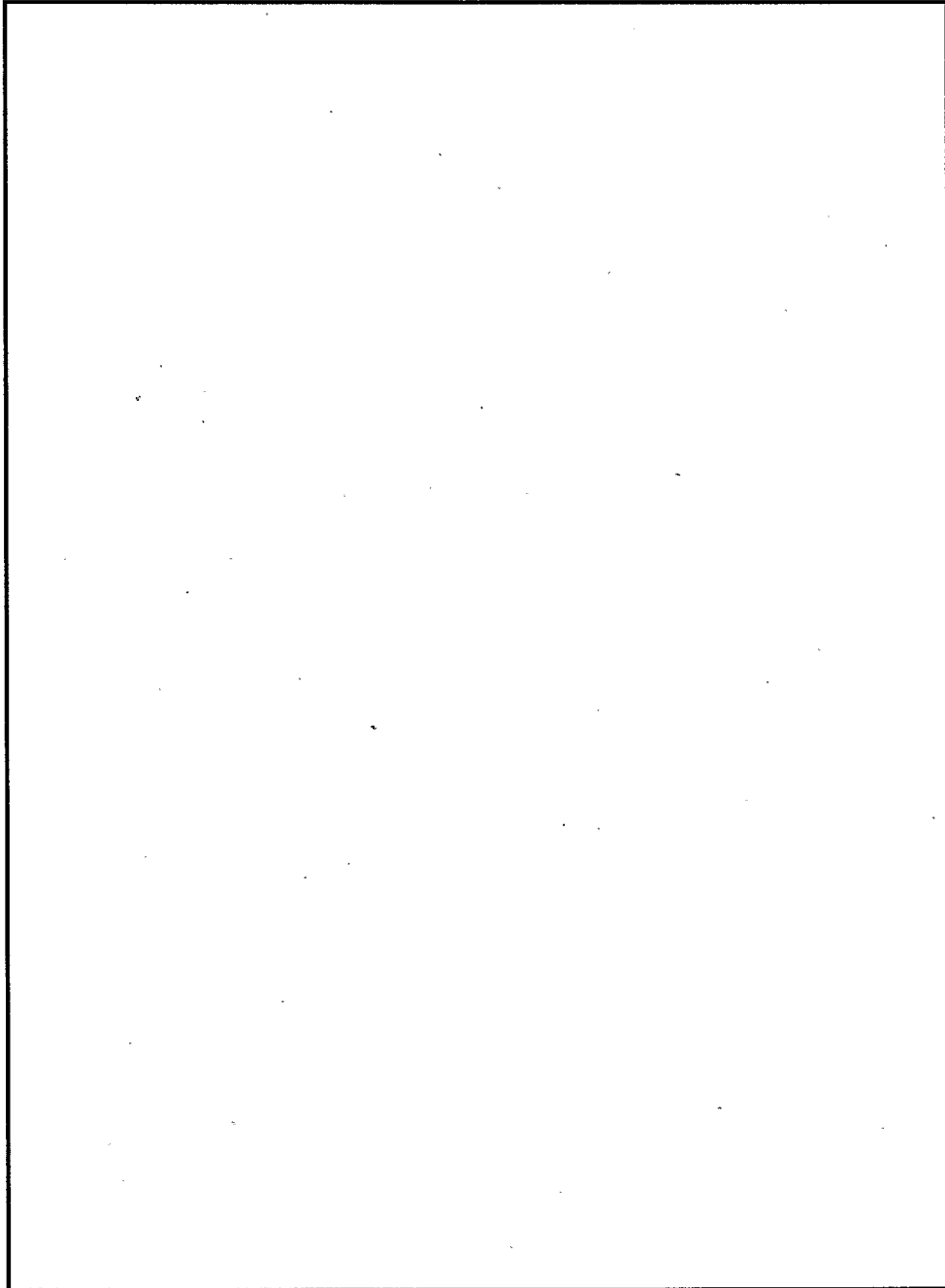
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### The Airborne System

USAFSS remained the biggest user of airborne collection platforms. Called the Airborne Communications Reconnaissance Program (ACRP), the program then consisted of a fleet of [ ] RC-130s [ ]

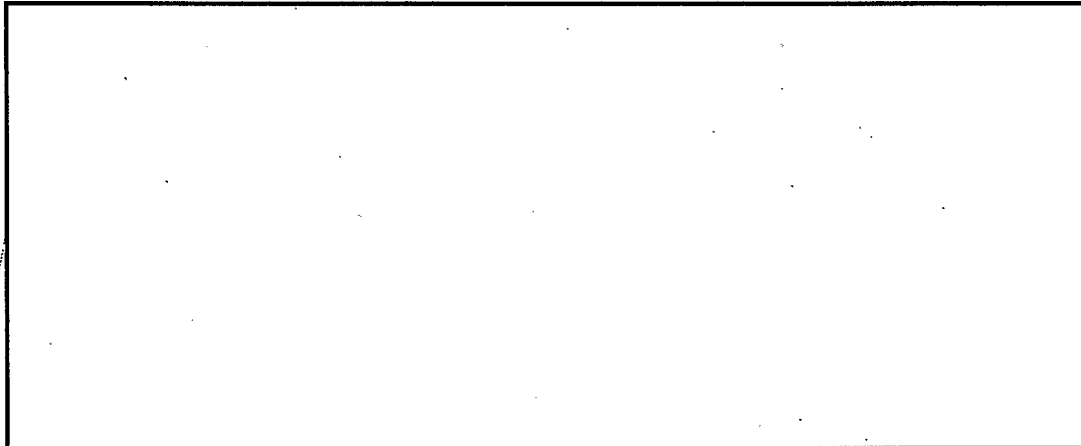
In the late 1950s Security Service began working on a new program that would bring the RC-135 airframe into the ACRP program. It was developed from the KC-135 tanker used throughout SAC. Owing to the fuel capacity, the aircraft could routinely fly in excess of sixteen hours (the RC-130 was generally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

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

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.<sup>38</sup>

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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.<sup>41</sup>

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.<sup>42</sup>

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.<sup>43</sup>

The shootdowns dropped to almost zero - the only notable exception was the 1969 shootdown of a Navy [redacted] 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.

[ ] was the beginning. NSA had no collection in [ ] 1956, and, land-based sites being so difficult to acquire, it requested that NSG look into the possibility of building a floating collection site [ ]. 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.<sup>44</sup>

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 [ ]. Not much was happening [ ] at the time, so the *Oxford's* first cruise was set for [ ] later in the year. Instead, in November it was diverted to the [ ]. Already, the TRS program, only one ship large, was showing how flexible it could be.<sup>45</sup>

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* [ ]

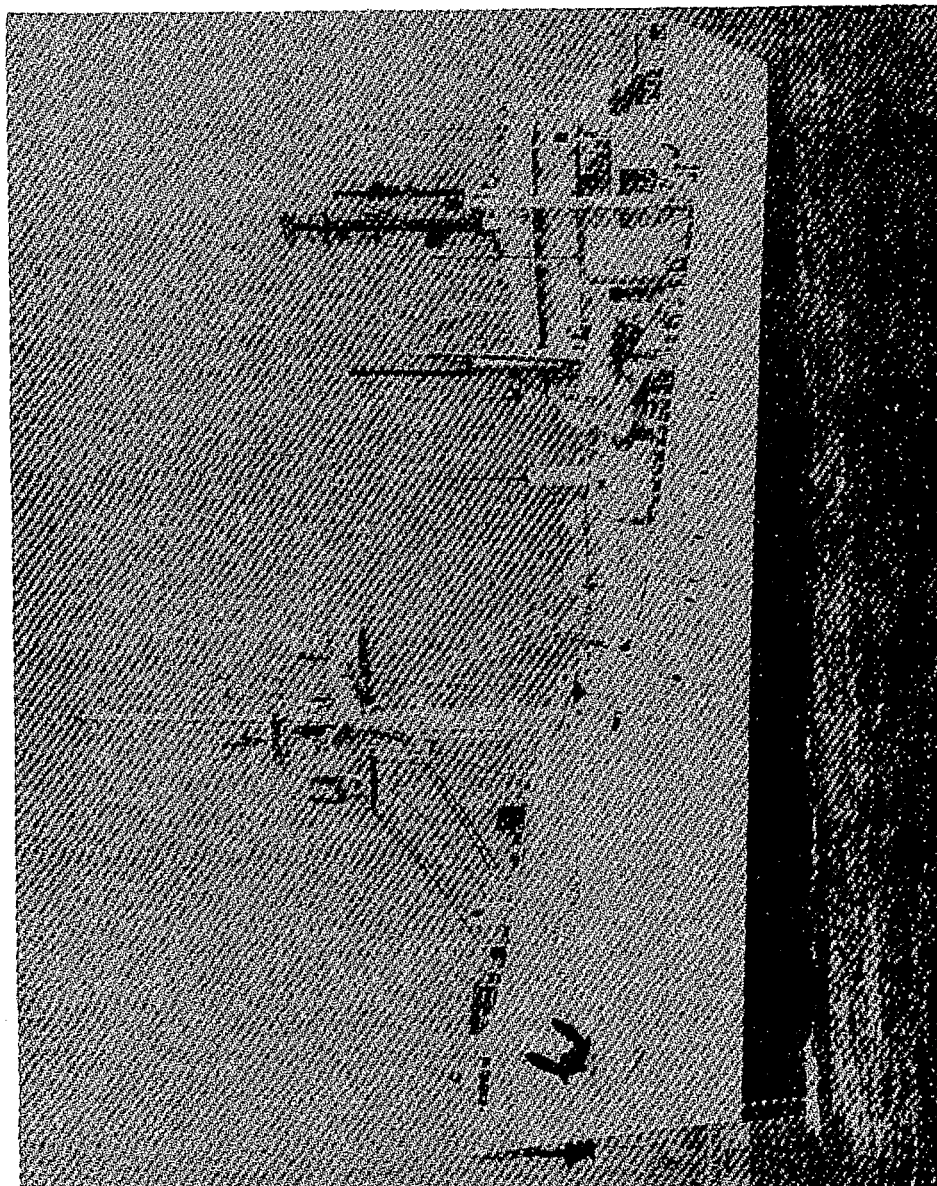
There developed from this decision two sorts of TRSs. The first, of the *Oxford* class, was a wholly Navy owned and manned ship, larger and faster by a few knots. The second, owned by the MSTS, was a coastal type vessel with a civilian crew to go along with the NSG people in the SIGINT compartment. The 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*.<sup>47</sup>

As for intercept positions, the ships did not vary much. The *Oxford* class typically carried, when fully outfitted [ ] while the *Valdez* class had [ ]. Where they differed was in speed and general seaworthiness. Clearly, the *Valdez* class represented a less capable, but cheaper, option.<sup>48</sup>

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USNS 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]. [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.<sup>49</sup>

## 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:

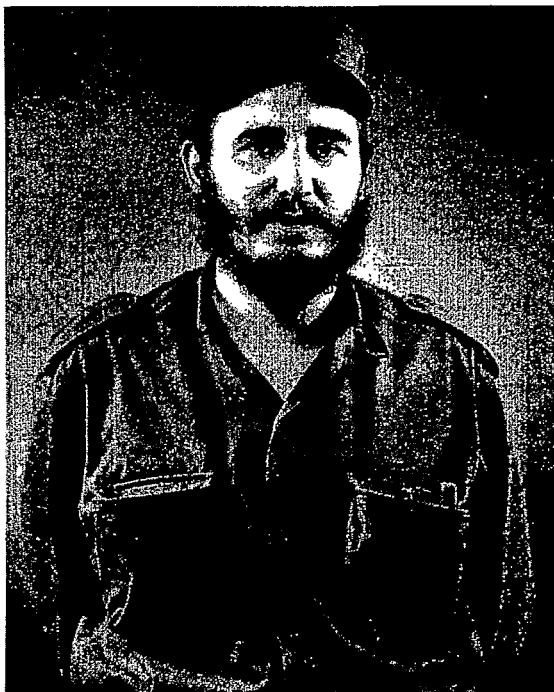
1. It was very definitely not precipitated by SIGINT warning. It was, and always has been, regarded as a crisis initiated by photographic intelligence, and there is nothing in the historical record to alter this statement. It marked the most significant failure of SIGINT to warn national leaders since 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

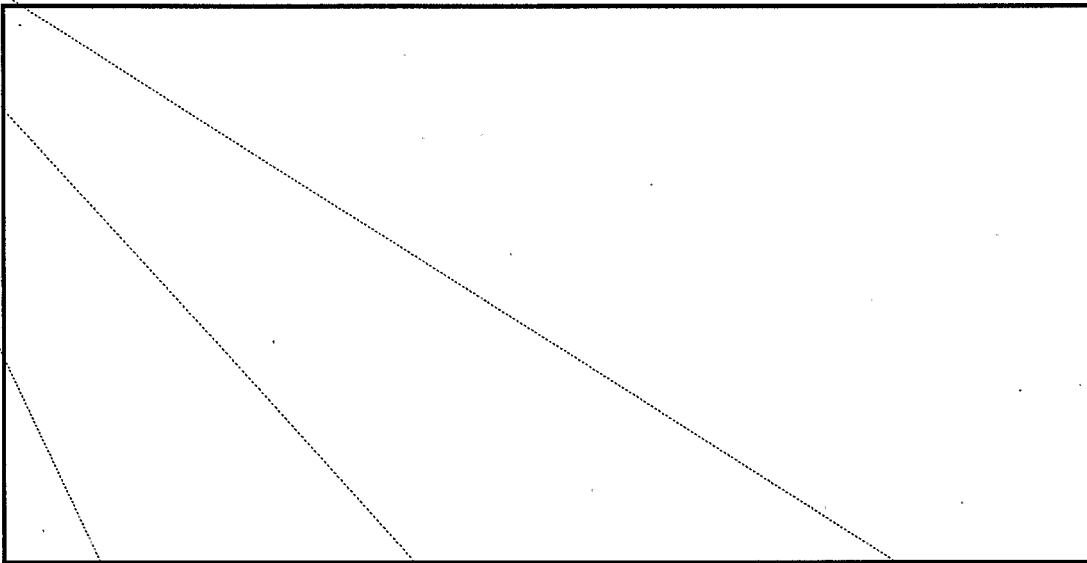
#### The SIGINT Effort

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.<sup>50</sup>

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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.<sup>54</sup>

### 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, [redacted]

[redacted] and the Watch Committee assessment had stated that this might be the first step in a plan to close the border.<sup>55</sup> McCone could come up with no other predictive information; the Berlin Wall was still regarded as an intelligence failure, despite the existence of [redacted]

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.<sup>56</sup>

### 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.<sup>57</sup>

NSA's initial plan was forwarded to McNamara in November. It included manning additional positions [redacted] 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.

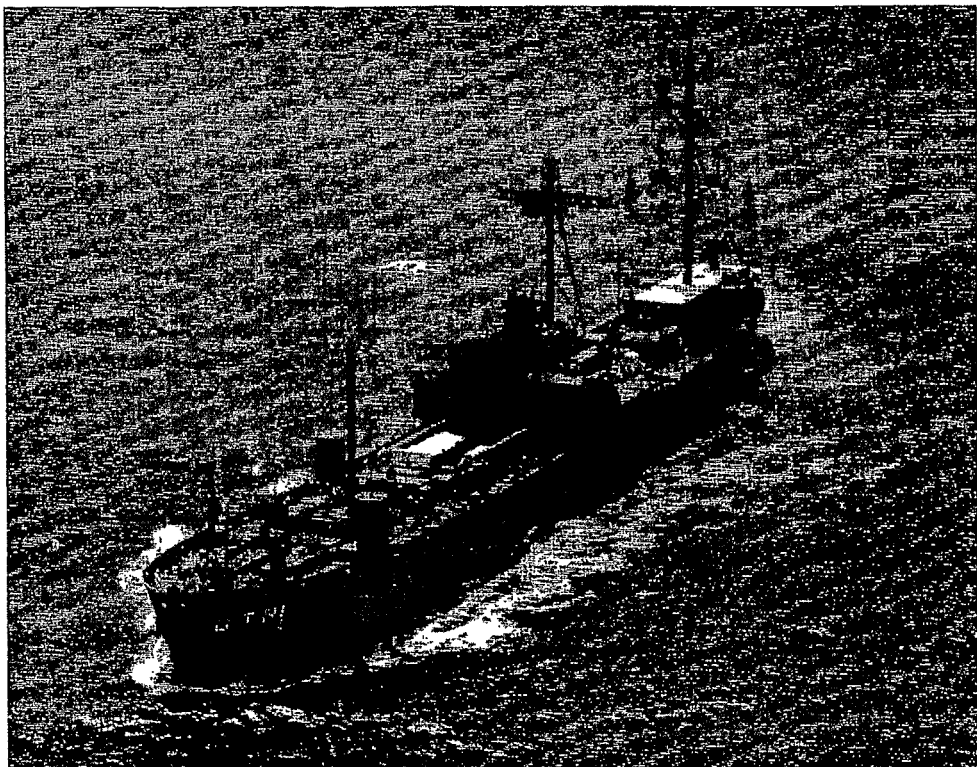
Given the go-ahead, NSA assembled cryptologic resources with remarkable speed. The most significant addition was the *Oxford*. This first TRS had been launched in 1961, and the early plans were for an African coastal cruise. But NSA diverted the vessel to [redacted] Cuba. [redacted]

The *Oxford* conducted a [redacted] off the coast of Cuba in December 1961, and it soon began forwarding [redacted] intercept to NSA.<sup>58</sup>

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*The Oxford*

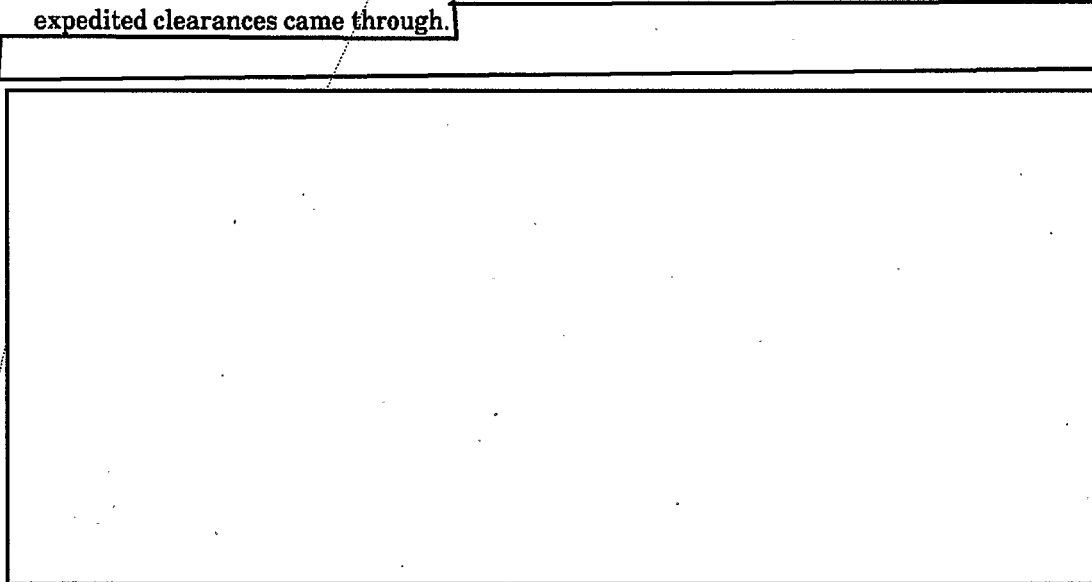
The first T-ESB, the *Oxford*, "won its spurs" during the Cuban Missile Crisis.

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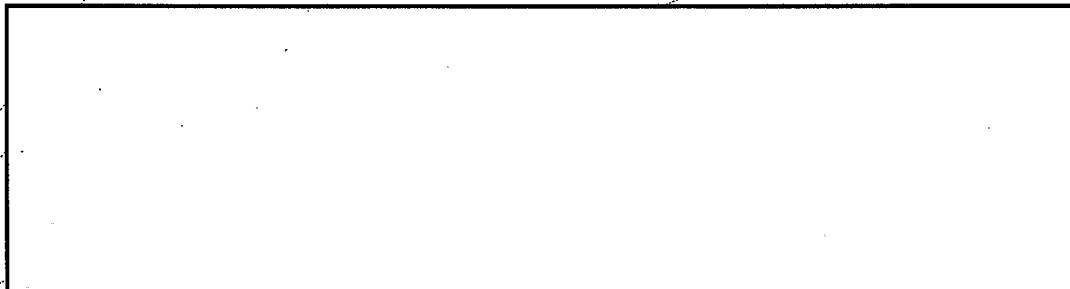
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The linguist project, called [ ] (because it occupied quarters in the old Fort Meade Post hospital) employed native Spanish speakers in a semicleared status until their expedited clearances came through. [ ]



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 [ ] analysts in April 1961 to [ ] people in October 1962.<sup>61</sup>



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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. [REDACTED]

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.<sup>63</sup> The U.S. government was kept fully informed of these developments through intelligence sources.

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. [REDACTED]

[REDACTED] It came as no surprise, then, that photography began showing various MIG fighters and IL-28 bombers in Cuba in mid-1962.<sup>64</sup>

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]

[REDACTED] Just a month later NSA reported intercept [REDACTED] in Cuba, definitely indicating the presence of MIG fighters on the island. Soviet controllers were being heard on [REDACTED] frequencies in heavily accented Spanish, instructing Cuban pilots and controllers in operational procedures.<sup>65</sup>

The Soviets became progressively more active, both in numbers and in degree of control over the Cuban air defense system. USAFSS [REDACTED] 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.<sup>66</sup>

[REDACTED] 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.<sup>67</sup>

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### The Crisis

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.<sup>68</sup>

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.<sup>69</sup> 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.<sup>70</sup>

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 Banes. 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.)<sup>71</sup>

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.<sup>72</sup>

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.<sup>73</sup> 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.<sup>74</sup>

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."<sup>75</sup>

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."<sup>76</sup>

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.<sup>77</sup>

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 [ ]<sup>78</sup> 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 SIGINTers [ ] as soon as possible and that the shipment of new equipments to the existing SCA intercept sites [ ] be speeded up.<sup>79</sup>

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.<sup>80</sup>

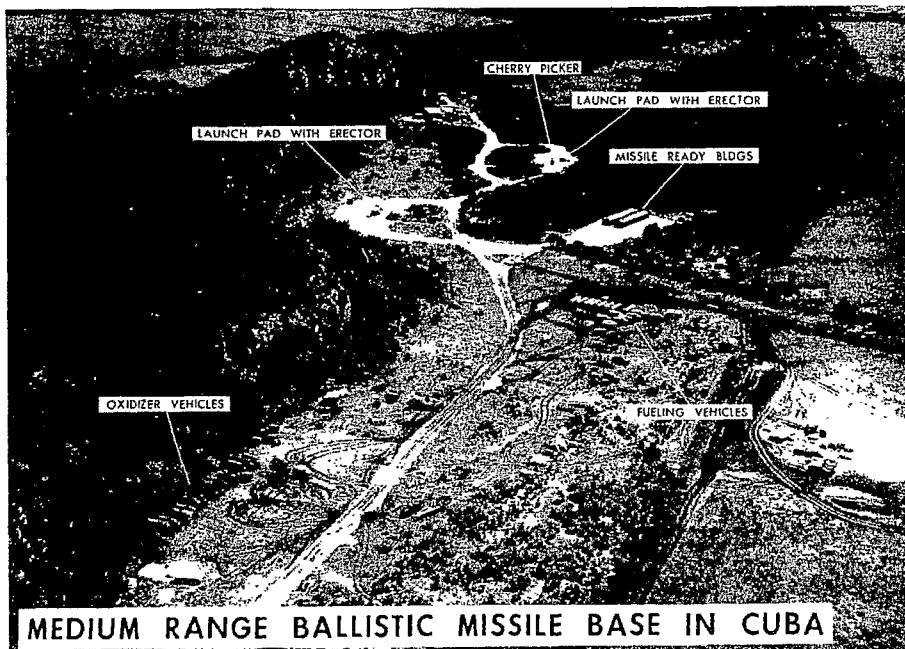
The Soviets and Cubans had their own separate communications systems on the island. As the Soviets set up military operations (SAM sites, naval surface missile batteries, air defense networks, etc.), they maintained separate communications, supplying to NSA strong evidence that they were not integrated 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.<sup>81</sup>

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. [ ]

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MRBM site, Cuba

CIA photos like this one convinced the president to act.

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[REDACTED]

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.) [REDACTED]

[REDACTED]

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 [REDACTED] 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. [REDACTED]

[REDACTED]

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.<sup>84</sup>

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.<sup>85</sup> The shootdown of Anderson was a wide departure from the caution the Soviets had so far shown. Was it a major escalation?

The shootdown 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

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 [ ] 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 [ ]

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.<sup>87</sup>

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.<sup>88</sup>

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 shootdown, 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.<sup>89</sup> The shootdown 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.

[REDACTED]

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. [REDACTED]

[REDACTED] 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.)<sup>91</sup>

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.<sup>92</sup>

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). [REDACTED]

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

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.<sup>94</sup>

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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.<sup>95</sup>

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.<sup>96</sup>

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.<sup>97</sup>

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*.<sup>98</sup>

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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.<sup>1</sup>

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.<sup>2</sup>

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.<sup>3</sup>

### 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.<sup>4</sup>

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.<sup>5</sup> 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.<sup>6</sup>

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.<sup>7</sup>

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.<sup>8</sup>

#### 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



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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.<sup>9</sup>

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.<sup>10</sup>

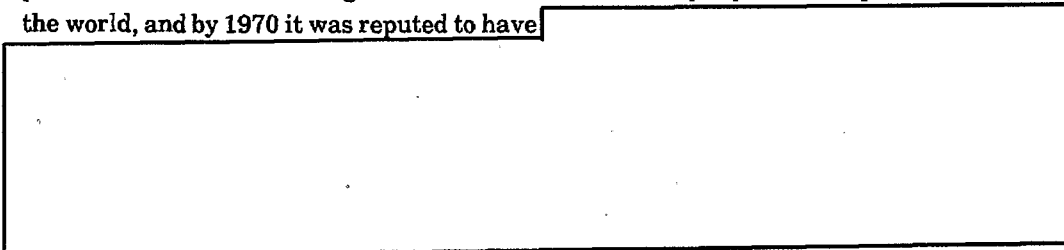
#### NSA's Community Relationships

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.<sup>11</sup> 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.<sup>13</sup>

OGA

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.<sup>14</sup>

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.<sup>15</sup>

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.<sup>16</sup>

#### 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*.<sup>17</sup>

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.<sup>18</sup>

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

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.<sup>20</sup>

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.<sup>21</sup>

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.<sup>22</sup> No wonder NSA directors were so ambivalent about the task which NSA had shouldered for ten years running.

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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.

[REDACTED]

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, [REDACTED] and the Washington-area organizations.

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

[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.<sup>23</sup>

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.<sup>24</sup>

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.<sup>25</sup>

At its creation in 1964, DEFSMAC had [ ] 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.<sup>26</sup>

#### 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 [ ] 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.



Charles Tevis

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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.<sup>27</sup>

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 [ ]

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.<sup>28</sup>

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.<sup>29</sup>

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.<sup>30</sup>

### 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, [ ] and so NSA turned its attention to the [ ] theater. Studies in that year turned up quite a complex of centers [ ]

The Air Force had centralized SIGINT processing [ ] which by 1964 had become a complex of over [ ] people, IBM 1401 processors, and Opscomm connectivity [ ] [ ] 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 [ ] an absolutely irreplaceable asset.

The Army operation [ ] had a very different focus. Its COMINT Processing Center (CPC) concentrated on preliminary processing of the increasing volumes of [ ] [ ] ASA refused to join [ ] and it maintained its own development effort in [ ]

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

The interim [redacted] architecture would close [redacted] and create two separate but closely related organizations [redacted] The first, [redacted] would take over theater processing operations [redacted] The second, called [redacted] would take over the timely reporting functions then exercised at [redacted] 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 [redacted] to Fort Meade [redacted] was clearly a way station on a much longer journey.<sup>34</sup>

The plan to close theater functions also included [redacted] NSA decided to establish a worldwide printer steering group at Fort Meade. Called the COC (Collection Operations Center), it functioned much like [redacted] 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.<sup>35</sup>

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 [redacted] were doomed.<sup>36</sup>

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 [redacted]. 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 [redacted] which would retain some of [redacted] reporting functions. The [redacted] would be an emasculated [redacted] retaining substantial authority for coordinating timely reporting on U.S. reconnaissance flights, but without the reporting or collection management authority that [redacted] had exercised. A3 would pick up some [redacted] billets in order to mount the required reporting effort.<sup>37</sup>

### 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 [redacted] reports from [redacted] 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 [redacted] 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 [redacted] had. Deeley wanted a new name for the tip-off reports, and he came up with the name KLIEGLIGHT, 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 KLIEGLIGHT database and routed reports throughout CSOC, was written for the Univac computer.<sup>38</sup> A8 was established officially in June of 1967.

CSOC guaranteed that [redacted] would die. It was put into operation a year prior to [redacted] and by the time [redacted] was ready to assume [redacted] reporting responsibilities, CSOC had already proved it could do them. Real authority thus bypassed [redacted] 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, [ ] and others began looking at activity level indicators from various areas of the [ ] problem.

Just as [ ] was in its death throes, [ ] 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 [ ]. 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 [ ]. Originally he used the same software package in use [ ]. As long as the DLT-5 was operating, [ ] was superfluous. NSA had succeeded in duplicating the field processing center.<sup>39</sup>

#### 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."<sup>40</sup>

Following the Bay of Pigs incident, Kennedy decided to put some teeth into the Situation Room [ ]. 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.<sup>41</sup>

OGA

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.<sup>42</sup>

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.<sup>43</sup>

Things began changing under President Johnson. In late 1965, [redacted] began meeting with Deputy Director Louis Tordella and Chief of Policy John Connelly, 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.<sup>44</sup>

OGA

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 couriered to the White House.) Late in the year, Tordella appointed Edward Fitzgerald as the first NSA liaison officer to the White House.<sup>45</sup> 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]

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.<sup>46</sup>

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. . . ." <sup>47</sup> 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.<sup>48</sup>

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.<sup>49</sup>

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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Having an avid SIGINT consumer in the White House had its drawbacks. David McManis, who replaced Edward Fitzgerald as the NSA representative to the Sit Room, remembers having to explain the nuances of SIGINT reporting to White House staffers all up and down the line. During the height of the war in Vietnam, the National Security Council staff wanted an accurate count of North Vietnamese infiltration into the South, and they buried McManis under a snowstorm of questions about infiltration groups appearing in SIGINT (the only high-validity source on infiltration). To some, he had to explain that there was no turnstile for infiltration groups heading south, but this just got into SIGINT intricacies that the questioners were not prepared to handle. McManis summoned battalions of NSA briefers to the White House to explain trail group accountability in SIGINT.<sup>51</sup>



David McManis

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The White House insistence on raw, unevaluated SIGINT created other problems. Johnson wanted to be kept in touch with every crisis, and he once told [redacted] that he wanted to be called on every Critic, not realizing how many there were. SIGINT Critics on [redacted] were fairly commonplace, and [redacted] wisely decided not to call the president on them, lacking other indicators.

OGA

Most of the SIGINT reports flooding into the Situation Room were relatively low-level reports and translations, with very little analysis and even fewer assessments. Assessing things was still not NSA's job. This situation kept the volume of reports up, but there was little analytic glue to fit the disparate pieces together. It was critical that someone be available to interpret and assess the SIGINT. Thus McManis found himself spending long hours in the White House. Moreover, NSA began contributing other Situation Room staff members on a permanent basis, the better to minimize the misuse of SIGINT. (The arrangement continues to this day.)

Very few people outside NSA liked the new, elevated status that SIGINT was getting. But it was a logical progression of events. Presidents wanted to know, and to know

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quickly. They tended to be impatient with bureaucracy, and when they found a spigot of critical warning information, they turned it on, no matter whose feelings got bruised. When Nixon entered the White House, his Situation Room chief was an NSA official, and a major portion of the inputs to the White House was coming from the SIGINT system. Whatever anyone else in government might think of SIGINT, the White House was known to view it as the fastest and the most unimpeachable source. Through this reputation, the position of NSA grew, until it was virtually coequal with CIA and had far exceeded the other intelligence assets of the Defense Department.

### Carter Takes Command

Gordon Blake retired in 1965. He was replaced by Marshall Sylvester Carter, the deputy director of CIA, on 1 June 1965. Carter, a crusty Army general in the mold of Ralph Canine, presided over the stormiest period of NSA's history.

"Pat" Carter (the name he went by was bequeathed him by a Japanese maid when the Carter family lived in Hawaii) was from a military family, his father rising to the rank of brigadier general. As a result, his growing up was itinerant, and he set his sights on a military career very early. He took a traditional path up the chain, graduating from West Point in 1931 and going into the artillery branch (specializing in defensive artillery). During World War II Carter caught General Marshall's eye, and from then on he was a George Marshall protégé, serving Marshall in various executive capacities when he was chairman of the JCS, representing Truman in China, and secretary of state. After Marshall retired, Carter held a variety of positions in combat units and also served a tour as chief of staff of NORAD.



Marshall S. "Pat" Carter

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In his NORAD job he had a fairly detailed involvement with various intelligence sources, including SIGINT, but had never had a job directly in intelligence until 1962, when President Kennedy nominated him to become deputy DCI. Carter came upon the position in the wake of the Bay of Pigs fiasco. There had been quite a shakeup at CIA, and one of those to lose his job was Air Force general C. P. Cabell, the deputy director. Carter survived his trial by fire, the Cuban Missile Crisis, in good shape, and was generally regarded to have had a successful tour at CIA.

He provided a human face to the Directorate, which was headed by the austere and remote John McCone. He became known as an inveterate prankster and became popular with the work force while handling day-to-day business for McCone, whose ties were to the Kennedy family rather than to the bureaucracy. One "Pat Carter story" that CIA employees loved to tell was about the door between McCone's office and Carter's. McCone was not close to anyone at CIA, and, as if to make the point, one day he had the door between his office and Carter's walled over. Carter placed a false hand at the edge of the new wall, as if a door had shut on it, and enjoyed a good laugh at McCone's expense.<sup>52</sup> John McCone was apparently not even aware of the hand.

Marshall Carter became DIRNSA almost by accident. When McCone left CIA in 1965, President Johnson appointed Admiral Raborn to replace him. By law, CIA could not be headed by two military officers, so Carter was out of a job. He put his problem to General Johnson, the Army chief of staff. A few days later he got a call from the deputy secretary of defense, Cyrus Vance. Gordon Blake had decided to retire, and Vance wanted to know if Carter wanted the job. It took him only a few seconds to make the decision. He had been a deputy or chief of staff virtually his entire career - as DIRNSA, he would finally run his own show.<sup>53</sup>

Carter knew a lot about NSA and had a high regard for the Agency. But he felt that NSA needed to be more forceful about its conclusions, more aggressive about carving out a place for itself at the intelligence table. He made it his business to make NSA more aggressive. The days of reticence and retirement under Samford, Frost, and Blake were over. Carter fell on a startled national defense community like a bobcat on the back of a moose.

He began with a symbolic assertion of NSA's independence. He directed that the NSA seal, which had its Defense Department affiliation prominently displayed, be changed to a new seal which referred only to the United States of America. Carter seriously considered the possibility of requesting that NSA be removed from the Defense Department and set up as an independent executive agency along the lines of CIA. He often referred to the fact that NSA was for him, as it had been for all previous directors, a final stop in a long military career. He was not up for promotion, and he did not care whose toes he stepped on.<sup>54</sup>

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Even when he was deputy DCI, Carter did not get along with Eugene Fubini. He made his acceptance of the NSA job conditional on an assertion from Vance (which he got) that he would report directly to Vance, rather than through Fubini at DDR&E. He did not hide his disdain for the brilliant and opinionated Fubini, once calling him "a radar technician beyond his competence." But since DDR&E continued to exercise a major influence over NSA's programs, it did not matter much whether Fubini was in Carter's direct line of supervision or not. The two battled almost daily until Carter's retirement in 1969, to the ultimate detriment of NSA's programs.

Carter's abysmal relationship with Fubini and the OSD staff was more than matched by his almost disastrous relations with the armed services. The assertive Carter was ever on the lookout for service encroachments on NSA's prerogatives, and he found them daily. The military were, he felt, constantly building up their intelligence staffs, adding more analytic capability than they needed, especially in the SIGINT field, and doing more interpretation of NSA's information than they were qualified to do (especially at DIA). He felt that they were engaged in a continuing effort to redefine SIGINT as "electronic warfare," the better to take it out of codeword channels and build up their own tactical SIGINT capabilities outside of DIRNSA control.

The services, for their part, complained about perceived lack of NSA response to their needs in Vietnam. SIGINT was too compartmented, NSA refused to clear field commanders for the information they so badly needed, NSA was overprotective of its resources and too quick to fence off new capabilities under codewords and compartments. A battle royal erupted during Carter's regime over the handling of SIGINT and the provision of SIGINT support in Southeast Asia. It poisoned the atmosphere and led to a confrontational relationship between NSA and the military it was sworn to support. When Carter retired in 1969, NSA's relationship with the JCS was at an all-time low. Successive directors were so instructed by the experience that they never allowed relations to return to that level.<sup>55</sup>

To the SIGINT community, however, Carter was a champion. Like Canine, he elevated the status and pay scale of the work force, obtaining more supergrade billets and a generally higher average grade. Displaying his vaunted independence of action, he went directly to Senator Sam Ervin to get the billets and to make sure that the new billet allocation was designated specifically for NSA so that OSD could not co-opt some of them (as he suspected Deputy Secretary of Defense Cyrus Vance of planning). After years of struggle at the OSD level, NSA under Carter got the authorization to begin a career cryptologic service, separate and apart from the systems of any other agency.

At the same time, Carter began the civilian intern program, starting with a small number of recent college graduates entering the NSA work force. In 1969 he extended it to the on-board population. He fended off proposals that NSA's cryptologic work force join a DIA-sponsored intelligence community career development program, carrying with it the

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clear implication that there should be transferability between the general intelligence field and cryptology.<sup>56</sup>

Internally, Carter wanted a strong central staff, and he created an executive secretariat to manage his staff and its activities. This reflected his Army background and his experience as staff chief for General Marshall. He strengthened the training school by upgrading its staff to assistant directorship and calling it the National Cryptologic School. Frank Rowlett was its first chief, thus bestowing a status and prestige which it had never had before. Carter was an Anglophile, and he worked hard to maintain the strong ties with GCHQ that had developed over the years.<sup>57</sup>

Under Carter the centralization of SIGINT moved quickly ahead. A Group implemented Plan B and closed the theater processing centers. [redacted] opened only in 1961, was made in 1965. [redacted] was a victim of improved communications programs, especially the move to [redacted] under the AG-22/STRAWHAT program (see p. 366). At first, arrangements were made for the AG-22 traffic to be routed through [redacted] where data of interest were stripped off for computer processing. But like [redacted] could do nothing that could not be done at Fort Meade, and the center at [redacted] was doomed. As in [redacted] the theater military commanders fought the closure of [redacted] energetically, but to no avail.<sup>58</sup>

It was also during Carter's tenure that AFSCC was finally closed. Though closure plans originated as early as the AFSA period, AFSCC was even stronger and more important when Carter arrived than when Canine became the director. But Carter signed a new closure plan in 1967 and made it stick. NSA had begun quietly transferring functions from AFSCC to Fort Meade in 1966, and after the closure plan this accelerated. First to go was the [redacted] followed by larger efforts like the [redacted] [redacted] AFSCC officially went out of the COMINT processing business on 30 June 1969. [redacted] were transferred to NSA [redacted] were eliminated, and [redacted] remained in San Antonio, where they merged into a new organization called Air Force Electronics Warfare Center, which analyzed the effectiveness of military-wide electronics warfare efforts, based primarily on SIGINT inputs.<sup>59</sup>

NSA would have closed AFSCC earlier if space could have been found, but the Agency was always chronically short of space. The dedication of the new nine-story headquarters building in 1963 just barely caught up with an expanding population, and there was still no room for the Center. The key event was the lease of the Friendship (FANX) complex (see p. 294). NSA moved into the first building, FANX I, in the fall of 1967, and as new buildings were completed, it occupied those also until by the fall of 1970 the Agency was the tenant in FANX I, II, and III. (NSA was the first and only resident of all the FANX and Airport Square buildings that it leased except for FANX I, whose lease has been given up.) It was not cheap - Carter once stated for the record that for four years worth of rent,

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NSA could have built its own buildings. But military construction money was carefully controlled by Congress.<sup>60</sup>

## MECHANIZATION OF THE SIGINT PROCESS

You people are doing a tremendous job producing history. You are not producing intelligence.

Juanita Moody to the B1 work force, 1961

SIGINT had a reputation for being laborious and expensive. Intercept operations tended to be labor-intensive, while processing was equipment-intensive. Of all Department of Defense organizations, the SCAs were the most far-flung, draining the federal government of foreign currency in the attempt to maintain small sites in remote areas difficult and expensive to supply. Robert McNamara had a war to fight, and he exerted intense pressure on the SIGINT system to economize. This manifested itself in pressure to reduce the number of people involved in the system front end, both through field site mechanization, and through the transfer of operations back to the Continental United States.

Along with the economic pressures came demands to speed up the system. Eisenhower's concerns over war warning information, far from disappearing after his administration ended, intensified under Kennedy. The Bay of Pigs and Cuban Missile Crisis instilled a sense of hurry-up.

The twin demands of economy and speed pushed the cryptologic community into a thorough remodeling of SIGINT. The result was the fashioning of a new system, drastically different from the one which had emerged from World War II and had stood relatively intact through the 1950s.

It had been the dream of cryptologists for years to modernize and automate manual Morse intercept, the largest part of the front end. A first try at it was during World War II, when OP-20-G attempted to produce a punched paper tape from a manual typewriter, thus readying the intercept for introduction into a follow-on processor without further manipulation. The results of the experiment are lost. It was the last attempt at that sort of thing for at least ten years.<sup>61</sup>

In 1957 NSA began toying with the idea of copying Morse on a special typewriter that would do more than just copy alphanumeric characters. The Agency modified a Remington-Rand Synchro-tape typewriter by adding special keys at the top of the keyboard that designated tags, indicating such things as callsigns and frequencies. The project was called SPIT (Special Intercept Typewriter).<sup>62</sup>

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While technicians modernized the intercept operation, NSA began looking at processing techniques. Since the dawn of America's SIGINT system, intercept sites had forwarded raw traffic to Washington for processing. While raw traffic went by courier and took weeks to arrive, traffic extracts, often called TECSUMS (technical summaries) were prepared at the field site from the raw traffic and were forwarded electrically so that Washington had at least a summary of significant intercepted material. Prior to the late 1950s the TECSUMS went by formal message, but with the advent of Opscomms, more and more TECSUMS were put on Opscomm circuits.

At the time, NSA technicians and analysts were engaged in a philosophical debate about mechanization. Should traffic be brought back in bulk to NSA, where machines could prepare it for computer processing, or should the mechanization occur in the field, closer to the front end of the process? In the end the front-enders won, and NSA began designing equipments that would mechanize the intercept operation.

[ ]

The experiment with the SPIT typewriter spawned a new project, called [ ] or the AFSAV 311D. The [ ] equipment consisted of a modified Remington-Rand typewriter similar to the SPIT model, with special keys referring to such traffic components as callsigns and to traffic externals like start-of-message, end-of-message, and case notation. These features would speed the intercept process by relieving the operator from having to type them in manually. But [ ] added a new feature similar to the World War II experiment - the output was both page copy and a seven-level paper tape. The beauty of this modification was that the tape could be transmitted just like an outgoing message, and it could be input to a computer at the other end, providing that it was compatible with both.<sup>63</sup>

[ ] quickly became the focus of the Joint Mechanization Group (JMG). This ad hoc committee was the brainchild of Frank Raven and Juanita Moody. Raven, one of the leading cryptanalysts to emerge from the Navy in 1945, was at the time chief of GENS, while Moody was a division chief within ADVA. They were intrigued by the possibility of automating the front end of the system and pushed [ ] as a possible answer. Moody named her deputy, Cecil Phillips, to head the JMG.<sup>64</sup> A field test performed at ASA's [ ] site in 1960 proved the intercept portion of the concept.

The next logical step would be to input intercepted traffic produced on an [ ] position into a computer and do some processing on it. Frank Pinkston, a USAFSS staff officer, heard about the [ ] machines, which at the time (1961) were lying idle, and asked if Security Service could run its own test. The Air Force liked the idea because it would facilitate the rapid transmission and processing of highly perishable air-related traffic. Pinkston designed a test in which [ ] positions would be located at the AFSS site [ ] would produce communications-formatted tapes, and would forward the

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**Frank Raven**



**Juanita Moody receiving the Distinguished Civilian Service Award from then-DCI George Bush in 1976. NSA director General Allen looks on.**

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tapes via Opscomm to [ ] where they would be fed into the IBM 1401, which would produce an automated TECSUM. The JMG got a Bogart programmer to design the software, and in September 1961 AFSS ran a successful test. (Bogart was one of NSA's RAM systems.)<sup>65</sup>

The project then languished, primarily because every field site would need a 1401. The 1401 was at the time part of AFSS's [ ] system, which was under intense fire from NSA because of its complexity and expense. But interest never vanished. ASA had embarked on its own project, called [ ] which was soon subsumed under the auspices of the JMG. Meanwhile [ ] proclaimed the concept revolutionary and proposed that it be broken down into component portions and implemented gradually. Rather than locate computers at each field site, [ ] proposed that traffic be forwarded to central locations. This concept would reduce the number of computers required (computers were still regarded as exotic and outlandishly expensive), but it would also overload the communications system. Thereby hung the dilemma.<sup>66</sup>

#### AG-22

While the policy people thrashed out the dilemma, the technical people continued working on improvements to the device. The Remington-Rand equipment was judged not sturdy enough and was replaced by a Teletype Model 35, extensively modified by the addition of the special tagging keys. The Agency named the device the AG-22 and changed the output to an eight-level tape. NSA also standardized the tagging and traffic formatting requirements into a new TECHINS (T-5004), so that Morse traffic intercepted anywhere would look just like any other Morse traffic. Computer formatting requirements were beginning to drive the SIGINT system.<sup>67</sup>

#### Changing the Communications System

The communications system that AG-22 tapes were preparing to assault had become creaky and outmoded, and it was incapable of handling the new requirements. [ ]

After the creation of Criticomm, NSA continued to try to develop a high-speed switch that would improve reliability and reduce handling time. At first, technical hurdles delayed adoption of a new switch. But in 1962 a new, bureaucratic obstacle appeared with the creation of the Defense Communications Agency (DCA). Such an agency was a logical outgrowth of McNamara's centralization strategy, but it confused the Criticomm situation. DCA took over the job of searching for a new switch, regardless of the feeling at NSA that this would slow the development process. There is little doubt that the project was further delayed by hard feelings between the two agencies.<sup>68</sup>

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AG-22 - Configured Morse Position at [REDACTED]  
(R-390 receivers are in the left-hand rack; MOD-35 in the center; and tape unit on the right)

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In the mid-1960s, DCA decided on a new satellite communications system called Defense Special Security Communications System (DSSCS), and it decreed that the new Criticomm switch would have to be compatible with the rest of the system. The fact that operators in general service (Genser) communications centers were not SI-cleared created more policy problems, and the search for a switch slipped further.

Then in 1964 the picture was further clouded when DIA got approval to manage the SSO system. Part of the package was the creation of a separate communications system for the distribution of COMINT, called Spintcomm. This introduced new bureaucratic conflicts over who would be the ultimate manager of the composite Criticomm/Spintcomm system, and the edict that established Spintcomm further confused the picture by assigning significant responsibilities to all three participating agencies (NSA, DIA, and DCA). Gordon Blake strongly protested DIA management of the system, but he was overruled at the OSD level. This set off new turf battles and further complicated the technical design of a switch that would have to handle all communications requirements.<sup>69</sup>

Meantime, more and more traffic flooded the system, largely because of the Vietnam War, and message throughput actually declined from year to year, while errors increased. To stave off disaster, NSA took various halfway measures. Much traffic was diverted to the expanding Opscomm systems, and Criticomm was reserved mainly for formal messages. The Agency also designed terminal equipment which would speed and improve handling of traffic within the Criticomm centers.

One such solution was the BIX (Binary Information Exchange), a high-speed local message switch which could operate at various speeds to handle traffic from many different inputs. NSA awarded the contract to ITT, which delivered the first BIX in 1961. The principal improvement was in data storage (the BIX used magnetic tape to store large amounts of data) and in improved throughput (BIX could handle 100,000 words per minute). As an automatic switch, however, it failed, and messages still had to be processed manually.<sup>70</sup>

At the same time, the COMSEC organization was working on crypto that would handle the new circuit speeds. The KG-13, which could encrypt circuits up to 2400 bauds per second (the speed of the DLT-5 from Frankfurt) went on line in 1965.<sup>71</sup>

#### STRAWHAT

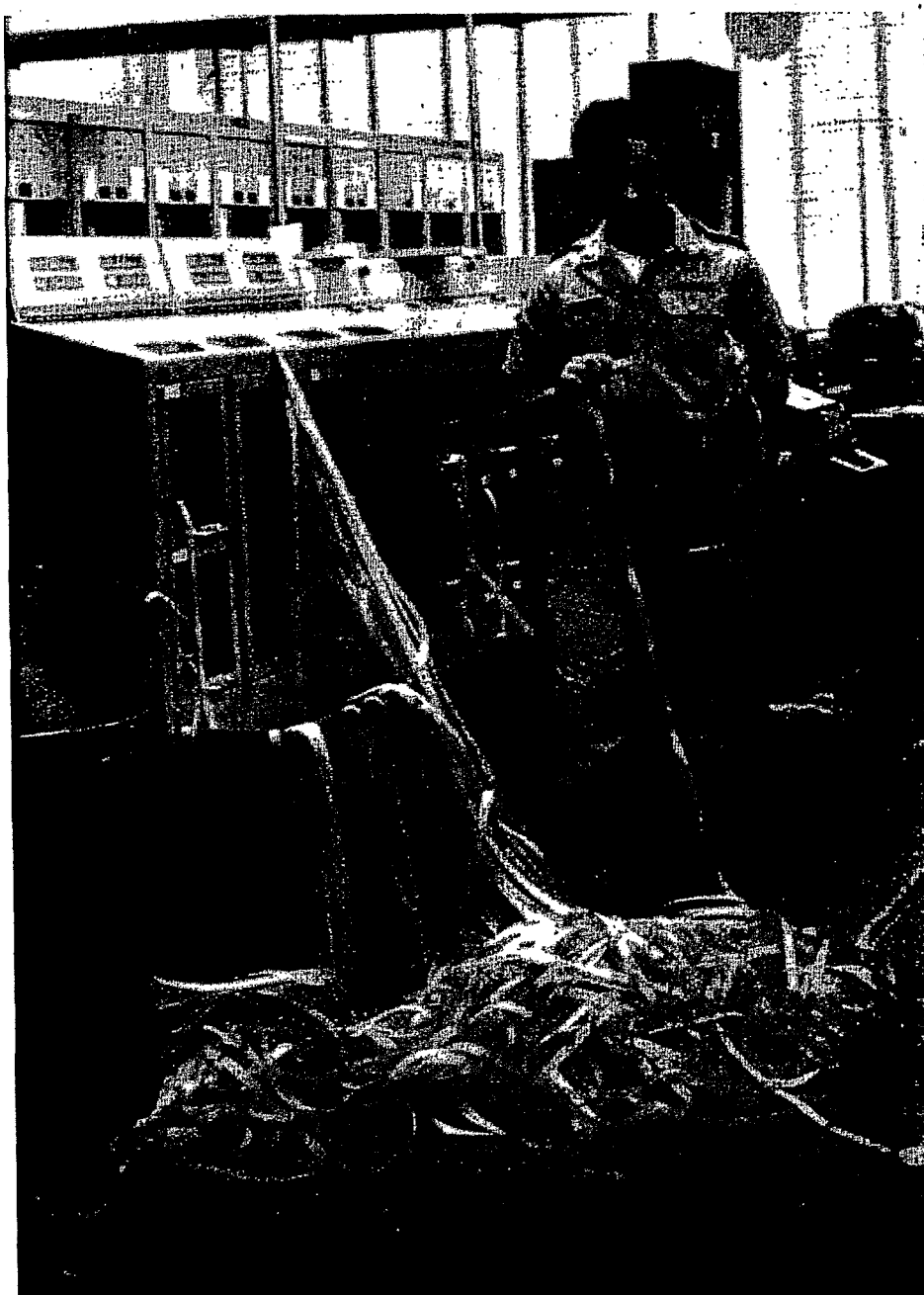
NSA planned to install AG-22s [redacted] but the Opscomm system would not be able to handle the volume. Originally designed for analyst-to-analyst conversations, Opscomms were, by the mid-1960s, becoming overloaded with new TECSUM and [redacted] forwarding requirements. They were slow of foot, either 60 or 100 words per minute, and barely able to handle current requirements. If AG-22

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**Comm Center, 1960s. Lacking a digital switch, Criticomm centers continued to be overwhelmed by five-level tape and manual processing.**

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data were diverted to Opscomm, it would expand the circuit requirements geometrically. Lacking a revamped Criticomm system, the solution lay in a separate, high-speed data system specifically for AG-22 formatted tapes. In 1967 NSA came up with the answer - the Agency called it STRAWHAT.

STRAWHAT was a 9600-baud data link system from field sites to processing centers. A time division multiplex system capable of up to eight-level forwarding, its equipment could be patched directly from the circuit terminal to a computer, bypassing the person in the communications center. The first circuit became operational in December 1968, and NSA planned to wire up more stations with STRAWHAT circuits beginning in 1969. By mid-1970, the entire SIGINT system would have at least an interim STRAWHAT capability.<sup>72</sup>

### The Computer Industry at NSA

By the mid-1960s mainframe computers had taken over much of the manual processing at NSA. Although the dual tracks of scientific versus general-purpose processors were continuing, increasingly the Agency was focusing on the latter. It had to do so in order to handle the TECSUM data flowing into Fort Meade via the burgeoning Opscomm network. At that time, the computer of choice for this operation was the IBM 7010, an advanced model of the IBM 1410. IBM machines almost totally dominated the general purpose processing job, and the collection of 7010s was simply called "the IBM complex."<sup>73</sup>

IBM was not the only company doing business with NSA. In 1963 the first mini-computer, the PDP-1, was delivered to the Agency. That, and its successor, the PDP-10, were used for a wide variety of special-purpose processing jobs. That same year, NSA purchased the Univac 490, which had a capability of handling thirty remote stations simultaneously. The stations were equipped with both paper tape and Teletype Model 35 input devices. The software, called RYE, was developed at NSA and was ideal for handling simultaneous inputs from the remote stations. It was made to order for processing from telecommunications terminals, and thus it fitted NSA's emerging needs for handling Tecsumized inputs from field sites, as well as a variety of other small-job applications.<sup>74</sup>

By 1963 NSA's computer collection was by far the largest in the country and probably the world. The value of its computers topped [redacted] which was greater than the Census Bureau, the Baltimore headquarters of the Social Security Administration, and all the field offices of the Internal Revenue Service put together. By 1968 General Carter could boast that NSA had over 100 computers occupying almost 5 acres of floor space.<sup>75</sup>

NSA continued to do pioneering work in partnership with the commercial computer industry. One such innovation was the so-called Josephson Junction technology. This was a very-low-temperature phenomenon in which "switching an electron tunneling junction between two states is accomplished by means of a magnetic field."<sup>76</sup> Discovered in the mid-1960s, the potential for speeding up computer processing was so attractive that NSA

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funded about one-third of the IBM research on the Josephson Junction technology. Unfortunately, it didn't work, and IBM ultimately gave up on the Josephson Junction. The project illustrated both the need for research in advanced technologies and the risks involved.

NSA also pioneered in techniques for mass storage. One such experiment was called TABLON, developed in concert with IBM and Ampex in the 1960s. Tablon used a photodigital process developed at IBM and a tape storage system developed by Ampex. The storage systems were internettted by means of two PDP-10s. The philosophy was to have a central data storage system that could be used by the entire agency. But TABLON had serious technical problems. Ampex was unable to develop a tape drive that met system specifications, and too much software was required to run the PDP-10-based star network. Ultimately TABLON was overtaken by new disk storage technology.<sup>77</sup>

NSA programmers were in the forefront of special computer language development. Agency programmers created special languages for HARVEST (called Beta), for the IBM 1401 (called PAL) and punched card emulation language (Transembler) for the IBM 705. Still, the Agency was losing its edge in pioneering work, as the commercial world forged ahead with new innovations that owed less and less to the inspirations that had stemmed from cryptologic applications. It was an inevitable process.<sup>78</sup>

## IATS

The new AG-22/STRAWHAT marriage, innovative though it was, had some problems that could only be called "logistical." A large field site, with row on row of manual Morse positions, could produce a considerable amount of eight-level tape in a day. The process of accounting for, and carting to the communications center, long coils of tape cascading off collection positions was time-consuming, and an analyst (who had now become a communications tape handler rather than a SIGINT analyst) could literally become buried in tape before the end of the shift.

In the mid-1960s K Group (the PROD organization responsible for interfacing NSA with the field sites) began working on a system for accepting manual Morse data directly onto a magnetic tape. After experimenting with several different computers, it settled on the Honeywell 316, which could accept data from 128 different sources simultaneously. (Thus, a field site would have to have more than 128 Morse positions before it required more than one 316.) Honeywell, which sold the 316 at a very competitive \$12,500, agreed to loan one to NSA, and a test was run at Vint Hill in Virginia. The test system worked, and the Agency, which called the new system IATS (Improved AG-22 Terminal System), got [redacted] in 1968 to install Honeywells at all AG-22 field sites. The AG-22 positions were wired to the on-site Honeywells, which packed the intercept files onto a magnetic tape. Periodically (usually every six hours) the tape was transmitted on a high-speed data link to NSA.<sup>79</sup>

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At this point NSA embarked on a major software development effort to handle the expected influx of IATS data. Cecil Phillips gave the job to John W. Saadi, who was a team chief in Phillips's C Group. Saadi, writing in assembly language, created a series of processes (called [redacted] resident on a Univac 494, which accepted the data from the communications system. The 494 built batch files and passed them to the IBM 360 through a shared disk arrangement. This was a ground-breaking task because IBM machines were notoriously difficult to interface with the machines of any other company.

The IBM 360, the first third-generation machine, was introduced at NSA in the late 1960s to replace the 7010s. [redacted]

[redacted] Each production organization wrote applications programs for the 360 complex, so that its data, handed to the 360s from [redacted] would be processed and ready for the analyst. The complex did its heaviest work at night, so that the output would be ready for the analysts in the morning.<sup>80</sup>

Now that raw intercept files were available on computer, each production element developed databases. Some of the work in this area, especially that done by A Group to create a relational database for the Soviet problem, was on the leading edge of technology.<sup>81</sup>

### The Communications Solutions

The impasse that had been created between NSA, DIA, and DCA lasted through the end of the Carter regime. By 1968 DCA had still failed to produce an adequate communications switch, and Carter felt that DCA failed to understand SIGINT (despite the fact that the director of DCA, Lieutenant General Richard Klocko, had been one of the founding fathers of the Air Force Security Service). But the next year brought a new director, Vice Admiral Noel Gayler, and a new approach to the logjam. Gayler moved quickly to iron out differences, and in August of 1969 he signed an agreement with Klocko covering management of the communications systems that supported SIGINT.

The agreement was a carefully crafted compromise. DCA would manage the entire system, based on technical specifications submitted by NSA. DCA could satisfy communications requirements using any type of circuitry, as long as NSA technical specifications were adhered to. The next month DCA cancelled the automatic switch contract with ITT. Shortly thereafter, OSD decided that the new DCA communications system, called Autodin, would be used for SIGINT traffic. This decision would result in NSA relinquishing a proprietary net that it had controlled since its birth. Some were not happy, but Gayler held to the compromise package, and an era of relative good feeling resulted between Gayler and Klocko.<sup>82</sup>

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Lacking a DCA automatic switch, NSA developed its own in-house version and hatched plans to use it in its own communications center at Fort Meade. The Agency decided to scrap the Teletypewriter Distributions System in use since the new building had opened in 1957 and replace it with a new communications center based on the new switches. It was to be called IDDF (Internal Data Distribution Facility), and it opened its doors in early 1972 on the third floor of the Ops-1 building. The year before, NSA introduced optical character readers in the message processing facility, an innovation which led to the elimination of the time-consuming step of teletype operators hand-poking every outgoing message. Called AMPS (Automatic Message Processing System), its rigid formatting requirements and special IBM Selectric typewriter balls were at first hard for secretaries to get used to, but a godsend to the communications center.<sup>83</sup>

### Automating the Collection Process

New methods of forwarding data to NSA did not change the basic process of signal collection. Most of an operator's time was still spent searching for target signals. But with the new digital technology and smaller on-site computers, it should theoretically be possible to acquire certain signals automatically. In the early 1960s, R&D began working on the development process. The early development work was done in 1963/1964 under a project called [REDACTED]

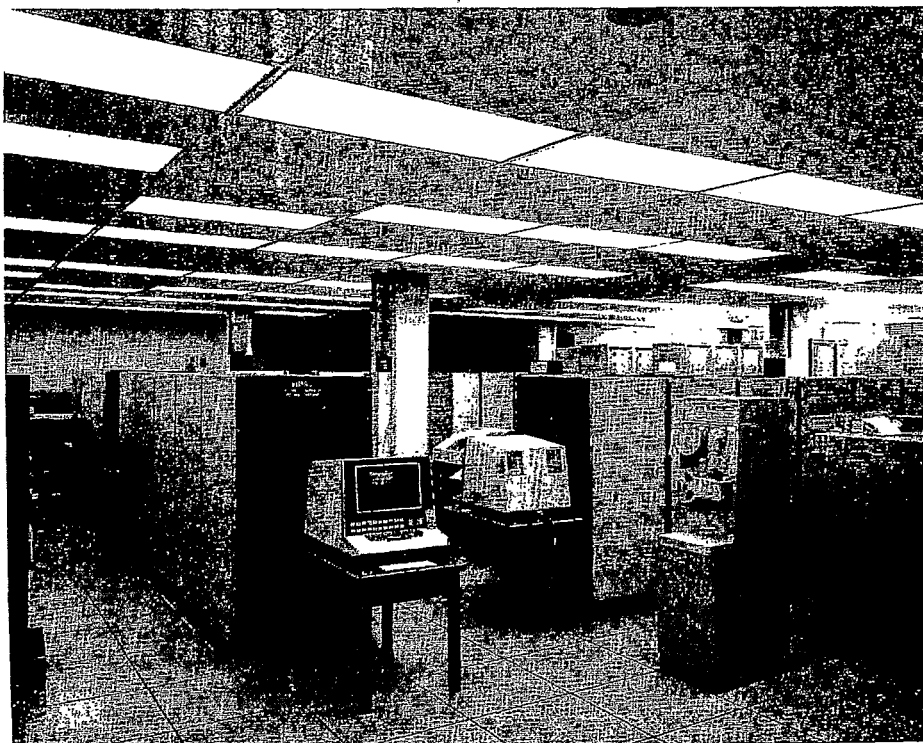
The production model of [REDACTED] It was a more sophisticated system, which had an automated digital front end connected to several back-end manual Morse collection positions. [REDACTED]

Digital computer-based collection systems eventually became the rule rather than the exception. Some, like the IRON HORSE system used in Vietnam (see p. 549), automated the collection of manual Morse signals. But Morse transmissions had a huge variety of formats, and the length of the mark or space varied depending on the sending operator. Computer-based collection was far more adaptable to baud-based signals. An early success in this area was [REDACTED]

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IDDF

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[ ] The on-site computer (a CP 818) [ ] demodulated the signal, then scanned the plaintext transmissions for key words. The system would alarm on recognition of high-interest text, and the operators would react with special processing and forwarding routines. It replaced the "ancient" CXOF equipment which had been the equipment of choice [ ] since the late 1940s.<sup>86</sup> [ ] with its stable frequencies, plain text, and banded structure, was especially suitable to automation, and NSA collection and processing systems for that effort became among the most automated in the business.

In the 1960s NSA automated the collection of a very wide variety of signals. [ ]

[ ] The Agency employed a bewildering variety of minicomputers for these specialized jobs, sometimes buying commercial computers from outfits such as Honeywell and DEC, sometimes building its own computers in-house.<sup>87</sup>

#### Banded Signals [ ]

In the late 1950s NSA was struggling to cope with the increasing use of banded systems for record traffic. The trend toward the banded world resulted partly from increasing traffic flow, which required faster circuit speeds that radioprinter made possible, it also had a corollary benefit of making [ ] possible. The field sites were collecting ever higher volumes of printer messages, most of which languished in NSA's warehouses on magnetic tape, waiting to be converted and processed. [ ]

[ ] By the early 1960s the volume of unprocessed magnetic tape was becoming difficult to manage technically and was embarrassing politically.

R&D's first approach was to build a general-purpose digitizer and diarizer for banded signals. Project [ ] which originated between 1956 and 1958, at first targetted the on-line [ ] was only part of the problem, and R&D, working with A Group, began working toward the on-line digitization and diarization of the entire banded signals problem. An ad hoc committee was established in 1959 to study the problem, and R&D began designing equipment to digitize printer signals onto magnetic tape at the collection position. [ ] consisted of a number of special-purpose components [ ] which were designed to digitize, diarize, and format onto magnetic tape. It resulted in two parallel avenues, [ ]

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While R&D experimented with general-purpose processors, DDO was becoming overwhelmed by magnetic tape. During July 1961 NSA received 17,000 reels of magnetic tape, all of which required signal conversion prior to processing. In fiscal year 1961 the Agency needed over [redacted] just to convert banded signals for further processing.<sup>90</sup>

To stem the tide, Operations initiated a QRC (Quick Reaction Capability) project called [redacted] which quickly changed its name to [redacted] and the various spin-offs of the [redacted] project were in full swing (and in direct competition with each other) when, in 1962, DDO initiated a crash requirement [redacted] to collect the burgeoning [redacted] signals. The urgency of the requirement vaulted it ahead of everything else. The new project, [redacted] would eventually result in the conversion of [redacted] to a standard position. The new positions would intercept, digitize, and record [redacted]. Everything would be processed at NSA in a standard format, thus simplifying the job of the processing organization and the task of designing processors.<sup>91</sup>

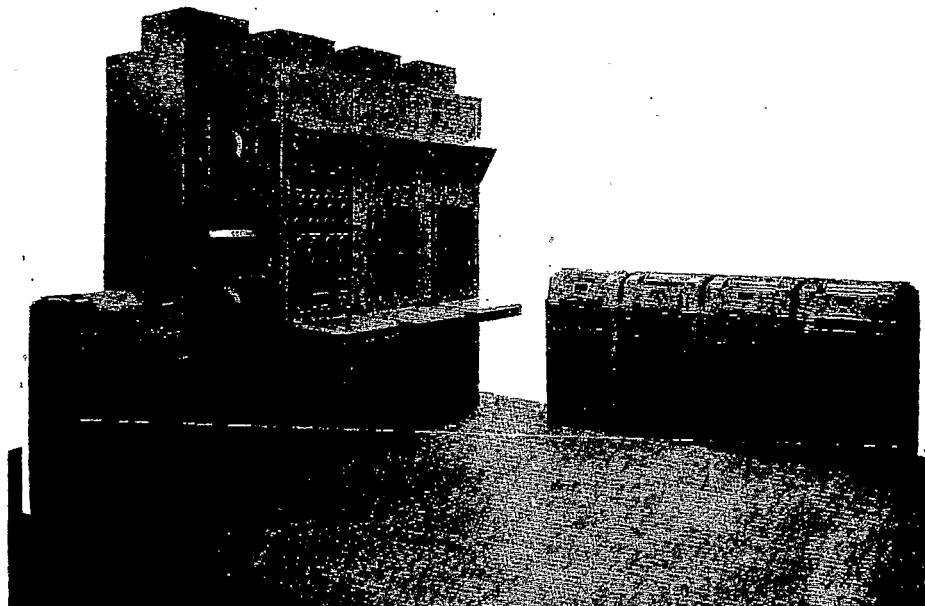
#### The Attack Continues

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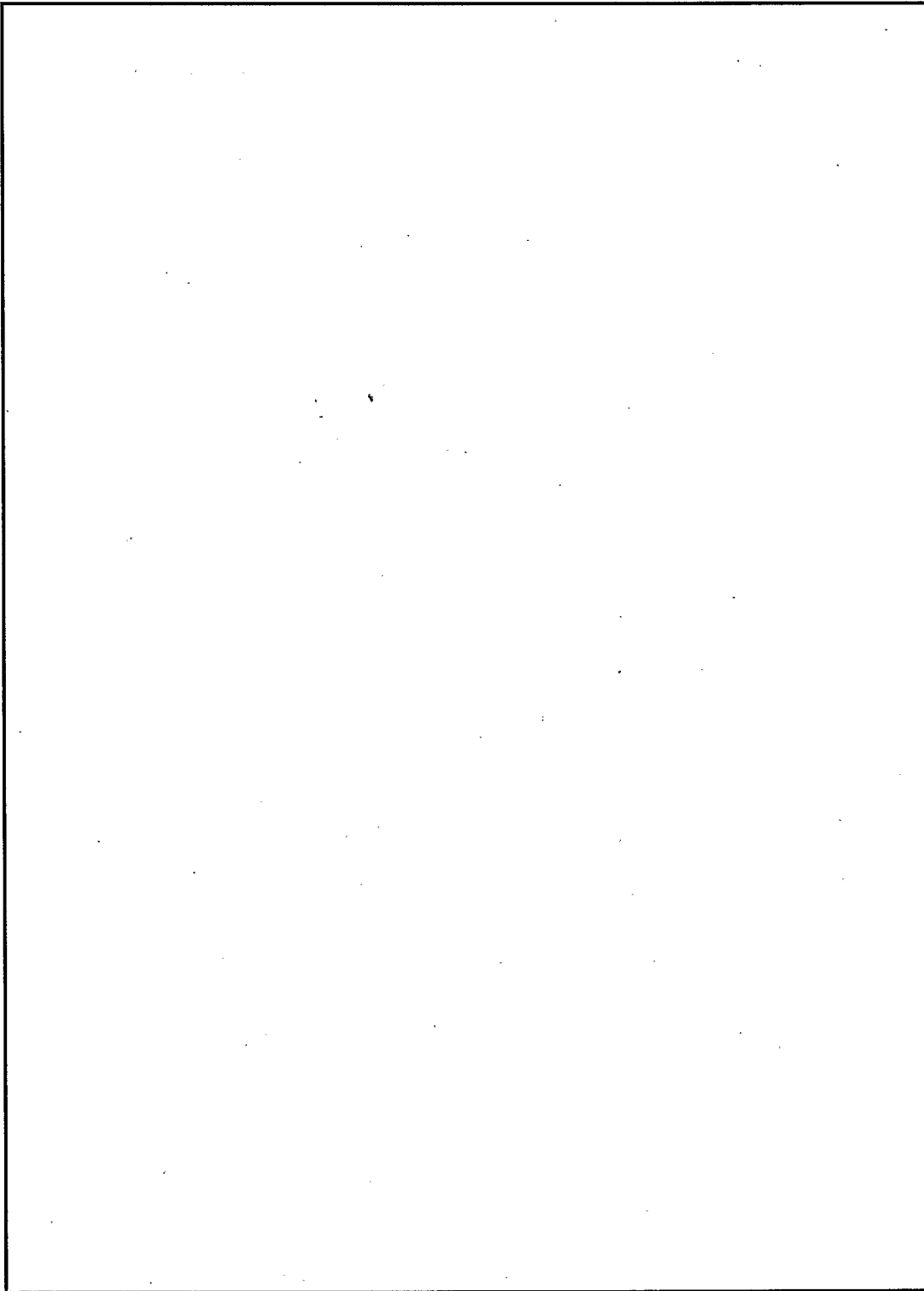


position, with its distinctive cantilevered scopes overlooking the four-channel digitizers

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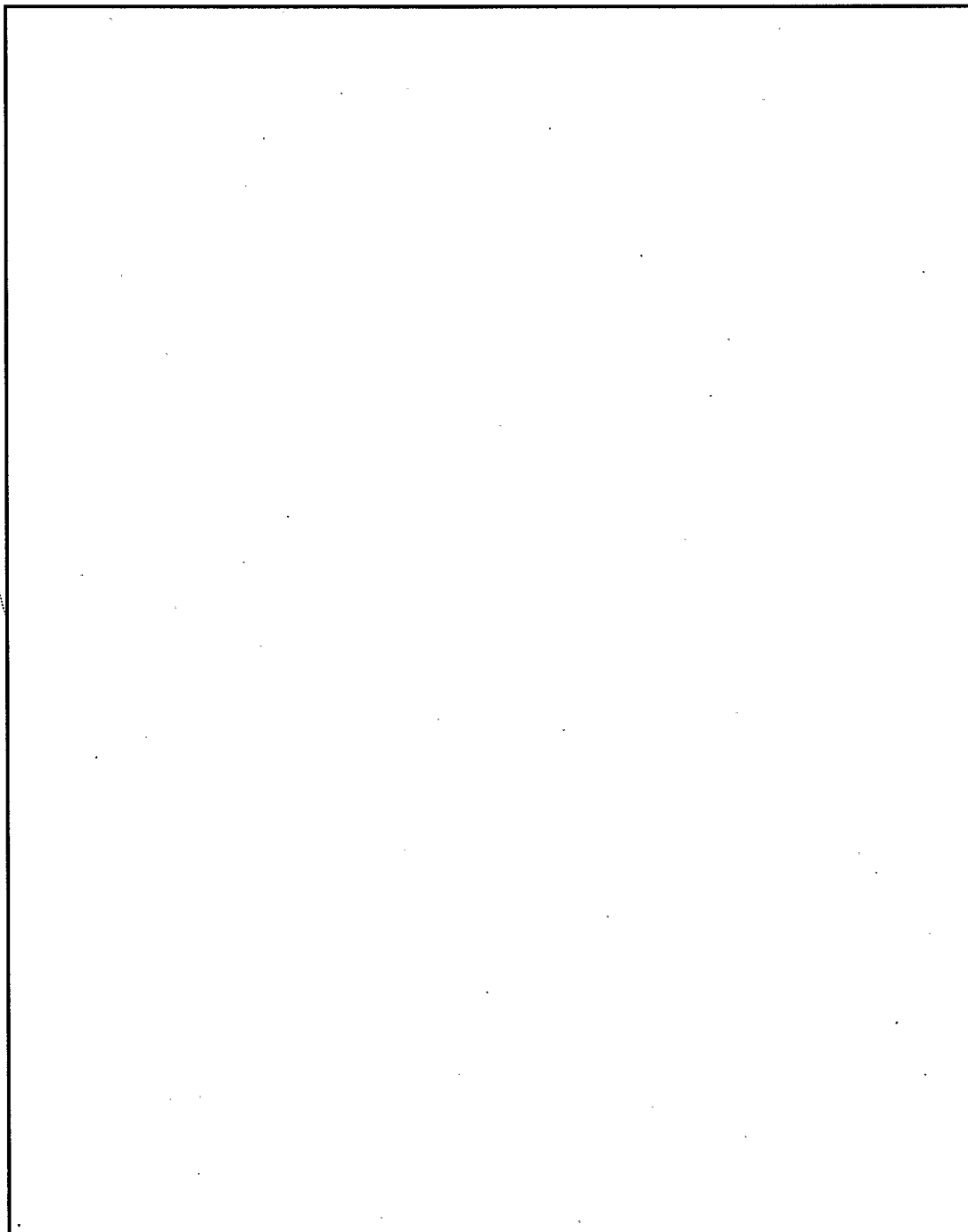
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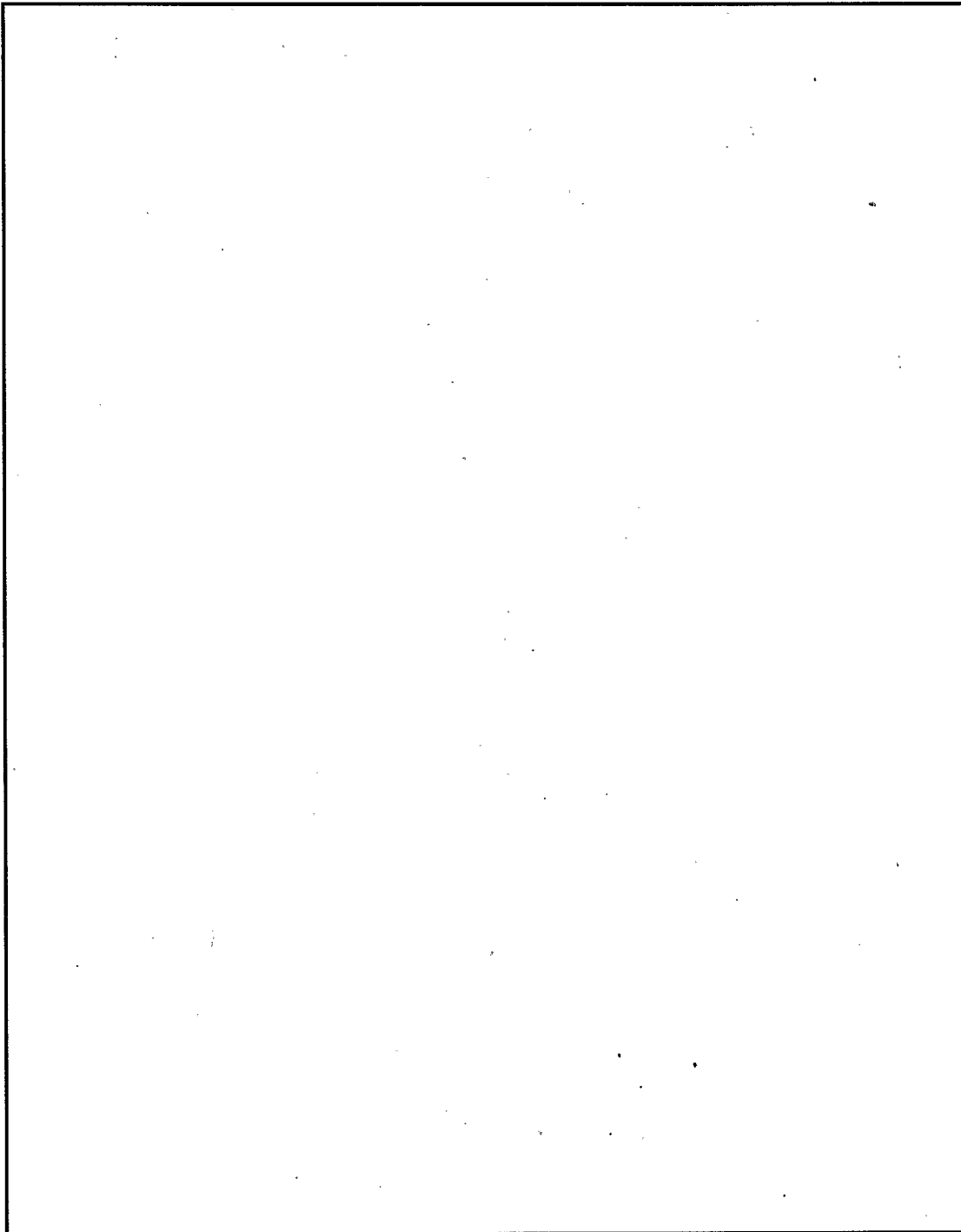
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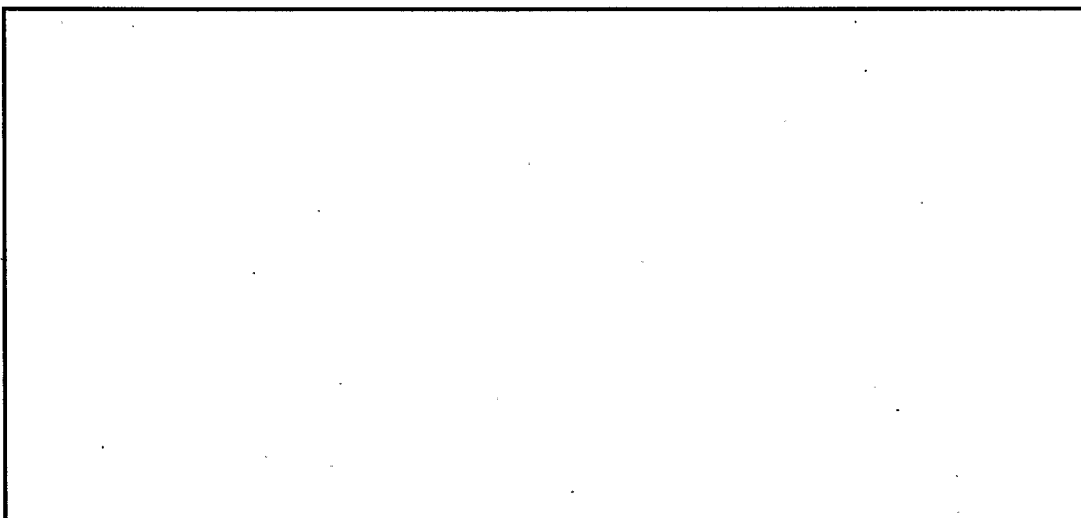


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#### **COMSEC at Mid-decade**

In the 1960s the KW-26, the equipment of choice for securing long-haul point-to-point record traffic circuits, dominated American COMSEC. But American involvement in Vietnam led to a new set of tactical encryption requirements. Typical of the new COMSEC demands was the need to encrypt record traffic on low-level tactical nets in a combat environment. The KW-26 was ill-suited for this application, and to meet the demand, NSA developed the KW-7 to secure terminals which received traffic from multiple transmitters. This equipment added a unique indicator for each message, so that stations in a multiple-station net could correspond using a single crypto device.<sup>108</sup>

#### **The Development of American Secure Voice**

The big news in COMSEC in the 1960s, however, was secure voice. U.S. government users would use the telephone for classified talk, and the only solution was to provide them with a secure handset. Secure voice requirements spanned a broad swath from high-level point-to-point conversations to tactical military applications in the jungles of Southeast Asia. Well aware of the vulnerabilities of voice, NSA approached secure voice cautiously, and for many years secure voice capabilities lagged behind record traffic.

For strategic systems, NSA developed two devices in the 1960s. The KY-9 was a narrow-band digital system using a vocoder, and it was the first speech system to use transistors. The advantage of the KY-9 was that it could be used on a standard Bell System 3 kHz-per-channel telephone system without modification. The disadvantages were many, however. It was big and heavy, encased in a safe that had to be unlocked every morning before the system could be activated. It was also expensive (over \$40,000 per

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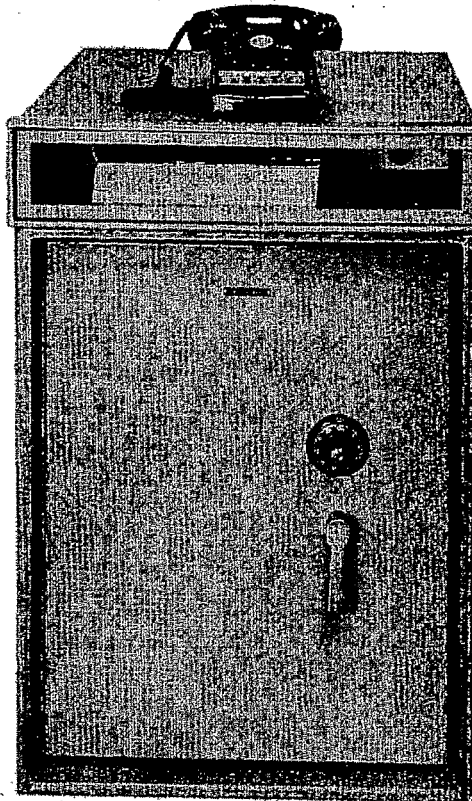
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copy) and was a true "Donald Duck" system which required the users to speak slowly to be understood. Only about 260 sets were deployed, all to high-level users, mostly Air Force.<sup>104</sup>

Far more significant was the KY-3, developed about the same time. Built by Bell Labs under contract, it too was housed in a safe. It was big, klunky, and looked a lot like the KY-9, but without many of the drawbacks. The KY-3 was a broadband digital system, so voice quality was better, and it was not a push-to-talk system. But what brought it into wide use was its employment in the Autosevocom network.

Autosevocom was a secure voice network designed by NSA. Local networks consisted of KY-3s, whose individual voice conversations were first decrypted, then reduced to narrow-band signals and digitized in the HY-2 vocoder, and finally re-encrypted for transmission using a KG-13. The Autosevocom system achieved wide acceptance, and some 2,700 KY-3s were sold to users worldwide, including the White House, the Joint Chiefs of Staff, and the Strategic Air Command.<sup>105</sup>



KY-3

As Vietnam heated up, NSA's attention turned increasingly to tactical voice encryption. An early entry into the tactical arena was a set of systems called PARKHILL. An analog system, it was acknowledged to be vulnerable to exploitation and was not authorized for conversations above the Confidential level. Knowledgeable COMSEC people called it

But it was better than nothing, and NSA assumed that the Soviets, if they were to exploit it at all, would have to devote inordinate resources.<sup>106</sup>

For digital encryption, the Agency first turned to the KY-8, whose development had begun in the late 1950s. The Air Force tested the KY-8 in its F-100 series jet fighters, but found it heavy and cumbersome to key. (As former COMSEC official David Boak once said, the Air Force would accept a device "only if it had no weight, occupied no space, was free, and added lift to the aircraft.") More to the point, if the KY-8 were to stay, the fire control

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radar would have to go. The Air Force opted for the fire control radar, and American aircraft in Vietnam remained without voice encryption.

The Army and Marine Corps, however, found that they could use the KY-8 in jeeps, and some 6,900 devices were eventually deployed. Meanwhile, NSA embarked on a whirlwind project to provide a KY-8 type of device, absent the bulk and weight. The result was two new tactical voice encryption systems, the KY-28 and KY-38. The former was developed for aircraft, while the latter was employed in man-pack radio systems. Weight in both was reduced by the use of integrated circuits. The three devices (KY-8, 28, and 38) were referred to as the NESTOR family. By the end of the decade, there were 27,000 NESTOR equipments in the U.S. inventory.<sup>107</sup>

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The next generation of voice encryption systems was called   Consisting of VINSON (KY-57/58) and BANCROFT (KY-67), they were smaller, lighter, and consumed less power than the earlier NESTOR systems. They also employed updated keying systems and could actually be rekeyed from an aircraft, permitting the control station to remotely change the keys on a net in case a station were overrun by the enemy. BANCROFT was the first-ever combination radio and encryption device in a single unit. VINSON and BANCROFT were not introduced until the early 1970s.<sup>108</sup>

#### TEMPEST

TEMPEST standards had been set forth in the late 1950s in a document called NAG-1. Like other COMSEC policy documents, however, this one was advisory. What was needed was a directive policy and enforcement procedures. NSA spent the decade of the 1960s working on that aspect of TEMPEST.

In September 1960 NSA briefed the USCSB on existing American TEMPEST vulnerabilities. It shocked USCSB into action, and at a meeting in October the board agreed on a crash program and established its first and only subcommittee, SCOCE (Sub-Committee on Compromising Emanations). The first item on SCOCE's agenda was a request from USIB to evaluate the Flexowriter, which was being considered for almost universal adoption within the intelligence community as a computer input-output device.

The Flexowriter, SCOCE found, was the strongest radiator ever tested, hardly a recommendation for its adoption within the intelligence community. With the proper equipment, an enemy listening service could read plain text as far as 3,200 feet. The subcommittee posted a series of recommendations that became known as the "Flexowriter policy," including recommendations that it not be used overseas at all, that in the U.S. it not be used for classifications higher than Confidential (and then only if the using organization controlled a space 400 feet in circumference), and that the Navy be tasked with a long-range technical fix. At the same time, SCOCE published two lists: one

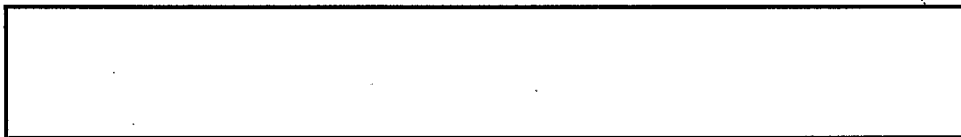
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containing equipment that could not be used at all with classified information, and one listing equipments that could be used only on an interim basis.

USCSB took the issue to McNamara, who became an ally. In December 1964 he signed a directive imposing the policy DoD-wide. The reaction was consternation. Without waivers, some agencies would have to virtually close down. All would have to buy new equipment, that expense coming directly out of their O&M moneys. In many cases the cost of equipment would double - in some cases no fix at all could be designed, and the equipment would have to be scrapped or sold. The result was that many went straight for the waivers, and in the face of imminent operational shutdown, got them. Even most SIGINT sites had to operate under waivers for years as agencies scrambled to comply.<sup>109</sup>

### GEOGRAPHICAL RETREAT



The conventional collection system reached its point of maximum expansion in the early 1960s. Then, like a star imploding, it began to shrink. The shrinkage was basically a product of two problems, one internal and one external.

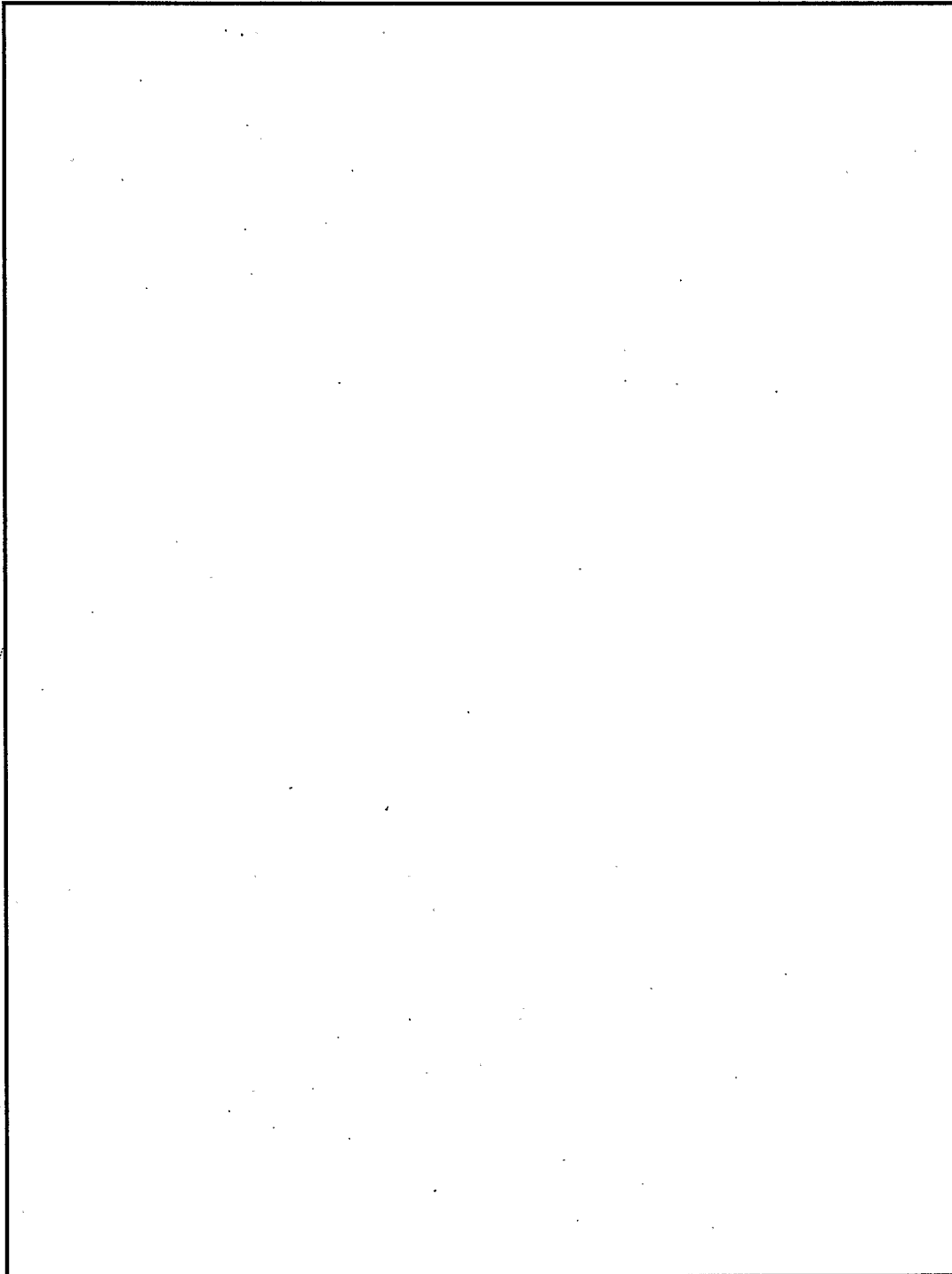
The internal cause was money. The Vietnam War, and President Johnson's domestic initiatives like the War on Poverty, began to squeeze the cryptologic budget (not to mention other DoD programs). By 1963 a serious international balance of payments problem had already developed, and the far-flung conventional SIGINT collection system became a prime target for reduction. Directed to study the problem, NSASAB concluded in 1963 that technology to remote collection sites back to the U.S. did not yet exist, except for the technique of recording signals on wideband tape and transporting the tapes back to the CONUS for transcription. Since this did not in most cases meet timeliness requirements, overseas reductions would mean real reductions in SIGINT collection capability.<sup>110</sup>

The second problem was developing Third World nationalism. Many of the countries which hosted SIGINT collection sites were moving toward more independent foreign policies, and foreign troops on their soil did not play well in domestic politics. As the Vietnam War wore on, there was, in addition, a sense of diminishing American power in the world, and a feeling that it was better to move into a neutral camp, rather than to lean on weakening American military protection. These trends often manifested themselves in a demand that the Americans somehow "pay" for their rental of foreign space.

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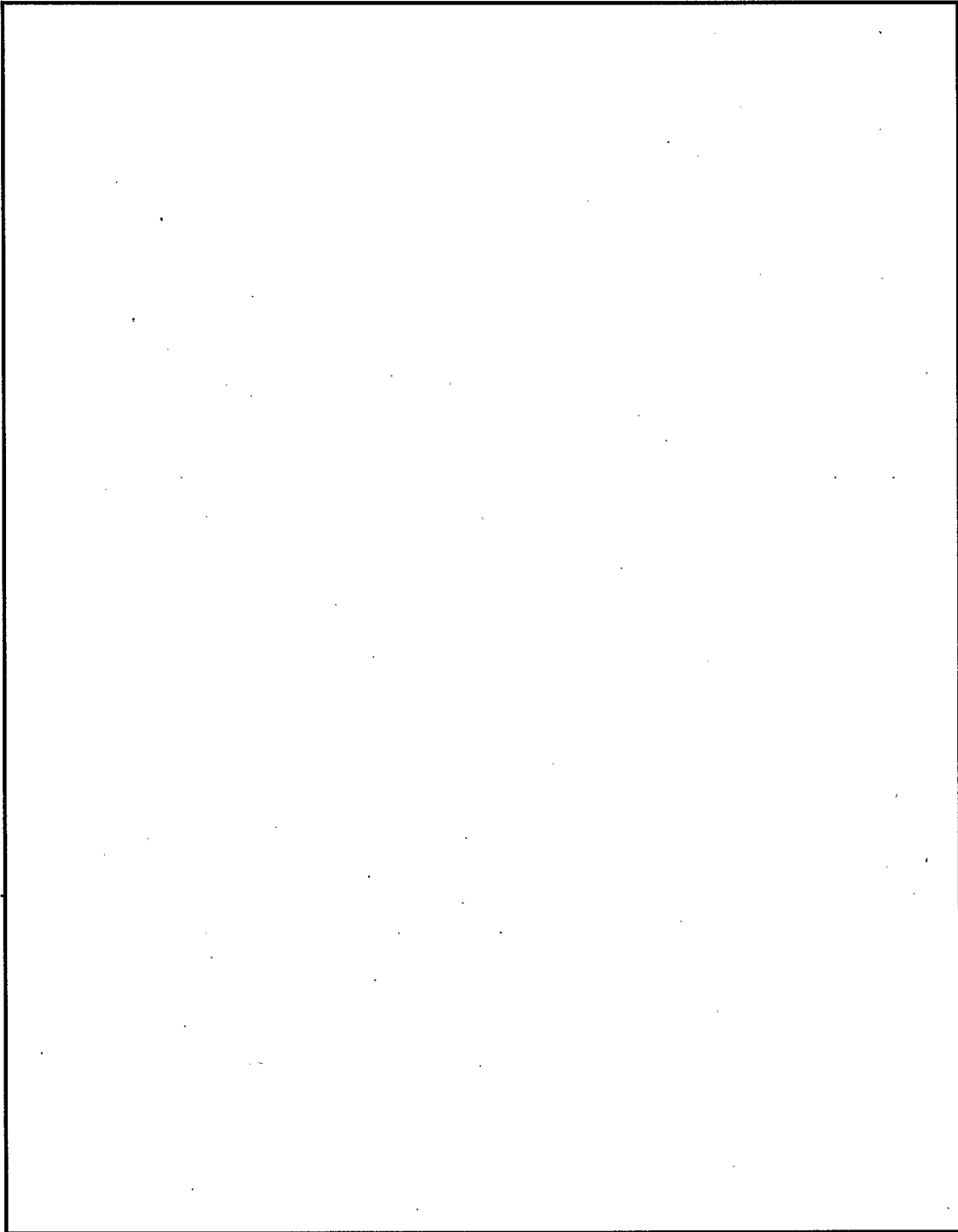


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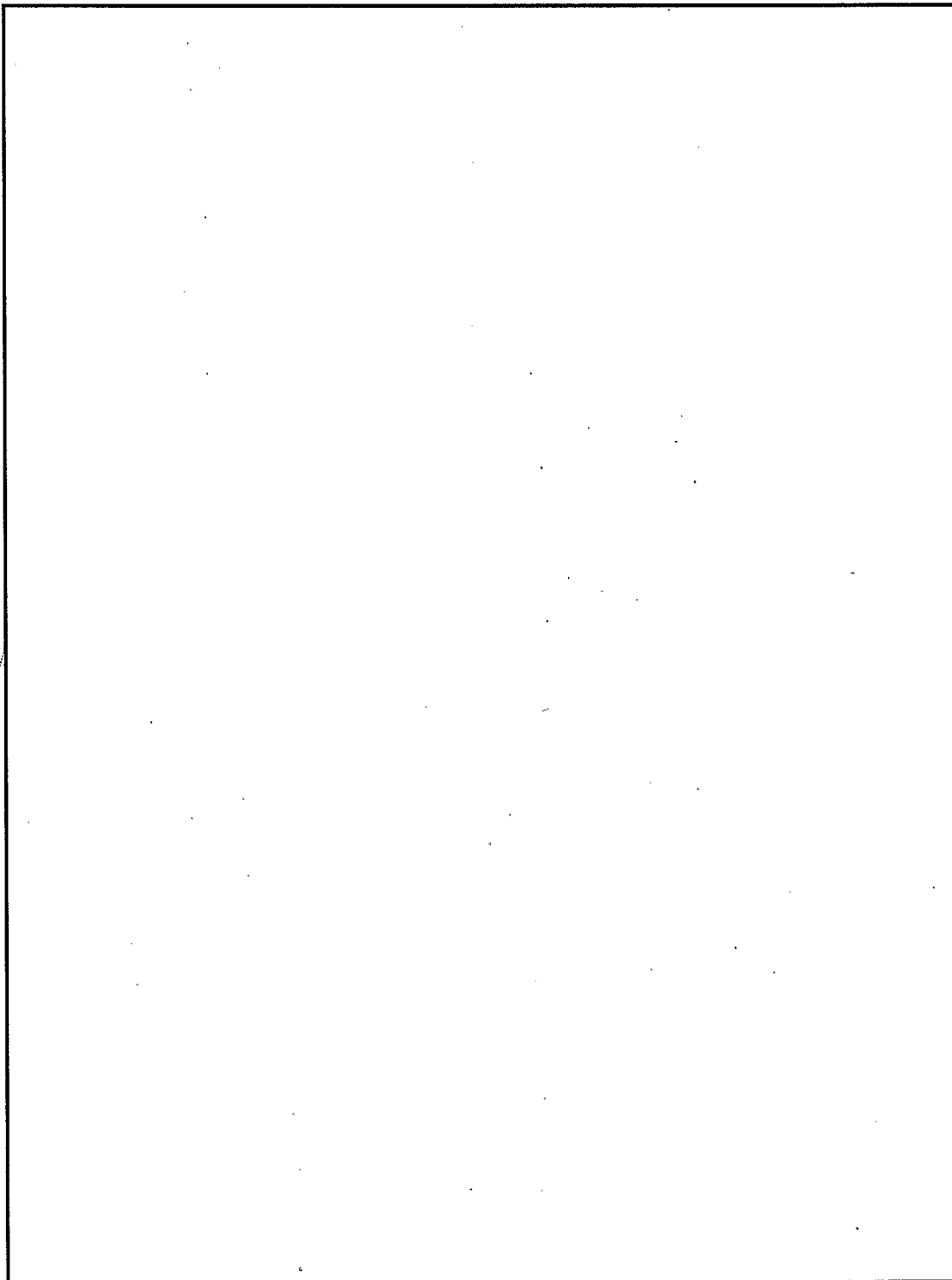


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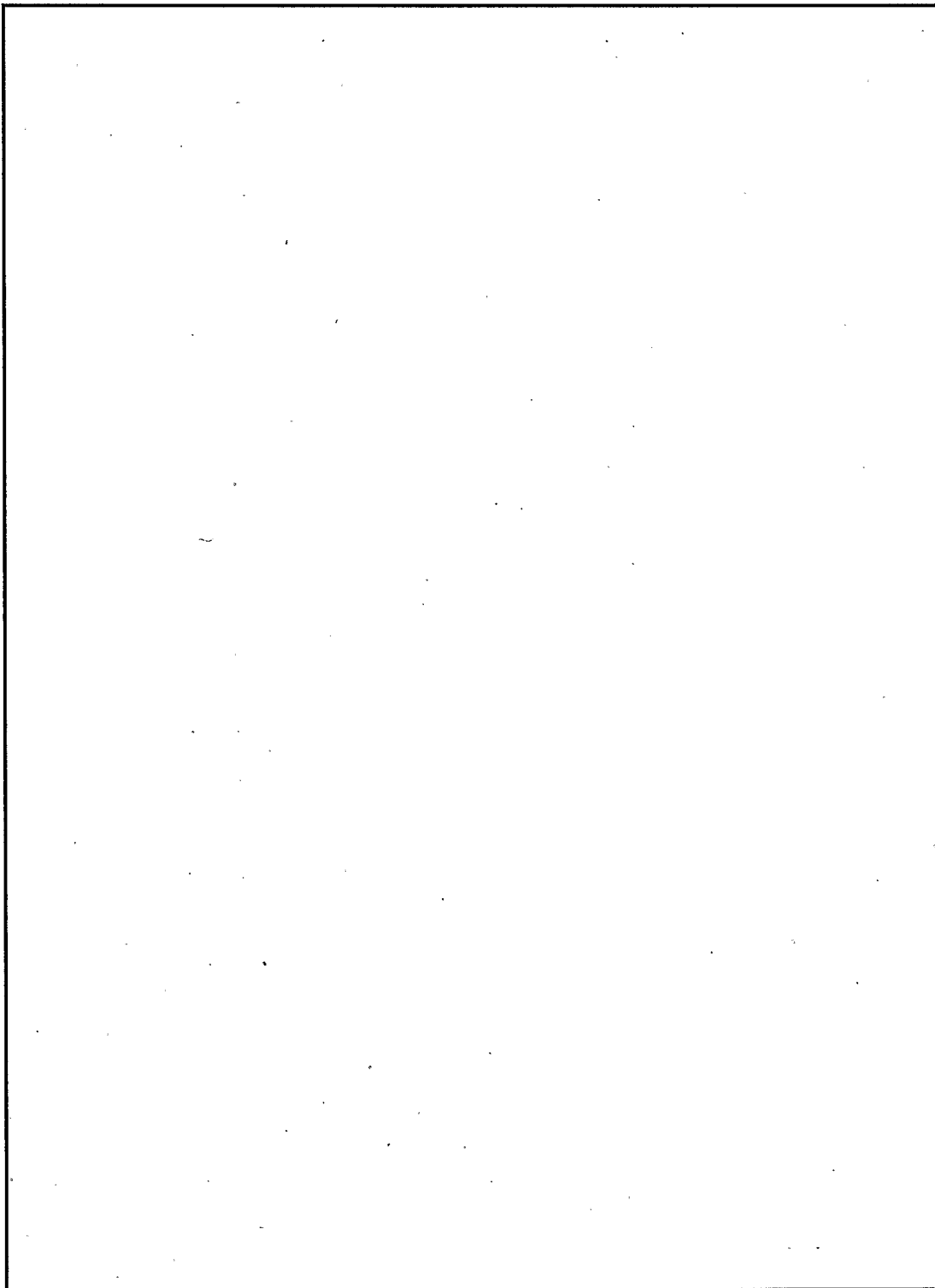


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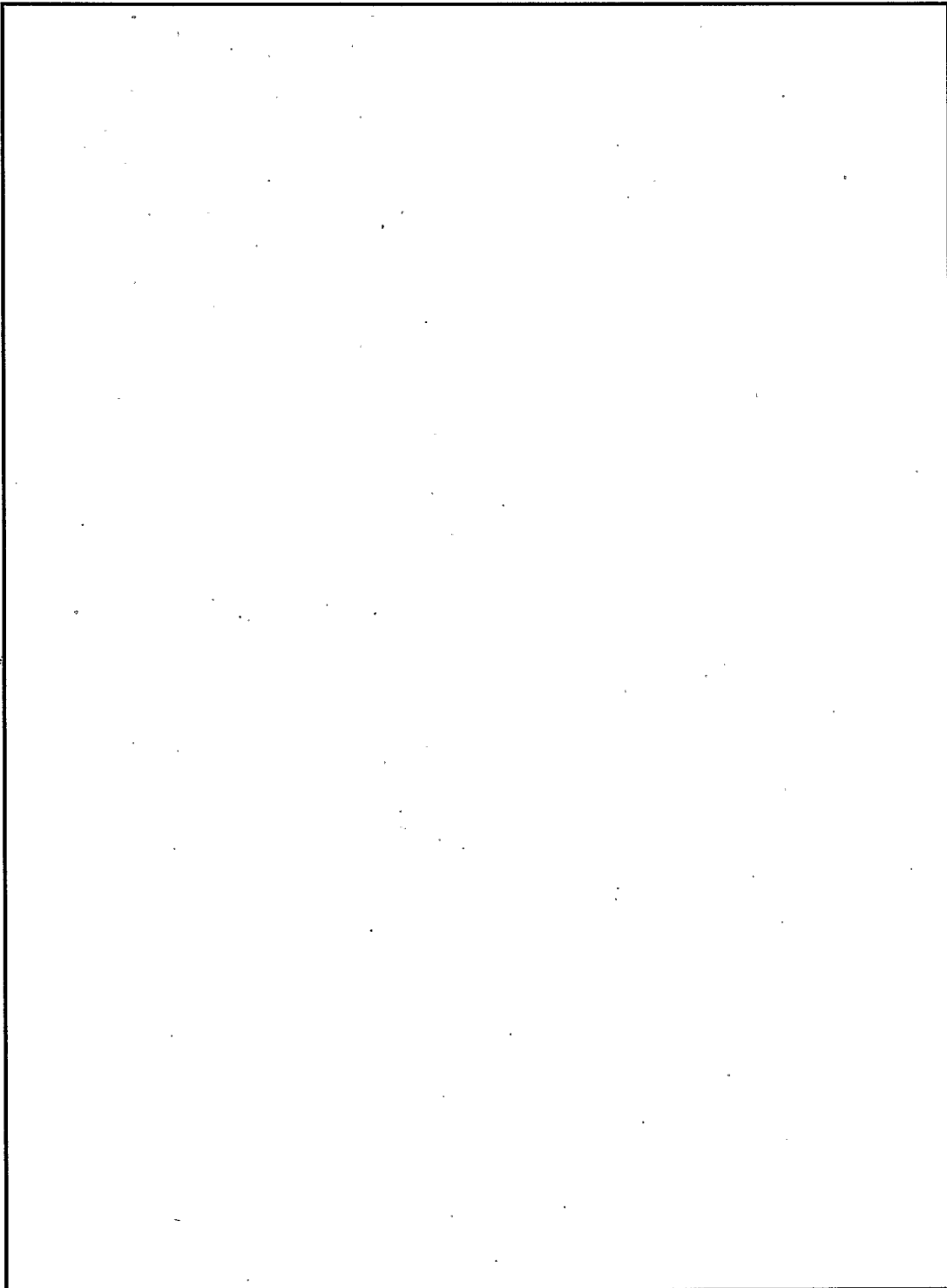
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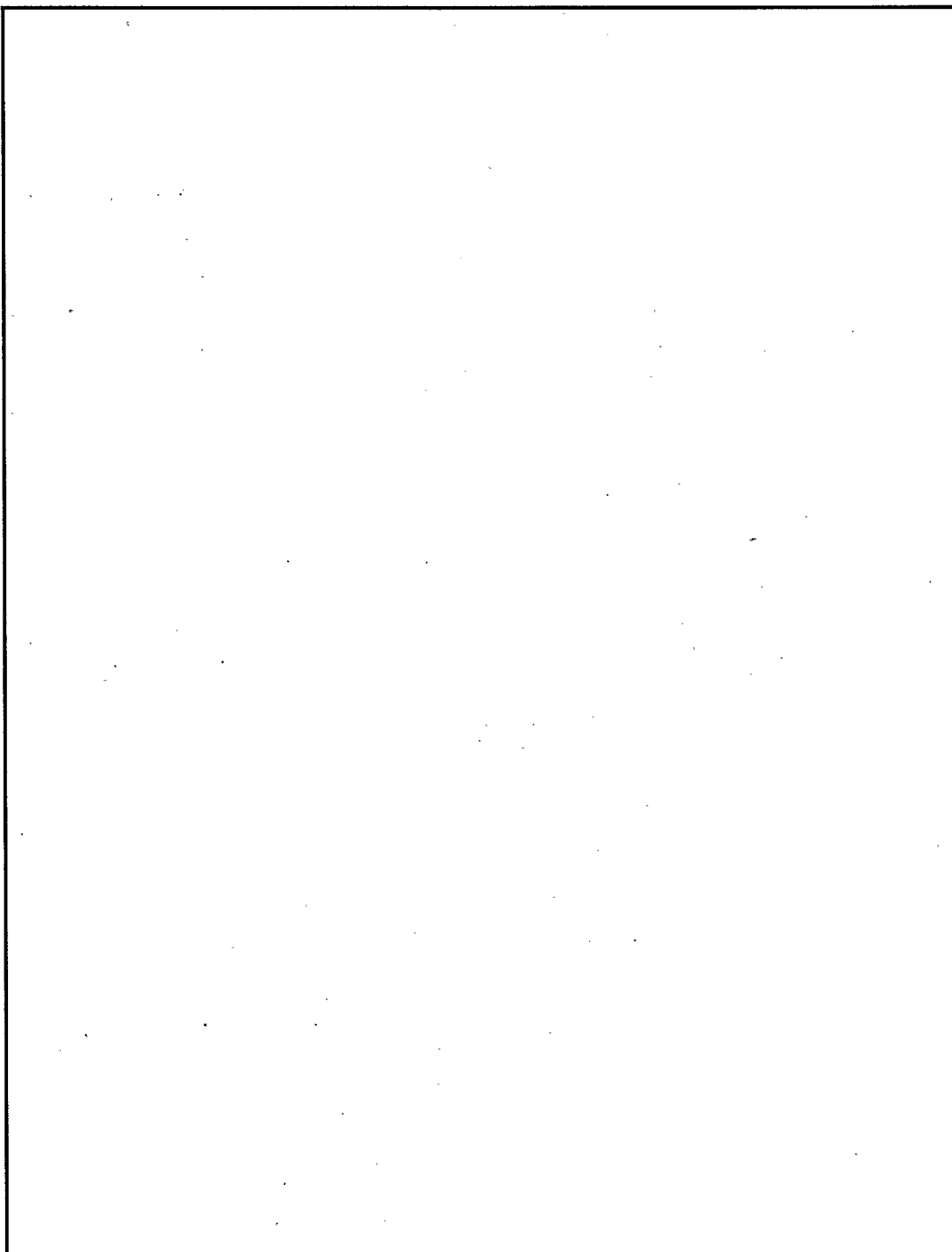


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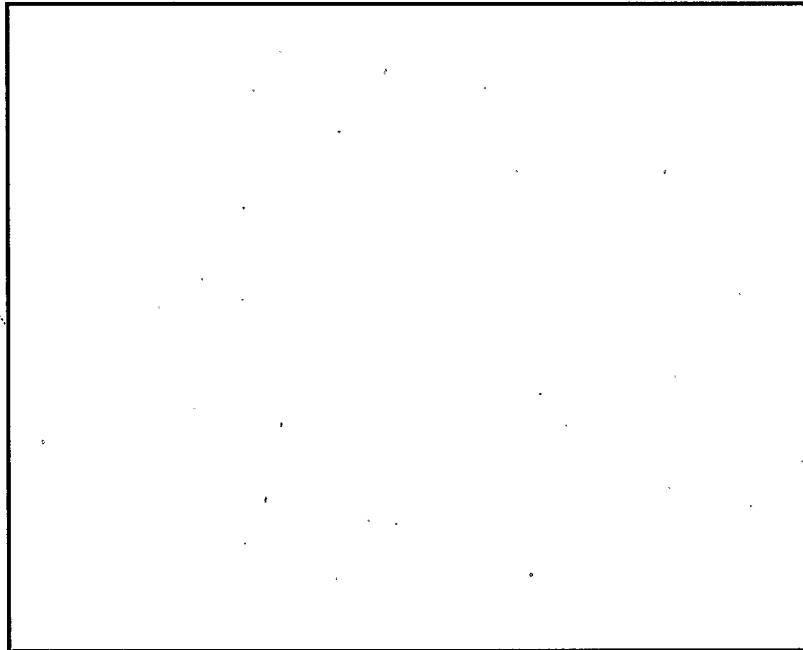
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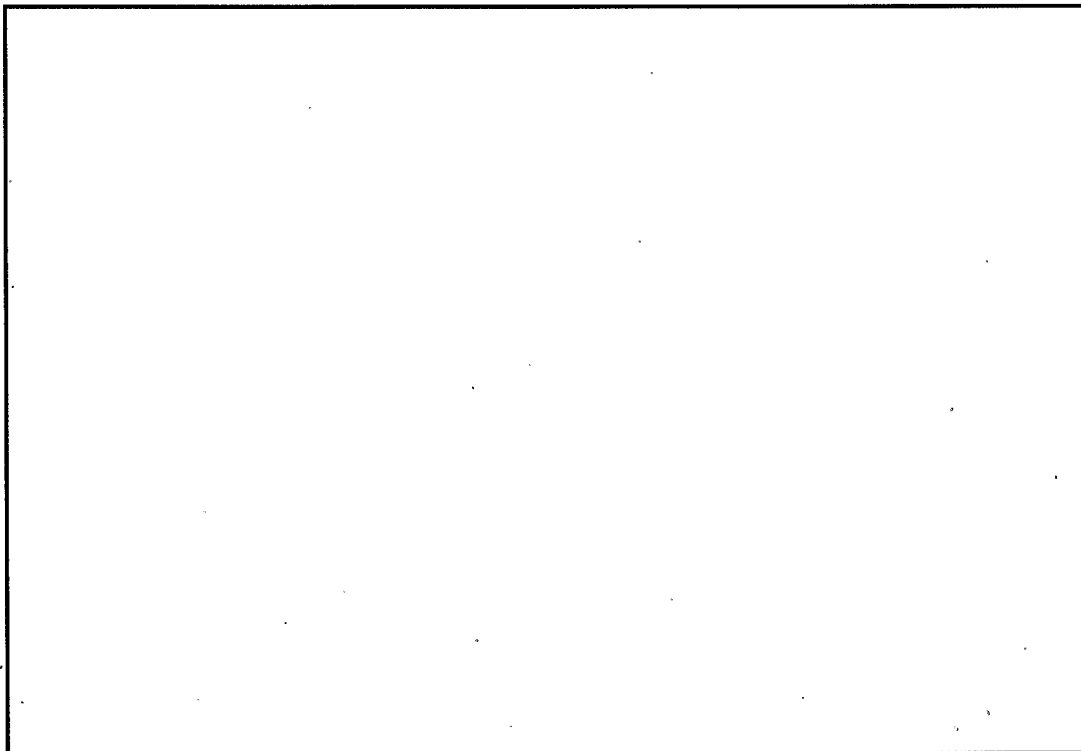
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RC-135

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### Airborne Collection

The success of the [redacted] USAFSS use of RC-135s to collect COMINT; [redacted] prompted AFSS to ask for more RC-135s. After a lengthy struggle, six aircraft were added to the program, and all were initially ticketed for [redacted] collection program hard pressed to satisfy collection requirements [redacted]

[redacted] The addition of the far more capable RC-135s pushed the RC-130 program farther down the priority list, and all eventually became strictly theater assets before they were phased out of the inventory in the early 1970s. It also meant that the airborne collection program would inevitably take on a stronger global connotation, with home basing at [redacted] and much less of a theater presence.<sup>133</sup>

As collection requirements multiplied, so did AFSS airborne programs. Many responded to the need to collect against [redacted] and they were usually joint SAC-USAFSS operations. During the late 1960s, airborne programs were pulled in different directions by conflicting requirements in [redacted]

[redacted] For several years airborne SIGINT assets of the Air Force and Navy were frantically juggled to keep up with requirements.<sup>134</sup>

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Many of the RC-130s were ultimately replaced by "mini-manned" U-2s. Receiver front ends were placed on a pallet that was loaded on board, and the aircraft served as a high-altitude intercept station, downlinking intercepted RF to operators on the ground.

These programs were preceded, however, by an experiment using drones. Begun in [ ] 1971, the drone program (under a variety of names) never worked. The drones were vulnerable to antiaircraft fire, and it eventually became too expensive to keep replacing them.<sup>135</sup>

### **The Wood Study**

Budgetary pressures and the rise of nationalism in the Third World led to a series of high-level basing studies in the mid- to late 1960s. Aside from the NSA study that led to the closure of [ ] the most significant was the so-called Wood Study, named after General Robert J. Wood, called out of retirement in 1968 to chair a Senior Interdepartmental Group (SIG) looking at the worldwide intelligence posture. The objective was to save money; the target was SIGINT.

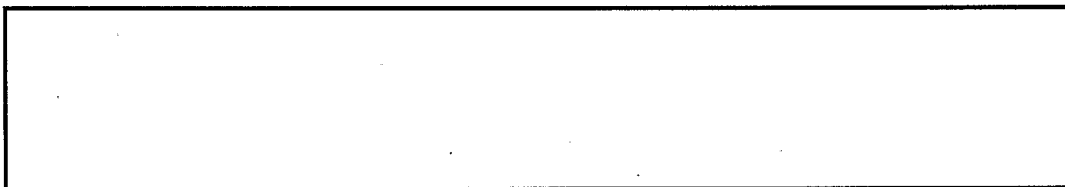
Wood felt that much of the expense of SIGINT was with the front end – the overseas bases. He put forth a litany of ways that SIGINT could be done more cheaply, which would be repeated by future study groups. NSA should pour money into advanced technologies (such as satellites and remoting) that would reduce force posture overseas. It should place more reliance on Third Parties. It should develop transportable SIGINT assets. It should rely more on technical research ships (despite the relatively recent destruction of the *Liberty* and the capture of the *Pueblo*). And it should be much more aggressive about consolidating overseas field sites.

There were very cogent reasons why SIGINT sites were spread so widely throughout the world; they related to propagation phenomena and a perceived need to diversify intercept in case of attack. But these objections were drowned by the need to economize. The Wood Study increased pressure to "do something" about the huge number of sites, and the first move was to further reduce assets [ ] Thus the decision was made (it had been impending for several years) to close the three Army sites [ ]

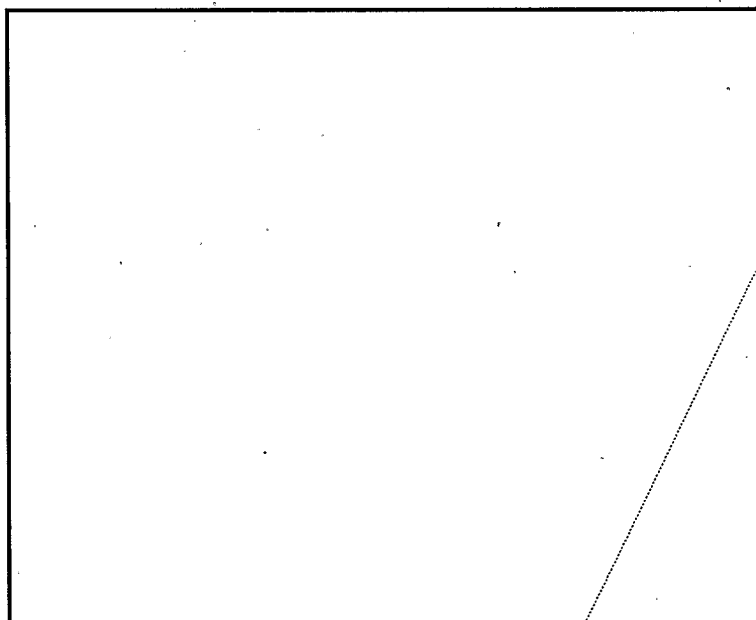
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One interesting spin-off of the Wood Study was an assessment of political vulnerability in countries housing U.S. SIGINT operations. The chart rates postulated tenure (as measured by the Wood Study) and actual withdrawal dates.



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To a SIGINTER used to an expanding SIGINT system, 1968 must have seemed like a shrinking world. General Carter, protesting late-decade cutbacks, protested "a pattern of subtractions from U.S. cryptologic strength."<sup>138</sup> He fought reductions like a tiger. But the twin pressures of paying for Vietnam and reducing the balance of payments deficit combined to trim the SIGINT posture no matter what Carter said. Thus base consolidations  tightened up the SIGINT waistline. The pressure for this was budgetary, and it came from the top.

Viewed from the standpoint of international geopolitics, however, the picture was a little different. Of the ten countries (above) that the U.S. abandoned from an overt SIGINT collection standpoint, nationalist pressures were the clear culprit in seven cases and were at least partly responsible in two others. Thus, SIGINT reductions came from internal budgetary causes, while outright abandonment of a country resulted almost inevitably

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from nationalist sensitivity. SIGINT sites were generally acceptable as long as they were invisible to the local population. Thus the U.S. was forced to close its site [redacted]

[redacted] The lesson was clear, and it became a factor in the new remoting technology that was, even in 1968, picking up steam in NSA.

[redacted]

Manning the front end of the SIGINT system with civilians had long been an NSA goal. In the 1950s NSA sent integrees to SCA sites, but the numbers were never large, and as the decade wore on, the SCAs tended to get tougher on the idea of NSA invading their turf.

[redacted] However, civilianization took on a life of its own, chiefly because of the advantages that could accrue.

The most significant advantage was expertise. The SCAs had trouble training collectors [redacted]

[redacted] Moreover, NSA could sometimes provide linguistic talent that was hard to come by in the military world.

A second advantage was retainability. Military retention rates, low in the 1950s, dropped even lower during the Vietnam war. NSA wanted to [redacted] employ civilian collectors and analysts at the front end of their system for many years. The Americans could not match the expertise found at [redacted]

The 1958 Robertson Committee initially considered a system of NSA-only collection sites, but withdrew the recommendation from the final report in the face of determined SCA hostility. Instead, the report recommended increasing NSA civilian presence in hard-to-find skills and establishing roving NSA teams of experts to help out with special field site problems. But even that proved difficult to implement, and civilianization appeared to be a dying concept.<sup>139</sup>

This turf fight between NSA and the SCAs stopped civilianization cold until 1965, when a new factor emerged. The factor was Vietnam.

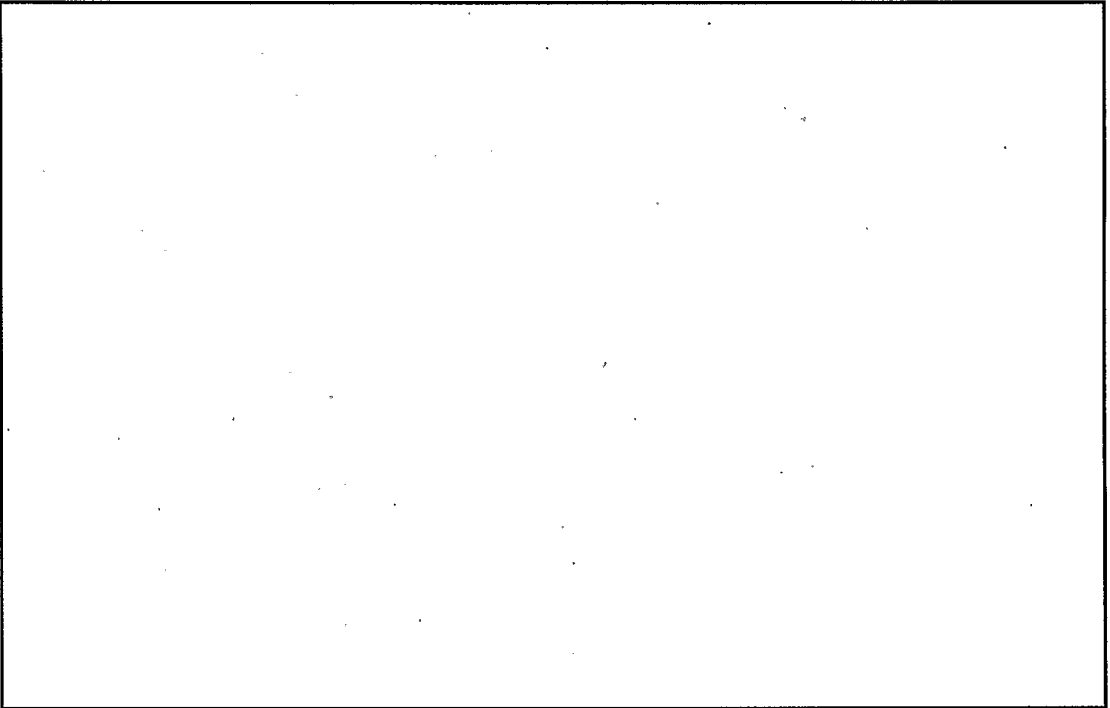
By 1965 the drain on military manpower was becoming severe. In August, the Defense Department canvassed all its activities looking for jobs that civilians could do so that the military people in them could go to the war zone. The most severe pressure was in the Army, and Army stations were threatened with the most serious manpower cutbacks to support the war. Faced with rows of potentially unmanned positions, NSA proposed that it be authorized to coordinate a program of civilianization within the cryptologic community. After a heated internal debate at NSA regarding civilianization at [redacted]

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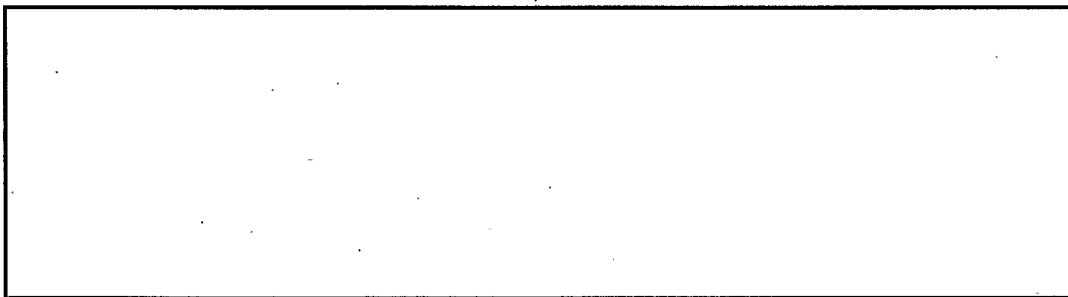
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### Naval SIGINT Ships

The signal success of the *Oxford* [redacted] during the Cuban Missile Crisis resulted in a boom in the Technical Research Ship (TRS) program. NSA's long-term TRS program included [redacted] Military Sea Transport Service (MSTS) charters and five of the larger *Oxford*-class *Liberty* ships. The Navy had an even more grandiose plan to build a TRS fleet from the keel up, at a cost of \$35 million per vessel. They would have a cruising speed of at least twenty knots. But despite the giddy success of the *Oxford*, the numbers did not add up. For instance, it cost \$13.5 million to convert a *Liberty* ship into an *Oxford*-class vessel, but only \$3.3 million to redo a *Valdez*-class MSTS ship.<sup>142</sup> DoD was strapped for cash for the Vietnam buildup, and this kind of floating SIGINT platform, logical in theory, fell victim to the budget axe.

Failing in the big plan, the Navy opted for a far cheaper option. The idea was to convert some trawler-type vessels at very minor cost and outfit them for general intelligence collection, including (but not limited to) SIGINT. Their primary purpose would be naval direct support, with a secondary national tasking mission from NSA. They would call the vessels AGER (Auxiliary General Environmental Research).

NSA opposed the program from the beginning. Some Agency seniors believed that it was an end run around NSA's authority to control SIGINT. Nonetheless, the Navy converted the first AGER in 1965, calling it the USS *Banner* (AGER-1). The long-range program was to have twelve such vessels. When, in late 1965, the Navy went forward with a request to convert two more *Banner*-class trawlers, NSA opposed it, and Cyrus Vance, the deputy secretary of defense, sent the proposal back to the cryptologic community to resolve the conflict.

NSA and the Navy fashioned a compromise in which the vessels would sail sometimes on solely direct support missions, sometimes on hybrid national tasking and direct support orders. It would be a wholly Navy owned, manned, and protected program. The ships were smaller and less capable than the *Oxford*- or *Valdez*-class vessels, and as for speed, could not even make ten knots. They would be almost defenseless, but up to that time SIGINT ships had never been bothered by hostile forces. The *Pueblo*, which put out on its first operational voyage in December 1967, was an AGER-type trawler.<sup>143</sup>

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TRS communications were, in the early years, bothered by crowding of the HF spectrum. To solve this problem, the *Oxford*, in February of 1964, demonstrated for the first time the feasibility of bouncing microwave signals off the moon from a ship at sea. This technique had been used first in 1959 between two stationary locations, Hawaii and Washington, but the technical problems involved in doing it from the deck of a pitching ship were daunting. Although the problem was considered essentially insoluble, Commander William Carlin White of NSG managed to get the Naval Research Laboratory interested, and White, NRL, and NSA, all working together, gathered the equipment for a test. When the *Oxford* successfully communicated with the NSG site at [REDACTED] a new era of naval communications was under way. Soon CNO-approved installation of this new gear (called TRSSCOM, or TRS Special Communication System) was programmed for the *Belmont* and *Liberty*, and plans were made to convert all TRSs to the so-called Moon Shot system.<sup>144</sup>

TRSs became very popular substitutes for dry land SIGINT real estate. With nationalism on the rise and the United States experiencing declining popularity in the Third World, it was often the only platform available. A TRS was sent to [REDACTED] TRSs were thrown into the Vietnam conflict, essentially as augmentation for existing fixed sites. An *Oxford*-class vessel, the *Liberty*, was deployed to the Mediterranean during the 1967 Arab-Israeli War. [REDACTED]

In the flush of enthusiasm, the latent problems in the program remained hidden. Program flexibility led to scattershot deployments to areas where the technical database was nonexistent. Vessels were put against targets with exotic language requirements that the Navy could not meet. SIGINT crew training and expertise levels appeared to many NSAers to be declining in the face of so many short-fuse deployments to strange places. Command and control became convoluted, especially in war zones like Vietnam or the [REDACTED] and at times it appeared that no one really knew who had control of TRSs in certain areas. Occasionally a TRS would wind up doing non-SIGINT work like hoisting refugees aboard - this happened during the Cuban Missile Crisis, and was ordered, but not done, during [REDACTED] Further, TRSs had to compete, in essence, with even more rapid AFSS airborne assets. Often the airborne fleet won out because it could get there faster, and AFSS had better trained operators and linguists.<sup>148</sup>

Finally, and fatally, floating SIGINT platforms proved to be not as secure as had been expected. The *Liberty* incident in 1967 (see p. 432) shocked a cryptologic community that had always assumed that American SIGINT platforms would be accorded the same courtesies that the U.S. gave to the Soviet SIGINT trawlers. The incident was repeated (with variants) the very next year when North Korea captured the *Pueblo*. NSA support for the program was already crumbling because of the dispute over the control of AGERS. With the *Pueblo*, it completely died.

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The program was good in theory, and if the execution had been better, TRSs might still be around. It is still a good idea today, but the *Pueblo* incident probably killed it forever.

#### THE END OF HF?

The decade of the 1960s led NSA inexorably into above-HF signals, more and more difficult to intercept, more and more exotic to process once intercepted. Fixation on the [redacted] problem marked one very difficult and expensive avenue, which would require complex intercept and processing gear and unconventional collection locations or platforms. The trend toward above-HF communications, especially [redacted] radio relay, and communications satellites, marked another knotty problem for the cryptologic community.

[redacted]

Still, all long-range forecasts agreed [redacted] NSA had been worrying about this problem for some years, and the Agency was in the process, in the late 1960s, of designing and fielding systems that would accommodate the expected surge in above HF communications.

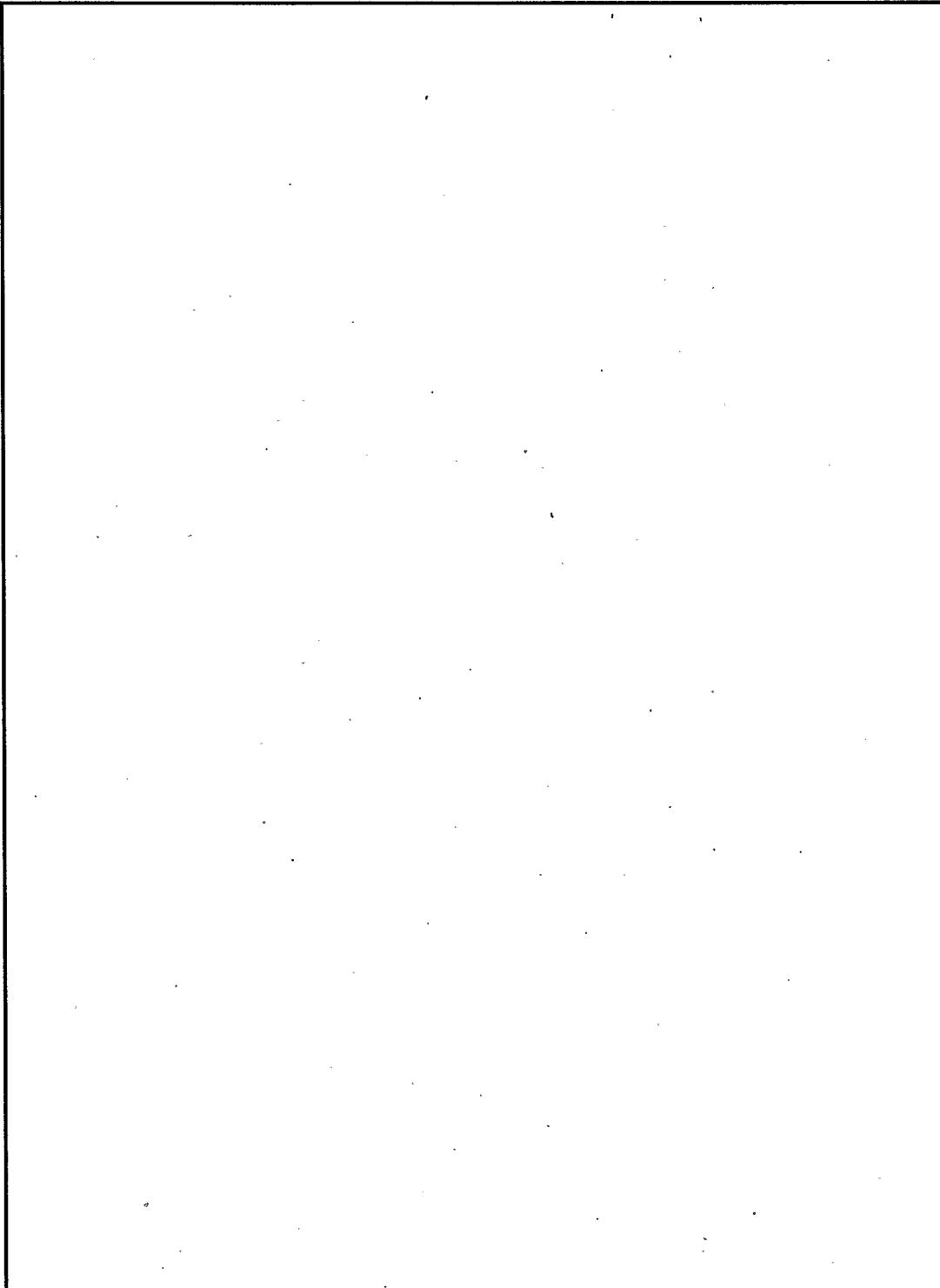
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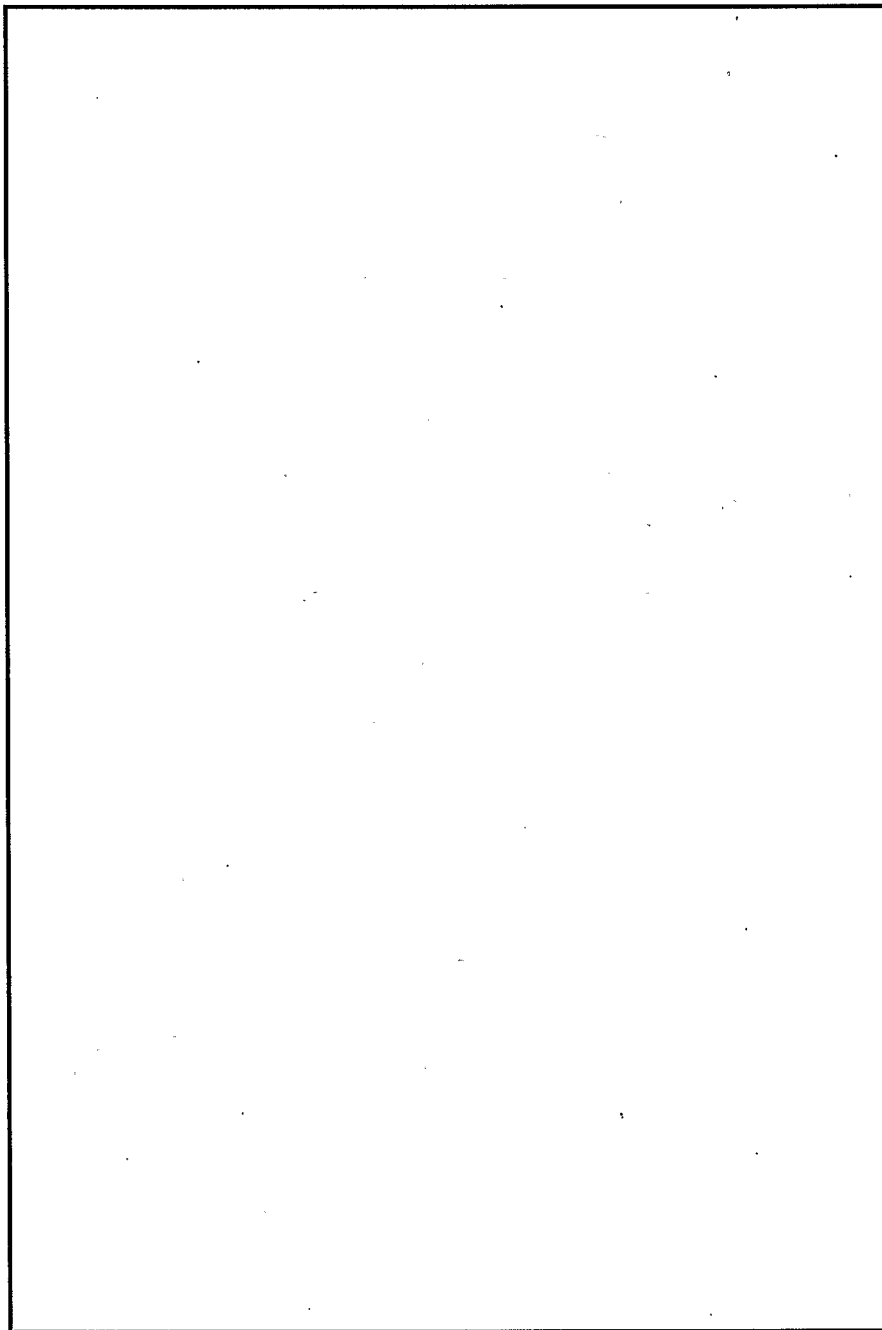
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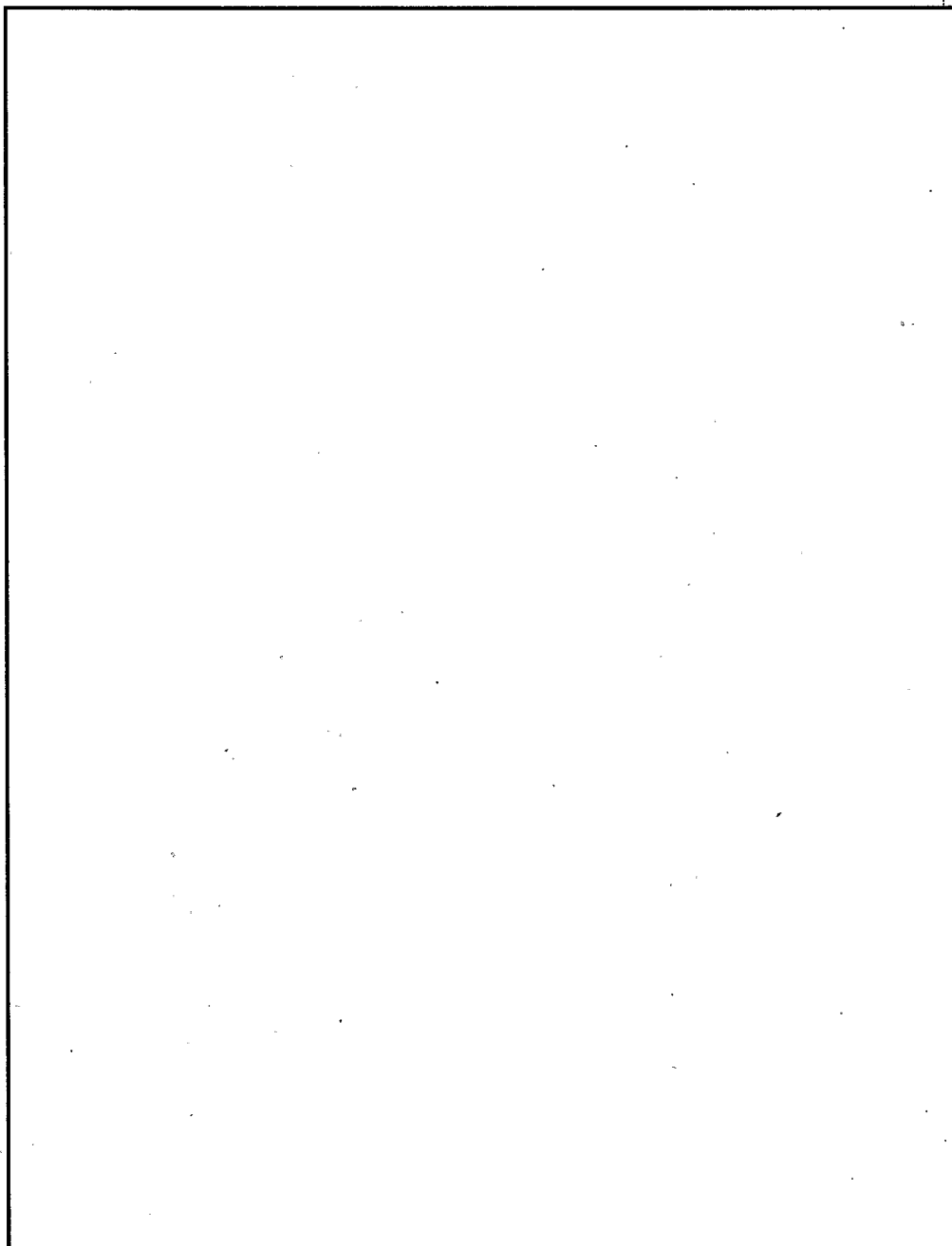


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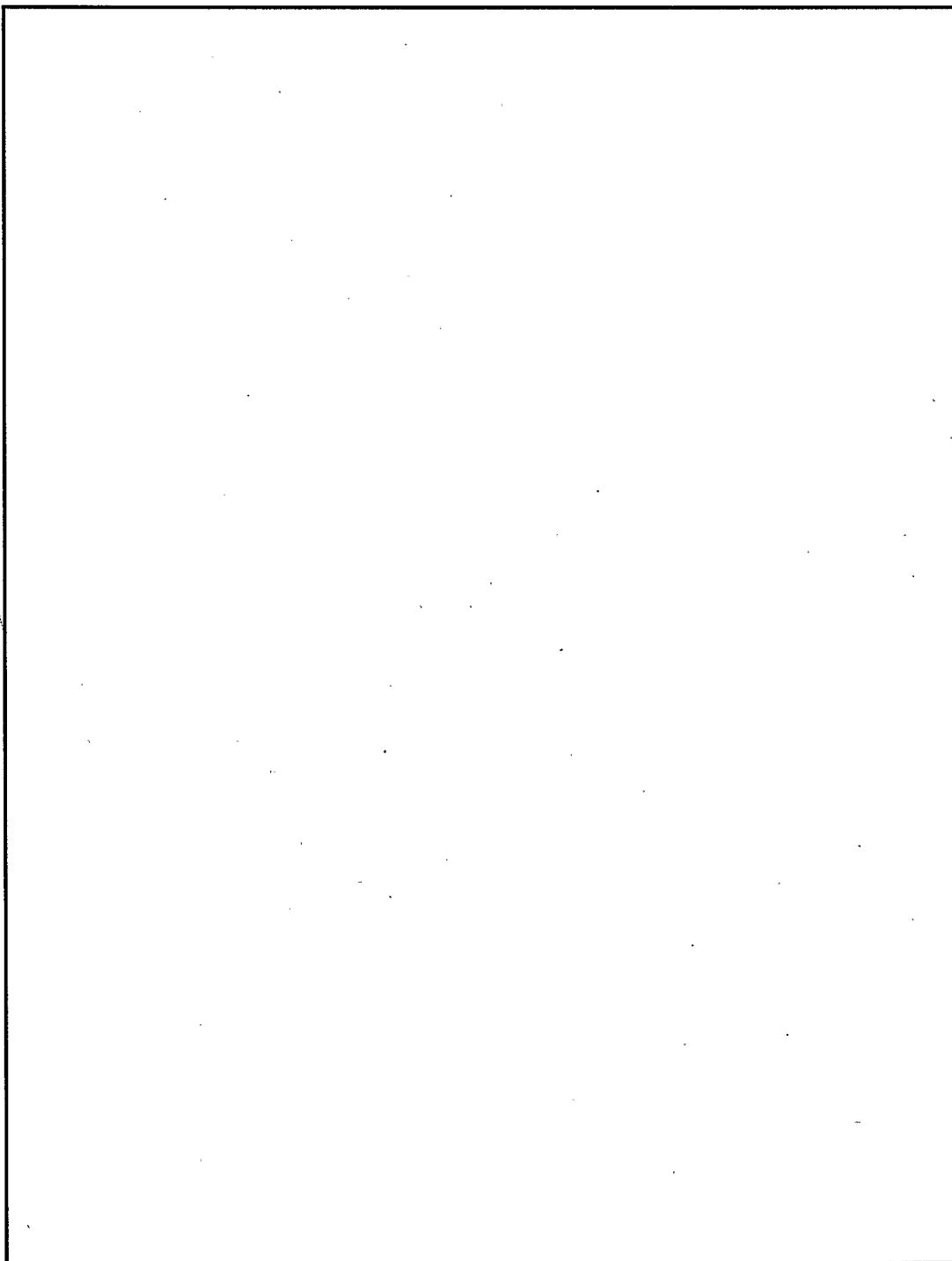


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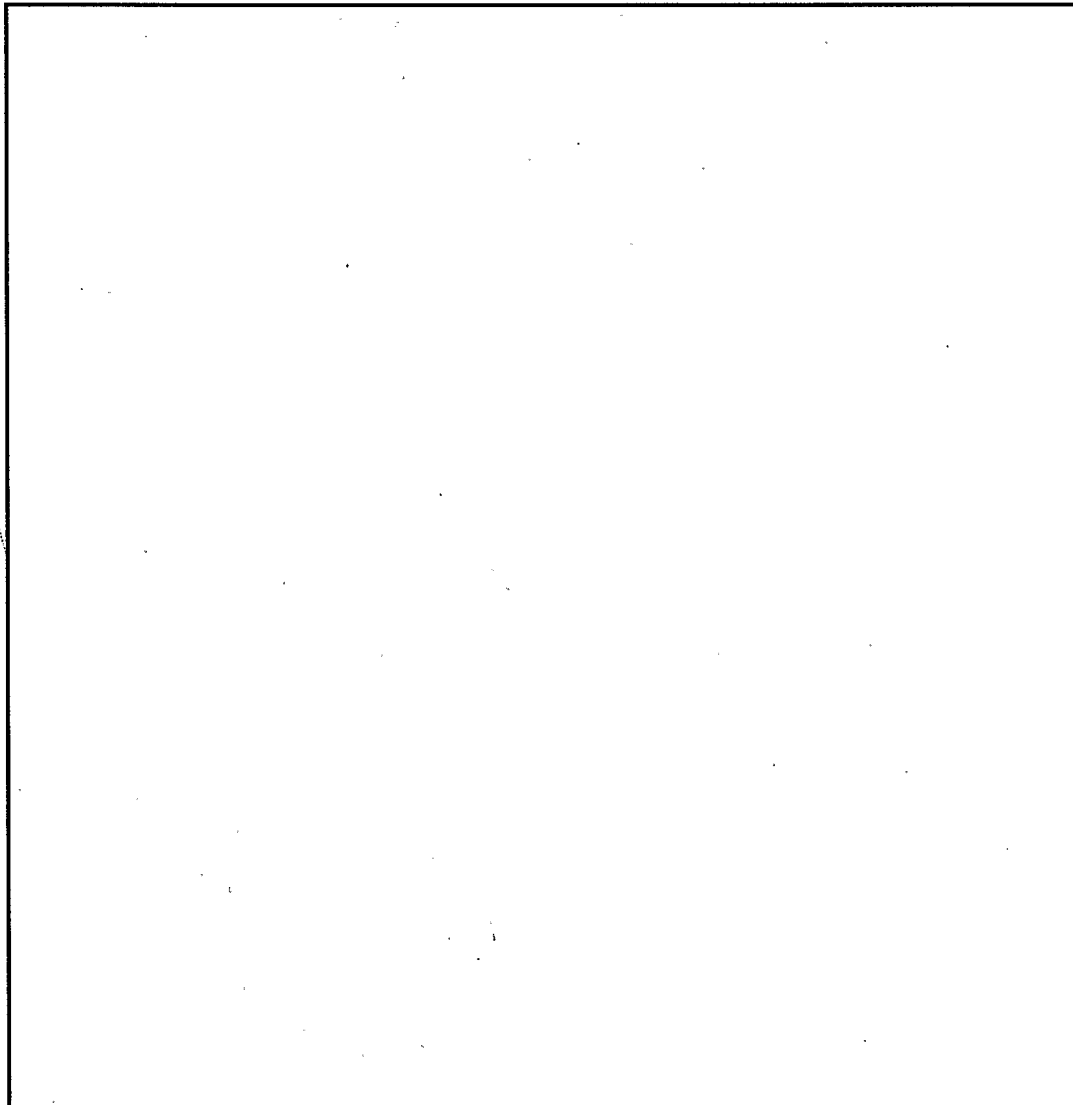
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### Overhead

Since the science fiction writings of Arthur C. Clarke in the 1930s and 1940s, it had been an American dream to place a reconnaissance satellite in orbit around the earth. At the end of World War II, General Curtis LeMay, then deputy chief of staff for Research and Development for the Army Air Corps, commissioned the Rand Corporation to do a study on the feasibility of just such a project. The Rand study, dubbed Project FEEDBACK, proceeded in secret for eight years. It was finally turned over to the Air Force in 1954, coincident with the Eisenhower administration's thorough examination of the strategic warning dilemma under the Killian Board (see p. 229).<sup>158</sup>

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The Technological Capabilities Panel (TCP) on the Killian Board recommended that Eisenhower proceed with the highly compartmented U-2 project being developed by Lockheed. In addition, the Intelligence Committee of the TCP, chaired by renowned optics scientist Edwin Land, recommended that the United States begin to develop reconnaissance satellites. This also got Eisenhower's approval, and it proceeded along a parallel track.<sup>159</sup>

The Air Force immediately began developing an intelligence satellite program. The prime objective was photoreconnaissance, but the initial operational requirement, published in 1955, also contained provisions for an ELINT package.<sup>160</sup>

From the beginning, the program was beset by competing jurisdictions and security concerns. The Air Force, the Navy, and CIA (the latter by virtue of its domination of the U-2 program) all designed entries into this new intelligence sweepstakes. The prize for the most successful system was money and people, both on a very large scale. Overhead reconnaissance loomed as the biggest potential spender in the intelligence system.

Once the Soviets launched *Sputnik* in 1957, American attention focused on a competitor. Although the main objective would be reconnaissance, it would have been imprudent to be up front with this. So in 1958 Eisenhower decided that the Americans would publicize their satellite program as a purely peaceful program, with scientific objectives. The first program, called Discoverer, was pushed ahead as an overt "white" program. Reconnaissance would be a "black," covert program, with classified payloads attached initially to the Discoverer vehicles.<sup>161</sup>

The way Eisenhower created it, the new overhead program had a divided jurisdiction. The Air Force was to build and launch satellites, while CIA was to process the photography. The first processing center was actually set up by CIA to process photos from the U-2. Called NPIC (National Photographic Interpretation Center), it was established in the old Steuart Motor Car Building at 5th and K St., N.W., in downtown Washington. The CIA's Richard Bissell was in charge of the program, and Arthur Lundahl headed NPIC.<sup>162</sup>

Meanwhile, the Air Force had set up operations on the West Coast. In October 1955, the Air Force moved its satellite development project from Wright-Patterson AFB in Ohio to Inglewood, California, locus of their ballistic missile development. This was done in order to insure that both programs remained in synch and that they would not compete for boosters. To control satellite operations, the Air Force chose to collocate with its prime contractor in California.<sup>163</sup>

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### The Air Force ELINT Programs

The first SIGINT packages were a product of SAC's desire to support the SIOP, or Single Integrated Operational Plan, the plan for nuclear war with the Sino-Soviet Bloc. [redacted]

[redacted] At the time (the mid-1950s), ELINT was blissfully fragmented, and NSA was a COMINT agency. SAC proceeded with its program unchallenged.<sup>164</sup>

While all this was going on, [redacted] working in CIA's Office of ELINT, became concerned that the ELINT payloads might not be ready for the first launch of a photoreconnaissance satellite. [redacted] concluded that a small, interim, piggyback payload could be designed and ready for the first launch. Its only mission would be to detect threat radars. The interim program was called [redacted] and it became an end unto itself.<sup>165</sup>

OGA

Discoverer experienced all sorts of disasters, as payload after payload plunged into the ocean, was fired into an unrecoverable orbit, or just exploded on launch. But when the first photoreconnaissance payload (Discoverer XIII) actually achieved its mission and was snagged on reentry by elated Navy frogmen in August of 1960, [redacted]

### Program Management

[redacted] remained an Air Force program, and SAC did the early signals processing. But in 1961 McNamara appointed Eugene Fubini to look into the proper relationships in the SIGINT satellite program. The Fubini committee concluded that the SIGINT satellites had to be a partnership. The satellite payloads and their booster systems remained an Air Force and NRO concern, but processing and reporting became an NSA responsibility. This decision led to a series of fragmented agreements between NSA, on the one hand, and the various satellite operators on the other, regarding the precise terms of NSA's participation in each program.<sup>167</sup>

One beneficial result of the Fubini study was the signing, in September 1961, of a formal agreement between NSA and SAC regarding the processing of ELINT from the Air Force program. Essentially, they agreed that a certain amount of parallel processing would be done - NSA to benefit the intelligence community, SAC to support the SIOP.<sup>168</sup>

In 1961, just before leaving office, Eisenhower set up a special compartmentation for overhead reconnaissance. Called Talent-Keyhole, or TK for short, it covered both the on-going U-2 program and the nascent satellites. CIA, which exercised general supervision of

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the programs, [redacted] PK-billets, of which NSA would have exactly [redacted] (The Byeman compartment was set up two years later to handle technical aspects of the satellite programs.)<sup>169</sup>

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The next year the two main players in the satellite reconnaissance game managed an accommodation. The CIA and Air Force agreed that a new multiagency program would be established, called the NRP (National Reconnaissance Program). The CIA component of the NRP would be headed by Richard Bissell, who had managed the U-2 program from its infancy. The Air Force component would be housed in a new organization directly responsible to the secretary, called SAFSS (Secretary of the Air Force Space Systems), with Joseph Charyk as its head. The same directive established a joint agency, the National Reconnaissance Office, or NRO.<sup>170</sup>

NSA was still a minor player. It had very few cleared people, and its only responsibility was to process and report ELINT data. Even though NSCID 6 gave it significant responsibilities in both ELINT and COMINT, NSA had no official role in the tasking of reconnaissance satellites.<sup>171</sup>

Satellite tasking was then handled by COMOR (Committee on Overhead Reconnaissance), a USIB subcommittee. COMOR was concerned at first only with PHOTINT, but as the ELINT packages broadened in function from purely a vulnerability assessment to wider intelligence applications, ELINT tasking came to be done by the SIGINT Working Group (SWG) of COMOR.<sup>172</sup>

SWG tasking tended to be very specific, and mission ground stations found it almost unworkable. NSA was used to having USIB set general collection priorities, which the NSA tasking messages would flesh out. One of the problems that bedeviled the overhead program for years was the lack of sufficiently flexible tasking documents.<sup>173</sup>

In 1962, reacting to this situation, NRO set up a Satellite Operations Center (SOC) in the Pentagon. NSA predictably saw this as another intrusion into its authority to task SIGINT collectors, and it soon was sending representatives to the SOC to represent its interests.<sup>173</sup>

Tasking continued to be handled by COMOR until Huntington Sheldon of CIA became chairman of the SIGINT Committee in 1967. Sheldon lobbied USIB to split apart SIGINT and PHOTINT satellite tasking and succeeded in getting COMOR divided into two pieces. A new USIB committee, COMIREX (Committee on Imagery Requirements and Exploitation) tasked satellites, while another committee, SORS (SIGINT Overhead Reconnaissance Subcommittee) tasked the ELINT and COMINT payloads.<sup>175</sup>

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### The Advent of Overhead COMINT

Although satellites were originally the domain of PHOTINT and ELINT, NSA was studying possible COMINT applications. A 1959 study by NSA analyst [redacted] concluded that it would be feasible to collect COMINT signals from the ELINT packages aboard Air Force satellites.<sup>178</sup>

Beginning in the early 1960s, experimental COMINT-targetted payloads piggybacked on the [redacted] systems.

[redacted]

### The [redacted] Payloads

In the early [redacted] days engineers designed a specialized payload that would do ionospheric mapping [redacted] They realized during the development phase that the payload could be injected into an orbit different from the mother payload. Since the objective was independent of satellite electronic defense, there was no special reason for it to stay with the main payload. This led to the development of a separate program [redacted]

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### Program C

The Navy's share of the satellite pie was called Program C. (Program A was Air Force and Program B was CIA.) But, though it was last in the alphabet, it had the first successful launch of an ELINT payload on 22 June 1960. Moreover, the Navy designed a unique program that outlasted all the others.<sup>180</sup>

The program was actually conceived early in 1958 by Naval Research Laboratory engineers. They designed a program to receive [redacted] and transmit this intercept in real time to Navy ground sites [redacted]

[redacted] These ground sites were self-contained units called ESV huts, mounted on vans that could be moved around quickly. The huts would be located primarily at NSG field sites, but because of geography it might be necessary to use sites owned by other organizations.<sup>181</sup> Most sites acted as "dumb" terminals, receiving and recording the signals. Recordings were shipped to NSA for analysis.<sup>182</sup>

This early program, which was solely under the auspices of the Navy, was called [redacted] and was referred to in unclassified terms as GRAB. It was the first to document the extremely rich radar signals environment in the Soviet Union. But to some extent it was a targetting anomaly. The Navy was collecting signals of interest to all services and the CIA, but the program was not doing ocean surveillance. In 1962 the program was subsumed within the overall satellite collection system as Program C, and it was renamed POPPY.<sup>183</sup>

In 1966 [redacted] showed considerable progress toward site construction [redacted] This became a matter of grave concern to the President's Scientific Advisory Committee, and a study group was appointed. If [redacted] were not the highest priority target up to that point, the committee made them such. A series of [redacted] payloads was developed and launched rapid-fire to respond to the concern.<sup>184</sup>

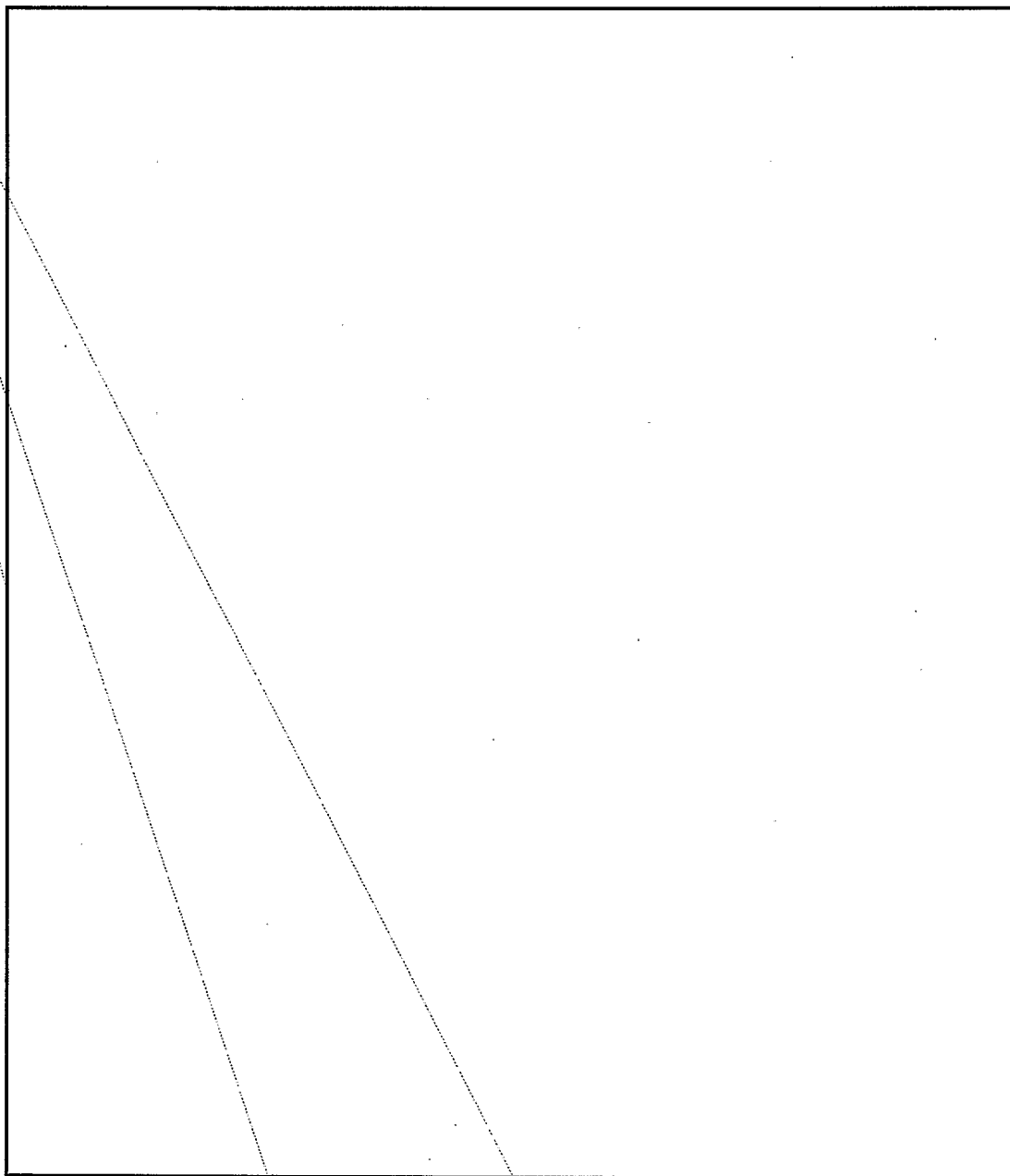
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Program C was also affected. [redacted]

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As for the control issue, that was solved [redacted] by moving tasking control to NSA. [redacted] NSA set up a new facility called SSSC (SIGINT Satellite System Control) to provide technical support and tasking guidance to the program. Some non-NSA USIB members were less than pleased because SSSC amounted

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to a de facto delegation of tasking control to NSA. The direction was irreversible, however, and by 1972, representatives from the SOC in the Pentagon had moved to SSSC.<sup>188</sup>

The program was not popular downtown, and it came under repeated attack. When this happened, Admiral Gayler himself indicated that he wanted to attend the NRP Executive Committee meetings to defend the program. At his very first meeting, Gayler went on the attack, not just defending the money that had been put into the system to date, but demanding more money to launch more satellites and to buy more processing equipment.

#### RAINFALL

The RUNWAY program was encountering such ferocious opposition in Washington partly because CIA already had a competitor. The CIA project had been initiated by Albert "Bud" Wheelon, who had come to CIA during the early years of the Kennedy administration. A brilliant and aggressive administrator, as well as a top-notch scientist, Wheelon had been newly installed as John McCone's director of science and technology when he read about the Syncom II geosynchronous satellite.

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The project was fraught with tremendous risk.

The Department of Defense, wanting CIA out of the satellite business anyway, opposed it from the beginning.<sup>191</sup>



Albert "Bud" Wheelon

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CIA cleared no one at NSA. Thus, CIA knew about NSA's nascent plans [redacted]

[redacted] This situation changed in the late summer of 1965, because General Marshall Carter migrated from the position of deputy DCI to director of NSA. When he arrived, he arranged to clear a handful of NSA people and sent them to CIA to learn [redacted]

The road proved rocky in the extreme. CIA wanted no NSA participation at all, and in the early months did a great deal to shut NSA out. But a breakthrough of sorts occurred in December of 1965, when [redacted]

[redacted] to clear the air. Through these high-level contacts, the two organizations began joint planning.<sup>198</sup>

NSA immediately suggested that COMINT become an ancillary mission. After a period of hesitation, CIA accepted the proposal and gave NSA the job of collecting what COMINT they could from a bird whose job was TELINT, not COMINT. Through the Director's Advisory Group for ELINT and Reconnaissance (DAGER), headed by Charles Tevis, NSA negotiated the details of their participation [redacted] NSA got a COMINT processing subsystem and an ELINT subsystem [redacted] and when the money for those systems was cut from the budget, NSA allocated CCP funds. DAGER was also instrumental [redacted]

[redacted] Eventually NSA provided all the COMINT staff and about half of the TELINT crew.<sup>195</sup>

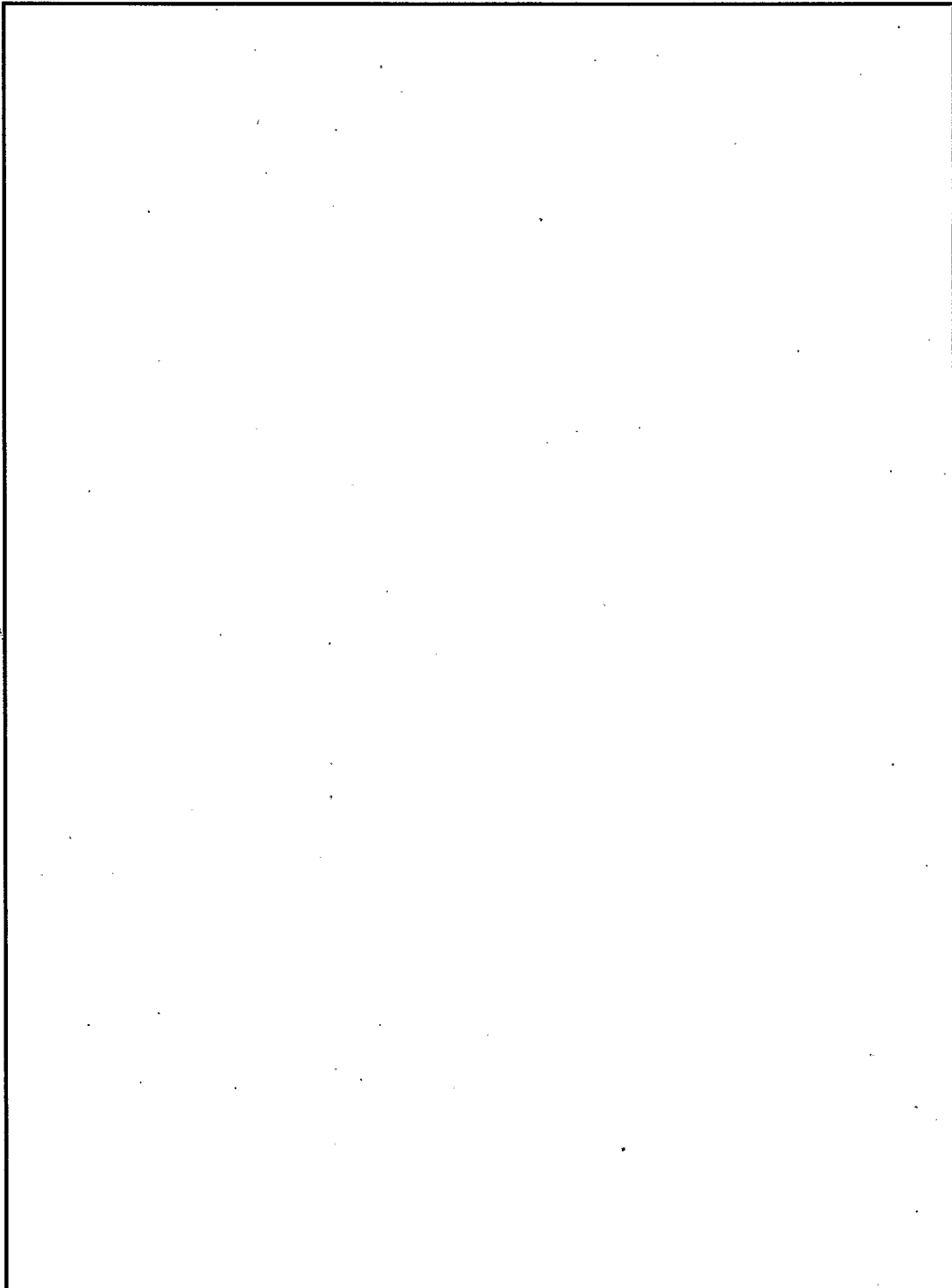
SIGINT satellites were the wave of the future, and they offered breathtaking new opportunities [redacted]

[redacted] But it also offered a significant new battleground for the control of intelligence resources. CIA-Air Force conflicts over the control of imagery became well known to the American public through the publication of such books as William Burrows's *Deep Black*. Far more obscure, but just as fierce, was the competition between NSA and others (especially CIA) over the ownership and control of SIGINT payloads. It eventually settled down to a series of compromises based on the areas of respective technical competence. But the early years, when these compromises were still in the future, were not easy.

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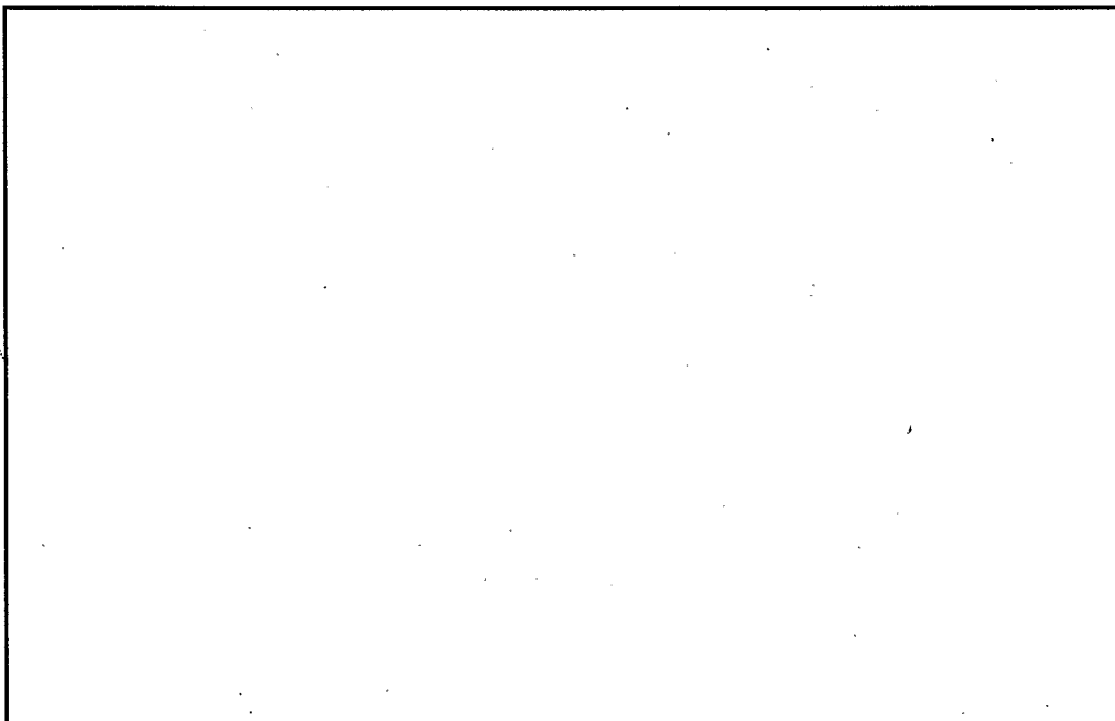
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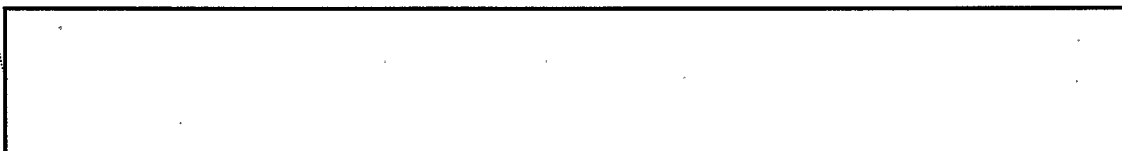
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Germany



Basically the BND, like almost all West German governmental organizations, was penetrated and publicized. The problems began in 1952, when a leftist journalist named Sefton Delmer published a highly critical article in the *London Daily Mail* entitled "Hitler's General Now Spies for Dollars." Delmer appeared to get much of his material from one Otto John, who had headed the West German equivalent of the FBI until his defection to East Germany. John was, in 1952, engaged in a bitter bureaucratic struggle with Gehlen over the control of intelligence.<sup>200</sup>

Things just went from bad to worse. In 1953 one Hans Joachim Geyer, a member of the Gehlen organization, fled to East Germany with the names of Gehlen agents. Within hours more than 300 Gehlen agents had been rounded up, and East Germany exposed the "spy ring" in a resonating press conference. Geyer had been passing classified documents to the KGB for several years, although it appears that he was not involved in SIGINT.<sup>201</sup>

But the coup de grâce was not administered until 1961, with the exposure of Heinz Felfe. A rising star in the BND, Felfe had worked for the KGB since the early 1950s and had passed thousands of documents. He worked in counterintelligence, not SIGINT, but his

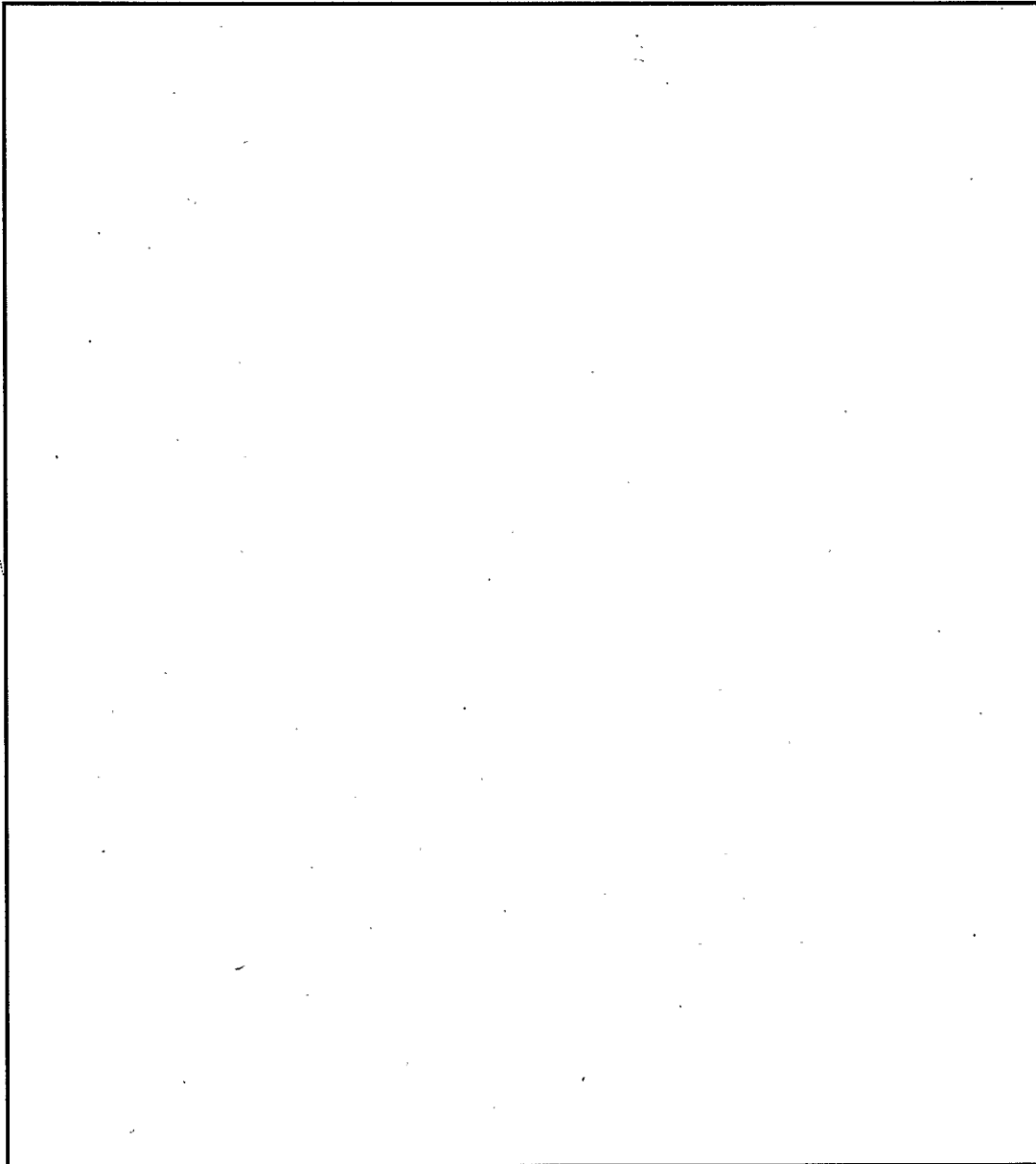
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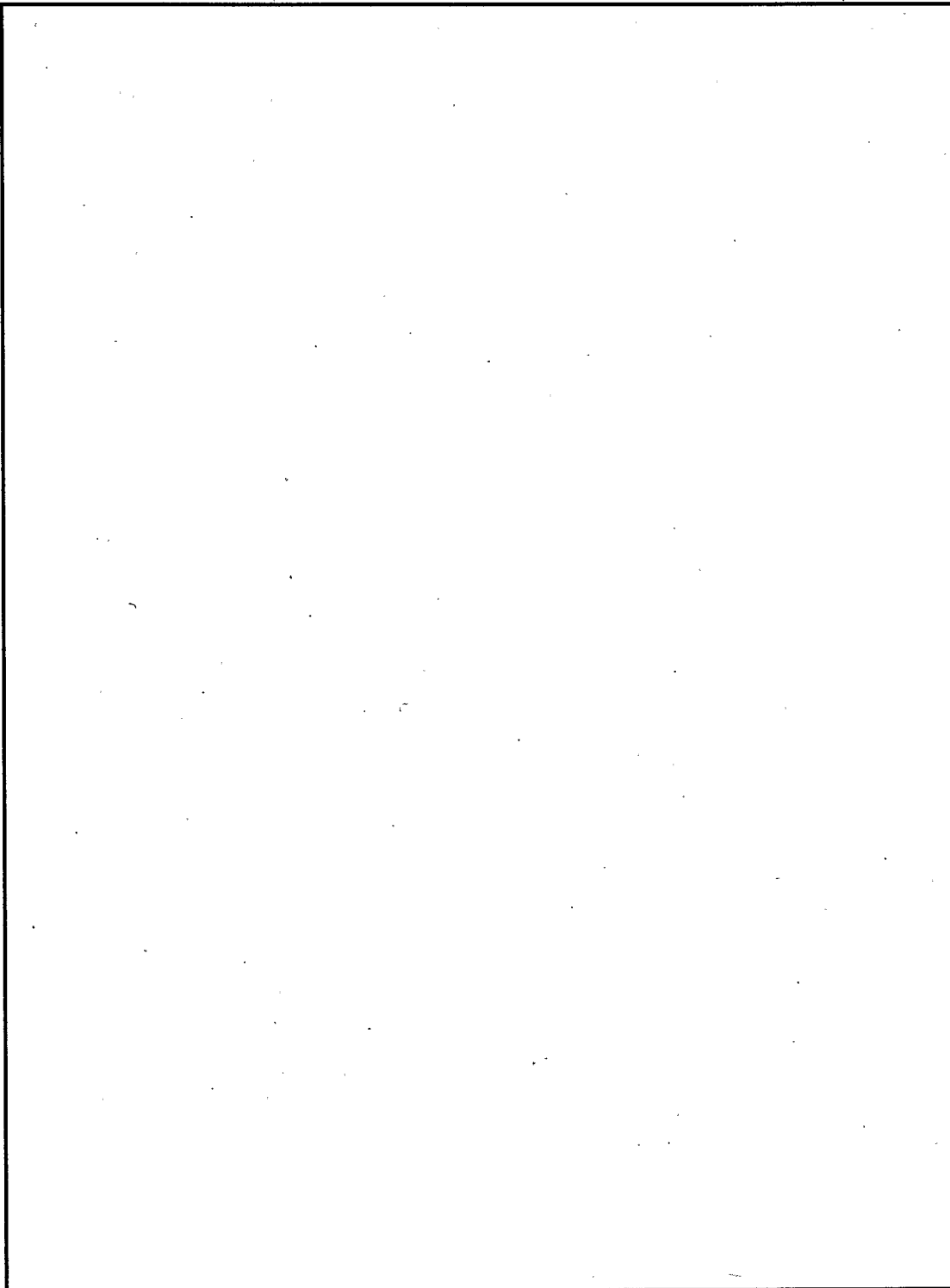
access was very wide, and nothing in the BND was really safe. The exposure of Felfe in November 1961 led to a prolonged and highly public spy scandal, during which it was revealed that the BND had been thoroughly compromised by the East Bloc. At the same time Gehlen himself was involved in a public row with Franz Josef Strauss, the minister of defense. His inflexibility in dealing with outsiders, and his lack of appetite to rid the BND of East Bloc agents, ended his effectiveness. Gehlen continued to head BND until 1968, but withdrew more and more from active management.<sup>202</sup>



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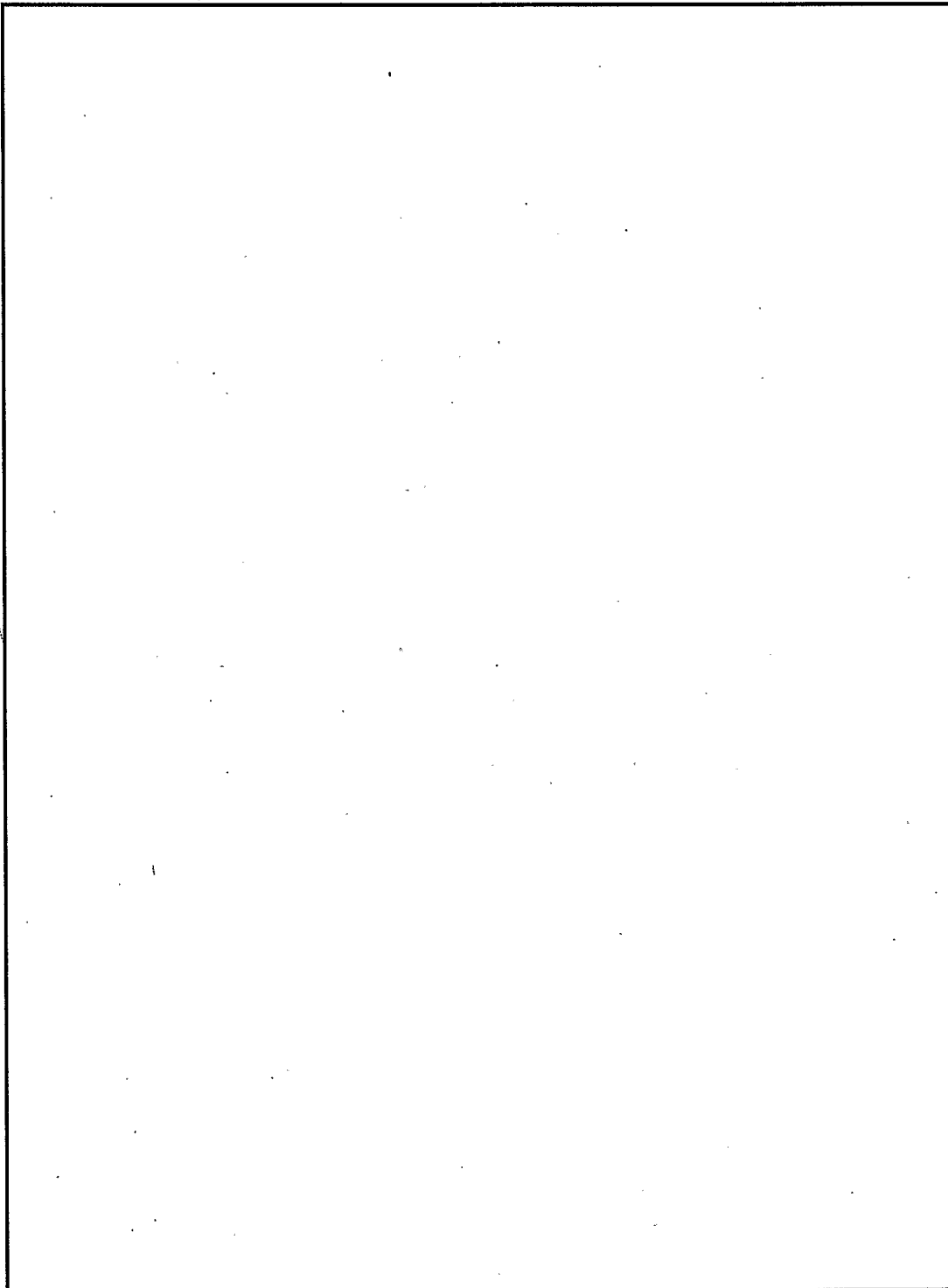
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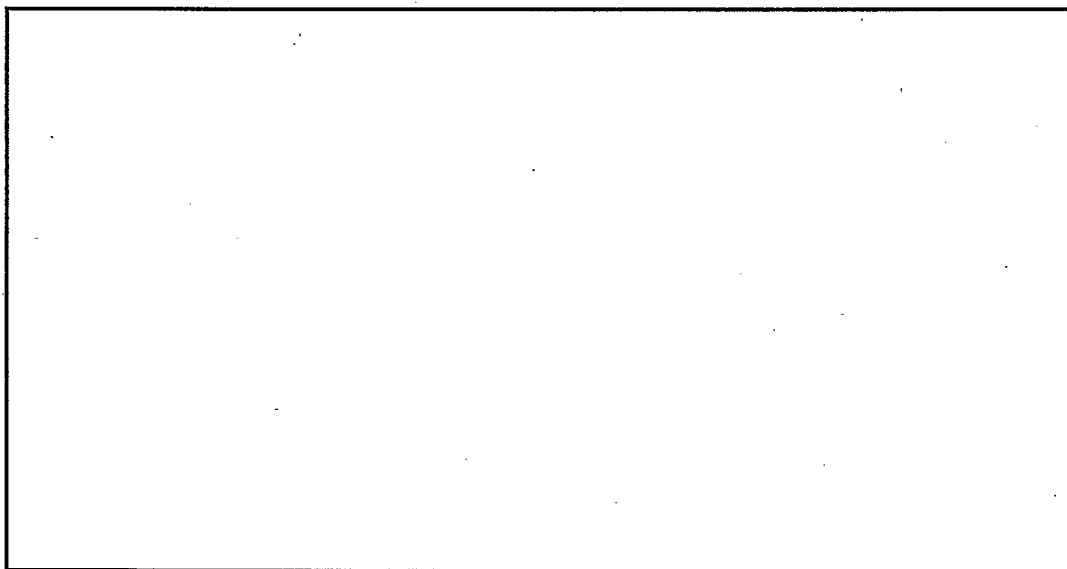
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## Chapter 10

### SIGINT in Crisis, 1967-1969

After the relatively placid decade of the 1950s, the 1960s produced a series of international paroxysms unmatched in post-World War II history. Although cryptology was involved in virtually all the events, four crises in late decade had particular impact on the cryptologic business. The Arab-Israeli War of 1967 was a defining moment in cryptologic contributions to the intelligence picture. The Soviet invasion of Czechoslovakia in August 1968, and the accompanying crisis concerning Romania, helped shape SIGINT production and reporting in later years. The other two events, the capture of the *Pueblo* in 1968 and the shootdown of the naval EC-121 in 1969, were uniquely cryptologic in their origins and implications, and they changed the way NSA and the cryptologic community have done business from that day to this.

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#### SIGINT AND THE SECOND ARAB-ISRAELI WAR

On the Arab side, the late 1950s marked the height of pan-Arab sentiment. In 1958 Egypt's Nasser had convinced Syria to join Egypt in forming the United Arab Republic (UAR). But the idea never worked. Syrians chafed under heavy-handed Egyptian bureaucratic regimentation. In 1961 Nasser, believing that state socialism was the only true path, nationalized virtually all manufacturing, banking, and utilities. He also reduced to 100 acres the amount of land that a farmer could own, and he put a ceiling on the amount of money that a citizen could earn. This was too much for the Syrians, and two months later a military coup in Damascus ended the Syrian involvement in the union. Nasser, hoping that another Arab state would take Syria's place, obstinately kept the name (UAR), but none did.<sup>1</sup>

Three years later a new transnational organization emerged. The Palestine Liberation Organization (PLO) was formally established at a conference in Jerusalem in 1964 with Ahmed Shukeiri as its head. It formed a conventional army composed of Palestinians and their Arab sympathizers throughout the Middle East. The real power, however, developed around a guerrilla movement called al-Fatah, headed by Yasir Arafat.<sup>2</sup>

A low-intensity Fatah-Israeli conflict developed almost immediately. It was punctuated by cross-border raids and terrorist bombings, and each incident led to reprisals

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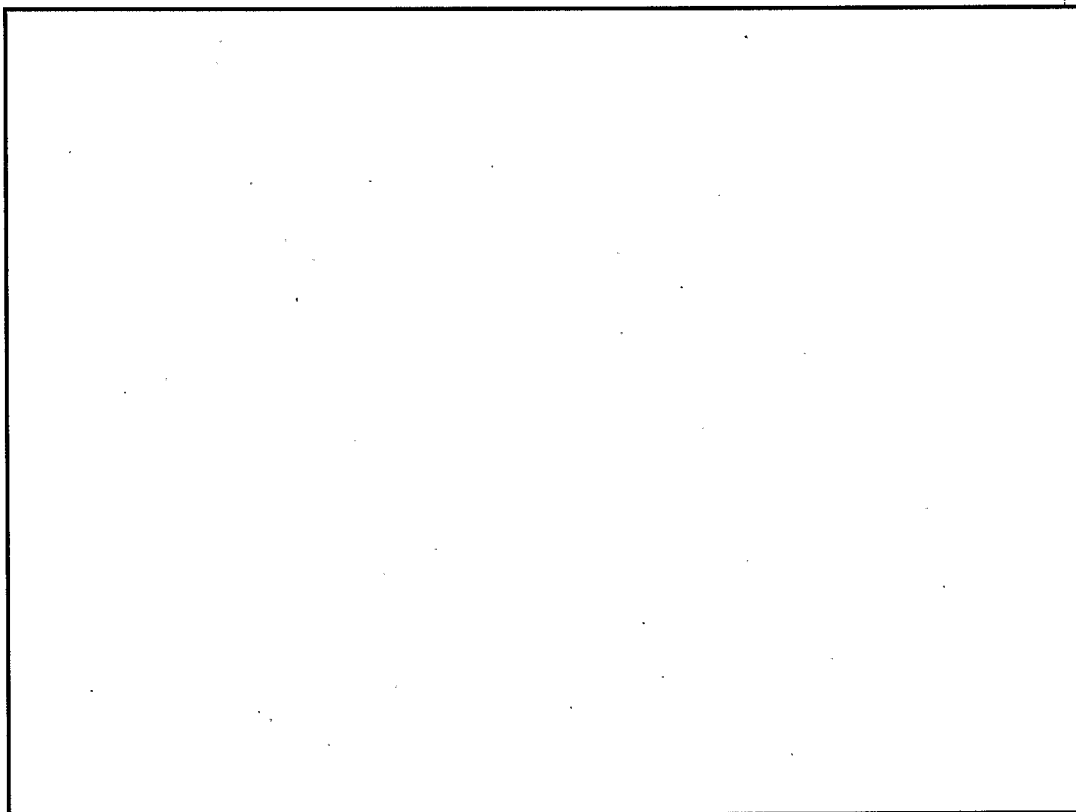
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which created the foundation for the next incident. At the same time, the ambitious Nasser was becoming enmeshed in a civil war in Yemen in which the other proxy was Saudi Arabia. This created strains in the Arab world and accentuated the division between the so-called Nasserists and the more conservative Arab governments like Saudi Arabia and the Arabian desert sheikdoms.

By early 1967 the Middle East was clearly about to boil over. Terrorism was at a high level, and Nasser seemed spoiling for a fight. Then on 14 May [redacted]

[redacted] Three days later, on 17 May, Nasser demanded the withdrawal of UN forces from Gaza, and UN troops immediately began evacuating what was obviously to become a war zone. On 23 May Nasser took the warlike step of blockading the Straits of Tiran, and he announced that Israeli commercial shipping, whether in Israeli or foreign bottoms, would be stopped.<sup>3</sup>

### The Cryptologic Posture

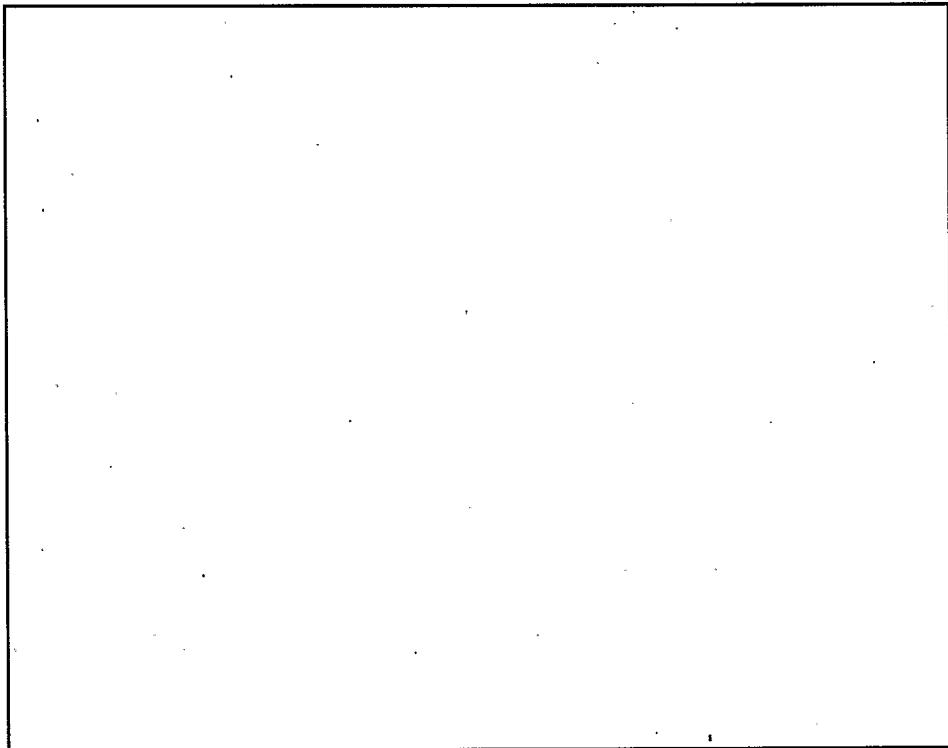


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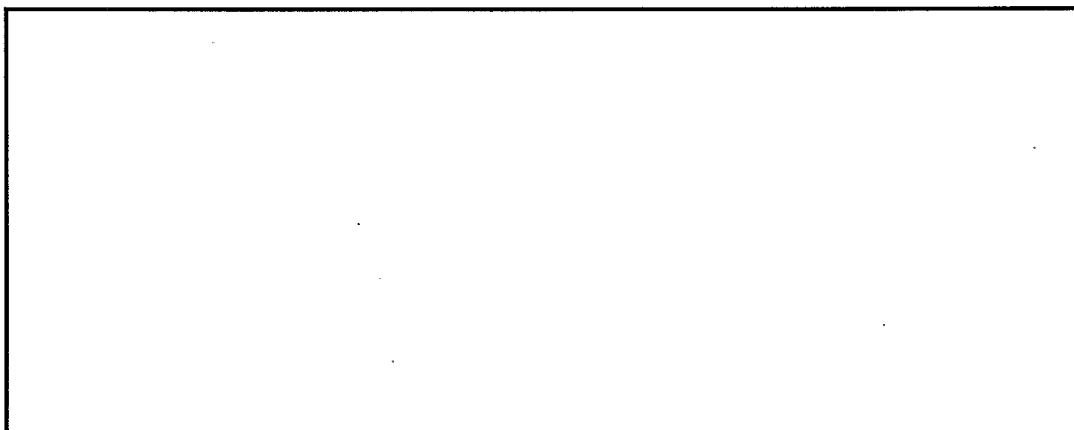


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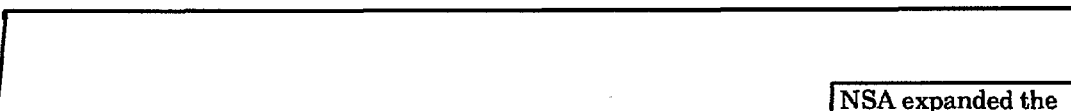
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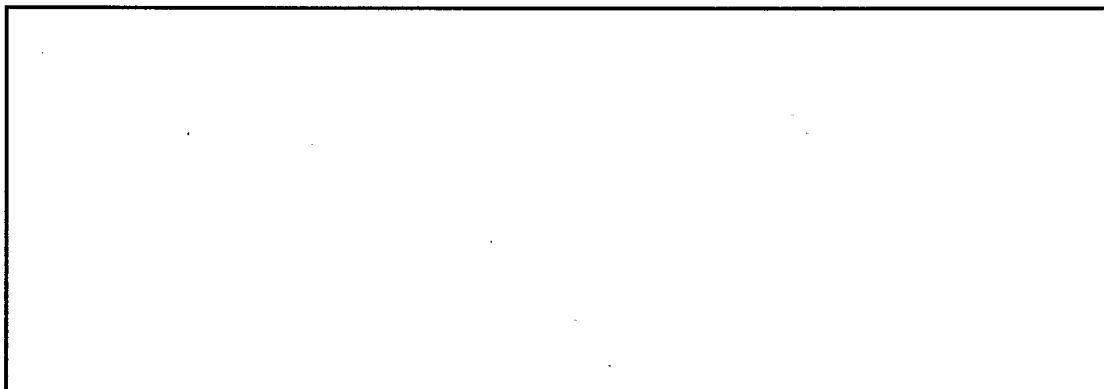


Prior to Nasser's eviction of UN forces from Sinai, there was no consensus in the U.S. on the likelihood of war. A National Intelligence Estimate published in April assessed that there was no near-term likelihood of war in the region. In May, State/INR assessed Egyptian military activities as defensive. Thomas Hughes, the top State Department intelligence analyst, based much of his estimate [redacted]

[redacted] Walter Rostow, President Johnson's national security advisor, was hopeful that things could still be resolved by negotiation, and he noted that the Soviet Union did not seem to want to get directly involved.<sup>5</sup>



[redacted] NSA expanded the alert to include the entire Middle East. This was quickly elevated to a SIGINT Readiness Bravo when Nasser closed the Straits of Tiran on 23 May. A Bravo was as high as the SIGINT readiness system could proceed short of war.<sup>6</sup> By the accounts of all involved, it was no longer a question of *if*, but *when*.<sup>7</sup>



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To further bolster collection in the eastern Mediterranean, NSA decided on 23 May (the day Nasser blockaded the Gulf of Aqaba) to deploy a TRS. [redacted]

[redacted] and realizing that even combined Air Force and Navy airborne collection could not produce round-the-clock coverage, NSA diverted the USS *Liberty* to an eastern Mediterranean cruise. The *Liberty* was selected because of its superior cruising speed (18 knots, best of all the TRSs), its multichannel collection suite, and its availability. (It had just begun a cruise and was fitted out for an extended voyage.)

[redacted]

The intelligence community had other sources of information, but none was as timely or authoritative during an expanding crisis such as existed in May of 1967.<sup>10</sup> In many ways the war preparations of 1967 resembled Japanese war preparations in 1941, [redacted]

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The entire Middle East was on the brink when, at 0745 Middle Eastern time on 5 June, Israel launched a preemptive strike on Egyptian air forces. In what became one of the classic offensive attacks in the annals of warfare, the Israelis destroyed virtually the entire UAR air force on the ground. Within a few hours, 309 out of 340 combat aircraft were in smoking ruins, including all 30 of its long-range TU-16 bombers. Unaware of how bad things were, Syria and Jordan jumped into the fray by launching attacks on Israel. But they were too late. No longer having to worry about the Egyptian air force, the Jewish state turned its attention to Syrian and Jordanian forces on its borders and to the Egyptian divisions massed in the Sinai. Having no protection in a desert environment, the ground forces were exposed and largely destroyed in three days. In all, 417 Arab aircraft were destroyed, 393 on the ground; only 26 Israeli aircraft were lost.<sup>11</sup>

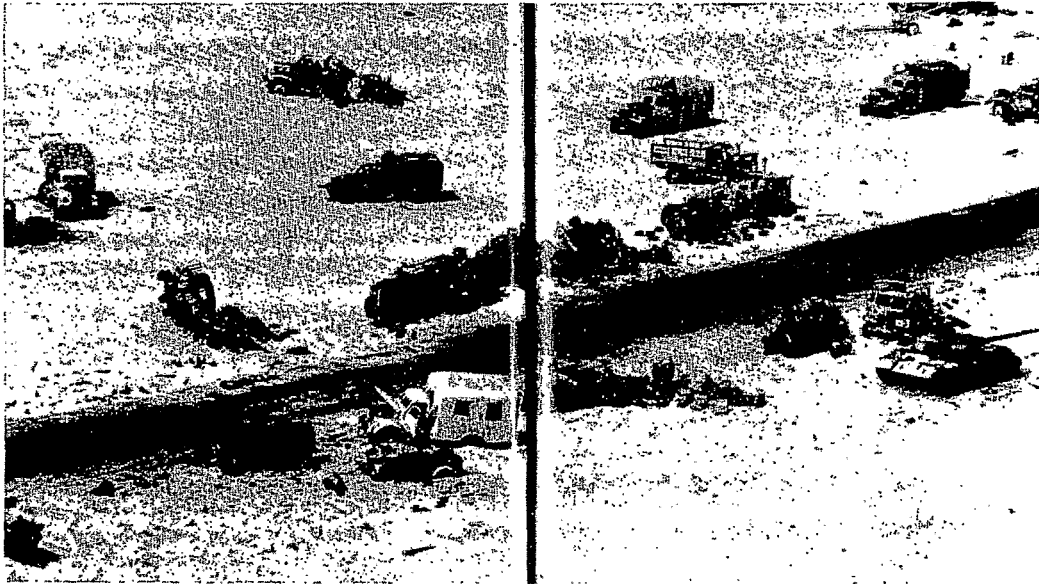
The White House first learned of the war from press sources. [redacted]

[redacted] The Arabs and Israelis were making charges and countercharges, and the president wanted to know who fired the first shots.

[redacted]

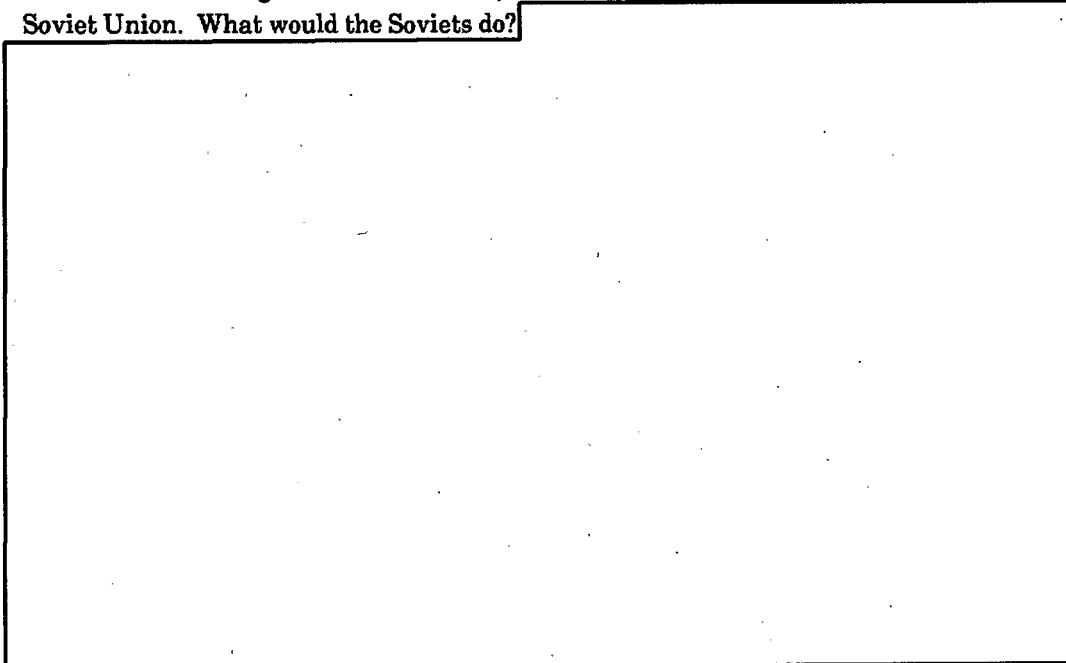
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War in the desert. Shattered Egyptian tanks smolder in the Sinai desert.

Amid the conflagration in the desert, the Johnson administration kept its eyes on the Soviet Union. What would the Soviets do?



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[REDACTED]

To White House analysts, it appeared that the Soviets were willing to fully support Arab governments with equipment but were not willing to send troops. The Arab governments misread the Soviet attitude. [REDACTED]

[REDACTED] Once the war began, the Egyptians and Syrians expected intervention - what they got was an emergency shipment of equipment to replace that which the Israelis had destroyed. [REDACTED]

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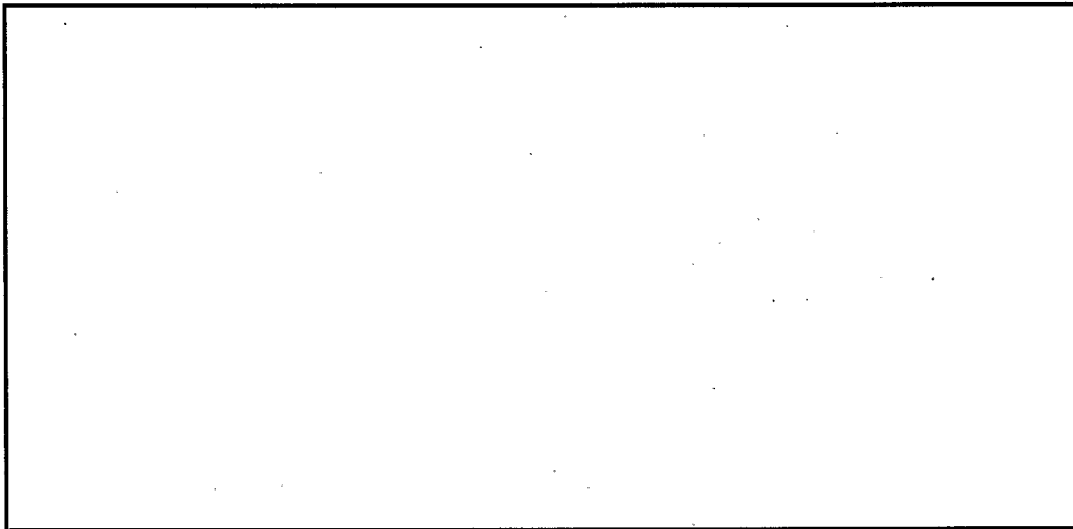
[REDACTED]

On 6 June, the Egyptians and Syrians claimed that U.S. and British forces had provided air cover for the attacking Israelis. This sensational charge, repeated and believed throughout the Arab world, was apparently intended to provoke Soviet intervention, an event that could have produced a dangerous American-Soviet confrontation. But Kosygin rejected the claim outright. [REDACTED]

[REDACTED] Nasser was furious, but he did not succeed in egging the USSR closer to involvement. That same day, Kosygin contacted Washington on the hotline and pledged to work toward peace. As the succeeding days unfolded and Israel pressed toward the Suez Canal, Kosygin's talks with the Johnson administration over the hotline became more testy, but direct negotiations played a key role in American and Soviet abilities to avoid military involvement.<sup>18</sup>

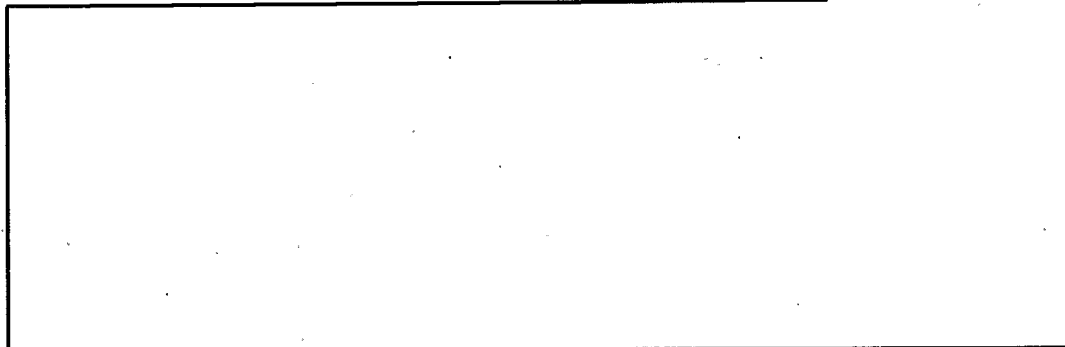
Fighting finally terminated on the tenth. [REDACTED]

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The 1967 war was the closest that the United States and the Soviet Union came to war between the Cuban Missile Crisis and the end of the Cold War.

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#### **The Attack on the *Liberty***

The *Liberty*, NSA's choice as the TRS deployment to the Middle East, was a reconditioned World War II *Victory* ship, converted to an AGTR in 1964. The vessel already had five cruises under its belt. It had 20 intercept positions, 6 officers, a SIGINT crew of 125 and an overall complement of 172 men. With TRSSCOM, ship-to-shore radiotelephone circuits, and two receive terminals for fleet broadcasts, the *Liberty* was one of the best equipped ships in the TRS inventory. The Navy approved NSA's request, and the *Liberty*, off the west coast of Africa, steamed for Rota, where it took aboard an additional 9 linguists, including 3 NSA civilians, and more keying material for its communications circuits. On the second of June, it set off for the eastern Mediterranean.<sup>21</sup>

The *Liberty's* sailing order specified that it was to stay at least 12.5 miles off the coast of the UAR and 6.5 miles from Israel. When war broke out on 5 June, the Sixth Fleet, to which the *Liberty* had been temporarily attached, was directed to remain at least 100 miles

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off the coasts of Lebanon, Syria, Israel, and the UAR, but the *Liberty's* instructions were not changed. When it arrived in its operating area late on 7 June, Captain McGonagle, the vessel's commander, still had written instructions that brought the *Liberty* close into the coast.<sup>22</sup>

Nasser's charge on 6 June that the U.S. and Britain were providing air cover for the Israelis, and the possibility that the Soviets might intervene, brought new orders to the Sixth Fleet to stand off at least 200 miles from the eastern Mediterranean littoral. The next day the JCS decided to pull the *Liberty*, the only U.S. naval vessel still in the far eastern Mediterranean, back to at least 20 nautical miles from the UAR and 15 from Israel. Later that day JCS changed again, this time to 100 nautical miles from both countries.<sup>23</sup>

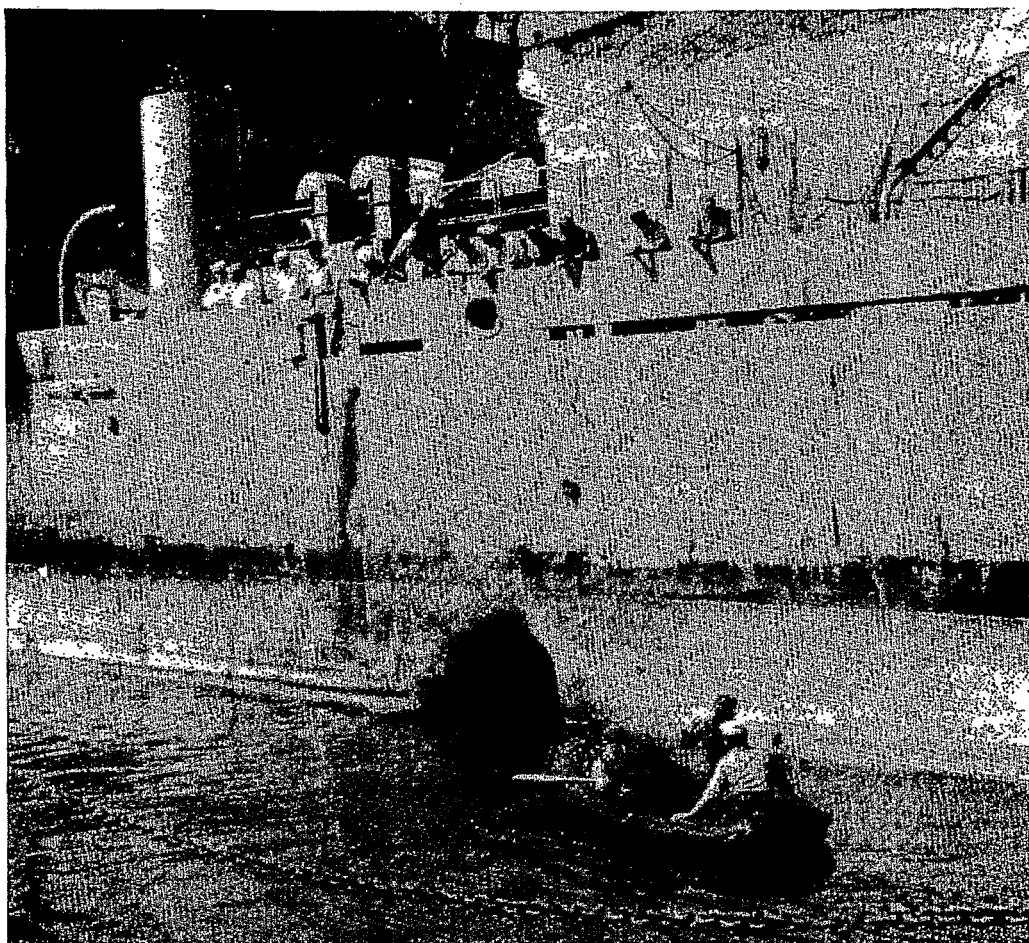
The first JCS message never reached the *Liberty* - an Army communications center misrouted it to a naval communications station in the Pacific. When, an hour later, the Joint Reconnaissance Center of the JCS decided to pull the *Liberty* back to 100 nautical miles, a series of communications fiascos occurred which stretched on into the night. Message misroutings, delays occasioned by the press of other business, refusals by the Navy to transmit based on a verbal order, all combined to delay the message receipt until after the attack. It was a repeat of the warning message to Pearl Harbor on 7 December 1941, and there was blame aplenty.<sup>24</sup>

The *Liberty* was reconnoitered by several unidentified aircraft during the morning hours of 8 June. That afternoon it was about twenty-five nautical miles north of the Egyptian city of Al Arish when, at about 1400 local, two French-built Israeli Dassault fighters veered toward the ship and began strafing it with cannon and rockets. The attack put some 821 rounds into the hull and superstructure, wounded McGonagle, and killed 8 crewmembers. The *Liberty* managed to get off a desperate message to Sixth Fleet before the power to the radio equipment went out, and Admiral Martin, the Sixth Fleet commander, launched 4 armed A-4 Skyhawks for air cover. Since his flagship was 450 nautical miles away from the *Liberty*, however, the aircraft did not arrive before 3 Israeli torpedo boats launched 2 torpedoes at about 1430. The torpedoes tore through the SIGINT spaces, killing 25 men and putting a hole in the hull 39 feet across. As the crew of the *Liberty* scrambled to keep the vessel afloat, one more crewmember was killed by machine-gun fire from 1 of the torpedo boats.<sup>25</sup>

Once the torpedo boats departed, McGonagle directed his vessel to Malta. Sixth Fleet escorts reached the *Liberty* sixteen hours after the attack and trailed the vessel, picking up classified and cryptographic keying material escaping from the hole in the hull. The *Liberty* limped into Malta on 14 June after a heroic struggle to stay afloat that eventually earned McGonagle the Medal of Honor. In all, thirty-four crewmembers were killed, including one NSA civilian Arabic linguist, Allen Blue. The men lost their lives in a war

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*The Liberty at Malta after the attack*

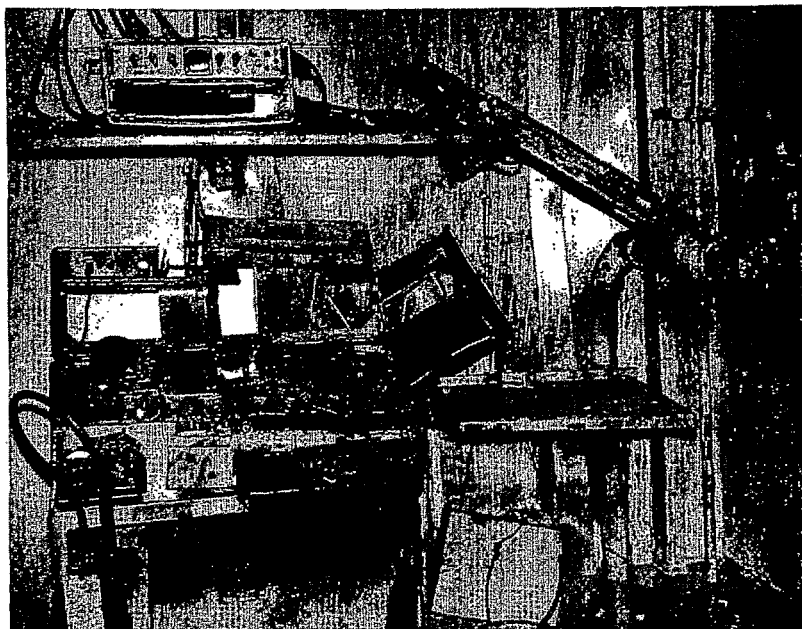
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*The Liberty SIGINT compartment*



*Another view*

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in which the U.S. was not a combatant because of errors in a military communications system that, by 1967, could no longer do the job.

At NSA, word of the attack reached Director Marshall Carter at 0915 Washington time. The telephone began ringing almost at once, as word of the attack spread through Washington. While Carter was directing intercept coverage reallocation, Secretary of Defense McNamara called him (at 1015) to ask for details on the vessel and the voyage so that he could make a statement to the press. Deputy Director Louis Tordella took charge of devising a cover story. Carter diverted many of the queries to NSG. At one point during the day the director got a call from the Joint Reconnaissance Center suggesting that the vessel be sunk. Carter replied that this was the worst thing they could do - heaps of classified documents and equipment would end up in shallow water. He was right, and McGonagle's heroic piloting of his vessel to moorage in Malta saved what could have become a much worse situation.<sup>26</sup>

Lyndon Johnson got word at 0949. At the time the U.S. still did not know the identity of the attackers, but the White House soon found out through a Defense Attaché Office message from Tel Aviv that the Israeli navy had admitted the error. This presented the president with a very touchy dilemma. Because of Arab charges that the U.S. had assisted the Israelis, the Sixth Fleet was standing far away from the conflict in the central Mediterranean. Yet here, unannounced, was an American naval vessel only a few miles off the coast of Israel, in the middle of a war zone. Johnson's first concern was about Soviet reaction. He had Walt Rostow send a message to Kosygin stating that the Israelis had apparently fired on a U.S. ship in error and that the Sixth Fleet was sending ships and planes to investigate (he repeated it twice). Kosygin replied that he had passed the message to Nasser.<sup>27</sup>

Meantime, the Pentagon had released a statement about the attack, indicating that the *Liberty's* mission was to "assure communications between U.S. Government posts in the Middle East and to assist in relaying information concerning the evacuation of American dependents and other American citizens from countries in the Middle East."<sup>28</sup> This was the cover story that NSA had devised under hurried circumstances. It didn't work, but like the U-2 incident in 1960, no cover story would have worked in the situation. The press very quickly sniffed out the truth, which was attributed to an anonymous military officer that the *Liberty* was a "spy ship." According to this source, "Russia does the same thing. We moved in close to monitor the communications of both Egypt and Israel. We have to. We must be informed of what's going on in a matter of minutes."<sup>29</sup> The assertion was denied by official sources, but the true mission of the *Liberty* was never in doubt again. (The vessel did not, in fact, have an Israeli mission, because linguists were too scarce.)

How did the the incident happen? Was it a deliberate attack by Israel, as has been alleged countless times by many people? (Even General Carter believed it to have been deliberate.) If it was an accident, how could the Israelis have possibly misidentified the

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ship? The *Liberty* was flying an American flag, was clearly marked on the hull "AGTR-5," and when the first flag was shot down by the attacking fighters, McGonagle hoisted the largest flag he had aboard, a holiday ensign seven by thirteen feet. This enormous flag was flying above the *Liberty* when the torpedo boats executed their attack.<sup>30</sup>

The idea that the attack was deliberate turned out to be wrong. Although there was no SIGINT bearing directly on the attack, there was a [redacted] report shortly after the incident dealing with the aftermath. It reported air/ground conversations between a ground controller at Hatsor and two Israeli helicopters which reconnoitered the *Liberty* as it was turning toward Malta. Hatsor first identified the vessel as Egyptian, but later became unsure, and requested that the helicopter crews "verify the first man that you [bring up] as to what nationality he is." A few minutes later Hatsor instructed: "Pay attention: if they speak [B-val Arabic] and are Egyptians take them to Al Arish. If they speak English and are not Egyptians, take them to Lydda . . . the first thing is for you to clarify what nationality they are." Two minutes later Hatsor asked, "Did it clearly signal an American flag?" And a minute later, "Requesting that you make another pass and check again whether it is really an American flag."

One can imagine the panic at Israeli naval headquarters at the time. They had apparently attacked a vessel of their closest ally.

Based on this report, Rostow told Johnson that the Israelis appeared to be confused about the nationality of the vessel, and he suggested that there might have been some breakdown within the Israeli military which resulted in the attack.<sup>31</sup>

The official Israeli court of inquiry concluded on 21 July that it had in fact been an identification error. When the *Liberty* was first discovered by an Israeli spotter plane on the morning of the eighth, it was unidentified but possibly hostile, and a red marker was placed on the map in the naval war room. Later in the morning, the identification was tentatively changed to friendly (American), and a green marker replaced the red one. But the Israeli navy then went a period of time without a location, and someone, instead of retaining the green marker with a question mark, pulled it off the map entirely.<sup>32</sup>

The shift changed at 1100 Israeli time, and the new shift knew nothing about the American vessel, which was no longer designated on the map. What they did know was that Israeli army units in the Sinai coastal town of Al Arish were reporting artillery bombardment from an unknown source. (It later turned out to be the explosion of an ammunition dump.) The Israelis began searching the sea for a possible hostile ship, and they found the *Liberty*. The crew of the vessel that did the identification claimed that its radar showed the ship to be heading at twenty-eight knots toward Suez (an impossible speed for the *Liberty* - an error by the radar operator), and Israeli naval control ordered an air attack. Two Mirage fighters on their way home from an air patrol over the Suez Canal were diverted to the spot where the supposed hostile was. After a quick pass, the pilots

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claimed that the ship was not displaying a flag (another error) and were ordered to execute an attack.

The torpedo boats arrived in the area at 1418. A low-flying aircraft had just radioed to its controller that he had seen a marking "CPR-5" on the hull. The naval controller told the torpedo boats to attempt a better identification, but the captain of one of the boats claimed that when he requested identification, the ship requested him to identify himself first. Based on identification aids available on board, it appeared to him to be the Egyptian supply vessel *El-Kasir*, and with this information in hand Israeli naval control again ordered an attack. After the first torpedo hit the boat, the markings "CTR-5" were observed on the hull. Control immediately terminated the attack, just before the torpedo boats were about to launch additional torpedoes that would have sunk the *Liberty*. An Israeli helicopter flying over the ship after the attack finally noticed an American flag, and the Israeli navy realized what it had done.<sup>33</sup>

An Israeli court of inquiry, whose findings were kept secret at the time (but which were uncovered and published by two Israeli journalists in 1984), condemned the confusion, incompetence, and interservice rivalry that contributed to the attack. There was no finding of a deliberate attack, but there was plenty of blame for all the Israelis associated with the incident.

The Johnson administration was properly outraged. The State Department, in a scathing statement highly unusual for diplomats, called the attack "quite literally incomprehensible. As a minimum, the attack must be condemned as an act of military recklessness reflecting wanton disregard for human life." But Clark Clifford, who was appointed by the president to render a final judgment, called it an identification error. Clifford relied heavily on COMINT reports showing Israeli confusion about the identification; these would have been difficult to fake. Going into it with a preconceived notion that the Israelis must have known, he concluded that what was involved was "a flagrant act of gross negligence . . ." rather than a deliberate act.<sup>34</sup>

This did not, of course, quiet the press. Journalists, both reputable and disreputable, supported the "deliberate attack" theory, and the legend arose, without basis in fact, that the Israelis wanted to blind American SIGINT sensors to their communications, both to keep them from finding out that Israel actually started the war and to keep secret a plan to launch an attack on Syria. (As was stated already, the vessel was not targeting Israeli communications and had no Hebrew linguists on board.) All these charges were repeated and embellished by James M. Ennes, a lieutenant aboard the *Liberty* who published a book on the subject in 1980. Most of the crew still believes that the attack was deliberate.<sup>35</sup>

Many of the journalists properly questioned the position of the vessel at the time. Clifford, too, made a special point of this. The *Liberty* was clearly not where it should have been. The original plan was formulated before war broke out. Once the eastern Mediterranean became a battleground, it was decided to hold the *Liberty* out of the area,

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but the messages never reached McGonagle. The U.S. communications system was approaching breakdown; war sufficed to push it over the edge.

The crew, on the other hand, performed magnificently, and they and their vessel deserved better. NSA wanted to refurbish the ship and use it again, but the price tag of over \$10 million was too high. The *Liberty* was decommissioned a year after the attack, and in 1973 it was cut up for scrap in Baltimore's Curtis Bay Shipyard.<sup>88</sup> An abashed Israeli government paid \$13 million in compensation for the loss of life and damage to the vessel.

The attack on the *Liberty* should not be viewed as a bizarre, or even an especially unusual, identification error. Even in peacetime such errors are made all too frequently – the Soviet shootdown of KAL 007 and the American shootdown of an Iranian airliner are good examples. When a country is at war, the possibility of error is compounded by haste and fear. Losses to friendly fire always represent a substantial percentage of the casualties. And the Israeli agreement to compensate should not be taken as proof of guilty knowledge, but rather as an attempt to retain the friendship of a benefactor wronged.

## THE PUEBLO

Any way you look at it this incident is a loser. We cannot come out even. We must cut our losses.

Clark Clifford, 29 January 1968

Nineteen sixty-eight was a bad year for the United States. It started with the Tet offensive in Vietnam and saw the assassinations of Robert Kennedy and Martin Luther King and the Soviet invasion of Czechoslovakia. As disaster piled on disaster, the only people truly happy were the media.

The very first disaster, however, was, for American cryptology, the worst. On 23 January North Korea captured a small SIGINT trawler from the TRS program called the *Pueblo*. It was everyone's worst nightmare, surpassing in damage anything that had ever happened to the cryptologic community.

### Set-up

After a long lull following the Korean armistice, North Korea had become more aggressive. A clarion call of sorts sounded from the convention of the Korean Worker's Party in Pyongyang in October 1966, at which Kim Il-sung announced a campaign of hostile acts aimed at the "liberation" of South Korea and unification of South and North. This was followed by a dramatic rise in North Korean infiltration, terrorist incidents, and firefights along the demilitarized zone (DMZ). Between 1966 and 1967 incidents increased tenfold. On 21 January 1968 a group of thirty-one North Korean infiltrators attacked the South Korean presidential palace in hopes of assassinating President Park Chung-hee.

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This infamous Blue House incident raised tensions along the DMZ to their highest point since the armistice.<sup>37</sup>

Into this not very auspicious situation intruded the latest in a series of TRS vessels. The *Pueblo* was first constructed in 1944 as an Army freight and supply vessel, and it was used to haul materials to South Pacific islands during the latter days of World War II. Decommissioned in 1954, it had sat in mothballs at Clatskanie, Oregon.

In 1966 the *Pueblo* rejoined the Navy, this time as a TRS. It was recommissioned at the Puget Sound Naval Shipyard in Bremerton, Washington, and became the smallest version of the SIGINT ship, an AGER. The *Pueblo* carried just six positions and could make twelve to thirteen knots at top speed. Its new captain, Lieutenant Commander Lloyd M. Bucher, reported to take command in January 1967, while it was still undergoing refitting.<sup>38</sup>

The captain and his crew were mismatched from the start. Bucher resented being jerked out of submarines to the surface navy. He knew nothing of electronic espionage and apparently learned little in his courtesy stop at NSA. His autobiographical account of the visit revealed considerable distaste for the mission and the people involved in it. Once on board, he found it difficult to get along with his executive officer, Lieutenant Edward Murphy. Moreover, he resented the operational control that Lieutenant Stephen Harris, the NSG-provided chief of the cryptologic spaces, had. To Bucher, not being in full control of his ship was intolerable.<sup>39</sup>

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The cryptologic crew was ill prepared for duty. Harris had a good background, including Russian language training and assignment on several NSG afloat detachments. But only two enlisted members had ever been to sea. The two Marine linguists who put aboard at [ ] were very green at Korean, and during the capture they could not understand the North Korean voice transmissions discussing the impending fate of their vessel. NSG had placed a vessel in harm's way without an advisory warning capability.<sup>40</sup>

The way the AGER program was set up, NSA had little influence on the mission. The Navy tasked the vessels, and NSA provided technical support and suggested secondary tasking. Risk assessment for the voyage flowed through Navy channels up to DIA, which rendered the final judgment. By 1968 there were literally hundreds of missions worldwide every month, and there is no evidence that anyone put much thought into the *Pueblo*'s first mission. The Navy assessed the risk as minimal, and DIA rubber-stamped it. The mission raised a few eyebrows at the 303 Committee (the organization that reviewed the monthly reconnaissance schedule), but the risk was not changed and the mission profile was not modified.<sup>41</sup> Since the risk assessment process occurred over the year-end holidays, it probably received less scrutiny than was normal.

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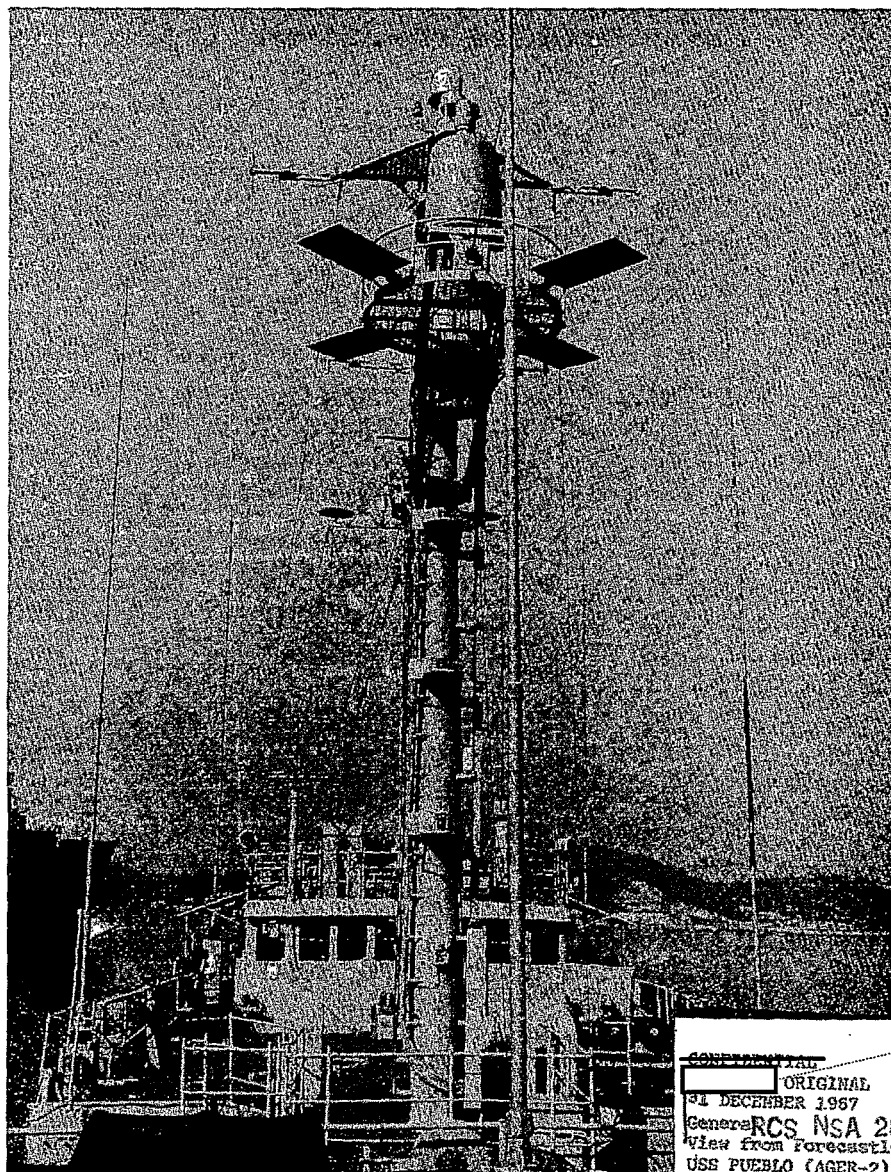


**Lloyd Bucher (emerging from a hearing, with Stephen Harris, after repatriation in 1969)**

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*The Pueblo, before its voyage*

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In fact, it should have raised some eyebrows. The North Koreans had of late shown unusual sensitivity to coastal vessels. Just twelve days before they took the *Pueblo*, the small North Korean navy had chased 300 ROK fishing boats south of the Northern Limit Line (NLL – a geographical extension of the 38th Parallel into the Sea of Japan), capturing two and capsizing a third. On the 20th North Korea summed up its grievances about coastal vessels to the UN Command, claiming that the other side was dispatching “spy boats disguised as fishing boats and villainous spies together with fleets of South Korean fishing boats.”<sup>42</sup>

Even prior to this, however, NSA had dispatched a message to the Joint Reconnaissance Center discussing the recent increased North Korean sensitivity in relation to the upcoming voyage of the *Pueblo*. JRC simply sent the message to CINCPAC, which paid no mind.<sup>43</sup>

On 16 January, after putting out from Sasebo six days earlier, the *Pueblo* arrived at the northernmost point of its mission area and began slowly working its way south toward the port city of Wonsan. It had firm instructions to stay at least thirteen nautical miles off the coast, and there is no evidence to suggest that this order was ever violated. The crew was not having a happy trip, though. The seas had been rough almost every day since they had departed from San Diego in November, and the mission, which consisted of some very basic SIGINT sampling, had been dull and unproductive in the extreme.<sup>44</sup>

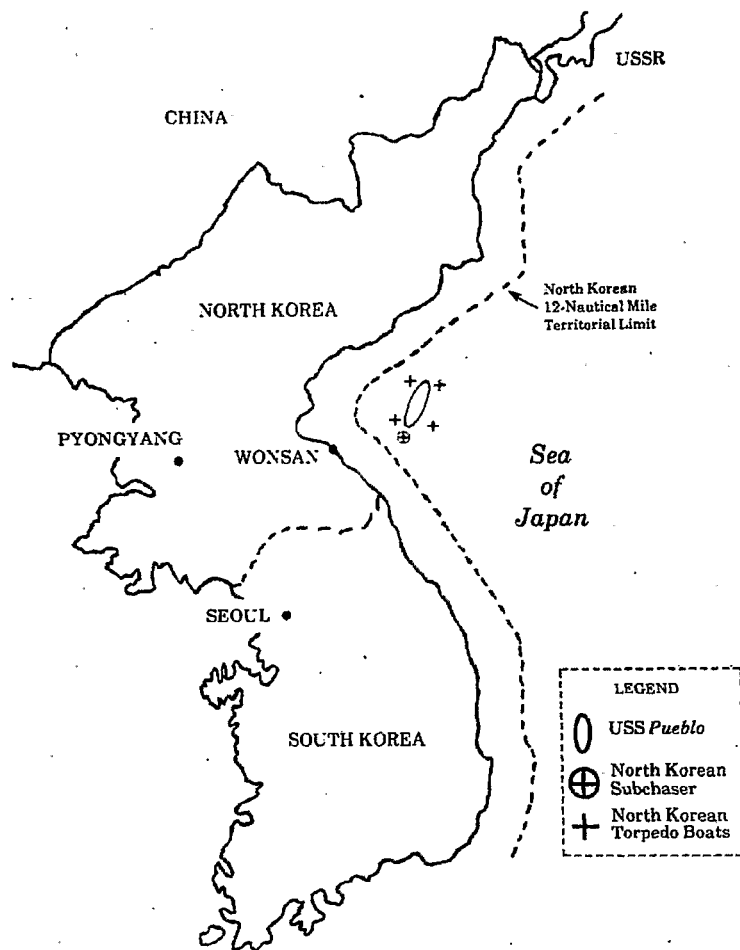
### Capture

On the 20th, and again on the 22d, the *Pueblo* saw North Korean vessels that were close enough to note its position. Bucher was sure that he had been identified and broke mandatory radio silence to report this. At about noon on the 23d, a subchaser pulled up, and after requesting that the *Pueblo* identify itself, the subchaser reported back to his controller. Clearly, the North Koreans were by then certain that it was a surveillance ship of some kind, and after some minutes, during which time it was possible that Wonsan control radioed instructions, the subchaser requested the *Pueblo* to heave to. The *Pueblo* turned to flee, and the subchaser gave chase, joined by three torpedo boats.

The *Pueblo* radio room sent news of the incident to Kami Seya at Flash precedence. The *Pueblo* and the pursuing torpedo boats continued to play a game of tag, and for a time Bucher was successful in evading capture. But finally the subchaser got between the *Pueblo* and open ocean and opened fire. Almost simultaneously the torpedo boats opened up, and at this point Bucher very tardily ordered emergency destruction to begin. (One of the NCOs in the cryptologic spaces had already disobeyed an earlier Bucher order and had begun destroying things.) Finally Warrant Officer Lacy overrode a Bucher order and directed the ship to stop dead. The chase was over.<sup>45</sup>

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~~(TS)~~ Disposition of North Korean naval units and *Pueblo* during attack and seizure, 23 January 1968.

Map of the capture

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As the *Pueblo* limped slowly toward Wonsan, escorted by the North Korean vessels, the crew was below decks desperately trying to get rid of all the classified material. It was a futile effort. This ship had far more classified material than it should have had, and it was not equipped to destroy in an emergency even that which it was authorized. Lack of adequate equipment, confined spaces which prevented use of the most effective destruction techniques, and an inexperienced crew that had never practiced emergency destruction aboard the *Pueblo* combined to virtually nullify their efforts. When the ship was finally boarded, most of the material was still lying on the deck.<sup>46</sup>

The boarding took place at 1445, almost three hours after the first North Korean vessel had been sighted. One crew member had been killed during a volley, and several, including Bucher, had been wounded. The radioman had succeeded in apprising Kami Seya of their predicament, and he kept the station updated until he had to go off the air to destroy crypto material. The *Pueblo* reached Wonsan at about 1900, after the harbor lights were already winking in the stillness. The crew was offloaded and placed in a captivity that would last almost a year.<sup>47</sup>

#### Aftermath

In Kami Seya, things were anything but still. The unit had been on the line with the *Pueblo* for the better part of three hours, and it was frantically passing reports to Commander, Naval Forces Japan. But the initial reports failed to generate the appropriate concern there. Not until after hearing the phrase "we are being boarded" did the organization get itself mobilized. Mobilization, however, proved difficult. The quickest remedy would have been a flight of 5th Air Force fighters. But owing to the low risk assessment, no fighters were on alert, and it would have taken two to three hours to ready something. Adding flight time from Okinawa (where the aircraft were based), they could not have reached Wonsan before dark. Fifth Air Force F-4s in Korea were on SIOP alert and could not be rearmed in time. The carrier *Enterprise* was steaming south in the Sea of Japan on its way to Subic Bay when it got the distress call. But the *Enterprise* F-4s were armed with air-to-air missiles, and the time required to rearm and fly to Wonsan was too much. The *Enterprise* turned around and steamed toward Korea to rendezvous with other vessels headed for the same place, but none of them would be there in time. No help was available, and the U.S. military had to sit and watch.<sup>48</sup>

The middle of the day in Japan was the middle of the night in Washington. Critic reports began arriving at NSA and the White House at about midnight. The senior operations officer called in Major General John Morrison, the assistant director for production, who hurried in to look at the traffic. Morrison called General Carter, who began directing the NSA response.<sup>49</sup>

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At the White House, Walt Rostow, the national security advisor, came in first. After hasty calls to NSA and Hawaii to get more information, Rostow notified the president early in the morning.

Carter mobilized every SIGINT resource he could get his hands on, and assembled every scrap of paper that pertained. He called an Alpha Alert [REDACTED]

[REDACTED] So within the cryptologic community, everyone was scrambling. But to the rest of the world Carter put up a stone wall. It was a Navy mission, and he directed that most of the questions be diverted to naval authorities and the Joint Chiefs of Staff. Rather than spread his cryptologic authority to encompass the *Pueblo*, Carter found it useful in this case to put the pressure on the Navy.<sup>50</sup>

Now that the damage had been done, Carter wanted to assess what the damage was. Regarding COMINT, NSA's initial assessment was equivocal. Assuming that most COMINT documents had been destroyed before capture, NSA focused on the information that the crew might reveal under interrogation. It was potentially serious, but as yet unknowable. Regarding the COMSEC loss, however, NSA's conclusions, expressed initially only a day after the loss, were unmistakable: "The probable compromise of four major U.S. COMSEC equipments, including three of our modern electronic crypto-equipments, is a major intelligence coup without parallel in modern history." This was right on target as far as was known then, but the full extent of the loss was not known until the mid-1980s, as will be discussed below.<sup>51</sup>

At the White House, the *Pueblo* capture was one of those transcending crises that occupied the president. Before the end of the month, Lyndon Johnson had participated in at least thirteen full-dress meetings on the subject, and Robert McNamara, Clark Clifford (McNamara's designated replacement; 23 January was his first day on the job), Secretary of State Dean Rusk, and Earl Wheeler (chairman of the JCS) were all fully engaged until 30 January at which time the Tet Offensive cornered their attention.

The first meeting was the Tuesday lunch on 23 January. Discussions focused on where the *Pueblo* was when captured and what the United States could do about it. Inasmuch as it was too late to take the ship back, the group ran through several warlike options such as capturing a North Korean ship, hitting the North Koreans with U.S. forces, and augmenting U.S. forces in the Korean area. At this meeting the president articulated a feeling that came to dominate his thoughts - that the Soviet Union might be behind this and that it could be a "second front" designed to distract the U.S. from South Vietnam. There was no evidence to support this, just speculation.<sup>52</sup>

Later that day Johnson phoned the Soviet Union on the hotline to complain about it. He demanded Soviet intercession with North Korea, to which the Soviets replied that it

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was not their problem. Proof of Soviet involvement was lacking then and is still lacking today.<sup>53</sup>

Twenty-four January was the day which shaped the administration's response. In a series of marathon meetings which had come to define the White House in crisis, the "kitchen cabinet"

1. dealt with the problem of the ship's position. Not all the SIGINT evidence was in yet, but there was enough to show that the North Koreans themselves knew the *Pueblo* was outside their territorial limits. [REDACTED]

The president decided to go on the air to reveal this information and to bring the evidence to the United Nations;

2. determined, without evidence, that the capture was somehow related to Vietnam. All in attendance agreed that the Soviets must have known about it in advance. (Later that day CIA registered the only dissent.);

3. tentatively decided to move additional military aircraft into Korea, as well as station the *Enterprise* task force off the coast; decided to activate selected military reserve units for the crisis.<sup>54</sup>

That same day FBIS intercepted a Korean Central News Agency broadcast purporting to contain a "confession" by Bucher alleging, among other things, that the *Pueblo* had made a "criminal intrusion" into North Korean territorial waters. That very afternoon the Pentagon issued a rebuttal, stating that "the *Pueblo*'s position as determined by the radar track of the North Koreans themselves . . ." put the ship outside North Korean waters.

Simultaneously, the administration was working on a presentation to the UN, to be made by Ambassador Arthur Goldberg. As nothing appeared sufficient to head off this even more explicit release of SIGINT, Carter sent a team to New York to work with Goldberg and his staff on the statement. By cooperating closely, NSA had an opportunity to read Goldberg's statement before he went before the Security Council on the 26th.

Goldberg presented both North Korean voice and manual Morse [REDACTED] to prove that the *Pueblo* was in international waters and that the North Koreans had known it at the time. [REDACTED]

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Over the next several days, the White House continued to wrestle with all the ramifications of the *Pueblo* incident. One of the most difficult problems was that of protection of reconnaissance vehicles. The group concluded that it was impractical, given the number of such missions every year. The TRS *Banner* was sent to Korea as part of the *Enterprise* task force, and when it patrolled the North Korean coast, it was under heavy escort. But this was more a matter of showing resolve than of collecting intelligence, and the president recognized that it would be impossible to provide this sort of service to every ship and airplane engaged in peripheral reconnaissance. In an interview given to Hugh Sidey of *Time* magazine and Jack Horner of the *Washington Star* on 26 January Johnson made this point:

The Soviet Union and the United States have many such ships at sea and conduct literally thousands of flights to collect intelligence by aircraft. Neither currently provide [sic] protection. If they did so, they would require navies and air forces enormously greater than their present forces.<sup>57</sup>

During the various interviews and press conferences, the Johnson administration made a fairly clean breast of the peripheral reconnaissance program. During a meeting with the National Alliance of Businessmen on the 27th, Clark Clifford explained that the United States had both SIGINT and photographic satellites in orbit, and the photo satellites "can see a tennis ball on a tennis court." Regarding SIGINT collectors such as the *Pueblo*, he said, "We have communication ships and very sophisticated electronic equipment to intercept their communications. The Soviets have a number of ships. And so do we . . . The public has a bad idea about spying. However, we must do it."<sup>58</sup>

The North Koreans continued to make propaganda hay. Several members of the *Pueblo* crew were forced to make "confessions" similar to Bucher's which laid out the SIGINT effort against North Korea and specifically implicated NSA in the effort. SIGINT tasking documents were displayed on North Korean television, complete with the then-current SIGINT codewords, Trine and Savin. (This resulted in another codeword change, and the codewords adopted in 1968 have been used ever since.) In the end, there was little left to publicize that the North Koreans had not already displayed to a curious world.<sup>59</sup>

The *Pueblo* incident also became stage to one of the biggest battles ever between NSA and the JCS. As a result of a number of developments in Southeast Asia, NSA and JCS staffers had crafted a compromise on the provision of SIGINT support to field commanders. Called MJCS 506-67, it set out new ground rules for deployment and operational control of tactical SIGINT units. When it was decided, in the middle of the *Pueblo* crisis, to deploy an AFSS Emergency Reaction Unit to South Korea, the JCS thought that operational control would automatically transfer to Fifth Air Force. Not so, said Carter. These resources simply augmented existing AFSS assets and were in a direct service, not a direct support, role. Therefore, operational control would continue with NSA. The JCS viewed

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this as a betrayal of the compromise reached in negotiating the new document, and they ultimately prevailed. Operational control passed to Fifth Air Force on 19 February.

#### Assessments

Before the administration became caught up in a response to the Tet offensive in Vietnam, Johnson appointed a committee headed by George Ball to investigate the *Pueblo* incident. Ball and his committee concluded on 7 February that

1. the *Pueblo* had indeed been in international waters;
2. the mission had been a necessary one;
3. there had been no way of predicting the outcome, which might have been a spur-of-the-moment decision by the North Koreans. "It was assumed on the principle of mutual tolerance that, so long as we paralleled the Soviet practice, our vessels would remain relatively free from danger. . . .";
4. such missions should be continued, albeit with improved protection. Off the North Korean coast it would be necessary to provide escort vessels within a reasonable distance - aircraft on strip alert somewhere was not sufficient. Moreover, the design, armament, and equipment of the AGER-class vessels should be improved, and adequate destruction devices should be available. The rules of engagement should not bind the skipper to radio silence nor prohibit the use of defensive weapons until defense was impossible.<sup>60</sup>

In February Congress got involved. At least three different sets of inquiries were performed, including one by William Fulbright in the Senate Foreign Relations Committee. (Fulbright was acquiring an insatiable appetite for matters cryptologic, as would be revealed at the hearings on the Tonkin Gulf Resolution in August; see p. 522.)

But by far the most intrusive was a subcommittee of the House Armed Services Committee, chaired by Otis Pike. On 10 March General Carter testified at length about the *Pueblo* in executive session. Two days later Pike released some of Carter's information at a press conference, and Carter was furious. He had cultivated good relations with Congress and had occasionally provided sensitive information to members of certain committees when he thought it necessary.<sup>61</sup> Pike's release set a very bad precedent and may have influenced NSA's response to that same congressman's far more extensive investigation of the intelligence community in 1975 - the so-called Pike Committee investigation. (At that time someone on the committee leaked the final committee report

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to the press, even though the House had voted to suppress it because it contained classified information, specifically cryptologic.)

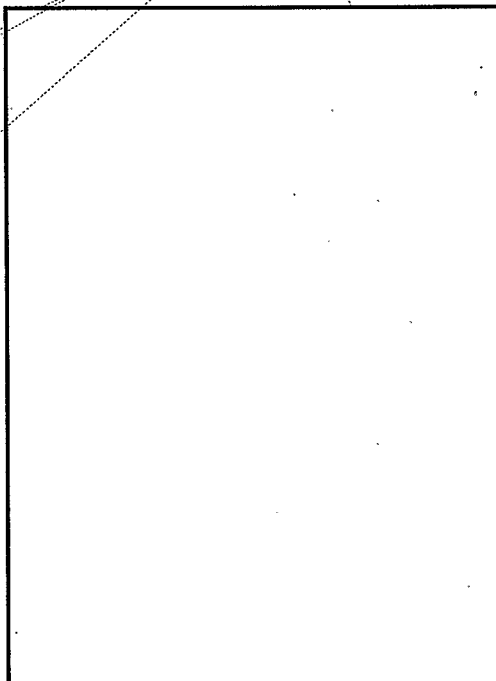
Assessments within NSA began almost immediately. Once the Agency had made its initial damage assessment (see above), Carter appointed a committee to do a more complete job. Through the spring and summer, the assessment became more refined, but a full accounting would have to await crew debriefing. To this end the United States put on all the diplomatic pressure it could to secure the crew's release. In the end, however, the government had to sign a phony "confession" and apology at Panmunjom in order to get the crew back. They walked across the bridge at the truce village to freedom on 23 December, just in time for Christmas.

The complete mishandling of the crew debriefing was emblematic of the entire *Pueblo* incident. Viewing it as an internal matter, the Navy kept NSA uninformed of arrangements for the debriefing and insisted that NSG represent the cryptologic community. NSA viewed the assessment of cryptologic damage as their business, and finally got the Joint Chiefs to intercede with the Navy so that NSA could take its proper role.

The debriefing process itself was typified by heavy friction between NSA's team and the Navy authorities on the scene. The Navy even refused to allow NSA's team chief, [ ]

[ ] to communicate with Carter except through him, and [ ] had to resort to extraordinary methods to get his cables back to the Agency. [ ] reported that "... we are encumbered by a totally uneducated admiral who has neither the rudimentary knowledge of SIGINT, or for that matter, general intelligence, and who is in the position to edit our reports to the intelligence community." In response, Carter sent a bubbly message to Admiral Moorer, the CNO, complimenting the effectiveness of the debriefing team and the support received in San Diego (the debriefing site). Passed on to the Navy in San Diego, this message opened doors for

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 Sometimes the heavy-handed approach was not the smart way to go.<sup>62</sup>



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NSA had always designed crypto devices under the assumption that the enemy would eventually capture the machine. In order to read any communications, it would also be necessary to get the keying material. This, said NSA, was the salvation of the *Pueblo* story. Assuming that the North Koreans turned over the material to the Soviets, they could be in position to read traffic through several crypto periods in late 1967 and early 1968, but nothing more. This was bad enough, but NSA's design principles had staved off further disaster.<sup>66</sup>

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It was a bad situation made worse by negligence. The crew was poorly trained, and its linguists could not even render advisory support to protect the vessel from capture. The Navy loaded it down with far too much classified material and equipment, some of it even beyond the clearance level of those aboard. The crew never practiced emergency destruction, which was next to impossible anyway given the inadequate destruction systems then available on board. There was evidence of poor coordination between captain and cryptologic crew.

Following the capture, the Navy and NSA engaged in an unseemly jurisdictional battle over the debriefing process. On the Navy side, there was a lack of understanding of NSA's role.

Self-defense was only one of the problems besetting the TRS program. All the vessels had been recommissioned; most of them dated from World War II. They were becoming expensive to operate, and 1968 was to be the year in which NSA hoped to obtain money to refurbish and continue the program. Even while the *Pueblo* was being captured, NSA was working on an internal study of the future of the AGER portion of the TRS system. NSA felt that little was wrong with the AGERs that could not be fixed by a little redefinition of command relationships. But the Navy, strapped for cash to continue its presence in Southeast Asia, as well as elsewhere in the world, favored diverting the money to combat vessels.

[REDACTED] But the Navy noted the difficulty and expense of protection. After a limbo period, during which each budget decision went against TRS, Deputy Secretary of Defense David Packard cancelled the program in October 1969. The last of the ships, the *Belmont*, was decommissioned just three months later.<sup>71</sup> Surely the *Pueblo* and *Liberty* incidents were on his mind to the end.

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## CZECHOSLOVAKIA

As the U.S. tried to figure out whether or not the Soviets would invade Czechoslovakia in 1968, these [SIGINT] reports quite simply muddled the water and [challenged] even the most experienced all-source analyst searching for meaning and patterns in a mountain of material. The conversations reported were relevant. There were just too many.

*Angelo Codevilla, Informing Statecraft: Intelligence for a New Century*

The Soviet invasion of Czechoslovakia in August 1968 stands in history as one of the masterstrokes of the assertion of imperial control. It was masterful because of its speed, its surprise, and its brute force. It was hidden as part of a series of military exercises which,

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like a tornado out of control, turned suddenly and savagely to stamp out a generation of new political leaders. And it allegedly took the West entirely by surprise.

Viewed from a distance and as a whole, this analysis generally holds up. But viewed from up close, the generalizations begin to break down. They are simplistic and not entirely accurate. The reality is more complex.

### The Prague Spring

It began in October 1967. The old Communist order under Antonin Novotny was beginning to crumble. At home he had overcentralized the economic system, and in foreign policy his support of the Arab cause during the 1967 war grated on younger and more liberal colleagues. And he had dealt not very skillfully with the subsurface conflict between the Czechs and Slovaks. For all these sins Novotny confronted considerable unrest.<sup>72</sup>

Internal dissent erupted on the night of 31 October when a routine protest of the lack of electricity for their dormitories by students from the Technical College overflowed in a melee between students and police. The pot continued to bubble during November and December.

Novotny desperately clung to his position as first secretary of the Czechoslovak Communist Party until 4 January when the party leadership banded together to vote him out. In his place they installed an obscure Slovak nationalist, Alexander Dubcek, first secretary of the Slovak Communist Party. Dubcek was known as a good Communist, and at first the Soviet leadership seemed to regard it as a routine and perhaps overdue unhorsing of a used-up Communist functionary. But Dubcek turned out to be anything but a routine Communist. Under his leadership, the Czechoslovak government quickly turned to market reforms and political liberalization which included press freedom and budding capitalism. Newspaper reporters began calling it the "Prague Spring."

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On 4 May according to press reports, Dubcek and his principal lieutenants made a hurried trip to Moscow. It was in fact a showdown with the Soviet Communist Party over the Prague Spring reforms and the general direction of Czech communism. The official communique spoke of a "comradely atmosphere," which one writer said "is Communist shorthand for cold disagreement."<sup>75</sup> This was followed by a series of secret meetings in the Kremlin, almost certainly on the Czech "crisis."

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[redacted] But CIA, wading through the huge volume of reports, assessed the readiness as being related to a field exercise. This calmed the White House somewhat, and Walt Rostow told the president that Warsaw Pact forces did not appear ready to invade. In fact, it was very difficult to determine what the Soviets would do. [redacted]

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This menacing troop buildup continued through the month, until there were some nine line divisions and three army headquarters just to the north and east of Czechoslovakia.

[redacted] (But the press also tracked the troop movements.) The situation in Czechoslovakia was tense; many believed that the Warsaw Pact would invade immediately.<sup>78</sup>

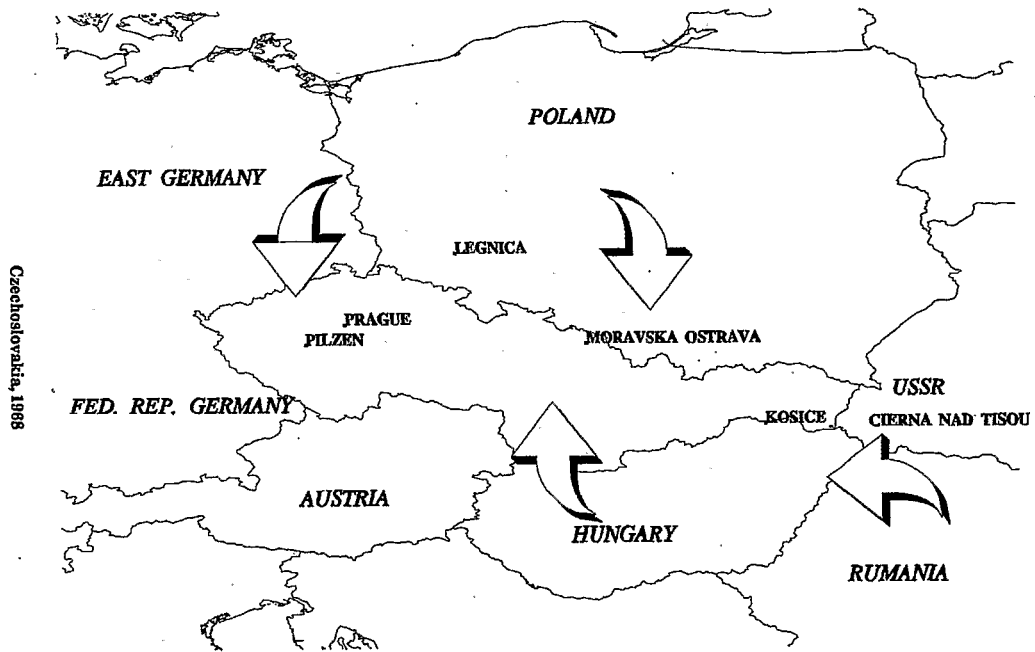
On 24 May a joint communique was released announcing that Warsaw Pact exercises would take place in Poland and Czechoslovakia in June. [redacted]

The exercise, called Sumava, played out from 18 to 30 June. Its scenario involved a three-prong invasion of Czechoslovakia, with Czech forces representing NATO as the sole defenders. Invading forces were Soviet, Polish, East German, and Hungarian, and the exercise served as a dress rehearsal for the real invasion in August. At the termination, Warsaw Pact forces did not return to their bases - they ominously stayed in place until mid-July.<sup>80</sup>

Meanwhile, Dubcek and the Czech leaders played a dangerous game with the Kremlin. Dubcek refused to retreat from liberalization measures and declined to attend a 14 July meeting at the Kremlin to discuss the situation. The meeting was held without him. With Soviet troops still on Czech soil, it took a great deal of courage not to back down.<sup>81</sup>

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Czechoslovakia, 1968

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On 23 July the Soviets announced yet another large-scale exercise, to be held along the Czech border and in western Russia, Byelorussia, and Latvia. The announced purpose was to work out rear services procedures. On 30 July they announced that the exercise would be extended into Poland and East Germany. It did not include Czech troops.<sup>82</sup>



Dubcek and Brezhnev in Bratislava,  
4 Aug 1968, only two weeks before the invasion

On 1 August Dubcek and his lieutenants attended an unprecedented face-to-face meeting with Soviet Communist Party secretary Leonid Brezhnev and the Politburo leaders in the Slovakian town of Cierna nad Tisou. The proceedings are thought to have been acrimonious, but Dubcek did emerge from it with a "Declaration of Bratislava," a general statement of socialist principles which papered over the disagreements and preserved a measure of public agreement.<sup>83</sup>

On 20 July the control authority moved to Legnica, in Poland, and stayed there through the invasion preparations. During the last week of July, GSFG and NGF (Northern Group of Forces) units moved to new positions closer to Czechoslovakia.

On 10 August Moscow announced the beginning of a communications exercise.

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[REDACTED]

On 18 August, the same date that the command post exercise concluded, [REDACTED]

[REDACTED]

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[REDACTED]

As luck would have it, though, NSA's David McManis, the deputy chief of the Situation Room, was looking at the indicators and had established an easy dialogue with Walt Rostow, the national security advisor. He and Rostow privately agreed that an invasion was likely, although they did not have enough information to predict the date.

On 19 August McManis noted to Rostow that the invasion that they both thought would happen appeared to be imminent [REDACTED] The next day would be time for Johnson's Tuesday Lunch with his key national security advisors. At the lunch, Rostow broached the subject of Czechoslovakia; it appeared to him that something was about to happen. In his planning notes for the president, Rostow noted: "You may wish to encourage the group to speculate about basic Soviet strategy in U.S.-Soviet relations at this stage, including the relationship to possible moves against Czechoslovakia. . . ."

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According to Rostow, "We judged the Central Committee meeting as ominous, not hopeful," at the Tuesday Lunch. Richard Helms (DCI at the time) felt that the Soviets had decided to move.<sup>91</sup>

Later that day, Anatoly Dobrynin, the Soviet ambassador to the U.S., called to say he would like to see the president that evening. The timing was almost unprecedented - the president knew immediately that the subject must be Czechoslovakia, and it must mean invasion.<sup>92</sup>

At about midnight, 20 August, Warsaw Pact forces, poised on the border, rumbled across. Some fifteen to sixteen Soviet divisions, augmented (for public relations purposes, no doubt) by three Polish divisions and smaller numbers of Hungarians and Bulgarians, attacked in three major spearheads. The largest contingent raced in from the north, along the East German border, toward the key cities of Prague and Pilsen, while smaller groups came in from the Soviet Union (Carpathian Military District) and north from Hungary. At the same time, airborne forces launched from bases in the Soviet Union (primarily Vitebsk and Panevezhis) to key nodes in Czechoslovakia.<sup>93</sup>

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[REDACTED]

It was sudden, massive, and effective. They rolled over the almost defenseless Czech forces virtually unopposed.<sup>95</sup>

Once in Prague, Soviet troops arrested Dubcek and his liberal supporters in the National Assembly. There was little resistance from the population, but the invaders, who

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had been told to expect a jubilant reception, were taken aback by the deep hostility of the Czech citizenry.<sup>96</sup>

[redacted] No Soviet forces went on alert, and later postmortems called into question the validity of using alert status as an indicator of hostilities. It was of a pattern with the tactical situation, which was evidently designed to be disguised as exercise activity.<sup>97</sup>

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[redacted] The alert was probably precautionary – since the end of the Cold War the deputy commander of the Warsaw Pact invasion forces has written that the Soviets were confident NATO would not interfere, and they did not feel extreme measures were necessary.<sup>98</sup>

[redacted]

Following the invasion, a great national debate ensued about the Czech “surprise.” Journalists were unanimous in condemning the failure of intelligence to warn. *U.S. News and World Report* reported that Johnson learned of the invasion from Dobrynin. Tad Szulc, in his history of Czechoslovakia since World War II, said that intelligence abounded, but “the recipients of all this intelligence input seemed unable or unwilling to interpret it adequately,” and he noted that NATO did not go on alert all summer. Historian Walter Laqueur wrote that the West learned about the invasion from a radio broadcast in Prague. He claimed that “technical intelligence [redacted] had the information, but did not get it to decision makers in time.”<sup>100</sup>

They were all right, and they were all wrong. As with all intelligence analysis, success or failure depended on how you defined the two terms.

Strategic warning was impeccable. [redacted]

[redacted] when 20 August came, and Pact forces were poised on the border, the United States knew it.

One modern-day analyst has proposed that had DIA possessed the warning indicator system in 1968 that it later developed, it would almost certainly have published a warning report by 19 August. The case for this is good – Warsaw Pact force posture, reported [redacted] was clearly at the highest level ever achieved; higher even than in May and July of the same year. The failure to publish a specific warning report was due to the fact that the system for doing it had not yet evolved.<sup>101</sup>

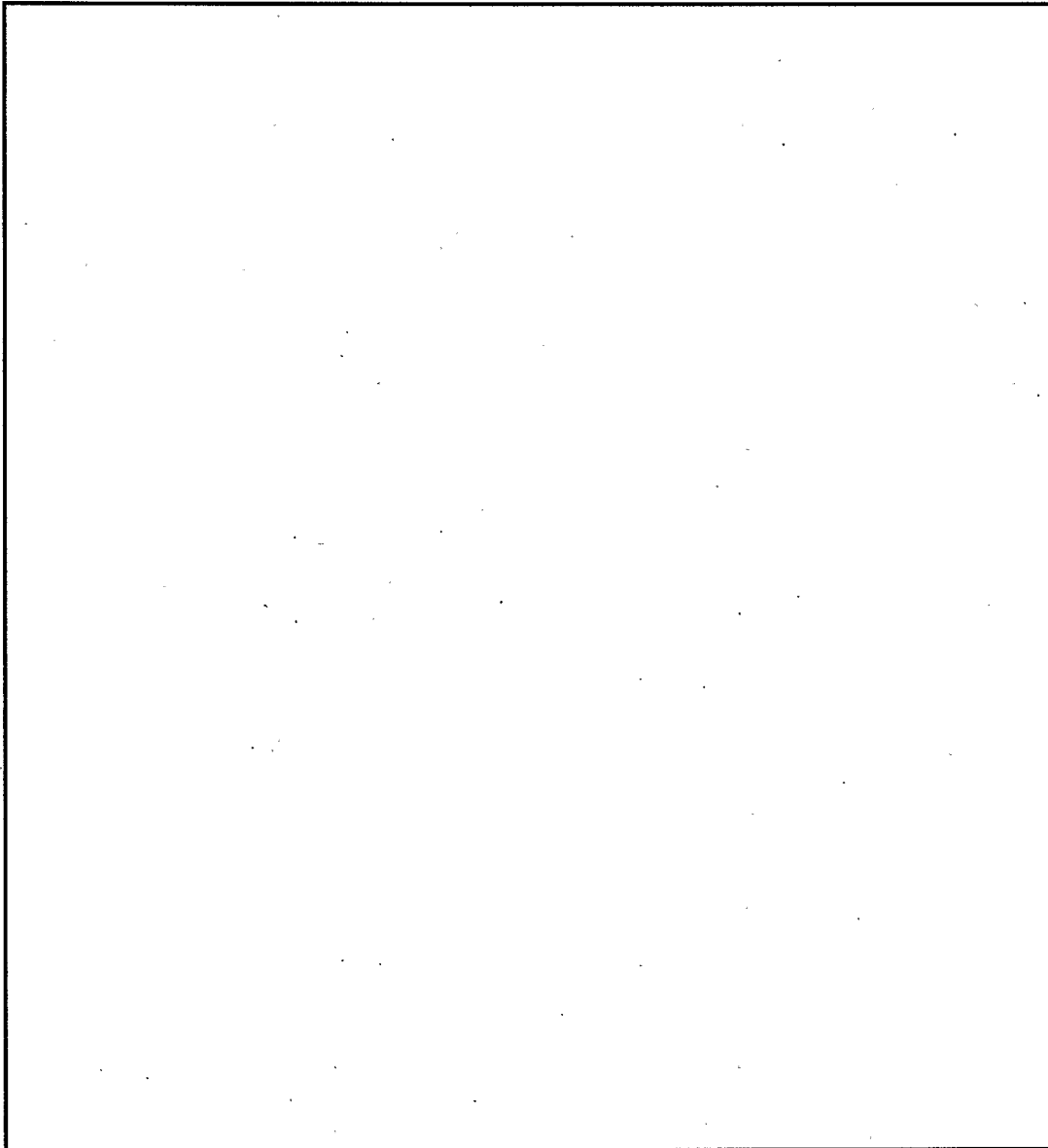
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The president knew as much as was knowable by the afternoon of 20 August and was not, contrary to press reports, surprised by what Dobrynin had to tell him. What good would it have done to alert NATO forces? NATO could do nothing anyway. Better to stay cool and look surprised.



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### Romania - The Invasion That Never Happened

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On the last two days of August, [redacted] reports began to arrive at the White House concerning a possible Soviet move into Romania to bring the errant Communist regime of Ceausescu back into line. [redacted]

As it happened, the White House had been concerned about this possibility as early as the 23rd. Romania had pursued an independent foreign policy since 1964, and during the Czech crisis had pointedly supported Dubcek (alone within the Soviet Bloc). Soviet troop movements in areas peripheral to Romania could be interpreted as threatening to that country, too. [redacted]

[redacted] Just to be on the safe side, however, President Johnson issued a public warning to the USSR on the first week of September. Romanian diplomats thanked the president for his support, and the crisis seemed to subside.<sup>104</sup>

[redacted] Romania was the invasion that did not happen [redacted]

### THE SHOOTDOWN OF THE EC-121

The SIGINT crises of the decade came to a tragic end in 1969. The North Korean shootdown of a Navy EC-121, with the loss of all thirty-one men aboard, was one of those

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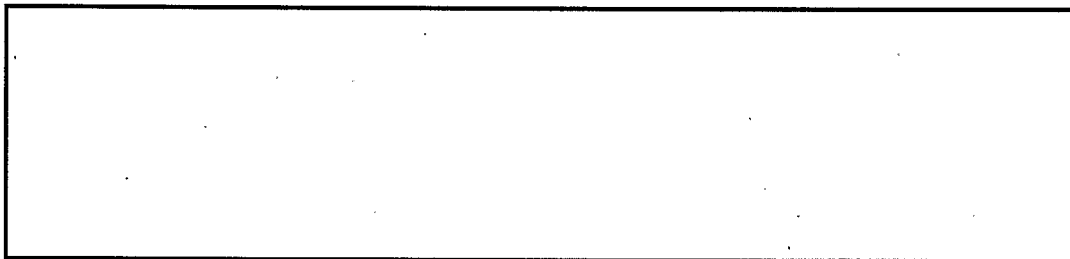
transcending events that precipitated drastic changes in the crisis structure at NSA Headquarters. The effects are still felt today.

#### North Korea and the Aerial Reconnaissance Program

By taking the *Pueblo* in January 1968, Kim Il-sung's North Korea had once more branded itself as an international outlaw. As the United States redoubled its efforts to protect its peripheral reconnaissance missions, North Korea continued its pattern of infiltration and subversion. In November 1968, a group of 120 well-armed commando infiltrators landed by sea on the east coast of South Korea and infiltrated villages in the area. It required 40,000 ROK militia and police nearly 2 months and the loss of 63 lives to clean out the group.<sup>107</sup>

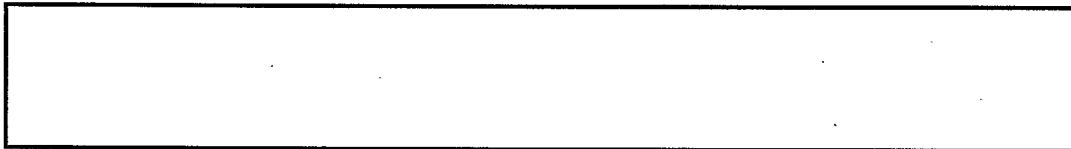
The situation on the ground was not necessarily mirrored in the air. Over the years there had been five incidents involving North Korean and American aircraft. Only two, involving RB-47 aircraft in 1955 and 1964, affected the peripheral reconnaissance program. In neither case was the aircraft shot down, so in reality North Korea had never shot down a reconnaissance mission, although they had tried twice. Considering the unsettled situation around the DMZ, and the hostility demonstrated by the Soviets and Chinese to this sort of electronic spying, this was not considered to be a very high number of incidents.<sup>108</sup>

To see Soviet fighters in reaction to a peripheral reconnaissance mission was normal; often the Soviets would send fighters out in relays to pace the aircraft, staying between it and the Soviet coastline. By the mid-1960s, however, JRC had decided that the Asian Communist nations fell into a different category. When one of them launched a fighter in reaction, which was rare, they meant business. Because of this, two new conditions had been inserted into the White Wolf plan. Condition 3, which would be called any time a hostile fighter was seen headed over water within 100 nautical miles of the mission, required a heightened state of alert aboard the aircraft and diversion to a fallback orbit farther off the coast. If the fighter came within 50 nautical miles, this would be changed to Condition 5, which required an automatic abort. Since the institution of these new conditions, the U.S. had lost no missions to the PRC, North Korea, or North Vietnam.<sup>109</sup>



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The week before the mission, General Charles Bonesteel, commander of U.S. Forces in Korea, warned of unusually vehement language and surly protests by the North Koreans at Panmunjom. The warning was sent to the VQ-1 squadron, which was advised to be extra cautious. But the North Koreans appeared to suffer through profound mood swings at the Armistice Commission meetings, and neither Seventh Fleet nor CINCPAC changed the risk category of 3 (hostile action unlikely). Conditions 3 and 5 appeared to cover any potential problems, anyway.<sup>112</sup>

Despite the relative venerability of the White Wolf warning program and its apparent good effect (there had been very few incidents since it had been instituted in the early 1960s), VQ-1 aircraft were only loosely cobbled to the system. According to a senior NSA official involved with White Wolf, the Navy was an "unenthusiastic" player in White Wolf. Unlike the Air Force reconnaissance aircraft, the EC-121 had no secure method of contact with the ground. For warning, they relied on SAC HF broadcasts labeled "Sky King," which could not be acknowledged. Thus the ground station personnel issuing a condition did not know if a transmission had been received, or what the situation was aboard the aircraft. Moreover, the key Navy units involved in the mission (including [redacted] [redacted] were not on distribution for reports issued by AFSS sites watching the mission.

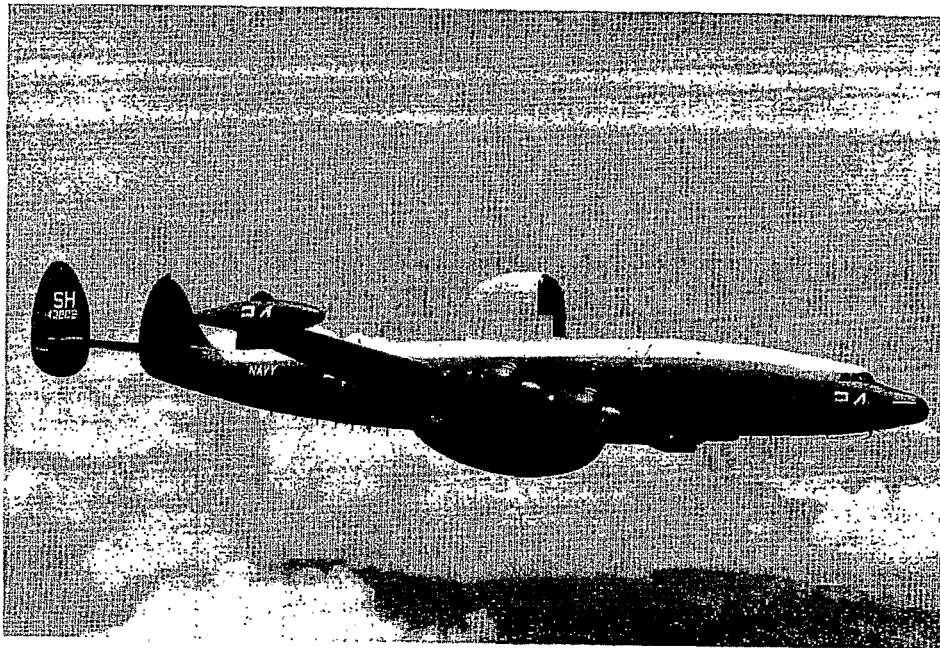
#### The Mission

The doomed aircraft departed [redacted] at 0700L with a double load of thirty-one crewmembers - the excess members were in training status. It was to fly across the Sea of Japan to a point off the northern coast of North Korea, do two and a half orbits, and land at Osan Air Force Base in Korea. [redacted]

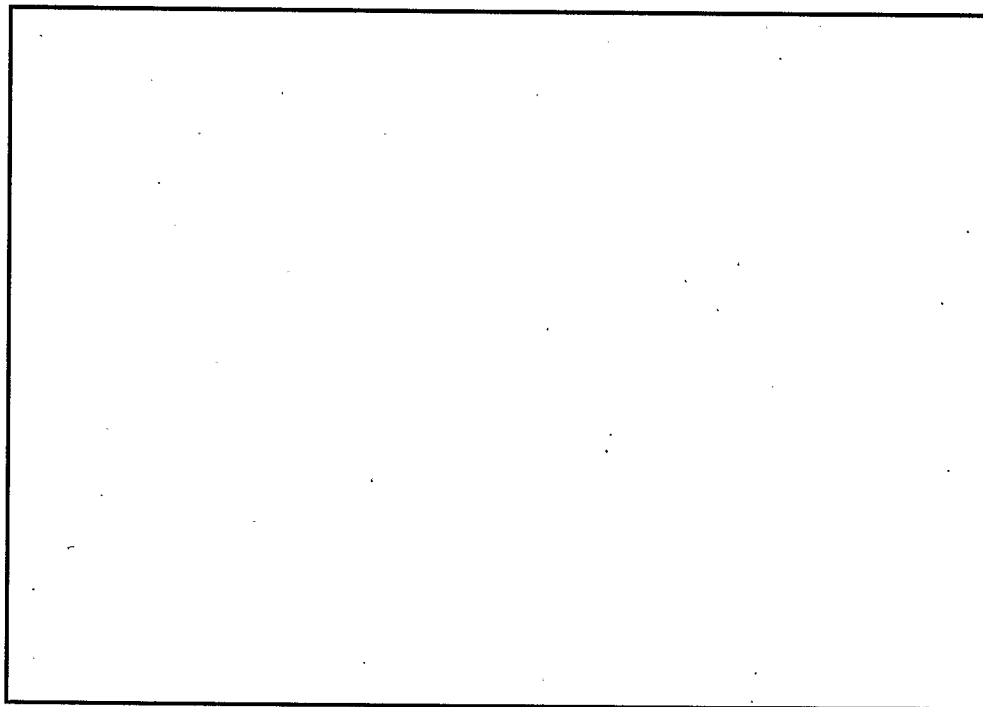
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EC-121



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At about 1330, as the mission was nearing the topmost portion of its last orbit, two North Korean MIG-21s scrambled from the training school at Hoemun. The fighters had been there for about two weeks - it was unprecedented for MIG-21s to be at Hoemun, and their purpose there was never explained. As was customary, Osan waited for a second plot before issuing a Condition 3. They did not get one for eight minutes, at which time the fighters were reflected at about fifty-five nautical miles from the mission and closing fast. One of them peeled off to make a defensive patrol, but the other bore on straight for the mission. At 1340 Osan issued a Condition 5, as the second MIG-21 was by this time reflected as well under fifty nautical miles from the mission. Only four minutes later [redacted] the two aircraft merging. The shootdown probably came at 1347, while the mission was about eighty nautical miles from the coast. The tracks separated at 1349, [redacted] The MIG-21 was headed home by that time.<sup>114</sup>

[redacted] The North Korean reaction was virtually unprecedented [redacted] They were in close touch with 314 Air Division in Korea, and at 1345, two minutes prior to the shootdown, Brigadier General Arthur Holderness, 314 AD commander, directed that F-102s be launched in case of trouble. But, incredibly (considering the *Pueblo* incident the previous year), the Navy had not requested strip alerts, so no fighters were actually airborne until shortly after the hour. [redacted]

[redacted] The feeling was that the aircraft must have "hit the deck" to evade the MIG-21.<sup>115</sup>

At the same time, Kami Seya was completely in the dark. They were making communications checks, but they were getting nothing in reply. [redacted]

[redacted] The VQ-1 squadron was monitoring the SAC HF broadcasts, so they knew something was amiss, and they were making repeated calls to the air control facility at Fuchu asking for information.<sup>116</sup>

Finally, at 1444, almost an hour after the shootdown [redacted] issued a Critic. Still, no one knew for sure what had happened until FBIS monitored a 1600 North Korean broadcast claiming to have shot down a "spy plane." By then the aircraft was half an hour overdue at Osan.<sup>117</sup>

Fifth Air Force aircraft swarmed to the spot, but debris was not spotted until the next day by a naval P-3. Eventually two bodies were recovered, along with some debris. Although Soviet vessels participated in the search and rescue (SAR) operations, compromise of classified material was never a significant issue, as it had been with the *Pueblo*.<sup>118</sup>

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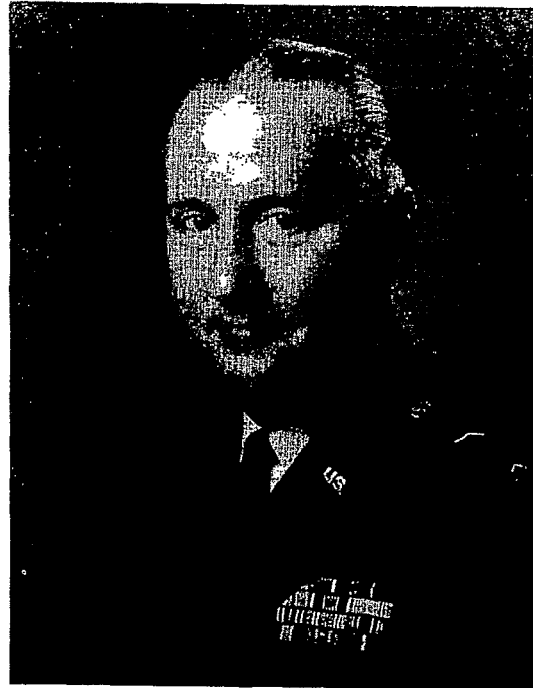
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While [ ] was trying to figure out if they had a shutdown or not, the Current SIGINT Operations Center at NSA had called Major General John Morrison, the assistant director for production. Morrison began coordinating the NSA response, but found it almost impossible. A Group had a crisis response center (the CSOC) with analysts and reporters [ ]

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[ ] But B Group had nothing equivalent to it, and analysts had to be called to duty in the middle of the night. By 0330 Local, CSOC had fashioned a follow-up to the Critic. [ ]

[ ] Morrison wore out his shoes walking between the A and B Group areas to try to get a coordinated response. The follow-up finally went out at 0500, but not before a thoroughly frustrated Morrison had vowed to consolidate his crisis and warning facilities into a single organization.<sup>119</sup>



John Morrison

### The Crisis

NSA's disorganized response was reflected at the White House. At the Situation Room, David McManis was trying to piece together the details, and he was on the phone with several different NSA divisions. He finally found it necessary to drive to NSA and get together the materials that he would need to brief the president.<sup>120</sup>

The shutdown plunged the new Nixon administration into its first international crisis. During the campaign Nixon had criticized the Johnson administration's handling of the *Pueblo* capture, and he had vowed to demonstrate that the Republicans were made of sterner stuff. Henry Kissinger, the new national security advisor, prepared a list of options which included a B-52 strike (according to journalist Seymour Hersh), and bellicosity nearly carried the day. But in the end the solid opposition of the secretaries of state and defense (Rogers and Laird) and the DCI (Helms) won out.<sup>121</sup>

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Instead, the administration launched a diplomatic offensive. The cornerstone of this offensive was a presidential press conference on 18 April. There, Nixon, using data supplied by NSA, stated that intercepts of Soviet and North Korean radar reflections proved that the aircraft had been in international waters. [REDACTED]

The administration decided ultimately on a military show of force in the Sea of Japan, a move almost identical to that which Johnson had made in January 1968. A massive flotilla was assembled under the name Task Force 71. It included three carrier task groups and 250 aircraft, [REDACTED] On 24 April AFSS flew a special RC-130 mission off the North Korean coast, heavily defended by American military might. By then, however, [REDACTED] North Korea had crawled back into its leathery shell and was no longer an immediate threat. Moreover, there was no evidence that the Soviets or Chinese Communists were in any way involved in the incident.<sup>123</sup>

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A *Washington Post* story on 17 April called into question the value of the peripheral reconnaissance program. It was a good question, and it got a thorough airing in the Pike Subcommittee, which was still investigating the *Pueblo* capture. House Armed Services Committee chairman Mendel Rivers simply added the EC-121 shootdown to the list of things that Pike was tasked to look into.<sup>124</sup>

While General Carroll of DIA came out four-square in favor of the reconnaissance program, John Morrison was not so categorical. Morrison, an Air Force general, could see the value of the Air Force program, which appeared to him to be better managed, used more capable aircraft, participated more fully in PARPRO (the Peacetime Aerial Reconnaissance Program) – and were, hence, safer – and were more fully under national control. The Navy program, Morrison thought, suffered from a lack of all these attributes. NSA was getting only minimal value and had no control at all. Morrison stood his ground before Carroll and the Navy on the issue. He commissioned an internal NSA study of the situation, which basically backed up his gut feeling. It was the second serious run-in between NSA and the Navy on peripheral reconnaissance.

The *Post* reporter, who seemed to have impeccable sources, also cited the extended delay in reporting the incident from the field. General Wheeler (chairman of the JCS) also raised questions, and NSA was called to answer. An internal investigation completely exonerated [REDACTED] focusing on its performance of advisory warning functions (on which

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it did a credible job) rather than on the delay in issuing the Critic.<sup>125</sup> This approach seemed to quiet external criticism, but any good field reporter knew that the Critic should have been issued as soon as there was any considerable doubt as to the fate of the mission. The investigation begged the real question.

The Pike Committee expressed disquiet about the real value of such airborne reconnaissance in view of the cost in dollars and lives over the years. Some of the committee's concern may have stemmed from NSA's unwillingness to defend the Navy's programs. Pike recommended that the full Armed Services Committee take a more active role in monitoring the programs.<sup>126</sup>

The committee was also very critical of interservice disconnects. The members cited failure of the VQ-1 squadron [ ] to receive any information from the Air Force about the mission until they received the Critic, and they noted that this time delay contributed to delays in launching the search and rescue effort. They were incredulous over the failure of the Navy to ask the Air Force for fighter strip alerts, especially so soon after the *Pueblo* incident.<sup>127</sup>

The rivalry between the Navy and NSA was not defused until General Carter stepped down as director. The new director, Admiral Noel Gayler, had the contacts within the Navy to build bridges, and as the new director he took NSA's case directly to Admiral John Hyland, CINCPACFLT commander. Gayler wanted closer NSA involvement with Navy SIGINT reconnaissance, and the authority to task missions. He eventually got part of what he wanted [ ]

The 1960s absolutely overflowed with SIGINT crises. After the Arab-Israeli War of 1967 and the *Pueblo* capture of 1968, John Morrison proposed to General Carter that NSA establish a single national SIGINT watch center. The proposal was still hanging fire four months later when the EC-121 went down. Morrison pressed Carter for a decision, and on 17 July 1969 he got one. In the twilight of his term, Carter concurred with the establishment of a National SIGINT Operations Center (NSOC). Morrison himself was charged with putting it together.<sup>129</sup>

As for the EC-121s, their time was almost over. A Navy Board of Inquiry, looking at the shootdown, noted the cumbersome nature of the aircraft (maximum speed 220 knots) and low headroom (maximum altitude 10-20,000 feet), and the board recommended that something better be procured. The replacement was the EP-3E Orion, which gradually took over all EC-121 orbits. The EC-121s were moved back to safer orbits until they could be mercifully retired.<sup>130</sup>

Was the shootdown a deliberate act? Conspiracy theories usually require wild flights of imagination, but in this case it was the only explanation that made sense. Like the *Pueblo* capture, it seemed to follow no known North Korean procedure, and it did not appear to have simply been a routine operation gone haywire. Instead, it appeared to be a carefully preplanned event, from the placing of two MIG-21s at a training base that had

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never seen them before, to the flight pattern of the aircraft that allowed for little misinterpretation of intent. The shootdown happened to occur on Kim Il-sung's birthday, which led to speculation that it was a planned birthday present. Of course, the North Koreans had to hope that the JRC reconnaissance schedule conformed with Kim's birthday, which makes this part of the theory rather tenuous.

It was likely just another of North Korea's xenophobic strikes. This time a U.S. reconnaissance aircraft was in the way.

### **SECURITY AND THE WORK FORCE IN THE 1960s**

Success on the cryptologic front did not translate into the security field. A succession of security problems in the early 1960s, begun in the summer of 1960 with the infamous Martin and Mitchell defection (see pg. 280), rocked the NSA community. For the first four years of the decade, it must have seemed like the sky was falling.

#### **Dunlap**

The House Un-American Activities Committee investigation into the Martin and Mitchell affair ended in 1962 when a final report was issued. Legislation to give the director additional powers to dismiss personnel, which resulted from the committee recommendations, was still dragging through Congress when in July 1963 an Army sergeant named Jack Dunlap committed suicide. A month later his wife showed up at NSA with a pile of classified documents which, NSA's security organization discovered, Dunlap had been selling to the KGB.

Sergeant First Class Jack E. Dunlap had first come to NSA as the driver for Major General Garrison B. Coverdale, the chief of staff, in 1958. Dunlap had up to that time served a rather uneventful career in the Army, which included service in Korea as an infantryman. While overseas he had worked as a technician and messenger for ASA, which got him close to the security business. But Dunlap was afflicted with serious character flaws. He liked money, lots of it, and when he had it, he spent it on yachts, fast cars, and faster women. Once at NSA, he discovered how to get it. Sometime in



**Jack Dunlap**

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May or June 1960, Dunlap walked into the Soviet embassy in downtown Washington and offered to sell classified documents. He claimed he could get his hands on them.<sup>131</sup>

Dunlap smuggled classified documents out of NSA literally under his shirt. He did not work in a technical area, had no knowledge of cryptology, and probably did not steal documents in any organized fashion. But he knew that the documents were worth money. He was in and about Coverdale's office and just scooped up whatever became available. The FBI and NSA security people were never able to determine with any certainty just what Dunlap had sold.<sup>132</sup>

Twice the Army alerted Dunlap for overseas assignments. This represented a serious threat to his lifestyle, which by that time included two Cadillacs, a Jaguar, a thirty-foot yacht, a world-class hydroplane, and a blonde mistress. The first time, Dunlap evaded the assignment by pleading a bad back. The second time, he informed the Army that he intended to resign, and he applied for a civilian position at NSA.<sup>133</sup>

He did not get very far. His initial polygraph turned up evidence of petty thievery, immoral living, and living beyond his means, and his second try did not go any better. NSA initiated an investigation and withdrew his access to classified material. The investigation began in May, and the FBI interrogated him on 17 July. Apparently convinced that he was about to be exposed, Dunlap committed suicide six days later by inhaling carbon monoxide. Later in the summer his wife turned up with the classified documents that were still in the Dunlap residence.<sup>134</sup>

The Dunlap affair brought further unfavorable publicity to NSA, but it did represent a success of sorts. Had the polygraph not been in place, Dunlap might have been hired in some capacity and would have continued his espionage. The incident renewed discussions about requiring military assignees at NSA to take the polygraph, but the armed services staunchly opposed it, and successive directors (Blake and Carter) made little headway. The custom of excluding the military from the polygraph did not finally end until 1985.

Much criticism attended the revelation of Dunlap's lifestyle, which had gone unreported by coworkers. Further, the affair spotlighted the ease with which employees could spirit classified documents out of the Agency. The impact was the initiation of exhaustive exit inspections, which continued for thirty years (until 1993), and a continuing focus on employee lifestyle, a point that was hammered home to NSA employees again and again during security awareness sessions. Although Dunlap is deceased, his ghost has lived ever after in the halls of Fort Meade.

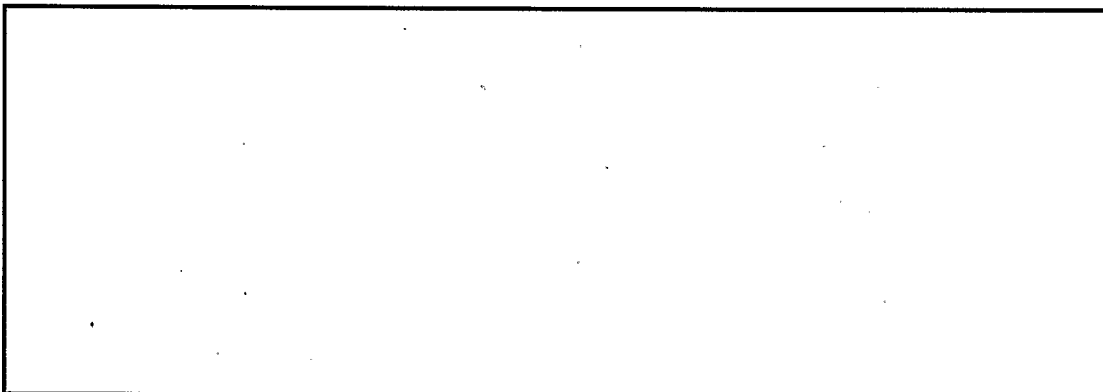
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### Hamilton

The same day that Dunlap committed suicide, the Soviet newspaper *Izvestia* published an article about NSA attributed to one Victor Norris Hamilton, a former NSA analyst. The third security crisis of the young decade had burst on the Agency.

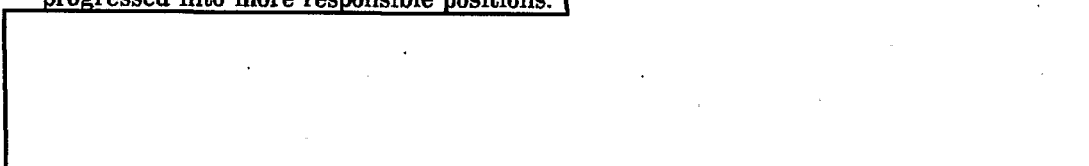
Hamilton, whose family name was originally "Hindali," was Lebanese by birth. He met and married an American working for Point Four (a foreign aid program) in Libya in 1953, and emigrated with her to the United States. Hamilton's fluency in Arabic attracted the attention of NSA, and he was recruited for employment in 1957.<sup>135</sup>

He remained at NSA for only two years. In early 1959 Hamilton began evidencing psychological problems, and he was sent to the medical staff for an evaluation. He was diagnosed as paranoid schizophrenic, but refused hospitalization, and he was medically terminated in June. He visited Morocco briefly but returned dissatisfied. He applied for employment at CIA, but there was no billet available for him. NSA tried to get him committed for psychiatric evaluation, working through his wife, but this failed. In 1960 he wrote a letter to the House Armed Services Committee claiming that an agent had offered him money to do business with the Soviet Union. The matter was turned over to the FBI, which tried unsuccessfully to interview him. He worked briefly as a teacher in Iraq but was discharged, and he dropped out of sight from May 1961 until the *Izvestia* article appeared.



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Hamilton brought more opprobrium to a besieged NSA security organization. Yet in his case, as in Dunlap's, it could be argued that the system worked. His initial hiring was, in retrospect, inopportune, but the internal screening system weeded him out before he progressed into more responsible positions.



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In March of 1974 the State Department reported to NSA that Hamilton was being detained in a Soviet psychiatric hospital. A Jewish émigré made a positive identification of Hamilton based on a photograph, and NSA closed the case in June.<sup>138</sup>

The Hamilton and Dunlap cases heightened the sense of urgency in Congress about NSA personnel policies. When in 1964 Congress enacted PL 88-290, giving the director more authority to hire and fire NSA people, the legislation owed much to the three security cases that immediately preceded it.

### David Kahn and *The Codebreakers*

The wave of publicity surrounding the Martin and Mitchell case interested a *Newsday* reporter named David Kahn. Kahn already had an active lifelong interest in cryptology sparked by his youthful reading of Fletcher Pratt's book *Secret and Urgent*. Subsequent to the Martin and Mitchell exposé, he wrote an article for the *New York Times Magazine* on the influence of cryptology on current events, and this spawned a publishing contract with MacMillan. *The Codebreakers*, a monumental work on the history of cryptology, was published in 1967 to a good deal of fanfare. It was, and has remained, the definitive work on the subject in the open press.

The publication was not a welcome development at Fort Meade. When NSA learned of the forthcoming book, it obtained a copy of the manuscript from the publisher. Without a reasonable hope of cooperation from either Kahn or MacMillan, the Agency reviewed the manuscript and marked a few passages for modification or deletion. To NSA's surprise, Kahn, then in Paris, reviewed the changes and agreed with virtually all of them. The material NSA wanted removed related to [REDACTED] and was not central to Kahn's thesis.<sup>139</sup>

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Although Kahn was reasonably cooperative, many other journalists were not.

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as the interest of the American public in NSA increased. Beginning as early as 1961, for instance, the *New York Times* quoted the presidential press secretary about the launch of Soviet manned space vehicles which referenced "listening posts" in the Middle East intercepting traffic between the launch site and downrange tracking stations. The next year *Newsweek* published references to satellite intercept of Soviet microwave transmissions. In 1966 the *New York Times* published a series of articles on SIGINT collection at the U.S. embassy in Moscow and on satellite intercept of Politburo-level limousine car phones.<sup>140</sup> A year earlier a press photo of McGeorge Bundy with President Johnson contained a copy of the CIA Daily Bulletin with a clearly visible "Top Secret Dinar" (the then-current Category III COMINT codeword) stamp affixed. This produced

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numerous press references to a "codeword so secret the very existence is classified." All the reporters seemed to know that the codeword referred to SIGINT, even at that relatively early date. The anonymity that NSA had enjoyed in the 1950s was slowly disintegrating.<sup>141</sup>

### Cryptology is Legalized

The legal existence of a COMINT effort, rendered precarious by the Federal Communications Act of 1934, was finally established in 1968. The Omnibus Crime Control and Safe Streets Act of 1968 dealt specifically with the issue. While prohibiting all wiretapping and electronic surveillance by persons other than law enforcement authorities (and even then under restriction), it stated that

Nothing contained in this chapter or in section 605 of the Communications Act of 1934 ... shall limit the constitutional power of the President to take such measures as he deems necessary to ... obtain foreign intelligence information deemed essential to the security of the United States...<sup>142</sup>

It did so just in time; the Watergate period and the attendant Church and Pike Committee hearings called into question all that was illegal about espionage, and much that was legal, too. The 1968 legislation provided a much-needed defense for NSA and the cryptologic community.

### AMERICAN CRYPTOLOGY AT THE END OF THE DECADE

It is important that you recognize the systematic character of the cryptologic enterprise; that its integrity must be maintained because the challenge with which it is confronted cannot be met if that system is debilitated, fragmented, or destroyed.

General Marshall S. Carter on the occasion of his retirement, 1 August 1969

By the end of the 1960s, cryptology had become big business. SIGINT product reports had become common paperwork in the White House and at every level down from that. NSA sent representatives to nineteen organizations, ranging from enormous military commands like CINCPAC to [redacted] A study of strategic warning done in 1967 called COMINT "the workhorse of warning intelligence; no other source can match its continuity, timeliness, and span of coverage."<sup>143</sup>

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The cryptologic community was at its height in terms of personnel numbers. NSA employed about 18,000 people [ ] percent of them military), while the SCAs had [ ]. The total, about [ ] men and women, was a strength that had never been reached before and has not been attained since.<sup>144</sup>

### Relationships with the Military

Paradoxically, the relationship between NSA and the military commands had never been at such a low ebb. Strains in tailoring SIGINT support had developed during the Vietnam War. A series of situation-specific compromises had papered over the differences, while leaving the underlying issues unresolved.

At mid-war, 1966 and 1967, NSA and the JCS had tried to hack out a comprehensive agreement concerning the use and control of SIGINT resources. The resulting document, called MJCS 506-67, left DIRNSA in overall control of all SIGINT assets but provided that under certain circumstances certain types of assets would be delegated to the tactical commander. The memo carefully defined the procedures for doing this, and for the first time the role of the cryptologic support group was defined and standardized.<sup>145</sup>

The trick was in universal interpretation and smooth implementation. The first try, during the *Pueblo* situation, collapsed in howling controversy, and it colored relationships for several years to come. Although the agreement was employed more successfully in later years, difficulties persisted.

In 1967, the same year that MJCS 506-67 was published, the Army convened a board under Brigadier General Harris W. Hollis to "examine cryptologic and related activities." At the root of this study were deep-seated differences between NSA and the Army over the management of cryptologic assets. The Hollis Board recommended a series of steps which would have both pulled ASA resources away from DIRNSA control on the one hand, and on the other, given ASA a more favored seat at the cryptologic table.

Hollis made a pitch to transfer ASA direct support resources from the CCP to the Army general-purpose program. This proposed move would have fragmented cryptologic resources while divorcing the Army from the CCP system. NSA opposed it, while recognizing the tendency to fully fund big-site resources and programs at the expense of tactical assets. Hollis also recommended that ASA be given operational control of tactical SIGINT resources at all times - the Army deferred this.<sup>146</sup>

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Distressed at the increasing concentration of resources at Fort Meade, the Hollis Board made a number of proposals that would have strengthened in-theater ASA processing. This move to improve SCA theater assets amounted to an attempt to halt the tide. The waves of cryptologic centralization continued to wash inexorably over the valiant Hollis Board, and nothing came of the attempt.<sup>147</sup>

Finally, Hollis proposed that the Army become more involved in centralized cryptologic activities, by taking a role in futuristic projects like [ ] and by increasing its manning at Fort Meade. While pointing out that ASA had already been given a piece of [ ] (a logistics piece, but nonetheless a piece), NSA noted deepening trends in the opposite direction. Army policy led in the direction of diversification, especially at the officer level, rather than toward the cryptologic specialization that was required for greater ASA participation in the centralized cryptologic system.<sup>148</sup> It was an ominous trend which led ASA in a tactical direction and which eventually caused it to virtually abdicate its unique SIGINT expertise, established so laboriously by Friedman and others in the 1930s.

The debate over SIGINT control intensified in 1969 when JCS promulgated a new policy document for electronic warfare, called MOP-95. Electronic warfare (EW) had always been outside the purview of SIGINT, but MOP-95 broadened the definition of EW to include a new category called Electronic Warfare Support Measures. The new category sounded just like SIGINT, but without the codewords or centralized control. General Carter attacked the new JCS document, to no avail. The armed services continued to develop EW capabilities, in league with the SCAs, which were happy to participate in a new effort divorced from NSA control.<sup>149</sup>

During the summer of 1969, as General Carter's term as director wound toward its end, the Joint Chiefs were considering a direct assault on NSCID 6. The objective was to expand JCS authority over cryptologic assets, at the expense of DIRNSA. Carter found out about the draft, and in a phone call to General Wheeler (chairman of the JCS) he called it an "absolute monstrosity." The revision of NSCID 6 was going through coordination when it was halted by Admiral Johnson, director of the Joint Staff, to await the appearance of Admiral Gayler at Fort Meade.<sup>150</sup>

### Marshall Carter Retires

Weary of conflict with the services and debilitated by medical problems, General Carter retired in August of 1969. But before he did so he loosed one final blast. In a letter to Secretary of Defense Melvin Laird the day before his retirement ceremony, he characterized the state of cryptologic management as "diluted."

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Despite the vigor, ingenuity, enterprise, and growing competence of the national cryptologic establishment which emerged almost seventeen years ago, subsequent administrative and organizational arrangements . . . have diluted the original concept and clouded the original goals. More and more common tasks have been assigned outside the cryptologic community, with a corresponding loss of efficiency and economy.<sup>151</sup>

He excoriated the legal hairsplitting that had been employed to shave cryptologic resources from the central system, to call a duck something other than a duck in order to free it from NSA's control. He was pessimistic about the future.

Carter was asked to hold invitations to his retirement ceremony at the Pentagon to 150. He invited only 3 people and zipped through the ceremony in ten minutes. The Pentagon was as happy to see the last of Marshall Carter as Carter was to leave the wars.<sup>152</sup>

### Gayler Takes the Helm

With Carter on the way out, the Department of Defense decided to experiment with a new kind of director. Instead of appointing an intelligence specialist on his final military assignment, DoD nominated an admiral with an operational background and ambitions to go higher.



Lt Gen Carter shows incoming DIRNSA VADM Gayler his office.

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Noel Gayler was untainted by the intelligence business. The son of a Navy captain, he had gone into naval aviation soon after his graduation from Annapolis in 1935. Gayler had served as a flyer in the Pacific in World War II, following which he had had many years of both operational and staff experience with the line Navy. He had been only the third naval officer ever to fly a jet aircraft, and when he was nominated to fill Carter's job, he still held the record for the longest flight from an aircraft carrier. He was a known protégé of Elmo Zumwalt, the new and reformist CNO.<sup>153</sup>

Gayler was the most unusual director in NSA's history from many aspects. Personally, he was dynamic, mercurial, and high-strung. Gordon Sommers, a senior civilian at USAFSS, described Gayler's management style as all Navy.

Gayler came from a Navy background, and his perception of command and control was the captain on the bridge of the ship with a speaker tube down to the boiler room yelling orders to throw more coal on the fire, and everybody down to the lowest level threw more coal on the fire.<sup>154</sup>

His impatience with briefers was legendary, and he was known to throw things when especially agitated. He seemed to strike out in all different directions at once, and he moved with dizzying speed from one topic to another. Short, stocky and athletic, he resembled a fireplug in constant motion.

Gayler was put in the job to repair the damaged NSA-JCS relationship. He understood that he was to open up channels of communication, that he was to talk to the operational officials on the Joint Staff and get things moving again. One of his first moves was to create a permanent NSA representative to the Pentagon, accredited to the JCS, the military departments, and the office of the secretary of defense.<sup>155</sup>

He was immediately confronted with the JCS staff papers, forwarded to him by Vice Admiral Johnson. The papers were more than just critical - they amounted to an indictment. In his reply to Johnson, he said that the basic directives (i.e., NSCID 6) seemed to be sound and that "any difficulties have been occasioned by the attitudes of personnel involved" (a clear reference to his predecessor and his antagonists). He believed that he could patch things up through personal diplomacy, and he began calling people at the Pentagon. Within weeks he had defused the situation.<sup>156</sup>

Although he did put NSA back on speaking terms with the military, it is hard to see how he accomplished it. His personal relationship with most of the Joint Chiefs was cold to the point of hostility. But Gayler was politically astute, and he moved easily in Washington's power elite despite his mannerisms. When he departed, he was rewarded with the plum assignment of CINCPAC and got his fourth star, the first NSA director ever so elevated.

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### The Eaton Committee

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By 1967 the SIGINT budget passed \$1 billion, and manpower stood at nearly 100,000. Officials at the Bureau of the Budget were already taking a close look at the CCP when General Carter sent over his CCP proposal for FY69, which added another \$200 million to an already high figure. The CCP monitor, William Mitchell, went through the roof. He took the Carter budget to Charles Schultz, director of the Bureau of the Budget, and convinced Schultz that cryptology had to be "investigated." Schultz, who had worked in ASA earlier in his life and probably thought he had special insight, sent an unstaffed memo to the president proposing a national-level cryptologic review.<sup>157</sup>

Richard Helms, the DCI, found out about this invasion of his turf, and he called White House staffer Bromley Smith. Walter Rostow and Clark Clifford put a stop to the Schultz memo, but this did not solve the cryptologic budget problem. Ultimately Robert McNamara, whose empire included NSA, convinced the president that Helms himself should be charged with the job. The DCI was to appoint a high-level committee to investigate cryptology. The objective was to reduce the CCP, and it was to be a review to end all reviews.<sup>158</sup>

Helms appointed a very high-powered group. Lawyer Frederick Eaton was chair, and the members were General Lauris Norstad (former SACEUR), Ambassador Livingston Merchant, and Dr. Eugene Fubini, the DDR&E and long-time nemesis of Marshall Carter. A more influential foursome could hardly have been found for the job.<sup>159</sup>

The Eaton Committee suffered from the hostility of almost every organization with any stake in the problem. Helms himself had been cool to the idea when it was first proposed. Regarding NSA and SIGINT satellites, for instance, he stated that NSA's relationship with the NRO was a matter for him and McNamara to sort out, and it should not be discussed by a committee. He opposed any investigation of Third Party matters as intruding onto CIA turf. He demanded that the committee not interfere with CIA's independent SIGINT effort: "Relations between NSA and CIA on [redacted] activities have been the subject of exhaustive discussion and review and present working arrangements appear to me to be satisfactory."<sup>160</sup>

Helms suggested that the committee occupy itself with considerations of ELINT management and reduction or consolidation of SIGINT field sites in vulnerable overseas areas. But DIA and the services opposed any look at ELINT, and NSA viewed the idea of reducing field sites with suspicion.<sup>161</sup>

The appointment of Fubini to the committee was, to Carter, the last straw. He determined to have nothing to do with the effort, and his appointees to the committee staff (Walter Deeley and Gerald Burke) defended NSA interests at every turn. The investigative effort was so fragmented by staff bickering and external hostility that Eaton was able to accomplish little. It was hardly a review to end all reviews.<sup>162</sup>

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The conclusions of the Eaton Committee, especially in the area of COMINT, tended to support NSA objectives. Eaton was a centralizer, and he proposed that NSA obtain more control over the cryptologic process. In his view, parts of the SCA staffs should be integrated with the director's staff. The committee recognized the central dilemma of resource control which was bedeviling SIGINT, and it viewed askance service attempts to flake off various parts of the process through inventive definitions of EW and increased control of cryptologic field sites. Service complaints about lack of SIGINT support should not be used as a lever to fragment the cryptologic effort: "The tendency on the part of the military, unilaterally, to remove essential resources, both men and equipment, from the approved Consolidated Cryptologic Program is detrimental to the entire effort and should be resisted."<sup>163</sup>

Regarding ELINT, however, the panel proceeded in the opposite direction. Stating that "over the past ten years, it has become apparent that the decision to place ELINT as a whole within the COMINT structure has not proved workable," the committee recommended that ELINT remain decentralized. NSA's proper role was to exert technical control, to collect and process signals of national strategic importance [redacted] and to maintain a central database for the intelligence committee.

On overseas basing, the committee simply repeated shopworn platitudes about the need to reduce bases without hurting the effort. Eaton and company seemed to understand that overseas real estate must sometimes be retained in a less-than-productive status to preserve options against future targets. The Eaton members also felt that the SIGINT targets would increasingly become high-tech problems which required huge amounts of money [redacted] and the overhead SIGINT satellite program. The committee cautioned against rushing in too fast, but recognized that increasing amounts of money would have to be funneled into those efforts at the expense of conventional collection.<sup>164</sup>

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On the critical issue of assessing the effort against [redacted] the committee admitted that it had not been able to gather enough information to make a recommendation. There were telltale signs that NSA had decided not to unburden itself of its most closely guarded secrets to a group which it did not trust and that Eaton recognized a stone wall when he saw one.<sup>165</sup>

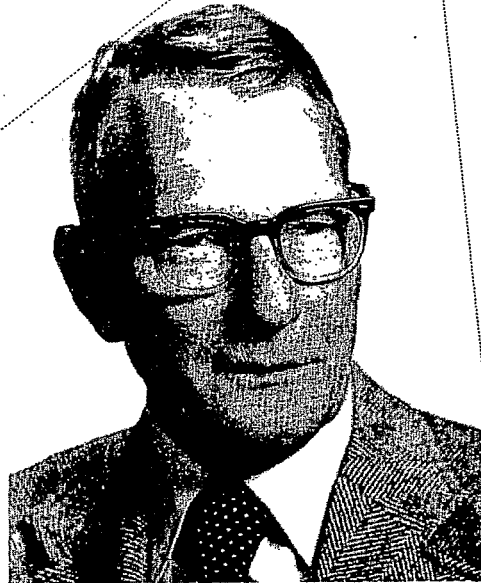
The only Eaton recommendation that had any long-range impact on intelligence was one which strayed beyond the borders of cryptology. The committee recommended that the DCI exert stronger direction over the overall intelligence program by creating a National Intelligence Resources Board (NIRB). This emphasis on centralized direction harmonized with the philosophical bent of the committee, and at CIA it fell on fertile ground.<sup>166</sup>

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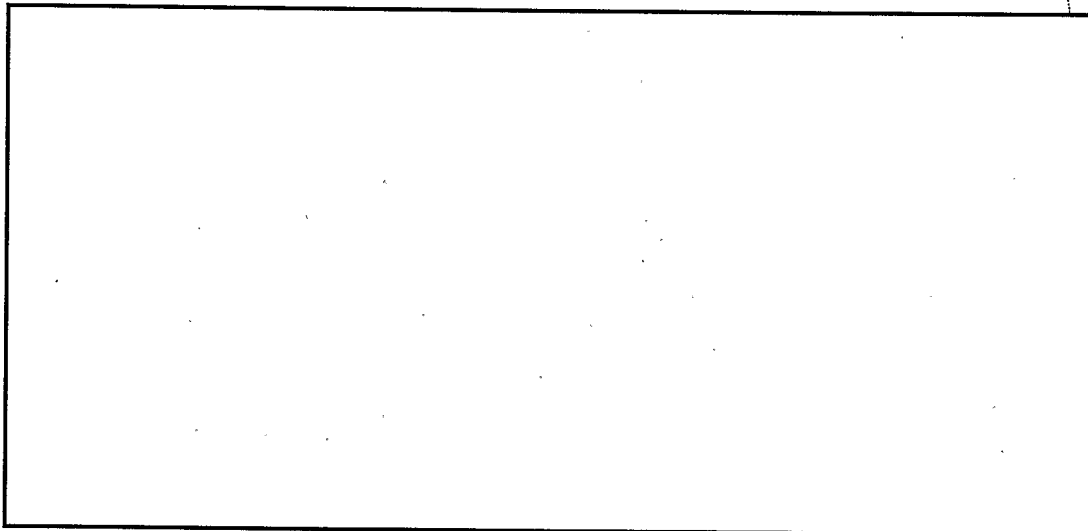
### The Eachus Committee

Following the failure of the Eaton Committee to resolve the central problem of the worth of the effort against Soviet cipher systems, the NIRB prepared to take on the problem. But in the fall of 1968, before the NIRB could get moving, NSA itself established a panel for the [redacted] effort. The Eachus Committee was headed by Dr. Joseph Eachus of MIT, a former Navy cryptanalyst during World War II and one of the leading civilian authorities on the Soviet cipher system problem. Eachus was known to NSA and was a trusted friend. Carter placed his bets on a friendly assessment.



Joseph J. Eachus

In contrast to the Eaton fiasco, NSA revealed all to Eachus. The Eachus report was the most thorough assessment of the NSA position on Soviet enciphered systems ever done.



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Although Deputy Director Louis Tordella tried to justify the expense [redacted]

[redacted] Eachus's role was to validate the effort and urge that it be pursued with increased intensity.

### The Creation of NSOC

Although the EC-121 shootdown pushed the NSOC cart over the crest of the hill, more than three years were to elapse before an organization actually took shape. NSOC's creation was delayed so long because of internal bureaucratic wrangling and logistics problems.

The first problem was space. Initial planning assumed that NSOC would physically move into spaces contiguous to CSOC, but it became clear fairly early that such a large organization would require its own spaces. Room could be made when the communications center (Tcom) moved to a new location on the third floor of Ops 1, but NSOC would have to wait for Tcom to move out. The second-floor spaces were to be available in 1971, but the calendar for the Tcom move kept slipping, and ultimately the area was not freed up until a year later. Meantime, the formation of NSOC was on hold.<sup>169</sup>

The second problem revolved around what NSOC was to look like. In his initial NSOC concept paper, Major General John Morrison (the ADDO) described NSOC as a center that "would provide NSA with a single facility from which to conduct the production and dissemination of current SIGINT information. . . ." It would track ongoing events, but it would also produce reports and direct activities. It would comprise A Group's CSOC, B and G Group's crisis centers, elements of K1 associated with tasking mobile SIGINT elements, P04 elements involved in reconnaissance missions, and the Command Center. Shift operations would be headed by the SNOO (Senior NSA Operations Officer). Manning would come from CSOC's [redacted] workers, [redacted] people from P04, [redacted] from the Command Center, and unspecified numbers from B, G, and W Groups. Its communications would be primarily via Opscomms [redacted] of them, a huge number at the time). Morrison named Air Force colonel [redacted] to head the planning effort. [redacted] fresh from Europe, knew exactly how the operation at [redacted] functioned, and could get his hands on the people who had made it successful.<sup>170</sup>

The operating concept that Morrison envisioned was basically CSOC with other Agency elements grafted on. At the time CSOC controlled [redacted] reporting. It could direct reporting and could issue its own reports (although as time went on that function became almost the exclusive domain of the day shop). The day effort put out periodic summaries and wrap-ups, while events more than seventy-two hours old were turned over to A7, the term analysis shop. CSOC still lived in the days of the Teletype Model 28 Opscomm terminal, and analysts got their traffic delivered in paper copy from the Opscomms that resided in a separate room. Even so, things moved very fast in CSOC -

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it was closer to near-real-time than any other organization in the Agency. Morrison clearly modeled NSOC after CSOC.<sup>171</sup>

And that was where the trouble began. CSOC might have been ahead of the competition, but it just wasn't the model that non-A Group organizations wanted to use. Morrison's concept paper raised a storm of controversy. Frank Raven, chief of G Group, agreed to place a desk in NSOC, but insisted that G Group operations were much too diverse to be amenable to centralization, and the G Group desk would be a watch desk only, with no production functions attached. [ ] of B Group took basically the same tack, and he agreed to relocate certain B functions only to lessen the physical distance between B Group and other Agency elements. W Group agreed to establish a desk in the new organization, but its focus was still in DEFSMAC, and the NSOC effort was perfunctory. [ ] responding for K1, adamantly opposed absorption of any portion of the K1 mission (managing mobile collectors) by NSOC.<sup>172</sup>

Morrison forged ahead anyway. In 1972 he appointed a planning group dominated by people with A Group experience, and he named a full-time NSOC staff headed by Richard "Dick" Lord, the former head of CSOC. Although key members of B and G Groups assisted Lord, the organization kept the A Group flavor. NSOC was being called "A Group and the Dwarfs."<sup>173</sup>

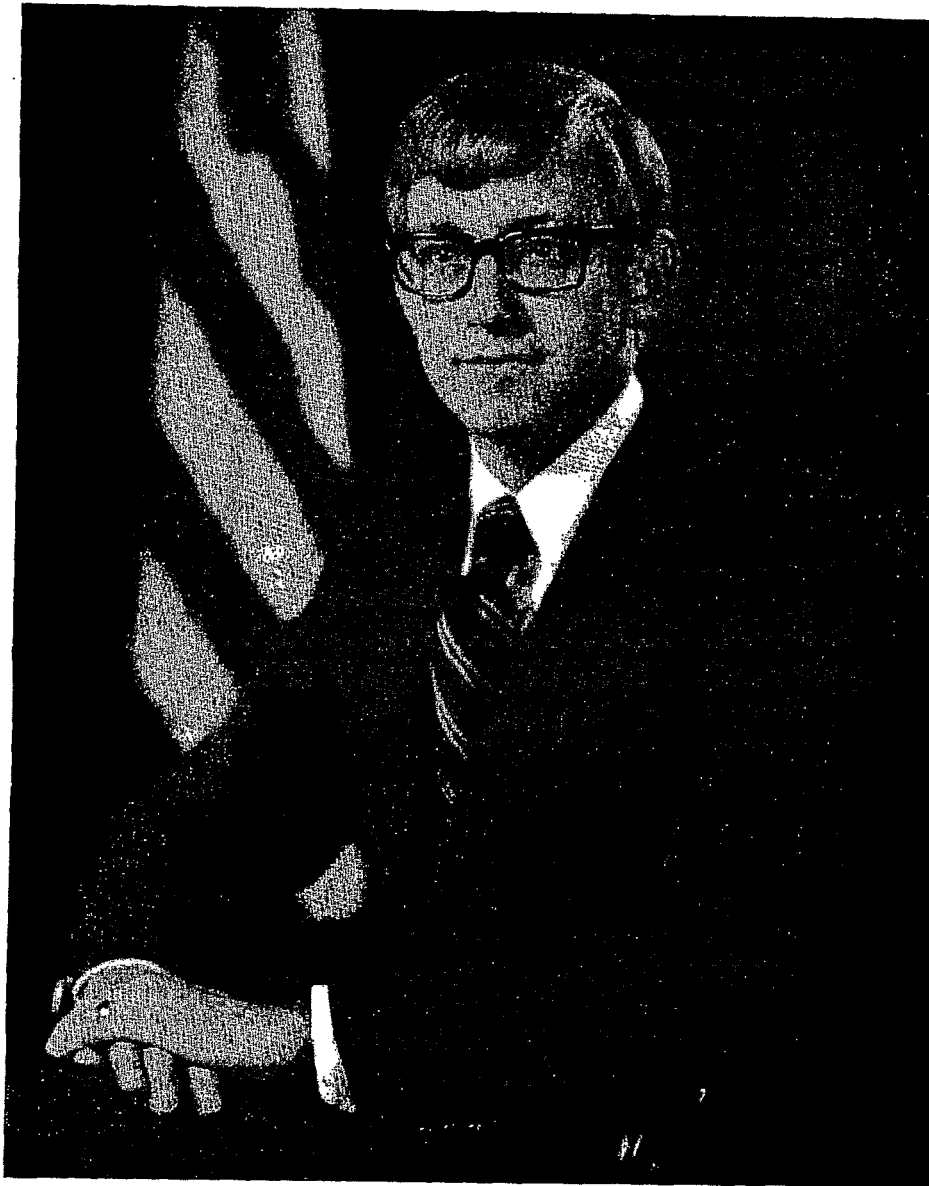
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The new NSOC edict was finally fashioned in the summer of 1972. By charter, NSOC was to "act as an authoritative and responsive interface on current SIGINT product and service both between SIGINT users and producers and between various producer organizations." It would also function as the NSA command center, and the senior officer, now called the SOO (Senior Operations Officer) would have true command responsibilities for the entire SIGINT system. In that capacity he or she represented the director.<sup>174</sup>

Operationally, it resembled CSOC and its predecessor, the Air Force center at [ ]. It monitored ongoing events and could take a variety of actions, including redirecting coverage and steering field reporting. Its original charter included the authority to do its own independent reporting, but this function was never exercised. NSOC did not become another [ ] except in the area of reconnaissance reaction reporting. But it did become the focal point for the release of all Agency electrical product reports. Finally, it did the daily director's brief and supervised the worldwide CSG system.<sup>175</sup>

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**Richard "Dick" Lord**  
Named by Morrison to put NSOC together, he later became NSA's deputy director.

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The NSOC that went operational in December 1972 (though the official ribbon-cutting did not occur till the following February) was in a state of technological transition. During the CSOC days, Walter Deeley, who had been Colonel [redacted] deputy in A8 (CSOC), had been working toward what he called the "paperless environment." He planned to electrically connect the field Opscomms with a computer so that Klieglights could be processed and distributed automatically to CSOC floor analysts. A revolutionary concept at the time, Deeley pushed it with a dedicated singlemindedness. A Group selected the Univac 494 as the mainframe because of its communications handling capabilities. Software to manage the Klieglight system was called TIDE. The concept was in only a partial state of existence when NSOC was created, but it soon became the dominant concept within NSA. It made near-real-time truly feasible.<sup>176</sup>

#### SIGINT in the Nixon White House

The decade closed with a new president, Richard Nixon. It also opened with a new chief of the White House Situation Room. When [redacted] of CIA departed the Situation Room at the end of the Johnson administration, General Alexander Haig was appointed to the job. But Haig was clearly destined for greater things, and soon NSA's David McManis was given the job.<sup>177</sup>

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The national security apparatus under the new administration was enmeshed in a rather strange structure. Henry Kissinger, a Harvard history professor, became the national security advisor, but he came to exercise power far beyond that. Kissinger was in effect Nixon's secretary of state (shoving aside the supine William Rogers), a DCI (moving into the turf of Richard Helms, whom Nixon distrusted) and still later, a de facto chief of staff for a president besieged by scandal and crime.

Like Walt Rostow in the Johnson administration, Kissinger became the funnel for intelligence to the president. When someone had to be called in, McManis phoned Kissinger, who lived only a short distance from the White House in Rock Creek Park. He was, according to all contemporary accounts, a brilliant man, but not as experienced in SIGINT matters as Rostow had been. Moreover, he was inclined to shield the president from the details of intelligence, where Rostow shared all. Thus when SIGINT did get to the Oval Office, it was generally subsumed into a mishmash of sources and not separated out and highlighted as it had been under Johnson. Nixon did not himself get involved in the details of intelligence, leaving those details to Kissinger.<sup>178</sup>

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Henry Kissinger, May 1969,  
in his office in the basement of the West Wing

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To some extent this was an inevitable development. Johnson's handling of SIGINT had been unique, and it was not to be repeated. Journalists like Seymour Hersh have claimed, on what appears to have been good authority, that intelligence, and especially SIGINT, was being misused for political purposes. This has been confirmed to some degree by SIGINTers who had contact with the White House. It fell into a pattern that was to emerge during the second Nixon term - the Watergate pattern. It was not good for SIGINT, and it was deadly for the presidency.<sup>179</sup>

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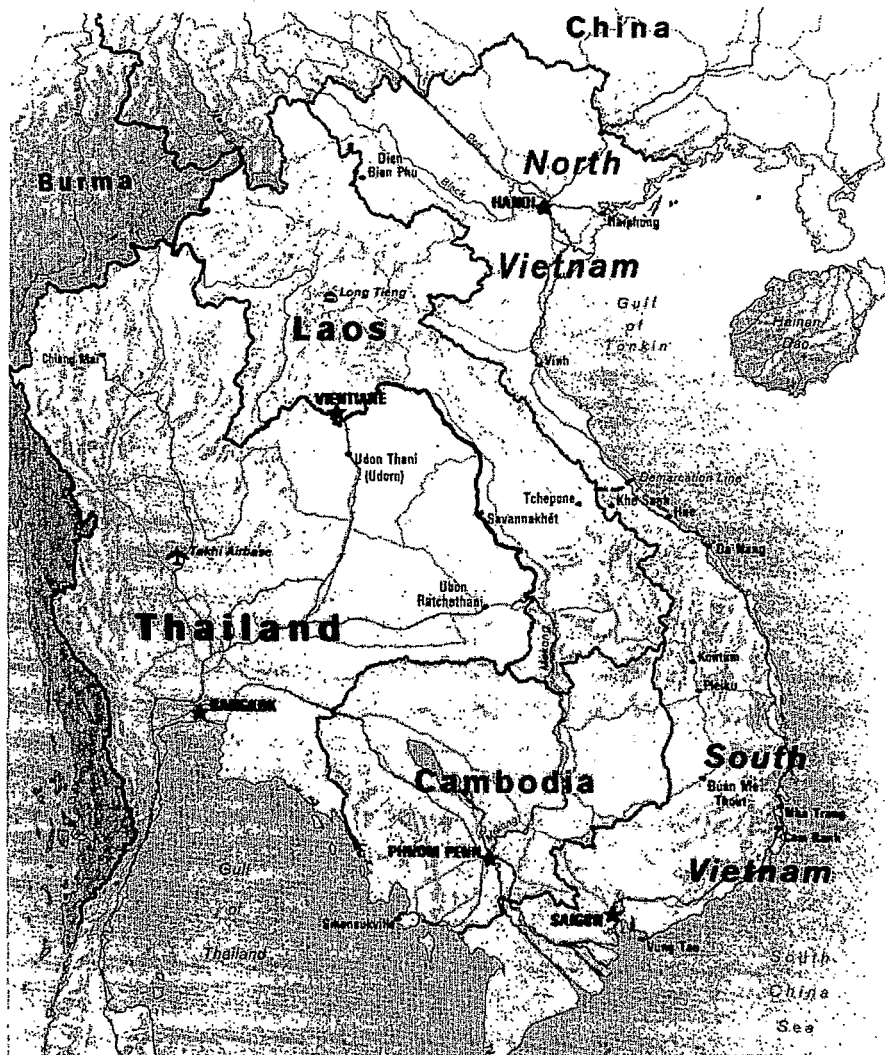
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