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# THE AIR FORCE AND THE WORLDWIDE MILITARY COMMAND AND CONTROL SYSTEM

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THE AIR FORCE AND THE WORLDWIDE MILITARY COMMAND AND CONTROL SYSTEM

1961 - 1965

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by

Thomas A. Sturm

USAF Historical Division Liaison Office

August 1966

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## FOREWORD

The Air Force and the Worldwide Military Command and Control System, 1961-1965, is a companion volume to Arthur K. Marmor's USAF Command and Control Problems, 1958-1961. It seeks to trace major developments in the continuing effort to provide the nation's leaders with command and control facilities for assessing and responding to crises which require, or might require, commitment of America's military forces. Since decisions on most of these developments are made by the President or the Office of the Secretary of Defense it is frequently difficult to pinpoint the Air Force role in them. They remain very much a part of Air Force history, however. The Air Force contributes many of its most highly skilled officers to the joint agencies that build, operate, and support elements of the worldwide military command and control system. Air Staff officers serve on the joint planning groups that conceive the facilities. And nearly every Air Staff section furnishes support to these planning groups.

The actual impact of these developments on Air Force components of the worldwide system is being recorded in separate USAF Historical Division Liaison Office studies. Completed thus far are: USAF Strategic Command and Control Systems, 1958-1963, by Carl Berger; and Command and Control for North American Air Defense, 1959-1963, by Thomas A. Sturm. A study of the concept and evolution of a computerized, integrated USAF Command and Control System is currently in preparation.

This study forms a part of the larger History of Headquarters USAF. It is being published separately to make it more readily available throughout the Air Force.

*Max Rosenberg*

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Chief, USAF Historical Division  
Liaison Office

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## I. INTRODUCTION

(U) Before the advent of the intercontinental ballistic missile (ICBM), the Air Force had the dual job of developing and operating command and control facilities to meet the needs of the President, the Secretary of Defense, and the Joint Chiefs of Staff (JCS) as well as its own. The systems that it built possessed many highly valuable qualities. The Air Defense Command (ADC) felt certain that the radar network which it operated for the North American Air Defense Command (NORAD) could guarantee the nation several hours of warning before Russian bombers reached their targets. The Strategic Air Command (SAC) was confident that with this warning it could get its own bombers and tankers airborne before the enemy overran them. And NORAD felt that its USAF interceptors and Army missiles could diminish the blow considerably by destroying some attackers before they reached their targets.<sup>1</sup>

(S-Gp 1) The entire command and control system possessed many serious defects, however. Slowness in handling data and inadequate facilities in Washington for information display and consultation could have resulted in a dangerous delay in the Presidential decision to commit retaliatory forces. These weaknesses could also have deprived the fighting forces of strategic direction once the battle began. Conceivably, the President and other high officials might have escaped to safety in the underground facilities operated by JCS and the Office of Emergency Planning (OEP) outside

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the Washington area.\* It was also conceivable that the air defenses might have kept the enemy from destroying the top NORAD and SAC operations centers in Colorado Springs and Omaha. Widespread destruction of communications and command posts would probably have cut these survivors off from contact with the fighting forces, however, and the nation's leaders would not have known the outcome of the battle for hours, perhaps days, after the last bomb had been dropped. Such elemental and vital questions as how the nation might receive and grant a request for a cease-fire if the enemy asked for one at some point during the exchange remained unanswered.

(S-Gp 1) Understandably, the Air Force was greatly concerned about the inability of these systems to survive a nuclear attack. In the first significant attempt to improve command and control--the Semi-Automatic Ground Environment (SAGE) system--the Air Force recognized the futility of modernization without considering survivability.+ In the early 1950's USAF planners proposed hardening SAGE command centers and communications by digging them deep into the ground. They abandoned the idea, however, when they saw that the Office of the Secretary of Defense (OSD) and Congress would not grant the funds that this would require. They then sought to give the system a measure of survivability through dispersal of command centers and redundancy of components. This too was rejected, and the

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\* (U) The Office of Civil and Defense Mobilization was reorganized and redesignated the Office of Emergency Planning on 22 September 1961 after its major civil defense functions were transferred to the Department of Defense (DOD).

+ (U) SAGE was a pioneer effort initiated in 1953 to speed up the flow of combat data through the air defenses by incorporating computers in the command centers. It began to come into operation in 1959 and all centers were operational by late 1961.



initial program contained no provisions for protecting command posts or communications against nuclear or even conventional explosives. Thus America's leaders tacitly evinced faith in two beliefs: the Russians would not be so foolish as to risk their own destruction by challenging SAC's bombers to a duel; and while the situation might change once the Russians acquired ICBM's this threat was still far in the future and would be faced as it arose.

(U) Unfortunately, the latter belief rested on the false assumption that the Soviet Union lacked the technological skills to overtake America's unhurried ballistic missile and space programs. This illusion was shattered in the summer and fall of 1957 by Russia's successful ICBM test flight and Sputnik space shots. Forewarned so spectacularly of Russia's astoundingly swift advance toward an operational ICBM, President Dwight D. Eisenhower shifted America's own ICBM and ICBM-warning programs into high gear. In the DOD Reorganization Act of August 1958 the President also revamped the nation's military organization toward the goal that combat forces would be "singly led and prepared to fight as one, regardless of service." The operational line which formerly had meandered through service channels now ran directly from the President through the Secretary of Defense and JCS to the commanders in chief (CINC's) of the unified and specified commands. The job now became one of affording this strengthened organizational structure, particularly its top echelons, the means to carry out its crisis responsibility.

(C-Gp 3) Gen. Earle E. Partridge, the first NORAD commander, appeared to be the prime mover in getting the job under way. Writing

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directly to Secretary of Defense Neil M. McElroy in July 1959, he urged that the current systems be expanded, reoriented, and integrated so that the President and his top civilian and military advisors had computers in a central facility which gave them instantly the same intelligence and force-structure information displayed in command centers. Unless the project were started soon, General Partridge warned, America's leaders would not be able to reach and transmit critical decisions in the extremely short time available to them once Russia forged its Sputnik technology into an operational ICBM force. Recognizing that this change was but one of several that had to be made and that the ICBM portended command and control problems which no one could envision, Partridge further urged that a Presidentially appointed group reexamine the entire subject immediately.<sup>2</sup>

(U) Two years elapsed and a new administration came to office before the Department of Defense accepted General Partridge's counsel. In the interim, JCS had obtained the structure and manning that enabled it for the first time to play a significant crisis role. It then initiated work on key aspects of a command and control program which came to have few rivals in complexity and magnitude.

(S-Gp 1) One of the first actions of JCS was to establish its own emergency consultation facility. Since 1955, by order of the National Security Council, the Air Force Command Post (AFCP) in the

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Pentagon had served also as the national command post.\* At that time it assumed responsibility for notifying the White House and major government agencies as well as the military forces of air defense warnings and alerts. It also replaced an outmoded telephone system that year with a modern switchboard. In July 1956 JCS began to prepare and keep current its own war emergency check lists and readiness files of force structures. The next year it considered setting up its own command post but decided that the AFPCP arrangement was adequate.

(S-Gp 1) After Sputnik JCS promptly approved a number of improvements in the Air Force Command Post. A worldwide telephone system, built by December 1958, carried out President Eisenhower's instruction to reduce the delay in sending operation orders from the national authorities to the unified commanders. Finally, with USAF assistance, JCS set up its own Joint War Room (JWR) in August 1959. The consoles became operational in November 1960 and Joint Staff personnel assumed all JCS emergency action responsibilities on 21 December. At that time the JWR replaced the AFPCP as the national command post.

(S-Gp 1) Meanwhile, JCS had begun to restudy the manning requirements of its underground Alternate Joint Communications Center (AJCC) at

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\*(U) Gen. Hoyt S. Vandenberg, USAF Chief of Staff, established the command post soon after the outbreak of the Korean War in 1950. It served throughout the war as the principal Pentagon communication center and focal point for the direction of USAF field operations as well as a clearing house for combat information. During that time it established telephone communications with SAC, ADC, and the White House, since the major threat to the nation during those years was bomber attacks.

Raven Rock, near Ft. Ritchie, Md.\* The AJCC was 50 miles or a 30-minute helicopter ride from the Pentagon, and the Air Force had argued unsuccessfully since 1952 that men should be permanently stationed there to take over if top Washington officials failed to reach it. In the early 1950's instructions had read simply that small elements from each service and JCS would move there if Washington were threatened with destruction. In August 1955 OSD approved the "automatic" activation of the AJCC on declaration of air defense warning or notice of surprise attack. This was broadened in April 1957 to an activation prior to emergency if JCS thought it necessary. Each change increased the chances of getting men there in time but still did not guarantee that they would make it.

(S-Gp 1) Finally, on 20 October 1960 JCS accepted the USAF view and instructed the Joint Staff to establish a Joint Alternate Command Element (JACE). Activated on 11 July 1961 under USAF Brig. Gen. Willard W. Smith, JACE consisted of five battle staffs permanently stationed in Washington and an administrative section at Ft. Ritchie. The new organization began operations in October 1961 with the battle staffs rotating to the AJCC for temporary duty.

(S-Gp 1) By this time JCS was requiring studies and making command and control decisions at a fast pace on matters that had limped along for

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\*(S-Gp 1) An interservice committee recommended establishment of the AJCC in September 1950 and JCS approved in July 1961, making the Army the manager and giving the services responsibility for operations and logistics. It consisted of two sections--above ground administrative and support facilities at Ft. Ritchie and underground operational facilities at Raven Rock. The underground center was completed in 1953. In July 1956, a Joint War Room Annex was established there with the Air Force operating it. By 1959, the services as well as JCS regarded Raven Rock as their primary emergency deployment center. For the Air Force, it served as Headquarters USAF Advanced, capable of receiving the Chief of Staff and key officers.

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years. The Weapons Systems Evaluation Group (WSEG) initiated and completed several significant preliminary analyses in the second half of 1959 of subjects raised by General Partridge in his July 1959 message to Mr. McElroy. Adm. Arleigh Burke, Chief of Naval Operations, told JCS in January 1960 that the military should concentrate in the future on developing an integrated worldwide joint command and control complex rather than follow the separate service approach of the past. USAF Chief of Staff Gen. Thomas D. White agreed, noting that the Department of Defense needed a system which gave the President and his top advisors the information they required to make timely decisions and, at the same time, ensured that field commanders would respond promptly.

(S-Gp 1) On 26 January 1960 JCS Chairman Gen. Nathan F. Twining advised Secretary of Defense Thomas S. Gates that JCS had formed the ad hoc Joint Command and Control Study Group (JCCSG) composed of general and flag officers with USAF Maj. Gen. Fred M. Dean as chairman. This group would determine the command and control requirements of the unified command structure and consider how existing or planned facilities might be fitted into this structure. Later that year JCS created the Joint Command and Control Development Group (JCCDG) to devote full time to matters which the JCCSG assigned it. At work by early 1961 with Rear Adm. Paul P. Blackburn as chief and USAF Brig. Gen. Loren G. McCollom as deputy, the development group set out to prepare a concept of operations for a worldwide command and control system. For guidance, JCS issued Memo of Policy No. 126 on 27 September 1960 which visualized an as yet nonexistent top system within which service systems would function as subsystems.<sup>3</sup>

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(S-Gp 1) Several significant decisions on survivability took place during this time. In early 1959 OSD approved in principle an Air Force plan to replace aboveground SAGE command posts, then in various stages of construction, with underground centers. But the expense of the change-over, combined with doubts that the proposed new centers could survive despite the added protection, finally caused Acting Secretary of Defense James H. Douglas to reject the plan in March 1960. In the meantime, SAC had proposed that funds be included in the 1960 budget to harden command posts at the headquarters of its numbered air forces. The Air Staff and OSD approved the proposal but Congress did not authorize the money. Since the fall of 1958 SAC had been experimenting with a project that was designed to safeguard the transmittal of "execution for launch" messages to its forces if primary ground posts were destroyed by a surprise missile attack. SAC now decided to act on this project. Beginning in July 1960 it posted a KC-135 aircraft with special communications aboard on a 15-minute ground alert at Offutt AFB, Nebr. During the next six months the plane performed some 40 no-warning launches and successfully relayed critical communications from Washington to SAC forces. On 1 February 1961 General White authorized SAC to institute a continuous airborne operation. Beginning two days later, a SAC general officer and operations team has remained airborne over Omaha at all times.<sup>4</sup>

(S-Gp 1) The success of the SAC airborne operation and the WSEG belief that redundancy and dispersal offered the quickest answer to survivability problems led JCS to consider backing up the JWR with mobile emergency command posts in addition to the AJCC. In January 1961

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General White proposed that KC-135 aircraft be stationed on 24-hour alert at Andrews AFB, Md., as a National Emergency Airborne Command Post (NEACP) for the President and his advisors. Admiral Burke about the same time proposed that the cruiser Northampton be stationed in the Chesapeake Bay as a National Emergency Command Post Afloat (NECPA). On 22 March 1961 JCS approved JCCSG's recommendation that both suggestions be tried. The initial USAF plan for the NEACP, including the assignment of 45 additional airmen to JACE to handle the mission, was approved on 7 October. JCS directed that both Air Force and Navy mobile command posts be operational by 1 March 1962.<sup>5</sup>

(U) Meanwhile, OSD had set out to knit as many separate service telecommunication networks as possible into a single integrated system. The services had practiced joint use of networks prior to the 1958 reorganization, but these efforts had done little to cut down on network duplication or foster standardization. In 1959 the Army had proposed a Joint Communications Network with itself as manager, but the Air Force, which had well over half the defense communications, opposed this type of merger. OSD resolved the issue on 12 May 1960 by creating the Defense Communications System (DCS) and the Defense Communications Agency (DCA). As many service long-line communications as possible would be integrated into the new system. While the services would retain command of their segments and continue to maintain and operate them, DCA would control future development.

(U) Rear Adm. William D. Irvin, first DCA Director, faced an awesome task. The services owned or leased communications comprising 3.4

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million voice channel-miles and 6.9 million teletype channel-miles. The latter alone carried about 110 million messages a year. The facilities to be integrated into the Defense Communications System carried 63 million messages annually, controlled 6.5 million channel-miles, and represented an investment of about \$2 billion. Yearly maintenance and operations costs came to about \$600 million.

(U) DCA's first job was to resolve incompatibilities among the networks and assure that unilateral service programs already under way fitted overall military needs. Understandably, DCA underwent a considerable shakedown period. On 14 November 1961 OSD translated the lessons learned during these formative months into a revised regulation which more clearly defined the mission of the agency.\* From this time DCA was staffed and empowered to exercise the functions for which it was formed.<sup>6</sup>

(C-Gp 4) The Air Staff preferred DCA to any alternatives and directed every echelon to support DCA objectives without question unless they threatened to diminish a commander's control over communications integral to his combat assignment. On 1 July 1961 Headquarters USAF created the Air Force Communications Service (AFCS) as its own communications single manager. With headquarters at Scott AFB, Ill., and first commanded by Maj. Gen. Harold W. Grant, AFCS undertook to standardize USAF communication procedures, equipment, and maintenance.

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\*(U) DOD Directive 5105.9 established the DCA and 4600.2 the DCS. Both were dated 12 May 1960. These were combined in the 14 November 1961 revision into DOD Directive 5105.19.

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It was also the focal point on operational matters concerning USAF portions of the DCS.\*

(U) President Eisenhower and his Secretaries of Defense generally supported JCS and service recommendations concerning command and control but played fairly passive roles in formulating and implementing these recommendations. The situation changed drastically after President John F. Kennedy and Secretary of Defense Robert S. McNamara came to office. It seemed to them that developments at their level had been predicated on the belief that all the President required was the means through which he could respond to the threat or actuality of a surprise nuclear attack. They believed that the President also required the means through which he could exercise a "controlled response" to various thresholds of danger. This meant a system that enabled him to react to danger in a calculated manner so that he could attain America's objectives and, at the same time, prevent an uncontrollable escalation of a crisis.

(S-Gp 1) On 8 March 1961 Mr. McNamara called on JCS and OSD's Director of Defense Research and Engineering (DDR&E) to determine in separate analyses how adequately current and planned command and control systems met the above goals. JCS felt that currently operational and

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\*(U) Two additional USAF organizations supported DOD and DCA command, control, and communication objectives. The Ground Electronics Engineering and Installations Agency (GEEIA) under the Air Force Logistics Command (AFLC) handled engineering and installation of ground communication-electronic equipment. The Electronic Systems Division (ESD) under the Air Force Systems Command (AFSC) was concerned with command and control technology, system engineering, development, and equipment acquisition.

planned systems, which consisted of hardened and fixed facilities backed by mobile posts and connected by survivable communications, would fill the bill. DDR&E's reply, which focused on the SAC and NORAD command and control systems, found them wanting because they would be used before the United States was hit by Soviet missiles. Time restrictions would limit the President and his advisers to ordering either an all-out response or none.

(S-Gp 1) As a consequence of the DDR&E report, OSD in mid-1961 changed both the SAGE and SAC 465L programs to pre-battle systems.\* They were too far advanced to be abandoned; also, they would speed up missile warning to alert civilians and the military in the event of surprise attack. But no further attempt would be made to protect them against nuclear blasts. Instead, OSD approved a Post-Attack Command Control System (PACCS) for SAC and a Backup Interceptor Control (BUIC) system for ADC and NORAD. PACCS would be built around the airborne command post operation. The BUIC system called for computer operations at radar stations that were sufficiently far from major targets to stand a chance of surviving a first attack. If SAGE centers were destroyed, these stations would assume the command and control function.

(U) Meanwhile, Mr. McNamara had harkened back to General Partridge's 1959 suggestion that a team of experts study command and control problems

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\*(S-Gp 1) The SAC 465L system, designed to provide the commander with modern electronic data transmission and display equipment, was initiated in 1958 with an original initial operational target date of October 1960. Survivability and cost considerations set the program back by over three years. In December 1963 it achieved a major goal when SAC accepted the first 465L elements and began to send a limited flow of traffic through them.

from a national perspective. He asked General Partridge, who had retired from military service, to head the project. Mr. McNamara also appointed Dr. Robert C. Prim to the DDR&E staff as special assistant and OSD focal point for command and control. Through this office the Department of Defense established a meaningful liaison for the first time with the White House, the Department of State, the Office of Emergency Planning, and the Central Intelligence Agency (CIA) on national command and control requirements.

## II. CONCEPT FOR A WORLDWIDE SYSTEM

(S-Gp 3) The National Command and Control Task Force, headed by General Partridge, submitted its findings on 14 November 1961. While it proposed little that had not been considered before, the Partridge Report performed several exceedingly valuable services. It distilled a succinct, lucid picture of basic problems and desired goals from the mountain of data written on the subject over the past two years. It assisted greatly in establishing common definitions and terms. It confirmed the validity of many programs already under way, such as the mobile emergency command posts. Finally, it supported the thesis that the quickest and cheapest way to build a national system was to integrate and extend systems that were currently operational--i.e., to proceed on an evolutionary basis by preserving and extending what was good in them and eliminating what was inefficient or unnecessarily duplicative.

(S-Gp 3) The Air Staff agreed with the report on all but a few minor points, submitting its comments on 2 December 1961. JCS and OSD received the report in similar vein later that month and subsequently used it as the basis for budgeting fiscal year 1963 funds for command and control improvements.<sup>1</sup>

First Statement of the Concept

(S-Gp 3) General Dean, chairman of the JCCSG, directed the Development Group (JCCDG) in December 1961 to form a special working unit to

prepare a plan implementing a Partridge Report recommendation that the Joint War Room become the National Military Command Center (NMCC). With its underground and mobile alternates, it would be expanded to become the nerve center of a National Military Command System (NMCS). Through this system, OSD and JCS could then direct operations of the unified and specified commands and, at the same time, provide the President whatever support he required during a crisis.<sup>2</sup>

(S-Gp 3) The JCCDG submitted a development plan for the new center on 8 March 1962 but the Study Group decided that it was too expensive, since it called for adding 200,000 square feet to the Joint War Room. This plan also dealt with controversial subjects which the JCCSG believed could be avoided at this time. General Dean directed the Development Group to restudy the matter, and he invited the services and other agencies who had helped with the plan to assist in drawing up better guidance. It quickly became apparent that the planners were trying to put on the roof before they framed in the house. Before planners could effectively visualize the needs of the National Military Command Center and the role each service ought to play in it, they needed to visualize the composition and purpose of the entire future military command and control system. Consequently, the JCCSG temporarily postponed work on the NMCC plan and returned to the job it had begun in 1960 but never finished of developing a concept for the Worldwide Military Command and Control System (WWMCCS).<sup>3</sup>

(S-Gp 1) By late March 1962 the JCCDG working group had drawn up a first statement of the concept. On 13 April General Dean briefed members of the Joint Staff and incorporated their suggestions. Subsequent

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deliberations with service representatives considered such basic issues as (1) how much control OSD and JCS should exercise over the total system, (2) how to organize the several systems into the whole, (3) whether to harden the primary command post or rely on multiple backup posts for survival, and (4) whether the command center should have separate communications or continue to operate through service command centers in the Pentagon. By May the JCCSG had incorporated as many service responses as possible into the concept statement. To keep the project moving, it deliberately avoided controversial issues. A final version quickly passed service scrutiny and received JCS approval on 19 June.<sup>4</sup>

#### Broadening the Mission

(S-Gp 1) Meanwhile, JCS received notice that DOD command and control planning had to be broadened to encompass certain nonmilitary needs. On President Kennedy's request a committee under Mr. Edward A. McDermott, Director of the Office of Emergency Planning, had studied the communication needs of the President and, on 11 June 1962, recommended that the National Military Command System handle information to the President from all executive departments. Presidential approval of the McDermott report ensued in National Security Action Memorandum No. 166, 25 June, which stated that the national system would "form the basis of a system to serve the needs of the President and the top civilian leaders as well as those of the DOD over a spectrum of emergency conditions." As one Air Force officer commented, the directive "culminated the trend toward expansion of the original concept of the NMCS (as a military system to support the CINC's) to accommodate other than purely military requirements."<sup>5</sup>

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(C-Gp 4) Accordingly, JCS directed the JCCSG to revise the initial statement of the worldwide concept to reflect this broadened mission. By this time JCS was in a better position to handle command and control planning. In March 1962 General Dean had recommended that the JCCSG-JCCDG arrangement be replaced by a single, adequately staffed, full-time organization called the Joint Command Control Requirements Group (JCCRG) under an officer of two-star rank. JCS and Secretary McNamara approved the proposal in May, and the next month Admiral Blackburn assumed the JCCRG chairmanship with General McCollom as deputy.\* 6

#### Approval of the Concept

(S-Gp 1) The new JCCRG completed a revised concept paper on the worldwide system in June 1962 which JCS approved and forwarded to Secretary McNamara in early July. He approved it in principle later that month but asked that several points be coordinated further with DDR&E and other OSD offices. These refinements were completed by late September, and on 16 October Secretary McNamara issued the approved concept as DOD Directive S-5100.30. This document conceived the Worldwide Military Command and Control System (WWMCCS) to be the sum total of five distinct but harmonious elements of command and control systems. Of these, the NMCS--which would serve the President, the Secretary of Defense, and JCS--would be the primary element. It would consist of the NMCC, the Alternate NMCC, the three-aircraft National Emergency Airborne Command Post on 24-hour ground alert, the two-ship National Emergency Command Post Afloat, and interconnecting communications. The other four

\*(U) At OSD's suggestion, the JCCRG reported to the Director of the Joint Staff rather than to J-3 so as not to exceed the 400-man limit placed by Congress on the Joint Staff.

elements, now designated "subsystems," consisted of those serving (1) the commanders of the unified and specified commands, (2) service headquarters, (3) component commands, and (4) other DOD agencies which had crisis missions such as the Defense Intelligence Agency (DIA) and the Defense Communications Agency. Each subsystem would be compatible with both the NMCC complex and each other to the degree necessary to assure responsiveness of the worldwide system to the needs of the President, the Secretary of Defense, and JCS.<sup>7</sup>

(S-Gp 3) In accordance with the WWMCCS concept, the Joint War Room was officially redesignated the National Military Command Center on 1 October 1962. At the same time the underground facility at Ft. Ritchie, formerly designated the Alternate Joint Communications Center (AJCC), was renamed the Alternate National Military Command Center (ANMCC). The term AJCC remained in use but now applied only to the Army-managed communication complex at the ANMCC site.<sup>8</sup>

#### Assignment of Tasks

(C-Gp 4) In preparing the concept for the worldwide system, the Requirements Group had deliberately avoided one controversial issue which might have delayed the agreement. This concerned the specific roles the services and other DOD agencies would play in developing the National Military Command System. The issue was sufficiently sensitive for Secretary McNamara to take up personally. Outlining his preliminary thoughts on the matter on 31 March 1962, he divided the tasks into two broad categories. The first he called "functional system design," or



the "process for converting policy, strategic, doctrinal, and operation guidance set forth by [the Secretary of Defense] or JCS ... into functional specifications of operational requirements." The second category he called "technical system design," or the conversion of functional design decisions "into specific and detailed description of subsystems, specifying exactly the elements to be developed and how they would be electrically and physically interconnected." Functional design, he felt, should be a JCS responsibility. On technical design he was not certain but thought perhaps the Advanced Research Projects Agency (ARPA) was the best agency to handle it, under DDR&E direction. The actual work would be done by the services, DCA, or industry on direct contract by ARPA and under ARPA's coordination and supervision.<sup>9</sup>

(S-Gp 4) The services agreed that functional design ought to be assigned to JCS. The Navy and Marine Corps also agreed to assigning technical design to ARPA, but the Army proposed that DCA take this responsibility while the Air Force felt that its Electronic Systems Division possessed the knowledge and facilities to handle the job. Under the USAF proposal ESD, which had conducted a detailed study in late 1961 on its capabilities for such a task, would appoint a deputy commander for NMCS who would carry out technical design under JCS direction.\* JCS forwarded these opinions to Mr. McNamara on 25 April. The next day Deputy Secretary

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\*(U) ESD Commander Maj. Gen. Charles H. Terhune prepared a detailed report on ESD's capability to (1) perform centralized planning and analysis of NMCS technical design requirements, (2) develop a technology base for such basic elements as components, computation, communications, processing techniques, and intelligence handling display, (3) manage the acquisition and evolution of systems, and (4) provide technical assistance to users.

of Defense Roswell L. Gilpatric, approved assignment to JCS of functional design but offered no comment on the question of technical design.<sup>10</sup>

(U) Mr. McNamara settled the matter on 1 June 1962. After confirming JCS responsibility for functional design, he made DDR&E responsible for planning, directing, and supervising technical support, including NMCS technical compatibility with other elements of the worldwide system. Finally, he made DCA responsible, under DDR&E's overall supervision, for system engineering and technical supervision of the NMCS. Thus, JCS would decide what was needed, DCA would recommend equipment and facilities for meeting these needs, and DDR&E would review DCA proposals, forward them to JCS for its opinion, and then send them to the Secretary of Defense for decision. As component elements of the NMCS were completed, they would be assigned to the unified and specified commands, services, and other agencies for operation under prescribed command and organizational arrangements.<sup>11</sup>

#### DCA's Expanding Role

(S-Gp 4) DCA assumed several other important missions in 1962 in addition to that for NMCS technical system design. On 15 February OSD assigned DCA management responsibility for the Interagency Communications System. It became responsible for DOD's communication satellite program on 23 May. The White House Communications Agency was transferred from Army to DCA on 2 August. On 17 August DCA assumed operational and management direction of the Joint Communications Agency (JCA), an

Army-managed support element at the AJCC.\* And on 27 November Mr. McNamara approved the transfer of the NMCS Support Center (NMCSSC) to DCA.+ These expansions made its director the de facto chief communication-electronic officer of the Department of Defense, Mr. McNamara noted. Therefore, he appointed Lt. Gen. Alfred D. Starbird, who succeeded Admiral Irvin as DCA Director, Chairman of the Military Communications-Electronics Board in December 1962.<sup>12</sup>

(C-Gp 3) The NMCS Support Center originally had been the Defense Assessment Center of the Defense Atomic Support Agency (DASA). On 23 October 1962 the JCCRG recommended that this DASA center be transferred to DCA. By providing valuable automatic data processing guidance earlier that year, the center's members had demonstrated proficiency in the research, development, and evaluation that would be required to design and construct the NMCS. And it appeared that DCA had greater need for these skills than DASA. JCS agreed and on 2 November recommended to Secretary McNamara that the 213 members of the center be reassigned to DCA and the organization redesignated the NMCS Support Center. He approved and the transfer took place on 1 January 1963.<sup>13</sup>

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\*(U) In 1963 DCA recommended that the JCA be jointly manned and placed under its command. The Army and Joint Staff concurred, but the other services held that DCA should not command any joint or single-service segment of the DCS. The JCS and Mr. McNamara approved this latter stand and it remained in force through 1965.

+(U) This center provided personnel and logistic support for the NMCC and its alternates in such matters as automatic data processing, technical operation and maintenance of equipment, and computer programming. As with other Joint Staff members assigned to centers, these people were responsible to the JCS Director of Operations for the performance of their duties.

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Reorganizing for the New Tasks

(U) On Mr. McNamara's direction DCA reorganized its headquarters along functional lines that reflected the new and heavier responsibilities. It formed three deputy directorates--one to handle the NMCS, another the DCS, and the third communication satellites. When JCS instructed the services to nominate officers for these posts, the Air Force urged that one of its officers be Deputy Director for NMCS since it would maintain and operate most NMCS communications. The request was granted and Maj. Gen. John B. Bestic, former Air Staff Director of Telecommunications, assumed the directorate post on 30 October 1962.<sup>14</sup> The Army staffed the DCS and Navy the communication satellite positions.

(U) The growing demands on the Air Staff for support of the worldwide system prompted Gen. William F. McKee, Vice Chief of Staff, to approve the creation of the Directorate of Command Control and Communications. Formally established on 30 November 1962, the new office initially absorbed the roles and personnel of the former Directorate of Telecommunications and subsequently expanded to become the Air Staff focal point on NMCS support and USAF subsystem development. It also assumed the new major mission of assuring that Air Force doctrine and requirements were considered in NMCS and DCS development. Maj. Gen. J. Francis Taylor, Jr., became Director on 3 December 1962.<sup>15</sup>

## III. MASTER PLAN FOR THE NATIONAL MILITARY COMMAND SYSTEM

(S-Gp 3) Having clarified the worldwide goal, the Secretary of Defense and JCS now directed similar action on the primary element, the National Military Command System. The Joint Command and Control Requirements Group had started work on this project while the worldwide concept was still undergoing final scrutiny and had produced a first draft by mid-October 1962. The Cuban crisis delayed until mid-December the effort to incorporate service suggestions into a revised draft. In the next month the planners resolved all differences except those dealing with manning the National Military Command Center and its alternate. Joint Staff and Air Staff representatives felt that both centers should be fully manned at all times. The other services, feeling they could not afford to release additional men to the Joint Staff for these duties, favored small staffs which could be immediately strengthened during a crisis. JCS considered the plan on 1 February 1963, concurred in its major proposals, but returned it to the Requirements Group for further study on the manning issue.<sup>1</sup>

(S-Gp 3) It took nearly three months to iron out a manning policy. Finally, on 24 April 1963, JCS approved the "NMCS Master Plan" and sent it to Secretary McNamara the following day. He approved it on 30 May. Although not officially announced until 9 June 1964--as DOD Directive S5100.44--the plan went into effect in May 1963 for all practical purposes.<sup>\* 2</sup>

<sup>\*</sup>(C-Gp 4) The Master Plan, as published in 1964, was disseminated in loose-leaf form so that individual sections could be easily updated as the NMCS evolved in concept and actuality.

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(S-Gp 3) As intended, the master plan served as a basic guide for preparing functional designs and charting future development. An introductory section summarizing the need for the national system noted that it would be designed to provide the "means to identify as early as possible the senior surviving civilian authority" and then furnish the information and communications by which he could regulate the release of forces and resources for waging the war. Assessments of the current and future threat indicated that<sup>3</sup>

the entire structure of the national military establishment must be flexible in order to act promptly and selectively in any situation. The capability must exist to act and react through the entire spectrum of conflict. Recognizing that cold and limited war place their own peculiar demands on the National Command Authorities is of particular importance. The finesse with which military force must be used in conditions short of general war is heightened by the constant threat of escalation to general nuclear war. The appropriate amount of force must be applied to serve the interests of the United States. This variation in the application of force may include graduated use of nuclear weapons.

For these reasons the NMCS had to be capable of integrating "worldwide military and political considerations in order to enable the National Command Authorities to make the type of politico-military decisions that are required in directing military efforts."<sup>4</sup>

(S-Gp 3) The master plan then prescribed the composition, responsibilities, and general requirements of the separate elements of the NMCS

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\*(S-Gp 3) DOD Directive S-5100.44 noted that whenever it used the term "National Command Authorities" it referred to the "national military chain of command which stems from the constitutional authority of the President as Commander-in-Chief and the supporting statutory responsibilities of other officials to support him in the exercise of command over the armed forces of the U.S." Thus, the National Command Authorities were: The President, Secretary of Defense, and JCS or their duly deputized alternates or successors.

system (the NMCC, ANMCC, NEACP, NECPA, and connecting communications) and the operational relationship between these elements and those of the NMCS subsystems. Finally it identified the systems for collecting and passing information that were operated by other DOD and executive agencies with crisis missions and delineated operational relationships between these systems and the NMCS and its elements.<sup>5</sup>

Manning the Command Centers

(S-Gp 3) The only item of consequence which the services could not agree on in drafting the NMCS Master Plan was command-post manning. By February 1963 the Joint Chiefs had concluded that people in communication elements and support functions had to be prelocated at the NMCC and its alternates. Like its Requirements Group, however, JCS could not agree on the degree of operational capability which should be maintained in the centers. Consequently, JCS referred the matter to its Operations Deputies (Ops Deps). The Deputies, in turn, directed the Requirements Group on 26 February to prepare alternative proposals. By mid-March the Marine Corps representative to the JCCRG had joined the Joint Staff and USAF representatives in favor of full manning with the proviso that manpower levies on the services not exceed the current ceiling for the Joint Alternate Command Element (JACE). Army and Navy stood by their belief that only emergency action teams should man the centers during normal or noncrisis periods.<sup>6</sup>

(S-Gp 3) The Ops Deps inclined toward the latter view, but the heads of the Joint Staff Operations Directorate and the JCCRG objected

that this was contrary to national policy. At the request of the Director of the Joint Staff, the Ops Deps then reconsidered and finally recommended that the centers be manned so that they were "capable of supporting strategic direction of the Armed Forces less the ability to terminate hostilities." JCS approved and incorporated this general manning statement into the master plan.<sup>7</sup> In Memorandum of Policy No. 143, issued on 24 April 1963, JCS sought to clarify the policy as it pertained to the alternate centers. They would be manned to the point where they could<sup>8</sup>

maintain a continuous watch to perform emergency actions, maintain the data base, and provide immediate communications. The remainder of the personnel on the Battle Staff team shall be immediately available in or adjacent to the command center (specifically in the underground portion of Raven Rock, in the ship, or adjacent to or on the aircraft). Non-watch standers will be available for staff projects... but must maintain their operational proficiency with frequent exercise.

(C-Gp 4) In arranging for the manning of the NMCS centers in accordance with this policy, JCS first authorized the Director of the Joint Staff to plan to discontinue the JACE and make the JCS Director of Operations (J-3) responsible for the operation of all NMCS centers. The NMCC had operated under the supervision of J-3 and the alternate centers under the JACE. Placing all the centers under the one head, JCS felt, "would increase the efficiency of their operation, standardize procedures and missions, and facilitate the transition of control from one to another."<sup>9</sup> Though adjustments toward this end began immediately, the JACE was not formally disestablished until 6 June 1963.<sup>10</sup>

(S-Gp 4) Meanwhile, JCS approved and submitted to the Secretary of Defense a proposed new NMCS joint table of distribution which "strengthened the NMCC watch in depth and scope" but, contrary to earlier service



fears, did not increase manpower levies on them. This was possible because of the disestablishment of the JCS Intelligence Directorate and the reassignment of its spaces to the NMCS and to DIA and DASA. Secretary McNamara approved the joint table of distribution on 15 June 1963 and the transfers became effective on 1 July.<sup>11</sup>

(S-Gp 3) One other matter still remained--the manning of non-DOD positions in the NMCS command centers. The master plan called for greater representation from such agencies as the Department of State, CIA, OEP, and the National Security Agency "in order to provide the capability for closer coordination among national agencies in the evaluation of situations that may require employment of the Armed Forces." JCS proposed that "in the interest of personnel economy and clarification of space requirements," these agencies initially assign men just to the NMCC although they might ultimately be asked to place men in all NMCS centers. The JCS further proposed that they be present only during normal duty hours except during a crisis and be responsive to the Director, Joint Staff, while on duty. Mr. McNamara approved on 15 July 1963 and informed the heads of the agencies concerned of these proposals. Agreements to this effect were consummated between the agencies and the Department of Defense later in the year.\* 12

#### The National Communications System

(S-Gp 1) As the NMCS Master Plan made clear, the NMCC (with alternates) was also the national command post. The CIA Director, Mr. John

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\*(U) In certain instances JCS also furnished military representatives to the operations centers of other executive agencies to insure an awareness of events which might have military implications.

McCone, had commented that the master plan ought to be revised to "make clear that the arrangements of mechanisms established in the Plan support but do not substitute for national decision-making processes as otherwise established." Mr. McNamara replied that "the sole purpose of the Plan is to provide the arrangements and mechanisms to the national decision-making processes (as established by law and Presidential directive)" and not substitute for them.<sup>13</sup> In other words, no national post either existed or had to be established above the NMCC. All national as well as strictly military requirements in future crises which contained the risk of military action would be met through the NMCS command post complex.

(U) With communications, however, it did prove necessary to create a new mechanism of management and control a step higher than the DCS. The pressing need for such a move had been pointed out at various times in the early 1960's but did not really hit home until the Cuban crisis. According to one report, this experience "sharply revealed the inadequacy of governmental communications in carrying a very heavy load of high priority traffic under emergency conditions [and underscored] the knowledge [which military commanders already possessed] that conventional high-frequency radio could not be fully depended on and that manual communications methods for reaching remote spots around the globe were inadequate." President Kennedy had been particularly disturbed by his inability at crucial times to contact U.S. officials in South America.<sup>14</sup>

(U) After the Cuban crisis, the President promptly asked the National Security Council (NSC) to recommend means for insuring "the

development of a National Communications System which would make worldwide communications available to the U.S. Government as prompt, reliable, and secure as possible." To handle the job, the NSC formed a subcommittee called the Interdepartmental Committee on Communications, appointed Mr. William H. Orrick, Jr., Deputy Under Secretary of State for Administration, to head it, and authorized him to report directly to the President if he encountered resistance or difficulty from any quarter in carrying out his investigation and study.<sup>15</sup>

(U) Reports from Mr. Orrick's group brought prompt authorization for correcting weaknesses which had showed up during the crisis. Caribbean and European links with Washington benefitted particularly. Meanwhile, the group visited communication facilities of major defense installations and governmental agencies and, in mid-1963, recommended to President Kennedy that a National Communications System (NCS) be set up. On 21 August 1963, the President announced its creation, effective that date, and described its purpose and the responsibilities of various agencies for its support and development.<sup>16</sup>

(U) The NCS would afford the government the communications that it required to respond to situations which ranged from normal through nuclear attack, the President said. The system would be created by linking together, improving, "and extending on an evolutionary basis" the communications operated by the individual federal agencies. The Director of Telecommunications Management, under the Office of Emergency Planning, would be responsible for "policy direction." He would also act as special assistant to the President for telecommunications. The Secretary of

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Defense would act as executive agent and design, develop, and operate the system.<sup>17</sup>

(C-Gp 1) The post of Director of Telecommunications Management remained open until April 1964 when President Kennedy appointed Lt. Gen. James D. O'Connell (U.S. Army, Ret.) to fill it.<sup>18</sup> Meanwhile, Secretary McNamara designated General Starbird of DCA as NCS Manager on 6 August 1963.<sup>19</sup> The Department of Defense approved General Starbird's recommendation to accommodate within DCA headquarters the 60 civilians and 5 military men initially authorized the NCS. Each agency operating a major communication system then appointed full-time NCS representatives, with offices in DCA headquarters, to work with this NCS-DCA staff. By early 1964 this group had set forth the composition and general responsibilities of the NCS, and the President had approved them. From this point they worked on short- and long-range plans for the system. As General Starbird described their procedures, NCS-DCA officers developed plans in conjunction with agency representatives and then submitted them to Assistant Secretary of Defense Solis Horwitz who, acting as special assistant to the Secretary for national communications, formally coordinated them with the agencies affected.<sup>20</sup>

(U) In 1965 Mr. Horwitz and General Starbird, on Mr. McNamara's approval, separated the Office of the NCS Manager from the DCA staff, creating a completely separate NCS headquarters. The new organization included two major offices--Operations and Plans--headed by NCS Assistant Managers who reported directly to General Starbird. The staff consisted

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of assigned civilian and military personnel plus representatives from the National Aeronautics and Space Administration, Federal Aviation Agency, General Services Administration, and the Department of State.<sup>21</sup>

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## IV. PROGRAM MANAGEMENT

(U) Translating the general guidance set forth in the October 1962 worldwide concept and the May 1963 master plan into reality quickly developed into as complex a managerial challenge as the Department of Defense had ever faced. As specified in Secretary McNamara's instruction on task assignments, JCS would establish the functional requirements of the various elements of the national system. DCA then would prepare the technical development plan for meeting these requirements. Finally, DDR&E would provide overall guidance and weigh the cost of the various elements of the program against DOD yearly and five-year budget planning goals.

Departmental Coordination

(S-Gp 3) The attempt to define NMCS requirements began as early as 19 February 1962 when Deputy Secretary Gilpatric asked Dr. Harold Brown, DDR&E, Assistant Secretary (Comptroller) Mr. Charles J. Hitch, and JCS Chairman Gen. Lyman Lemnitzer to recommend with the aid of the services a consolidated program of NMCS elements which ought to be funded immediately for development and procurement. At the same time, they were to restrict improvements to just those which could be "clearly justified." As guidance, he asked them to refer to the Partridge Report, which visualized a command post complex consisting of a primary, a fixed alternate, and airborne and shipborne alternates together with<sup>1</sup>

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that installed equipment, survivable post attack communications, and data sources essential to allow any of the alternate command posts to be used by the President, SOD, and JCS (or the duly deputized alternate to any of these individuals) to exercise the authority vested in them for command and control of the armed forces of the United States throughout a scale of decisions ranging from markedly heightened tension, through the decision to use nuclear weapons to a general war post-attack environment.

(S-Gp 1) JCS and DDR&E completed their initial responses in April 1962, and OSD sought to merge their recommendations into an orderly, meaningful development program. On 4 August 1962 Dr. Brown forwarded to JCS a list of 20 programs which OSD felt should be given funding priority. The document also included DDR&E's views on how and when each ought to be implemented. The JCS reply of 31 August disagreed with DDR&E's proposal to delay funding of several of the programs until the interrelationships between them and other programs could be analyzed in detail. JCS felt that these improvements were needed and that it was better to take the calculated risk that they would fit into the final system and get to work on them at once.<sup>2</sup>

(S-Gp 1) In November 1962 DDR&E formed an ad hoc working group comprised of OSD, Joint Staff, DCA, and service representatives to further study the subject. Finally, on 30 January 1963, Dr. Brown issued the first official NMCS development guidance to JCS to govern planning for fiscal years 1965 and 1966. JCS translated this into 16 functional requirements for fiscal year 1965

technical planning, forwarding the list to OSD on 14 February 1963.\* Secretary McNamara approved it on 26 April, and JCS instructed DCA to proceed with the technical development plan. After submitting several drafts for review and comment, DCA produced one by the fall of 1963 which gained general approval. Meanwhile, on 17 August 1963, JCS completed and submitted a fiscal year 1966 NMCS functional plan.<sup>3</sup>

(S-Gp 3) On 20 December 1963 Mr. Gilpatric acknowledged that considerable progress had been made, but he added that OSD did not yet have the information it required to prepare a meaningful program definition. Admittedly, command and control was by nature difficult to express in quantitative terms and the organizational arrangements supporting the program were relatively new. But better answers than the ones thus far provided had to be found to the basic questions: how much control is enough? how should this control be aligned? and what is the proper balance in money spent on control systems and on weapon systems they control?<sup>4</sup>

(S-Gp 3) Mr. Gilpatric noted that since program documents seemed to indicate a "lack of understanding of underlying operational concepts" OSD intended to review the whole subject in order to "obtain a real and

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\*(S-Gp 1) The 16 requirements were: (1) an automated data base; (2) central automatic data transfer control processors for command centers; (3) confirmation of destruction of subordinate command centers; (4) a data transmission network; (5) direct sensor indicators and processing; (6) a display system; (7) identification of national command authorities; (8) an improved emergency message automatic transmission system; (9) improved NEACP's; (10) an improved NMCC; (11) improved Presidential airborne communications; (12) improved secure voice conferencing; (13) secure video conference and briefing among all command centers; (14) status of NMCS communications; (15) a NECPA; and (16) an ANMCC.



immediate capability in the command control area to support established national policy." Since the NMCS was "the vehicle for the development of this capability at the national level," it was a program of the highest priority. Consequently, the review would seek first to improve understanding of the concepts underlying the current and future NMCS, particularly for operations in support of national command authorities when international tension was increasing. It would then consider alternative programs for meeting these objectives within the currently established fiscal year 1965 and five-year funding ceilings.<sup>5</sup>

(S-Gp 3) In January 1964 Mr. McNamara approved a proposal by JCS chairman Gen. Maxwell D. Taylor that an ad hoc committee of OSD and Joint Staff officers under the JCCRG study how the NMCS might best serve national authorities during periods of increasing international tension. This would satisfy the first portion of the review. Mr. McNamara then asked Mr. Cyrus H. Vance, Mr. Gilpatric's successor, to handle the second portion by realigning the overall DOD command, control, and communications (C<sup>3</sup>) organization to effect greater understanding of objectives and facilitate program review and allocation of resources. Mr. Vance, in turn, appointed Mr. Horwitz, then OSD Director of Organization and Management Planning, as C<sup>3</sup> departmental coordinator. In this capacity Mr. Horwitz became responsible directly to Mr. Vance to (1) keep informed of all major C<sup>3</sup> activity within DOD, (2) coordinate this activity, (3) resolve divergent views wherever possible before C<sup>3</sup> action requests were referred to the Secretary, and (4) see that all C<sup>3</sup> activity remained in consonance with OSD policy and objectives. Mr. Horwitz was also to suggest ways

for achieving a more exact terminology and for clarifying C<sup>3</sup> purposes, concepts, organizations, and functional responsibilities.<sup>6</sup>

Consolidating Program Review

(U) On 31 March 1964 Mr. Vance introduced a system for more precise identification of programs in C<sup>3</sup> functional areas and for their annual review on a consolidated basis. Under this new "consolidated program review" procedure, Dr. Eugene G. Fubini, Deputy DDR&E, provided policy direction on the identification and review of resources. Mr. Hitch assumed responsibility for technical advice and assistance on the application of the DOD programming system. Finally, the detailed annual review was performed by a group headed by General Bestic, DCA Deputy Director for NMCS, and comprised of representatives from DDR&E, other OSD offices, the services, and other DOD components. Mr. Horwitz coordinated the overall operation as part of his C<sup>3</sup> role.<sup>7</sup>

(U) As a first step toward speeding up the review of C<sup>3</sup> program change proposals, OSD on 28 April 1964 formed five ad hoc review groups of OSD and Joint Staff officers with a service representative assigned to each to help with technical matters.\* The groups

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\*(U) The five groups were organized to consider (1) the NMCS; (2) unified and specified command systems; (3) tactical systems; (4) the DCS; and (5) tactical communications. Under the new procedure the services had the opportunity to "reclama" group recommendations before and after Dr. Fubini approved them and, as before the change, after the Format "B" was received from OSD.

took over the initial reviews formerly handled by JCS and studied the programs to search out weaknesses and areas where funds might be better spent.\* 8

(U) The first consolidated reviews by the groups took place between 11 May and 15 July 1964. They covered C<sup>3</sup> programs for calendar year 1964 contained in the five-year force structure and financial programs, including reviews of program change proposals. In reporting their findings, Dr. Fubini noted that the funds requested for many program elements were based on estimates that could not be supported and that equipment and installation costs in many instances were "grossly overpriced--in some cases as much as 200 percent." To rectify these shortcomings, Dr. Fubini issued a guide for the services to follow on future submissions and asked them to "be prepared to clearly indicate the methodology used in developing ... estimates and to explain the basis for such ... during the course of the review." 9

(U) In preparation for fiscal year 1966 C<sup>3</sup> program reviews, Mr. Vance sought to apply the 1964 and early 1965 experience toward a further streamlining of the process. He appointed DDR&E as the primary action office and created a permanent C<sup>3</sup> program staff under Mr. Paul R. Ignatius, Assistant Secretary of Defense (Installations and Logistics). On 1 October 1965 Dr. John S. Foster, Jr., who succeeded Dr. Brown as DDR&E after the latter became Secretary of the Air Force, notified JCS

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\*(U) JCS revised Policy Memo 136, which covered this subject, on 21 July 1964 to reflect the new procedure.

that because of the importance placed on the reviews by Mr. McNamara he had personally assumed the responsibility of primary action officer.<sup>10</sup>

Strengthening the Authority of the Commanders in Chief

(S-Gp 1) OSD program reviews adjudged service proposals for improving the command and control systems of the unified and specified commands to be particularly faulty. As Mr. Vance pointed out, too often they called simply for "interconnecting the existing organization with an increasingly complex network of expensive communications equipment without a comprehensive analysis of the organizational structure itself." He thought this an expenditure of scarce material and money without a commensurate increase in capability. Dr. Fubini, who shared his view, believed that a major reason for this practice was the tendency of the services to apply the same techniques to command and control systems as they had to weapon systems. This was a mistake, he said, since the developer of command and control systems had to have "a closer and more intimate interface with the user than is the case in the acquisition of a weapons system." 11

(U) To insure this more "intimate interface," Mr. Gilpatric issued a policy directive on 20 October 1963 calling for greatly increased participation by the commanders in chief in the development, acquisition, and operation of their command and control systems. It called on them to state their system requirements and the degree that they ought to participate in operating the systems. JCS could then allow the services to thresh out any differences they might have with these interpretations.

After the documents received OSD approval, they would serve as basic guidance for the buildup and operation of these systems.<sup>12</sup>

(U) To carry out the Gilpatric instruction JCS first dispatched the JCCRG Chairman, Admiral Blackburn, and a team of service, DCA, and DIA officers to each commander in chief to explain to him in detail the intent of the new policy. Then, on 21 December, JCS requested the commanders to submit system definitions within 60 days. Coordinating them and placing them in final form was a JCCRG job.<sup>13</sup>

(U) At first, the JCCRG project officers thought they might devise a standard description of systems and responsibilities. They soon discarded this approach, however, because the Gilpatric instruction was sufficiently flexible to permit each commander to interpret the scope of his authority as he saw best. Also, differences in geographic and political environments and in methods of operation discouraged a standard statement. The project officers also thought at first that they might place all submissions in a standard format and forward them as a package to Mr. McNamara for approval. But they vetoed this approach for the same reasons. In the end, they processed and sent forward each submission separately.<sup>14</sup>

(C-Gp 1) JCS approved the first system description, the Alaskan Command's, in May 1964, and OSD followed suit the following month. SAC's was approved in September, Southern Command's in November. All but one of the remaining descriptions were approved in the first half of 1965-- Atlantic Command's in February, European and Pacific Commands' in March, and Continental Air Defense Command's in June. In 1965 OSD approval was pending on the final description, that for Strike Command.<sup>15</sup>

(S-Gp 1) The JCS letter notifying the Commander in Chief, European Command (CINCEUR), of OSD approval of his system description provided a reasonably representative picture of the command and control elements which were now personally responsive to a commander in chief. These included primary and alternate command centers, data processing equipment and data banks supporting operational requirements in these command centers, and the communications (excluding those of the DCS) connecting his primary and alternate command centers with operational units. While DCS elements were not under his personal command and control, they were responsive to his requirements. Consequently, he could provide guidance to DCA in the development, acquisition, and operation of those elements.<sup>16</sup>

#### Air Staff Response

(U) In response to the ever-increasing complexity of C<sup>3</sup> management, Lt. Gen. Hewitt T. Wheless, Assistant Vice Chief of Staff, in May 1965 designated the Air Staff's Director of Command Control and Communications as the central point of contact with outside agencies on such matters. The intent of the change was to assure "consistency and accuracy in context of the total C<sup>3</sup> program...in Air Force representations to external organizations as well as in direction and guidance issued to sub activities." He also directed the Air Staff to redouble its efforts to achieve unity and consistency on C<sup>3</sup> requirements and submissions. Specifically, the Air Staff was to identify C<sup>3</sup> areas in need of improvement or special attention, establish effective management objectives, and propose ways in which the Air Force could achieve these objectives.<sup>17</sup>

(U) On 1 December 1965 Headquarters USAF established a Command Control and Communications Panel on the Air Force Board to review USAF elements destined for integration into the consolidated C<sup>3</sup> program.<sup>18</sup>

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## V. NATIONAL MILITARY COMMAND SYSTEM CENTERS

(S-Gp 1) The Cuban crisis in the fall of 1962 and the so-called Anzoategui affair in early 1963 focused attention on the urgent need for a national command center as envisaged in the NMCC. During the Cuban crisis, service facilities, particularly the Air Force Command Post, struggled to meet national needs, seeking as best they could to bridge gaps which existed between service systems down the line.\* As one report assessed the overall operation, it clearly demonstrated that "the growth and transition of responsibilities of crisis centers had not yet caught up with the laws and directives which established the commanders of unified and specified commands and placed their control in the hands of the SOD and the JCS." <sup>1</sup>

(C-Gp 4) While command and control difficulties during the Cuban crisis stemmed mostly from shortcomings in facilities, the Anzoategui affair uncovered dangerous weaknesses in the recognition and reporting of events which, if mishandled, might escalate into unnecessary trouble. The Venezuelan vessel Anzoategui was hijacked by Communists on 14 February 1963 and United States forces undertook to find it and plot its destination. President Kennedy informed the Secretaries of State and Defense and the Director of the CIA that the incident revealed a tendency on the part of watch officers "to sit and wait to be told--to be requested to

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\*(S-Gp3) The AFCP 473L system provided service during the Cuban crisis to the Joint Staff, Secretary of Defense, and State Department as well as to the Air Staff.



make a recommendation." He hoped that these officers would show greater initiative in the future in anticipating his need for information and in formulating recommendations for action before they were requested. "It would indeed have been a political calamity and most embarrassing to both Venezuela and the United States had this ship steamed into Cuba without action or knowledge on our part when we are expending such an effort in the surveillance of that island," he said.<sup>2</sup>

(C-Gp 4) The Department of Defense acted promptly to prevent a repetition of the mistakes which occurred during this affair. On 27 February 1963 Mr. Gilpatric informed the President that DOD had (1) asked the Department of State and CIA to inform the NMCC immediately of any incident which could involve the use of military force; (2) directed the services to instruct all watch officers to do the same regardless of the source of their information or its political implications; (3) directed JCS to make certain that NMCC procedures assured that DOD decision-making officials were quickly notified of such incidents; and (4) asked General Taylor to notify Mr. McNamara and himself immediately of such incidents, and also the Assistant Secretary of Defense for International Security Affairs when they had politico-military implications.<sup>3</sup> General Taylor transmitted these instructions to the unified commanders and directed the NMCC to alert top DOD officials at once of such incidents and be prepared to set up a phone conference between them and their counterparts in other agencies.\*<sup>4</sup>

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\*(C-Gp 4) Mr. Vance expanded these instructions in July 1964 by charging military command centers and news branches with responsibility for reporting to the NMCC all civil disorders which involved DOD personnel or installations. The NMCC would screen them and report to him immediately and by phone those which appeared important enough to be called to the President's immediate attention.

(S-Gp 1) The lessons learned during these two incidents helped to shape the NMCS Master Plan. Particularly, they helped to make clear that the NMCC had to be developed to operate in two modes. First, the center (with its alternates) had to be sufficiently equipped, manned, and survivable to enable the nation's civilian and military leaders to provide strategic direction to the unified commands throughout a general nuclear war. These needs were nearly identical to those of other key military and civil defense centers. Where it differed from all other centers was in the second mode. Here it had to give the President and his advisors the ability to monitor and control all participants when "a threatened or actual international confrontation contained the risk of escalation or would affect or reflect United States policy to a significant degree." As one top-level study sought to characterize this dual nature and purpose of the center, the NMCC had to support<sup>5</sup>

a Washington level command function that will often focus in detail on some military situations but that will primarily depend on the CINCs and their staffs for operational direction and coordination of military activities. It will be similar to but both narrower and broader in its scope than the conventional operations center. It will be narrower in that its support decision makers will be rendered through the medium of their staff advisors, and ordinarily it, itself, will not provide advisory staff support except when an emergency does not permit referral to such advisors. It is broader in that the principal users of NMCC information support will be not only the JCS and the Joint Staff but also various elements of OSD and authorized persons in the White House, State Department, and CIA. In short, the fundamental character of the NMCC is that of a DOD information support facility operated by the JCS for the DOD as a whole. In the performance of its functions it should exchange information freely with analogous information centers elsewhere within the government. It performs the functions of warning and alert, information support, and implementation. Its principal suppliers are the operating forces, the Service operation centers, and the DIA....

The Interim NMCC

(C-Gp 4) The upgrading of the Joint War Room was the first step in developing the NMCC visualized by the Partridge Report. It began in early 1962 when the JCS relayed to the Air Staff an authorization by Assistant Secretary of Defense (Installations and Logistics) Thomas D. Morris to proceed with the development of an "interim first generation" facility. This initial authority set a limit of \$200,000 on these improvements and a target date of April 1963. OSD intended to provide the Air Force about \$40,000 of this amount by November 1962 to enable it to begin purchase of "urgently needed display, reproducers, and internal communication items...." The facility would be designed "so as to afford the maximum attainable compatibility with the other elements of the NMCS as they are evolved and developed." Experience gained in its construction and operation would then be applied toward the construction of the "larger and more elaborate center" which quite probably would be required in the future.<sup>6</sup>

(U) Thus, because it had more experience in building and operating such systems and its command post was the most advanced of the Washington command centers, NMCC equipment selection and installation and operational support logically devolved on the Air Force. The April 1963 target date proved an impossibly optimistic one, of course, particularly since no one at this early date had even a clear conception of what the NMCC should do.

(S-Gp 3) The first task was to define the needs of a temporary and an ultimate NMCC and, in accordance with Mr. McNamara's March 1962

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instruction, this was a JCS job. By October 1962 the JCCRG received approval to expand the 7,000 square feet occupied by the Joint War Room on the second floor of the Pentagon to a temporary NMCC with 21,500 square feet. DCA then set to work on an overall technical development plan for a "First Generation NMCC"--the ultimate center--and a communication system plan for an "Interim National Military Command Center (INMCC)"--the temporary center. JCS approved the latter on 18 February 1963 and OSD followed suit on 26 April. From this point, buildup of the temporary center proceeded slowly but steadily. On 30 September 1963, OSD approved a further increase in the size of the facility to 24,300 square feet. The cost by this time was estimated at \$751,000, to come from Air Force fiscal year 1963 funds.<sup>7</sup>

(C-Gp 4) In addition to briefing facilities, the Air Force installed seven display subsystems in the temporary NMCC, each designed to be a complete operating entity and to interface with the AFCP and other service command centers. Through its command post, the Air Force provided the NMCC secure alert warning and such communications as the JCS alert network, emergency message transmission, and security voice conferencing.<sup>8</sup>

(C-Gp 4) In late 1964, as the INMCC approached an initially operational state, Mr. Vance made the Army responsible for programming, budgeting, and funding that center's operations and maintenance. Since the Army provided the major support of the Ft. Ritchie complex he thought it logical for that service to now assume the same role for the interim NMCC. Secretary of the Air Force Eugene M. Zuckert objected vigorously, however, pointing out that the Air Force had played the biggest role, by

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far, in its construction and operation and would continue to do so under current concepts. Mr. Vance concurred, reversing his decision on 21 July 1965. One important new task called for the Air Force to handle the costs and other special demands which would arise during an emergency.<sup>9</sup>

(U) Meanwhile, JCS established an NMCC message center in the Pentagon on 14 July 1964 which gradually assumed charge of functions previously spread among the OSD Cable Section and JCS and Air Force message centers.<sup>10</sup> On 15 September 1964, JCS teams--organized under five Deputy Directors for Operations (NMCC) with one-star rank on the J-3 staff--formally occupied the expanded center. While much remained to be done to make it acceptable as even an "interim" center, at the close of 1965 the facility had improved significantly and become "clearly recognized as an effective center for alerting the National Command Authorities to militarily significant information and for the expeditious handling of directives to the operational commanders."<sup>11</sup>

#### NMCC Development

(S-Gp 4) The major unresolved question in NMCC development planning was where the ultimate center would be located and how large it ought to be. In 1963, JCS proposed a fiscal year 1965 allocation to begin construction of a 200,000-square-foot, first-generation NMCC in a "cut and cover" location between the Mall and River entrances to the Pentagon. When Secretary McNamara approved expansion of the temporary facility to 24,300 square feet in late 1963, he deferred action on the new proposal. The next year JCS reopened the discussions noting that the deferment had impeded materially "the evolutionary development of an effective command

center with capability to support the NCA [National Command Authorities] properly." No decision was reached, however, through 1965.<sup>12</sup>

(S-Gp 3) The primary goal of all command centers in the National Military Command System was to convert from manual to semiautomatic operations by using computers and digital data. For the NMCC, work toward this end began in January 1963 with the establishment of the NMCS Support Center under DCA to take charge of the activity. A month later, DCA asked the Air Force to give it the benefit of its AFCP 473L experience in drawing up technical plans for the NMCC.\* In March 1963, the Air Force and DCA signed a memorandum of agreement whereby USAF's Electronic Systems Division would work directly with the NMCS Support Center. One result of this association was that the first phase of the INMCC computer program came from 473L.<sup>13</sup>

(S-Gp 3) DCA submitted a first draft of NMCC automatic data processing needs in April 1963 which proved much too incomplete. The Air Force objected to a revised plan in June because its standards for interfacing NMCC computers with those in subsystem command centers were premature and would delay completion of programs already under way, particularly 473L. This position prevailed in subsequent revisions. On 1 October 1963 Mr. Gilpatric approved a working version of the plan, noting that it would serve "as a point of departure for further development of the INMCC display, briefing, and automatic data processing capabilities." He also

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\*(S-Gp 1) General White, Air Force Chief of Staff, approved 473L in 1960 for replacing AFCP manual operations with computers and digital data. Mr. McNamara reviewed and confirmed the program in late 1961, and it attained the first of a three-stage development schedule in early 1962.

approved an increase in the Support Center staff to enhance its ability to provide automatic data processing for the NMCC.<sup>14</sup>

(U) On 5 September 1963 JCS asked the DDR&E and the Weapons Systems Evaluation Group to participate on a JCCRG Standards Committee to carry out JCS responsibilities for preparing common terms and reporting formats for the National Military Command System. The committee, comprised of OSD, JCS, and service representatives divided into seven working groups, began preparing (1) a glossary of standard command and control terms, (2) a common geographic code, (3) standard unit identification codes, (4) a common symbology, (5) common briefing maps and charts, (6) common abbreviations, and (7) standards for equipment classes.<sup>15</sup> Meanwhile, on 12 August 1963, Mr. McNamara approved a DCA management plan for standardizing computer language programming throughout the national system. Prepared at the Secretary's personal request, the plan was intended to afford him information for calculating lead time and costs in this vital program.<sup>16</sup>

#### The Alternate NMCC

(S-Gp 3) The Alternate National Military Command Center (ANMCC) was part of a large complex that included the Alternate Joint Communications Center, Ft. Ritchie, and numerous subsystems. Site "R" of this complex, located underground in the Blue Ridge summit at Raven Rock, contained five buildings. The ANMCC and Presidential quarters were in Building D.\*

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\*(S-Gp 3) Building D, especially designed to meet ANMCC needs, was completed in 1964. Then the Joint Communications Agency and the contractor did the difficult job of moving ANMCC equipment from its former location in Building C to the new site.

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Buildings A, B, and C provided quarters, administrative space, and the operational facilities that the services planned to use as primary emergency centers. Ft. Ritchie would provide quarters and administrative space for any overflow of personnel. Through the AJCC, the ANMCC was "Y-connected" with the NMCC--i.e., it could assume the latter's functions immediately if it were destroyed or evacuated. In a crisis the ANMCC could operate for at least 30 days in a "buttoned up" position.<sup>17</sup>

(S-Gp 3) The ANMCC was designed to accommodate 3,000 persons in an emergency. In early 1964 the services concurred in a JCS proposal which authorized the Air Force 348 spaces, the Army 295, the Navy 270, and the Marine Corps 46. These quotas reduced previous USAF and Army allotments by 22, Navy by 17, and Marine Corps by 1 in order to provide new or increased quotas for other agencies whose missions had been clarified in plans for the worldwide and national systems. After reviewing the revised manning proposal, General Taylor, JCS Chairman, accepted it as an intra-DOD guide only pending additional study of overall NMCS emergency manning requirements. The subject remained in this status through 1965.<sup>18</sup>

(S-Gp 3) Meanwhile, JCS upgraded its continuity of operations plan in early 1964 to reflect the flexible relocation concepts contained in NMCS planning. By mid-1964 the Air Staff had completely revised its own continuity of operations plan, dovetailing it carefully to those of JCS and the other services. In broad outline, it did not change; the Air Force Chief of Staff and a designated battle staff would establish a Headquarters USAF (Advanced) at the ANMCC if circumstances forced them to evacuate the Pentagon. At the same time, the Vice Chief of Staff would activate Headquarters USAF (Rear) at Maxwell AFB, Ala.<sup>19</sup>

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## VI. THE MOBILE EMERGENCY COMMAND CENTERS

(U) By the end of 1965 the Air Force operated four airborne command posts with their ground communications in support of the National Military Command System and was working to expand them into an interconnected worldwide emergency force. The National Emergency Airborne Command Post (NEACP) maintained a 24-hour alert at Andrews AFB, Md., ready to take over NMCC duties when national command authorities came aboard. SAC kept alternate commanders in the air at all times over its major headquarters in the United States to take command of SAC forces if primary ground control centers were inoperable. Airborne command post operations in the unified commands in Europe and the Pacific were beginning to take shape. Finally, the Navy operated the National Emergency Command Post Afloat.

National Emergency Airborne Command Post

(S-Gp 4) JCS approved the NEACP plan in October 1961 and set 1 March 1962 as the initial operational date, but the Air Force was able to begin operations on 19 February 1962 by shifting one of SAC's KC-135 command post aircraft to ground alert at Andrews. In July 1962 two of three EC-135A's programmed for the initial phase of the NEACP mission arrived and the original plane was returned to SAC.\* By the end of the

\* (U) All C-135 aircraft equipped as airborne command posts bore the KC-135 designation until 1 January 1965 when (following a November 1964 conference on the C-135 model designation for the airborne command post and communication relay missions) Air Force redesignated them EC-135's.

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the year all three airplanes were on hand and operational. The Air Force dubbed the operation "Night Watch."<sup>1</sup>

(S-Gp 1) According to plan, one NEACP aircraft, manned by a Joint Alternate Command Element battle team, remained on continuous alert and ready to take off within 15 minutes.\* The second remained on one-hour backup. The third provided aircrew proficiency training or stood down for maintenance. In December 1962, one of the craft--called Silver Dollar Special--carried a party which included Drs. Fubini and Prim and General Bestic on a test and demonstration flight from Andrews to Elmendorf AFB, Alaska, Hickam AFB, Hawaii, and back.<sup>2</sup> Such special missions soon became a feature of the operation. In 1964, for example, a NEACP aircraft served as a Tactical Air Command flying command post supporting redeployment of tactical fighter units overseas. In June of that year, one served the Alaskan unified commander and his battle staff during air defense exercises, the first use of an airborne command post for such purposes.<sup>3</sup>

(S-Gp 1) A permanent UHF ground terminal at Waldorf, Md., served as the primary communication link between the NEACP, the NMCC/ANMCC and the Navy alternate (NECPA). Established early in 1962 the Waldorf station became fully operational the following December with 12 UHF/AM channels. In addition three mobile communication vans were set up in 1962--at Otis AFB, Mass., Greenville, S.C., and Homestead AFB, Fla.--to cover the routes most traveled by the Presidential aircraft. The Air Force always air-lifted a van-housed ground terminal whenever the President journeyed outside the range of the above-listed terminals.<sup>4</sup> After President Kennedy's assassination, the Otis and Homestead vans were relocated at Jackson, Miss.,

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\*(S-Gp 1) In 1965 the primary alert aircraft was manned by a 15-man JCS operations team and a two-man DIA element.

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and Austin, Tex., to fit President Johnson's travel patterns. Subsequently, an additional van was installed at Williamstown, Ky., to fill in a weak area of this coverage.<sup>5</sup> These communications allowed almost instant contact between the NEACP and SAC, NORAD, the OEP emergency facility, the headquarters of the Atlantic Command, and the other NMCS centers.<sup>6</sup>

(S-Gp 4) The three NEACP EC-135's in use through 1965 were redesignated from "A" to "H" in 1964 to indicate improvements in their communication equipment.\* Meanwhile, a plan for upgrading the operation had been carefully studied. In October 1962 the Air Force, in keeping with a Partridge Report recommendation, submitted a program change proposal for using five larger VC-137's. Mr. McNamara withheld decision pending further study of the overall needs of the national system. Meanwhile, he approved a SAC request to improve EC-135 endurance and performance by installing turbofan engines (TF-33-9's), extending fin and rudder boost, and installing a nose refueling receptacle. The new model was eventually designated the EC-135C. On 19 December 1963 the Secretary finally disapproved the five-ship VC-137 proposal and authorized funds for equipping the NEACP with EC-135C's. JCS disagreed with the decision, noting in September 1965 that it did not satisfy NEACP requirements "and did not consider that the VC-137's [could] provide the necessary growth potential, extended endurance, increased electrical power, and VLF/LF capabilities." This remained the NEACP program, however.<sup>7</sup>

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\*(S-Gp 4) The NEACP aircraft carried the following primary communication equipment at the end of 1965: 1 AN/ARC-89 (V) UHF/FM multichannel radio set, 4 AN/ARC-58 transceivers and 3 receive-only interaircraft radios, 2 AN/ARC-34 UHF (AM) sets, a multichannel tape recorder, and a 24-channel communication switchboard.

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(S-Gp 3) In early 1965 the Air Staff and Joint Staff worked out the EC-135C modification details for the NEACP mission within a \$2.5 million limit set by the Secretary of Defense. Designated the EC-135J, it would have a broader private interphone system than the "C", accommodations for the President and other national command authorities, and a modified electronic switchboard. OSD authorized release of funds on 6 March 1965 and JCS approved the changes on 4 May. The first "J" was scheduled for delivery in March 1966 and the other two in April. The Air Force Logistics Command (AFLC) supervised the changes.<sup>8</sup> As with the other centers in the NMCC complex, the major remaining NEACP task was to convert its operations, after the J's arrived, from manual to automatic data handling and to secure communications.

Airborne Command Posts in Unified and Specified Commands

(S-Gp 1) In early 1962 EUCOM initiated a limited airborne command post operation called "Silk Purse," by rotating five C-118 Liftmasters on continuous ground alert. In July PACOM submitted a bid for airborne command post aircraft and equipment. The interest of these commands in airborne command posts prompted Mr. McNamara to ask the JCS on 20 November whether SAC should return the KC-135A's performing such duties to its tanker fleet after it received EC-135C's.\* On 11 January 1963, JCS approved and forwarded to the Secretary a JCCRG and Air Staff proposal that

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\*(S-Gp 1) Airborne command posts became operational throughout SAC on 1 June 1963. They comprised 17 EC-135A's and 36 B-47's for communication relay.

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the A's be returned to the tanker fleet as planned and that JCS investigate which unified and specified commands needed airborne command posts and then determine the numbers and types of aircraft and ground communications that they required. Mr. McNamara approved such a study on 19 January 1963.<sup>9</sup>

(S-Gp 3) Accordingly, the JCCRG and the Air Staff performed the study which JCS sent to Mr. McNamara on 14 August. It established a requirement for continuously airborne posts for both the European and Pacific commands. It then offered three alternatives for achieving this goal. One was to procure EC-135C's with fiscal year 1964 funds. A second was to order a portion of the C's with 1964 funds and obtain the rest later with 1965 funds. If either proposal proved feasible, JCS recommended awarding the contracts to Boeing by 1 October 1963 else the company's production line would have to be reopened at an extra cost of some \$50 to \$60 million. A final alternative was to buy VC-137's out of 1965 funds.<sup>10</sup>

(S-Gp 1) Pending the Secretary's decision, JCS instructed the Air Force to program interim replacement aircraft for EUCOM's C-118's and also enough aircraft, equipment, ground crew and support personnel to enable both EUCOM and PACOM to initiate continuously airborne operations. The communication equipment in both systems was to be compatible with the National Military Command System.<sup>11</sup> The resultant program change proposal, drafted in October 1963, called for seven aircraft for each of the commands.<sup>12</sup> Mr. McNamara questioned this number and the Air Force proposed various alternatives. Then in March 1964 the Secretary directed

JCS and the Air Force to recommend ways to redistribute EC-135A's from SAC to EUCOM and PACOM as they were replaced by C's. The Air Force proposed that SAC keep 10 A's as replacements for the EB-47's currently in use for communication relay and transfer five A's to each of the two unified commands.<sup>13</sup> On 10 October 1964 Mr. McNamara directed the following: the SAC operation would consist of 14 EC-135C's for command posts, 6 EC-135A's and 4 G's for communication relay, and 3 A's, with minimum facilities, for communication backup; PACOM would receive 5 EC-135A's and operate a continuously airborne post; and EUCOM would receive three EC-135H's--one in October 1965 and the rest from the NEACP operation after it received its J's--and operate an airborne command post on ground alert.<sup>14</sup>

(S-Gp 3) SAC received its first EC-135C in July 1964 and had all of them by January 1965.<sup>15</sup> EC-135A deliveries to PACOM began on 23 June 1965 and, on 4 October, the 658th Airborne Command Control Squadron at Hickam AFB, Hawaii, initiated continuous airborne operations. The four UHF (FM) ground entry vans became operational in December.\*<sup>16</sup>

(C-Gp 4) Early in 1965 the Air Force asked for several changes in the EUCOM program. As a result, two SAC EC-135A communication relay aircraft were loaned to EUCOM in October when that command received its EC-135H and went on ground alert. On 31 August 1965 Mr. McNamara approved assignment of two additional EC-135H's to EUCOM to permit a continuous airborne alert once all five EC-135H's had been received. The five ground

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\*(S-Gp 4) They were located at Hickam AFB, Hawaii; Clark AB, Philippines; Kadena AB, Okinawa; and Johnston AB, Japan.

vans programmed for EUCOM were being installed and scheduled to become operational in February 1966.\* 17

(C-Gp 4) In December 1965 the Air Staff, at the direction of Mr. McNamara, submitted an initial study to JCS on netting the NEACP with both airborne command posts and with the Presidential aircraft. Thus, it seemed likely that the command posts currently aloft were forerunners of an eventual integrated worldwide operation.<sup>18</sup>

#### National Emergency Command Post Afloat

(S-Gp 1) The Atlantic Command initiated the National Emergency Command Post Afloat (NECPA) in March 1962, using the converted cruiser U.S.S. Northampton. In 1963 the Navy commissioned the U.S.S. Wright, a converted auxiliary aircraft transport, to join the Northampton. From mid-1964 the Navy alternated the ships, keeping one at sea or on alert status in port at all times. The Joint Staff operations teams consisted of 17 officers and 22 enlisted personnel with the ships' crews affording support.<sup>19</sup>

(S-Gp 3) Since the Northampton was scheduled for replacement it received only marginal improvements. The Wright on the other hand was progressively modified to achieve the utmost operating efficiency and to accommodate national command authorities and their staffs for protracted periods.<sup>20</sup>

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\*(S-Gp 4) They were located at Botley Hill, U.K. (USN); Camp des Loges, France (USA); Paris, France (USA); Heidelberg, Germany (USA); and Lindsay Air Station, Germany (USAF).

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(S-Gp 3) On two occasions in 1964 and early 1965 Adm. David L. McDonald, Chief of Naval Operations, proposed that the operation be limited to just the Wright. In each instance, and after review of his proposals, JCS reiterated the requirement for a two-ship operation first expressed in the October 1962 worldwide system concept.<sup>21</sup>

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## VII. COMMUNICATIONS

(U) The integration of service long-line communications into a common-use system under the direction of the Defense Communications Agency (DCA) began in 1961 with the publication of its mid-range plan. In subsequent years, this plan--updated and revised as necessary--remained the primary management instrument for the creation and carefully controlled expansion of the Defense Communications System (DCS).<sup>1</sup>

(U) The first step in creating the DCS was to establish manual switching centers. The services, after the issuance of the first mid-range plan, helped DCA plan the centers and identify service networks which could enter the system without violating commanders' prerogatives for retaining full control of those communications employed in carrying out their combat assignments. In April 1962 Assistant Secretary of Defense Morris approved the first of these interconnection plans and released the necessary funds. Implementation of the DCS now became a reality. The first complexes, built around the manual switching centers, were in operation by the end of 1962. DCA and the services then cooperated to mesh this initial system to reach the goal of an adequate, integrated, rapid, and secure worldwide system capable of meeting every requirement of national command authorities during any type of crisis.<sup>2</sup>

AUTODIN

(S-Gp 1) To enable the defense communication network to handle computer-processed data, DCA first proposed a long-range automatic

switching system called Defense Automatic Integrated Switching (DAIS). OSD decided, however, that DAIS cost and lead-time requirements were far too excessive and asked DCA in 1962 to search for a more economical and faster means. By late 1962 OSD, JCS, DCA, and Air Force had agreed that the USAF "DATACOM II" program could provide the initial nucleus of an automated DCS.\*<sup>3</sup> At this time, three of the five Automatic Electronic Switching Centers (AESC's) being constructed under this program had just become operational--at Norton AFB, Calif., McClellan AFB, Calif., and Tinker AFB, Okla. The other two became operational in early 1963--at Gentile AFS, Ohio, in January, and Andrews AFB, Md., early the next month.<sup>4</sup> On 27 February 1963 the new system celebrated its official opening at Andrews when the five automatic centers replaced 11 manual centers. At that time, also, DCA accepted the system as the first increment of AUTODIN--the Automatic Digital Network.<sup>5</sup>

(U) By the end of 1965 the five AESC's served several hundred locations within the continental United States. To reach oversea locations, the AESC's operated through manual data relay centers. Within the United States, trunk lines between the AESC's and subscriber circuits

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\*(U) DATACOM II was designed as an automatic, fully electronic, transistorized, high speed, secure, data communication system connecting Air Force bases, depots, prime contractors, and other service and DOD agency activities worldwide. It provided the capability for exchanging digital information in a variety of formats and languages in support of command and control, operations, administrative, personnel, fiscal, and logistical functions. The five AESC's could accept, store, and retransmit data messages from one location to another, accomplishing code and speed conversion when necessary as well as providing automatic circuit switch service.

consisted of commercial landlines. Submerged cable and high-frequency and tropospheric scatter radio carried the oversea traffic.<sup>6</sup>

(S-Gp 1) By 1964 OSD had approved DCA plans for expanding AUTODIN by 4 additional AESC's in the United States and 10 overseas. At the same time, representatives of DCA, the services, and other agencies rewrote the specifications to increase each current and future switching center from the original 100- to 150-line capacity to 300 lines. In February 1964 OSD approved expansion of the five existing AESC's to this new capacity and the leasing of equipment for the four new U.S. centers. The Air Force completed the leasing by early March 1964.<sup>7</sup>

(U) The new U.S. switching centers were originally scheduled for Hancock Field, N.Y., Fort Leavenworth, Kans., Fort Detrick, Md., and Albany, Ga. In late 1965 DCA reprogrammed the Fort Leavenworth center for Hawaii to improve communications with Southeast Asia. When completed, the eight-center AUTODIN system in the United States, with its 2,400-line combined capacity, would be able to handle some 300,000 messages daily, serve about 2,300 subscribers, and permit the elimination of some 40 separate manual and electromagnetic communication networks. The Air Force would continue to man and operate the initial five centers, but OSD would decide which service would man and operate the new centers.<sup>8</sup>

#### AUTOVON

(U) Within the continental United States the services made long-distance calls either through leased private lines or commercial facilities. In 1962 the Army automated portions of its leased private

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lines by a four-center switched circuit automatic network. Meanwhile, the Air Force had begun a similar program within NORAD-ADC built around five switching facilities. In April 1964 OSD granted DCA operational direction of these two systems as an initial step in developing an integrated worldwide common-use voice network for DCS subscribers. DCA named it the Automatic Voice Network (AUTOVON). By the end of 1965, one additional switching facility had been added, bringing the total to 10. The ultimate program called for about 55 switching facilities within the United States, to be leased from the American Telephone and Telegraph Company and independent telephone companies.<sup>9</sup>

(U) The direct-dialing AUTOVON system sought to do for voice communications what AUTODIN was designed to do for messages: reduce costs by integrating common-user functions and, at the same time, provide much faster, more reliable, and (eventually) more secure services.\*

#### Communication Survivability

(S-Gp 3) On Mr. Gilpatric's request, General Starbird in early 1962 initiated a continuing analysis of the ability of the DCS to survive a nuclear strike and recuperate from it.<sup>10</sup> The study of this complex and critically important subject concentrated on developing what JCS described as "a concept of implementation with emphasis on (1) what can be done now with known techniques and equipment and (2) what research and development areas are to be given the first consideration for the future."<sup>11</sup>

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\*(S-Gp 4) A DCS Secure Voice Conferencing System (AUTOSEVOCOM) program was under way to provide local area service to DCS switch subscribers and also to connect the NMCC and ANMCC with unified command posts. It would also interconnect DOD and other government agencies assigned key roles in crisis management planning.

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(S-Gp 3) To set forth a "tangible framework" for evaluating the adequacy of existing and proposed DCS elements to support the worldwide system during nuclear war, DCA compiled a tentative list of what it termed Minimum Survivable Communications (Minicom) requirements. Submitting the list to JCS on 5 April 1963, DCA asked for careful service scrutiny so that the list could serve as a flexible survivability guide.<sup>12</sup> This initial list subsequently played an influential role in AUTODIN and AUTOVON engineering, particularly in deciding locations and routings of new switch interconnection lines. It also encouraged commercial carriers to bypass potential target areas wherever possible when they constructed new facilities.<sup>13</sup>

(S-Gp 3) In forwarding the list to the unified commands and the services, JCS directed that they employ it as a guide and develop their own Minicom requirement lists.<sup>14</sup> The Air Force submitted its initial list on 31 July 1963.<sup>15</sup> In May 1964 JCS approved the command Minicom submissions and, the following month, directed the services to restudy their submissions and eliminate any requirements which duplicated those set down by the unified commanders. In May 1965 JCS approved and forwarded to DCA the services' revised lists.<sup>16</sup> Meanwhile, JCS had directed commanders and the services to review and update their Minicom lists annually on 1 March.<sup>17</sup>

(S-Gp 1) The annual review of Minicom requirements was intended to give focus to communication survivability planning and eliminate what Mr. Gilpatric termed the "excessive and non-selective proliferation of mutually supplementary efforts" which had plagued the subject. It also

would help to assure that "improved survivability [would] be obtained... from improvement in performance, coverage, redundancy, and reliability of the existing...facilities and programmed additions thereto such as AUTODIN-AUTOVON and certain HF developments." 18

(S-Gp 1) The need for survivable communications to carry out the Single Integrated Operational Plan (SIOP) in an emergency prompted OSD in October 1963 to accord highest priority to the development of VLF/LF radio networks.<sup>19</sup> As a result, the Navy and the Air Force reoriented these programs to insure that they met the needs of the national leaders as well as their own commands. As Mr. Vance explained, the JCS Minimum Essential Emergency Communications Net had to be ready to pre-empt Navy and USAF VLF/LF systems when necessary. Also, the SAC commander had to be able to use Navy stations to relay his communications under these conditions, and the Atlantic commander might have to use the JCS net to contact his forces.<sup>20</sup> In accordance with the instructions of the Secretary of Defense, JCS prepared a revised concept of VLF/LF operational and cryptographic requirements in August 1964 to obtain compatibility in these systems. He also directed the services to revise their plans accordingly.<sup>21</sup>

(S-Gp 1) The DOD communication satellite program promised to solve many survivability problems. The plan of May 1962, which eliminated the long-time Advent program, called for two systems, one to operate in random orbit at medium altitude and the other in equatorial orbit at synchronous altitude. Subsequently the first system was reduced to 10 experimental launches and the synchronous system deferred.<sup>22</sup> In October

1964 OSD realigned the program into two phases. An Initial Defense Communications Satellite Program (IDCSP) called for the placement of test and operational satellites into near-synchronous equatorial orbit in 1966 followed by replacement shots in the following two years. When this system decayed in orbit by 1969 and 1970, an advanced system (ADCSP) would be available.<sup>23</sup>

(S-Gp 1) The Air Force role in both phases was to develop, procure, and launch satellites and control their orbit. Sixty-six ground terminals were approved for the IDCSP, 26 to be operated and maintained by the Air Force. Responsibility for integrating the space and ground elements into the Defense Communications System rested with DCA.<sup>24</sup>

#### Communication Objectives

(C-Gp 4) In Mr. Vance's opinion, the AUTODIN and AUTOVON networks and other DCS developments wrought a substantial improvement over the "variegated array" of service systems which had existed in the early 1960's. At the same time, he acknowledged that the entire Defense Communications System was still far from satisfactory. Using two separate networks to handle phone calls and the flow of data was itself a weakness caused by the fact "that available technology did not allow these differing needs to be met in a single, automatically switched common user system." Thus, one major task facing planners was "to move away from the multiplicity of separate networks as rapidly and promptly as possible." To assist in this project, Mr. Vance directed DCA to submit and revise annually a 10-year projection of DCS needs which would contain

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sufficient detail for a timely solution of technological and funding problems. The new procedure was scheduled to begin in early 1966 and would be geared to C<sup>3</sup> consolidated program planning and review.<sup>25</sup>

(U) In August 1965 Mr. Vance directed Mr. Horwitz to study the advantages and disadvantages of giving DCA actual command of DCS networks and including more service-operated communications within the system. The objective of any changes resulting from the study would be to increase responsiveness, effectiveness, compatibility, commonality, flexibility, and economy.<sup>26</sup> In early September Mr. Horwitz asked DCA and the services to participate in the study, noting that the project would take three to five months to complete.<sup>27</sup>

(U) Meanwhile, on Mr. Zuckert's request, various Air Staff officers submitted to him their personal views on the advantages and hazards of additional integration of USAF command and control networks into the DCS. Maj. Gen. Gordon T. Gould, Jr., who succeeded General Taylor as Air Staff C<sup>3</sup> Director in mid-1965, said that the two DOD communication trends which had emerged since 1960--the increased centralization of management, control, and development and the maximum application of automatic switching at the fastest possible rate--were not undesirable in themselves. Automatic switching might have been oversold, however, in terms of economy and ability to perform all the functions originally claimed for it. Too, DCA and other planners had frequently failed to appreciate fully the relationship between communications and command and control with the result that current plans and programs did not include several vital command and control improvements. General Gould cautioned against including any "tried

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and proven" USAF command and control networks in the DCS until the latter demonstrated a higher degree of reliability and proficiency.<sup>28</sup>

(U) In agreeing with General Gould, Mr. Harry Davis, Deputy Assistant Secretary of the Air Force (Research and Development), noted that USAF command and control circuits were "too vital for us to take a chance with unreliable equipment." He added that Dr. Brown, while DDR&E, had shared his view. Hence, it appeared that the Air Force would watch the matter carefully and seek to forestall any effort to consolidate prematurely any circuits which clearly served command and control purposes. At the same time, Mr. Davis said, the Air Force had to recognize that no clear distinction existed between management circuits and command and control circuits. The question of the Horwitz study group would be "which circuits should be included in the DCS and which should not?" A similar question, on a smaller scale, already existed within the Air Force between the AFCS and the operating commands. It was not likely that this matter would be easily solved. In the foreseeable future, Mr. Davis said, circuits would probably be assigned as they had been in the past--"on the basis of the relative power, priority, and maneuvering ability of the contending agencies."<sup>29</sup>

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## VIII. CONCLUSION

(U) Soon after it took office the Kennedy administration called a virtual moratorium on most improvements in service command and control systems until it completely restudied the subject from a national perspective. In their initial appearances before Congress, both President Kennedy and Secretary of Defense McNamara claimed that past thoughts on the subject had either been wrong or so vague as to be of little value as guidance. All of America's military eggs were in the one basket of massive retaliation, they felt. Under this policy the national leaders required only the command and control facilities that gave them the time to issue the Presidential nuclear release order to SAC's retaliatory forces. From that point, apparently, all would be left in the hands of the gods of war. The President and the Secretary regarded this policy as dangerously narrow and completely unsuited to the missile and space age. They wanted a system which not only gave constituted authorities control of the retaliatory forces before, during, and after nuclear attack but also provided data which they could use to handle any military crisis without its escalating unnecessarily into a nuclear war. In other words, they intended to replace the policy of massive retaliation with one of "flexible response" and to develop a national command and control system which would enable them to carry it out.

(U) Accordingly, on Secretary McNamara's request a study group headed by retired General Partridge, one of the principal proponents of

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a national system while head of NORAD, drew up a plan in late 1961 for such a system. Most of its proposals had been voiced before in JCS and service councils, but it synthesized and equated them to the new policy so satisfactorily that it found immediate and general favor. The plan recommended the creation of a new system of command and control facilities and communications to serve the national command authorities--the President, the Secretary of Defense, JCS, and their constitutionally appointed successors and alternates. Called the National Military Command System, it would consist of a primary command center in Washington, a fixed alternate center, and two mobile emergency centers. All unified, service, and other DOD component command and control systems would be reoriented to be compatible with the NMCS while continuing to meet their own needs. One immediate advantage of this explication of roles and purposes was that it enabled OSD and JCS to reappraise proposals for expanding and modernizing current systems in terms of the needs of the whole.

(U) From this point OSD, JCS, the services, DCA, and eventually DIA and other government agencies such as the State Department, OEP, and CIA joined staffs in a remarkable cooperative venture to expand the Partridge Report into firm, mutually acceptable guidance for integrating and standardizing the nation's information-gathering and decision-making facilities and procedures. DOD Directive S-5100.30, published in October 1962, established the requirement for the worldwide military command and control system. It also called for the NMCS to serve and be served by

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similar systems operated by other government agencies with important crisis management responsibilities.

(U) In the following year, the NMCS Master Plan detailed the principles, requirements, and responsibilities for NMCS development. Meanwhile, Mr. McNamara clarified the DCA charter and greatly strengthened and expanded the agency to enable it to improve defense communications and support of the worldwide system. In 1963 President Kennedy also created the National Communications System to insure the expansion and integration of all important communications facilities according to overall national crisis needs. By the end of 1965, the interim NMCC with its fixed and mobile alternates demonstrated a satisfactory initial stage of operation. Thus, as Secretary McNamara expressed it, the nation had made great strides toward satisfying the requirement for "a standardized, highly survivable, noninterruptible command capability for a wide range of possible situations [which] will provide the national authorities with a number of alternates through which they may exercise their command responsibilities." <sup>1</sup>

(S-Gp 3) Two broad-gauge, top-level studies identified several remaining problem areas which required further attention by joint DOD and intergovernmental agencies. The first study, completed in January 1965, concluded that surprise nuclear attack was no longer the great threat--that general war, if it came, was more likely to result from escalation of a severe crisis. This revised estimate foreshadowed a change in emergency planning for both military and nonmilitary agencies. For example, relocation during a crisis might prove as acceptable as current

prelocation practices. During noncrisis periods combat forces might not have to maintain as high a degree of readiness as in the past. As one agency head expressed it, "our total posture must clearly be such as not to make the option of 'out of the blue' attack attractive to the U.S.S.R. or any other nuclear power but this does not require that all emergency planning be geared to the unlikely no-warning, no-crisis contingency." This study also examined the debate which had ensued in past months over whether the NMCC should remain in its current quarters or be housed in a deep underground center (DUCC). It opted for the DUCC where the President and other key leaders could gather at times of severe crisis. This facility would be regarded "as a protected vital communications center for national command and control not merely as a measure for the personal safety of the President." <sup>2</sup>

(S-Gp 1) The second study, completed in June 1965, examined the problem of affording national authorities adequate facilities and procedures to enable them in a crisis to assess and select appropriate options from The Single Integrated Operations Plan. It recommended a continuous exchange of information between operations and intelligence personnel "to preclude the possibility that any significant information bearing on attack assessment is not made available on a timely basis to appropriate NMCS personnel." It also recommended that technical development plans for improving attack assessment systems be deferred until "new technological approaches are developed as a result of research efforts which should be conducted intensively." <sup>3</sup>

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(S-Gp 1) No matter how the worldwide system developed in the future, one "single most important lesson" learned would prevail: both the overall system and its individual parts would evolve gradually. As noted in the January 1965 study,<sup>4</sup>

it just is not possible to plan for a major increase in capability for a time period several years off and have any assurance that the jobs will be the same and that the facility will be useful (let alone have an improved capability) in the later time period that the capabilities become operational. The predominant way in which high level command centers should grow is by continual introduction of small and medium-sized improvements that are suggested by the operators and users of the system, and by the evaluation of exercises and actual crisis performance. As new tools and techniques are brought into being through research and development they can be installed for operational experimentation in the center. If they prove they are not useful they can be discarded.

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## NOTES

Unless otherwise noted, primary sources cited (letters, memos, etc.) are located in file RL 27-5 of the Record Branch, Directorate of Plans, Headquarters USAF. Copies of publications cited (Air Staff and Air Command histories, directives, statistical digests, magazines, etc.) are filed in AFCHO.

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## GLOSSARY

ADC	Air Defense Command
ADCSP	Advanced Defense Communications Satellite Program
Actg	Acting
AESC	Automatic Electronic Switching Center
AFB	Air Force Base
AFCP	Air Force Command Post
AFCS	Air Force Communications Service
AFLC	Air Force Logistics Command
AFSC	Air Force Systems Command
AJCC	Alternate Joint Communications Center
ANMCC	Alternate National Military Command Center
Ann	Annual
ARPA	Advanced Research Projects Agency
ASAF	Assistant Secretary of the Air Force
ASOD	Assistant Secretary of Defense
Asst	Assistant
Atch	Attachment
AUTODIN	Automatic Digital Network
AUTOSEVOCOM	Automatic Secure Voice Communications
AUTOVON	Automatic Voice Network
BUIC	Backup Interceptor Control
C	Confidential
3	Command Control and Communications
Chmn	Chairman
CIA	Central Intelligence Agency
CINC	Commander in Chief
CJCS	Chairman Joint Chiefs of Staff
CM	Chairman's Memorandum (JCS)
Cnte	Committee
Cntl	Control
Co	Company
Comd	Command
Comm	Communications
Corr	Correspondence
C/S	Chief of Staff
CSAF	Chief of Staff Air Force
D/	Directorate
DAIS	Defense Automatic Integrated Switching
DASA	Defense Atomic Support Agency

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## GLOSSARY (Cont'd)

DCA	Defense Communications Agency
DCS	Defense Communications System
DDR&E	Director of Defense Research and Engineering
Dept	Department
DIA	Defense Intelligence Agency
Dir	Director
DJSM	Director of Joint Staff Memorandum
DOD	Department of Defense
DSOD	Deputy Secretary of Defense
Encl	Enclosure
ESD	Electronic Systems Division
EUCOM	European Command
Exec	Executive
FM	Frequency Modulation
FY	Fiscal Year
GEEELA	Ground Electronics Engineering and Installations Agency
Gp	Group
HF	High Frequency
Hist	History
Hq	Headquarters
IDCSP	Interim Defense Communications Satellite Program
ICBM	Intercontinental Ballistic Missile
INMCC	Interim National Military Command Center
J-3	Director of Operations Joint Chiefs of Staff
JACE	Joint Alternate Command Element
JCA	Joint Communications Agency
JCCDG	Joint Command and Control Development Group
JCCRG	Joint Command and Control Requirements Group
JCCSC	Joint Command Control Standards Committee
JCCSG	Joint Command and Control Study Group
JCS	Joint Chiefs of Staff
JCSM	Joint Chiefs of Staff Memorandum
JTD	Joint Table of Distribution
JWR	Joint War Room
LF	Low Frequency
Ltr	Letter
n	Note
NCS	National Communications System
NEACP	National Emergency Airborne Command Post

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## GLOSSARY (Cont'd)

NECPA	National Emergency Command Post Afloat
NMCC	National Military Command Center
NMCC/MC	National Military Command Center Message Center
NMCS	National Military Command System
NMCSSC	National Military Command System Support Center
NORAD	North American Air Defense Command
NSAM	National Security Action Memorandum
NSC	National Security Council
Msg	Message
Mtg	Meeting
OEP	Office of Emergency Planning
Ofc	Office
OJCS	Organization Joint Chiefs of Staff
Ops	Operations
Ops Depts	Operations Deputies
OSAF	Office Secretary of the Air Force
OSD	Office Secretary of Defense
PACCS	Post-Attack Command and Control System
PACOM	Pacific Command
PCP	Program Change Proposal
R&D	Research and Development
Rcrd	Record
Rpt	Report
S	Secret
SAC	Strategic Air Command
SAF	Secretary of the Air Force
SAGE	Semi-Automatic Ground Environment
Secy	Secretary
SIOP	Single Integrated Operational Plan
SM	Staff Memorandum (JCS)
SOD	Secretary of Defense
Subj	Subject
Tech	Technical
TS	Top Secret
UHF	Ultra High Frequency
USAF	United States Air Force
VCSAF	Vice Chief of Staff Air Force
V/Dir	Vice Director
VLF	Very Low Frequency
WSEG	Weapons Systems Evaluation Group
WWMCCS	Worldwide Military Command and Control System

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