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ADC HISTORICAL STUDY NO. 39

**THE  
AEROSPACE DEFENSE  
COMMAND  
AND  
ANTIBOMBER DEFENSE**

**1946 - 1972**

by **RICHARD F. McMULLEN**

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## FOREWORD

The resources made available to the Aerospace Defense Command (and the predecessor Air Defense Command) for defense against the manned bomber have ebbed and flowed with changes in national military policy. It is often difficult to outline the shape of national policy, however, in a dynamic society like that of the United States. Who makes national policy? Nobody, really. The armed forces make recommendations, but these are rarely accepted, in total, by the political administration that makes the final proposals to Congress. The changes introduced at the top executive level are variously motivated. The world political climate must be considered, as must various political realities within the country. Cost is always a factor and a determination must be made as to the allocation of funds for defense as opposed to allocations to other government concerns. The personalities, prejudices and predilections of the men who occupy high political office invariably affect proposals to Congress. The disposition of these proposals, of course, is in the hands of Congress. While the executive branch of the government is pushed and pulled in various directions, Congress is probably subject to heavier pressures. Here, again, the nature of the men who occupy responsible positions within the Congress often affect the decisions of Congress. National policy, then, is the product of many minds and is shaped by many diverse interests.

The present work is a recapitulation and summarization of three earlier monographs on this subject covering the periods 1946-1950 (ADC Historical Study No. 22), 1951-1957 (ADC Historical Study No. 24) and 1958-1964 (ADC Historical Study No. 26), plus additional material to bring the discussion to the end of 1972. The purpose is to provide, in one place, a wide canvas of the entire 26-year period. It is necessary to note, however, that in 1957 the defense problem suddenly became two problems when the Soviet Union demonstrated the ability to put an object into earth orbit and proved the feasibility of the intercontinental ballistic missile. This volume deals only with defense against the manned bomber and was written by Richard F. McMullen, who has personally watched the ebb and flow. Mrs. Mary Perry typed the manuscript.

L. H. CORNETT, JR.

June 1973

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## Introduction

## WORLD WAR II AND BEFORE

■ In the early thirties thoughtful theorists like Captain Claire Chennault studied air defense techniques, such as the integration of ground-based early warning systems and fighter aircraft. Chennault received little support within the Air Corps. The air doctrine of the time stressed "air defense," but the type of air defense that called for destruction of the enemy's power to make war--in short, strategic bombing. The Air Corps of that day was controlled by officers who later came to be known as "big bomber" people. The subsequent unopposed bombing of Ethiopians by the Italians and the regular bombing of Barcelona by German and Italian aircraft during the Spanish Civil War served only to strengthen the convictions of the proponents of strategic bombing. Effective defense against such attacks was not believed possible.

■ It was not until after the beginning of World War II, therefore, that the U. S. War Department undertook serious study of air defense against the manned bomber. On 20 December 1939 the public was informed that the War Department had created an Air Defense Command to "further

the development of means and methods for defense against air attack."<sup>1</sup> The Air Defense Command was actually organized on 15 March 1940. It was commanded by Brig. Gen. James E. Chaney.<sup>2</sup>

The initial ADC was located at Mitchel Field, New York. It was a small planning organization which commanded no troops, other than those assigned to the immediate headquarters, controlled no installations and owned no combat aircraft. It did, however, study the British experience during the Battle For Britain, made plans for the establishment of an active air defense system in the United States and trained senior officers in the theory and practice of air defense. After Army maneuvers in the northeastern United States in August 1940 and January 1941, ADC was satisfied that the P-40 pursuit aircraft could cope with the B-18 bomber if given adequate warning. The work of the first ADC was then done and it was disbanded on 2 June 1941. Responsibility for the planning, as well as operation, of the air defense system was then handed to the I Interceptor Command of the First Air Force. This responsibility was decentralized later in the

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1. Unpublished manuscript, P. Alan Bliss, Air Defense of the Continental United States, 1935-1945, I, p. 78 (hereinafter cited as "Bliss").

2. TAG to CG, 1st AF, "Creation of Air Defense Command," 26 Feb 1940. Cited in Bliss, I, p. 78.



P-40





summer of 1941 when the Second (northwest), Third (southeast), and Fourth (southwest) Air Forces also created Interceptor Commands. There was no national headquarters for the supervision of air defense of the United States.<sup>3</sup>

Although the four Interceptor Commands busied themselves with the recruitment and training of civilian ground observers, the establishment of filter centers and information centers that consolidated and evaluated the reports telephoned by ground observers, the selection of sites for radar installations and the air defense training of aircrews, the air defense network was far from complete at the time of Pearl Harbor. Only eight SCR-270 and SCR-271 search radars were in operation on 7 December 1941-- one in Maine, one in New Jersey, and six in California.<sup>4</sup>

Following the Japanese attack, the Eastern and Western Defense Commands assumed responsibility for the protection of the Atlantic and Pacific Coasts, respectively. The area of responsibility of the First Air Force was concurrently stretched southward to cover the entire east coast. The same action was taken with respect to the Fourth Air Force on the west coast. The Second and Third Air

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3. GHQ AF to TAG, "Inactivation of Headquarters and Headquarters Detachment, Air Defense Command," 2 Jun 1941. Bliss, I, pp. 24, 84-86, 95-99 and 116.

4. Bliss, I, pp. 196-200.

Forces then concentrated on training. The War Department put both coasts into defense category "C" (minor attack probable) and expended special effort on the erection of a chain of radar stations, about 70 miles apart, along both coasts.<sup>5</sup>

By the middle of 1943 a total of 95 radar stations had been built, 65 along the west coast and 30 along the eastern shoreline. But by that time some of the steam had already been taken out of the air defense effort. Allied successes in North Africa and the South Pacific had lessened the possibility of a direct attack on the United States, so, on 20 April 1943, the War Department lowered the defense category of both coastlines to "B" (possible minor attack). Six months later, on 30 October 1943, the defense category dropped to "A" (possibility of isolated raids). The disintegration of the defense system had already begun, since the First and Fourth Air Forces had been relieved of their assignment to Eastern and Western Defense Commands on 10 September 1943 and returned to the direct control of Army Air Forces. This action constituted admission that training had been given priority over air defense. The release of ground observers and the closing

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5. Bliss, II, pp. 1-2, 9 and 231.

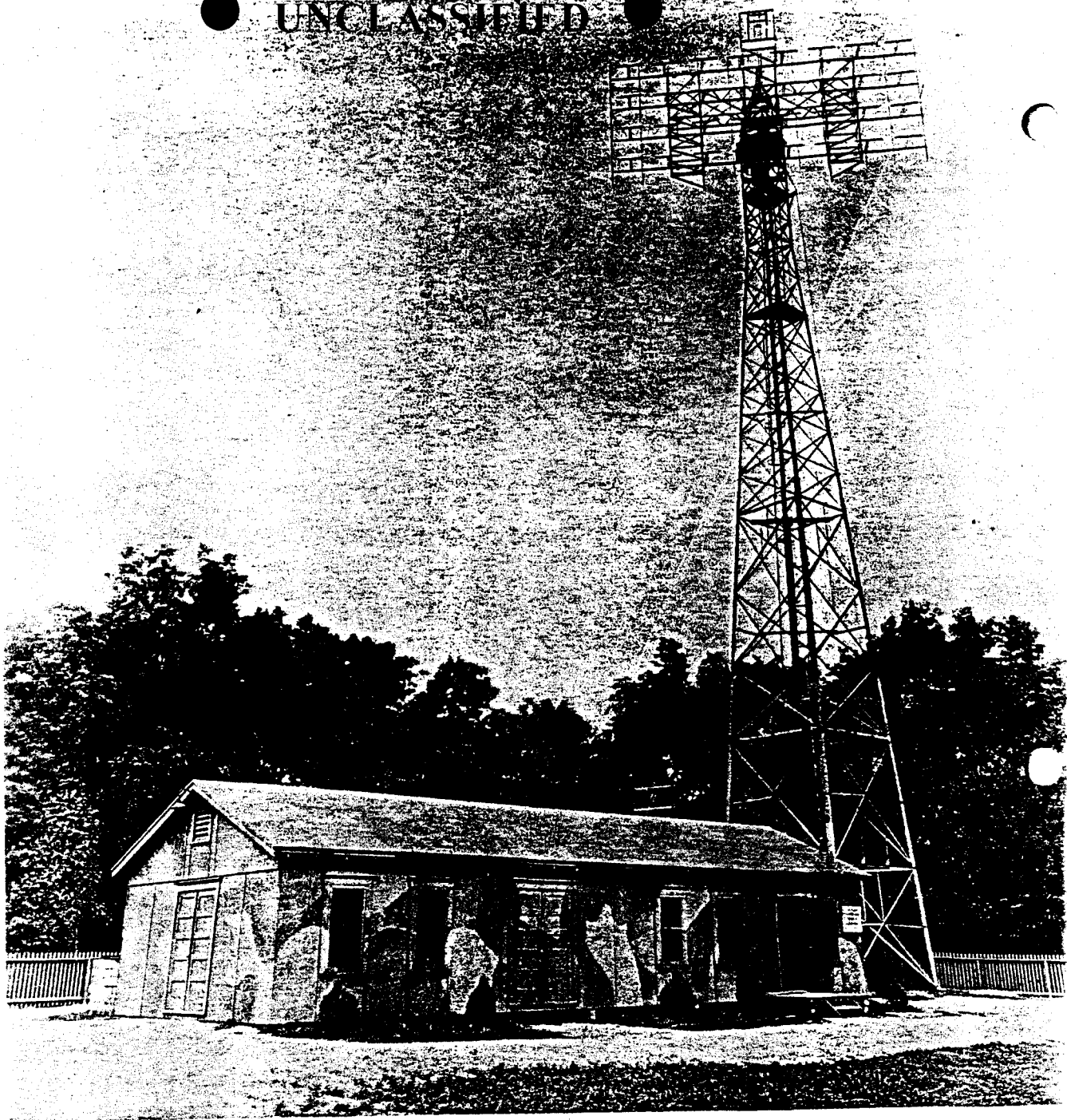
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SCR-270-D SEARCH RADAR  
First U.S. long range early  
warning radar. Originally  
mobile, it had a range of about  
150 miles depending on the type  
of antenna used. Replaced in  
1943 by the SCR-271

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GCI - SCR-271 SEARCH RADAR

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of filter centers and information centers accelerated.

In May of 1944 all remaining civilian volunteers were released with a letter of thanks from the Secretary of War.<sup>6</sup>

While British experience indicated that most air defense operations were likely to be conducted at night or in bad weather, the World War II air defenses of the United States were not equipped for night interceptions. The fighters available, first the P-39 Aircobra and P-40 Warhawk and later the P-38 Lightning, were simply not adequate for the air defense job. A night fighter designed for air defense use came along much too late. Northrop began designing the P-61 Black Widow in November of 1940, but progress was painfully slow and the first experimental model did not fly until 26 May 1942. Meanwhile, because of the delays in night fighter development, the AAF attempted, in 1942, to convert the A-20 attack bomber to night fighter use. The converted aircraft was called P-70 and 269 bombers were so modified, but the P-70 was much too sluggish for air defense work. The first P-70 unit, the 6th Night Fighter Squadron, reached Guadalcanal in February 1943, where it was soon discovered that it took the P-70 45 minutes to reach an altitude of 22,000 feet. It was

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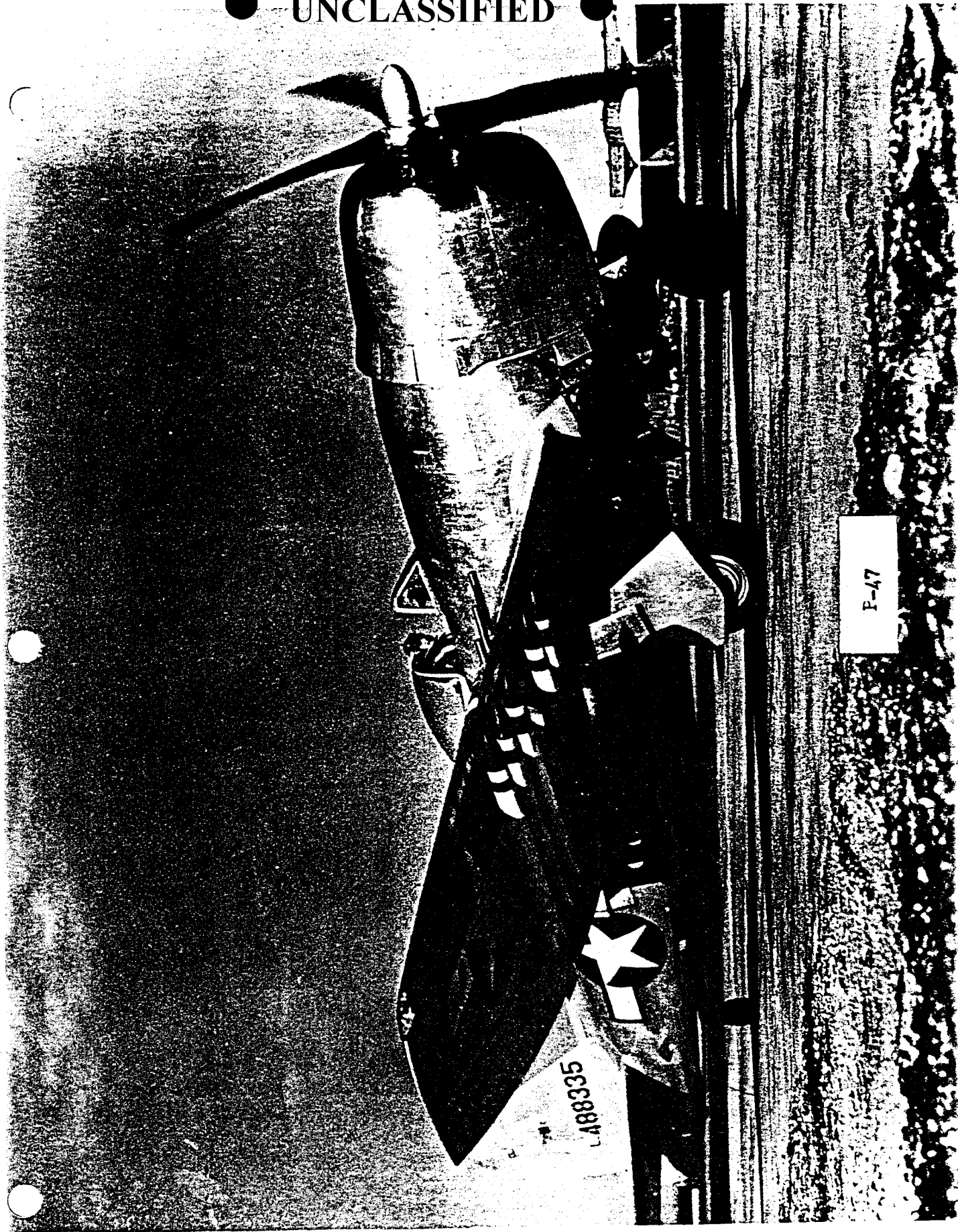
6. Bliss, II, pp. 9 and 52.

also discovered that when the P-70 finally struggled to that altitude Japanese medium bombers easily outdistanced it. It was necessary to write off the P-70 as a failure. The AAF began to take delivery of the P-61 in July 1943, but by that time the air defense of the United States was assuming a lower and lower priority and the night fighter was never used for that purpose. Also, by the time the P-61 became operational the Allied Air Forces had generally gained air superiority in all theaters of operations and air defense was a declining requirement even overseas. The AAF, however, did equip 18 squadrons with the Black Widow\* and they appeared in the active theaters during the last year of the war. In one of the few areas where the P-61 was put to its intended purpose the results were not encouraging. Between October 1944 and January 1945 the Japanese made 63 night bombing raids on Morotai, an important Thirteenth Air Force base about midway between New

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\*NOTE: The 6th, 418th, 419th, 421st, 547th, 548th, 549th, and 550th Night Fighter Squadrons served in the Pacific war area; the 414th, 415th, and 416th in the Mediterranean; the 422nd and 425th in Europe and the 426th in China-Burma-India. The 417th NFS was sent to the Mediterranean in August 1943, but was moved to the European Theater in April 1945. The 427th NFS moved to the Mediterranean in September 1944, but was transferred to China in November of that year. The 420th and 424th Night Fighter Squadrons were replacement training units and did not leave the United States (See "Combat Squadrons of the Air Force in World War II," ed. Maurer Maurer [Washington, USAF, 1969], pp. 39, 506, 508, 509, 511, 513, 515, 516, 517, 519, 521, 522, 523, 525, 650, 652, 653, and 654. Hereinafter cited as "Maurer").

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P-61B BLACK WIDOW

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Guinea and the Philippines. Ground radar detected 33 of these raids and 61 P-61 night fighters of the 418th and 419th Night Fighter Squadrons were sent aloft. They destroyed the raiding bombers on but five occasions. Malfunctions in the airborne radar were blamed for most of the unsuccessful interceptions.<sup>7</sup>

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7. W. F. Craven and J. L. Cate, eds., The Army Air Forces in World War II (Chicago, 1950 and 1955), VI, pp. 212-221; USAF Historical Study No. 92, Development of Night Air Operations, 1941-1952 (1953), pp. 14-15 and 29-51.



## I. THE PLANNING YEARS, 1946-47

By August 1944 only nine radars on the east coast and eight on the west coast were being used for search purposes and these only eight hours a day. Others operated, but simply for the training of night fighter squadrons. A new organization took control of the collapsing air defense structure when Continental Air Forces (CAF) was established on 12 December 1944. Air defense, at least the portion controlled by Army Air Forces, was included in the mission of CAF, although, as a practical matter, CAF did not become involved in air defense until it assumed jurisdiction of the four continental Air Forces on 14 April 1945. And then CAF did little about it except supervise the completion of the destruction of the system built between 1940 and 1943. At the end of World War II all radar sites within the United States had either been torn down or reduced to caretaker status.<sup>1</sup>

Continental Air Forces dabbled only briefly in air defense planning, in the later months of 1945, but nothing of permanent value resulted. Whatever the CAF contribution, AAF had decided, by early 1946, that the most

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1. Bliss, II, pp. 9, 32, 52, and 100; AAF to CAF, "Directive", 14 Dec 1944 (Doc 1 in Hist of CAF, 14 Dec 1944 to 21 Mar 1946).

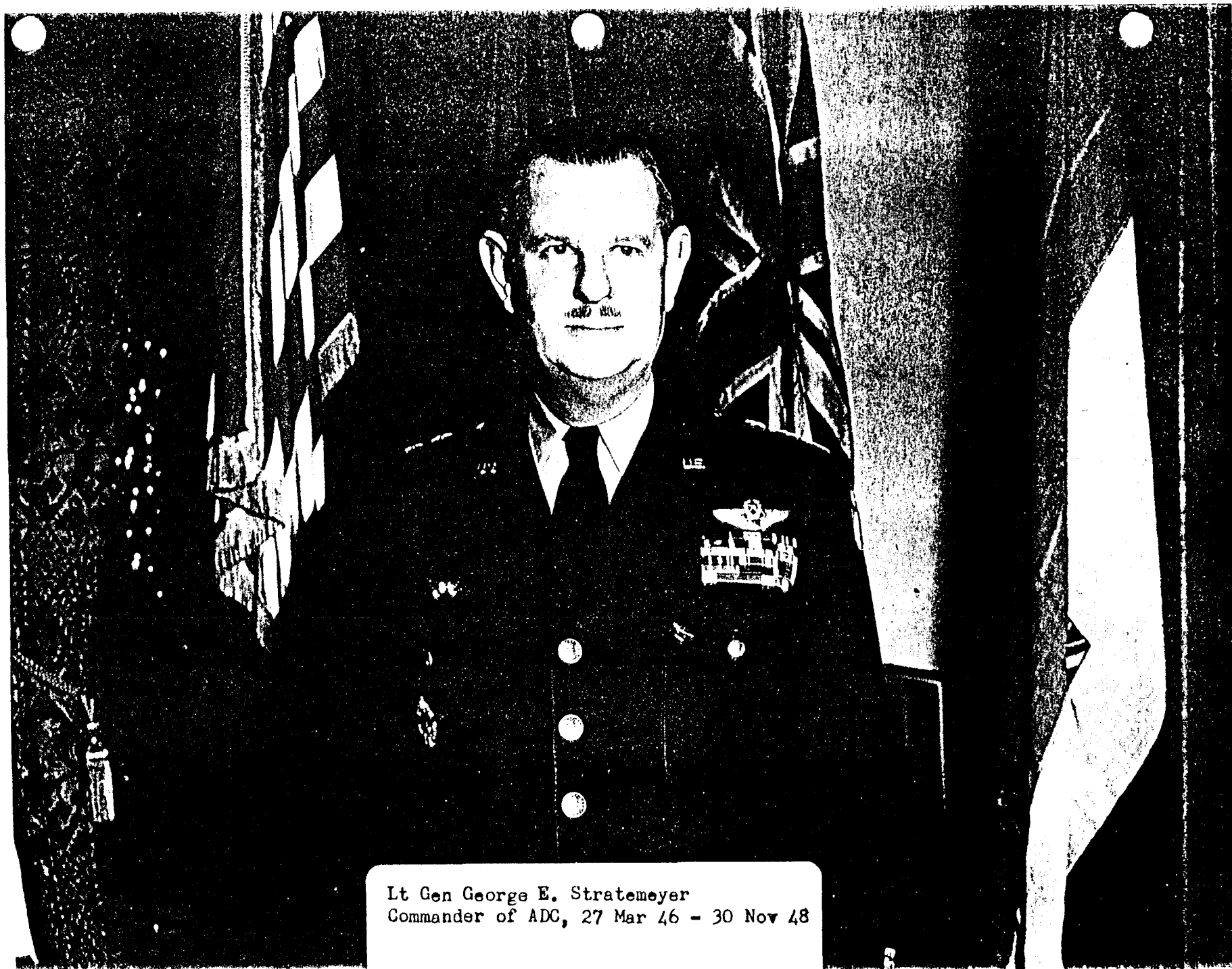
effective means of utilizing combat strength was to divide it into strategic forces (long-range bombing), tactical forces (ground support), and air defense forces. Applied to the postwar situation, this involved creation of a Strategic Air Command (SAC), Tactical Air Command (TAC), and Air Defense Command (ADC). There was early speculation that CAF would evolve into ADC, but when the reorganization was finally effected, CAF became the basis for SAC. ADC received the remnants of the First and Fourth Air Forces and the headquarters of First Air Force was cannibalized to form Headquarters, ADC.<sup>2</sup>

The Air Defense Command established in 1946 did not result from any public outcry for protection. Army Air Forces planners, however, were well aware that inter-continental bombers such as the B-29 and B-36 existed and that improved types would undoubtedly follow. It was also known that the Soviet Union was capable of developing the industrial capacity to produce such bombers. It was therefore unthinkable that the United States should be left wide open to air attack. At the same time, not everybody was convinced the air defense mission actually belonged to the

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2. WD Field Manual 100-20, "Command and Employment of Air Power," 21 Jul 1943; USAF Historical Study No. 126, The Development of Continental Air Defense to 1 September 1954, p. 3.

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Lt Gen George E. Stratemeyer  
Commander of ADC, 27 Mar 46 - 30 Nov 48



Air Forces in view of the cloudy situation that prevailed since the First and Fourth Air Forces had been withdrawn from the Defense Commands (which answered to Army Ground Forces) in September 1943. Had the Defense Commands retained the air defense mission or had the First and Fourth Air Forces taken it with them? No clear answer had been provided to this question by early 1946. Therefore, the mission statement for ADC, dated 12 March 1946, was labeled "interim." At any rate, the as-yet-unformed ADC was told that it would:<sup>3</sup>

organize and administer the integrated air defense system of the Continental United States;...exercise direct control to operate either independently or in cooperation with Naval forces against hostile surface and undersurface vessels and in protection of coast-wise shipping;...train units and personnel in the operation of the most advanced methods and means designed to nullify hostile aerial weapons;...maintain units and personnel for the maintenance of the air defense mission in any part of the world.

Under this vague charter the Air Defense Command organized at Mitchel Field, New York, on 27 March 1946. First commander was Lt. Gen. George E. Stratemeyer, late of Army Air Forces, China Theater. His familiarity in dealing with the fractured relationships among Chinese, British, and Americans in the unhappy China-Burma-India area was to

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3. AAF to ADC, "Interim Mission," 12 Mar 1946 (Doc 7 in Air Defense of the United States, ADC, Jun 1951).

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stand him in good stead in his new assignment. The day ADC was activated it controlled two of the night fighter squadrons used overseas in World War II, the 414th and 425th. Both squadrons were based at March Field, California, and neither was operational. ADC owned two bases-- Mitchel in New York and Hamilton in California. Not a single search radar was in operation. ADC personnel totalled 7,218--ADC headquarters and the headquarters groups of First and Fourth Air Forces.<sup>4</sup>

█ In April 1946, as though the March statement of mission was not sufficiently ambiguous, the War Department further muddied the waters by furnishing Army Ground Forces (AGF) with a mission statement that said AGF would "prepare and execute planned operations for the defense of the United States...in conjunction with designated air and naval commanders." Army Air Forces objected to this statement on the grounds that two commands could not very well do the same thing at the same time, but the War Department was not swayed. In May 1946 the confusing arrangement was formalized in a document which recognized that both AAF and AGF had a vested interest in air defense.<sup>5</sup>

█ Less than a week after the issuance of the War

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4. ADC GO 16, 22 Apr 1946; ADC GO 22, 16 May 1946.

5. WD Circular 138, 14 May 1946.



Department directive, General Carl Spaatz, Commanding General, Army Air Forces, explained to Congress what he had in mind with respect to air defense. His testimony of 20 May 1946 gave the background for the creation of ADC:<sup>6</sup>

In view of the possibility of air attack in any future war...we feel that the air defense of the United States cannot be left to chance. There must be a commander responsible for it. We must be properly organized so there cannot possibly be an air surprise, such as occurred at Pearl Harbor. We hope and expect we will have enough appropriation to provide equipment and personnel to maintain radar stations open 24 hours a day instead of just during the normal working hours of the day. The Air Defense Command is established for this purpose.

This did not mean, however, that General Spaatz had any intention of assigning any appreciable portion of Air Force strength to ADC. This command, he told Congress, would be composed "principally" of National Guard and Air Reserve units. He went on to recommend establishment of an Air National Guard (ANG) of 84 squadrons and an Air Reserve which would include 22,500 pilots. As to the regular force, General Spaatz wanted 70 groups. Apparently Congress, representing the public, had no objection to AAF proposals as regards air defense, because General Spaatz was not questioned on this portion of his testimony.<sup>7</sup>

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6. House Hearings on the Military Establishment Appropriation Bill for Fiscal Year 1947, p. 414.

7. Ibid., pp. 407-08.

Fighter strength was almost totally lacking within ADC. The two night fighter squadrons originally assigned to March Field never operated from there. The 414th was released to TAC in July 1946. The 425th moved to McChord Field, Washington, in September 1946, where it was again provided with Black Widow fighters. Near the end of 1946, in November, the 14th Fighter Group was activated at Dow Field, Maine. It had only two squadrons, the 48th and 49th, equipped with P-47 fighters. Thus, at the end of 1946, ADC controlled three fighter squadrons, the equivalent of one of the 70 groups mentioned by General Spaatz in May.<sup>8</sup>

Meanwhile, General Stratemyer assumed that he was responsible for the air defense of the United States. He was also well aware that he could not defend against air attack if he had to depend on the ANG and the Air Reserve. At best, these organizations would not be available immediately and they were far from being at their best. The ANG was not organized until 25 April 1946 and it was to be years before it was manned, equipped, and adequately trained in air defense techniques. The Air Reserve was still haggling over which fields it was going to use for training.<sup>9</sup>

8. Maurer, pp. 209, 213, 507 and 522.

9. ADC to AAF, "Problems Confronting ADC in Dealing with Civilian Air Components," 16 Apr 1946 (App. IX in Hist of ADC, Mar 1946-Jun 1947).

Therefore, since he was likely to have only token forces he could call his own, General Stratemyer recommended, less than a month after taking office, that he be put in command of any available air defense forces (Air Forces, Ground Forces, or Navy) in an emergency. The AAF, however, did not think it necessary that ADC have more than "operational control" over forces outside the AAF in an air defense emergency. Besides, AAF apparently didn't want to fight the battle with the other services that the "command" proposal would surely entail. It was the opinion of AAF that invasion--aerial or otherwise--would cause the Joint Chiefs of Staff (JCS) to appoint a theater commander to supervise defense. AAF did not think the ADC commander would be the officer appointed. It was suggested that ADC coordinate its defense efforts with those of other services. As to the degree of ADC control over the fighter forces of SAC and TAC, AAF was studying the problem.<sup>10</sup>

Army Ground Forces, which was also given an air defense mission in the War Department directive of May 1946, attempted to be helpful in this situation by explaining, in June 1946, that it interpreted air defense to mean

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10. AAF to ADC, "Investment of Command Responsibilities for Land, Sea, and Air Forces in Event of an Air Invasion," 10 Jun 1946 (App. III in Hist of ADC, "Evolution of the Mission, March 1946-March 1947").

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"defense by air" which, when translated, meant that AGF intended to retain control of antiaircraft artillery (AAA). AAF, having in mind the British practice which assigned AAA to the Fighter Command, responded to the AGF contention by offering the opinion that the principle of unity of command applied in this instance. Therefore, said AAF, everything usable in air defense, including AAA, should be brought under a single commander. The War Department, however, refused to be budged from its earlier position, settling the controversy by announcing that the provisions of the May 1946 directive still stood. AGF retained AAA and an air defense mission. Thus was national policy on control of AAA decided. The public was unaware that an internecine struggle over control of the total air defense mission had occurred.<sup>11</sup>

Thus rebuffed from two directions, ADC settled into the job of organizing and granting Federal recognition to ANG units, organizing and training Air Reserve units and drafting agreements with the Ground Forces and Navy as to cooperation in time of air defense emergency. But ADC chafed under the "interim" mission of March 1946. On 5 August 1946, therefore, General Stratemyer proposed to

11. ADC Hist Study No. 4, Army Antiaircraft in Air Defense, 1946-1954, pp. 3-6 and 9-10.

AAF that, among other things, he be permitted to do the best he could, with available resources, to maintain an air defense "in being" along the most critical approaches to the United States. He also asked to be allowed to apprise AAF of the additional resources he required to mount a really effective air defense system and to begin to reorganize the civilian ground observer establishment disbanded in May 1944.<sup>12</sup>

The AAF reply was favorable in tone and requested ADC to prepare a plan for such an in-being air defense. ADC was cautioned, however, that none of the actions implied in the ADC proposals should actually be taken without specific AAF approval. In short, ADC was to be permitted to engage in plan-writing, but without any assurance that the mission would be changed or that any additional resources would, in fact, be provided.<sup>13</sup>

The AAF request of September 1946 actually resulted in two ADC plans, one submitted October 1946, the second the following month. The Air Defense Plan (Short Term) of 19 October 1946 was modest to an extreme. Although ADC

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12. ADC to AAF, "Mission of the Air Defense Command," 5 Aug 1946 (App. IV to Hist of ADC, Mar 1946-Jun 1947).

13. 1st Ind (ADC to AAF, "Mission of the Air Defense Command," 5 Aug 1946), AAF to ADC, 19 Sep 1946 (App. IV in Hist of ADC, Mar 1946-Jun 1947).

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controlled only a handful of fighter aircraft at that time, General Stratemeyer thought he knew where, in an emergency, he could lay hands on about 18 squadrons of fighters of, at best, about 50 percent efficiency, nine search radars, and one AAA group. With this strength he felt he could provide a moderately effective defense for one strategic area. He did not specify the area.<sup>14</sup>

There was no direct AAF reply to the plan submitted on 19 October 1946, but on 24 October AAF revealed to ADC where ADC stood in relation to the 70-group Air Force which was the postwar objective of the AAF and which AAF thought the public, through Congress, would approve. Under the 70-group plan, ADC was to be allocated one group (three squadrons to a group) of day fighters and three groups of all-weather fighters, for a total of 12 squadrons. ADC was also informed that AAF had decided to replace F-61 night fighters with P-82 fighters (the hybrid "Double Mustang" created by joining two P-51s with a center wing section) until an aircraft especially designed for all-weather use could be developed and built. This was not at all what ADC had in mind, however. The subsequent ADC

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14. ADC to AAF, "Establishment of an Active Air Defense of the United States," 19 Oct 1946 (Doc 23 in AFLC Case History of the AC&W System).

plan of 22 November 1946 said that five strategic areas (Boston-New York-Philadelphia-Washington, San Francisco, Chicago-Detroit, Los Angeles, and Seattle-Pasco) could be defended with 36 squadrons of manned interceptors, 24 ground radar installations, and 70 battalions of AAA. If AAF approved the ADC plan by the end of 1946, ADC predicted that it should be ready to defend New York-Philadelphia-Washington by April 1948, San Francisco by July 1948, Chicago by October 1948, Los Angeles by January 1949, Detroit by March 1949, Seattle-Pasco by May 1949 and Boston by July 1949. Although the War Department had decided to leave AAA with the Ground Forces, ADC was still hopeful that a large share of it could be made available to ADC.<sup>15</sup>

But nothing happened. AAF did not make specific reply to either ADC plan. It was not that nobody in AAF was interested. The problem was that there was some difference of opinion within the Washington headquarters as to what should be done about air defense. General Earle E. Partridge of AAF Operations recommended against the immediate establishment of a network of ground radar because it would be necessary to use World War II radar and might

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15. AAF to ADC, "Current AAF Plans and Programs," 24 Oct 1946 and ADC to AAF, "Establishment of an Air Defense in Being," 22 Nov 1946 as cited in ADC, Evolution of the Mission, March 1946-March 1947, pp. 27-39.

12

raise a public outcry against a "scandalous waste of public funds."<sup>16</sup> General Partridge recommended taking a calculated risk by postponing creation of a radar network "for a few years" until advanced radar equipment became available.<sup>17</sup>

Maj. Gen. O. P. Weyland of AAF Plans did not see the situation in quite that light. While General Weyland agreed that air defense had perhaps five years of grace before a fully operational network would be required, he contended that these five years should be spent in getting ready, making use of whatever equipment was available to provide the air defense organization with training that could be put to good use when advanced radar and advanced interceptor aircraft became available. "In the eyes of the public," he argued,

the chief mission of the Air Forces is the air defense of our country. We have consistently used this argument in substantiation of our requirement for an Air Force 'in being'....The American people would not tolerate uninterrupted attacks without warning against their cities by atomic-bomb-laden aircraft or guided missiles, even if the attacks were of a sporadic nature.<sup>18</sup>

16. Memo, AAF AC/AS-3 (Operations) to AAF AC/AS-4 (Materiel), "Proposed Air Defense Policy," 13 Mar 1947 (Doc 37 in AFLC Case Hist of the AC&W System).

17. Ibid.

18. Memo, AAF AC/AS-5 (Plans) to AAF AC/AS-3, "Proposed Air Defense Policy," 27 Mar 1947 (Doc 42 in AFLC Case Hist of the AC&W System).



The fact that Air Defense Command did not mean what the name implied was also revealed publicly in early 1947 when Hanson Baldwin wrote in the New York Times that ADC, through no fault of its own, would have to depend on the ANG and Air Reserve for combat strength because of a postwar military policy which called for a small professional force backed by semi-trained, part-time forces. He concluded that effective air defense did not exist in the United States, because it was palpably impossible for reserve forces to be instantly available in an emergency.<sup>19</sup>

Whatever the implications of the creation of the Air Defense Command in March 1946, there was no national policy on air defense in early 1947. Six persons of stature within the armed forces addressed this subject in House hearings between February and July of 1947 and each of the six men saw air defense in a different light. First came the hearings on the Army budget for Fiscal Year 1948. The basic War Department presentation was made by Lt. Gen. Charles P. Hall, a Ground Forces officer who was Director of Operations and Training on the War Department General Staff. On 17 February 1947, General Hall told the Appropriations subcommittee that the "Air Defense Command is

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19. New York Times, 2 Feb 1947.

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made up of six air forces that are in support of the six armies located in the United States. As the name implies, the Air Defense Command is composed of fighters to include night fighters for defense purposes--the P-61 and P-51."<sup>20</sup> It was true that ADC was organized into six air forces whose geographical boundaries roughly approximated those of the six continental armies, but ADC at no point believed that its primary mission was defense of the ground forces. It was also true that ADC had some fighters--one P-61 squadron of dubious capability at McChord and two P-47 squadrons of perhaps similar operational quality at Dow Field in Maine at the time General Hall spoke--but hardly a force adequate to support the six ground armies scattered around the country. Finally, the definition had to be stretched very broadly to count the P-51, or the P-47, as a night fighter.

When General Spaatz testified on 6 March 1947 he was questioned somewhat closely on the adequacy of air defense. His answer was somewhat oblique and did not even mention ADC. "Well," he said,

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20. Hearings before the Subcommittee of the House Committee on Appropriations on the Military Establishment Appropriation Bill for 1948, 17 Feb 1947, p. 17.

the only way to prevent them (missiles and bombs) from falling is to get them at the place they start from, and that is, primarily, our mission. But it will require combined operations of land, sea, and air forces to secure the outlying bases for ourselves from which to launch air attacks, or prevent such outlying bases from falling into the hands of an enemy and being used against us.<sup>21</sup>

This testimony was certainly no vote of confidence in the type of air defense ADC thought it was obligated to provide for the country. It was, instead, a throwback to the days before World War II when the "big bomber" school of thought held that a good offense was the best defense.

■ Lt. Gen. Ira C. Eaker, deputy to General Spaatz, testified the same day and, for some reason, expressed a somewhat different viewpoint. General Eaker described ADC in this manner:<sup>22</sup>

This organization (ADC) is charged with provision of the air defense organization for the continental United States. It mans the communications system, the electronic detection devices and the fighter defenses. Since the Air Reserve and Air National Guard are the primary elements of this system, the Air Defense Command has the peacetime function of supervising the Air Force phase of Air Reserve, Air National Guard and ROTC training and organization. It also mans and controls the complete air warning system. We learned from experience in the last war that it is necessary to have such a command in peacetime which stays home and in emergency undertakes at once the air defense of the country. We did not have such a command when the last war started and as a

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21. Ibid., p. 629.

22. Ibid., p. 633.

result it had to be organized under a period of great emergency and national strain. By having this organization prevalent in peacetime, much of the confusion will be eliminated in a future emergency and the defensive task will be accomplished with much greater economy and efficiency.

General Eaker's picture of ADC came somewhat closer to the picture ADC had of itself, although the statement that the ANG and Air Reserve were the "primary elements" of the system did not coincide with ADC visions of an in-being air defense.

The third high-ranking AAF officer to testify on 6 March 1947 was General Weyland, who came closest of all to the ADC view. "It is obvious," he said, "that at the start of a war we will be the recipient of an all-out surprise attack. From the air, such an attack will be against the industry and economy of the continental United States. Forces for defense against such a blow must be maintained in a state of immediate readiness."<sup>23</sup>

Subsequently, during House hearings on the measure calling for "unification" of the armed services (creation of a Department of Defense--originally National Military Establishment--superior to equal Army, Navy, and Air Forces), Robert P. Patterson, Secretary of War, revealed that he, James Forrestal (Secretary of the Navy), and

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23. Ibid., pp. 642-43.

President Harry Truman had, in January 1947, collaborated in writing a proposed Executive Order describing the functions of the three services. This Order, to be issued following passage of the National Security Act of 1947, included a passage covering air defense. The independent Air Force, it said, would provide "the means of coordination of air defense among all services."<sup>24</sup>

■ This weakly worded statement, of course, pleased nobody and merely reflected the national state of mind on the subject. Lt. Gen. Lauris Norstad, an Air Force officer who was Director of Plans and Organization in the War Department, later testified that he agreed with a conclusion of the Summary Report of the U. S. Strategic Bombing Survey, dated 1 July 1946, which said that "this establishment (an independent Air Force) should be given primary responsibility for passive and active defense against long-range attack on our cities, industries and other sustaining resources."<sup>25</sup> This, however, was not what the proposed Executive Order said.

■ Because there was obviously no agreement on what ADC was expected to do, it was not surprising that ADC

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24. Hearings before the House Committee on Expenditures in the Executive Departments (80th Congress, 1st Session, April-July 1947), pp. 80 and 90-91.

25. Ibid., p. 199.

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received no concrete instructions from higher authority in 1946 and early 1947. Undaunted by the lack of solid support from any decision-making quarter, ADC proceeded with the development of a long-range air defense plan. This plan, issued in April 1947, gave 1955 as a target date for realization and was predicated on AAF acceptance of the "in being" plan of November 1946 which called for 36 fighter squadrons in place and operational by the middle of 1949. The plan of April 1947 carried on from that point. Only the defense of the five critical areas mentioned in the November 1946 plan was considered in the April 1947 plan, but the defense area around each widened considerably. Since it had very little at the time and the prospects for the future were not bright, there was no good reason for ADC not to consider the sky as the limit in the long-range plan. Even so, there was still an air of fantasy about it. By 1955, the plan said, ADC should have 102 squadrons of manned interceptors, 249 squadrons of interceptor missiles, 325 battalions of AAA and an early warning network of 114 radar stations. Operation of this monstrous establishment was calculated to require the assignment of 700,000 men. Four thousand aircraft would be required.<sup>26</sup>

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26. ADC to AAF, "Air Defense Plan (Long Term)," 8 Apr 1947 (as cited in Hist of ADC, Mar 1946-Jun 1947, p. 30).

Although the April 1947 plan was apparently submitted to AAF with a straight face, it elicited absolutely no response. Everybody in Washington seemed to be involved in the campaign for Air Force independence. This effort was successful and the National Security Act of 1947 passed on 16 July 1947. The United States Air Force was established on 18 September 1947.

With this battle successfully concluded, interest in air defense in the in-being sense increased. On 9 November 1947, Chairman Thomas K. Finletter of President Truman's Air Policy Commission (appointed 18 July 1947, immediately after passage of the National Security Act) told the New York Times that "in these times air defense assumes a special importance in the creation of national policy."<sup>27</sup> The first Secretary of Defense, Mr. Forrestal, took the hint thrown out by Mr. Finletter and three days later made a public announcement that planning for a nationwide radar early warning system was underway. He added that such a system did not exist and that no plan for such a system had previously existed.<sup>28</sup>

This announcement made no mention of the fact that ADC had been doing such planning for 18 months or that ADC

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27. New York Times, 10 Nov 1947.

28. Ibid., 13 Nov 1947.

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even existed, but, no matter, since there was an indication that positive action was underway. Even before Mr. Forrestal made the public announcement, USAF began drawing up plans for an early warning network of 374 radar stations within the United States to feed information into 14 control centers. This network, to be complete by 30 June 1953, was estimated to cost (including 37 radar stations in Alaska) \$388 million. It was planned that the radar stations around the periphery of the United States would operate 24 hours of each day, while those in the interior of the country would operate on a part-time basis. It was anticipated that the National Guard would assist in manning the system. This plan, which drew heavily on earlier ADC thinking on the subject, was completed on 18 November 1947 and approved by General Spaatz three days later. It was no coincidence that the findings of the Finletter Committee, dated 1 January 1948 but known much earlier, included a conclusion that study fixed:

the target date by which we should have an air arm in being capable of dealing with an atomic attack on this country at January 1953....The force we need by the end of 1952 must possess the complicated defensive equipment of modern electronics and modern defensive fighter planes and ground defensive weapons. A radar early warning system must be part of our defense.<sup>29</sup>

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29. Report of the President's Air Policy Commission, "Survival in the Air Age," 1 Jan 1948, pp. 19-20.



While the USAF--cum ADC--plan for a radar early warning system did not meet the dates mentioned in the Finletter report, the thrust was in the same direction.

█ The New York Times editorialized in a similar vein on 3 December 1947. Commenting that witnesses before the Finletter group "hammered with all the force at their command at the fact that the nation's military security rests on adequate air defense," the Times concluded that while "pushbutton" war might be far in the future, what was needed was defense against the "here and now."<sup>30</sup>

█ All of this was of little immediate value to ADC, however. The interim ADC mission of March 1946 was replaced by a new USAF mission statement of 17 December 1947, but this document still described air defense as primarily a cooperative venture. In time of emergency ADC was to have "operational control" over all SAC and TAC aircraft which possessed air defense capability. The ANG potential was to be added as soon as it became available. ADC was adjured to inaugurate close and constant collaboration with SAC and TAC to make sure that everybody understood his air defense function in time of emergency. Only token in-being

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30. New York Times, 3 Dec 1947.

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interceptor forces were allocated to ADC--nine squadrons in a 55-group force, 12 squadrons in a 70-group force.<sup>31</sup>

During 1947 ADC received only four additional active duty fighter squadrons to add to the three it controlled at the end of 1946. The 2nd and 5th Fighter Squadrons transferred to Mitchel from Germany in June of 1947. The 317th activated at McChord in August of 1947, but moved to Hamilton in November. The 318th activated at Mitchel in May of 1947, but moved to Hamilton in December. All four of the new squadrons were equipped with P-61 night fighters. As to radar, the 505th AC&W Group formed at McChord in May 1947 for the primary purpose of dismantling and storing radars which remained from World War II. At the same time, however, the 505th put into operation search radars at Arlington, Washington, and at Half Moon Bay, near San Francisco. Both radars operated on a part-time basis and primarily for the purpose of providing ground-controlled interception (GCI) training for interceptor squadrons based nearby. To put it simply, the United States had no air defense at the end of 1947.<sup>32</sup>

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31. USAF to ADC, "Air Defense", 17 Dec 1947 (Doc 17 in Air Defense of the United States, ADC, Jun 1951).

32. Maurer, pp. 14, 34, 387 and 389; A Decade of Continental Air Defense, 1946-1956 (ADC, Jul 1956), p. 8.

## II. THE COLD WAR BEGINS, 1948-1950

■ Ominous rumors and events began to form a pattern in early 1948. On 24 February, a Communist coup in Czechoslovakia added that country to the group of Russian satellites in eastern Europe. On 5 March, General Lucius Clay, the American commander in Berlin, noted a new tenseness in his dealings with his Russian counterparts and expressed the opinion that some hostile move on the part of the Russians might come with dramatic suddenness. On 8 March, observers on the scene predicted that the Nationalist government of Chiang Kai-shek would lose mainland China to his Communist adversaries. On 12 March, the British government, sensing a change in the international political climate, said it felt a need to discuss Atlantic security with the United States.<sup>1</sup>

■ Against this background, the Air Force began seeking funds for construction of the ground radar network using plans developed in November 1947. This program was nicknamed SUPREMACY and draft legislation supporting it was prepared in January 1948. The Bureau of the Budget (BOB) had recommended that enabling legislation be obtained

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1. Warner R. Schilling, Paul Y. Hammond, and Glen H. Snyder, Strategy, Politics, and Defense Budgets (New York, 1962), pp. 40-41.

from Congress before any money was requested. In going this route, it was necessary to obtain Army and Navy concurrence before presenting the proposal to Congress. The Army concurred almost immediately, but the Navy procrastinated until 28 April 1948.<sup>2</sup>

The feeling of international tension also created some anxiety for the safety of the Atomic Energy Commission's plant at Hanford, Washington, and on 27 March 1948 General Spaatz ordered ADC to put the radar station at Arlington, Washington, on a 24-hour-a-day schedule and to activate four other radar stations in the area for operation on a 24-hour basis. He also directed SAC to move the 27th Fighter Group (P-51 aircraft) from Kearney, Nebraska, to McChord for use under ADC control. The ADC squadrons at Hamilton (P-61 aircraft) were also alerted as part of the force intended to defend Hanford. The results of this effort, when assessed in April 1948, indicated that the entire operation was close to a total failure. The P-51 aircraft provided by SAC were useless in the bad weather experienced in Washington. Besides, the SAC aircrews were not trained in ground-controlled interception techniques

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2. Memo, Gen. Hoyt Vandenberg, C/S, USAF to Stuart Symington, Secy AF, "Comments on Mr. Forrestal's Memo to the JCS, dated 1 July 1948," 30 Jul 1948 (Doc 12 in AFLC Case Hist of the AC&W System).

and cooperation with radar stations was poor. The P-61s were marooned at Hamilton because only three radar observers were available. Finally, the technicians assigned to the ground radars were mostly inexperienced trainees who had not mastered the intricate art of directing an interceptor to a precise point in the air. Despite the fiasco in the northwest, ADC was directed, on 23 April 1948, to extend this makeshift system to the northeastern United States and the Albuquerque area.<sup>3</sup>

The Navy delay in concurrence with SUPREMACY, coupled with a similar lack of urgency in BOB, killed all hopes that SUPREMACY would be approved by Congress in 1948. The Budget Bureau studied the proposed legislation until 24 May and then asked the Secretary of Defense a series of questions about it. These were answered before the end of the month, but, meanwhile, on 27 May 1948, Senator Chan Gurney of South Dakota introduced (without BOB clearance) a bill to authorize SUPREMACY. It was much too late, however, since 1948 was an election year. The 80th Congress,

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3. Msg, ADC to 4AF, 27 Mar 1948 (Doc 1 in Air Defense of Atomic Energy Installations, March 1946-December 1952, ADC, 5 Aug 1953), cited hereinafter as "Atomic Energy Defense Study,"; ADC to USAF, "Status of Continental Air Defense," 15 Apr 1948 (Doc 3 in Atomic Energy Defense Study); USAF to ADC, "Air Defense of the Continental United States," 23 Apr 1948 (Doc 4 in Atomic Energy Defense Study).

characterized by President Truman as the "Do Nothing" Congress, adjourned in June 1948, before hearings could be held on Senator Gurney's bill.<sup>4</sup>

SUPREMACY died with the 80th Congress, but Mr. Forrestal's interest in the matter of a ground radar network continued. Before a proposal was submitted to Congress in 1949, however, the Secretary of Defense wanted the Joint Chiefs to study SUPREMACY in detail to determine whether or not it was really feasible and, if so, the cost. Mr. Forrestal made his request on 1 July 1948 and wanted an answer by 1 October 1948. The Air Force, of course, was aware of this request and decided that the Secretary of Defense might be more willing to support a somewhat more austere "interim" radar network than that proposed in SUPREMACY, although Mr. Forrestal had approved Senator Gurney's bill. The revised plan was the work of Maj. Gen. Gordon Saville, head of the air defense group in USAF. The plan General Saville presented to the Secretary of Defense on 9 September 1948 called for a network of 61 radars--the five currently in operation, 19 World War II

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4. Memo, Gen. Hoyt Vandenberg, C/S, USAF to Stuart Symington, Secy AF, "Comments on Mr. Forrestal's Memo to the JCS, dated 1 July 1948," 30 Jul 1948 (Doc 12 in AFLC Case Hist of the AC&W System).

radars in storage but available, plus 12 CPS-6B and 25 FPS-3 sets to be produced in 1949 and 1950. Mr. Forrestal was warned that the proposed radar network was far from ideal, but represented what could be accomplished by 1952 with minimum funds. It was estimated that construction costs in connection with the interim system amounted to \$70 million, with \$45 million required in Fiscal Year 1949. Both Mr. Forrestal and the JCS felt the revised plan worthy of support and in October 1948 the Secretary of Defense released \$706,000 from his contingency fund to permit further planning and site surveys pending Congressional action in 1949.<sup>5</sup>

☛ Shortly after this action, the Air Force was re-organized in a manner that virtually disenfranchised ADC. On 1 December 1948, both ADC and TAC were absorbed into an organization called Continental Air Command (ConAC). This new organization also got nine fighter squadrons formerly assigned to SAC. The ConAC solution to the problems of ADC and TAC was unique in that it created a double-duty fighter force of respectable proportions. Those squadrons with air defense as a primary mission had ground support operations as a secondary mission while those with a primary

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5. Ibid.; Memo, Dir/P&O, DCS/O, USAF to Dir Installations, DCS/M, USAF, "Interim Program for Employment of AC&W Radar," 7 Oct 1948 (Doc 129 in AFLC Case Hist of the AC&W System).

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ground support mission had air defense as a secondary mission. ADC and TAC were retained, under the ConAC umbrella, as "operational commands." General Stratemyer was the first commander of ConAC.<sup>6</sup>

The immediate effect of the reorganization was the accretion of the nine SAC squadrons to the air defense force. These were the 1st Fighter Group (27th, 71st, and 94th Squadrons), the 56th Fighter Group (61st, 62nd, and 63rd Squadrons), and the 78th Fighter Group (82nd, 83rd, and 84th Squadrons). The 1st Fighter Group flew P-80 jet fighters, the others the P-51 Mustang. By a stroke of the pen the air defense fighter force increased from seven squadrons on four bases to 16 squadrons on six bases.<sup>7</sup>

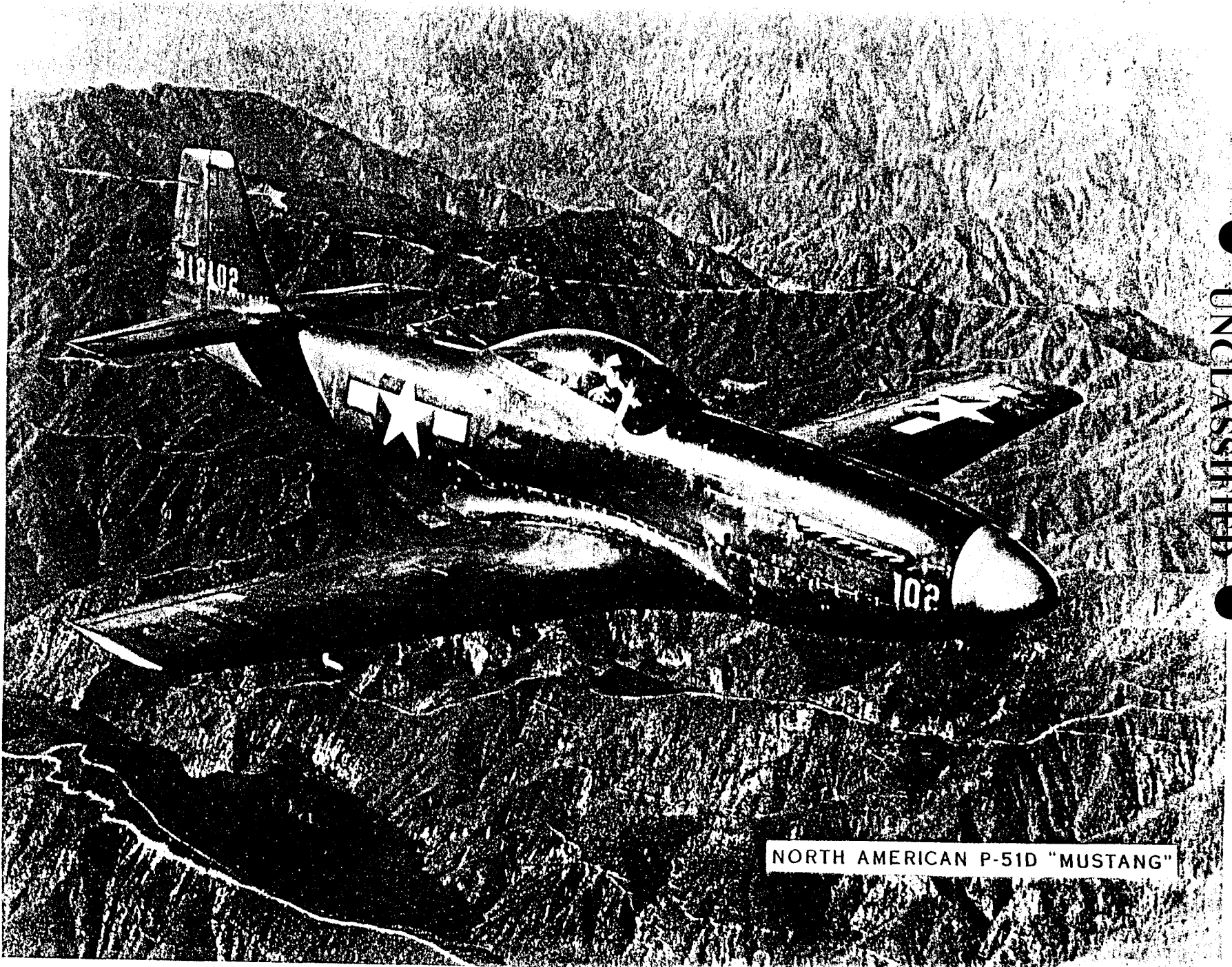
A House resolution authorizing the construction of the interim radar network was introduced on 9 February 1949. Between the time of the original 1948 planning and the introduction of legislation the size of the proposed system had grown by 14 radars, to a total of 75. Principal Air Force witness during the hearings, which began on 10 February 1949, was General Saville. None of the questioning of General Saville was hostile, although there was

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6. Executive Order 10,007, 15 Oct 1948; Hist of ConAC, 1949, pp. 1-12; ConAC GO No. 3, 1 Dec 1948.

7. Hist of ConAC, 1949, pp. 1-12; ConAC GO No. 3, 1 Dec 1948.





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some surprise at his statement that the proposed radar network would not guarantee absolute protection. His explanation that no air defense system could possibly guarantee absolute protection appeared to satisfy his questioners, however. In answer to a question that implied the existing air defense system was "not in very good shape," General Saville responded that "words would be (inadequate) to describe how poor it is. It is almost negligible."<sup>8</sup> There was no serious opposition to this resolution and it jumped the required legislative hurdles with relative ease. It became law on 30 March 1949.<sup>9</sup>

■ An authorization bill was simply that, however, and carried no funds with it. Money, unfortunately, proved exceedingly difficult to obtain. This difficulty could be traced directly to the replacement of Mr. Forrestal by Louis Johnson on 3 March 1949. It was soon discovered that reduction of expenditures amounted to an obsession with the new Secretary of Defense. During the regime of Mr. Johnson it proved hard enough to finance existing military programs, let alone new programs like the ground radar network. The Air Force planned to obtain part of the \$85 million thought necessary from a supplemental appropriation

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8. Hearings of the Subcommittee of the House Armed Services Committee on H. R. 2546, 10 Feb 1949, p. 338.

9. Public Law 30, 81st Congress.

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for FY 1949. The remainder was expected to come from the regular appropriation for FY 1950. This was not to be, however, as the Air Force discovered in April 1949 conferences with BOB. Acting under fiscal policies laid down by Mr. Johnson and approved by President Truman, BOB not only refused to authorize the inclusion of radar funds in the FY 1949 supplement, but also recommended that part of the required money be deferred to the FY 1951 budget. The Air Force contested this recommendation and obtained from the JCS a statement that the radar program had a high priority and should not be deferred. This statement had no effect on the budget makers, however, and the FY 1950 budget submitted to Congress included no funds for the radar network.<sup>10</sup>

Meanwhile, in the spring of 1949, the Air Force decided to put to use what radar equipment and facilities were immediately available to create a semblance of an in-being air defense system. The ground radar network thus

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10. Memo, Dir/Installations, DCS/M, USAF to Comptroller, USAF, "AC&W System," 15 Apr 1949 (Doc 154 in AFLC Case Hist of the AC&W System); Memo for Record, Lt. Col. W. C. O'Dell, Ofc of DCS/P&O, USAF, no subj, 2 May 1949 (Doc 157 in AFLC Case Hist of the AC&W System); Memo, DCS/P&O, USAF to DCS/O, USAF, "Proposed AC&W System," 17 May 1949 (Doc 158 in AFLC Case Hist of the AC&W System); Memo, Comptroller, USAF to DCS/M, USAF, "Additional Authorization for the Radar Screen," 1 Jun 1949 (Doc 164 in AFLC Case Hist of the AC&W System).

created was known, aptly enough, as LASHUP, since it raised the image of an obsolescent radar lashed to the top of a pole with a length of frayed rope. LASHUP began with the deployment of 18 radar stations in the northeastern United States in the spring of 1949. An air defense exercise in this area in June 1949 revealed that the interception of simulated hostile bombers was very difficult, especially since only five height finder radars were available for use with the 18 search radars. The performance of the search radars themselves varied from excellent to useless. The earlier evaluation by General Saville was underlined.<sup>11</sup>

The LASHUP system in the northeast was augmented by the use of civilian ground observers during a similar exercise in September 1949. General Stratemeyer had previously requested reorganization of the Ground Observer Corps (GOC), dissolved in 1944, but had been refused permission on the grounds that formation of a new GOC might lead the public to an unwarranted suspicion that war was imminent. In 1949, however, a similar request by Lt. Gen. Ennis C. Whitehead, who had succeeded General Stratemeyer as commander of ConAC in April 1949, was approved, but only for test use in connection with the September 1949

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11. A Decade of Continental Air Defense, 1946-56, (ADC, Jul 1956), p. 11.

exercise. The Office of Civilian Defense cooperated in the recruitment of civilian volunteers who supplemented the information provided by the LASHUP radars. It was generally conceded, when the exercise was concluded, that the civilian observers had made a useful contribution. The total exercise, however, was scarcely more encouraging than the one held the previous June.<sup>12</sup>

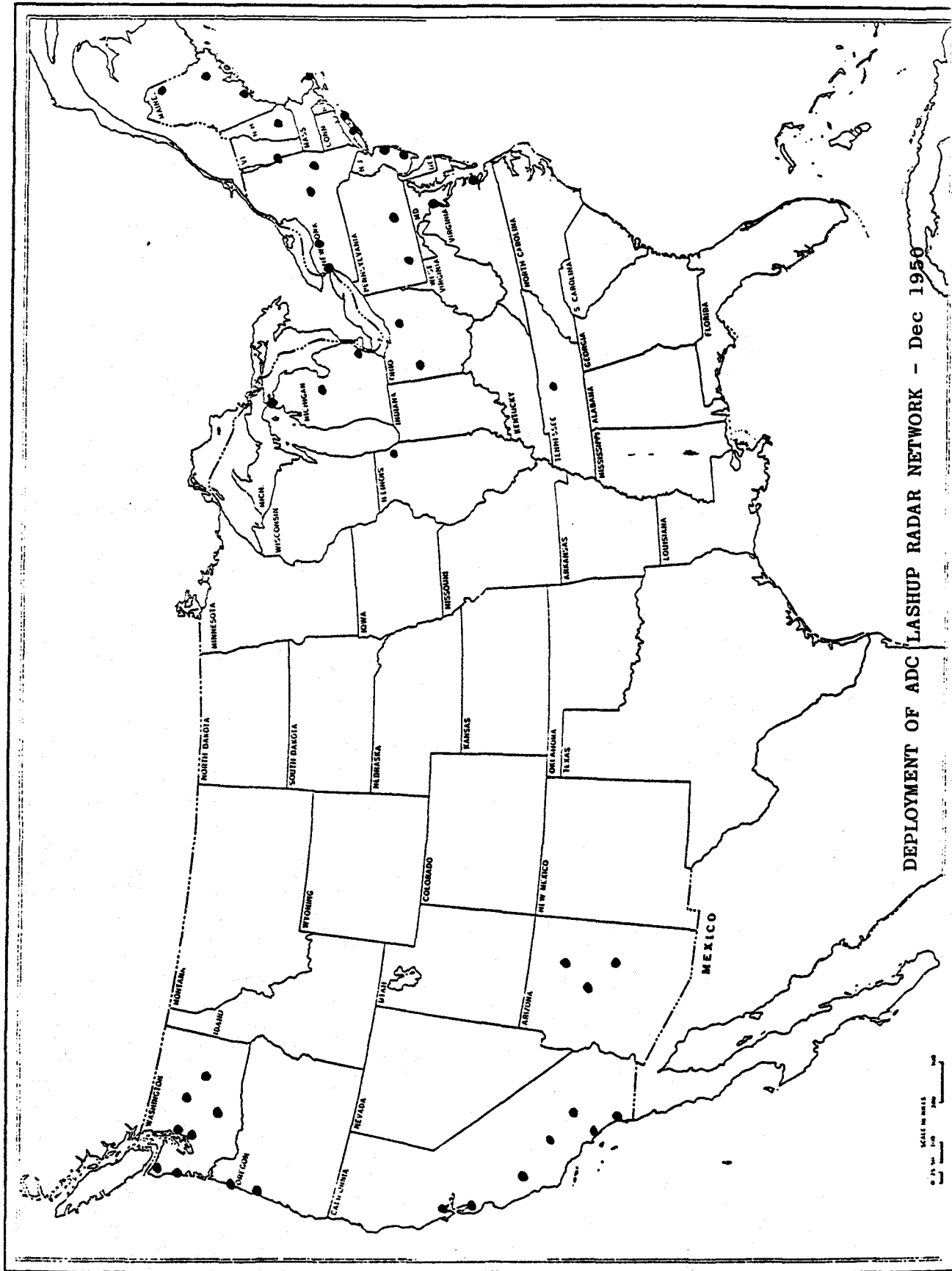
The international tremors of early 1948 resulted in Congressional authorization, however belated, of a 75-station radar early warning network, although no money was provided for it. A new and more ominous factor was added to the air defense equation on 29 September 1949 when President Truman announced publicly that the Soviet Union had produced an atomic explosion in August. Public interest in air defense quickened. In response to that quickened interest, General Omar Bradley, Chairman of the JCS, told the New York Times on 12 October 1949 that construction of the authorized radar fence was an urgent military requirement. Without it, he added, an atomic attack on the industrial heart of the nation was entirely possible.<sup>13</sup>

(U) Congress also responded to the heightened sense of danger by changing the Fiscal Year 1950 budget to permit

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12. Hist of ConAC, 1949, pp. 77-82.

13. New York Times, 13 Oct 1949.



DEPLOYMENT OF ADC LASHUP RADAR NETWORK - Dec 1950

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the construction of the 75-station radar network (known as the Permanent System to distinguish it from the makeshift LASHUP system) to begin. When passed on 29 October 1949 the appropriation bill contained five million dollars for that purpose. Also, the Air Force was authorized to transfer \$50 million from other projects to the radar program. The Air Force did not relish the prospect of starving other programs, but felt that the Permanent System was so important that in early November 1949 it decided to divert \$33 million from the fund for operations and maintenance and \$17 million from the fund for the construction of aircraft to start construction of the radar network as quickly as possible.<sup>14</sup>

With construction of the radar network apparently assured, it was possible to turn to the question of weapons to be used in conjunction with the ground-bound early warning system. It was fairly obvious by late 1949 that the regular air defense force--20 fighter squadrons at that time--was inadequate. How, then, did the ANG fit into this situation? At that time the postwar reorganization of the ANG was about two-thirds complete. It comprised a

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14. Public Law 434, 81st Congress, 29 Oct 1949; Memo, Symington to Vandenberg, no subj, 31 Oct 1949 (DRB C/S Files 1949, Nos. 25101-25200); Memo, Maj. Gen. W. F. McKee, Asst Vice C/S, USAF to Symington, no subj, 9 Nov 1949 (USAF Hist Study No. 126, The Development of Continental Air Defense to 1954, p. 30).

considerable reservoir of fighter strength. In an emergency, USAF estimated in November 1949, possibly 70 percent of the total interceptor force would be provided by the ANG. Impossible, ConAC replied, since in peacetime the ANG was under the control of individual states. There was no way, ConAC reasoned, that the ANG could be considered part of the in-being air defense force. It was recommended, instead, that ANG units with an air defense mission be given an air transport or ground support mission and the void in air defense be filled with regular air defense squadrons.<sup>15</sup>

From the standpoint of practical politics, however, the ConAC solution was simply not feasible. The ANG was proud of its important mission in the defense of the country and any attempt to relegate any considerable portion of the ANG to air transport duties was sure to rouse the ire of a good many state governors and to raise a political storm that might take years to calm. Near the end of 1949, ConAC reluctantly conceded that the political realities must be recognized and agreed that the most that could be done in this situation was to convince the individual states that it was in their own best interests to stifle their

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15. ADC Study No. 23, The Air National Guard Manned Interceptor Force, 1946-1964, (Jul 1964), p. 23.

previous intractability to Air Force direction and to submit to a greater degree of ConAC control to improve the readiness of those units with an air defense mission. This concession, however, did nothing to improve the in-being strength of the air defense force.<sup>16</sup>

~~The~~ Action to put into effect the in-being air defense system authorized by USAF in April of 1948 was slow because of the continuing dearth of resources. One preliminary step in this direction was taken 1 September 1949 when ConAC created the Eastern and Western Air Defense Forces (EADF and WADF) to assume the air defense responsibilities formerly held--primarily on paper--by the six numbered air forces of the earlier ADC. The dividing line between the two commands was the 103rd meridian. In November 1949 EADF asked that it be permitted to use nine LASHUP radars and nine interceptor squadrons to provide, during daylight hours, a skeleton air defense system covering the area from Bangor, Maine, to Norfolk, Virginia. ConAC approved the operation of such a system, but only on a six-hour day, five-day week schedule, effective 12 January 1950. Almost simultaneously, on 2 December 1949, USAF asked the Army Corps of Engineers to proceed with construction of the first 24 sites of the

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16. Ibid., pp. 21-23.

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permanent radar network.

Partly because of complaints that Boeing was being forced to transfer aircraft production from Seattle to Wichita by reason of the inadequate air defense of the Pacific northwest, the 25th Air Division, which was charged (under WADF) with the air defense of that area, instituted around-the-clock operations in February 1950. The same month, even though Congress had not yet passed enabling legislation, USAF authorized ConAC to organize a permanent GOC. The ConAC plan developed as a result of this authorization proposed 8,000 ground observer posts and 26 filter centers, mainly around the periphery of the country. On 8 April 1950, USAF authorized ConAC to use armed interceptors in defense of the East Coast and Atomic Energy Commission installations. Thus, four years after the establishment of ADC, a miniscule in-being air defense force was taking shape.<sup>17</sup>

The Cold War suddenly became hot on 25 June 1950 when North Korea invaded South Korea. This was a far

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17. EADF to ConAC, "Initiation of Active Air Defense for Vital Coastal Zone," 16 Nov 1949 and 1st Ind, ConAC to EADF, 2 Dec 1949 (Doc 310 in Hist of ADC, Jan-Jun 1951); Congressional Record, House, 12 Jan 1950, p. 357; 1st Ind (ConAC to USAF, "Implementation of Ground Observer Corps-Aircraft Warning Service," 15 Dec 1949), USAF to ConAC, 3 Feb 1950 and 2nd Ind, ConAC to USAF, 27 Feb 1950 (Doc 203 in Hist of ADC, Jan-Jun 1951).

corner of the world, to be sure, but it was concrete evidence of Communist intentions and breached the Truman Doctrine of containment, one of the pillars of the U. S. foreign policy. The United States, under United Nations auspices, went to the assistance of South Korea. The North Korean action also underlined the need for improvement of the air defenses of the United States. General Whitehead's first reaction to this new situation was to request, on 15 July 1950, the immediate federalization of 20 fighter squadrons of the ANG. There were two good reasons for the request. Attempts to improve ANG responsiveness to ConAC instructions had not improved and federalization would solve this problem. Besides, federalization would nearly double the size of the interceptor force. USAF was not ready to take such a drastic step, however, and pointed out that the geographic distribution of interceptor squadrons would be improved by recent USAF approval of the dispersal of the 23 existing interceptor squadrons to 14 bases. In addition, ConAC was reminded that the proposed addition of 12 regular interceptor squadrons in Fiscal Year 1951 would provide protection for all areas of the United States which USAF believed required protection.<sup>18</sup>

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18. ConAC to USAF, "Air Defense Augmentation," 15 Jul 1950 and 1st Ind, USAF to ConAC, 1 Aug 1950 (Doc 91 in Hist of ADC, Jan-Jun 1951).

When this request was repeated in December of 1950, however, USAF was more receptive and approval was granted for the federalization of 23 ANG fighter squadrons in 1951. The decision had just been taken (in November 1950) to re-create an independent Air Defense Command in January 1951 and base it in Colorado Springs, Colorado, where it would occupy buildings formerly used by the Fifteenth Air Force.<sup>19</sup>

Whatever the status of the interceptor force, Congress and the public seemed more interested, in late 1950, in the progress of the permanent radar network. Unfortunately, performance fell far short of promises. Following the commencement of hostilities in Korea, Representative Carl Vinson of Georgia, chairman of the House Armed Services Committee, announced that he wanted periodic progress reports on this subject. At the first of these sessions, on 8 August 1950, both Air Force and Corps of Engineers representatives testified that with an additional \$2,500,000 it might be possible to complete construction of the first 24 radar stations by 1 November 1950. The Vinson group

19. ConAC to USAF, "Use of ANG Units in the Air Defense of the United States," 6 Dec 1950 (Doc 92 in Hist of ADC, Jan-Jun 1951); Hist of ADC, Jan-Jun 1951, p. 129; ConAC to USAF, "Separation of the Headquarters, Air Defense Command from Headquarters, Continental Air Command," 24 Oct 1950 and 1st Ind, USAF to ConAC, 17 Nov 1950 (as cited in pp. 214-215, Hist of ADC, Jan-Jun 1951); AF Reg 23-9, 15 Nov 1950.

professed dissatisfaction with the rate of progress, since orders to proceed had been issued the preceeding December.<sup>20</sup>

The Air Force thereupon suggested that the Corps of Engineers use overtime, double work shifts, and other devices to hasten construction. All this, however, required extra money. To get the funds needed, Mr. Thomas K. Finletter, newly appointed Secretary of the Air Force, informed the Secretary of Defense on 1 September 1950 that he proposed to ask for an additional \$40 million in the First Supplemental Appropriation for Fiscal Year 1951 and \$9 million in the Second Supplemental. These sums were in addition to the \$31 million included in the regular appropriation for FY 1951. This request flew directly in the face of the financial policies previously enforced by the Secretary of Defense, but in view of the obvious serious interest of the Vinson Committee and Chairman Lyndon Johnson of the newly created Senate "Watchdog" committee the Finletter request was approved.<sup>21</sup>

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20. New York Times, 9 Aug 1950.

21. Memo, Dir/Comm, USAF to C/S, USAF, "Acceleration of Construction Program for First 24 AC&W Sites of ConAC," 16 Aug 1950 (Doc 303 in AFLC Case Hist of the AC&W System); ACM to OCAMA, "Permanent AC&W Program (Project Speed)," 13 Sep 1950 (Doc 326 in AFLC Case Hist of the AC&W System).

The Air Force again faced Mr. Vinson and his colleagues on 3 October 1950. This time John A. McCone, Under Secretary of the Air Force, did the testifying. To the discomfiture of the Air Staff, Mr. McCone said the first 24 radar sites would be completed, equipped, and manned by 1 March 1951 and that the entire network of 75 radars (plus 10 control centers) would be complete by 1 July 1951. Mr. Vinson was highly pleased with this report.<sup>22</sup>

The McCone testimony was far from the truth, however, and this fact was well known within the Air Staff, although protocol did not permit contradiction of the Under Secretary. Mr. McCone got an inkling of the true situation in late November of 1950 when he visited McChord to inspect what was expected to be the first of the permanent radar sites to go into operation. He discovered that no firm operational date could be forecast because of a shortage of spare parts. This situation was likely to affect all stations in the permanent radar network. Following this revelation, Mr. McCone found it necessary, on 6 December 1950, to inform Mr. Vinson that it would be impossible to complete either the first 24 sites by

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22. New York Times, 4 Oct 1950.



1 March 1951 or the entire system by 1 July 1951. Mr. McCone explained that the earlier promise had been based on the transfer of old radars to the new sites, but that in view of the world situation the Air Force had decided to use only new equipment at the permanent sites. Therefore, completion of the system would be delayed from one to four months. The full Vinson radar subcommittee was briefed on the changed situation on 15 December 1950. At that time it was predicted that the full system would be operationally ready by 1 November 1951, another prediction that, in the fullness of time, proved to be no more candid than earlier predictions. The reaction of Mr. Vinson to the updated prediction was not recorded.<sup>23</sup>

At the end of 1950, then, all the necessary authorizations had been signed and adequate funds had been provided for the re-establishment of an air defense system similar to that of World War II. Improved radar and better interceptors were under development, but the concept behind the new system was very like that of the World War II system. It was the mission of the new Air Defense

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23. McCone to Vinson, no subj, 6 Dec 1950 (Doc 385 in AFLC Case Hist of the AC&W System); Report, Programs Analysis Div, USAF, "Status of Radar Screen," 19 Dec 1950 (Doc 392 in AFLC Case Hist of the AC&W Screen).

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Command (commanded by General Whitehead), to build and operate that system.

## III. THE MANUAL AIR DEFENSE SYSTEM, 1951-1955

The new ADC got right to work in bringing the ANG into federal service. Fifteen squadrons were called into federal service on 10 February 1951:<sup>1</sup>

<u>Squadron</u>	<u>Home Base</u>	<u>Aircraft</u>
113th	Stout Field, Indiana	P-51
116th	Geiger Field, Washington	P-84
118th	Bradley Field, Connecticut	P-47
121st	Andrews AFB, Maryland	P-84
123rd	Portland Airport, Oregon	P-51
132nd	Dow AFB, Maine	P-80C
133rd	Grenier AFB, New Hampshire	P-51/P-47
134th	Burlington Airport, Vermont	P-47
142nd	New Castle Airport, Delaware	P-84
148th	Reading Airport, Pennsylvania	P-51/P-47
163rd	Baer Field, Indiana	P-51
166th	Lockbourne AFB, Ohio	P-84
172nd	Kellogg Field, Michigan	P-51
176th	Truax Field, Wisconsin	P-51
188th	Kirtland AFB, New Mexico	P-51

Six more were called up on 2 March 1951:<sup>2</sup>

105th	Berry Field, Tennessee	P-47
109th	Holman Field, Minnesota	P-51
126th	Mitchell Field, Wisconsin	P-80A
136th	Niagara Falls Airport, N. Y.	P-47
175th	Sioux Falls Airport, S. D.	P-47
179th	Duluth Airport, Minnesota	P-51

Therefore, since two regular Air Force interceptor squadrons were also activated at Presque Isle AFB, Maine, in January 1951, the size of the air defense interceptor force

1. EADF GO 3, 9 Jan 1951; EADF GO 15, 10 Feb 1951; WADF GO 15, 9 Feb 1951.

2. EADF GO 27, 2 Mar 1951.

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grew from 21 squadrons at the end of 1950 to 44 squadrons by the end of March 1951. All of the federalized ANG squadrons remained with ADC for the full term of their tour of federal duty, except the 116th, which moved to England in August 1951.

One of the earliest problems of the new ADC, it followed, was the digestion of this mass of additional aircraft and personnel. Most of the ANG aircraft were obsolete P-47 and P-51 types left over from World War II. Under development or in production, however, were F-94, F-89, and F-86D all-weather interceptors that, in time, would replace the older aircraft. Many of the ANG aircrews were also either inexperienced or rusty in their flying skills and an intensive training program was instituted. Finally, some of the federalized squadrons were not properly located from an air defense standpoint and 10 changed location in early 1951:<sup>3</sup>

<u>From</u>	<u>To</u>
Reading (Pennsylvania)	Dover AFB (Delaware)
Stout Field (Indiana)	Scott AFB (Illinois)
Kellogg Field (Michigan)	Selfridge (Michigan)
Mitchell Field (Wisconsin)	Truax Field (Wisconsin)
Bradley Field, (Connecticut)	Suffolk County AFB (New York)
Holman Field (Minnesota)	Wold-Chamberlain (Minnesota)
Kirtland AFB (New Mexico)	Long Beach Airport (California)

3. Hist of EADF, Jul-Dec 1951, pp. 6-25; Hist of CADF, Mar-Jun 1951, p. 59; Hist of WADF, Jan-Jun 1951, p. 8.

<u>From</u>	<u>To</u>
Sioux Falls Airport (S. D.)	Ellsworth AFB (S. D.)
Baer Field (Indiana)	Sioux City Airport (Iowa)
Berry Field (Tennessee)	McGhee-Tyson Field (Tennessee)

Progress with respect to the ground environment needed to properly direct and control the interceptor force was much slower than the accretion of aircraft. It was in this area, too, that Congress displayed the most interest. As early as February 1951 ADC had reached the tentative conclusion that the 1 November 1951 completion date given the Vinson Committee in December 1950 was also unrealistic. A new target of 1 January 1952 was recommended.<sup>4</sup>

The Air Force, meanwhile, maintained an optimistic stance where Congress was concerned. When asked, on 6 July 1951, if the promised 1 November 1951 date for completion of the permanent radar system was still firm, Maj. Gen. F. L. Ankenbrandt, USAF Director of Communications, answered with an unqualified yes. The House subcommittee on the Air Force appropriation was apparently satisfied with this answer.<sup>5</sup>

4. Presentation of ADC Dir/C&E at ADC Commander's Conference, 15 Feb 1951 (as cited in Hist of ADC, Jan-Jun 1951, pp. 106-107).

5. Hearings on Air Force Appropriations for FY 1952, House Appropriations Committee (pp. 235, 240, and 594).

The 1 November 1951 date was not met, primarily because the manufacturers of radar equipment could not meet the delivery dates specified in the contracts written in 1950. Necessary construction at the 75 sites was completed (the technical term for completion was "beneficial occupancy") by the end of 1951, but the installation of equipment was not completed until 27 May 1952. The situation was well-known in the upper echelons of the Air Force, but the only action considered feasible was to urge contractors to greater effort and hope that Congress would not be too unhappy over the failure to meet promised completion dates.<sup>6</sup>

While the 75-station permanent radar network was being pushed to completion, ADC studied the possibility of using additional ground-based radars to protect SAC bases and to fill open spaces in the permanent network. First discussed in the summer of 1950, this supplementary network was planned to include 44 mobile radars. By early 1951 this plan had been refined to the point where it was proposed that the mobile radars not used to defend SAC bases be used in partial accomplishment of a double radar perimeter around the major target areas in the Northeast

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6. A Decade of Continental Air Defense, 1946-1956 (ADC, Jul 1956), p. 12.

and along the Pacific Coast. The principle of supplementation was accepted by USAF in July 1951. At the same time, USAF also approved the establishment of eight ADC radars in Canada.

Cooperation with Canada in air defense matters went back to 1940 and had continued after World War II. In the spring of 1951 the two countries agreed (at the military level) that 35 radar stations should be built in Canada. Twenty-two of these were to be financed by the United States, with eight coming under ADC control. The remainder were to be within the jurisdiction of the U. S. Northeast Air Command. Despite USAF approval of these proposals, both were still in study status at the end of 1951. Neither had been presented to either the Department of Defense or Congress and neither had been mentioned in public.<sup>7</sup>

Other measures were also taken in 1951 to improve the air defense system. A continuing effort was made to recruit and train additional members of the GOC. To check progress a nationwide GOC exercise involving 210,000 civilian volunteers was held on 23-24 Jun 1951. The results

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7. USAF to ADC, "Air Defense Command Responsibilities with Respect to the USAF World-Wide Radar Program," 10 Jul 1951 (Doc 188 in Hist of CADF, Jul-Dec 1951); Hist of ADC, Jul-Dec 1951, pp. 18-21.

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were not encouraging. Analysis revealed that it required an average of 8.1 minutes to pass an aircraft sighting from the observation post to the point where interceptor aircraft were controlled. Most of the delay was traced to the GOC filter center, where an average of 3.4 minutes were consumed between receipt and transmission of information. The need for improvement was evident, but improvement was difficult, because the GOC, like the ANG, was recruited by the individual states and standards varied widely from state to state.<sup>8</sup>

The possibility of using airborne search radar to extend off-shore radar coverage was also studied. The Navy used specially equipped B-17 bombers for this purpose in World War II and it was on Navy experience that the Air Force proposed to build. In late 1949, USAF directed ConAC to observe Navy operations in this field (the Navy had meanwhile shifted its attention to the Lockheed Constellation as the best aircraft for the purpose) and to report on air defense applications. The ConAC report of mid-1950 was favorable, so, in January 1951, USAF asked the Air Proving Ground to actively monitor Navy tests of the Constellation (Air Force designation: C-121). By April of

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8. "Report of Air Defense Exercise, 22-24 Jun 1951," EADF, undated (Doc 610 in Hist of EADF, Jul-Dec 1951).



1951 ADC was sufficiently impressed with the performance of the Navy equipment that it requested the purchase of 40 C-121 Airborne Early Warning and Control (AEW&C) aircraft for deployment in five squadrons of eight aircraft each. USAF agreed that AEW&C operations were feasible and desirable and later in 1951 initiated procurement of C-121s for this purpose. Delivery was expected in 1953.<sup>9</sup>

Despite the great flurry of activity that produced the in-being air defense ADC believed was imperative, there was a gnawing realization that this system was only the re-creation of the World War II system with somewhat improved equipment. The most optimistic estimates of 1951 were that the air defense establishment might destroy 30 percent of an invading bomber force. These estimates produced a certain air of pessimism among some influential individuals. For example, General Hoyt S. Vandenberg, USAF Chief of Staff, took the position in a Saturday Evening Post article published in February 1951 that limitless funds should not be thrown into what he called "static defense" for fear of reducing to impotency the strategic and tactical arms of USAF. This, of course, was a

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9. ADC to USAF, "Requirement for Airborne Early Warning and Control Equipment," 9 Apr 1951 (Doc 195 in Hist of ADC, Jan-Jun 1951); USAF to ADC, "Requirement for an Airborne Early Warning and Control Evaluation Study," 27 Nov 1951 (Doc 23 in Hist of ADC, Jul-Dec 1951).

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re-statement of the long-standing theory that a good offense was the best defense.<sup>10</sup>

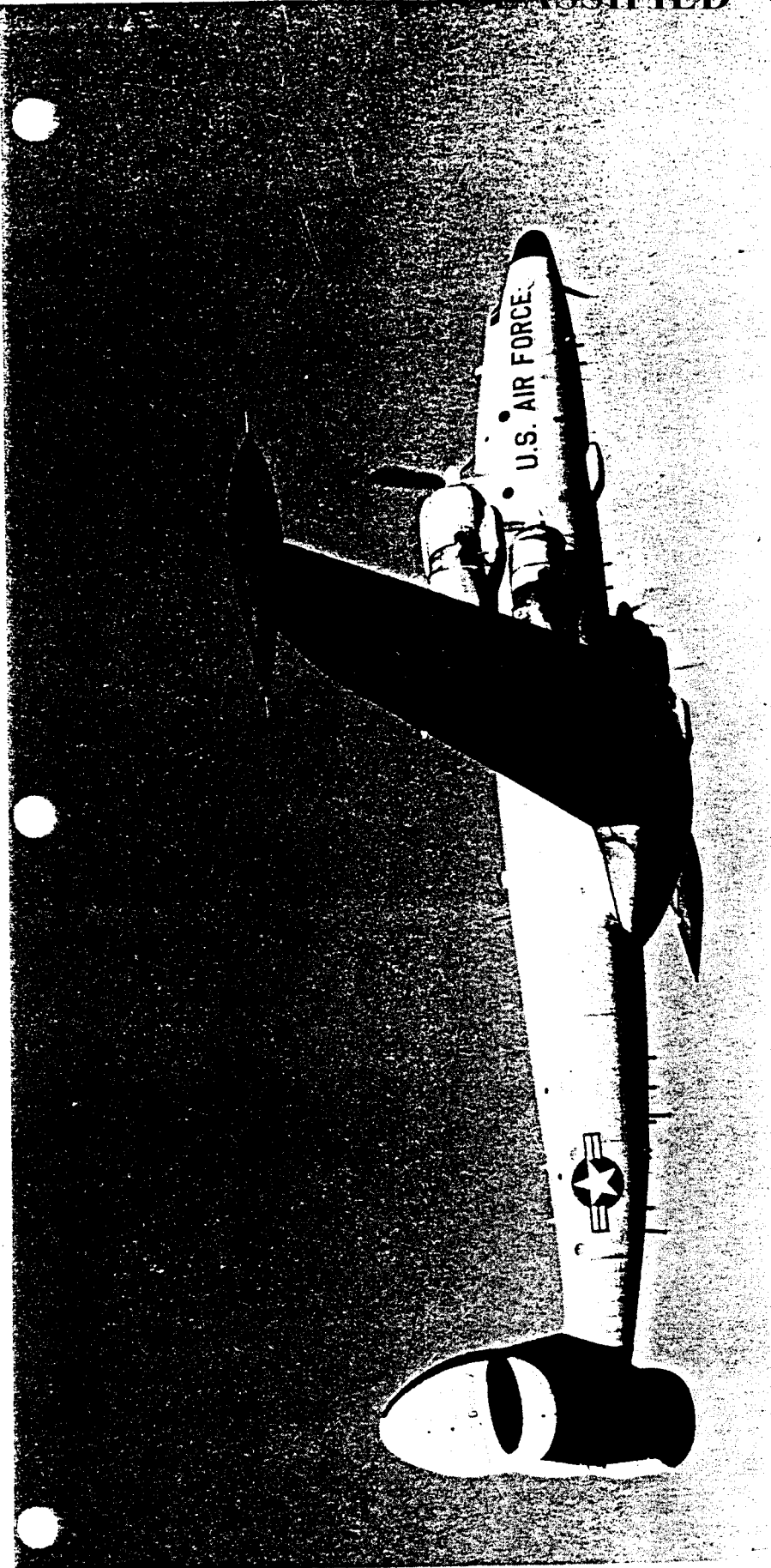
Mr. Finletter had access to the same statistics General Vandenberg used, but his reaction was that an attempt should be made to improve the air defense system currently under construction. To this end, he approved, in January 1951, a recommendation of the Air Defense Systems Engineering Committee of the Air Force Scientific Advisory Board that Western Electric be hired to, among other things, make suggestions as to how the air defense system might be improved. About the same time, USAF asked the Massachusetts Institute of Technology (MIT) to undertake a study of the general problem of air defense and to recommend solutions. The Western Electric effort became known as the Continental Air Defense System (CADS) Project and the MIT study was given the code name of PROJECT CHARLES.<sup>11</sup>

The study which proved to have lasting effect on air defense was PROJECT CHARLES. Although the contract

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10. Gen. Hoyt S. Vandenberg, "The Truth About Our Air Power," Saturday Evening Post, 17 Feb 1951.

11. Memo, Thomas K. Finletter, Secy AF for Gen. Hoyt S. Vandenberg, C/S, USAF, no subj, 26 Jan 1951 and USAF to ADC, "Continental Air Defense Systems Project (Western Electric-Bell Telephone Laboratories Contractor)," 8 May 1951 (as cited in ADC Hist Study No. 33, The Birth of SAGE, 1951-1958, pp. 1-2).



C-121



covering this study was administered by MIT, only 11 of the 28 scientists and engineers involved in the original six-month effort (Phase I) were members of the MIT faculty. Director of the group was Dr. F. W. Loomis, head of the physics department at the University of Illinois. Chairman of the Phase I panel studying aircraft warning and control was Dr. George E. Valley, Jr., of MIT. Phase II, which began before Phase I ended was conducted by the MIT Research Laboratory and directed toward experimental solutions to air defense problems. Phase III was expected to be a research and development program based on information gained during Phases I and II.<sup>12</sup>

The key finding of the Phase I study, forwarded to the Air Force on 1 August 1951, was that "the electronic high-speed digital computer will have an important place in air defense and the revolution that the transistor will bring about in electronics will open up quite new possibilities in aircraft and weapons control."<sup>13</sup> This was indeed a revolutionary idea, since automation was just beginning to come into use in industry and its future was but dimly seen. MIT proposed to test the concept with its WHIRLWIND digital computer, built in 1947, and a proposed

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12. ADC Study No. 33, The Birth of SAGE, 1951-1958, pp. 2-3.

13. Ibid., p. 4.

experimental "Cape Cod Air Defense System" of 10 to 15 radars of the height-finder and gap-filler types.<sup>14</sup>

The recommendations of PROJECT CHARLES were accepted by the Air Force and in September 1951 MIT was given a contract which directed it to proceed with the research indicated in the August report. MIT thereupon established Lincoln Laboratory to build the model Cape Cod system and conduct the necessary experiments. Secretary Finletter characterized Lincoln Laboratory as the "Manhattan Project of air defense."<sup>15</sup>

There was not universal agreement with the findings of PROJECT CHARLES, however. In early 1952, according to Fortune, a small group of eminent scientists gathered for the purpose of gathering evidence to show that PROJECT CHARLES did not move either far enough or fast enough in providing an iron clad air defense system for the United States. This group called itself ZORC after the names of the members--Drs. Charles L. Zacharias, J. Robert Oppenheimer, I. I. Rabi, and Charles Lauritzen. The motivation of ZORC, Fortune contended, lay in what was essentially a moral struggle, with possible political overtones, between

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14. Ibid.

15. Samuel P. Huntington, The Common Defense, (New York, 1961), p. 329. Hereinafter cited as "Huntington".

scientists who had opposed development of the hydrogen bomb and a segment of Air Force opinion which held that thermonuclear weapons were the only practical deterrent to expansion of the Communist powers. The ZORC rationale was simple. If an impregnable air defense could be erected there was no need for nuclear offensive weapons.<sup>16</sup>

The next step along the trail blazed by PROJECT CHARLES was a meeting of the Lincoln Summer Study Group in the summer of 1952. About 30 scientists, both inside and outside Lincoln Laboratory, met on this occasion to discuss what could, or should, be done. Fortune claimed that ZORC was instrumental in the formation of the Summer Study Group and that during war games ZORC strategists not only drafted the tactics of the Soviet Long Range Air Force but those of the defenders as well. One non-ZORC participant reputedly commented that ZORC showed a fine grasp of electronics, but lost the simulated war.<sup>17</sup>

Although the Summer Study Group did not accept all ZORC proposals, it did conclude that the Soviet Union would have enough bombers and atomic bombs to cripple the United States within two or three years and that existing and

<sup>16.</sup> \_\_\_\_\_, "The Hidden Struggle for the H-Bomb," Fortune, May 1953.

<sup>17.</sup> Ibid.

planned defenses were inadequate and improperly integrated and, at best, could achieve a kill probability of no better than 20 percent. The Group also concluded that concentrated effort and expected technological breakthroughs could produce an air defense system that offered a kill probability of 60 to 70 percent. Specifically, the Group recommended construction of a distant early warning (DEW) line of radar across Northern Canada and integrated and fully-automatic control of the air defense system. It was admitted that such improvements, plus improved interceptors and air-to-air missiles, would cost several billion dollars.<sup>18</sup>

The Air Force did not approve the report of the Summer Study Group nor did it recommend transmission to the National Security Council (NSC). Nevertheless, the closely held report got into the hands of Jack Gorrie, Chairman of the National Security Resources Board (NSRB). In September 1952, Mr. Gorrie took the report before the NSC and recommended that construction of the DEW Line begin at once. This action prompted Brig. Gen. John K. Gerhart, Deputy Director of Operations, USAF, to make a comment similar to one made earlier by General Vandenberg. "The Air Force position in the development of new air defense systems," General Gerhart wrote in November 1952, "is being

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18. Huntington, pp. 329-30; Pers ltr, Lt. Gen. L. C. Craigie, DCS/D, USAF to Gen. Benjamin W. Chidlaw, Cmdr, ADC, no subj, 23 Jul 1952 (Doc 22 in Hist of ADC, Jan-Jun 1952).



forced out of context and should be put to rights before we are forced, by NSC decision, to program billions on defense gadgetry at the expense of our deterrent strike and air superiority forces."<sup>19</sup>

The NSC took no affirmative action on the report of the Summer Study Group, merely recommending that a more intensive effort be made to improve air defense. In this connection, Secretary of Defense Robert P. Lovett appointed a civilian committee, under the chairmanship of Mervin J. Kelly, president of Bell Telephone Laboratories, to study the air defense problem. In effect, then, the outgoing Truman administration left the incoming Eisenhower administration a warning that improved air defense was necessary, plus a study-in-progress designed to review and evaluate the findings of the Summer Study Group.<sup>20</sup>

At no time during the 1952 in-fighting over national policy as it affected air defense were the public or most members of Congress aware of the struggle taking place. Somewhere near the end of the year, however, a copy of the report of the Summer Study Group, or at least a

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19. Memo, Brig. Gen. John K. Gerhart, Dep Dir/Opns, USAF for DCS/O, USAF, no subj, 5 Nov 1952 (as cited in ADC Hist Study No. 33, The Birth of SAGE, 1951-58, pp. 8-9); Huntington, p. 330.

20. Huntington, p. 331.

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summary of it, became available to Joseph and Stewart Alsop, columnists for the New York Herald-Tribune, who proposed to make the findings public in a context that made it appear that the Air Force was dragging its feet in the matter of improved air defense. General Nathan Twining, Vice Chief of Staff, USAF, advised the Secretary of the Air Force on the day before Christmas in 1952 that he hoped the Alsops might be persuaded to forego publication of this material although he admitted that the breach of security was not sufficient to support censorship. He also conceded that it was prerogative of the authors to proceed with publication if they desired. The Alsops bowed to the wishes of the Air Force at the moment, but made no promises as to the future.<sup>21</sup>

While the recommendations of the Summer Study Group were being debated in Washington, General Benjamin W. Chidlaw, who replaced General Whitehead as commander of ADC in August 1951, formed his own tentative conclusions in the matter. General Chidlaw had no quarrel with the Summer Study Group, but felt that the DEW Line and the highly automated control system were far in the future. He recommended to USAF, in

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21. Ibid.; Memo, Gen. Nathan Twining, VC/S, USAF for Secy AF, "Alsop Article on Air Defense Early Warning System," 24 Dec 1952 (as cited in ADC Hist Study No. 33, The Birth of SAGE, 1951-1958, pp. 9-10).

October 1952, that the air defense system outlined by the Summer Study Group be re-oriented toward defense against ballistic missiles. For the "here and now" (meaning operational readiness in 1955), he favored a proposal of the Willow Run Research Center of the University of Michigan. The Michigan plan involved an Americanized version of the British Comprehensive Display System in which radar data was stored electronically and recalled when needed. Such data, in the American version, was transferred electronically from place to place, therefore giving it a considerable advantage over the manual system in which human voices and telephone lines were used. USAF, however, was not yet ready to give unqualified approval to this, or any other, plan for "next generation" air defense. ADC, therefore, planned a test of the Michigan proposal in the 30th Air Division in the hope that a successful test would lead to USAF approval.<sup>22</sup>

By the end of 1952, the manual in-being air defense system had grown considerably. Eighty-one radar stations were operational within the United States. Seventy-five

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22. Pers ltr, Chidlaw to Vandenberg, no subj, 13 Oct 1952 (Doc 97 in Hist of ADC, Jul-Dec 1952); Pers ltr, Twining to Chidlaw, no subj, 13 Nov 1952 (Doc 106 in Hist of ADC, Jul-Dec 1952); ADC to EADF, "Air Defense Integrated System for Surveillance and Weapon Control (ADIS) Test Sector," 1 Dec 1952 (Doc 107 in Hist of ADC, Jul-Dec 1952).

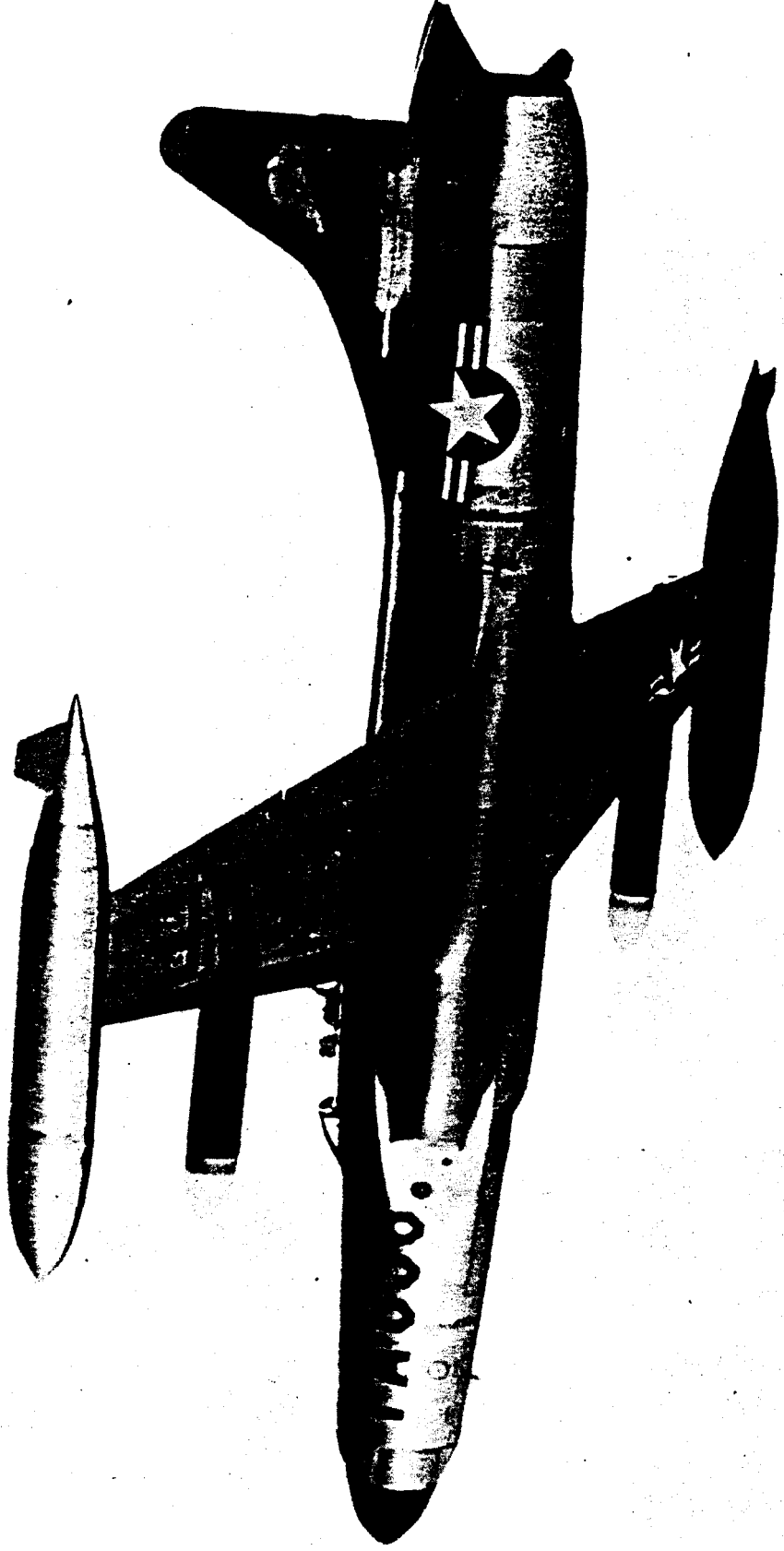
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of these made up the permanent radar network, while six were of the earlier LASHUP variety. In addition, USAF had authorized and funded 44 mobile radar stations and had approved another 35 mobile stations to complete double perimeter radar coverage in the northeast, northwest, and along the California coast. It was unlikely that the latter 35 stations could be financed before FY 1954, however. After a couple of false starts earlier in the year, the GOC, on 14 July 1952, assumed around-the-clock status (Operation SKYWATCH) in the 27 states included in the most vital defense areas. Volunteers, though, had not responded in the numbers required. At the end of 1952, while ADC planning called for 500,000, only about 150,000 were active. Thirty-nine interceptor squadrons stood ready to identify unknown aircraft penetrating the radar/GOC screen. Five of the 44 squadrons available at the end of March 1951 (when federalization of the ANG was complete) had been moved to overseas locations. One-third of the interceptor force was equipped with early-model all-weather jets (P-89B/C and P-94A/B). Fifteen squadrons had jet fighters equipped only for daylight operations (P-80, P-84, and P-86). The remaining 11 squadrons still had World War II air superiority fighters (P-47 and P-51).<sup>23</sup>

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23. ADC to USAF, "Mobile Radar Program (Second Phase)," 5 Jul 1952 (Doc 25 in Hist of ADC, Jan-Jun 1952); USAF to

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A change of administration in the United States always occasions a reappraisal of national policy. This reappraisal is always more extensive when the political complexion of the administration changes. With the election of Dwight D. Eisenhower in 1952, the Republican Party gained control of the federal administration for the first time in 20 years. The new Secretary of Defense, Charles E. Wilson, did not immediately feel secure in the saddle, and therefore, the defense budget for FY 1954 as presented to Congress in early 1953 was that prepared in the waning months of the Truman administration. In line with an earlier Truman decision to build a 143-wing Air Force, the budget for FY 1954 requested nearly \$17 billion for Air Force purposes. The House began hearings on this budget on 6 March 1953.

Since a sizable portion of that budget was to be devoted to improvement of the air defense system, it was not surprising that the subcommittee on the Department of Defense budget wanted to hear the views of General Vandenberg

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23 (cont). ADC, "Mobile Radar Program (Second Phase)," 18 Oct 1952 (Doc 134 in Hist of ADC, Jul-Dec 1952); Resolution Passed by Association of State Civil Defense Directors in San Francisco, 26 Apr 1952 (Doc 221 in Hist of ADC, Jan-Jun 1952); Proceedings of Conference of State Civil Defense Directors, 16 Jun 1952 (Doc 201 in Hist of ADC, Jan-Jun 1952); Hist of ADC, Jan-Jun 1952, pp. 276-283; Hist of ADC, Jul-Dec 1952, pp. 2, 23, and 186.

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on the subject. He responded at great length and in doing so revealed the difference of opinion that existed, even within the Air Force. He also seemed to be addressing the supporters of the Lincoln Summer Study Group as well as the members of the subcommittee. There was, General Vandenberg explained, a special law of diminishing returns that applied to air defense. Any defensive system that stopped 25 percent of attacking bombers was, in his view, highly efficient. It was therefore gilding the lily, he added, to attempt to improve an existing system that was capable of destroying 25 percent of an attacking force, especially when such use of scarce funds could reduce the amount available for improvement of the offensive force. "Our greatest defensive and offensive weapon," he concluded, "is our strategic force plus that part of our tactical force that is based within striking range of the airdromes that would be used by the Soviets."<sup>24</sup> Hearings on the Truman budget lasted but one day. Secretary Wilson then let it be known that he was subjecting this document to a thorough re-examination. Hearings on the revised budget resumed on 15 May 1953.

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24. House Hearings on Air Force Appropriations for Fiscal Year 1954, 6 Mar 1953, pp. 28-29.



The testimony of General Vandenberg on 6 March 1953 apparently convinced the Alsop brothers that they were no longer obligated to withhold their account of the 1952 meeting of the Summer Study Group and the subsequent discussions within the National Security Council. In New York Herald-Tribune columns of 16 and 20 March 1953 the Alsops laid their version before the public. The burden of the Alsop series was that the Air Force was attempting to suppress technological developments which would greatly improve the air defense posture of the United States. The supporters of Strategic Air Command and the policy of deterrence were painted as the villains involved.<sup>25</sup>

About the same time the new National Security Council began to grapple with the recommendations of the Summer Study Group. Elected on an economy platform, the new administration was caught in a vicious dilemma, since approval of major expenditures for extensive new air defense measures would force it to renege on campaign promises to balance the budget and reduce taxes. The members of the 1953 NSC were split on the issue. Vice President Richard Nixon, Secretary of State John Foster Dulles, Under Secretary of State Walter Bedell Smith, and Mutual Security

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25. New York Herald-Tribune, 16 and 20 March 1953.

Administrator Harold Stassen favored a more intensive air defense effort. Strongly opposed were Secretary of the Treasury George Humphrey, Director of the Budget Joseph M. Dodge, and Secretary of Defense Wilson. President Eisenhower admitted to congressmen that the matter was "giving him sleepless nights."<sup>26</sup>

This dilemma was not relieved when the Kelly Committee, appointed in late 1952, made its report in May 1953. The Kelly group agreed with an important segment of Air Force opinion by concluding that the principal element of the defenses of the United States was the strategic air force. At the same time, however, the Committee urged creation of an air defense system better than that assured under the existing program, especially as regards early warning of hostile attack. The Committee, though, saw no particular need for haste in the improvement of the air defense system, discounting the requirement for a "crash" project. Both sides in the dispute took comfort in the Kelly report. Charles J. V. Murphy of Fortune found it an "impressive rebuttal of the Summer Study Group," but the Alsops argued that "the Lincoln warnings have been fully confirmed."<sup>27</sup>

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26. Huntington, pp. 331-32.

27. New York Herald-Tribune, 29 May 1953; Charles J. V. Murphy, "Air Defense: Kelly vs. 'Summer Study Group'," Fortune, July 1953.

But there was still irresolution within the Eisenhower administration, so Defense Secretary Wilson appointed still another committee, this one under the chairmanship of Maj. Gen. Harold Bull, a long-time military associate of President Eisenhower. The Bull Committee reported to the NSC on 22 July 1953 that it preferred the Summer Study Group approach. This report concluded that existing plans for air defense were entirely inadequate and the necessary improvements would cost between 18 and 25 billion dollars over a five-year period. Even so, the NSC took no affirmative action. What apparently dissolved the opposition to massive expenditures for air defense was an August 1953 intelligence report that the Soviet Union had successfully exploded a thermonuclear device. On 26 August 1953, Admiral Arthur C. Radford, in his first press conference as Chairman of the Joint Chiefs of Staff, said that Soviet possession of the hydrogen bomb made it imperative that the United States improve its air defenses. Some six weeks later, 6 October 1953, the NSC approved NSC Paper No. 162 which included most of the proposals made by the Summer Study Group. The most important of these were the DEW Line and the automation of radar data handling. It was estimated that \$20 billion would be required for this purpose over the next five years.<sup>28</sup>

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28. Huntington, pp. 332-34.

While the bitter debate about the direction to be taken by air defense was being settled and plans were being made to implement this decision in terms of workable hardware, ADC proceeded to expand the size and scope of what had become known as the "manual" air defense system. Individual Air National Guardsmen were released from federal service in late 1952, but the squadrons remained with ADC and others were steadily added. From a total of 39 interceptor squadrons at the end of 1952, the number grew to 51 at the end of 1953, to 55 at the end of 1954, and to 61 at the end of 1955. The expansion goal as of the end of 1955 was 69 squadrons. The quality of the fighter force, at the same time, improved considerably. The conventional (propeller-driven) aircraft disappeared first, with the last of the day jets dropped in early 1955. Beyond that time, all interceptors were all-weather jet fighters.<sup>29</sup>

Other elements of the manual air defense system were also added. At the end of 1955 the number of operating long-range radar stations had grown to 90. Seventy-five of these comprised the initial "permanent" radar network and 15 were the first increment of 84 additional "mobile" radar stations authorized later. The description of these

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29. Hist of ADC, Jul-Dec 1953, p. 58; Hist of ADC, Jul-Dec 1954, p. 80; Hist of ADC, Jul-Dec 1955, pp. 58-68.

supplementary radar stations as "mobile" was ultimately misleading, because every site actually built was stationary. Airborne Early Warning and Control operations had begun, with one station off each coast covered around-the-clock at the end of 1955. A more extensive AEW&C effort had been planned, but only 26 of the 81 C-121 aircraft ordered had been delivered. Further to sea, the Navy was manning five radar picket ship locations in the Atlantic and one in the Pacific. Closer to shore, the first of five planned Texas Towers (this one on George's Shoal, 100 miles off Cape Cod) ADC occupied in December 1955. The Ground Observer Corps also continued to grow, though not nearly as rapidly as ADC had hoped. Of the 16,000 observer posts ADC thought were needed in the SKYWATCH (24 hours a day) area, not quite 11,000 had been organized by the end of 1955. Only 1,365 of these were fully operational. The general public could not be convinced that the degree of dedication required of the ground observer was necessary.<sup>30</sup>

The competition as to the nature of the automated system to be used in controlling air defense lasted but a short time. ADC favored the "Willow Run system", comprising Americanization of the British Comprehensive System,

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30. Hist of ADC, Jul-Dec 1955, pp. 43-47, 50-56, 69, 76, and 80.

and in early 1953 the Air Research and Development Command (ARDC) was at least theoretically obligated to make a choice between it and the one being developed by Lincoln Laboratory. In May of 1953, however, ADC was informed that "for reasons which will not be enumerated here, the Air Force has found it necessary to...initiate a unilateral approach... oriented toward the Lincoln Transition Air Defense System."<sup>31</sup>

It should be noted that this action was taken several months before the NSC made the October 1953 decision to proceed with automation of the air defense system. All financial support of the Willow Run system was withdrawn and Lincoln Laboratory was left alone in the field. By the end of 1953 Lincoln was getting ready to begin tests involving a maximum of 64 aircraft radar tracks from data generated by one long-range and two short-range radars.<sup>32</sup>

The decision of the NSC was taken behind closed doors and the details of what transpired, especially the cost estimates, were a long time coming to the notice of the public and laid the Eisenhower administration open to much "too-little-and-too-late" criticism. Secretary of

31. Lt. Gen. Earle E. Partridge, Cmdr, ARDC to Chidlaw, no subj, 6 May 1953 (Doc 9 in Hist of ADC, Jan-Jun 1953); Partridge to Dr. James R. Killian, President, MIT, no subj, 28 Jan 1953 (Doc 6 in Hist of ADC, Jul-Dec 1953); Partridge to Chidlaw, no subj, 11 Feb 1953 (Doc 7 in Hist of ADC, Jan-Jun 1953).

32. Hist of ADC, Jul-Dec 1953, pp. 8-9.

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October 1954 the Alsops covered 20 pages of Harper's Magazine with a review of the 1952-53 air defense controversy, emphasizing the part played by J. Robert Oppenheimer. It was admitted that the need for improved air defense had been recognized by the Eisenhower administration, "but belatedly, and with insufficient urgency, after two precious years had been wasted."<sup>34</sup>

While the political winds were swirling around the issue of improved air defense in 1954, the Joint Chiefs of Staff finally reached a decision to create a joint command, under JCS control, to direct the air defense of the United States. It was obviously a hard-to-come-by decision, because it had been under active discussion within the JCS for seven years. Anyway, the JCS, in January 1954, authorized the creation of such a command. During the succeeding six months the nature and functions of the new JCS command were determined and on 2 August 1954 the JCS directed establishment of Continental Air Defense Command (CONAD), effective 1 September 1954, with headquarters at Colorado Springs. The Air Force was designated executive agent for CONAD and General Chidlaw, the ADC Commander, was named CONAD

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34. Congressional Record, Senate, 83rd Congress, 2nd Session, 16 Feb, 14 Jul and 14 Aug 1954; Montgomery Advertiser, 23 Jun 1954; Joseph and Stewart Alsop, "We Accuse," Harper's Magazine, Oct 1954.

Defense Wilson, in February 1954 House testimony, mentioned that increased emphasis was being placed on continental air defense, although the proposed Defense budget for FY 1955 contained only one billion dollars for that purpose. Secretary Wilson dodged giving a direct answer to questions as to how much defense that billion dollars would buy and finally deferred to Admiral Radford. The Chairman of the JCS provided additional information, but insisted that his replies be off the record.<sup>33</sup>

Knowledgeable persons, who were fully aware that the recommendations of the Summer Study Group would require the expenditure of more than a billion dollars a year, attacked a vulnerable target. During the ensuing months of 1954, Senators Henry Jackson of Washington, Hubert Humphrey of Minnesota, Stuart Symington of Missouri, and Wayne Morse of Oregon, all democrats, rose on the floor of the Senate to castigate the administration for lulling the nation into a false sense of security over the state of the nation's air defenses. The Alsop brothers also took up the cudgels again. In a column of 23 June 1954 the Alsops charged that "big bomber generals" of the Air Force were still angrily opposed to serious air defense. In

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33. House Hearings on Department of Defense Appropriations for FY 1955, 1 Feb 1954, pp. 8 and 71-78 and 2 Feb 1954, p. 139.



of the year the systems testing of one was nearly complete. It was anticipated that the first three production models would be made available to ADC in 1956. Experience in the testing of computers, however, made it necessary to change the estimated time for installation and testing of production computers from eight to ten months. This required moving back the date for completion of the total SAGE system from December 1960 to March 1962.<sup>36</sup>

The DEW Line along the Arctic coast of Canada, another Summer Study Group recommendation, had progressed to the point, at the end of 1955, where the sites for all radar stations had been located. To the south, along the 55th parallel, the Mid-Canada Line of doppler detection devices was under construction with completion expected in 1957.<sup>37</sup>

In retrospect, the 1951-55 period had to be regarded as the salad years for the Air Defense Command. Despite the eddying political whirlwinds, the air defense system expanded greatly and a start was made toward a far more sensitive and more quickly responsive system. National policy called for improved air defense and the necessary money was available. ADC never experienced this pleasant state of affairs again.

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<sup>36</sup>. SAGE Quarterly Progress Report, Western Electric Co., January 1956.

<sup>37</sup>. Hist of ADC, Jul-Dec 1955, pp. 69 and 76.

commander-in-chief. General Chidlaw retained command of ADC and therefore occupied two positions. All three services contributed forces to CONAD. The Army supplied the antiaircraft weapons of the Army Antiaircraft Command. The Navy contributed picket ships assigned to a new organization known as Naval Forces, CONAD. The Air Force, of course, brought ADC into the joint command and furnished most of the CONAD staff. All the ADC personnel committed to CONAD retained their ADC jobs and worked in a "two-hat" capacity. This situation created some administrative difficulties because it was sometimes hard to determine whether a staff member was wearing his "ADC hat" or his "CONAD hat" at any given moment. Although the Air Force had failed in earlier attempts to acquire the Army's antiaircraft batteries, the new CONAD, commanded by an Air Force officer, assumed operational control of this point-defense weapon. General Earle E. Partridge succeeded General Chidlaw as both ADC and CONAD commander on 20 July 1955.<sup>35</sup>

The controversy over the automated and generally improved air defense system had largely subsided by 1955 and emphasis was on building. The Lincoln Transition System had come to be known as Semi-Automatic Ground Environment (SAGE) and the testing of equipment began in 1955. Two prototype computers were completed by IBM and by the end

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35. Hist of ADC, Jul-Dec 1954, pp. 124-28.

exercises became commonplace in the Department of Defense; USAF, and ADC.

To illustrate the sense of shock felt by Congress over the costs involved, the example of SAGE communications costs is perhaps instructive. The Air Force casually mentioned to the House Appropriations Committee that the fully operational SAGE system would incur annual communications costs of \$200 million or more, with more than half of it to accrue to the Long Lines Division of American Telephone and Telegraph Company. About 30 percent of this amount was likely to be paid to local Bell system subsidiaries of AT&T. Perhaps 15 percent of the total was to go to independent telephone companies. Even to Congressmen accustomed to making long-distance telephone calls every day, the idea of anybody running up a phone bill of \$200 million in one year seemed to stagger the imagination.<sup>1</sup>

This situation was known to the House Appropriations subcommittee which dealt with Department of Defense budgets in 1955, but was not spread across the public record until 1956. The subcommittee staff conducted a study of the matter in late 1955 and in January 1956 presented to the subcommittee a report which charged Air Force laxity in seeking reductions in telephone rates.<sup>2</sup>

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1. House Hearings on Department of Defense Appropriations for FY 1957, 14 Mar 1956, pp. 678-683.

2. Ibid.

## IV. MONEY BECOMES IMPORTANT, 1956-1958

The euphoria evident in 1955 dissipated in 1956. When the National Security Council decided it was imperative to expand and improve the air defense system it was understood that the cost would amount to many billions of dollars. But the mood of the moment was that money was really no object, since national survival apparently demanded that everything humanly possible be done before the predicted year of maximum peril--1957. A number of very expensive projects were approved within a relatively short time--DEW Line, SAGE, Texas Towers, airborne early warning, a greatly expanded ground radar network, advanced manned interceptors, and BOMARC. Authorizations to proceed cost nothing and actual costs remained relatively low in 1954 and 1955 because most of the equipment required was in the development stage. By 1956, however, the time had come to start writing firm contracts for the immense amounts of hardware required. When the sheer magnitude of the funds involved became apparent, it was obvious that the funds available for defense purposes would fall short of projected costs. Nearly every aspect of the air defense program suffered a fund-induced reduction during 1956. Beginning with the budget for Fiscal Year 1957, cost-cutting

AT&T responded by petitioning FCC for a lower "bulk rate" applicable to customers who used a great volume of telephone service. SAGE and the broadcasting networks were given as examples of the types of customers it had in mind. The telephone company estimated that the new rate, if granted, would save SAGE \$14 million a year.<sup>4</sup>

The GSA, of course, was unprepared to deal with a communications problem as large as that presented by SAGE. So, after a series of discussions involving GSA, DOD, and the Air Force, the Department of Defense (with GSA blessing, even though the law was again breached) petitioned the FCC, on 12 March 1956, for permission to intervene in this proceeding on behalf of the Air Force. As to dealings with state agencies, General Blake, in effect, threw up his hands. The Air Force, he told the subcommittee, was reluctant to hire a large group of telephone tariff experts to haggle with state agencies. The subcommittee agreed that this hardly seemed worthwhile even though considerable sums were involved.<sup>5</sup> The FCC, incidentally, had not come to a decision on the bulk rate matter by the end of 1956.

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4. Ibid.

5. Ibid.

It fell to Maj. Gen. Gordon A. Blake, USAF Director of Communications and Electronics, to answer these charges. He found it necessary to try to unravel in a logical manner the incredibly tangled snarl of laws and regulations that governed the establishment of telephone tariffs in the United States. The tallest and most obvious roadblock to the sort of action suggested in the subcommittee report was the Communications Act of 1934 which specifically prohibited telephone companies from allowing preferential rates to any customer, including the Federal Government. In the second place, also by law, the General Services Administration (GSA) was obligated to represent other government agencies in dealings with the Federal Communications Commission (FCC), the agency which set interstate telephone tariffs. There was further implication that GSA would also represent the Air Force in dealings with state regulatory bodies on intrastate rates. To further complicate the problem, telephone rates were set by communities in Iowa and Texas.<sup>3</sup>

Nevertheless, in direct contravention of the law, the Air Force wrote AT&T on 6 September 1955 to ask that "Mother Bell" consider reducing rates as they applied to SAGE in view of the great volume of service to be required.

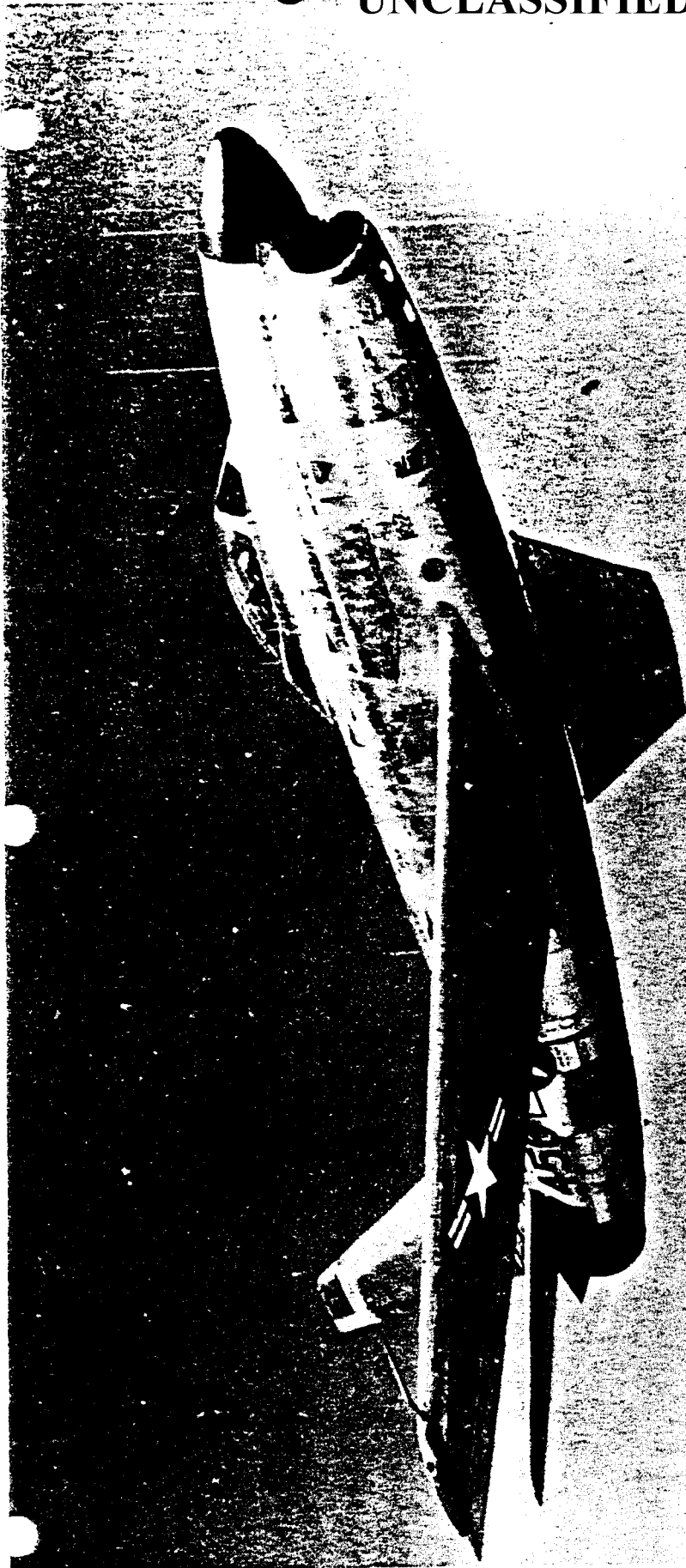
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3. Ibid., pp. 673-722.

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putting a halt to development of the Advanced Medium Range Interceptor (MRIX) to make possible the continued development of the Advanced Long Range Interceptor (LRIX).<sup>7</sup>

The BOMARC interceptor missile was in still deeper trouble. Apparently initial costs had been grossly understated. In September of 1955, the cost of the complete BOMARC weapons system (40 squadrons of 120 missiles per squadron), exclusive of the missile shelters, was estimated at two billion dollars. A similar estimate of the following September gave the cost at three and one-half billion. The 1956 estimate elicited from USAF the flat statement that "the present...BOMARC program cannot be funded."<sup>8</sup> USAF recommended, instead, that BOMARC be limited to 22 squadrons. ADC made a strong rebuttal, contending that 40 squadrons provided only minimum coverage of vital targets. Near the end of 1956, however, USAF outflanked the ADC position by directing that the ADC plan be submitted to CONAD for approval and subsequent submission to the JCS. Prior to September 1956, this would have meant approval by the right hand of the actions of the left, since the

7. Msg, USAF to CONAD, 14 Nov 1956 (Doc 154 in Hist of ADC, Jul-Dec 1956); Msg, USAF to ARDC, 23 Nov 1956 (Doc 156 in Hist of ADC, Jul-Dec 1956); Msg, USAF to ARDC, 30 Nov 1956 (Doc 157 in Hist of ADC, Jul-Dec 1956).

8. Msg, AFOOP-OC-F2 56120, USAF to ADC, 13 Sep 1956 (Doc 182 in Hist of ADC, Jul-Dec 1956).

Despite the lengthy discussion of SAGE communications costs, SAGE and the DEW Line, two of the major recommendations of the Summer Study Group, suffered little in the 1956 money squeeze. Other programs were not that fortunate.

The manned interceptor force reached a strength of 61 squadrons at the end of 1955 and was building toward a goal of 69 squadrons in 1957. In late-summer of 1956, ADC was informed that in a 1957 Air Force of 137 Wings it would be permitted 80 interceptor squadrons. In October of 1956, however, it learned informally from USAF that because of the fund shortage it would be limited to a total of 68 squadrons. In the absence of formal instructions, however, ADC activated its 69th squadron in November of 1956. Not all squadrons were manned and equipped, however.<sup>6</sup>

A proposed third-generation all-weather jet interceptor (the first generation included the F-86D, F-89, and the F-94; the second generation the F-101B, F-102, and F-106) also died of financial malnutrition in 1956. In November, USAF decided that fund restrictions dictated

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6. Memo, V/C, ADC for DCS/O, ADC, "ADC Fighter Interceptor Program," 3 Oct 1956 (Doc 67 in Hist of ADC, Jul-Dec 1956); ADC Hist Study No. 14, History of Air Defense Weapons, 1946-1962 (1962), p. 207.

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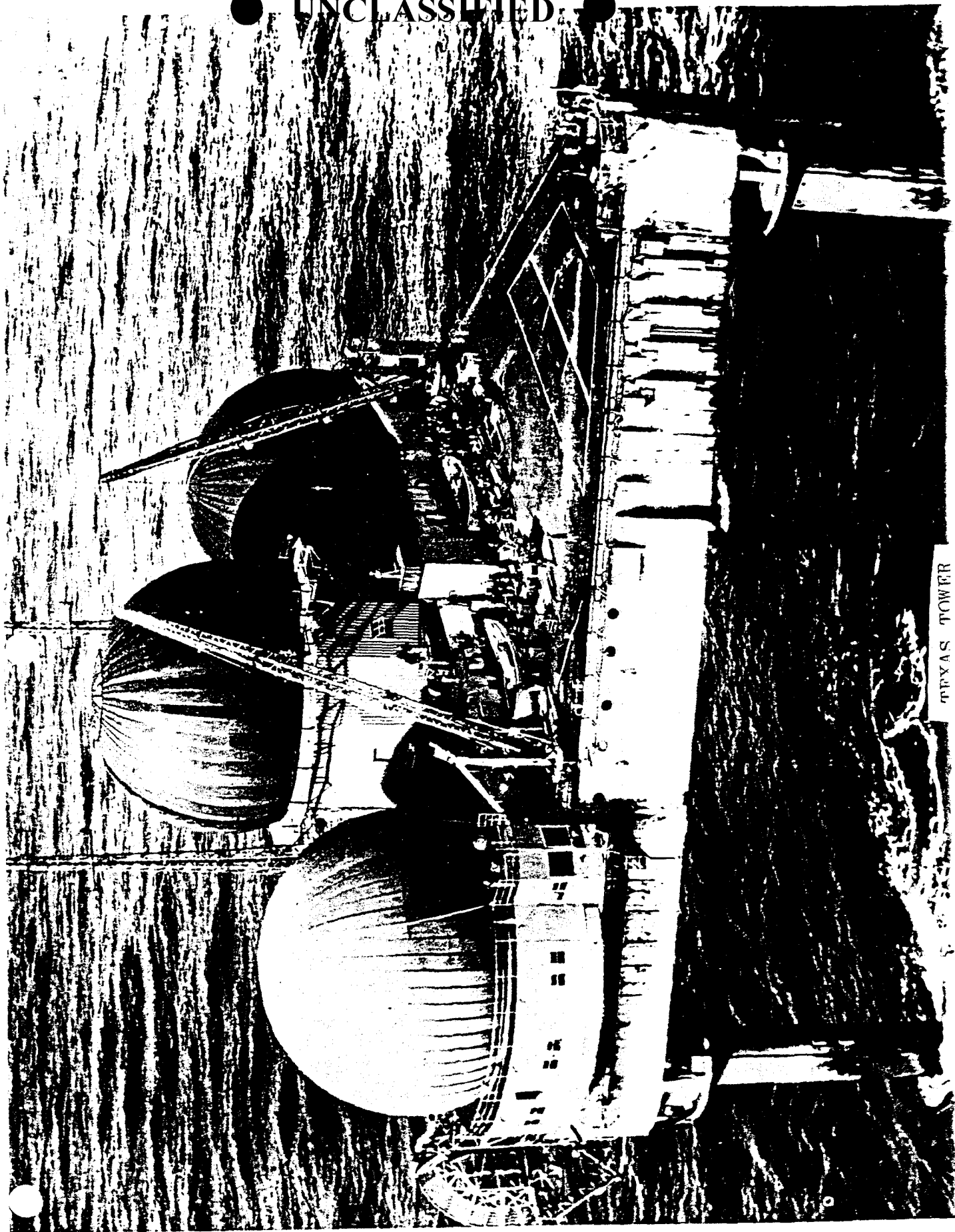
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ADC planned the installation of 323 small, unattended gap-filler radars. Although refined plans reduced the total to 235 gap fillers, the new stringency as regards money made it appear doubtful, at the end of 1956, that funds for the total number would ever be available. The plan in effect at that time called for 63 to be operational by the middle of 1957; 149 by June 1958; 167 by the end of FY 1959, and 177 at the end of FY 1960. The other 58 required financing in subsequent budgets. None were in operation at the end of 1956.<sup>11</sup>

The limping GOC also felt the edge of the economizer's axe in 1956. ADC did not plan it that way. In fact, ADC asked USAF, in April 1956, to expand the SKYWATCH area from 27 states to the entire country. USAF, however, was in no mood, or position, to increase the cost of GOC operations. It was looking forward to the day when gap-filler radar would make the GOC unnecessary. Since the USAF reaction was anticipated in ADC, the expansion request of April 1956 was accompanied by an alternative plan calculated to reduce the GOC to "stand-by" status in 1960. The first phase of the reduction went into effect before the end of 1956. Eight filter centers which did not directly support an Air Defense Identification Zone--Terre Haute,

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11. Hist of ADC, Jul-Dec 1956, p. 17.

commander of ADC and the commander-in-chief of CONAD were the same man. But in September 1956 the two headquarters separated, with General Partridge continuing as CINCONAD. Lt. Gen. Joseph H. Atkinson became commander of ADC.<sup>9</sup>

Several tucks were also taken in the various, and expanding, radar surveillance programs in 1956. In addition to the basic 75-station ground radar network, 84 stationary "mobile" stations, in three phases, had also been authorized. A proposed fourth phase, embracing 21 stations in Canada, was cancelled because the necessary funds were not available. Similarly the completion dates of the first three phases were extended further into the future. The planned completion date for the first phase was moved from April to September 1957; for Phase Two the shift was from October 1957 to January 1959 and for the third phase from September 1957 to January 1959.<sup>10</sup>

To provide radar coverage for the spaces between the long-range radars and to improve the low-level radar coverage currently offered by the Ground Observer Corps,

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9. Ibid., Msg, ADRPI 2043, ADC to USAF, 19 Sep 1956 (Doc 183 in Hist of ADC, Jul-Dec 1956); Msg, AFOOP-OC-F2 59322, USAF to ADC, 30 Nov 1956 (Doc 184 in Hist of ADC, Jul-Dec 1956).

10. ADC to USAF, "Impact of Fiscal Year 57 Operational and Maintenance Funds Deficit," 5 Oct 1956 (Doc 19 in Hist of ADC, Jul-Dec 1956); ADC to USAF, "Air Defense Reductions Caused by Insufficient O&M Funds," 7 Dec 1956 (Doc 11 in Hist of ADC, Jul-Dec 1956).



Des Moines, Chicago, Springfield, Pittsburgh, Harrisburg, Columbus, and Albany--closed.<sup>12</sup>

The 1952-53 enthusiasm over the radar-equipped Texas Towers off the North Atlantic coast had waned by the time the Military Construction Program for FY 1957 came up for discussion in 1956. Funds for the two towers planned for FY 1957 were rudely chopped from the budget and ADC was left with three of the five towers originally planned. Building disillusionment with the detection potential of the towers and the growing realization that maintenance and operation of the towers was going to require a major effort, led ADC, in September of 1956, to suggest to USAF that the Navy might be in better position to support the towers. USAF, however, having once fought a stubborn battle with the Navy to retain control of off-shore extensions of the radar network, would not entertain such a suggestion.<sup>13</sup>

The airborne extension of radar coverage along the east and west coasts proceeded generally along the guidelines laid down in 1953. But there were money problems here, too. ADC was dissatisfied with the performance of the APS-20

12. ADC Hist Study No. 36, The History of the Ground Observer Corps (1968), pp. 226-235.

13. ADC to USAF, "Request for Headquarters USAF Guidance on Texas Tower Operation and Maintenance," 26 Sep 1956 and 1st Ind, USAF to ADC, 9 Nov 1956 (Doc 38 in Hist of ADC, Jul-Dec 1956); Hist of ADC, Jul-Dec 1956, pp. 41-45.

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radar carried as original equipment of the RC-121 AEW&C aircraft and petitioned USAF for replacement with the improved APS-70 set. This petition USAF denied on the reasonable grounds that no funds were available for such a replacement project. The same answer was forthcoming from USAF when ADC recommended that the C-121 be replaced by an aircraft better adapted to AEW&C requirements.<sup>14</sup>

Even so, the manual air defense system, with the exception of the GOC, continued to grow in 1956, financed by money provided earlier. The number of fighter interceptor squadrons grew from 61 to 65 and four types of improved aircraft were introduced. The F-89H (the F-89D armed with Falcon air-to-air guided missiles) began arriving in March. The F-102A, first member of the second generation of jet all-weather interceptors, appeared in April. The F-86L (the F-86D equipped with data link computers to make possible operations under SAGE control) first reached ADC in October. Finally, the F-89J (the modified F-89D armed with the nuclear MB-1 rocket) came in December.<sup>15</sup>

14. ADC to USAF, "USAF Participation in AEW&C Steering Committee," 16 Jul 1956 (Doc 26 in Hist of ADC, Jul-Dec 1956); ADC to USAF, "Comments Relative to WADC Development Plan 214L," 20 Dec 1956 (Doc 28 in Hist of ADC, Jul-Dec 1956); Hist of ADC, Jul-Dec 1956, pp. 31-37.

15. ADC Hist Study No. 14, History of Air Defense Weapons, 1946-1962 (1962), pp. 207, 209, and 211-212.

As to ground radar, 16 additional mobile radars (of a planned total of 84) became operational in 1956, raising the number operational to 41. This number, when added to the 75 permanent ground radars previously established, brought the end-1956 total to 106. None of the small gap fillers were yet operating. The AEW&C network was complete. The 81 C-121 aircraft had been delivered and three squadrons patrolled four stations off the Atlantic Coast. A similar number of squadrons patrolled an equal number of stations off the Pacific Coast. The first Texas Tower, off Cape Cod, began operating in May 1956. The second, on Nantucket Shoal about 100 miles southeast of Rhode Island, ADC accepted in November 1956, and was expected to begin operating by August of 1957. The third, 80 miles southeast of New York City, was under construction.<sup>16</sup>

Financial stringency became still more apparent in 1957. The advocates of economy in air defense lost a skirmish in the NSC decision of October 1953, but not the financial war. The mood of Congress had definitely changed. The hell-with-the-cost attitude that had prevailed when vast air defense improvements were authorized in 1954 had

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16. AC&W Summary and Status Report, ADC, 31 Oct 1956 and Change Report, 31 Dec 1956; Hist of ADC, Jul-Dec 1956, pp. 31-37 and 41-45.

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disappeared by 1957. The intelligence reports of 1953 had posited 1957 as the year of maximum danger. When that year actually arrived the 1953 warnings did not look very prescience. The DOD, sensing the atmosphere of doubt within Congress, proposed to lower the annual cost of air defense improvements by "stretching out" the completion dates of various aspects. Some Congressmen interpreted this decision to mean that the Soviet threat had diminished.

Not so, said Maj. Gen. Frank A. Bogart, USAF Budget Director, in April 1957 testimony during House hearings on the Defense Budget for FY 1958:<sup>17</sup>

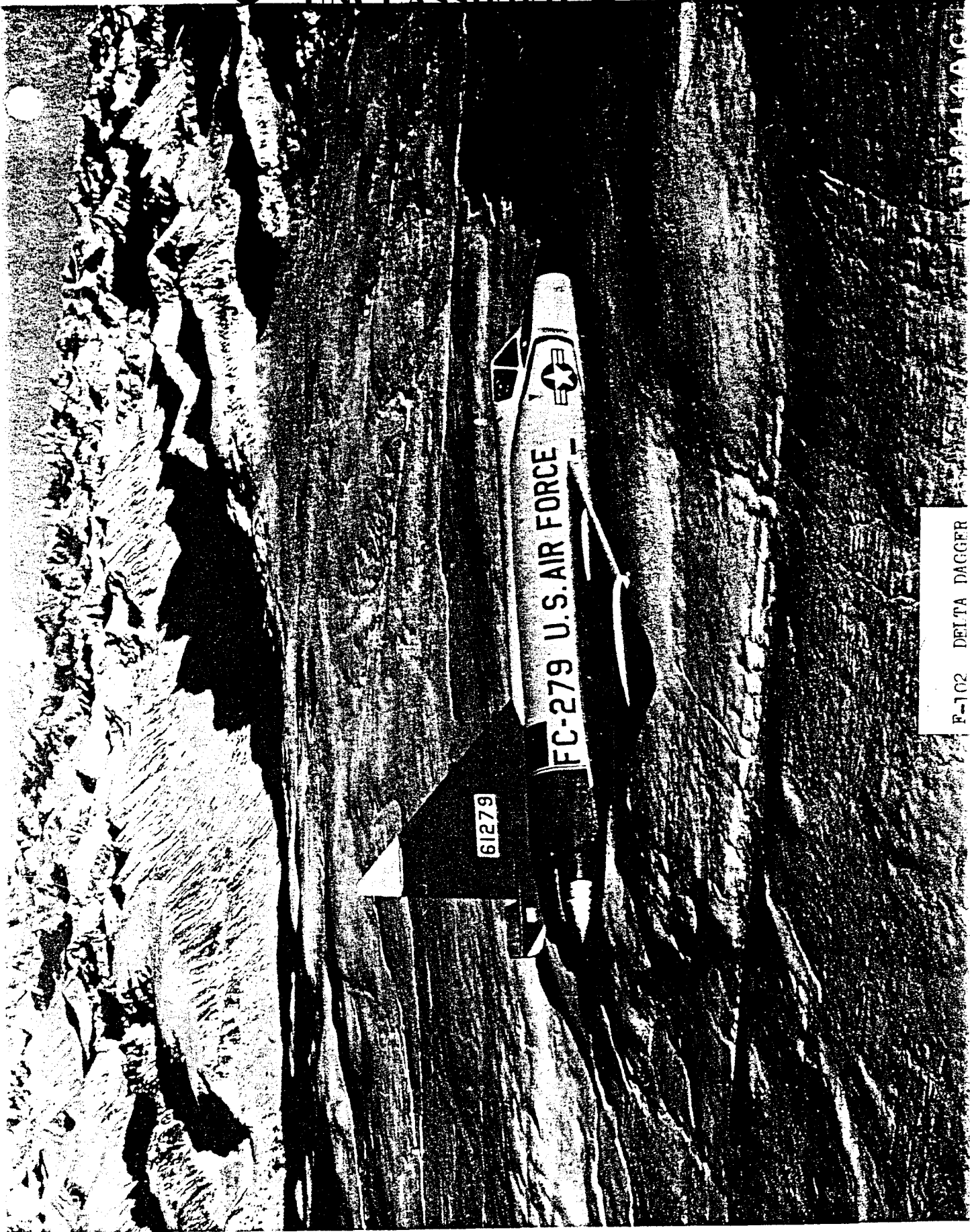
I believe that you (Congressman Jamie L. Whitten of Mississippi) intimated that we had said, or that we had at least indicated, that the Russian threat was not so great as we had thought it was 4 or 5 years ago. That is not true. The Russian threat is distinctly greater--much greater than it was 4 or 5 years ago. Our capability is much greater also.

What we have said is that the estimate of their long-range heavy bomber capabilities, as far as the rate of production goes, at the immediate time is not so great as we had thought it was. We have said that the ultimate strength that they will develop in that category is unchanged from our previous estimates.

This stance of critical inquiry was most evident in the discussion of operations and maintenance funds where

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17. House Hearings on the Department of Defense Appropriation for Fiscal Year 1958, 3 Apr 1957, p. 116.



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requirements had continued to rise as new elements of the expanded air defense system reached operational readiness. The operations and maintenance allocation for ADC had climbed from \$150 million in FY 1955, to \$198.7 million in FY 1956, and to \$252.3 million in FY 1957. For FY 1958, ADC requested \$420 million, but the Department of Defense pared the request to \$305 million. Congress was still not happy with the reduced figure. An air of frustrated irritation permeated the budget hearings in the spring of 1957. Congress did not seem impressed when Maj. Gen. Alvin L. Pachynski, USAF Director of Communications and Electronics, reported that the FCC had approved an AT&T request for a bulk rate for SAGE communications and that the annual telephone bill for the fully operating SAGE system would approximate \$148 million rather than the previous estimate of \$200 million-plus.<sup>18</sup>

Every element of the manual air defense system took a financial beating in 1957. The manned interceptor force reached its apogee of 69 manned and equipped squadrons in the middle of the year and began a decline which continued to 1972. Money was directly involved when Congress would approve the purchase of only 26 squadrons of

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18. *Ibid.*, 3 Apr 1957, pp. 114-20 and 136-38, and 8-9 Apr 1957, pp. 282-96 and 307-20.

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the advanced F-106 interceptor rather than the 40 squadrons requested by ADC and USAF. Thus, when the older aircraft were replaced, the total number of active interceptor squadrons would have to decrease. By the end of 1957 the number of interceptor squadrons declined to 63. About two-thirds of this force consisted of first-generation, all-weather fighters (27 F-86D/L squadrons, 15 F-89D/H/J squadrons, and two F-94C squadrons). The remaining third had the first of the second-generation interceptors, F-102. The rest of the second generation was expected within 15 months--the F-104 in early 1958, the F-101B in July-September 1958, and the F-106 in January-March 1959. The third-generation F-108 (formerly known as the LRIX) was hoped for in FY 1963, but that was pure guesswork, because the flight characteristics of this advanced long-range interceptor were still being debated at the end of 1957.<sup>19</sup>

The long-range ground-to-air interceptor missile, BOMARC, made some progress when Congress allocated \$43 million in the FY 1958 budget for the construction of missile

19. Msg, AFOOP-OC-F/2 52858, USAF to ADC, 15 Nov 1957 (Doc 60 in Hist of ADC, Jul-Dec 1957); Atkinson to Gen. Curtis E. LeMay, Vice C/S USAF, no subj, 27 Aug 1957 (Doc 208 in Hist of ADC, Jul-Dec 1957); Msg, ADLAN-W-S 86, ADC to ARDC, 14 Nov 1957 (Doc 236 in Hist of ADC, Jul-Dec 1957); Msg, AFDRD-AD 52892, USAF to ARDC, 18 Nov 1957 (Doc 245 in Hist of ADC, Jul-Dec 1957); Msg, RDZA-12-9-E, ARDC to USAF, 18 Dec 1957 (Doc 246 in Hist of ADC, Jul-Dec 1957).



shelters at McGuire AFB (New Jersey), Suffolk County AFB (New York), Otis AFB (Massachusetts), and Dow AFB (Maine). Each of these sites was to have 56 missiles and thereby counted (at that time) as one-half a BOMARC squadron. ADC still clung to the thought that final BOMARC deployment would, or at least should, include 40 squadrons of 120 missiles per squadron, even though USAF continued to insist that sufficient funding could never be made available for a BOMARC program of that magnitude.<sup>20</sup>

The ground radar network moved closer to completion, but also shrunk and was further stretched out (in terms of completion dates) in the process. Twenty-three additional stations of the immobile "mobile" radar program began operations in 1957, for a total of 39. This was two less than were operational a year earlier, because of inactivations. The number of authorized mobile radars declined from 84 to 73. The date of completion of each of the three phases was extended by at least a year, with ultimate completion of the entire supplementary radar system pushed back to January 1961.<sup>21</sup>

20. Msg, AFOOP-OC-F/2 54108, USAF to ADC, 18 Dec 1957 (Doc 88 in Hist of ADC, Jul-Dec 1957); Msg, ADORQ-C 476, ADC to USAF, 18 Dec 1957 (Doc 96 in Hist of ADC, Jul-Dec 1957); Msg, ADORQ-C 462, ADC to USAF, 12 Dec 1957 (Doc 97 in Hist of ADC, Jul-Dec 1957); Msg, AFOOP-OC-F/2 54120, USAF to ADC, 18 Dec 1957 (Doc 98 in Hist of ADC, Jul-Dec 1957).

21. Hist of ADC, Jul-Dec 1957, pp. 23-24.

The plan to fill the gaps between major radar stations with small unattended radars and thereby eliminate the need for the GOC met increasing financial difficulties. While the plan in effect at the end of 1957 still called for the eventual placement of 235 gap fillers, available funding covered only 163 and then not until the end of FY 1962. Forty-seven gap fillers operated at the end of 1957 and 41 others were being made ready.<sup>22</sup>

Even though the electronic network that was to replace it was far from complete at the end of 1957, economic pressures dictated an end to the GOC Operation SKY-WATCH. The GOC was placed in "ready reserve" status. This was an act of considerable political daring, because, while the GOC never enjoyed general public support in the fifties, those volunteers who had thrown themselves into the work were a proud, dedicated group. It required courage to tell them that what they had been doing no longer needed to be done. After an autumn of discussion in which ADC and USAF weighed the advantages of saved money against the disadvantages of adverse political reaction, Col. Owen F. Clarke of USAF faced the moment of truth before a Washington meeting of the National Association of State and Territorial Civil Defense Directors on 14 November 1957. USAF attempted to

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22. Ibid.

soften the blow by failing to reveal that total inactivation of the GOC was planned for 1959.<sup>23</sup>

The off-shore adjuncts to the CONUS radar network, three Texas Towers and 81 AEW&C aircraft, were all in place by the end of 1957. The two AEW&C Wings were declared operational in 1956, although the Texas Towers (of five planned originally) did not reach that status until 1958 and 1959.<sup>24</sup>

The "year of maximum peril--1957," established in 1953, came and went with only a portion of the improvements recommended by the Summer Study Group really ready--DEW Line, AEW&C, and picket ships. Automation of data handling in air defense proceeded slowly. Earlier plans to have the first SAGE Direction Center, at McGuire, operational by 15 July 1957 were reduced to fantasy in June 1956 when Lincoln Laboratory admitted it had fallen nearly a year behind in the preparation of the master computer program

23. ADC to USAF, "Recommended Change in the Operational Status of the Ground Observer Corps," 14 Aug 1957 (Doc 40 in Hist of ADC, Jul-Dec 1957); USAF to ADC, "Recommended Change in the Operational Status of the Ground Observer Corps," 30 Sep 1957 (Doc 46 in Hist of ADC, Jul-Dec 1957); 1st Ind (ADC to USAF, "Proposed Changes in the Ground Observer Corps," 17 Oct 1957), USAF to ADC, 29 Oct 1957 (Doc 48 in Hist of ADC, Jul-Dec 1957); Presentation of Col. O. F. Clarke to the National Association of State and Territorial Civil Defense Directors, 14 Nov 1957 (Doc 49a in Hist of ADC, Jul-Dec 1957).

24. ADC Hist Study No. 28, The ADC Airborne Early Warning and Control Program, 1946-1964 (Jan 1965), p. 35; ADC Hist Study No. 29, A History of Texas Towers in Air Defense, 1952-1964 (Mar 1965), p. 21.

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for SAGE. Because of a shortage of time on the XD-1--the prototype FSQ-7 (direction center) computer--and a shortage of qualified computer programmers, the master program was not available by the promised date of 24 August 1956. At that time it was not considered likely to be ready before 1 July 1957. The new date was approximately met and the plan to put the first SAGE direction center into operation at McGuire (New York Sector) in July 1958 was still in effect at the end of 1957.<sup>25</sup>

A time of increasing financial austerity was hardly the time to bring up the matter, but ADC discovered a problem within the building radar network that required prompt attention. Exercises involving SAC bombers revealed that bombers equipped with electronic jamming devices effectively blinded existing ground radar. If the U. S. strategic force had such equipment it seemed reasonable to assume that the Soviet bomber force would someday be similarly equipped. The long-range answer to this problem, ADC believed, was frequency diversity (FD) radar which changed frequency so rapidly that jamming was made exceptionally difficult. In the summer of 1957 ADC calculated that 119

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<sup>25</sup>. ADC Hist Study No. 33, The Birth of SAGE, 1951-1958 (1965), pp. 55-56.

FD radars would be required. Installation was planned for the period July 1959-June 1964. The estimated cost: one billion dollars. USAF approved the FD requirement and tentative plans were made to request funds for 25 such radars in the budget for FY 1959. Meanwhile, ADC proposed a number of "quick and dirty" modifications to give existing ground radar a better chance in the silent and unseen war with airborne electronic jammers.<sup>26</sup>

A new factor entered the air defense equation on 4 October 1957 when the Soviet Union successfully launched a small satellite, Sputnik I, into orbit around the earth-- a historic first. Attack from space suddenly became possible and defense against such attack became urgent. Defense against the manned bomber just as suddenly became only one of two missions of the air defense forces.

Congress (if the members of the House Appropriations Committee may be taken as typical) displayed a deepening sense of dismay over the rising costs of air defense against the manned bomber. Representative George A. Mahon of Texas, one of the prime movers for improved air defense in earlier years, became a doubter by 1958. Since the reductions of

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<sup>26</sup>. USAF to ADC, "Frequency Diversity Radar Program," n.d. (Doc 28 in Hist of ADC, Jul-Dec 1957); Msg, AFOAC-E/A 50121, USAF to ADC, 10 Sep 1957 (Doc 30 in Hist of ADC, Jul-Dec 1957); Hist of ADC, Jul-Dec 1957, pp. 39-40.

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FY 1958 had done no irreparable harm, he theorized, further slashes in FY 1959 were indicated. Mahon's colleague, Errett P. Scrivner of Kansas, reported on a recent visit to air defense headquarters in Colorado Springs. He was led to believe, Mr. Scrivner said, that Congress would soon be asked to approve air defense expenditures in the neighborhood of \$15 billion to \$18 billion a year. Lt. Gen. John K. Gerhart, Deputy Chief of Staff for Plans and Programs, USAF, would not confirm this figure, although he admitted awareness of a school of thought which contended that \$17 billion a year would produce an air defense system of total effectiveness. General Gerhart added, however, that this school of thought did not control Air Force policy. He then repeated the Air Force credo that the funds devoted to air defense would always be determined with the priority of the offensive force in mind.<sup>27</sup>

Two particular segments of the air defense program seemed particularly galling to the men who determined the amount of money to be provided for that program--SAGE communications and BOMARC. The Air Force was proud of having reduced the estimated annual cost of communications for the fully operational SAGE system \$200 million to \$127 million. This had been accomplished by encouraging AT&T to

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27. House Hearings on the Air Force Appropriation for FY 1969, 5 Mar 1968, pp. 36-37 and 7 Mar 1968, pp. 115-117.

seek lower "bulk user" rates from the FCC and by reducing the programmed number of SAGE centers from 36 to 29. The committee did not seem greatly impressed, however, being more concerned over the fact that the cost of commercial communications (including SAGE) had increased from \$49 million in FY 1957 to \$57 million in FY 1958 and was likely to go to \$67 million in FY 1959. It was even more distressed over a further projection of communications costs which indicated a need for \$78 million in FY 1960, \$107 million in FY 1961, and \$141 million in FY 1962.<sup>28</sup>

BOMARC was not specifically attacked in the House hearings of March 1958, but USAF, after gauging the temper of Congress at that time, became still more deeply convinced that the legislators would never provide the several billions of dollars necessary to build the programmed BOMARC force of 40 squadrons, each with a complement of 112 (reduced from 120) missiles. In the late spring of 1958, therefore, USAF reduced the scope of the BOMARC program to 31 bases and fewer missiles. The first two bases-- McGuire and Suffolk, already under construction--planned 56 launchers. Subsequent bases were to have 28 launchers. Construction at Otis and Dow (as well as McGuire and

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<sup>28</sup>. Ibid., 13 Mar 1958, pp. 382-395 and 19 Mar 1958, pp. 744-747.

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Suffolk) was authorized in the Military Construction Program (MCP) for FY 1958. The necessary buildings for 10 more BOMARC bases--a total of 14--were authorized in the MCP for FY 1959.<sup>29</sup>

Despite the irritation displayed by the House Appropriations Committee over the continually rising cost of air defense, earlier funding provided momentum that produced, generally, further improvement of air defense against the manned bomber during 1958. The number of interceptor squadrons equipped with Century Series aircraft (F-102 and F-104) increased from 19 to 31 during the year, although the total number of squadrons assigned to air defense dropped, for reasons of economy, from 63 to 58. On balance, equating quantity against quality, the air defense interceptor force had improved during the year. The advanced F-101B and F-106 interceptors were expected in 1959.<sup>30</sup>

The first phase of the mobile radar program (30 sites) was completed in 1958 and one additional second-phase (SM) and one third-phase (TM) site also became operational. This raised the total of operating long-range radar stations to 121, a gain of seven during 1958. Twenty-seven additional

29. ADC to USAF, "FY 1959 Funding," 6 May 1958 (Doc 142a in Hist of ADC, 1958); USAF to ADC, "FY 59 Funding," 29 May 1958 (Doc 143 in Hist of ADC, 1958); Msg, AFOOP 51849, USAF to ADC, 9 Jun 1958 (Doc 225 in Hist of ADC, 1958).

30. Hist. of ADC, 1958, p. 140.



mobile radars were still to be brought to operational capability, but the increasing shortage of funds dictated further delays in final completion of the total radar network. The date for total operational readiness of Phase II slipped from January 1961 to January 1963 and for Phase III from January 1961 to January 1962. Sixteen of the small, unattended gap fillers became ready during 1958, bringing the end-year total to 63. While the total requirement for gap fillers increased from 235 to 237, funds were definitely available for only 184.<sup>31</sup>

The SAGE system reached token readiness in 1958. The New York Sector (McGuire) was declared operational on 26 June 1958. The Boston Sector (Stewart AFB, New York) reached that status on 11 September 1958. The day after the end of the year, 1 January 1959, the Syracuse Sector became operational, as did the combat center of the 26th Air Division, also at Syracuse. Thus came into operation the first SAGE "module", comprising the New York, Boston, and Syracuse Sectors and the guiding control center of the 26th Air Division. An area running from southern Vermont and New Hampshire to Delaware and along the east

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31. Ibid., pp. 1-4.

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coast and inland to Ohio was covered by automated air defense.<sup>32</sup>

Meanwhile, Canada joined the United States in the joint air defense effort. The North American Air Defense Command (NORAD) was established on 12 September 1957, joining operational control over the Canadian air defense effort with that of the previously integrated (CONAD) U. S. effort. CONAD had been formed in 1954 with General Chidlaw acting as both CONAD and ADC commander. His successor, General Partridge, was in office when the headquarters separated in September 1956 and General Atkinson became ADC commander. General Partridge continued as CINCONAD when he became CINCNORAD in September 1957. CONAD was retained to provide integrated command of U. S. forces, since both countries continued to have administrative control over their own forces. The difference in the functions of the command controlled by JCS (NORAD/CONAD) and the one controlled by USAF (ADC) was not easily understood by those accustomed to thinking of ADC as a combat command. The difference was really simple, however, once the mind was properly conditioned. The fighting was to be done by NORAD/CONAD, with ADC

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<sup>32</sup>. ADC Hist Study No. 33, The Birth of SAGE, 1951-1958 (1965), p. 76.

providing the USAF forces committed to the joint command. The air defense agreement between Canada and the United States was formally ratified by an exchange of diplomatic notes on 12 May 1958. The agreement covered a 10-year period beginning on that date.<sup>33</sup>

The Air Defense Command experienced increasingly difficult financial sledding in the 1956-1958 period. While there was no inclination in virtually any quarter to deny that the decisions of 1953 and earlier years were correct, the problem was the increasing realization that billions upon billions of dollars were going to be required to complete the system originally envisioned. The result was progressive deletion of some of the forces planned and delays in the completion of those permitted to remain. The dawning of the Space Age in 1957 also brought the guarantee that a new type of defense would have to be provided. But over all hung the thickening atmosphere of displeasure over the cost of air defense against the manned bomber.

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33. CONAD/NORAD Historical Summary, Jul-Dec 1957, pp. 1-10; NORAD Historical Summary, Jan-Jun 1958, p. 3.

## V. A CHANGE IN DIRECTION, 1959-1961

If Congress was restive about air defense costs in 1956-58, it nearly revolted in 1959. The particular issue which precipitated the crisis was the long-smoldering one over the relative positions of the Army and Air Force in defense against the manned bomber. Also, which was the better air defense weapon, BOMARC or the Army's Nike antiaircraft missile? Actually, the question was hardly valid, because the two weapons were complementary, not competing. Nike was a short-range point-defense weapon, while BOMARC was designed for long-range (200-400 miles) area defense. Nevertheless, Congress saw Nike and BOMARC as duplicate means of doing the same job and balked at providing funds for both. Furthermore, the Department of Defense abdicated its responsibility to provide guidance in this matter. Testifying before the Senate Armed Services Committee in the spring of 1959, Secretary of Defense Neil H. McElroy, who had succeeded Mr. Wilson on 9 October 1957, admitted that he had not been able to reach a decision as to how available funds should be divided between Nike and BOMARC. Therefore, the Secretary of Defense suggested that Congress "hold our feet to the fire" in this matter.<sup>1</sup>

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1. House Committee on Government Operations, Report

This unique abdication of an executive function led to a grotesque legislative situation in which both chambers of Congress heard the same set of facts and opinions and came to exactly opposite conclusions. A Senate committee recommended that no further funds be spent on Nike. A House group recommended the same treatment for BOMARC. To light the way out of this impasse, the Senate committee directed the Department of Defense to prepare a master plan which would provide some basis for Congressional action. Congress had held Defense feet to the fire, but the only result was the stench of burning flesh. The Department of Defense was still required to do its constitutional duty.<sup>2</sup>

This, then, was the genesis of the Department of Defense Master Air Defense (MAD) Plan of 19 June 1959. Because of an unbreakable deadlock within the Joint Chiefs of Staff (the Air Force representative at the time was General Thomas D. White), the MAD Plan was written by civilian executives within the Office of the Secretary of Defense. Both BOMARC and Nike were retained. The BOMARC program was cut from 31 squadrons, including two in Canada,

1 (cont). No. 11, "Organization and Management of Missile Programs," 2 Sep 1959, p. 123.

2. Ibid.

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to 18 squadrons. As to SAGE, it was proposed to save \$1.3 billion by establishing an "austere" configuration in the central and south-central United States, limiting these areas to "soft" (in terms of resistance to nuclear blast) combat centers. It was still planned to "harden" other combat centers. It was also proposed to delete funds for gap filler and FD radars. The House and Senate accepted, in general, the provisions of the MAD Plan and approved the revised Department of Defense appropriation bill for FY 1960.<sup>3</sup>

While the MAD Plan detailed much of the damage done to the still-building defense against the manned bomber by the Congressional revolt of 1959, the total extent of that damage was not revealed until September of that year when the Air Force cancelled development of the F-108 long-range interceptor, intended as the third generation of jet all-weather interceptors. General White, in later testimony, explained why the F-108, rather than some other aircraft, had been chosen for cancellation.

We simply could not carry anything like our proposed programs. Something had to give. It was quite apparent we would not be permitted to develop more than one Mach 3 aircraft. I never spent more sleepless

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3. Ibid., p. 124; OSD to Secy AF, "Continental Air Defense Program," 19 Dec 1959 (Doc 1 in Hist of ADC, Jan-Jun 1959).

nights, talked to more people, worried more about a problem than when that one came to the critical point of: Which one were we going to continue, the F-108 or the B-70?<sup>4</sup>

But whatever the connotations of the MAD Plan and the cancellation of the F-108 interceptor, the almost inexorable expansion and improvement of the defenses against the manned bomber continued through 1959. Fifteen more radars of the second and third phases of the Mobile Radar Program became operational. The number of operational gap-filler radars grew from 63 to 108. The SAGE system grew from one "module" of three direction centers and one combat center at the end of 1958 to the point where 11 direction centers and two combat centers worked regularly at the end of 1959. Although the manned interceptor force dropped from 58 to 56 squadrons during the year, the advanced F-101B and F-106 aircraft were introduced and at the end of 1959 all but 15 interceptor squadrons had Century Series aircraft. The last of the three Texas Towers became operational. Even the much-maligned and long-in-development BOMARC came into operational use. The squadrons at McGuire and Suffolk assumed alert status before the end of 1959.<sup>5</sup>

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4. House Hearings on the Department of Defense Appropriation for Fiscal 1961, Part 2, 25 Jan 1960, p. 267.

5. Hist of ADC, Jul-Dec 1959, pp. 19-25, 43, 103-106, and 116-117; AC&W Status Rpt, ADC, 31 Dec 1959 (Doc 6 in Hist of ADC, Jul-Dec 1959).

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The "feet held to the fire" situation continued into 1960. Members of the House had fresh memories of their initial refusal to approve any funds for BOMARC during the 1959 discussions of the DOD budget for FY 1960. The new Secretary of Defense, Thomas S. Gates (who had been barely six weeks in office, having succeeded Mr. McElroy on 2 December 1959), faced a more or less hostile audience when he appeared before the House Appropriations Committee on 13 January 1960 to begin testimony on the budget for FY 1961. It surprised nobody that House members resumed the attack on BOMARC. On the second day of testimony, 14 January 1960, Chairman Mahon set the stage by quoting the 1959 committee report to the effect that \$30 billion had been spent on air defense in the preceding 10 years and that there were plans afoot to run this total to \$50 billion. In the next breath he asked if it was true that both the BOMARC and Nike programs were being continued. Secretary Gates, quoting the MAD Plan of June 1959, vouchsafed that both programs, indeed, were being continued. If this was so, asked Mahon, did the Secretary think the air defense program was in proper focus? With the air of sweet reasonableness that characterized all DOD witnesses at that time, Mr. Gates responded that he thought the air defense program was "in good shape," but



immediately qualified that statement by adding that it "like other programs, ought to be under continuous review."<sup>6</sup>

General Nathan F. Twining, Chairman of the JCS, entered the discussion at this point to answer an implication in an earlier Mahon statement. Gen. Twining said that he concurred with the statement of Mr. Gates, but that, in all candor, it was necessary to reveal that the NORAD commander (General Laurence S. Kuter, who had succeeded General Partridge on 1 August 1959) did not support the OSD position. "General Kuter," said General Twining, "feels very strongly that we are not devoting enough of our time and effort to air defense." Nevertheless, he continued, "I feel--and the other chiefs go along with me--this is a pretty good balance we have now." Then he added a musing comment that bordered on wishful thinking: "Maybe the Russian will eliminate their air threat entirely. We do not know." He concluded with a statement that went unnoticed at the time, but was heavy with implications of things to come. "We certainly ought to keep watching this and not spend money on air defense unnecessarily."<sup>7</sup>

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6. House Hearings on Department of Defense Appropriations for FY 1961, Part I, 14 Jan 1960, p. 54.

7. Ibid.

This obvious lack of conviction on the part of Department of Defense witnesses, particularly as regards BOMARC, provided the hostile members of the House Appropriations Committee with the opening needed. For example, the committee asked for a progress report on the testing of the advanced BOMARC, the "B" model designed for a range of 400 miles. General Twining professed not to know the details, but insisted that "we have had pretty good luck." Dr. Herbert F. York, Director of Defense Research and Engineering (DDR&E), concurred that "where we stand so far is encouraging. It is not discouraging."<sup>8</sup>

The bald fact was, however, that the first five BOMARC B test launches from Cape Canaveral (later Cape Kennedy) to that date had been failures because of ramjet malfunctions.<sup>9</sup>

In the face of continued probing on BOMARC, Mr. Gates became increasingly defensive. Before his testimony was completed he had reached the point where he said that "it might be well before this budget is spent or committed further--I mean in the course of Fiscal Year 1961--that we have another reappraisal. Such a reappraisal might change the emphasis on certain factors."<sup>10</sup>

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8. Ibid., p. 113.

9. Msg, RDZSDB 31304, Dir of Sys Mgt (ARDC) to ARDC, 27 Nov 1959 (Doc 272 in Hist of ADC, Jul-Dec 1959).

10. House Hearings on Department of Defense Appropriations for FY 1961, Part 1, 14 Jan 1960, p. 113.

Perhaps because the mood of Congress was one of irritable hostility on the subject of defense against the manned bomber, this reappraisal began within USAF about 15 February 1960. In charge of the project was Maj. Gen. Howell M. Estes, Assistant Deputy Chief of Staff for Operations, with a group of about 100 technicians drawn from ARDC, AMC, and a special advisory group known as ADSID/MITRE (Air Defense Systems Integration Division/Massachusetts Institute of Technology Research and Engineering--the MIT forces were divorced from the educational institution and incorporated as "MITRE Corporation"). Although this effort was implied in the January testimony of Mr. Gates and General Twining, specifically mentioned by Secretary of the Air Force Dudley C. Sharp in testimony before the House Armed Services Committee on 18 February 1960 and made known, informally, to the staff of the Appropriations Committee at about the same time, the latter committee seemed surprised when the Air Force, late in March 1960, requested that the hearings on the budget for FY 1961 be reopened. The new hearings were held on 24 March 1960. "If this is such a wonderful idea which you present here today," Chairman Mahon wanted to know, "why did you not come to the Capitol

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in January and present us with this money-saving, defense-improving eye-catching, more attractive program."<sup>11</sup>

General White's immediate reply was that the true meaning of the MAD Plan of June 1959 had not been fully understood in January. The two main features of the March 1960 presentation were the limitation of BOMARC to 10 sites, including the two in Canada, and cancellation of plans for SAGE "super" combat centers (solid state computers in hardened buildings). The BOMARC budget request was thereby cut from \$421 million to \$40 million. The deletion of super combat centers was expected to save \$132 million. Nobody was so indelicate as to mention that the MAD Plan had specified the hardening of SAGE and the deployment of BOMARC at 16 locations in the United States. Later in his testimony on 24 March 1960, however, General White acknowledged that the requested changes represented "new concepts based on better studies."<sup>12</sup>

At the same time, General White also explained that the operating philosophy of the Air Force was based on the "fact" that offense was the best defense. To underline this point, he added that he was "perfectly certain

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11. House Hearings on Department of Defense Appropriation for FY 1961, "Revision in 1960 and 1961 Air Force Programs--Reappraisal of Air Defense Program," 24 Mar 1960, pp. 25, 30, and 64.

12. Ibid., pp. 19-22 and 52.

that...air defense could absorb the national budget and... still could not guarantee 100-percent defense."<sup>13</sup>

NORAD and ADC, predictably, agreed with none of this and General White admitted as much. As to why ADC was not included in the reappraisal task force organized in mid-February 1960, General Estes was perfectly frank. "We did not ask them specifically for their detailed ideas," he said, "for the very simple reason we knew already their ideas would not coincide with ours with reference to reductions."<sup>14</sup> On the day before General White laid the plan for reduced air defense before Chairman Mahon's group, however, ADC was asked what it would require in the way of F-106 aircraft in the event BOMARC was cancelled. ADC took the position that only one-for-one substitution (one manned interceptor for one interceptor missile would suffice). There was considerable discussion of the substitution proposal during the hearings on 24 March 1960, but neither General White nor General Estes would be pinned down as to the validity of the substitution statistics, saying merely that the question had been asked of ADC and that ADC, presumably with NORAD

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13. Ibid., p. 53.

14. Ibid., pp. 27-30.

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concurrence, had come up with the answer provided the committee.<sup>15</sup>

Again, as in 1959, the House could not be convinced that BOMARC was a worthwhile weapon and decided to withhold all funds for it. At the same time, reflecting the thinking of the influential Chairman Mahon that a mobile interceptor aircraft was vastly superior to a fixed interceptor missile of dubious capability, the House recommended the expenditure of \$215 million for additional F-106 interceptors. These funds had not been requested by the Department of Defense.<sup>16</sup>

But all was not lost as regards BOMARC. The Senate still had to take action on the appropriation bill for FY 1961. The arguments favoring the missile were bolstered when, on 13 April 1960, the test organization managed the first successful launching (in eight tries) of a BOMARC B. Just as one swallow does not make a summer, one successful test launching was not likely to assure the Senate that all the technical problems of the BOMARC had been overcome. In early May 1960, therefore, Dr. Joseph V. Charyk, Under Secretary of the Air Force (since 28 January

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15. Ibid., pp. 34-35 and 69; Msg, ADLDC-S 931, ADC to USAF, 23 Mar 1960 (Doc 147 in Hist of ADC, Jan-Jun 1960).

16. Aviation Week, 4 Apr 1960.

1960), "inquired as to the possibility of getting some successful BOMARC B firings before the end of May."<sup>17</sup> The Senate Appropriations subcommittee scheduled hearings for the last week in May. Fortunately the next test launching of BOMARC B, on 17 May 1960, also proved successful. It was therefore possible for General White to go before the Senate group and ask for the restoration of BOMARC funds with a greater air of confidence than he might otherwise have shown.<sup>18</sup>

Ultimately the pattern of 1959 was repeated. The Senate expressed more faith in BOMARC than did the House and not only restored the funds needed to build and equip 10 sites in the northeast (including two in Canada), but added, in reporting the bill on 8 June 1960, \$75 million for two sites in the Pacific Northwest. The Senate deleted the House proposal to add \$215 million for additional F-106 aircraft. A conference committee, which met in mid-July to reconcile the differing versions of the bill, agreed that BOMARC should survive in 10-site form.

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17. Msg, ADCVC 1418, ADC to 32 AD, 12 May 1960 (Doc 375 in Hist of ADC, Jan-Jun 1960); Msg, WWXDBE-B 14-4-29, IM-99 Field Test Sec to USAF, 14 Apr 1960 (Doc 372 in Hist of ADC, Jan-Jun 1960).

18. Msg, WWSDBE 18-5-48, IM-99 Field Test Sec to USAF, 18 May 1960 (Doc 378 in Hist of ADC, Jan-Jun 1960); Air Force Times, 1 Jun 1960.

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One hundred million dollars, which the DOD claimed not to want, was provided for additional F-106 interceptors, but with the proviso that if the money was not spent for interceptors it could be used in the B-70 program.<sup>19</sup>

It could be argued then, that the real implications of the orbiting Sputnik were not fully realized as regards air defense against the manned bomber until 1960. The meaning of the 24 March 1960 hearings before the House Appropriations Committee lay in General White's statement that the Air Force was seeking, nearly seven years after the 1953 decision of the National Security Council, "a minimum adequate defense."<sup>20</sup> The most immediate Air Force need, by 1960, was improvement and wider deployment of offensive Intercontinental Ballistic Missiles. Air defense no longer enjoyed a very high priority. As evidence of the changed situation, the \$100 million added to the FY 1961 budget was not spent for additional F-106 interceptors.

Nevertheless, completion and refinement of the defense against the manned bomber proceeded in 1960. Five more SAGE direction centers became operational, for a total of 16 against the revised ultimate total of 22. A third

19. Washington Post, 9 Jun 1960; Aviation Daily, 20 Jul 1960.

20. House Hearings on Department of Defense Appropriation for FY 1961, "Revision in 1960 and 1961 Air Force Programs--Reappraisal of Air Defense Program," 24 Mar 1960, p. 53.



UNCLASSIFIED



F-106 aircraft over  
Hickory Falls, New York

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SAGE combat center also became operational. The total number of operational long-range radars decreased in 1960, but the quality of those remaining improved. Fifteen radar stations closed, for economy reasons, in 1960 while three were added, reducing the total within the United States from 131 at the end of 1959 to 119 a year later. More than half (60) of the radars operating at the end of 1960 were the advanced FPS-20 model.<sup>21</sup>

A similar situation prevailed as regards the anti-bomber weapons force. While, again for economy reasons, the number of manned interceptor squadrons was drastically reduced from 56 to 41 during 1960, all those which remained were equipped with modern Century Series aircraft of the F-101B, F-102A, and F-106A types. Despite the tumult and the shouting during the spring, two more BOMARC squadrons (at Otis and Dow) reached operational status in 1960, bringing the total to four. All four operational BOMARC squadrons had the relatively short range (200 miles) BOMARC A missile.<sup>22</sup>

Meanwhile, the Air National Guard began to take a more important part in day-to-day air defense even though

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21. Hist of ADC, Jul-Dec 1960, pp. 101-03; ADC AC&W Operational Status Report, 31 Dec 1960 (Doc 1 in Hist of ADC, Jul-Dec 1960).

22. Hist of ADC, Jul-Dec 1960, pp. 153 and 169-70.

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it remained under state control. By 1960 there were 16 ANG interceptor squadrons standing alert at least from dawn to dusk. This duty rotated, except for six squadrons, among the 22 ANG squadrons obligated to air defense. The excepted six squadrons--five along the southern border and one on the northern border--were permanently committed to continuous, around-the-clock, seven-days-a-week alert.

These were:

<u>Squadron</u>	<u>Location</u>	<u>Aircraft</u>
197	Phoenix, Arizona	F-86L
182	Kelly AFB, Texas	F-86D
122	New Orleans, Louisiana	F-86D
159	Jacksonville, Florida	F-86L
111	Ellington AFB, Texas	F-86L
178	Fargo, North Dakota	F-89D

Federal funds permitted the retention of nine alert air-crews on active duty at all times at each of these six squadrons.<sup>23</sup>

The Democratic Party recaptured the national administration in the elections of 1960 and there was an air of expectancy within the military establishment as the new administration prepared to take office, since John F. Kennedy had campaigned on the premise that the Eisenhower administration had been unduly parsimonious with

23. ADC Hist Study No. 23, The Air National Guard Manned Interceptor Force, 1946-1964 (1964), p. 57.

national defense and had wrongfully emphasized the nuclear deterrent. The advent of the Eisenhower administration in 1953 meant extension and modernization of air defense against the manned bomber (SAGE, DEW Line, Texas Towers, AEW&C, better radar, advanced interceptors, BOMARC). Toward the end of the Eisenhower presidency, however, financial pressures forced drastic reductions in the scope of the air defense system. Soviet success in the orbiting of Sputnik I in October 1957, however, also contributed to the lessening of interest in defense against the manned bomber.

The new team at the DOD, headed by Secretary Robert S. McNamara, plunged into a long series of studies of the various aspects of national defense in early 1961. While awaiting the defense policy of the "New Frontier," the House Appropriations Committee began to examine the Eisenhower defense budget for FY 1962. There was little sympathy for expenditures for anti-bomber defense. Representative Daniel J. Flood of Pennsylvania, who had almost made a career of needling Air Force witnesses, reported, on 15 March 1961, a rumor that the hardening of SAGE was about to be revived. "Is this merely barroom gossip in the Air Force again," he wanted to know, "or are you thinking about it...down there?"<sup>24</sup>

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24. House Hearings on Department of Defense Appropriations for FY 1962, Part 2, 21 Mar 1961, p. 841.

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■ Maj. Gen. Robert J. Friedman, USAF budget director, assured Congressman Flood that there was nothing to the rumor and that the SAGE hardening project had been definitely killed. Mr. Flood continued to probe, however, and General Friedman was eventually forced to admit that he was aware, informally, "that the people in Colorado Springs would probably like to do this," but insisted that USAF was implacably against it.<sup>25</sup>

■ Another sore point involved proposed modifications to the F-106 fire control system. In the reopened 24 March 1960 hearings on the FY 1961 budget, General White recommended that some of the savings realized from the curtailment of BOMARC be spent on improvement of the manned interceptor force. The March 1961 presentation added details. It was proposed to rework 190 "black boxes" within the MA-1 fire control system of the F-106. Why, it was asked, if the Air Force inspection system was so efficient, were there so many things wrong with the MA-1? General Friedman and Maj. Gen. Sam Agee, USAF Director of Operations, attempted to explain that there was not really anything wrong with the MA-1, but that improvements had been made during the course of production and that the modification program under discussion was primarily an effort

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25. Ibid.

to bring earlier production models of the F-106 up to the level of the last aircraft off the production line. The committee did not seem convinced, but did not pursue the matter further.<sup>26</sup>

The only pleasant words spoken about air defense came when it was estimated that the annual cost of SAGE communications would amount to \$95 million. In previous years the estimates had run as high as \$240 million. This reduction became possible by reducing the size of the SAGE network, by convincing the Federal Communications Commission that it should permit the telephone companies to charge a lower rate to bulk users (which also included the television networks), and by means of a massive engineering survey which had resulted in decreasing the number of telephone circuits required by SAGE. Congressman George W. Andrews of Alabama found this "highly encouraging."<sup>27</sup>

Eleven days after this discussion, on 28 March 1961, the initial Kennedy budget message was presented to Congress. It requested material changes in the Eisenhower defense budget, and even added a small amount for the improvement of manned interceptors. The principal beneficiary, however, was the Army, since the revised budget

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26. Ibid., pp. 854-855.

27. Ibid., 17 Mar 1961, pp. 939-964.

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added considerable sums for the revitalization of conventional forces. During the emphasis on "bigger bang for a buck," the ground forces had been permitted to fall into disrepair. The Kennedy administration reasoned that in a situation of nuclear stalemate any war was likely to be of conventional nature.<sup>28</sup>

The public press, more or less quiescent on the matter of air defense policy since the acrimonious debates of 1952-53, became much more interested in the matter following the Tushino (Russia) Air Show of 9 July 1961. It was the first public exhibition on the part of the Soviet Long Range Air Force in five years. Of particular interest were long-range bombers equivalent to SAC's B-52s and B-58s and supersonic interceptors apparently equal to the best offered by ADC. The parochial press (publications primarily for military and defense industry readership) raised the loudest cry of alarm. Aviation Week was prompted to comment that the Tushino show "made clear the folly of abandoning the F-108 fighter."<sup>29</sup>

Air Force Magazine hastened to add, about the Tushino show, that "it may well be that the cancellation of the

28. Baltimore Sun, 29 Mar and 5 Apr 1961; Aviation Daily, 5 Apr 1961.

29. Aviation Week, as quoted in the New York Herald-Tribune, 11 Jul 1961.



F-108 long range interceptor and the failure to modernize the DEW Line were the biggest past mistakes of all.<sup>30</sup> Missiles and Rockets found it peculiar that the major outcry following Tushino was for more B-52 bombers and an increase in B-70 funding when the indicated need was for the F-108 and BOMARC. But the argument was not all on the side of the "more-money-for-anti-bomber-defense" school of thought. Aerospace Management contended that defense against the manned bomber was a very shaky edifice, propped up mainly by laudatory press releases. Flying in the face of suggestions that the SKYSHIELD II air defense exercise of 1 October 1961 had inflicted a "defeat" on the simulated bomber force, the magazine claimed that the B-58 was held out of this activity to make the defenses look good and to justify a reduction in funds for the B-58. This bomber, the magazine concluded, "can thumb its nose at present defenses."<sup>31</sup>

Whatever the furor over Tushino, it was plainly evident by 1961 that defense against the manned bomber was going to assume a lower priority in an era in which the offense was going to be dominated by the ICBM. If Sputnik

30. John F. Loosbrook, "Here We Go Again," Air Force Magazine, Aug 1961.

31. Aerospace Management, Dec 1961; William J. Coughlin, "The Great Tushino Stampede," Missiles and Rockets, 31 Jul 1961.

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meant that the threat from the manned bomber might fade away, why would it not be possible to use SAGE and associated radar to control domestic airways, a function of the Federal Aviation Administration (FAA)? To examine the possibilities, the Air Force, in April 1961, awarded the MITRE Corporation a six million dollar contract for Project SATIN (SAGE Air Traffic Integration). Concurrently, FAA commissioned its own study of airspace control in the future (Project BEACON).

While the Air Force generally favored the use of SAGE in air traffic control, FAA approached the subject somewhat more cautiously in view of the immense cost involved in maintaining SAGE. The figure of \$700 million a year was mentioned. In informal conversations, FAA officials expressed reluctance at being saddled with what could get to be an Air Force white elephant. It was not surprising, therefore, that the final report of Project BEACON, made public in November 1961, rejected the use of SAGE in domestic airspace control. Project BEACON did, however, recommend that FAA use ADC radars, tying them to FAA-built control centers that appeared, in many ways, to duplicate SAGE.<sup>32</sup>

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<sup>32</sup>. Wall Street Journal, 3 Apr 1961; New York Times, 13 Nov 1961; Aviation Week, 4 Dec 1961.

The Kennedy-revised version of the final Eisenhower budget for FY 1962 did nothing to change the March 1960 decision to lower the priority of antibomber defense.

At the end of 1961 the improved air defense system directed by the National Security Council decision of October 1953 was mostly in place. The 22nd SAGE direction center, at Sioux City, became operational in December 1961 and the SAGE system, though much more austere than originally planned, was complete. One-hundred-thirty long-range search radars in the United States fed information into the surveillance network. The four Greenland stations of the eastern segment of the DEW Line ADC accepted on 1 August 1961 and the extended DEW Line was complete. Airborne Early Warning and Control aircraft had all been fitted with the APS-95 radar, and manned. Ten stations off the east and west coasts of the United States operated on a random basis. While one Texas Tower collapsed in a storm on 15 January 1961, the two remaining towers still operated at the end of the year. Ninety-six of the reduced total of 140 gap filler radars planned for use in the United States were operational. All 41 squadrons of the manned interceptor force had Century Series interceptors. Seven of the eight U. S. BOMARC squadrons allowed by Congress were operational. Only the squadron at Niagara Falls and the two allocated to Canada were unready.

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Various improvements to the basic antibomber defense structure had been discovered during the course of building the system and some of these were reaching the point of installation in 1961, although most suffered from a dearth of funds. The FPS-74, an improved gap filler radar capable of countering electronic countermeasures, was originally expected to replace all original FPS-14/18 gap fillers, but DOD agreed to the financing of only 86 sets. The first FPS-74 was expected in March 1962. Similarly, the plan to replace about one-third of the existing prime radars with FD types (FPS-24, FPS-27, and FPS-35) also ran into financial trouble. In late 1961 the number of FPS-27 sets to be procured declined from 38 to 32. At the end of the year, one FPS-24 and four FPS-35 models had been installed for the purpose of operational testing. The Airborne Long Range Input (ALRI) modification to AEW&C aircraft intended to extend the SAGE operational area 250 miles to sea and make it possible to decommission the two remaining Texas Towers. It was originally planned that all AEW&C aircraft would receive the ALRI equipment (even though the Texas Towers were off the east coast), but money shortages again served to alter plans. By the end of 1961 it was

evident that only AEW&C aircraft assigned to the east coast would receive ALRI.<sup>33</sup>

Perhaps the best evidence of the change in the direction of air defense policy was the re-entry of Stewart Alsop into the discussion. In 1952-53, Stewart Alsop, and his brother, Joseph, then writing as a team, berated both the Truman and Eisenhower administrations for paying insufficient attention to the recommendations of the 1952 scientific parley known as the Summer Study Group. When the Eisenhower administration finally acknowledged the requirement for an expanded, modernized and automated air defense system, the Alsops turned their attention to other matters. At the end of 1961, however, when it appeared that a similar battle was brewing, Stewart Alsop resumed the "too little and too late" argument as regards air defense. The columnist claimed that the Soviet Union had regularly spent 20 percent of its defense budget on air defense since World War II and had recently increased that proportion to 30 percent. He also implied that he hoped a word to a wise new (Kennedy) administration would be sufficient.<sup>34</sup>

33. Hist of ADC, Jul-Dec 1961, pp. 2-6, 15-18, 55, . 69-70, 79, 113-114, 175, and 217-218.

34. Stewart Alsop, "Event of 1962?," Washington Post, 1 Jan 1962.

VI. THE STRUGGLE FOR THE IMPROVED MANNED INTERCEPTOR  
1962-1966

The first purely Kennedy budget was that for FY 1963, presented to Congress in early 1962. This budget was presented in an entirely different form, reflecting the ideas of Charles J. Hitch, Department of Defense Comptroller, who (in collaboration with Roland N. McKean) outlined a functional method of presenting defense budgets in a 1960 book, The Economics of Defense in the Nuclear Age. The budget for FY 1963, therefore, appeared in nine functional categories, one of which was "continental air and missile defense forces." According to the proposal submitted to Congress, \$2.207 billion was likely to be spent for this purpose in FY 1962. As for FY 1963, \$2.052 billion was requested. Nearly 75 percent of the later sum was required for day-to-day operation of the existing air defense system.<sup>1</sup>

When Robert S. McNamara, Secretary of Defense in the new administration, went before the Senate Armed Services Committee on 22 January 1962 to defend his budget, he listed six defensive tasks facing the nation in the coming years. It was significant that only one of these

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1. Senate Hearings on Military Procurement Authorization for FY 1963, Senate Committee on Armed Services, 28 Jan 1962, p. 231 (cited hereinafter as Senate Hearings, FY 1963).

had any bearing on defense against the manned bomber and then only to the extent of a recommendation that the vulnerability of the antibomber defense system to ICBM attack should be reduced. The other five points dealt with defense against attack from space and protection of the civilian population against the nuclear fallout that would result from such an attack.<sup>2</sup>

There was absolutely no OSD support for development or production of an improved manned interceptor (IMI), although NORAD/ADC had made repeated requests for development of an IMI ever since the F-108 effort was cancelled in September 1959. The last F-106 was delivered to ADC in March 1961 and no successor to any of the Century Series interceptors was under development. This was a matter of concern in view of the knowledge that eight to 10 years were required to develop and bring to operational readiness a modern jet interceptor. Secretary McNamara told the Senate committee that no procurement of interceptor aircraft was contemplated in FY 1963. He did, however, perhaps because of pressure from below, depart from his prepared text to add that "later on, if a new interceptor is required, we could consider the TFX\* fighter for that role."<sup>3</sup> A week later, in making a

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\*NOTE: The TFX was a tactical fighter being considered for joint use by the Air Force and Navy.

2. Ibid., 22 Jan 1962, p. 77.

3. Ibid., p. 78.

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similar presentation to the House Appropriations Committee, Mr. McNamara did not find it necessary to add the qualifying statement about the TFX.<sup>4</sup>

The BOMARC interceptor missile continued to come under critical fire even though the eight-site complex covering the northeastern United States was complete. Senator John Stennis of Mississippi said he was "amazed" that two billion dollars a year was still required for defense against the manned bomber, but added that "if we had not reduced the original plan for BOMARC, it would have been much more."<sup>5</sup> The Secretary of Defense admitted that the air defense budget would have amounted to at least \$500 million more if BOMARC had not been severely curtailed.<sup>6</sup>

Even so, the Air Force insisted that it was still convinced that BOMARC was a weapon system that provided worthwhile capability. In response to subsequent questioning by Senator Richard B. Russell of Georgia, General Frederic H. Smith, Jr., Air Force Vice Chief of Staff, revealed that the initial Air Force budget for FY 1963 had included a request for seven squadrons of a mobile version of BOMARC, but that OSD opposition resulted in this request

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4. House Hearings on Department of Defense Appropriations for FY 1963, Part 2, 29 Jan 1962, p. 44 (hereinafter cited as House Hearings, FY 1963).

5. Senate Hearings, FY 1963, 23 Jan 1962, p. 229.

6. Ibid.



being omitted from the budget presented to Congress.

General Smith denied a Russell allegation that BOMARC was obsolete.<sup>7</sup>

The controversial BOMARC also started a political donnybrook in Canada. The northern partner in NORAD had agreed, in 1959, that BOMARC sites would be constructed at North Bay and La Macaza. Since all BOMARC missiles carried atomic warheads, conclusion of this agreement implied Canadian acceptance of the warheads. This matter of atomic warheads became a political issue in early 1961 when Lester B. Pearson, leader of the opposition to Prime Minister John Diefenbaker's government, advocated that Canada pull out of NORAD and thereby abrogate the agreement to accept the nuclear weapons. The Canadian Minister of Defence, Douglas Harkness, replied that Canada would honor the agreement not only as it applied to BOMARC but also as it applied to the nuclear armament of the F-101B interceptors being made available by the United States.<sup>8</sup>

Prime Minister Diefenbaker somewhat undermined the position of Mr. Harkness in February 1962 when he declared that Canada would not accept nuclear warheads unless they

7. Ibid., 1 Feb 1962, p. 515.

8. Washington Post, 10 Jan 1961; New York Herald-Tribune, 12 Feb 1961.

(This page is Unclassified)

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were under joint control. This was patently impossible, since U. S. law required that nuclear weapons be in U. S. custody at all times. Despite the Prime Minister's stand, the Ottawa correspondent of the Milwaukee Journal predicted, in March 1962, that Canada would eventually accept the warheads. Otherwise, he reasoned, the \$600 million Canada was spending on BOMARC sites and air base facilities would be wasted. On the other hand, MacLean's Magazine, an influential Canadian publication, argued against acceptance on the premise that even destruction of a Soviet H-bomber by a BOMARC missile would produce a nuclear blast that would kill a great number of Canadians. MacLean's also contended that the United States could provide a non-nuclear warhead for the BOMARC if it really tried. At any rate, the BOMARC launch facilities at the two Canadian sites were completed by the end of 1962 and a decision on nuclear warheads could not be delayed much longer.<sup>9</sup>

Planning had already begun on the stated DOD requirement that vulnerable elements of the antibomber defenses be made less so. Put on notice in the autumn of 1961 that the Secretary of Defense planned to recommend such action in

9. New York Herald-Tribune, 28 Feb 1962; David Holden, "Canada 'on Brink' of Nuclear Arms," Milwaukee Journal, 11 Mar 1962; Paul Simon, "We're Arming Against Ourselves If We Take A-Arms for the BOMARC," MacLean's Magazine, 14 Jul 1962.

his presentation on the budget for FY 1963, ADC outlined a basic interceptor dispersal arrangement before the end of the year. This plan was relatively simple, since it merely called for deployment of half the aircraft of most interceptor squadrons to a predetermined dispersed operating base (DOB) upon receipt of warning of an ICBM attack. Implementation of the plan proved difficult, however, since it was necessary to select dispersal bases, build the necessary facilities and stockpile the necessary supplies. As a first step, taken in early 1962, interceptor squadrons were required to maintain at least one third of their tactical aircraft on 15-minute alert status. Previously, the requirement had been to maintain two aircraft on five-minute alert, a requirement that continued in effect, with others on one-hour alert. It was obviously impossible to quickly disperse an appreciable number of aircraft unless they were standing alert.<sup>10</sup>

An unexpected test of the dispersal plan occurred in October 1962 at the time of the "eyeball to eyeball" confrontation between the United States and the Soviet Union over Soviet installation of ballistic missiles in Cuba. At that time ADC promptly dispersed 161 interceptors from 28 squadrons to 16 dispersal bases. None of the dispersal bases

10. ADC Operations Plan 20-61, 30 Nov 1961 (Doc 405 in Hist of ADC, Jul-Dec 1961).

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were really ready in terms of facilities or supplies, but this emergency action did prove that a goodly portion of the interceptor force could be moved out of harm's way on short notice and presumably live to fight another day.<sup>11</sup>

The 1960 refusal of USAF to consider the NORAD/ADC proposal to "harden" SAGE command and control centers against nuclear attack led to the program, presented to Congress in January 1962, to "disperse" such centers. This effort became known by the awkward title of "back-up interceptor control", or, more euphoniously, BUIC. The original plan involved development of control capability at 34 radar sites. In April 1962 the Burroughs Corporation was awarded a contract for the BUIC computer and development began. The computerized BUIC meanwhile became known as BUIC II to distinguish it from BUIC I, an interim control network created by re-wiring communications to make localized control centers out of existing radar sites. BUIC I was expected to be operational in early 1963. The fully operational BUIC II system was not likely to be ready until the end of 1965.<sup>12</sup>

11. ADC Hist Study No. 15, The Air Defense Command in the Cuban Crisis (Oct-Dec 1962).

12. Wall Street Journal, 13 Mar 1962; Aviation Week, 10 Apr 1962; Communications and Electronics Digest (ADC, May and Dec 1962); ADC Hist Study No. 35, Command and Control Planning, 1958-1965 (1965), pp. 12-46.

Aside from the flurry of activity designed to get the air defense system ready to respond to ICBM attack, that system remained fairly static in 1962. SAGE was complete and operating, the radar network was essentially complete, as was the supplementary gap-filler radar network, the DEW Line in the far north, and the off-shore projections--AEW&C and Texas Towers. The manned interceptor force actually increased from 41 to 42 squadrons because jurisdiction over an interceptor squadron at Keflavik, Iceland, transferred from Military Air Transport Service (MATS) to ADC. The eight authorized BOMARC squadrons within the United States were operational. The Kennedy administration had not provided anything additional for air defense against the manned bomber, but neither had it, yet, taken away much, except for some funds for operations and maintenance.<sup>13</sup>

The main topic of discussion during the 1963 Congressional hearings on the defense budget for FY 1964 was an item that was not funded in that budget--the improved manned interceptor. When Secretary of Defense McNamara presented his budget to the House Armed Services Committee on 31 January 1963, he proposed spending about two billion

13. ADC Report RCS: IAF-V14, 26 Dec 1962; Hist of NORAD, Jul-Dec 1962, pp. 20 and 24; ADC Hist Study No. 14, History of Air Defense Weapons, 1946-1962 (1962), p. 189.

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dollars for air defense, most of that required for routine operation and maintenance of the existing system. As to his failure to request money for an IMI, Secretary McNamara detailed his reasoning:<sup>14</sup>

We still plan to retain the existing interceptor aircraft in the force, but the number of aircraft will decline gradually because of attrition. We believe that this force will be adequate against what we presently foresee as a declining Soviet manned-bomber threat. However, if the Soviets should deploy a new long-range bomber, we would have to reconsider the size and character of our interceptor force and, particularly, the need for modernization. There are a number of aircraft already in production, under development, or programmed which could be adapted to the interceptor role with only modest additional outlays for development costs.

Whether or not the Soviet Union actually deploys a new long-range bomber, we intend to make a thorough study of the entire problem of modernizing our manned interceptor force and we hope that next year we will be in a better position to make some definite recommendations on the subject. I do not believe, in the light of presently available intelligence and the wide range of options available to us, that the situation requires us to make a decision now.

(U) The Secretary of the Air Force and the Air Force Chief of Staff, however, sounded a more imperative note to the IMI. Secretary Eugene M. Zuckert, who assumed the office on 24 January 1961, said on 21 February 1963 that "we must continue to modernize our aerospace forces. Any failure to do so could result in serious deficiencies for which there

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14. Hearings on the Department of Defense Budget for FY 1964, House Armed Services Committee, 31 Jan 1963, p. 323.

is no price tag. Our fighter systems are aging and would not be effective against Soviet supersonic and even subsonic attacks with standoff missile systems."<sup>15</sup> General Curtis E. LeMay, who succeeded General White as Chief of Staff on 30 June 1961, expressed the opinion that "a replacement interceptor will definitely be needed."<sup>16</sup>

(U) Congressman L. Mendel Rivers of South Carolina, ranking Democrat on the Armed Services Committee, tried to get General LeMay to admit that an IMI was needed because ADC had no modern interceptors. The Chief of Staff, however, would not permit himself to be pushed to this extreme position. General LeMay ventured the opinion that the F-102 and F-106 could cope with any bombers currently operated by the Soviet Union. But he added that danger would arise in the future. What ADC would need, he explained, was an interceptor that had enough range to intercept an enemy bomber before it could get within missile range of the target. Also, it would have to be capable of Mach 3 speed and, since it would operate outside the range of ground-based radar, include radar which could locate a target anywhere from the surface to 100,000 feet.

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15. Ibid., 21 Feb 1963, p. 1148.

16. Ibid., p. 1170.

Rivers: "Why was this turned down?"

LeMay: "I think you should ask the Secretary of Defense that question."

Zuckert: "Well, he covered it in his statement, Mr. Rivers, on the basis that he was doubtful as to what the effectiveness of the interceptor was, and he wanted time for additional study of a possible interceptor among the candidates and also evaluate what effectiveness might be."

Rivers: "Do you agree?"

Zuckert: "I expressed in my own statement my feeling that I thought we should have an advanced manned interceptor."

Rivers: "But do you agree with Secretary McNamara?"

Zuckert: "No, but I think that before he makes a \$3 to \$5 billion decision of this kind he is entitled to take time to look it over."<sup>17</sup>

A study of air defense mentioned frequently in testimony on the budget for FY 1964 began in April 1963 under the direction of the ADC Deputy of Staff for Plans, Maj. Gen. Arthur C. Agan, Jr. The Continental Air Defense Study (CADS), completed in May 1963, considered five possible weapons for future air defense use. Two were based on Navy aircraft, F-4C and A-5C, one was the joint Navy-Air Force TFX, one was the Air Force C-135B tanker modified to Mobile Air Defense Station configuration and one was the IMI, based on the cancelled F-108, but incorporating recent advances in the state of the art of air-to-air weaponry.

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17. Ibid., pp. 1189-90.



After consideration of probable aircraft performance, fire control and armament performance, cost analyses, probable availability, expected operational life of aircraft, and, after extensive war-gaming of all five options, the study group reached the "tentative" recommendation that 12 squadrons of IMIs be bought.<sup>18</sup>

"Survivability" being the magic word in 1963 as regards air defense against the manned bomber, progress was made in this direction. BUIC I, the relatively simple re-wiring of communications to permit long-range radar stations to assume control functions in the event of disaster involving SAGE centers, was completed in May of 1963. It was anticipated that the first of 34 BUIC II sites would become operational in January 1965, with the entire system to be ready by October 1966.<sup>19</sup>

Dispersal of the manned interceptor force, although it enjoyed the blessing of Mr. McNamara, proceeded slowly, however, hampered by some unexpected roadblocks. Early planning called for the completion of Phase III, or "permanent," dispersal (four to six aircraft of every dispersing squadron established at its away-from-home location), by July 1963. This forecast proved to be hopelessly optimistic.

18. Continental Air Defense Study Report, May 1963 (HO files).

19. Hist of NORAD/CONAD, Jul-Dec 1963, pp. 22-25.

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For one thing, Canada did not approve the use of the nine programmed Canadian dispersal bases. It was not ready to allow the United States to store atomic armament and to station an average of 130 ADC personnel on the specified bases. Also, although it should not have been surprising in view of recent experience, there were money problems. Delays were unavoidable when no dispersal funds were included in the budget for FY 1963. ADC thereupon requested \$51 million for that purpose in FY 1964. USAF and DOD pared this figure to \$45 million for actual presentation to Congress. The legislators authorized the expenditure of this amount when they got around to passage of the FY 1964 authorization bill in November 1963. But there was a significant difference between authorization and appropriation and the appropriation bill contained only \$39 million for dispersal. At the end of 1963, therefore, ADC was establishing priorities for the use of the reduced amount. Completion of permanent dispersal remained at least a year away.<sup>20</sup>

BOMARC became operational in Canada in 1963, but only after a long period of Canadian soul-searching which included the overturn of the sitting Canadian government. Lester Pearson, leader of the opposition Liberal Party and

<sup>20</sup>. ADC Hist Study No. 25, Interceptor Dispersal, 1961-1964 (1964), pp. 28-53.

once opposed to acceptance of nuclear warheads, changed his position in January 1963 and urged acceptance. Mr. Pearson got help from south of the border later in January when the U. S. Department of State took the unusual step of publicly accusing the Diefenbaker government of welshing on the 1959 agreement. The Diefenbaker government collapsed in February 1963. The subsequent April election brought the Liberals to power and a new agreement concerning nuclear warheads was signed on 17 August 1963. The two Canadian BOMARC squadrons were operationally ready by the end of 1963.<sup>21</sup>

There was also contrariwise action as regards BOMARC in 1963. On 21 August, four days after the agreement with Canada, USAF announced that it had recommended to DOD that the short-range BOMARC A be phased out of the air defense system during FY 1965. DOD approval came before the end of August. Since money spent on the care of a dead horse was pure waste, ADC set about removing BOMARC A missiles as rapidly as possible. At the end of 1963 it was hoped that the removal job could be completed by the end of 1964, or about midway through FY 1965.<sup>22</sup>

21. Denver Post, 12 Mar 1963; Toronto Globe and Mail, 28 Jun and 18 Aug 1963; New York Times, 15 Dec 1963; Hist of NORAD/CONAD, Jul-Dec 1963, pp. 44-45; ADC Hist Study No. 18, Interceptor Missiles, 1962-1963 (1963), p. 1.

22. ADC Hist Study No. 18, Interceptor Missiles, 1962-1963 (1963), p. 3.

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Other actions were also taken in 1963, always in the name of economy, to reduce the size (and cost) of the air defense system. SAGE was trimmed, at OSD direction, by six direction centers. At the time this directive was issued in early 1963 ADC was given until the end of FY 1964 to accomplish this reduction, but it was accomplished much sooner. The San Francisco, Minot, and Spokane SAGE sectors closed by 1 June 1963. The Syracuse and Grand Forks sectors were gone by early September, with the Sault Ste. Marie sector following by 1 October. The same directive ordered the deletion of 17 prime radars. Sixteen of this number had been closed by the end of 1963, leaving a total of 118 long-range radars operating within the continental United States. Eighty-two unattended gap filler radars remained. The manned interceptor force declined from 42 to 40 squadrons. The two remaining Texas Towers were decommissioned, Tower 2 on 15 January, and Tower 3 on 25 March. The loss of the Texas Towers resulted in only a short-term loss of radar capability, however, because AEW&C aircraft operating off the east coast were equipped with the ALRI (airborne long-range interception) modification. The first of four ALRI stations began reporting to SAGE in March of 1963, the last in August of that year.<sup>23</sup>

23. Hist of NORAD/CONAD, Jan-Jun 1963, p. 10 and Jul-Dec 1963, pp. 1-2; ADC, RCS: 1AF-V14, 27 Nov 1963 (HO files).

The early months of 1964 were essentially a period of waiting. The atmosphere was reminiscent of 1952, although the problem was vastly different. In 1952 there was debate over the proper nature and extent of an efficient defense against the manned bomber. By 1964 the expanded system approved in 1953 had been completed and partially dismantled. The new question was the direction the air-defense system should go, in view of threats from both space and manned bombers. The decision was rendered more difficult by estimates that significant improvement of the existing air defense system was likely to cost between \$20 and \$30 billion. Central to the discussion, so far as ADC was concerned, was the IMI. The CADS study of May 1963 recommended development and procurement of the IMI. Secretary McNamara, however, did not read the same conclusions into CADS war games. In his initial FY 1965 budget presentation to a joint session of the Senate Armed Services Committee and a subcommittee of the Senate Appropriations Committee in January of 1964, Mr. McNamara said that "one of the surprising conclusions of the Air Force (CADS) study is that any one of these five systems (the Navy's F-4 and F-5, the TFX, C-135B, and IMI) would, for the same total program cost, provide roughly

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comparable defenses against a fairly wide range of possible bomber threats."<sup>24</sup>

This led him to certain further conclusions:<sup>25</sup>

Thus the selection of an advanced interceptor would most likely have to be based on other considerations, for example, availability, the degree of confidence in system characteristics and in the cost estimates, vulnerability to no-warning or intensive defense suppression attacks, dependence on ground control, usefulness in a TAC role, effectiveness against a supersonic bomber threat, etc. Each of the five alternative systems has its own particular strengths and weaknesses in terms of these 'secondary' criteria. Selection of any one of these systems now would involve some kind of uncertainty. Nevertheless, we do have a number of good choices for a 'follow-on' interceptor and we will continue to have these choices for some time. But until we can better discern the character of the future manned bomber threat and determine the proper balance among the three basic elements of our defense posture, i.e.; defense against manned bombers, defense against ICBMs and submarine-launched missiles, and civil defense, it would be premature to make the choice. Meanwhile we are proceeding with the production and improvement of the F-4, the development of the F-111 (TFX), and development of a number of subsystems which might be needed by a new interceptor.

Secretary McNamara made a similar presentation to the House Armed Services Committee in early February of 1964, but General LeMay subsequently testified on 4 February that the second most important requirement of the Air Force

24. Statement of SECDEF Robert S. McNamara on the FY 1965-69 Defense Program and the Department of Defense Budget for FY 1965 before a joint session of the Senate Armed Services Committee and the Senate Subcommittee on Department Appropriations, Jan 1964.

25. Ibid.

(after a new manned bomber) was a new manned interceptor of greatly increased speed and range. Secretary of the Air Force Zuckert, however, chose to side with Mr. McNamara rather than General LeMay, pointing out that there was not yet enough evidence that the Soviet Union was building a supersonic bomber to warrant immediate development of a new interceptor.<sup>26</sup>

The House Armed Services Committee, nevertheless, chose to side with General LeMay rather than his civilian superiors and on 9 February 1964 voted to authorize the expenditure of \$40 million on preparations for the IMI. Only three of the 40 members of the committee voted against this authorization. The full House passed the authorization bill on 27 February 1964.<sup>27</sup>

By curious coincidence, just nine days after the House action, President Lyndon B. Johnson revealed the existence of a new experimental jet aircraft known as the A-11. These aircraft, the President said, were undergoing tests "to determine their capabilities as long-range interceptors."<sup>28</sup> On 5 March 1964, Secretary McNamara told the press that the A-11 was an interceptor and specifically the IMI

26. Washington Post, 5 Feb 1964.

27. Wall Street Journal, 10 Feb 1964; New York Times, 21 Feb 1964.

28. "President's Press Conference," Washington Star, 1 Mar 1964.

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that ADC had been seeking. It was stated that the A-11 offered a sustained speed of 2,000 miles an hour and was effective at altitudes above 70,000 feet. Photographs made public showed the A-11 to be a long, thin aircraft that suggested the U-2 reconnaissance aircraft more than it did any existing interceptor. From whence came this mysterious aircraft that burst so suddenly on the scene, the Press wanted to know? There was no direct answer to this question, although hints were dropped that development of the A-11 had begun in 1959 when the U. S. Central Intelligence Agency (CIA) decided it needed a replacement for the U-2. Lockheed had been chosen to undertake the development. That the A-11 was under development was known to very few Congressmen and very few Air Force personnel. The A-11 was officially designated YF-12A in Air Force nomenclature and the Senate removed from the authorization bill the \$40 million the House had reserved for the IMI.<sup>29</sup>

The Senate action served to reinforce doubts about the complete sincerity of the Johnson administration as regards provision of an IMI. For example, Ordinance contended that "the A-11 is no more an interceptor than the RB-70 is

<sup>29</sup>. Ibid.; Laurence Barrett, "A-11 is What the AF Asked--McNamara," New York Herald-Tribune, 6 Mar 1964; Washington Star, 28 Apr 1964.



is a strategic bomber, official pronouncements to the contrary notwithstanding."<sup>30</sup> Ordnance further took the position that it would be impossible to modify the A-11 sufficiently to include the fire control system and armament required by an interceptor. The Saturday Evening Post went still further in May 1964, hinting darkly that the A-11 was revealed merely to take the steam out of the drive for the IMI. Even though the Joint Chiefs of Staff unanimously favored an IMI, according to the Post, Secretary McNamara was not convinced that an advanced interceptor would ever be needed, hence the A-11 smokescreen.<sup>31</sup>

■ Doublers also pondered a Foreign Affairs article by Roswell L. Gilpatric, who resigned as Deputy Secretary of Defense on 20 January 1964, as indicative of administration thinking. In this article, published in March 1964, Mr. Gilpatric wrote that a continuing or expanded detente with the Soviet Union would make it possible to rely, in the seventies, on an air defense system that included only early warning and surface-to-air missiles. He also argued that such a relaxed political atmosphere would make it possible to limit offensive systems to ICBMs. In short, Mr. Gilpatric foresaw the end of both manned bombers and manned interceptors.

30. Ordnance, May/June 1964.

31. Ibid.; James Atwater, "The Great A-11 Deception," Saturday Evening Post, 2 May 1964.

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While the Department of Defense disclaimed responsibility for the article, pointing to Mr. Gilpatric's status as an outside-the-government civilian, the parochial aerospace press protested that Mr. Gilpatric was far from being an ordinary civilian. The article, it was claimed, was a trial balloon launched by the administration to test reaction to the proposal to eliminate manned bombers and manned interceptors.<sup>32</sup>

It was also thought unlikely that the YF-12A would be financed until the administration reached a decision on what was called the complete "Continental Defense Package"-- antimissile missile (NIKE-X), advanced interceptor, and civil defense shelters. This decision was proving particularly difficult, the Washington Star claimed, because the immense \$20 to \$30 billion cost would force a reversal of the administration's publicly announced goal of cutting defense expenditures. For this very reason, it was reported at the end of March 1964, some Pentagon officials were coming around to the view that the defense problem was so difficult and expensive that the effort to do something about it should be all but abandoned.<sup>33</sup>

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32. Roswell L. Gilpatric, "Our Defense Needs-The Long View," Foreign Affairs, Apr 1964; Aviation Daily, 20 and 23 Mar 1964.

33. Richard Fryklund, "Lives Versus Defense Cash," Washington Star, 6 Feb 1964; Fryklund, "Officials Question 'Damage Limitation'," Washington Star, 25 Mar 1964.

But despite the insistence of critics that the YF-12A was too frail a craft to carry the fire control equipment and armament required of an interceptor, the aircraft unveiled to the public on 30 September 1964 had the ASG-18 fire control system and AIM-47A air-to-air missiles originally intended for the F-108, but continued in development after the F-108 was cancelled. While Republican campaigners (1964 was an election year) remained unconvinced--Rep. Melvin Laird of Wisconsin, chairman of the Republican platform committee, called it the "all-purpose political aircraft"--the general consensus was that if the YF-12A was not the IMI it was a highly satisfactory substitute. Time characterized the YF-12A as "a real interceptor, lean and mean."<sup>34</sup>

While the public showing of 30 September 1964 verified the fact that an interceptor of tremendously improved performance was available, no funds for accelerated development were contained in the DOD budget for FY 1965. The DOD had written no production contracts for the F-12 by the end of 1964 and there was little certainty such contracts might be written. The ADC requirement continued to follow the recommendations of the 1963 CADS report--12 squadrons of 12 aircraft each.<sup>35</sup>

34. Time, 9 Oct 1964; Chicago Tribune, 2 Oct 1964.

35. ADC Hist Study No. 27, The Fighter Interceptor Force, 1962-1964 (1964), pp. 56-57.

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Early discussions of the FY 1966 budget made clear that the DOD was getting ready to make wholesale cuts in the existing manned interceptor force in the relatively near future. In May of 1964 DOD produced a document known as Tentative Force Guidance (TFG) which proposed to reduce the manned interceptor force to 21 squadrons by the end of FY 1967. The ADC program called for a force of approximately double that size at the end of FY 1967. ADC, of course, protested a cut of this magnitude and recommended that the programmed force be retained in preference to the TFG force. The command had significant allies in taking this position. On 7 October 1964 the JCS (with the Army Chief of Staff absent) reaffirmed an earlier decision that the interceptor force should not be reduced to TFG levels until an IWI became available.<sup>36</sup>

Meanwhile, since TFG was a proposal and not a directive, ADC force programming continued in the even tenor of its ways. The ADC program of 3 Jul 1964 forecast a gradual decline in interceptor strength until 37 squadrons remained at the end of 1969. A similar document issued in September

36. Msg, ADCCR 1973, ADC to USAF, 11 Jun 1964 (Doc 119 in Hist Study No. 27, The Fighter Interceptor Force, 1962-1964 [1964]); ADC to USAF, "Secretary of Defense Force Guidance Memorandum," 6 Jul 1964 (Doc 119a in ADC Hist Study No. 27, The Fighter Interceptor Force, 1962-1964 [1964]); Command Briefing, ADC, 8 Oct 1964, Col C. E. Hammett, ADLDC.

[REDACTED]

of 1964 called for only one less--36--squadron at the end of FY 1969.<sup>37</sup>

[REDACTED] OSD was not moved very far from its TFG position of May 1964, however. When the Defense budget for FY 1966 was revealed in December 1964, it called for reduction of the manned interceptor force to 20 squadrons by the end of FY 1969. The only compromise made with ADC/NORAD/JCS wishes was to extend the completion date for the reduction from FY 1967 to FY 1969. The new budget also detailed another major reduction in the ground environment. The SAGE combat centers at Truax Field, Wisconsin, and McGuire were to be closed in FY 1966 as were the New York, Chicago, Reno, and Los Angeles direction centers and 10 long-range radars. The SAGE reductions were considered part of preparations for the BUIC control system. The BUIC plan, meanwhile, had been revised to call for limitation of BUIC II to 14 sites (in FY 1966 and 1967), and replacement by 19 BUIC III (formerly called Improved BUIC) sites in FY 1968 and 1969. BUIC III differed from BUIC II mainly in the ability to accept data from a larger number of radar stations. While plans were being made for still further reductions in the scope of defense against the manned bomber, cuts ordered earlier took place.

<sup>37</sup>. ADC Program Doc 64-69, 15 Apr 1964, as amended by Change C, 3 Jul 1964 and Change F, 18 Sep 1964.

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The BOMARC A interceptor missile completely left the active force in July 1964, thereby reducing the BOMARC force in the United States to six squadrons, all equipped with the longer-range BOMARC B missiles. By the end of 1964 the number of prime radars within the United States declined to 114, the number of manned interceptor squadrons to 39.<sup>38</sup>

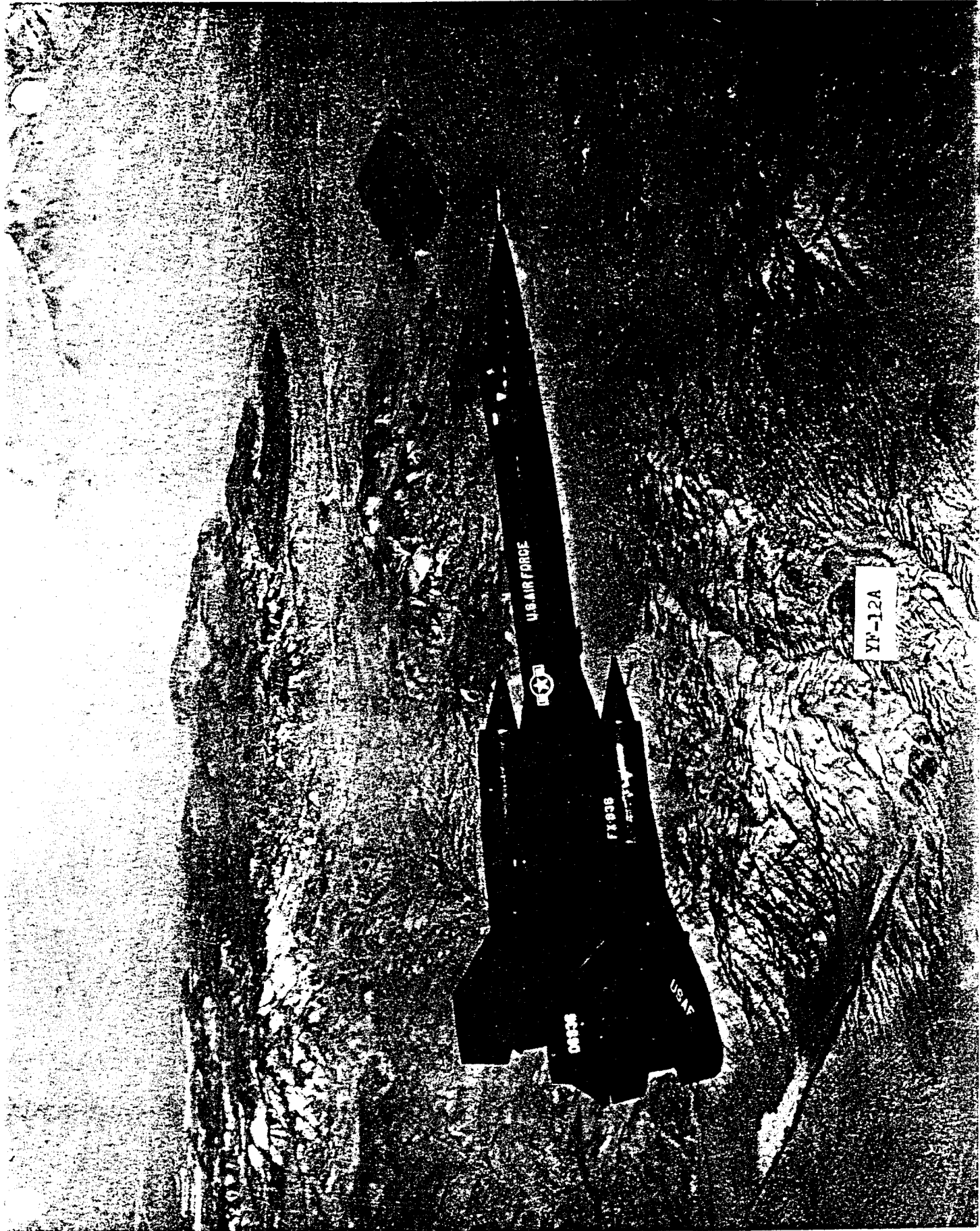
The Secretary of Defense put his opinion of anti-bomber defense very bluntly when he appeared before the House Armed Services Committee on 18 February 1965. "Considering the size and character of the manned bomber threat we are likely to face through FY 1970," he said, "I believe the present manned interceptor force is larger than needed."<sup>39</sup> Mr. McNamara felt the same way about the SAGE system of command and control which supported the manned interceptor force.<sup>40</sup>

When the action shifted from the House Armed Services Committee to the House Appropriations Committee in March of 1965, the F-12 interceptor came under discussion almost immediately, especially since both President Johnson and Mr. McNamara had said publicly that the F-12 was the interceptor sought by the Air Force. The predictions of the observers who contended that talk about the F-12 was

38. Hist of NORAD/CONAD, Jul-Dec 1964, pp. 23-26, 46-49, and 68-70.

39. Hearings, House Armed Services Committee, Department of Defense Budget for FY 1966, 18 Feb 1965, p. 31.

40. Ibid.







intended only to squelch pressure for the IMI appeared to be borne out when the Secretary of Defense threw cold water on hopes for quick production of the F-12. He did not gain-say the excellent performance of the aircraft. What he did contend was that it was not needed, at least not in the immediate future. "Nor is it clear at this time," he added, "that the F-12A, which has already been substantially developed, would be preferable to an interceptor version of the F-111."<sup>41</sup> He explained that he was asking for \$28 million for continued development, test and evaluation of the F-12, but had totally rebuffed an Air Force request for \$157 million to begin production. He estimated that the five-year cost of 200 F-12 interceptors would amount to four billion dollars and intimated that he was not about to spend that kind of money on a single element of antibomber defense. The new Air Force Chief of Staff (since 1 February 1965), General John P. McConnell, attempted to put the best possible face on the matter by testifying that the \$28 million in research and development funds permitted testing of the three YF-12A aircraft at Edwards AFB, California. As to the deletion of requested production funds, General McConnell was optimistic about that too. "I am sure this will be

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41. House Hearings on the Department of Defense Appropriation for FY 1966, Part 3, 2 Mar 1965, p. 51.

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straightened out," he told the House appropriations group.<sup>42</sup>

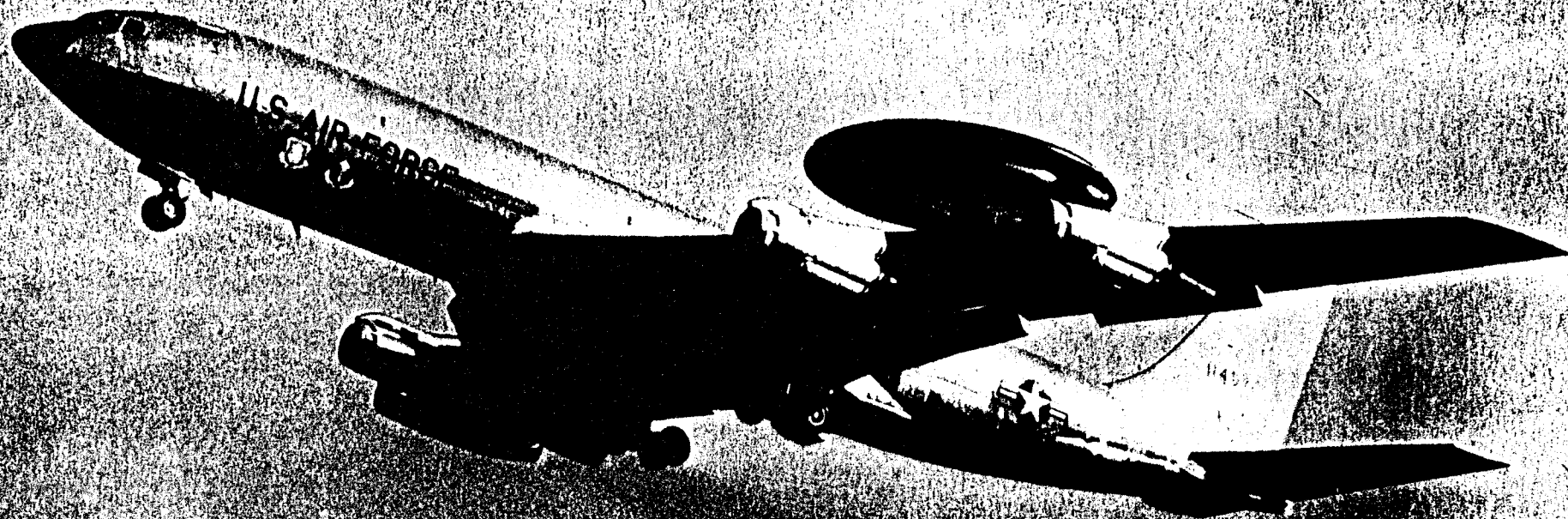
During the course of the 1965 hearings before the Senate Armed Services Committee, Senator Strom Thurmond of South Carolina attempted to obtain from Secretary McNamara a comparison of the air defenses of the Soviet Union and those of the United States. The Secretary, however, insisted that comparison was not really possible, because the Soviet Union had to defend against at least 670 U. S. heavy bombers, while the Soviet Long Range Air Force could send only "about 100" heavy bombers against the United States. But there was an obvious difference of opinion within the Department of Defense on the size of the Soviet bomber threat. When Senator Thurmond later asked the same question of General McConnell, the Air Force Chief of Staff estimated that the Soviet Union could attack the United States with 250 two-way bombers.<sup>43</sup>

Senator Howard Cannon of Nevada attempted to clear the air by asking Mr. McNamara to establish a priority list for future defense projects. The Secretary of Defense put them in this order: (1) fallout shelters for the civilian

42. Ibid., 16 Mar 1965, pp. 888-89; 15 Mar 1965, p. 831; 2 Mar 1965, p. 51 and 4 Mar 1965, p. 149. Paragraph classified because of insertion of classified deletions.

43. Senate Hearings on Department of Defense Appropriations for FY 1966, 26 Feb 1965, p. 352 and 10 Mar 1965, p. 1032.

UNCLASSIFIED



AWACS Aircraft Flight Test  
Renton, Washington

UNCLASSIFIED



population, (2) antiballistic missile system and (3) advanced interceptor. Senator Thurmond subsequently referred to this priority list and wondered if Soviet development of a supersonic bomber would change the location of the F-12 on the list of priorities. Not at all, said Mr. McNamara. "It would not be wise," he said, "to buy a new interceptor even in the event of a supersonic Soviet bomber deployment unless we had taken care of the missile threat first by fallout shelters and then by anti-missile deployment, and ultimately by surface-to-air missiles against the bomber threat."<sup>44</sup>

At any rate, Congress did not seriously challenge the DOD position on the F-12 in the budget for FY 1966, although the House Appropriations Committee, in submitting a final report in June 1965, did suggest that DOD "very carefully consider the development of the F-12 as an operational interceptor,"<sup>45</sup> but added no funds for the purpose.

Meanwhile, the F-12 established nine new speed and altitude records during five flights on 1 May 1965. "It is a pity," wrote Richard Fryklund in the Washington Star,

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44. Ibid., 26 Feb 1965, p. 378 and 25 Feb 1965, p. 282.

45. Aviation Daily, 18 Jun 1965.

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that the hot new plane...is going nowhere at 2,062 miles an hour."<sup>46</sup>

Another element--AWACS--of what ADC saw as the antibomber defense of the future also suffered at the hands of OSD budget planners in 1965. AWACS was the acronym for Airborne Warning and Control System, a concept that gained validity after deciding the hardening of SAGE control centers was not the appropriate method for dealing with ICBM attack on the vital control network. The possibility of placing the control centers aloft and immune from ballistic missile attack was discussed in 1962, but was not advanced as a serious proposal until included in the CADS report of May 1963. The idea gained the approval of both USAF and DOD and preliminary studies began. But, Mr. McNamara told the House Appropriations Committee on 2 March 1965, AWACS was not living up to early promise.

Continuing studies indicate that the attainment of the hoped-for performance is very unlikely. For that reason we are reducing the effort on the (AWACS) aircraft system to a \$3 million level in FY 1966. However, the problem is so important that we believe an additional \$8 million in FY 1966 is completely justified to explore the extremely difficult technology of

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46. Richard Fryklund, "2,000 Miles-an-Hour to Nowhere," Washington Star, 6 May 1965; "McNamara Killed YF-12A Request," Business Week, 14 Apr 1965.

long-range airborne radar for detection of aircraft against ground clutter.<sup>47</sup>

Whatever the difficulties, however, AWACS made progress during 1965. The three competing airframe contractors-- Boeing, Douglas, and Lockheed--submitted studies by October 1965. Contractor studies of the radar were incomplete at the end of the year, but there was evidence of high-level support for the concept when, in December 1965, the President's Scientific Advisory Committee recommended that the Department of Defense "get AWACS going."<sup>48</sup>

The proposals of the Secretary of Defense concerning improvements in the survivability of important elements of the antibomber defense in the face of possible ICBM attack began to take recognizable shape by the end of 1965. The first BUIC II site became operational at North Truro, Massachusetts, on 1 September 1965. Three of the planned 14 operated at the end of the year and the total system was expected to be complete by the middle of 1966. The first BUIC III site was expected to be operational by the middle of 1967, the 19th, and last, by the end of 1968.<sup>49</sup>

47. House Hearings on the Department of Defense Appropriation for FY 1966, Part 3, 2 Mar 1965, p. 52; Part 5, 1 Apr 1965, pp. 203-206 (testimony of Lt. Gen. James Ferguson, DCS/R&D, USAF).

48. Missiles and Rockets, 10 Jan 1966; Msg, ADLPC-P 3803, ADC to USAF, 10 Nov 1965 (Doc 39 in Hist of ADC, Jul-Dec 1965); Msg, ADLPC-S 468, ADC to USAF, 5 Feb 1966 (Doc 30 in Hist of ADC, Jul-Dec 1965).

49. ADC Control and Warning Equipment Report, 31 Dec

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Similar progress was being made in dispersal of the manned interceptor force. Construction was nearly complete at 12 of 16 DOBs within the United States at the end of 1965. ADC, however, thought the basic construction criteria inadequate at some of the bases and requested additions near the end of the year. Canada had not yet approved the proposal to establish four DOBs in Canada.<sup>50</sup>

Although ADC once provided interceptors to Taiwan when the Nationalist Chinese island appeared to be threatened by Communist China, the idea that ADC should have overseas deployment as an integral part of the mission did not arise until 12 F-104 aircraft deployed from Webb AFB, Texas, to Ramey AFB, Puerto Rico, on 7 May 1965, to support U. S. military action in the Dominican Republic. The 29-day mission was satisfactorily accomplished, but ADC noted that a number of things could have gone wrong. For that reason, ADC concluded that the chances of things going wrong might be lessened if it planned for such deployments in advance. The result was the Mobile Air Defense Package (MADPAC) which proposed setting aside three F-102A squadrons for almost

49 (cont). 1965 (Doc 9 in Hist of ADC, Jul-Dec 1965).

50. ADC Briefing for Secretary of the Air Force, 27 Oct 1965 (Doc 43 in Hist of ADC, Jul-Dec 1965); Msg, ADODC 4130, ADC to Air Divs, 6 Dec 1965 (Doc 45 in Hist of ADC, Jul-Dec 1965); ADC Program Document 68-1, 15 Jan 1966 (Doc 41 in Hist of ADC, Jul-Dec 1965).



immediate overseas deployment upon request. The validity of the idea was underlined very soon, because in August 1965 USAF directed ADC to transfer the 82nd FIS (F-102A aircraft) from Travis AFB, California, to Naha, Okinawa, in early 1966. ADC thereupon recommended that the deployment to Naha be considered the first temporary overseas deployment under MADPAC, but USAF did not agree.<sup>51</sup>

Another ADC overseas venture had a still more direct connection with the war in Viet Nam. On 5 April 1965, by direction of JCS, ADC moved five EC-121 AEW&C aircraft and the necessary crews and support personnel from the 552nd AEW&C Wing at McClellan AFB, California, to Tainan Air Base on Taiwan. Three of these aircraft later moved to a forward operating base at Tan Son Nhut on the outskirts of Saigon. The following month the number of aircraft increased to seven. This was the COLLEGE EYE Task Force, which began airborne surveillance over the area between Taiwan and the mainland of North Viet Nam.<sup>52</sup>

The active antibomber force at the end of 1965

51. 331st FIS (Webb) to ADC, "Project Big Gun," 10 Jun 1965 (Doc 58 in Hist of ADC, Jul-Dec 1965); ADC to USAF, "Mobility Capability for ADC Units," 30 Jun 1965 (Doc 59 in Hist of ADC, Jul-Dec 1965); Msg, ADCCR 3361, ADC to USAF, 6 Oct 1965 (Doc 69 in Hist of ADC, Jul-Dec 1965); ADC Staff Briefing, ADLPP, Mobile Air Defense," 5 Feb 1966 (Doc 70 in Hist of ADC, Jul-Dec 1965).

52. Hist of ADC, Jul-Dec 1966, pp. 61-62.

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consisted of 109 long-range radars (excluding 16 operated by FAA), 94 gap-filler radars, the Dew Line in the far north, AEW&C aircraft off both coasts, 37 squadrons of manned interceptors, and six squadrons of BOMARC B interceptor missiles. ADC was on notice that the manned interceptor force would be decreased to 20 squadrons at the end of FY 1969 and that further reductions in the control system could be expected.<sup>53</sup>

The Secretary of Defense reiterated his low opinion of the existing antibomber defenses when he again appeared before Congress in February of 1966 to defend his budget for FY 1967. "Elaborate defenses which we erected against the Soviet's bomber threat during the decade of the 1950's," he said to a House Appropriations subcommittee, "no longer retain their importance."<sup>54</sup> In a period when the principal offensive weapon was the ICBM, he added, "our anti-bomber defense alone would contribute very little to our damage-limiting objective."<sup>55</sup> Mr. McNamara explained that because of the lessening utility of the antibomber system he proposed to reduce the funding allocated to it from an estimated \$1.6 billion in FY 1966 to a proposed \$1.3 billion in FY 1967.

53. ADC Control and Warning Equipment Report, 31 Dec 1965 (Doc 9 in Hist of ADC, Jul-Dec 1965); NORAD Forces Summary, 1 Jan 1966.

54. House Hearings on Appropriations for the Department of Defense, FY 1967, Part 1, 14 Feb 1966, p. 58.

55. Ibid.

He proposed to manage this reduction by directing (which he had already done in November 1964) a major reduction in the manned interceptor force plus concomitant cuts in the size of the ground radar network and the associated control system.<sup>56</sup>

Since the House Appropriations Committee report on the budget for FY 1966 recommended that the Department of Defense give serious attention to further development of the F-12, Mr. McNamara undoubtedly expected close questioning on this item. In what may well have been an effort to disarm hostile questioners in advance, he said in his basic statement that substantial deployment of the F-12--this had been figured at 200 aircraft in his 1965 testimony--would cost \$6.5 billion over a five-year period. The money total was given as \$4 billion in 1965. The Secretary did not think an expenditure of that magnitude should be embraced in 1967. He later conceded, however, that "we can afford whatever is required for defense."<sup>57</sup>

As testimony on the FY 1967 budget continued, an attempt to whipsaw the Secretary of Defense on the matter of the F-12 came to light. The first to hint of this maneuver was Rep. Glenard P. Lipscomb of California, who asked

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56. Ibid., pp. 58 and 66.

57. Ibid., p. 67.

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Mr. McNamara how he would react to the appropriation of un-requested money for the F-12. The Secretary replied that he would consider the use of such funds, but that he knew of "no action that would require more money."<sup>58</sup> Chairman George H. Mahon of Texas then wondered if the Secretary's view of the F-12 was inhibited by the cost. Mr. McNamara denied that cost had anything to do with his position.<sup>59</sup>

The following day, 15 February 1966, Rep. Robert L. F. Sikes of Florida also challenged the Secretary over his decision not to ask for funds to retain F-12 production capability when production of the similar SR-71 (a reconnaissance version assigned to SAC) was completed. "Would it not be wise to err on the side of security?" he asked.<sup>60</sup> Mr. McNamara merely repeated his stand that the provision of funds to keep the production line open was not worthwhile. Besides, he did not believe it would be a major problem to reopen the production line if necessary, estimating that production could be resumed in less than a year. Mr. Sikes also asked how the JCS stood on the F-12. Mr. McNamara said that opinion was split, but the Chairman of the Joint Chiefs, General Earle G. Wheeler, interrupted to say that the JCS unanimously supported the requirement for an

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58. Ibid., p. 80.

59. Ibid., p. 91.

60. Ibid., 15 Feb 1966, p. 107.

advanced manned interceptor. Mr. McNamara admitted his error.<sup>61</sup>

All senior Air Force witnesses who participated in the 1966 hearings stated a need for the F-12, although General McConnell (as he had in 1965) expressed himself as satisfied with the proposed budget. The new Secretary of the Air Force (since 1 October 1965), Dr. Harold Brown, however, did not. Dr. Brown testified on 23 February 1966 that while "I think the Secretary of Defense's conclusion is that the line (SR-71) can be kept open somewhat without this money, I do not believe it can."<sup>62</sup>

The outlines of the "conspiracy" against the Secretary of Defense became clearer on 21 April 1966 when Maj. Gen. Duward L. Crow, Air Force Budget Officer, testified that one of the basic needs of the Air Force was \$55 million in production money in connection with the F-12. This figure was significant, because only four days later, on 25 April, Rep. George W. Andrews of Alabama revealed that Senator Russell, Chairman of the Senate Appropriations Committee, intended to add \$55 million to the Senate version

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61. Ibid., pp. 108 and 113.

62. Ibid., 23 Feb 1966, p. 513. See also Brown testimony of 22 Feb 1966, pp. 477-478 and McConnell testimony of 22 Feb 1966, p. 486 and 23 Feb 1966, p. 500.

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of the bill to provide a "warm plant" situation for the F-12.<sup>63</sup>

Actually, however, the \$55 million in unrequested funds for the F-12 went into the House bill. In the House committee report of 20 July 1966, Chairman Mahon reported the sentiments of his committee: "We recommend, for the continuation of the line for the manufacture of the hottest interceptor known today, the F-12, \$55 million."<sup>64</sup>

The 55-million-dollar item for the F-12 remained in the bill and on 1 August 1966 Secretary McNamara was recalled before the Senate committee to discuss changes made in the original DOD budget. Mr. McNamara was asked whether or not he intended to spend the extra \$952 million added by the House. The \$569 million added for recruitment of personnel (largely because of requirements in South Viet Nam) was welcome, he said, but the remainder (including the \$55 million for the F-12) was not needed.<sup>65</sup> True to his word, the \$55 million was not spent.

63. Ibid., Part 5, 21 Apr 1966, p. 405 and 25 Apr 1966, p. 515.

64. Quotation by Senator Leverett Saltonstall of Massachusetts in Senate Hearings on Department of Defense Appropriations for FY 1967, Part 2, 21 Jul 1966, p. 334.

65. Ibid., 1 Aug 1966, p. 711.

Efforts to increase the survivability of the existing antibomber defenses produced additional results in 1966. The BUIC II network of 14 stations became fully operational in May 1966. Construction of three BUIC III sites began before the end of the year. The first of these was expected to become operational by the middle of 1967. All 19 BUIC III sites were scheduled for completion by the end of 1968. Dispersal of the manned interceptor force was virtually complete by the end of 1966, but during the year DOD, which directed dispersal in the first place, began studying means of reducing the cost--estimated to run to about \$15 million a year. Various alternatives, such as giving the ANG responsibility for the support of dispersal bases, were examined, but the conclusion was that the existing method of management (all ADC people and all ADC equipment) was the best and cheapest.<sup>66</sup>

The Secretary of Defense was more impressed with AWACS than with the F-12. Although he recommended that expenditures on development of the AWACS airframe be reduced from the five million being spent in FY 1966 to three million in FY 1967, he also recommended that the funds spent

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66. ADC Control and Warning Equipment Report, 30 Nov 1966 (Doc 6 in Hist of ADC, Jul-Dec 1966); Hist of ADC, Jul-Dec 1966, pp. 103-104 and 192-196.

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on research into the overland radar technology (ORT) involved in AWACS be increased from \$9 to \$12 million. Three contractors--Hughes, Raytheon, and Westinghouse--were active in the competition for the final AWACS radar contract. In September 1966 all three received preliminary study contracts to search for some means of overcoming the ground clutter that, in the past, had severely disrupted radar signals directed from the air to the ground. Two firms--Douglass and Boeing--remained in competition for the airframe. In July of 1966, both were asked to prepare an airframe concept formula within a year.<sup>67</sup>

Test flying of the F-12 continued through 1966, although there was growing pessimism that the DOD did not intend to use the aircraft for anything more than a test bed for the AWG-9 fire control system of the F-111. Not only was the extra \$55 million added by Congress to the FY 1967 budget withheld, but also the \$23 million included for F-12 purposes in the original DOD budget for that year.<sup>68</sup>

Planning for the joint FAA-ADC National Airspace System (NAS) continued, although the pace was slow. FAA used ADC radar data, and vice versa, since 1956, but it was

67. House Hearings on Appropriations for the Department of Defense, FY 1967, Part 1, 14 Feb 1966, p. 58; Hist of ADC, Jul-Dec 1966, p. 108.

68. Hist of ADC, Jul-Dec 1966, pp. 162-164.



not until the CADS effort of 1963 that the creation of a highly coordinated NAS was recommended. The key to NAS was the "common digitizer" which provided the specialized information needed by both FAA and ADC. By the end of 1966, three prototype models of this device were being tested, but ADC was not fully convinced that the common digitizer would perform as advertised and preferred that further testing be completed before writing a major production contract.<sup>69</sup>

The ADC plan for a Mobile Air Defense Package (MADPAC) interceptor force for emergency overseas deployment did not gain USAF approval and in early 1966 the two F-102A MADPAC squadrons equipped for air-to-air refueling moved to the Far East on a permanent basis. The idea did not die, however. The name changed to Global Air Defense Force and the aircraft became the F-106 with an improved fuel tank and air-to-air refueling capability. These two improvements to the F-106 ADC requested as early as 1963, but it was not until 1965 that money became available. At the end of 1966 it was hoped that two squadrons could be so equipped by the middle of 1967. At that point ADC would again have a force available for global air defense despite the death of MADPAC.<sup>70</sup>

69. Ibid., pp. 48-57.

70. Weekly Activity Report, ADLPW, 15 and 23 Nov 1966 and ADLAD, 15 Dec 1966 (Documentary Vol. No. 3, "Operational Planning in ADC," Jan 1965-Jun 1967).

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The basic antibomber defenses of the United States continued to decrease in size and scope during 1966--the avowed intention of Mr. McNamara. At the end of 1966 only 30 squadrons of manned interceptors (of the 69 squadrons available in 1957) remained in the active air defense force. Fifteen of these squadrons had the F-101B, 13 the F-106, and one each the F-102 and F-104. Six squadrons of the BOMARC interceptor missile were in place. The radar network included 112 search and 88 gap filler radars.<sup>71</sup>

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71. Hist of ADC, Jul-Dec 1966, pp. 5 and 109.

## VII. THE DECLINE INTENSIFIES, 1967-1972

By the autumn of 1966 it had become clearly evident that the Johnson administration was almost entirely dis-abused of the value of defense against the manned bomber. While nobody in authority would go so far as to recommend that it be abolished, policy dictated that the cost be reduced to the barest minimum.

It was at this time, during preparation of the Defense budget for FY 1968 that Dr. Brown attempted to change thought patterns within DOD by coming forward with a plan for an advanced antibomber defense system. All of the items included in this plan had previously been discussed, some for several years, but never before had they been brought together into a cohesive whole. What Dr. Brown proposed was a future system based on backscatter over-the-horizon radar (OTH-B) for long-range detection, AWACS for command and control of the air battle, with the F-12 the weapon to be alerted by OTH-B and controlled by AWACS. This plan was presented to the Secretary of Defense on 23 November 1966. Well aware of the reluctance of the administration to spend serious money on antibomber defense, Dr. Brown thought he had devised a way of acquiring the new system at minimum cost. The existing system, he reasoned, cost \$903 million per year to

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operate. The new system, he estimated, would cost \$342 million per year. Therefore, the cost of the new plan, in essence, could be recovered by amortization of the old during the 12 years between FY 1968 and FY 1979. Dr. Brown's plan foresaw procurement of 72 F-12 interceptors, 42 AWACS aircraft and two OTH-B installations. The Secretary of the Air Force admitted that there were likely to be miscalculations in a plan covering such a long period, but made the point that a start had to be made soon. In summary, he contended that the proposed system would have the advantage of modernizing the force, making it less sensitive to the quality of the threat, reducing operating costs (especially in connection with the very expensive ground-based control network) and reducing the personnel requirements of the antibomber defense force by about 70 percent.<sup>1</sup>

ADC was generally in accord with the Brown plan, although it did find the speed in dismantling the old system "quite alarming."<sup>2</sup> It cautioned that hard-and-fast dates for the removal of existing equipment should not be established until there were assurances that the advanced equipment was ready.<sup>3</sup>

1. Memo, SAF to S/D, "Air Defense Posture," 23 Nov 1966 (Doc 246 in Hist of ADC, Jul-Dec 1966).

2. ADC to USAF, "Air Defense Planning," 10 Jan 1967 (Doc 247 in Hist of ADC, Jul-Dec 1966).

3. Ibid.

██████████ Dr. Brown expanded his new concept in early December of 1966 to include a specific proposal on the F-12. The Air Force Secretary asked that \$98 million be provided for the F-12 in the budget for FY 1968, part of which was to be used for the engineering work leading up to a FY 1969 decision to buy six more test aircraft and thereby maintain the "warm plant" option. He proposed to obtain this sum by using the \$55 million already provided by Congress, another \$23 million in other unspent FY 1967 F-12 money, plus \$20 million to be appropriated by Congress for FY 1968.<sup>4</sup>

██████████ Somewhat to the surprise of ADC, the Brown plan was approved by Mr. McNamara and indorsed by him to President Johnson. The President, according to word reaching Lt. Gen. Herbert B. Thatcher, ADC commander since August 1963, had then issued a policy statement which said, in effect, that "this is the way we must go."<sup>5</sup>

██████████ Something happened, however, between the apparent approval of the Brown plan by the Secretary of Defense and the President and the actual FY 1968 budget unveiled in January 1967. The approval as expressed in the budget was

4. Memo, SAF for Dep S/D, "FY 68 AWACS/F-12 Program," 3 Dec 1966 (Doc 253 in Hist of ADC, Jul-Dec 1966).

5. Thatcher to Clarence L. Johnson, VP for Advanced Development, Lockheed, no subj, 14 Dec 1966 (Doc 254 in Hist of ADC, Jul-Dec 1966).

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not nearly as clear-cut as it had seemed earlier. There were conditions attached. The formal budget asked for only \$43 million for the F-12--the \$23 million held over from the FY 1967 budget plus \$20 million in new money. The \$55 million intended to maintain the "warm plant" option was still held at arm's length. There was a new reason for holding back the \$55 million. The McNamara rationale as revealed in January 1967 was that there would be no need for the F-12 unless it could be proven that the AWACS radar could operate in the presence of ground clutter (the ORT problem). An answer to this question was expected in the autumn of 1967. If the answer was affirmative, Mr. McNamara said, he would be inclined to think favorably of the release of the \$55 million.<sup>6</sup>

Meanwhile, the Secretary of Defense had not changed his opinion of the bomber threat posed by the Soviet Union. On 6 March 1967, during House hearings on the budget for FY 1968, Rep. Flood, the perpetual Cassandra on antibomber defense, expressed an opinion that the Soviet Union had no more experience in long-range bombing "than the Nigerians."<sup>7</sup> Mr. McNamara agreed and said the Soviet bomber fleet had

6. Aviation Daily, 27 Jan 1967.

7. House Hearings on Department of Defense Appropriations for FY 1968, Part 2, 6 Mar 1967, p. 157.

been overestimated for 15 years. Somewhat later Rep. Flood said the Air Force wanted AWACS/F-12/OTH-B because it feared a new Soviet bomber. "I do not have any such fear,"<sup>8</sup> the Secretary said flatly. "We are a long way," he concluded, "from reaching a decision."<sup>9</sup>

✓ The question about ORT, of course, also affected funding for AWACS. Twenty of the \$30 million the Air Force requested for AWACS in FY 1968 OSD removed from the final budget because of the lack of assurance that the AWACS radar would do what it was expected to do. Dr. John F. Foster, DDR&E, however, told the House committee on 20 March 1967 that, if the ORT tests proved successful, emergency funds would be provided for contract definition.<sup>10</sup>

(S) AWACS passed the ORT test in the autumn of 1967, but this event did not put into train the series of happenings forecast earlier in the year. AWACS, as predicted, passed into the contract definition stage near the end of the year, but the F-12 apparently dropped dead. The test the F-12 did not pass was that of cost effectiveness. In preparing a Proposed System Package Plan (PSPP) for the F-12

8. Ibid.

9. Ibid., p. 173. See also testimony on 14 Mar 1967, pp. 738-744.

10. Ibid., Part 3, 20 Mar 1967, p. 31. See also Part 2, 6 Mar 1967, p. 173 and 13 Mar 1967, pp. 676 and 736.

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it was determined that 164 hours of maintenance work would be required for every hour of flying time. This figure apparently raised a red flag within DDR&E and, in late September 1967, ADC attempted to repair the damage. There was general agreement with Lockheed about airframe maintenance. The problem lay in the estimates for fire control maintenance. Hughes, the fire control contractor, suggested computerized fault isolation test procedures and other means of shaving maintenance manhours and the revised figures went to USAF in late October 1967.<sup>11</sup>

But it was too late, because the Department of Defense had already recommended that the F-12 be replaced in the AWACS/F-12/OTH-B antibomber defenses of the future with an improved F-106 which would have the capability to "look down" as well as "shoot down."\* This vehicle OSD christened F-106X. Before the end of December 1967, USAF informed ADC that development of the F-12 was to be stopped.

11. Weekly Activity Report, ADLAD, 14 Sep, 6, 20, and 27 Oct, 24-30 Nov, and 8-14 Dec 1967 and ADLSA, 29 Sep 1967 (Spt Doc Vol I in Hist of ADC, Jul-Dec 1967); C. W. Borklund, "The High Price of Over-Study," Armed Forces Management, Dec 1967.

\*NOTE: Normal interceptor radar "looked straight ahead" and armament was fired in that direction. An interceptor that could both "look down" and "shoot down" would be of great value against a low-altitude target. It was anticipated that any Soviet bomber attack would include both low-altitude and high-altitude elements.



ADC prepared to disband the test organization at Edwards AFB, California.<sup>12</sup>

One of the key points of the Brown plan was that the cost of the future force should be amortized by the collapse of the old. ADC agreed so long as the existing system was left pretty much intact until the new system was in place and operating. The Department of Defense, however, proposed to move more rapidly. In August of 1967 DOD recommended removal of the radar defenses of the central and southern United States, thereby limiting antibomber defense to the perimeter of the country from Florida in the southeast around the northern border to California in the southwest. About 30 long-range radars, along with their control facilities, were scheduled to leave the system between April and September of 1968. The speed of this reduction drew protests not only from ADC and NORAD, but also from USAF and the Secretary of the Air Force. But protests about undue haste proved fruitless. A USAF directive ordering compliance reached ADC at the end of 1967.<sup>13</sup>

12. Msg, ADLAD-W 2994, ADC to USAF, 23 Oct 1967 (Doc 113 in Hist of ADC, Jul-Dec 1967); Handout for ADC Commander's Conference, 9 Nov 1967 (Doc 109 in Hist of ADC, Jul-Dec 1967); Weekly Activity Report, ADLAD, 5 Jan 1968 (Spt Doc Vol I in Hist of ADC, Jul-Dec 1967).

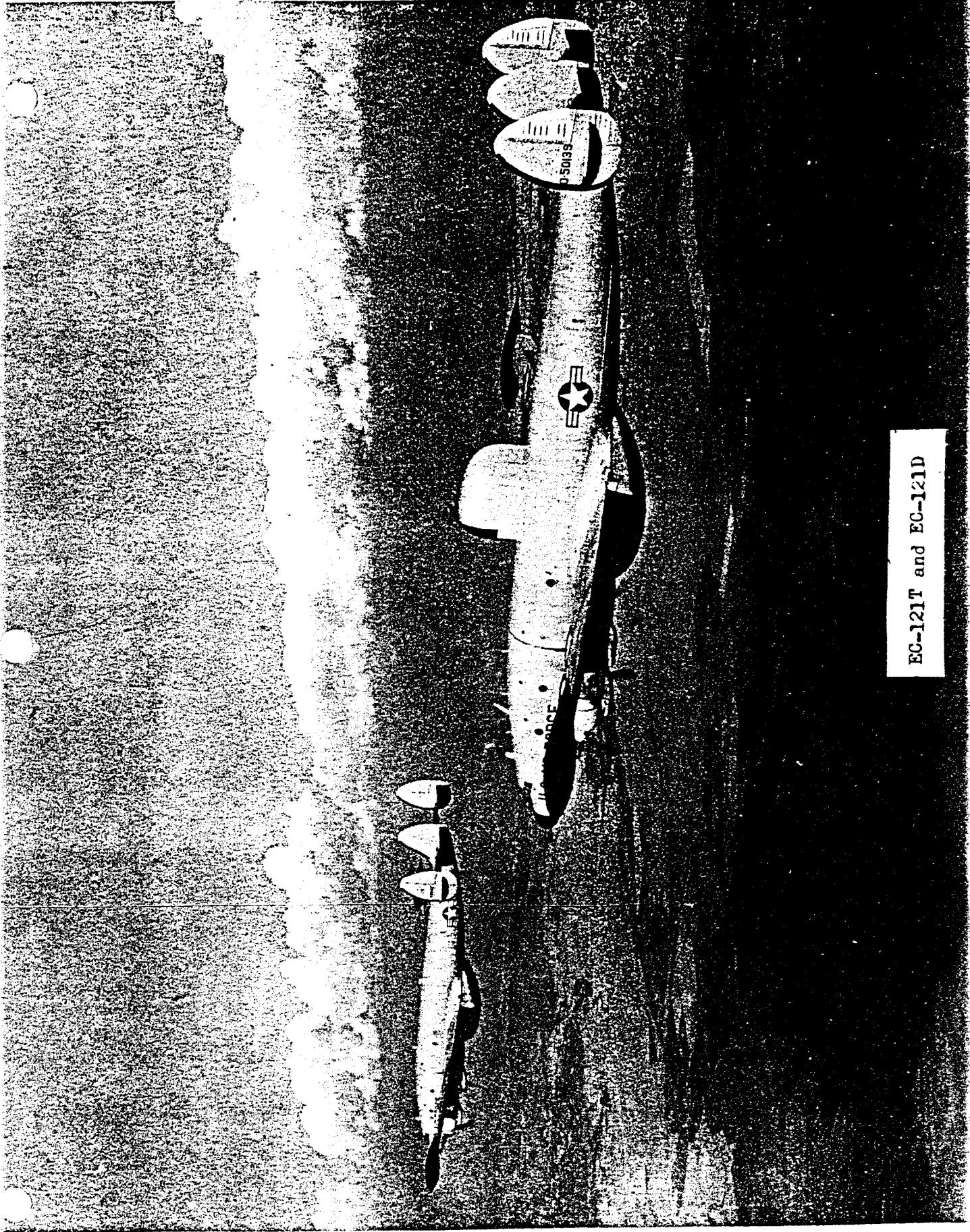
13. Msg, ADCCR 1726Z, ADC to USAF, 8 Dec 1967 (Doc 165 in Hist of ADC, Jul-Dec 1967); Msg, AFOAPDA 0022Z, USAF to ADC, 22 Dec 1967 (Doc 166 in Hist of ADC, Jul-Dec 1967).

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The programs designed to improve the survivability of the antibomber defense system in the event of ICBM attack--BUIC for the ground environment and dispersal for the interceptor force--continued during 1967. Construction of DOBs was completed and the possibility of providing limited dispersal for ANG interceptor squadrons was being studied. Canada, however, continued to delay interceptor dispersal north of the border. The scope of the BUIC III fallback line behind SAGE was reduced from 19 stations to 14 with the excision of five sites within the area to be denuded of radar coverage. Because of communications problems, moreover, the completion date for the total BUIC III system moved back, during 1967, from mid-1968 to the end of 1969.<sup>14</sup>

As for overseas operations, the COLLEGE EYE task force of EC-121D aircraft continued to mount daily surveillance missions in Southeast Asia. The COLLEGE EYE Forward Operating Base (FOB) moved from Tan Son Nhut to Ubon, Thailand, in February 1967 and to Udorn, Thailand, in October of that year. The plan for possible overseas deployment of interceptors was completed during the year, despite CONAD objections that such deployment (given the code name of

14. Hist of ADC, Jul-Dec 1967, pp. 46-52. Msg, AFOAPDA 2042Z, USAF to ADC, 3 Jan 1968 as quoted in Msg, ADLPP 2339Z, ADC to NAF, 5 Jan 1968 (Doc 168 in Hist of ADC, Jul-Dec 1967)



EC-121T and EC-121D

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COLLEGE CADENCE) weakened the air defenses of the United States. The COLLEGE CADENCE force, according to the initial plan, included 24 F-106 interceptors, six to be drawn from each of four squadrons. These aircraft were to be fitted with improved fuel tanks and therefore capable of in-flight refueling. The four squadrons involved were the 71st (Malmstrom), 94th (Selfridge), 95th (Dover), and 318th (McChord). COLLEGE CADENCE pilots were also given air combat training (ACT) against the possibility that air-to-air combat with enemy fighters might occur during overseas deployment. The 71st and 318th squadrons completed training by the end of 1967. On 20 November 1967, ten aircraft of the 318th flew non-stop, by use of in-flight refueling, from McChord to Tyndall and conducted a simulated combat mission against drone targets at Tyndall before landing there.<sup>15</sup>

FAA and ADC continued to draw more closely together in planning a joint-use radar network. ADC decided that the inclusion of air defense radars into the NAS was both feasible and desirable. The goal for full integration was set as 1972. The main problem concerned the meshing of the

15. Historical Records of the COLLEGE EYE Task Force for the quarterly periods ending 30 Sep 1967 and 31 Dec 1967; ADC Operations Plan 76-67, COLLEGE CADENCE, 1 Aug 1967 (Doc 12 in Hist of ADC, Jul-Dec 1967); Msg, ADCCR 1854Z, ADC to 4 AF, 22 Nov 1967 (Doc 22 in Hist of ADC, Jul-Dec 1967).

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two agencies' requirements. While FAA was fundamentally interested in making sure that air traffic adhered to flight plans, ADC required surveillance of that traffic which did not. Also, FAA directed its main attention to areas of heavy traffic, while ADC was interested in areas along the approaches to the country. Nevertheless, there was growing confidence, in 1967, that the needs of both partners could be satisfied by the integrated system.<sup>16</sup>

In compliance with the DOD policy of continually reducing the cost of antibomber defense, the active force reduced further in 1967. At the end of the year, 98 long-range radars functioned, along with 88 gap-filler radars. ADC had already been served notice that the number of gap fillers would soon reduce to 17, all in the southeastern United States. Twenty-eight squadrons of manned interceptors still stood alert, but existing plans called for ultimate reduction to 19, including a unique F-102A squadron in Iceland responsive to the direction of CINCLANT rather than CINCNORAD.<sup>17</sup>

16. ADC to USAF, "Air Defense Command Endorsement to the National Airspace System (NAS) Joint Use Study," 3 Oct 1967 (Doc 174 in Hist of ADC, Jul-Dec 1967).

17. "Status of ADC Combat Aircraft," 2 Jan 1968; ADC Control and Warning Equipment Report, "20 Nov 1967 (Doc 193 in Hist of ADC, Jul-Dec 1967).

As 1967 closed only AWACS of the three-part future antibomber defense system proposed by Dr. Brown made much progress. The F-12 had been officially pronounced dead and the F-106X substituted for it. The OTH-B radar remained in the study stage, although it had strong OSD support.

In his eighth, and final, appearance before Congress as defender of the Department of Defense budget, Secretary McNamara summarized his vision of antibomber defense in the 1970s. It would be possible, he told the House Appropriations Committee on 16 February 1968, to use antibomber defense for six purposes:<sup>18</sup>

1. Peacetime identification to prohibit free access over North America from the air. This purpose requires only a thin area-type defense plus a high quality surveillance capability.
2. Nth country (other than the USSR) defense to prevent damage from an attack by such countries as Cuba, Red China, etc.. This purpose would require a relatively thin but leak-proof area-type defense and a good surveillance capability.
3. Discourage the Soviet Union from developing new bomber threats which would be costly to neutralize. This purpose would require that we have the capability to deploy within a reasonable period of time an upgraded air defense capable of countering both quantitative and qualitative improvements in the Soviet strategic bomber force, and that the Soviets be aware of our capability. Thus, this purpose places requirements on our research and development program but does

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18. House Hearings on Department of Defense Appropriations for FY 1969, Part 1, 16 Feb 1968, p. 153.

not, in itself, demand the actual deployment of modernized air defense at the present time.

4. Limit damage to our urban-industrial complex from a Soviet manned bomber attack in the event deterrence fails. The contribution which air defense can make in achieving this objective is highly dependent on the overall effectiveness of our ABM capability. Air defense can make a major contribution in saving lives only if the United States deploys a strong missile defense and the Soviets do not respond effectively.

5. Preclude an attack on our withheld strategic missile forces. This purpose requires a capability to prevent bombers from making aerial attacks on a large number of missile targets with multiple gravity bombs. The current air defense system has already forced the Soviets to change their aircraft payloads to the extent that their bomber threat to our Minuteman force has been reduced to minor proportions.

6. Provide a complete 'air defense package' which would include a transportable control system and a refuelable or long-range interceptor, preferably one which is capable of close combat under visual identification rules.

Having so said, Mr. McNamara explained why he had removed the F-12 from the AWACS/F-12/OTH-B equation. One reason was money. He presented three alternatives--one covering the existing system, one using the F-12 as the advanced interceptor, the third substituting the F-106X for the F-12. His calculations:<sup>19</sup>

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19. Ibid.



Air Defense Alternatives

	No. 1	No. 2	No. 3
Interceptors	F-101, 102, F-104, 106	F-12	F-106X
Airborne command & control	EC-121	AWACS	AWACS
Ground-based command and control	SAGE/BUIC	FAA radar	FAA radar
10-year progressive costs	\$11.7 billion	\$13.7 billion	\$12.3 billion
Annual level-off cost	\$1.12 billion	\$750 million	\$690 million

It was therefore obvious to Mr. McNamara that the finger pointed to the alternative which included the F-106X.

This conclusion was not so clear to some members of the Appropriations Committee, however. Ten days later, on 26 February 1968, Dr. Brown attempted to clarify the matter. Aside from the fiscal factors (it was estimated that 10 F-106Xs could be bought for the price of one F-12), Dr. Brown said that DOD studies had shown that the improved F-106 offered more capability against a low-flying subsonic bomber, armed with medium-range air-to-surface missiles (ASM), than the F-12. He added, however, that the F-12 certainly would be superior against a supersonic bomber (which he noted in an aside that the Soviets did not really show any sign of developing) or a long-range ASM.<sup>20</sup>

<sup>20</sup> Ibid., 26 Feb 1968, p. 730.

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Mr. McNamara asked Congress for \$28 million for F-106X development in FY 1969. For the F-12, of course, he asked nothing: When asked if the still unspent \$55 million in FY 1967 money might not be released for continued development of the F-12, the Secretary was blunt: "I tell you these funds are not required for the purpose for which they were originally appropriated."<sup>21</sup>

Interest again focused on the F-12, dead or not. The Senate did not accept the reasoning behind the F-106X proposal and promptly cut from the FY 1969 budget the \$28 million requested for F-106X development. Senator Cannon expressed "shock" at the F-106X proposal. "They are," he said during the course of Senate Armed Services Committee hearings on 29 February 1968, "talking about getting a fire control system on an airplane that was last produced in 1960 and using that some time in the 1970's as a so-called fighter-interceptor. It just does not make sense."<sup>22</sup>

After Mr. McNamara was succeeded by Clark M. Clifford on 1 March 1968, the Air Force suggested a mixed force of F-12/F-106X interceptors to contain both the high and fast supersonic bomber and the low and relatively slow

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21. Ibid., 16 Feb 1968, p. 276.

22. Hearings, Senate Armed Services Committee, Department of Defense Appropriations for FY 1969, 29 Feb 1968, p. 1072; Aerospace Daily, 14 May 1968.

subsonic bomber at the same time. The House Appropriations Committee accepted this approach and in a report issued in early July 1968 recommended that the \$28 million for development of the F-106X (and excised by the Senate) be restored to the budget, but only on the condition that the \$55 million appropriated two years earlier be spent on the F-12. The Senate, however, was adamant about the F-106X and when the conflicting positions of the two chambers were reconciled in September 1968 a situation occurred which was similar to that of an earlier day, when Nike and BOMARC were involved. When the Defense Appropriations Bill for FY 1969 eventually became law it contained money for neither the F-12 nor the F-106X. Both the Senate and the House reports recommended, however, that the now famous \$55 million of the FY 1967 appropriation be spent on the F-12.<sup>23</sup>

Mr. McNamara was somewhat more encouraging when he discussed the other two aspects of Dr. Brown's blueprint for the antibomber defense of the future--AWACS and OTH-B. As to AWACS, he said in February 1968 testimony, early tests of ORT had shown such promise that he was requesting \$75 million in FY 1969 for further development. No funds were

<sup>23</sup>. Aerospace Daily, 29 May, 9 Jul, 11 Sep, and 24 Sep 1968; Aviation Week, 15 Jul, 2 Sep, and 16 Sep 1968.

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By the end of 1968 it had been decided that the AWACS aircraft would be either a modification of the Boeing 707-320 or the Douglas DC-8 (series 60). The Hughes and Westinghouse radars also reached the finals of the competition. Although OTH-B got a much later start than either AWACS or the F-12 there was a reasonable degree of confidence by late 1968 that it would be ready before AWACS. The backscatter radar was expected to cover an area from 500 miles to 2,000 miles from the site and to offer detection capability from the surface of the earth to the ionosphere. Within this area it was expected to detect not only manned bombers, but submarine-launched ballistic missiles (SLBM) as well. Early DOD planning included only two OTH-B sites, one each on the east and west coasts. ADC, though, thought sites should be added both north and south to cover all possible approaches to the continental United States. Since only nominal sums had been spent on the development of OTH-B, Congress expressed little interest in it.<sup>25</sup>

The COLLEGE CADENCE overseas deployment force established by ADC in 1967 was suddenly put to operational use

25. Airborne Instruments Lab, Final Report, Overland Radar Technology Program, Scaled Radar Evaluation, "Summary and System Comparison," 1428-1, Vol. I, Oct 1968, pp. 1-5; Secretary of Defense Concept Paper, "Development Concept Paper AWACS Development Program," 5 Nov 1968 (Doc 422 in Hist of ADC, FY 1969); ADC (DCS/Plans), "Atmospheric Defense Command, Control and Surveillance Briefing," 22 Sep 1968 (Doc 395 in Hist of ADC, FY 1969).

following the seizure of the U.S.S. Pueblo by North Korea on 23 January 1968. Since this action might have been the prelude to resumption of the Korean War, it was apparent that the air defenses of South Korea needed bolstering. Although ADC told the Fourth Air Force on 27 January to alert the 318th FIS (McChord) for movement to Korea, the actual deployment order from JCS did not arrive until 7 February 1968. The first group of six F-106 interceptors left McChord on 9 February. The 18th aircraft arrived at Naha, Okinawa, on 11 February. One week later, on 18 February, the 318th moved from Naha to Osan Air Base in Korea. This movement did not follow the existing COLLEGE CADENCE plan (four cells of six aircraft from four different squadrons) because only two of the four earmarked COLLEGE CADENCE squadrons, the 318th and the 71st FIS at Malmstrom, were equipped with permanent supersonic fuel tanks and the necessary equipment for air-to-air refueling. Hence the 318th was sent in squadron strength--18 aircraft.<sup>26</sup>

26. Msg, ADODC 0021Z, ADC to 4 AF, 27 Jan 1968 (Doc 1 in "ADC Augmentation of USAF Forces in Korea, 1968"); USAF, "Chronology of the Korean Crisis, 1968, Jul 1968, p. 29; Msg, ADOOP-W 2203Z ADC to 4 AF, 7 Feb 1968 (Doc 17 in "ADC Augmentation of USAF Forces in Korea, 1968"); Interceptor, Jul 1968, pp. 8-13; Msg, 318 FIS (Osan) to ADC, 24 Feb 1968 (Doc 27 in "ADC Augmentation of USAF Forces in Korea, 1968"); Agan to 4 AF, "Letter of Appreciation," 8 Mar 1968 (Doc 22 in Hist of ADC, Jan-Jun 1968).

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COLLEGE CADENCE deployment to Korea continued through the remainder of 1968. Since the 318th was deployed to Korea in temporary duty status (a maximum of 179 days), it became necessary for ADC to furnish a second squadron when the requirement to maintain the Korean deployment continued. To accomplish the relief of the 318th a complicated transfer became necessary. Since the 71st was heavily engaged in a modification program it was not deemed expedient to send it to Korea. The other two F-106 squadrons intended for COLLEGE CADENCE use--the 94th and 95th--were not yet ready for overseas deployment. Hence the 48th FIS (Langley), not previously considered a COLLEGE CADENCE unit, was chosen to relieve the 318th. This was accomplished by moving the aircraft of the 48th from Langley to McChord for use by the 318th when it returned to the United States. Then the personnel of the 48th were airlifted to Osan to begin operations with the COLLEGE CADENCE interceptors of the 318th. The 48th began official life at Osan on 11 July 1968.<sup>27</sup>

The 71st FIS assumed COLLEGE CADENCE responsibilities in Korea in December of 1968. It was then necessary to mount another complicated transfer. The 71st, of course,

<sup>27</sup>. ADC Operation Plan 76-68, COLLEGE CADENCE, 15 May 1968 (Doc 22B in Hist of ADC, Jan-Jun 1968); "Status of ADC Combat Aircraft," 11 Jul 1968.



was equipped for COLLEGE CADENCE operations and flew its own aircraft to Korea. Thereupon the 48th FIS flew the interceptors that originally belonged to the 318th back to McChord and then moved its own aircraft back to Langley. The 71st was formally at home at Osan on 23 December 1968.<sup>28</sup>

Although ADC concluded, in the fall of 1967, that the joint use of ADC and FAA ground radar was not only feasible, but desirable, subsequent events produced a change in the ADC attitude. The reason lay in DOD proposals to further reduce the number of ADC radars and to dilute the control system. This meant that ADC would provide an ever-decreasing share of the joint National Airspace System. There would come a point, ADC believed, where there might be doubt as to the ability of FAA to provide the type of data required for air defense purposes.<sup>29</sup>

A solid decision had apparently been made at DOD, however. In his presentation to Congress in early 1968, Mr. McNamara stated his preference for an antibomber system of the future that included "FAA radars," which indicated that the radar system would be primarily oriented toward FAA. Nevertheless, after a series of ADC studies (April-September

28. Final Report, ADOCP, on Coronet Swap (movements of 48th and 71st FIS), 15-23 Dec 1968 (HO files).

29. ADC to USAF, "Development of Air Defense Command and Control System," 24 Nov 1967 (Doc 271 in Hist of ADC, Jan-Jun 1968).

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1968), Lt. Gen. Arthur C. Agan (ADC commander since 1 August 1967) attempted to swim against the tide by writing the USAF Chief of Staff that the FAA centers, in the form then proposed, were "unacceptable operationally and economically... because of the high investment cost in establishing the joint centers and the negligible wartime capability as compared to the alternatives available."<sup>30</sup> This objection was not effective, however, because on 18 January 1969 DOD Program Change Decision Z-9-002 directed the full integration of air defense and air traffic control functions into the new NAS control centers.<sup>31</sup>

The first operational BUIC III site within the United States was that at Fort Fisher, North Carolina, on 8 December 1968. One of the two Canadian sites (at Senneterre, Quebec) beat that date by a week. The 14-site BUIC III system was expected to be complete and fully operational by the end of 1969.<sup>32</sup>

Despite vigorous objections on the part of ADC, NORAD and USAF, the OSD-ordered deletion of the surveillance and detection network within the interior of the United States took place in 1968. The number of active long-range

30. Agan to USAF, "Atmospheric Defense Ground Environment Study," 23 Sep 1968 (Doc 413 in Hist of ADC, FY 1969).

31. Hist of ADC, FY 1969, pp. 220-221.

32. Ibid., pp. 378-382.

radars dropped from 98 to 81 during the year, with the gap fillers slashed from 88 to 17. It had not been possible to sway the Secretary of Defense (whether Mr. McNamara or Mr. Clifford) from previously announced reductions. This steadfast attitude also prevailed in the manned interceptor force. Nine F-101B squadrons became inactive in 1968. With one F-106 squadron on COLLEGE CADENCE duty in Korea and one F-102 squadron in Iceland, only 17 interceptor squadrons were available within the United States. The reductions announced by Mr. McNamara in November 1964 had been carried out by the end of 1968. It was perhaps significant to note that when the Air Defense command was reestablished in January 1951 it received from the Continental Air Command 20 squadrons of manned interceptors.<sup>33</sup>

The political complexion of the national administration changed again in November 1968 when Republican Richard M. Nixon was elected President. For this reason the tenure of Mr. Clifford as Secretary of Defense was short (March 1968-January 1969). The Secretary of Defense of the Nixon administration became former Congressman Melvin R. Laird of Wisconsin who had served for many years on the House Appropriations Committee and was undoubtedly well-versed in military

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33. Ibid., pp. 37-47 and 174-183.

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affairs. The budget hiatus that normally attended a change in administration occurred again. Mr. Clifford presented his proposed FY 1970 budget to Congress on 15 January 1969 as one of his last official acts. This document was, of course, a dead letter and when Mr. Laird first appeared before Congress as Secretary of Defense in March of 1969 he merely requested that he be given more time to prepare a budget he was willing to defend. It was not until June of 1969, therefore, that substantive hearings on the FY 1970 budget began.

Meanwhile, hope for the F-12 as the manned interceptor of the future rose again when, in February 1969, General Crow, still USAF Budget Director, told General Agan that the revised USAF budget presentation for FY 1970 included \$48.5 million for an advanced interceptor, although not necessarily the F-12. General Agan therefore recommended that this sum, plus the \$55 million in F-12 money appropriated in FY 1967, be used to revive the dormant F-12 development program. There were also hints from Washington that the new Secretary of the Air Force, Dr. Robert C. Seamans, Jr., was interested in keeping the F-12 option open, although he was not committed to the F-12 as the next interceptor.<sup>34</sup>

But this effort, as had so many others involving

34. Agan to McConnell, no subj, 18 Feb 1969 (Doc 110 in Hist of ADC, FY 1969); Msg, ADLAD-W 1723Z, ADC to ADC Aerospace Defense Flight Test Office (ADFTO-Edwards AFB, Cal.), 16 May 1969 (Doc 111 in Hist of ADC, FY 1969).

the F-12, came to naught. In his opening day of testimony before the Senate Appropriations Committee, on 10 June 1969, Mr. Laird indicated that he was no more inclined to provide funds for the F-12 than had been Mr. McNamara or Mr. Clifford. At that time he told the Committee that although the JCS had recommended spending \$95 million on the F-12 in FY 1970 to provide the initial operational capability by 1974, he had disapproved further development of the F-12.<sup>35</sup>

The new team in DOD proposed spending only \$18.5 million for development of an advanced manned interceptor during FY 1970, with only \$2.5 million to be devoted to studies of the airframe itself. Grant L. Hansen, Assistant Secretary of the Air Force for Research and Development, revealed some of the soul-searching currently being encountered in this area in 12 June 1969 testimony before the House Appropriations Committee.

Some people want the F-12, believing the F-106X to be too old an airplane. The F-12 is believed by others to be too expensive an airplane. So we are trying to see if we cannot find a solution that will do that job and satisfy enough of the requirements to let us get on with it. We do need a modern air defense interceptor in my opinion, but we have to make sure we are getting the right one.<sup>36</sup>

Candidates for this role, Mr. Hansen added, included the F-106X, F-12, F-14 (a proposed Navy aircraft) or some

35. Senate Hearings on Department of Defense Appropriations for FY 1970, 10 Jun 1969, p. 19.

36. House Hearings on Department of Defense Appropriations, Part 4, 12 Jun 1969, pp. 586-588.

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possible new interceptor. Of the remainder of the requested \$18.5 million, nine million was to be spent in further development of an advanced fire control system, five-and-one-half million on armament development, one million for flight testing and \$500,000 for studies of advanced radar.<sup>37</sup>

On the same date, however, General Wheeler, the Chairman of the Joint Chiefs was much more specific in testimony before the Senate Committee. He recommended, without qualification, that the requested \$18.5 million be spent on the F-106X. He did not mention the other possibilities cited by Mr. Hansen.<sup>38</sup>

Meanwhile, the F-12 prototype at Edwards gained a sort of half-life as test vehicles. This came about because of the termination of flight test programs involving the B-70 and X-15 aircraft. It occurred to researchers in the National Aeronautics and Space Administration (NASA) in 1968 that the F-12 might be useful in providing data on the performance of an airborne vehicle in the sub-hypersonic speed range. ADC was ready to cooperate in such a joint venture since it provided additional test flights in the F-12. Besides, NASA was willing to supply the necessary funds. Active discussions

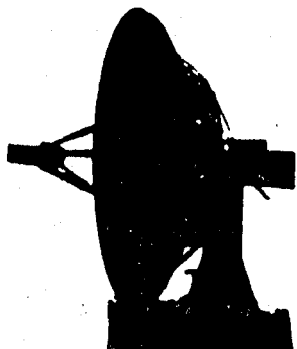
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37. Ibid.

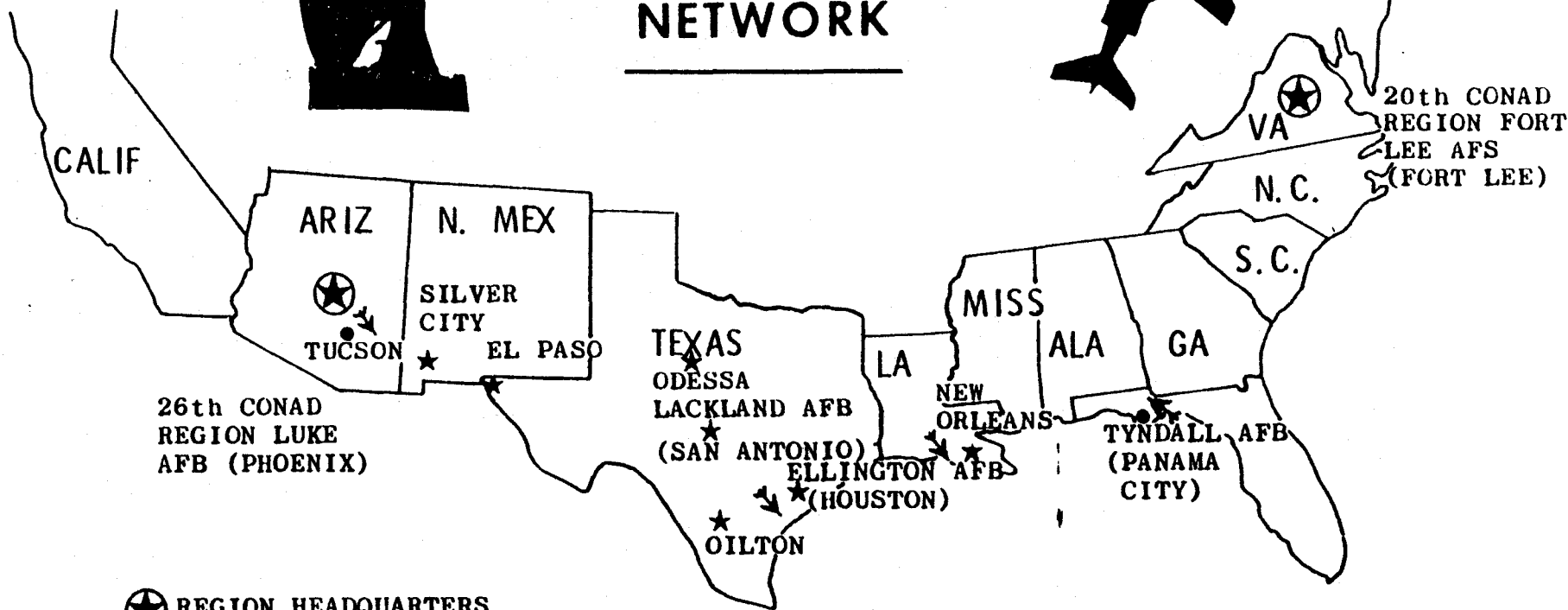
38. Senate Hearings on Department of Defense Appropriations for FY 1970, 12 Jun 1969, pp. 145-46.

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# SOUTHERN DEFENSE NETWORK



★ REGION HEADQUARTERS

★ FAA RADARS

▶ ALERT INTERCEPTORS

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began in January 1969 with general agreement reached by April 1969. The Air Force and NASA signed the formal memorandum of understanding on 5 June 1969. The agreement specified that ADC would provide the aircraft, pilots, and maintenance personnel, while NASA would provide funds in the amount of approximately \$10 million over the five-year period beginning with FY 1970.<sup>39</sup>

For the second straight year there was no agreement within Congress as to an advanced manned interceptor. While the House was willing to go along with the modest \$18.5 million Mr. Laird requested for interceptor development, the Senate cut that amount to \$2.5 million and maintained that position through the House-Senate conference on the FY 1970 appropriation. Not only was the F-12 truly dead as the operational interceptor of the future, but the F-106X was apparently interred alongside it. All that remained was the \$2.5 million authorized for study of the situation.<sup>40</sup>

AWACS fared somewhat better in the FY 1970 budget, although it faced the formidable opposition of Senator Stennis,

39. ADC to USAF, "Report of the USAF Scientific Advisory Board Aerospace Vehicles Panel on Prototypes, Hypersonic Technology and Research Aircraft," 23 Apr 1969 (Doc 114 in Hist of ADC, FY 1969); DCS/Plans to Comdr, ADC, "Joint USAF/NASA YF-12 Memorandum of Understanding," 13 May 1969 (Doc 115 in Hist of ADC, FY 1969); Msg, AFRDDE 2008Z, USAF to AFPMRE (Military Personnel Center, Randolph AFB, Texas), 6 Jun 1969 (Doc 116 in Hist of ADC, FY 1969); Msg, AFRDC 1956Z, USAF to AFSC, 3 Jun 1969 (Doc 117 in Hist of ADC, FY 1969).

40. Aviation Week, 15 Sep 1969; Aerospace Daily, 10 Oct 1969; Washington Star, 5 Oct 1969.

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chairman of the Senate Armed Services Committee. While Mr. Laird requested \$60 million for continued development of AWACS, Senator Stennis was not impressed. "The bomber threat has become less and less in my estimation," he said in early May 1969. "I've never become concerned about the bomber threat."<sup>41</sup> Senator Stennis preferred that the AWACS effort be scrapped, but the Senate Appropriations Committee ultimately recommended that \$15.7 million be spent on it in FY 1970. The counterpart House Committee reduced Mr. Laird's request by one-third, recommending that \$40 million be spent on AWACS. In conference the House gave way on the advanced interceptor, but held firm on AWACS. The final appropriation bill for FY 1970 allocated \$40 million for AWACS.<sup>42</sup>

Since there was little money being spent on the OTH-B aspect of the future antibomber defense, Congress expressed little interest in it during discussions of the budget for FY 1970. There was a considerable difference of opinion, however, between DOD and ADC as to the form this surveillance system was to take. The Department of Defense, to the end of 1969, had not approved more than two sites. If this was all that was to be provided, ADC proposed to site one in the

41. Colorado Springs Free Press, 5 May 1969.

42. Washington Star, 5 Oct 1969; Aerospace Daily, 10 Oct 1969.

northeastern United States and the other in the northwestern part of the country. Each was to sweep a 90-degree arc. It was ADC's hope, though, that four OTH-B sites would be established so all possible approaches to the country might be covered.<sup>43</sup>

While progress toward the three-element system of the future was agonizingly slow, various other actions were taken on the existing antibomber system. The 14-site network of BUIC III command and control stations was completed just after the end of 1969, with the 14th station, at Fortuna, North Dakota, operational on 5 January 1970. The joint FAA-ADC NAS continued in study status. A new problem arose when it was discovered that the full cost of the 11 NAS Joint Control Centers (JCC) could probably not be met. Hence, in March 1969, ADC was asked to revise JCC planning to consider "austere" centers. ADC did not really know what constituted an "austere" JCC, since it was still in the development stage, but knew that it was not enthusiastic about the lateness of the proposed operational dates (first center operational in June 1972, with the total system complete in July 1974). ADC also felt constrained to point out that the austere center would have only about 25 percent of the surveillance and

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43. ADC, "A Review of CONUS Over-the-Horizon Backscatter Radar System Requirements," ADLAD-S, 20 Nov 1969 (HO files).

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control capability of the existing SAGE direction centers. Nevertheless, since it was directed to do so, ADC forwarded a plan for use of austere Joint Control Centers to USAF in June of 1969. This plan USAF approved in October of 1969, but no further action had been taken by the end of the year.<sup>44</sup>

The rotation of ADC F-106 squadrons to Korea (COLLEGE CADENCE) continued through 1969. When deployment began in February 1968 it was ADC's understanding that it would continue only through that year. Nevertheless, the 71st FIS was sent to Korea in December 1968, the third ADC squadron to be so deployed. The indefinite nature of this mission was clarified in February 1969 when the JCS approved continuation through 1969.<sup>45</sup>

Point was given to this decision on 15 April 1969 when North Korean fighters shot down a Navy EC-121M reconnaissance aircraft over the Sea of Japan. About nine hours later a flight of F-106 interceptors of the 71st FIS left Osan to fly combat air patrol (CAP) in the incident area to

44. Msg, ADOOT-EO 1824Z, ADC to ADC Computer Programming Systems Training Office (Santa Monica), 6 Jan 1970 (HO files); ADC, "Operational Concept for Peacetime Identification and Interceptor Control Using FAA/NAS," 23 Jun 1969 (Doc 418 in Hist of ADC, FY 1969); USAF to ADC, "Operational Concept for Peacetime Identification and Interceptor Control Using FAA/NAS," 21 Nov 1969 (HO files).

45. Msg, ADOOP-W 2259Z, ADC to 1 AF, 25 Feb 1969 (Doc 40 in Hist of ADC, FY 1969).



F-106 aircraft passing over Korean field laborers.



protect the aircraft searching for survivors and debris. The CAP aircraft refueled from KC-135 tankers based at Kadena Air Base on Okinawa. In the next few days the 71st flew 76 CAP sorties, totalling 315 flying hours, both day and night and often in bad weather. These sorties averaged four hours with two air-to-air refueling contacts on each occasion. All sorties were flown exactly as directed by PACAF. Later, between 3 May and 24 May 1969, the 71st flew an additional 206 similar sorties.<sup>46</sup>

The fourth COLLEGE CADENCE deployment to Korea occurred in June of 1969 when the 94th FIS (Selfridge) replaced the 71st. Again, as had been the case when the 48th replaced the 318th, aircraft transfer was necessary, because the F-106s assigned to the 94th were not yet equipped fully for overseas deployment. The 94th flew its aircraft to Malmstrom, the CONUS base of the 71st, then was airlifted to Korea to begin operations with the interceptors originally assigned to the 71st. Personnel of the 71st completed the cycle when they received airlift back to Malmstrom. The

<sup>46</sup>. New York Times, 17 Apr 1969, giving verbatim statement issued by DOD. Msg, ADOOP-W 2013Z, ADC to USAF, 22 Apr 1969 (Doc 41 in Hist of ADC, FY 1969); Msg, ADCCR 2306Z, ADC to 10 AF, 2 May 1969 (Doc 42 in Hist of ADC, FY 1969); Msg, ADOOP-W 1737Z, ADC to USAF, 27 May 1969 (Doc 43 in Hist of ADC, FY 1969).

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fifth COLLEGE CADENCE rotation came in November 1969 when the 95th FIS took its own aircraft to Osan and the 94th returned the F-106s already there to Malmstrom.<sup>47</sup>

Although there was only slight progress toward the advanced antibomber system, the Nixon administration believed it necessary to make further serious reductions in the existing system in late 1969 as part of a program to reduce defense expenditures by \$3 billion in FY 1970. This became known as Project 703 and it weighed heavily on ADC. Lost as a result of 703 were four squadrons of manned interceptors, one squadron of BOMARC (Niagara Falls), the detachment of eight F-102 interceptors at Key West, Florida, six long range radars, three direction centers (Oklahoma City AFS, Gunter AFB, Alabama, and Custer AFS, Michigan) and three combat centers (First, Fourth, and Tenth Air Forces). Three F-101B squadrons (the 2nd at Suffolk County AFB, New York; 59th at Kingsley AFB, Oregon; and 75th at Wurtsmith AFB, Michigan) ceased active operations on 30 October 1969. The F-104 squadron at Homestead AFB, Florida, followed on 15 November 1969. These actions forced a redistribution of F-106 squadrons, with the 460th moving from Oxnard to Kingsley and the 94th from Selfridge to Wurtsmith. They also resulted in the

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47. Hist of ADC, FY 1969, pp. 53-61; ADC Equipment Status Report, 10 Nov-24 Nov 1969.



closure of Oxnard, Suffolk County, and Stewart AFB, New York (location of the First Air Force). Richards-Gebaur AFB, Missouri, headquarters for the Tenth Air Force, was to be transferred to the Air Force Communications Service. It was also planned to transfer Selfridge to the Air Force Reserve (AFRes), but there were doubts, at the end of 1969, that the AFRes commanded sufficient resources of either personnel or money to operate the base.<sup>48</sup>

The chances that appreciable sums would be spent on the modernization of antibomber defenses in 1970 were certainly no brighter than they had been during the past several years. There was almost an air of defeatism about the prospects for an advanced manned interceptor when the major Air Force witnesses appeared before the Senate Armed Services Committee on 10 March 1970 to outline Air Force proposals for the coming fiscal year. General John D. Ryan, who succeeded General McConnell as Air Force Chief of Staff on 1 August 1969, revealed that the new budget did not provide much money toward a new manned interceptor, even though the active force had been reduced to 252 aircraft of which the F-106, last produced in 1960, was the most modern. The Secretary of the Air Force, Dr. Seamans, did not even mention

48. Msg, USAF to ALMAJCOM, 290012Z Oct 1969 (Doc 30 in Hist of ADC, FY 1970); ADC Equipment Status Report, 30 Oct and 15 Nov 1969.

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an improved interceptor in his presentation to the committee. Specifically, the sum requested for development of a manned interceptor during FY 1971 was \$2.5 million, precisely the amount allowed by Congress in FY 1970. This was to be used, General Ryan said, for the advancement of fire control and air-to-air missile technology, with a minor amount allocated to study of possible airframes.<sup>49</sup>

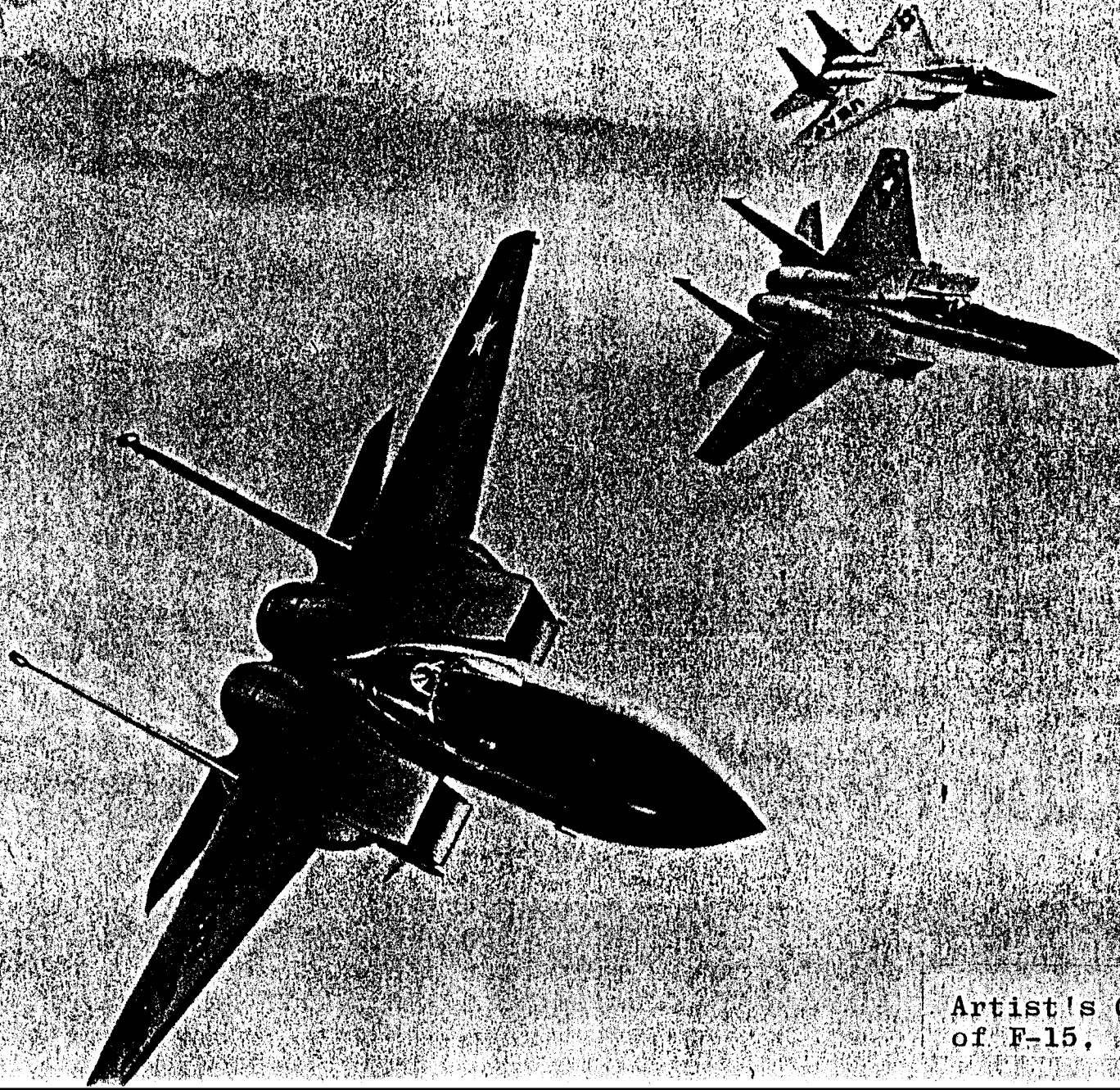
The apparent impasse on the IMI resulted from a lack of consensus as to the type of aircraft to be provided for this purpose. The F-12 favored by ADC had been buried under an avalanche of DOD disapproval. The F-106X "look-down, shoot-down" approach favored by Mr. McNamara Congress scorned. Meanwhile, a new candidate for the role of improved manned interceptor appeared. In a Requirements Action Directive (RAD) of 21 May 1970, USAF directed AFSC to consider an interceptor version of the F-15 to be designated F-15Y.<sup>50</sup>

ADC was quite willing to go along with the F-15 as an interceptor, especially since it was expected to offer the desired look-down, shoot-down capability, but was somewhat disturbed, in August 1970, to discover

49. Supplement to the Air Force Policy Letter for Commanders, No. 5-1970, May 1970; John L. Frisbee, "Air Defense-- The Forgotten Front," Air Force Magazine, Jul 1970.

50. Msg, ADCIO 022002Z Jun 1970, ADC to OSAF (Doc 136 in Hist of ADC, FY 1970); Msg, ADCIO 112029Z Jun 1970, ADC to CINCONAD (Doc 137 in Hist of ADC, FY 1970).

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Artist's Concept  
of F-15.

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that attempts to cut the cost of the F-15 promised to reduce the fire control system capability. USAF was urged to resist such proposals, because the interceptor version of the F-15 required a highly sophisticated fire control system. In November of 1970 ADC recommended that all F-15Y interceptors be provided with nuclear rockets (advanced versions of the AIR-2A), pending development of conventional air-to-air missiles that overcame current deficiencies in missile guidance, fuzing, and susceptibility to electronic countermeasures. ADC also recommended that even after the development of such conventional missiles the F-15Y be equipped with nuclear missiles to supplement the conventional type. At the same time, however, ADC conceded that provision of nuclear capability should not be allowed to jeopardize the F-15Y development.<sup>51</sup>

There was more progress toward AWACS. Although Mr. Laird had requested \$60 million in FY 1970 and only \$40 million survived the Congressional wringer, this was enough for AWACS development to proceed. Suspense over the airframe contract ended on 8 July 1970 when Boeing got a contract for \$16.5 million to build two AWACS test aircraft. One of the

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51. Ltr, McGehee to Ryan, no subj, 20 Aug 1970 (Doc 148 in Hist of ADC, FY 1970); Msg, ADCXP 241600Z Nov 1970, ADC to USAF (Doc 149 in Hist of ADC, FY 1970).

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test aircraft was to get the Hughes version of AWACS radar, the other with one by Westinghouse. When this stage of testing was ended one of the competing radars was to be eliminated. The total AWACS program at that time called for the production of 42 AWACS command and control platforms, with 29 to be assigned to ADC. The DOD requested \$87 million for AWACS in the budget for FY 1971. It was estimated that the cost of the total AWACS program would approach \$2 billion. Although the House wanted to remove \$23.5 million from the amount requested for FY 1971, this cut was restored during the House-Senate conference.<sup>52</sup>

The backscatter version of OTH was first dignified with separate budget recognition in the DOD budget for FY 1971. The allocation requested was \$5.3 million. In addition, Congress was asked to authorize the commencement of contract definition in FY 1971. Subsequent to the presentation of the FY 1971 budget to Congress, DOD Development Concept Paper No. 49 approved the planning of three OTH-B sites. Under the terms of this approval, the system was to consist originally of a 90-degree site on both the east and west coasts of the United States, with a possible third, and 180-degree site in northern Canada, north of the auroral zone.

<sup>52</sup>. Wall Street Journal, 9 Jul 1970; Hist of ADC, FY 1971, pp. 65-66.

No sites had actually been chosen by mid-1970, but there was general acceptance of the idea that the east coast site would be in northeastern Maine, the west coast site in northwestern Washington. Hall Beach, Northwest Territories, Canada, was likely to be the site of the northern OTH-B radar, although nothing concrete was to be done about this site until it had been proven that OTH-B operations in arctic areas were feasible.<sup>53</sup>

To get OTH-B development underway, USAF issued a System Management Directive on 30 July 1970 which specified that two or more contractors would be selected to determine system design, costs, and development schedules. AFSC was directed to complete Requests for Proposals (RFP) for issuance to prospective contractors within 120 days. This did not prove possible, however, and the System Program Office (SPO) experienced such difficulty in writing the RFP that it, in December 1970, recommended that the responsibility for writing the RFP be transferred to the Electronic Systems Division (ESD) of AFSC. No RFP had been written, therefore, at the end of 1970.<sup>54</sup>

53. Statement of Gen John D. Ryan, C/S, USAF, to Senate Armed Services Committee, 10 Mar 1970; Change No. 1 to Vol V (Over-the-Horizon Backscatter Radar), Atmospheric Defense for Post 1977, ADC, 1 Jul 1970 (HO files).

54. USAF, System Management Directive, "Directive Control Number SMD-1-390-414L (1)-(CONUS OTH)," 30 Jul 1970 (Doc 33 in Hist of ADC, FY 1971); Hist of ADC, FY 1971, pp. 75-76.

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The deployment of F-106 aircraft to South Korea ended, by JCS direction, in May 1970 and the 95th FIS returned to Dover. Five of the 11 ADC F-106 squadrons took part in COLLEGE CADENCE operations. The conclusion of Korean deployment then made it possible to use F-106 interceptors in the defense of Southern Florida. ADC had previously held this responsibility, but when Project 703 dictated the inactivation of not only the squadron of F-104 aircraft at Homestead, but also the detachment of eight F-102 interceptors at Key West, the JCS, in November 1969, gave this mission to CINC-STRIKE. In February 1970, however, the JCS decided that this was not an adequate solution to the defense of southern Florida and directed that when either COLLEGE CADENCE or COLLEGE SHOES (eight F-106s regularly deployed to Alaska) ended, ADC should again provide manned interceptors for the defense of southern Florida. Therefore, six F-106 aircraft of the 48th FIS (Langley) began standing alert at Homestead on 3 June 1970.<sup>55</sup>

There was also further, though essentially negative activity in the direction of NAS. This system, as planned

55. Msg, NOPS I551Z, NORAD to ADC, 23 Apr 1970 (Doc 89 in Hist of ADC, FY 1970); Msg, ADODC 1705Z, ADC to NORAD, 4 May 1970 (Doc 91 in Hist of ADC, FY 1970); Msg, ADODC 2153Z, ADC to 20 AD, 7 May 1970 (Doc 92 in Hist of ADC, FY 1970); ADC Equipment Status Report, 3 Jun 1970 (HO files).



[REDACTED]

in early 1970, included 11 Joint Control Centers. While ADC at one time embraced NAS as the way of the future, it withdrew from this position when it became more and more apparent that the JCC would not have adequate wartime capability. By mid-1970 ADC reached the position where it believed that while the JCC would be competent to control air traffic in times of peace, such control would have to be passed to AWACS Regional Combat Centers (RCC) in time of war. Hence ADC contended it was not necessary to begin using the JCCs until perhaps 1977-78, when AWACS became available. Meanwhile, ADC recommended continued use of the existing SAGE/BUIC control system. After 1978, ADC concluded, the control system should consist of 11 JCCs and 6 AWACS/RCCs. NORAD had no faith at all in the JCC concept. NORAD took the position, in March 1970, that "since it is essential to retain the present RCC structure for command and control until the modernization program is complete, there appears to be little justification for further JCC study or development."<sup>56</sup>

[REDACTED] While Project 703 dealt roughly with ADC, it did not mark the end of the cost reduction game. When the time came, in the spring of 1970, to plan the DOD

<sup>56</sup>. NORAD to JCS, "Revised Development Concept Paper No. 1, CONUS Air Defense," 23 Mar 1970 as quoted in ADC study, "Atmospheric Defense for Post 1977," ADC, Vol IV, Joint Control Centers, 1 Jul 1970 (HO files).

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budget for FY 1972 it became apparent that ADC was going to suffer further losses. Although the Air Force portion of the DOD Five Year Development Plan (FYDP), published on 20 January 1970, anticipated Air Force expenditures of \$22.4 billion in FY 1972, this figure assumed that no money would be required in Southeast Asia after FY 1971. On 25 March 1970, however, Mr. Laird informed the Air Force that it would be limited to \$21.76 billion for FY 1972, with \$1.8 billion of this amount set aside for costs in Southeast Asia during that year. It was therefore necessary for the Air Force to save \$2.5 billion, an effort known as Program 72-52.<sup>57</sup>

The impact on ADC was considerable. Probably the most important proposal was that to inactivate the five existing BOMARC squadrons. Another proposed the transfer of the Defense Systems Evaluation Squadrons (three squadrons equipped with B-57 and F-100 aircraft) to the Air National Guard. Closure of the training base at Perrin AFB, Texas, and the fighter base at Otis AFB, Massachusetts, was also recommended. Comptroller, personnel, materiel, and civil engineering technicians were to be removed from the staffs of the six ADC air divisions. Twelve of the 46 operating EC-121 AEW&C aircraft were to be mothballed. The

<sup>57</sup>. USAF to ADC, "Headquarters USAF Program Exercise to Achieve OSD Fiscal Guidance," 20 Apr 1970 (Doc 18 in Hist of ADC, FY 1970).

personnel strength of the command headquarters was to be reduced by five percent. Other, but more insignificant, reductions were also recommended. Among all the negative suggestions, however, there was one positive note. Program 72-B2 also called for the addition of one squadron of Improved Manned Interceptors in FY 1977, with the number increasing to three squadrons at the end of FY 1979. -At that time the three remaining ADC F-101B squadrons passed along to the ANG.<sup>58</sup>

~~██████████~~ Reply to Program 72-B2 was difficult, because dissent to the recommended reductions was acceptable only if the affected command suggested other reductions that saved equivalent amounts of money and manpower. Besides, only 10 days were allowed for reply. ADC objected primarily in its reply of 29 April 1970 to the total inactivation of BOMARC and the removal of staff personnel from the air divisions. In return, ADC offered to reduce the scope of operations at DOBs, to inactivate three radars in Canada (Saglek, Melville, and Stephenville) and to reduce the size of the headquarters complement at ADC by 55 persons besides the 88 required by 72-B2.<sup>59</sup>

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58. Ibid.

59. ADC to USAF, "USAF Program Exercise 72-B2," 29 Apr 1970 (Doc 122 in Hist of ADC, FY 1970).

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██████████ After evaluating the comments of the various Air Force commands, USAF, on 20 May 1970, issued Program Exercise 72-B3 which addressed the same problem. Since the total savings produced by 72-B2 failed to meet probable budget requirements, further ADC reductions were indicated. The need for total inactivation of BOMARC was repeated. In addition, the inactivation of the three remaining F-101B squadrons was recommended, as was the closure of Hamilton, the cessation of BOMARC evaluation activity at Santa Rosa Island, Florida, and a 10 percent reduction in the number of support personnel at Ent, Duluth, Hancock, Tyndall, and Kingsley.<sup>60</sup>

██████████ Again, on 28 May 1970, ADC objected to the total inactivation of BOMARC, offering to make up the monetary difference by (1) closing Kingsley and moving the 460th FIS to Grand Forks in tenant status, (2) reducing the EC-121 force by four additional aircraft and (3) reducing the size of the ADC headquarters by another 24 persons. The continued retention of the three F-101B squadrons was desired, but ADC could offer no compensating "tradeoffs." Otherwise, ADC concurred in the proposed reductions.<sup>61</sup>

60. USAF to ADC, "Headquarters USAF Program Exercise 72-B3," 20 May 1970 (Doc 20 in Hist of ADC, FY 1970).

61. ADC to USAF, "Headquarters USAF Program Exercise 72-B3," 28 May 1970 (Doc 21 in Hist of ADC, FY 1970).



Lt Gen Thomas K. McGehee  
Commander of ADC, 1 Mar 70

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The antibomber defense system had been reduced to a thin shell by the end of 1970. The radar network had been cut back to 69 long range radars and 12 BUIC III sites. The last gap filler radar ceased operations on 1 July 1970. This system was controlled by six ADC air divisions. Fourteen squadrons comprised the active manned interceptor force, with supplemental assistance from 16 ANG squadrons. One additional ADC squadron was based in Iceland. Five BOMARC squadrons completed the weapons force dedicated to antibomber defense. Outside the Air Force there was scant enthusiasm for the improved antibomber force to include AWACS, OTH-B, and possibly the F-15Y. A July 1970 comment of John L. Frisbee of Air Force still described the situation at the end of the year. "We can hardly remember," he wrote, "when we last read or heard reports in the media of any defense official who was worried about the condition of this country's air defenses. It's not particularly hot copy these days."<sup>62</sup>

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The defense budget for FY 1972 contained no funds for development of an improved manned interceptor, but General McGehee was permitted to provide the Senate Armed Forces Committee with a written statement why ADC, and the Air Force, wanted the F-15Y as a replacement for the aging F-106.

<sup>62</sup>. John L. Frisbee, "Air Defense--The Forgotten Front," Air Force, Jul 1970; ADC Equipment Status Report, 30 Jun 1970; ADC V-24 Report, Status of Radar, 15 May 1970.

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"The F-15," he wrote in the statement read into the record in March 1971:<sup>63</sup>

is presently an attractive contender based on evaluation of our requirements versus the performance capabilities of the various candidates, and comparative development, procurement and O&M costs. With introduction of the F-15 into the Tactical Air Force inventory, a common aircraft type would be employed by the Air Force for both CONUS and worldwide tactical and air defense missions. We consider that only minimal changes will be required to convert the tactical configuration of the F-15 into an effective interceptor.

Other Air Force witnesses testified that the Air Force would like, eventually, to buy 194 F-15Y interceptors.<sup>64</sup>

~~\_\_\_\_\_~~ The Mission Analysis for Continental Air Defense, an in-depth year-long study of future defense against the manned bomber completed in November 1970, identified a number of the "various candidates" mentioned by General McGehee. Detailed planning for future interceptors was recommended by the Mission Analysis, but Deputy Secretary of Defense David Packard announced a different approach to interceptor development in April 1971. Henceforth, said Mr. Packard, it would be OSD policy to encourage aircraft designers to forge ahead with any design they believed promising. This proposed a return to the "Skunk Works" methods of the highly regarded Clarence "Kelly" Johnson of Lockheed

63. Aerospace Daily, 20 Aug 1971.

64. Ibid.



and went beyond "fly-before-you-buy" to "fly-before-you-know-what-you-want."

██████████ McDonnell Douglas, of course, already held a contract for the F-15. Convair wanted to enter the competition with a version of the F-111 it called F-111X-7. Ling-Temco-Vought was talking about its Quick Reaction Interceptor (QRI). The possibilities of these designs were discussed in the Mission Analysis. Then, in the spring of 1971, North American Rockwell (NAR) brought forth a design designated X-349. The F-14, a Navy fighter being developed by Grumman, was also mentioned. Cost estimates varied widely. The price of the F-111X-7 was figured at \$23 million per aircraft. The unit cost of the F-15 was placed at \$15 million and the F-14 at \$14 million. NAR claimed that the X-349 could be produced for \$4 million per copy if only the airframe/engine combination was considered. On this basis, addition of avionics and ground support equipment was likely to run the cost to \$6 to \$8 million per aircraft. ADC was hopeful that at least one prototype of the possible alternatives to the F-15Y would be approved under the new OSD approach to aircraft selection.<sup>65</sup>

65. Ltr, ADC to CONAD, "Proposal for the NR-349 Interceptor," 8 Jun 1971 (Doc 150 in Hist of ADC, FY 1971); Ltr, ADC to NORAD, "Improved Manned Interceptor (IMI)," 15 Jun 1971 (Doc 151 in Hist of ADC, FY 1971); Orr Kelly, "U.S. Fighter Designers to Soar Into Wild Blue," Washington Star, 21 Apr 1971.

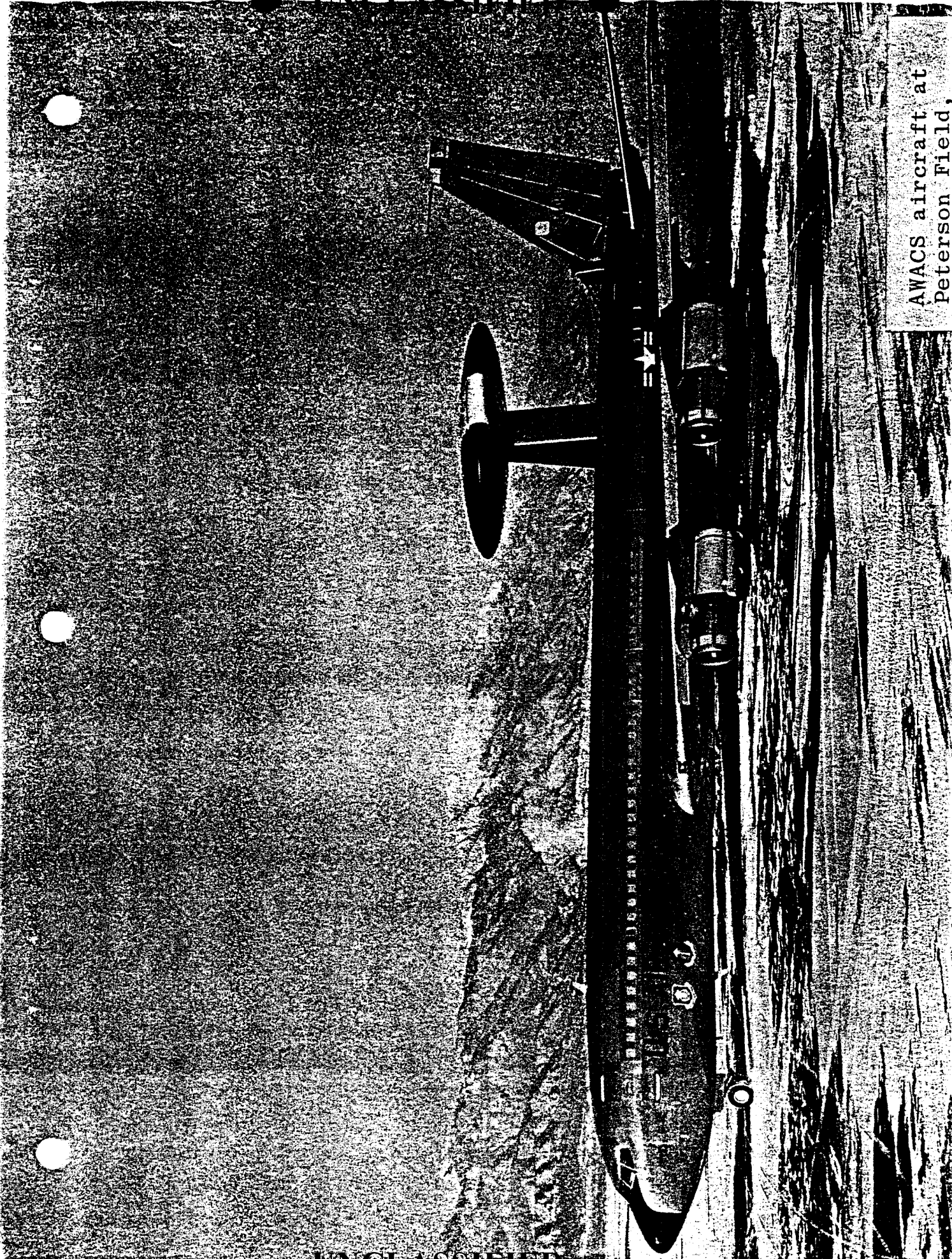
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██████████ Unfortunately Mr. Packard resigned in December 1971 before anything was done about interceptor alternatives to the F-15. In fact, very little was done about the interceptor version of the F-15 until 6 December 1971 when General John C. Meyer, Air Force Vice Chief of Staff, wrote General McGehee that he anticipated an OSD request for a firm description of the next manned interceptor. Therefore, General Meyer asked that ADC confer with the F-15 program director in AFSC on specific requirements for an F-15 interceptor. Then, it was hoped, the program director could provide detailed cost and performance information on the F-15Y.<sup>66</sup>

██████████ Although AWACS progress was considerably slower than originally planned, progress was made and the price of development increased with each passing year. For FY 1972 the DOD requested \$145 million in AWACS development funds. Secretary Seamans told a subcommittee of the House Appropriations Committee in March 1971 that AWACS stood "No. 1" on the list of proposals for improvements in defense against the manned bomber. General John D. Ryan, USAF Chief of Staff, told the same subcommittee that the requested \$145 million would "allow for the fabrication and the completion of competitive flight tests by the radar contractors in early 1972. If the

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66. Pers ltr, Meyer to McGehee, 6 Dec 1971 (Doc 251 in Hist of ADC, FY 1972).



AWACS aircraft at Peterson Field,



present contract milestones are met and with Congressional approval of our funding requests, we can expect an initial operational capability (IOC) for AWACS in the late 1970s."<sup>67</sup>

The AWACS under development in 1971, however, was neither the same AWACS planned when the program began nor the one ADC desired. From the time the original DOD Development Concept Paper (DCP) No. 5 was issued in November 1968, the capability of the vehicle, the size of the eventual AWACS force and its attributes were gnawed away. Revision 2 to DCP No. 5, issued on 19 June 1971, deferred provision of self-defense capability for the aircraft and eliminated the statement concerning command assignment. The original DCP No. 5 called for a fleet of 64 aircraft--42 for ADC, 15 for TAC, 3 for ATC and 4 for replacement of ADC/TAC losses. The total dropped to 42 aircraft in February 1970 with allocations adjusted accordingly. The revision of June 1971 eliminated any reference to command assignment, noting the aircraft were to be assigned on a functional basis, but available for a common mission if the need arose. Reductions in the capacity of the electronic systems to be installed in the proposed AWACS resulted in what came to be called a

<sup>67</sup>. U.S. Congress, House, Department of Defense Appropriations for 1972, Hearings before a Subcommittee of the Committee on Appropriations, U.S. House of Representatives, 92nd Cong., 1st Sess., 1971, Pt 1, pp. 69, 741, and 751.

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"core-configured" vehicle with a computer tracking capability of 100 targets instead of the 200 originally specified. The ability to control, by data-link, 50 interceptions at one time dropped to 30. The beauty of the core-configured AWACS, however, was that it could be procured, hopefully, for much less than the \$3.5 billion (in 1968 dollars) mentioned in the cost estimates provided in the original design-study.<sup>68</sup>

Progress toward an operating Over-the-Horizon-Backscatter (OTH-B) system for early warning of bomber attack was barely perceptible during 1971. The USAF System Management Directive (SMD) of July 1970 specified that AFSC provide prospective contractors with a Request for Proposal (RFP) within 90 days, but this did not prove possible. The principal problem was estimated cost. DCP No. 49, issued by OSD on 8 June 1970, authorized the expenditure of \$109 million for development of OTH-B. Subsequent SPO cost studies revealed that the most austere system it could devise was likely to cost in the neighborhood of \$140 million. The system ADC wanted was costed at \$240 million or more.<sup>69</sup>

Under the terms of DCP No. 49, review by the Secretary of Defense was required when development costs were

68. DOD, Revision No. 2 to DCP No. 5, "AWACS Development Program," 19 Jun 1971 (Doc 29 in Hist of ADC, FY 1971).

69. Msg, OCSX 252028Z Feb 1971, ESD to ADC (Doc 35 in Hist of ADC, FY 1971); Msg, XP 141830Z Jun 1971, ADC to OSD (Doc 36 in Hist of ADC, FY 1971).

likely to exceed the original estimate by more than 20 percent. In July 1971, therefore, AFSC and ADC began a joint effort to prepare a briefing that would convince OSD the increased cost for the development of OTH-B was justified. The proposed briefing was presented to the Air Staff Board on 2 September 1971, then revised and presented to the same group on 9 December 1971. The Air Force Council and General Ryan were also briefed on OTH-B costs before the end of the year, with presentations to the Secretary of the Air Force and, ultimately, the Secretary of Defense, scheduled for early 1972. Under the circumstances, therefore, the Requests for Proposal which should have been mailed to prospective bidders in the autumn of 1970 were still unmailed more than a year later.<sup>70</sup>

More of ADC's interceptor strength passed to the Air National Guard when three squadrons of F-101B interceptors moved in the spring of 1971. This left the two forces approximately equal in interceptors, although ADC continued to control the more modern F-106 aircraft. At year's end the regular force included 11 squadrons of F-106 interceptors in the CONUS and one squadron of F-102 aircraft on Iceland. ADC also controlled five squadrons of BOMARC interceptor

<sup>70</sup>. Ltr, Comdr, ADC to VC AFSC, no subj, 23 Aug 1971 (Doc 659 in Hist of ADC, FY 1972); Msg, AFRDP 142337Z Jan 1972 (Doc 660 in Hist of ADC, FY 1972).

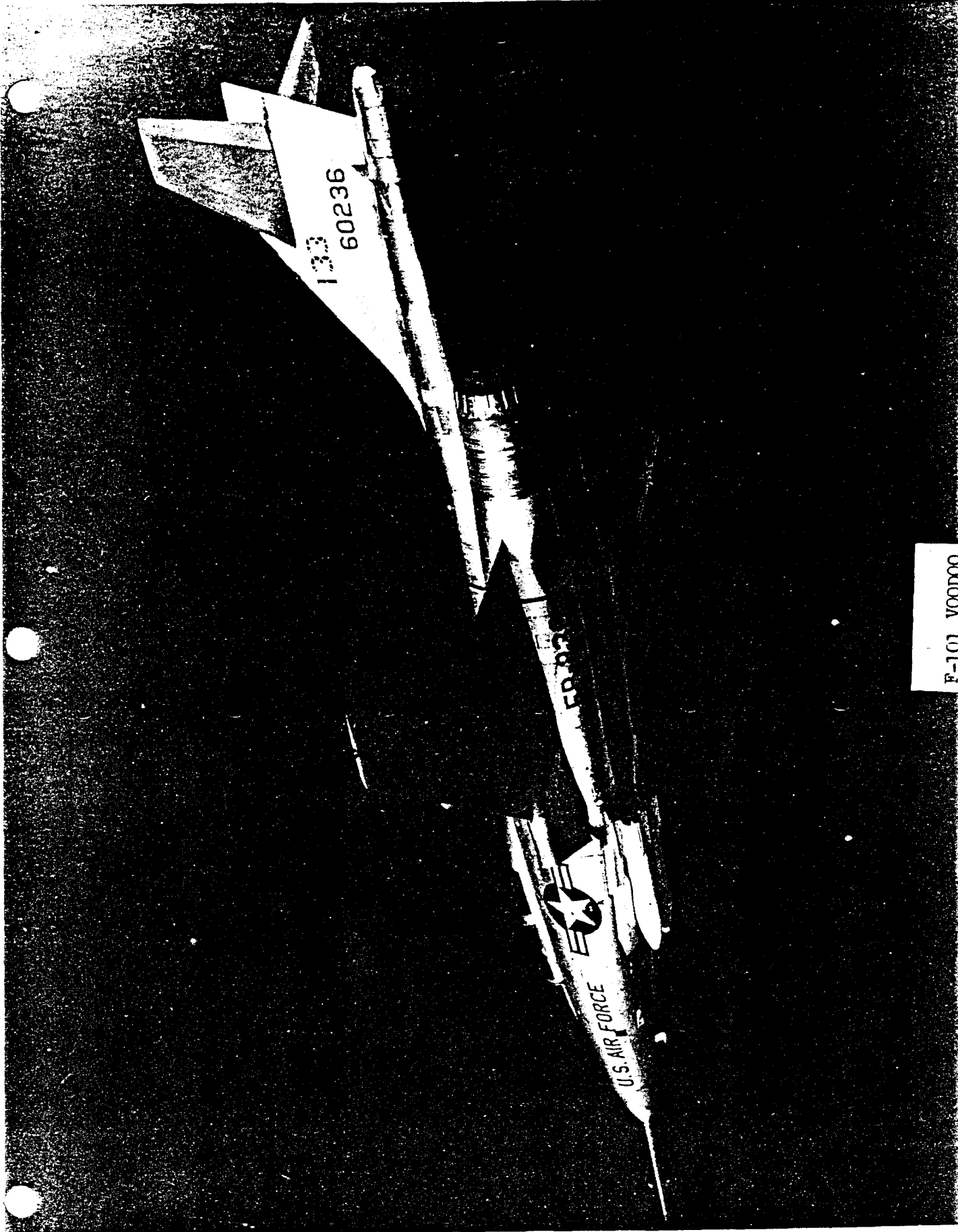
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missiles. The ANG had nine squadrons of F-102 interceptors and six of F-101B aircraft. The ANG also assumed responsibility for the combat crew training of F-102 and F-101B aircrews, accomplishing this training at Ellington AFB, Texas. This made it possible for ADC to close Perrin AFB, Texas, previously devoted to F-102 training. ADC had conducted F-101B training at Tyndall AFB, Florida, and continued to train F-106 aircrews there. As an economy measure, ADC's dispersed operating bases (DOB) were reduced, with one exception, to what was called "Phase I/Phase III" capability. No longer were aircraft from the home base supported on a regular basis at the DOB. The DOB was only required to support emergency deployment on a "turn-around, refuel and re-arm" basis. Only Kingsley Field, Oregon, retained full Phase III DOB capability for the 84th FIS at Hamilton AFB, California. To further cut expenses, Selfridge AFB, Michigan, transferred to the ANG, and ADC holdings at Niagara Falls International Airport, New York, transferred to the Air Force Reserve.<sup>71</sup>

Neither was there any money in the FY 1973 defense budget for development of an improved manned interceptor, although Secretary of Defense Melvin Laird did tell a House Appropriations Subcommittee on 22 February 1972 that "we are examining the feasibility of using aircraft now under

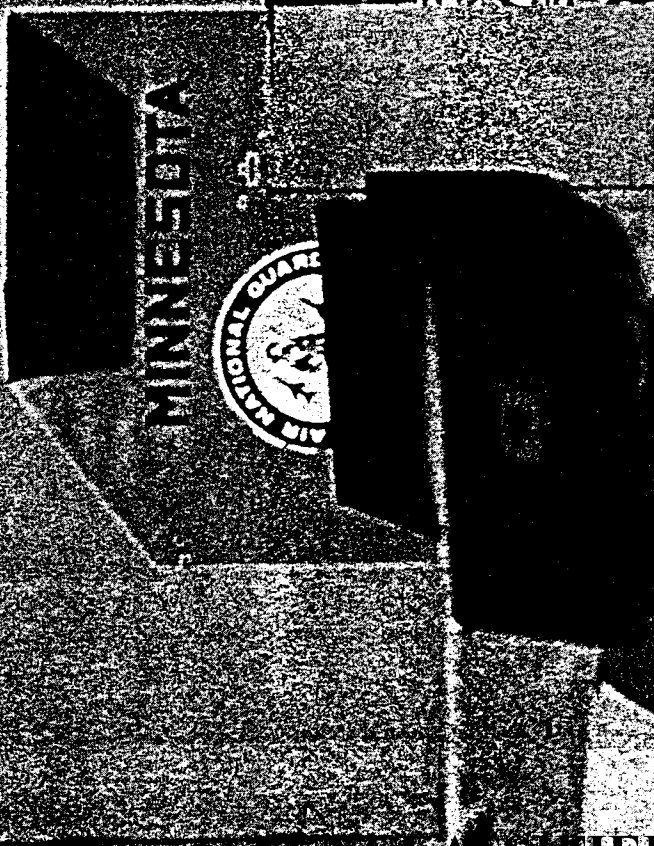
<sup>71</sup>. Hist of ADC, FY 1971, pp. 80-81 and 235; Hist of ADC, FY 1972, pp. 149 and 290.





F-101 V00D00

F-102s of the  
Minnesota Air  
National Guard.



development as the basic airframe for an Improved Manned Interceptor (IMI); which would complement AWACS by providing 'look-down, shoot-down' capability with high endurance and good firepower."<sup>72</sup> Although Mr. Laird did not say as much, an interceptor version of the F-15, bearing the interim designation of F-15Y, was the primary IMI candidate.

On 18 February 1972, four days before Mr. Laird appeared before the House committee, tentative specifications for the F-15Y were issued following about three months of consultation between ADC and the F-15 Program Director (AFSC). The initial F-15Y, it was believed, would need:<sup>73</sup>

- (1) Additional fuel pallets for increased range.
- (2) Six AIM-47C air-to-air missiles.
- (3) An infrared search and track system to detect air-to-surface missiles (ASM) launched by hostile bombers and to give the aircraft radar a cue as to where to look.
- (4) Two-way data link to permit use in conjunction with AWACS.
- (5) Beyond-line-of-sight communications to permit long-range surveillance in collaboration with AWACS and OTH-B.
- (6) A pulse-doppler radar of increased range through use of a Traveling Wave Tube (TWT) of increased power.

<sup>72</sup>. Hearings, House Subcommittee on Defense Appropriations for FY 1973, Part 3, p. 90.

<sup>73</sup>. Atchs 1 and 2 to pers ltr, Maj Gen Horace A. Hanes, VC, ADC, to Brig Gen Benjamin N. Bellis, F-15 Program Dir, AFSC, 18 Feb 1972 (Doc 253 in Hist of ADC, FY 1972).

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(7) An extension of target velocity detection capability to include targets moving as fast as Mach 4 in order to deal with hostile ASMs.

(8) Improved electronic counter-countermeasures (ECCM) features to prevent noise jamming, to which the pulse-doppler radar was particularly susceptible.

(9) Modification of the Integrated Store Monitor and Management Set to accomodate interceptor armament which could consist of either six AIM-47C or four AIM-9 missiles.

(10) Deletion of tactical electronic warfare systems because they would not be used for CONUS defense.

In addition, ADC included a list of eight other improvements it believed necessary to counter probable changes in the manned bomber threat after 1980. These were:<sup>74</sup>

(1) Improvements in the radar to permit it to track six targets simultaneously.

(2) Capability to launch missiles against two targets at the same time.

(3) Ability to detect non-cooperative IFF responses at the furthest possible range.

(4) An additional Vertical Situation Display (VSD) to avoid the saturation or misinterpretation of the information displayed.

(5) Inclusion of two fully equipped cockpits to permit use of a two-man crew.

(6) Additional fuel.

(7) Addition of a Tactical Situation Display (TSD) to improve the surveillance augmentation function and permit largely autonomous function when necessary.

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74. Ibid.

(8) Improve the environmental control system within the aircraft to accommodate the added systems and the two-man crew.

There was a brief misunderstanding between ADC and AFSC before the interceptor planning estimates went to USAF on 20 June 1972. ADC objected to the AFSC interpretation of the ADC list of basic modifications to the F-15 as "ADC minimum requirements." ADC, in truth, stood ready to accept an F-15 interceptor that fell short of the stated requirements. To make sure ADC sentiments were clear to USAF, General McGehee wrote General Horace M. Wade, USAF Vice Chief of Staff, on 6 July 1972, that ADC was ready to accept any model of the F-15 that included fuel pallets and data link. Other requirements could be considered later. When, and if, ADC got an F-15 interceptor it was going to be an expensive aircraft. In March 1972, the Office of the Secretary of the Air Force announced that the tactical fighter model of the F-15 was expected to cost about \$10.5 million per copy. And the trend of prices, of course, was steadily upward. ADC force planning in 1972 anticipated receipt of the first IMI squadron in FY 1976, with 11 squadrons available eventually. USAF planning was less optimistic, calling for the first IMI squadron in FY 1978, with second and third squadrons to be

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added in FY 1979 and FY 1980. Meanwhile, the manned interceptor available to ADC remained the F-106.<sup>75</sup>

Of the three elements of the modernized system, the AWACS made most progress. Two test versions of the aircraft, a modification of the Boeing 707 jetliner, actually existed and began flying BRASSBOARD test missions on 21 March 1972. BRASSBOARD intended to prove which of two competing radar systems (Hughes or Westinghouse) was superior. The test area covered the Pacific coast from Vancouver, British Columbia, to southern Oregon and involved the detection and tracking of targets at all altitudes and in the presence of all types of electronic clutter designed to distract the radar from its detection and tracking chores. Targets included F-106 and B-57 aircraft provided by ADC and F-4 fighters provided by TAC and the Navy.<sup>76</sup>

BRASSBOARD testing ended in September 1972, although not nearly as many targets as planned had been presented to the competing radars. Of a planned 302 sorties by F-106 targets, only 147 were actually flown; of a planned 242 F-4

75. ADC Objectives Plan, FY 1972-1987, May 1972, pp. 6-1 and 6-2; Msg, OSAF to ADC, OIP 211920Z Mar 1972 (Doc 254 in Hist of ADC, FY 1972); msg, ADC to ASD, XPA 192045Z Apr 1972 (Doc 255 in Hist of ADC, FY 1972); msg, ADC to AFSC, XP 312145Z Mar 1972 (Doc 256 in Hist of ADC, FY 1972); pers ltr, McGehee to Gen Horace M. Wade, VC/S, USAF, 6 Jul 1972 (Doc 257 in Hist of ADC, FY 1972).

76. Hist of ADC, FY 1972, pp. 312-314.

sorties only 139 were flown; of 27 planned B-57 sorties only 22 were flown. Nevertheless, sufficient testing was conducted to make possible a decision. On 5 October 1972 it was publicly announced that Westinghouse had won the radar competition.<sup>77</sup>

With the AWACS aircraft and radar chosen, ADC was ready to press ahead with another series of tests known as the AWACS Airborne Tracking Demonstration (ATD) to involve 30 sorties by F-106 interceptors between 25 October and late November 1972. But on the date the ATD was to begin, USAF raised an old problem--money. There was likely to be some question, USAF explained, that the total cost of AWACS over the 10 years ahead, would be worth the benefits derived. Therefore, USAF believed, the development of low-cost alternatives was necessary. Priority was to be given to reducing the cost of research, development, test and evaluation (RDT&E). AFSC was asked, in collaboration with ADC and TAC, to determine the cost of procuring either the presently planned 42 AWACS aircraft, or 29 aircraft, or 18 aircraft.<sup>78</sup>

Before reply could be made, however, USAF requested that ADC and TAC representatives come to Washington to discuss

<sup>77</sup>. Msg, DOTX I22225Z Sep 1972, 25 AD to ADC (HRF); ADC Press Release, 5 Oct 1972 (HRF).

<sup>78</sup>. Msg, DO 182339Z Oct 1972, ADC to 24 AD (HRF); msg, RD 251827Z Oct 1972, USAF to AFSC (HRF).

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the total AWACS situation before an AWACS presentation was made to the DSARC in mid-November 1972. Since there seemed to be a groundswell of opposition to AWACS as currently planned, the presentation to DSARC was postponed while the subject was studied further. Subsequently, on 30 November 1972, USAF revealed that OSD had suggested that the AWACS mission might be broadened by (1) using AWACS to supplement early warning capability against SLBM attack on the CONUS; (2) assisting the 6th Fleet in surveillance of land around the Mediterranean; (3) complementing NATO air defense capability; or (4) supporting NATO ground defenses by surveillance of the movement of hostile land forces.<sup>79</sup>

ADC's reply offered no comment on the use of AWACS in an SLBM surveillance role, since it had always been considered part of the mission, but agreed that it could be used to support the 6th Fleet in the Mediterranean and NATO air defenses. The possibility of using AWACS to detect the movement of ground forces, ADC concluded, awaited an engineering evaluation of its ability to detect movement on the ground. ADC also believed AWACS could be used to provide navigation and tanker rendezvous support for airborne strike forces, assist in the coordination of air/sea rescue operations or

<sup>79</sup>. Msg, RDQPC 062246Z Nov 1972, CSAF to ADC (HRF); msg, RDQ 301731Z Nov 1972, CSAF to ADC (HRF).



other missions where a command and control aircraft would be useful.<sup>80</sup>

When DSARC finally examined the AWACS program in December of 1972 and January of 1973, the conclusions it reached disappointed proponents of modernized air defense. In the first place, DSARC (backed by the Deputy Secretary of Defense on 19 January 1973) wanted AWACS development placed in temporary cold storage while the Air Force studied the feasibility of using a four-engine aircraft in lieu of the eight-engine airframe currently planned. Then, no later than 20 July 1973, the Deputy Secretary wanted the Air Force to submit a study analyzing the appropriateness of AWACS for modernized air defense, the survivability of AWACS in a NATO war, the cost of defending it, the force structure required for the AWACS tactical mission, and the feasibility of using alternatives to AWACS for the command and control function. Finally, no later than 29 September 1973, DSARC was to attempt to determine whether or not AWACS should be continued, modified, or terminated. Meanwhile, the AWACS program manager was to attempt to defer portions of the development program beyond September 1973 if deferral would not delay initial

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80. Msg, XP 182325Z Dec 1972, ADC to USAF (HRF).

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operational capability or incur a cost penalty. The total cost of AWACS, if approved, was set at \$2.467 billion.<sup>81</sup>

Part of the decision to redirect the AWACS effort could be laid to Congress, since that body refused to appropriate the \$309.9 million requested by the Department of Defense for purchase of the first three AWACS aircraft in FY 1973. When the Defense budget was actually passed in January 1973, this figure had been reduced to \$100 million to be used to support the two prototypes currently being tested. Conversely, the \$160 million requested for AWACS development was raised to \$194.2 million. Congress obviously wanted more intensive study and testing before funds were committed for actual construction of AWACS.<sup>82</sup>

The third leg of the modernized defense against the manned bomber--OTH-B--ran into similar trouble in 1972. The USAF SMD of July 1970 specified that prospective contractors be provided a Request for Proposal (RFP) within 90 days. The RFP had not been issued by the end of 1972, and in fact, OTH-B had not even been presented for DSARC review by that time. The principal reasons were two. As was true with most other proposed systems, the estimate of total system cost continued to escalate as the months and years rolled by. Also,

81. Msg, RDP 191724Z Jan 1973, CSAF to AFSC (HRF).

82. Hearings, Senate Appropriations Subcommittee, Department of Defense Appropriation for FY 1973, Part 4, 18 Feb 1972, p. 455 and 21 Feb 1972, p. 749; Interview with Capt Forrest Byford, ADC/ACB, 5 Apr 1973.

there was doubt that OTH-B would perform as advertised.

As regards cost, DCP No. 49 of 8 June 1970 authorized the expenditure of \$109 million for development of OTH-B. Subsequent AFSC cost studies concluded that the most austere system was likely to cost \$140 million. As a beginning, the DOD requested \$4.4 million in the FY 1973 budget to finance an OTH-B test in the arctic regions. The test site was Hall Beach on the DEW Line and test operation assumed the code name of POLAR CAP III. Radar equipment for POLAR CAP III was shipped to Hall Beach in the late summer of 1972 and test operations began on 15 November.<sup>83</sup>

A new complication was introduced in July 1972 when USAF announced that OTH-B would be financed under the new "design-to-a-price" method of development. This concept established a cost ceiling rooted in concrete. The system had to be designed to remain under this ceiling. In the case of OTH-B the cost ceiling was established at \$132 million. In this situation, AFSC recommended that support facilities for OTH-B receive primary attention in any readjustment of cost estimates, with any compromises necessary being accepted in the operational system performance. The thinking here was that once the mortar and steel structures

<sup>83</sup>. Hist of ADC, FY 1972, pp. 314-318; msg, XRT 041412Z Dec 1972, AFSC to CSAF (HRF).

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were in place, improvement in operational performance of the system could come later. Neither USAF nor ADC agreed with this approach, however, and asked that any "trade offs" required in staying within the cost ceiling consider all aspects of the total system.<sup>84</sup>

This difficulty over the interpretation of the new ground rules consumed several weeks and delayed the presentation to DSARC from September 1972 to November and further delayed the issuance of the RFP. At various steps along the line which led through USAF review channels to DSARC, questions were asked which could not be readily answered and required additional study. Finally, everything was apparently ready and on 17 November 1972 General Ryan was given the OTH-B briefing proposed for DSARC on 21 November. The DSARC presentation was not given, however, because General Ryan felt there were still too many unanswered questions about the system. He directed that further action be held up until the results of POLAR CAP III were available. He also requested that the operational requirement for OTH-B be re-evaluated and the true capability of OTH-B be assessed further.<sup>85</sup>

84. Msg, RD 201316Z Jul 1972, CSAF to AFSC (HRF); msg, RDP 031827Z Aug 1972, CSAF to ADC (HRF); msg, XR 311730Z Aug 1972, AFSC to CSAF (HRF); msg, RDP 082119Z Sep 1972 (HRF); msg, XP 081630Z Sep 1972, ADC to AFSC (HRF).

85. Msg. RDP 291743Z Nov 1972, CSAF to AFSC (HRF).

[REDACTED] This decision, of course, left OTH-B temporarily in limbo, pending the results of POLAR CAP III (to be available, hopefully, by the end of February 1973) and completion of study of the other questions posed by General Ryan. Meanwhile, in answer to a query from the House Armed Services Committee, ESD estimated, on 29 January 1973, that if the OTH-B program was approved by 21 November 1973 a two-site system (northeast and northwest), in which each site scanned an arc of 90 degrees, could be built for \$144.5 million. Congress, however, was not yet ready to spend serious money. The DOD FY 1973 request for \$4.4 million for OTH-B was reduced a million dollars when the appropriation bill was passed.<sup>86</sup>

[REDACTED] The regular air defense establishment suffered still further attrition in 1972. Four squadrons of F-106 interceptors transferred, or were in the process of being transferred, to the ANG. While two of the ADC squadrons were still alive in the administrative sense at the end of the year, they controlled no aircraft and had no operational capability. As a result of this transfer ADC had seven F-106 squadrons in the CONUS and one F-102 squadron on Iceland. When the transfer of the F-106s was completed in early 1973,

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<sup>86</sup>. Msg, OOSE 292115Z Jan 1973, ESD to AFSC (HRF); Interview, Capt Forrest Byford, ADC/ADB, 5 Apr 1973.

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the ANG would control 19 squadrons of manned interceptors--  
9 F-102, 6 F-101B, and 4 F-106.<sup>87</sup>

The unmanned interceptor, BOMARC, disappeared from the active defense against the manned bomber when the last of the five squadrons active at the end of 1971 ceased operations in October 1972. The BOMARC missile had been a part of the air defense system for 13 years. It was to serve as a drone target for other weapons into the indefinite future.

Because OSD directed that planning for defense against the manned bomber assume 24 to 48 hours of warning of hostile attack, another section of the command and control system was pared in 1972. The 12-site Back-up Interceptor Control (BUIC) system--designed to assume control of the air battle in the event of destruction of all or any part of the primary SAGE control system--was reduced to 11 "semi-active" sites and one active site on 1 November 1972. The BUIC at Tyndall AFB, Florida, continued fully active because of its location near Cuba. The semi-active BUIC locations retained their computers in "warm" status. Whenever an increase in defense readiness was directed, personnel from the six NORAD Regional Control Centers (SAGE) were to be deployed to bring the semi-active BUIC to full operational status.<sup>88</sup>

87. Hist of ADC, FY 1972, pp. 149-150; ADC Fighter-Missile Report (NORAD), 31 Dec 1972.

88. Msg, CC 222130Z Feb 1972, ADC to CSAF (Doc 612 in

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CIM-10B, BOMARC



In an unusual reversal of a decade-long trend, however, some air defense capability was added in 1972 and further additions were scheduled for 1973. This came about because a plane-load of Cuban officials, ostensibly delegates to an International Sugarcane Technological Conference, was undetected until it requested landing instructions from the airport tower at New Orleans on 26 October 1971. This incident precipitated a November 1971 Congressional investigation which revealed to the public, although it was well known to ADC, that there was no air defense along 1500 miles of the southern border of the United States between Florida and California. The House Armed Services Committee, of which Congressman F. Edward Hebert of Louisiana was chairman, virtually demanded that something be done about this situation. In May 1972, therefore, Secretary of Defense Melvin R. Laird formally established what became known as Southern Air Defense (SAD). When various details were settled, SAD involved 10 radar sites across the empty area, with alert interceptors to be stationed at four locations--Tyndall,

88 (cont). Hist of ADC, FY 1972); msg, Pers Meyer for McGehee 092204Z Mar 1972, CSAF to ADC, (Doc 613 in Hist of ADC, FY 1972); memo, Chairman JCS (JCSM-157-72) for Sec Def, "Continental U.S. Air Defense," 7 Apr 1972 (Doc 614 in Hist of ADC, FY 1972); ltr, CINCNORAD to ADC, "Continental U.S. Air Defense," 12 Jun 1972 (Doc 8 in Hist of ADC, FY 1972); NORAD Forces and Program Change Summary, 1 Nov 1972.

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New Orleans, Ellington AFB (Houston), and Tucson. The plans written in 1972 specified that the complete system would be operational by 1 June 1973. At the end of 1972 three radar sites--Ellington, Lake Charles (Louisiana), and Dauphin Island (Alabama) were functioning. Also, two F-106 interceptors stood alert at Tyndall and five F-102 interceptors (furnished by the ANG 159th FIS at Jacksonville, Florida) at New Orleans.<sup>89</sup>

So, at the end of 1972, there were serious delays in the provision of a modernized defense against the manned bomber. Meanwhile, the reductions in the existing system, which were to pay at least part of the cost of the modernized system, continued at a rapid pace. The result, inevitably, was an inexorable reduction in the capacity of the in-place system. At the end of 1972 it was not difficult to conclude that defense against the manned bomber did not carry high priority when it came to allocation of that portion of the national budget devoted to defense. There were no indications that the priority would rise in the future.

<sup>89</sup>. Report of the Armed Services Investigating Subcommittee of the House Committee on Armed Services, "Cuban Plane Incident at New Orleans," 3 Jan 1972, p. 1; ltr, Melvin R. Laird, The Secretary of Defense, to Secretary of the Air Force and Chairman of the Joint Chiefs of Staff, "Air Defense of the Southern United States," 16 May 1972 (Doc 3 in Hist of ADC, FY 1972); ADC Fighter-Missile Report (NORAD), 31 Dec 1972.