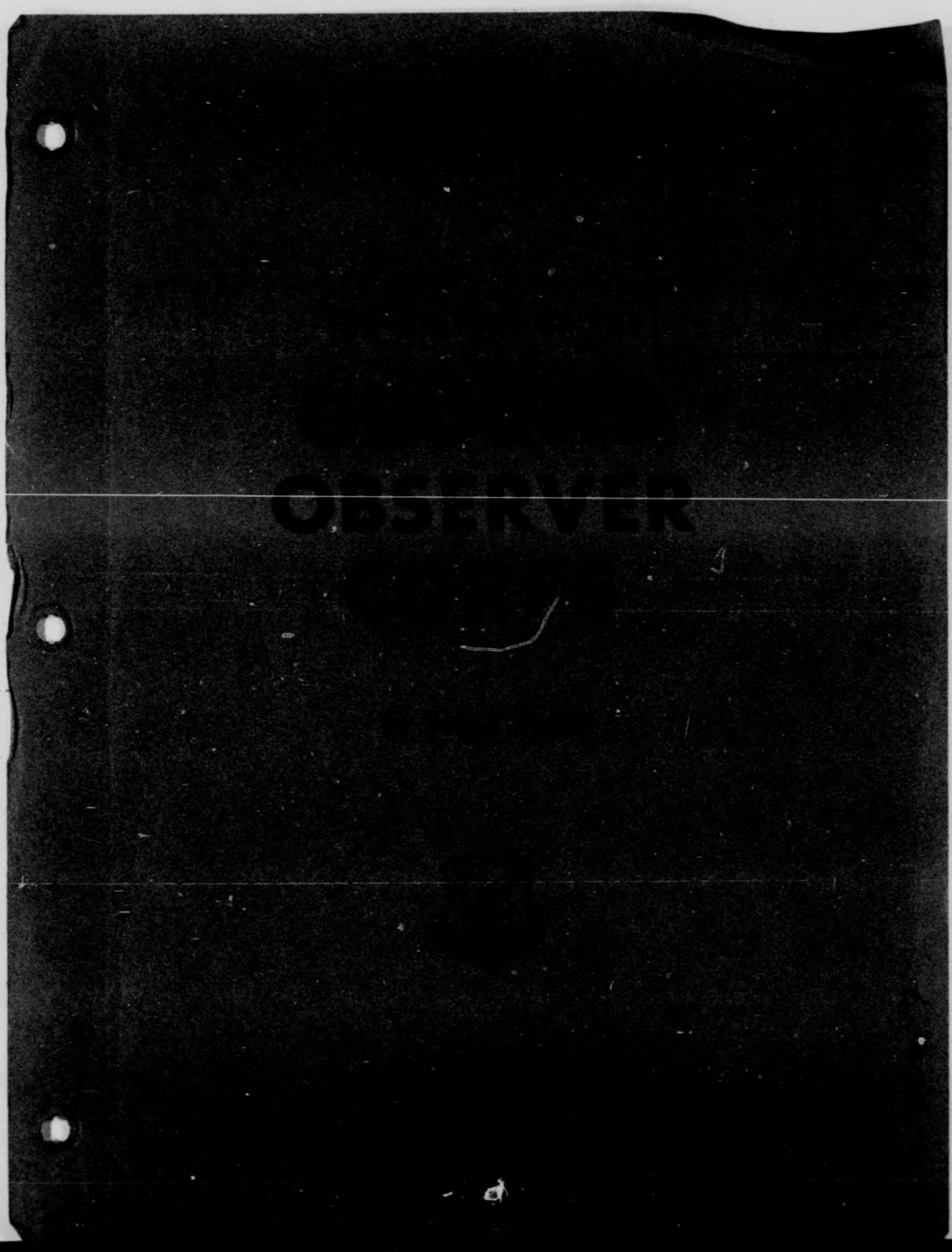

ADC HISTORICAL STUDY NO. 36

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THE HISTORY OF THE

GROUND OBSERVER CORPS

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HISTORICAL DIVISION
COMMAND DIRECTORATE OF INFORMATION
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PREFACE

The structure of this history is as follows. It begins with a brief account of the experiences of Great Britain in organizing and operating a civilian observer system from 1914 to 1945. These experiences were studied attentively by United States advocates of air defense, and formed an indispensable back-drop to the story of American air defense planning. The narrative then turns to U.S. thinking in the twenties and early thirties about the problem of continental defense against air attack, after which space is devoted to the first U.S. experiments with an aircraft warning service up to the eve of the attack on Pearl Harbor. There then follows the story of the observer network during World War II, after which there is an account of plans for a postwar continental air defense system, with special reference to an observer network. Finally, there is an extensive description of the postwar Ground Observer Corps, with special emphasis on that part of it engaged in 24-hour operations (Operation SKYWATCH).

The title of this history also requires some explanation. The term "Ground Observer Corps" was not always used to designate the volunteers who operated the filter centers and observation posts of the U.S. air defense system.

From July 15, 1942 to May 29, 1944, aircraft spotters were organized into the AAF Ground Observer Corps (GOC), but their colleagues, the filter center operators, were, from May 7, 1943 to May 29, 1944, members of the AAF Aircraft Warning Corps (AWC). During World War II, both groups of volunteers, plus those who served in the associated information centers, were considered as being members of the Aircraft Warning Service (AWS), though there was no national organization as such--one aircraft warning service being attached to each of the four continental air forces. After World War II, when the observers and filter center operators were required once more, they were merged officially into the Ground Observer Corps, an organization which existed, in that reincarnation, from July 1, 1950 to January 31, 1959.

Research for this history was conducted at the Headquarters of the USAF Air Defense Command, where the author enjoyed unlimited opportunities to study the official documentary collections and histories of the GOC for the period 1951 to 1959. For the earlier period, the Historical Archives of the USAF Historical Division at Maxwell Air Force Base, Alabama, provided the needed materials. The complete files of the Federal Civil Defense Administration dealing with the GOC were transferred to the historical archives of the Air Defense Command when the former agency was discontinued in 1958.

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CHAPTER I

AIRCRAFT WARNING IN THEORY AND PRACTICE, 1914-1940

The idea of air defense is as old as military aviation itself. When airplanes first inflicted damage to enemies on the ground, counter measures were soon forthcoming, even though they were as primitive as pistol shots. During World War I, when air raids became commonplace, air defenses became more sophisticated. In addition to better anti-aircraft weapons, they included measures designed to warn the public to take cover and to alert interceptors to the nature and whereabouts of the attackers. A feature of these defenses was the use of civilian ground observers.

Except for France, which bore the brunt of the German offensive in the West, Great Britain suffered most from air attack. In the course of the war she was raided 51 times by airships and 52 times by airplanes, London being hit on 31 occasions. British casualties were 1,300 dead and 3,400 injured, with London's share being 670 dead and 2,000 injured. Nine thousand bombs, weighing a total of 280 tons, were dropped on Great Britain. Considering that bombardment

aviation was in its infancy, this represented a major use of air power.[1]

Great Britain's reaction to the wartime challenge became, in subsequent years, the classic example of the successful use of air defense. Also valuable to students of the air defense problem were Great Britain's efforts after the war to prepare for possible future attacks by air. It was inevitable that her experiences in both war and peace be thoroughly studied by American military men coping with similar problems in their own transatlantic environment. A brief account, therefore, of Great Britain's experiences in air defense might be instructive at this point to indicate some important influences on U.S. thinking about air defense and the role of civilian observers therein in the interwar years.

The aircraft warning system in Britain during World War I underwent many changes from its inception in 1914 to

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1. For casualties and tonnages, see Joseph Morris, The German Air Raids on Great Britain, 1914-1918 (London: Sampson Low, Marston and Co., n.d.), p. v. Slightly different figures are given in the article "Air Raids," Encyclopedia Britannica, 14th ed., Vol. I (1929). For the air war over Britain, see H. A. Jones, The War in the Air (Oxford: Clarendon, 1931, 1935) III and V. Also, Kenneth Poolman, Zeppelins Against London (New York: John Day, 1961). For the air and ground bombardment of Paris, see Frank Morison, War on Great Cities: A Study of the Facts (London: Faber and Faber, n.d.), pp. 171-80.

its final configuration in September 1918.[2] When the German raids began, policemen were directed to report aircraft sighted or heard anywhere within 60 miles of London to air defense headquarters at the Admiralty. Ordinary telephone lines were used, with the words, "Anti-Aircraft, London," insuring priority over all other calls.[3]

During 1915, the reporting area was extended to include neighboring districts, with reports also relayed by the Admiralty to the War Office, Scotland Yard, and key railroad offices. Eventually, the whole of England and Wales was covered. In 1916, it was apparent that the system would have to be revamped because telephone lines were becoming congested. In the changes that ensued, the Admiralty passed jurisdiction over air defense to the War Office Rings, or "cordons," of observers were set up about 30 miles from the center of certain designated vulnerable areas, with London being allotted two such cordons, 30 miles apart. Observation posts were also established along the coast. In 1916, the War Office began to replace the police-observers

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2. On British air defense in World War I generally, see Edward B. Ashmore, Air Defence (London: Longmans, Green, 1929) and H. A. Jones, op. cit. On the observer system, see T. E. Winslow, Forewarned is Forearmed: A History of the Royal Observer Corps (London: William Hodge, 1948), pp. 22-24.

3. Jones, III, 86. It was difficult to see German raiders because the raids were conducted at night; consequently, reports were often based on the noise of engines overhead. Zeppelins would frequently cut their engines when approaching their targets.

with soldiers, but the experiment was not successful, and the policemen were soon back on the job. It appeared that the latter were more accustomed to working alone without supervision. Only where a constant round-the-clock watch was needed were troops retained as observers.[4]

In the autumn of 1917 another reorganization took place, designed to bolster the defenses of London. A variety of organizations--in addition to the inland and coastal observation posts--such as searchlight units, gun stations, balloon units, and airdromes in the London area and districts to the south and southeast, were directed to telephone their reports to "sub-control" units, of which 25 were set up. At the latter units, the reports were plotted and relayed to a central control unit located at air defense headquarters in London. This new system, however, required much in the way of communications installation and did not become operational until September 1918, too late to see any action from enemy raids.[5] But its predecessor system and the policemen-observers had demonstrated their value effort well and often, as the official history of the British air effort in the first World War testifies.[6]

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4. Winslow, p. 23.

5. Ibid., p. 24.

6. Jones, III, 132.

At war's end the expensive new telephone network was dissolved and the policemen-observers relieved of their air defense duties. But the bombing of Britain was not easily forgotten. In the light of advancing aviation technology, it was obvious that air defense would be a continuing preoccupation for the British and that civilian observers would be a prime feature of any air defense system for many years to come.

After a short respite, the British resumed air defense planning in 1924, at which time a military committee proposed the organization of an observer system. The proposal called for a structure similar to that which existed at the end of the late war. Observers were to report to observer centers (formerly called "sub-controls") which would then relay the data to fighter area headquarters. Some centers would communicate directly with corresponding fighter sector headquarters and also laterally with each other. By June 1925, observers had been organized in two groups, comprising the counties of Kent, Surrey, and part of Sussex. Special policemen were enrolled without pay by the police chiefs of the counties to man the posts and centers.

The groups, collectively named the Observer Corps, were under the direction of the police chiefs of the counties for administration but under military air defense

authorities for technical training and operations. On January 1, 1929, the Corps was transferred from the War Office to the Air Ministry for technical supervision, and later that year it received the first of its own commanding officers, retired RAF Air Commodores responsible to the organization known as Air Defence of Great Britain (ADGB). Late that year, 12 Coast Guard stations were added and in 1935, an additional stimulus to expansion was given with approval of 15 more groups.[7]

Although it had been called to temporary duty during the Munich Crisis of 1938, the Observer Corps began operations on August 24, 1939 for what proved to be six years of war against Germany. At the start of World War II it consisted of 32 observer centers, more than 1,000 posts, and about 30,000 observers. By this time there was also a small number of paid full-time officers and observers, but the great majority were employed part-time without pay. The Air Ministry took over full charge, including recruiting and pay, from the police authorities and in April 1941 the Corps was honored by being designated the Royal Observer Corps.

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7. For the Observer Corps in the interwar period, see Winslow, pp. 27-72; Basil Collier, The Defence of the United Kingdom (London: Her Majesty's Stationery Office, 1957), pp. 17-20, 33-36, 47-48, 60-74, 149-154; Derek Wood and Derek Dempster, The Narrow Margin: The Battle of Britain and the Rise of Air Power, 1930-1940 (New York: McGraw-Hill, 1961), pp. 148-60.

Operational procedure during World War II was, briefly, as follows: Each Observer Group contained a center, where, in a small room, 12 plotters sat around a table displaying a grid map of the group area. Each plotter was connected by telephone to a "cluster" of two or three observer posts. A floor supervisor monitored the plotting procedures. On a dais sat the tellers who passed the data to Fighter Group and Sector Operations and to adjacent observer centers.

From 30 to 40 posts were assigned to each center. Each post consisted of a makeshift shelter containing a device for estimating the position of aircraft, a telephone, binoculars, rain coats, and other necessary items. Uniforms were issued during the course of the war, and greatly contributed to the morale of the observers.

The average post included between 14 and 20 observers, with a head observer in charge. As expected, the volume of data generated by the posts increased in proportion to the traffic overhead, often reaching a total of one million reports in 24 hours, with an average elapsed time from the post to the Fighter Command agency of less than 40 seconds.[8]

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8. Wood and Dempster, pp. 154-55.

Recognition of aircraft had been a source of difficulty in the pre-war years because of the secrecy of the German re-armament program, but it improved so much by 1944 that a number of observers was recruited to sail with the invasion armada on D-Day to help distinguish friend from foe in the skies overhead.[9]

During the first World War, American airmen were not much concerned with problems of air defense of population centers behind the front lines. That was a preoccupation of their allies. Protection against enemy raids in the combat zone was a major mission of the American air arm, but it was believed that it could be accomplished best by winning air supremacy over the front. When ground forces were attacked, it was the job of small arms and antiaircraft to supply the defense.[10]

With the end of the war, American military aviation entered a new dimension, encountering challenges from a strange environment and improved technology, and engaging in an acrimonious struggle to achieve doctrinal respectability.

In these interwar years, the central factor in air defense was America's relative invulnerability to air attack.

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9. Winslow, pp. 160-72.

10. William Mitchell, Memoirs of World War I (New York: Random House, 1960), passim.

Although bombardment aviation in theory and practice had made rapid strides in the last months of the European war, it boded ill mainly for the armies and cities of Europe. America's ocean frontiers were guarantees against an effective blow at her cities by air. Further, no convincing threat loomed on the international horizon, and war planners were reduces to formulating defenses against an imaginary threat from Great Britain, or a coalition of powers led by her.[11]

Yet, in spite of the widespread belief that America was secure, there was much discussion of air defense in the twenties and thirties--much of it generated by General "Billy" Mitchell's crusade for an autonomous and expanded air force. Stressing the rapid advance of aviation technology, Mitchell pointed out the potential danger to America, especially to what he called the "vital area" of the Northeast. Not only did he estimate carrier-based raiders to be a distinct threat, but he believed that bombers could

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11. Thomas H. Greer, The Development of Air Doctrine in the Army Air Arm, 1917-1941 ("USAF Historical Studies", No. 89, Air University, 1955) p. 30. Although Japan was considered a realistic threat in the Pacific, England was the only European power deemed capable of launching an air attack against the vital Northeast prior to the rise of the Luftwaffe. See Louis Morton, "Germany First: The Basic Concept of Allied Strategy in World War II," in Kent R. Greenfield (ed.), Command Decisions (Washington: Office of the Chief of Military History, Department of the Army, 1960), p. 13.

attack that area directly from Europe. Mitchell discounted anti-aircraft artillery and recommended that pursuit units be assigned to the local defense of strategic points.[12]

Though Mitchell's recommendations were far-sighted, their practical results were negligible. As Walter Millis was to write, "this was a time when the United States was even less threatened by invasion and even more determined to shun trans-oceanic combat than had been the case in 1914."[13]

As late as 1934, a War Department board, under Newton D. Baker, convened to investigate, among other things the claims of airmen that air defense against intercontinental attack was needed, reported that[14]

> The "air invasion of the United States and "air defense of the United States" are conceptions of those who fail adequately to consider the effect of ocean barriers and other limitations. Aircraft in sufficient numbers to threaten serious damage can be brought against us only in conjunction with sea forces or with land forces which must be met with forces identical in nature and equally capable of prolonged effort.

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12. William Mitchell, "Airplanes in National Defense," Annals of the American Academy of Political Science, CXXXI (1927) pp. 39-41; Wesley F. Craven and James L. Cate (eds.), The Army Air Forces in World War II, Vol. I: Plans and Early Operations (Chicago: U. of Chicago Press, 1948) p. 40.

13. Walter Millis, Arms and Men (New York: New American Library, 1956), p. 229. See also Morton, p. 12.

14. AAF Historical Study No. 25, "Organization of Military Aeronautics, 1907-1935," p. 5 (unpublished, in USAF Historical Division Archives, Maxwell Air Force Base, Alabama).

By the mid-thirties, however, a dramatic improvement in bomber technology was accompanied by a surge of interest in bombardment doctrine. Improvements in bomber performance gave airmen greater conviction about the future of air power, though at times this enthusiasm pushed their doctrine to the limits of credibility. Many even supported General Oscar Westover's thesis that "no known agency can frustrate the accomplishment of a bombardment mission."[15]

To Claire Lee Chennault, then a captain serving as an instructor in pursuit tactics at the Air Corps Tactical School, the idea of bomber invincibility was infuriating. A daredevil aviator and devoted champion of pursuit aviation, he was convinced that a bomber raid could be disrupted with fighters--if certain conditions were present. These included provision of an effective warning service and intensive training of pilots in all phases of interception and attack.[16]

In 1933 a controversy raged among the instructors of the Tactical School at Maxwell Field over the relative merits of the pursuit planes and bombers. It was the contention of the "bomber men" that pursuit could not match the performance of the bomber in air combat and, consequently

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15. Craven and Cate, I, 58.

16. Claire L. Chennault, Way of A Fighter (New York: G. P. Putnam Sons, 1949), chap. ii.

had no chance to impede the success of a bombing mission.[17] Chennault was the most vociferous advocate for pursuit. To illustrate his belief that pursuit could stop a bomber attack, he wrote a pamphlet entitled "The Role of Defensive Pursuit" which he used as a text in his course.[18] He maintained the bomber could be stopped and used arguments derived from a recent Air Corps - Antiaircraft exercise held during May 15-27, 1933 at Fort Knox, Kentucky.

One of the purposes of the exercise was to investigate the use of a "distant intelligence net". It was constructed by establishing combined observation and search listening posts at an average lateral distance from each other of six miles in three bands. The outer band of posts was located at an average distance of 110 miles, the middle band at 85 miles, and the inner band at 60 miles from Fort Knox.

The intelligence net, established by the Signal Corps and manned by soldiers from the ground forces, consisted of 60 observation and listening posts plus three radio posts. It covered an area about 1,600 square miles in the form of a 120° angle with its apex at Fort Knox. The soldiers had

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17. Greer, pp. 60-66.

18. Capt. Claire L. Chennault, "The Role of Defensive Pursuit," (unpublished MS in USAF Historical Archives, Maxwell Air Force Base, Alabama). The account of the Fort Knox test is drawn from Chennault's paper.

limited instruction and experience in identifying aircraft by types and were provided with no instruments for the calculation of altitude or course. Altitude was reported as "high," "low," or "very high." This uncertainty made tracking, identification, and interception very difficult.

Except for the radio posts, telephone lines were used to send communications from the observation and listening posts to the operations office of the pursuit group. These were relayed, in turn, by teletype from pursuit operations to defense headquarters at Fort Knox. Reports came in from the observers with surprising speed frequently within a minute after the sighting, though the over-all average was between two and three minutes. This was more than the time required for receipt of reports in the contemporary British observer network, but, on the other hand, the Fort Knox network had to depend on commercial lines with intermediate connections between posts and their destinations, whereas the British used direct lines.[19]

Chennault was not entirely pleased with the performance of the observer network. The spacing of posts was such that bombers could change their direction without being reported. He preferred a system affording continuous tracking of the bombers rather than periodic reports of their progress.

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19. Ibid.

Nevertheless, the network enabled pursuit aircraft to make a far greater percentage of interceptions than in any previous maneuvers.

The results of the Fort Knox exercise prompted Chennault to put great stress on early detection and reporting of enemy air raids, with special praise for the observer net as the only agency which could be relied on at all hours and in all kinds of weather. However, Chennault was not enthusiastic about civilian observers. He believed that Americans, unlike Europeans, were not convinced of the likelihood of air raids in the foreseeable future. Soldier-observers, he argued, would be better operators and more responsible custodians of the specialized detection equipment. If necessary, soldiers unfit for combat duty, and even women, could do the job well. For the defense of islands and points on the sea coasts, Chennault suggested the use of observers aboard submarines, coast guard ships and civilian seacraft.

Like most strategists in the United States, Chennault was convinced that American cities were safe from attacks launched from overseas bases. But aircraft from carriers or land-based planes from points in the West Indies, Cuba, and Mexico he deemed a distinct threat.

Chennault did not advocate blanketing the country with observer networks. Recognizing the extraordinary

effort and cost this would entail, he was content to advocate a mobile intelligence system consisting of an air defense information group composed of four Army air squadrons. The units were to be equipped with sound-locating equipment, course-plotting instruments, communications, and other specialized tools. It was to utilize existing commercial communications and employ a number of trained civilian communications operators.

In the organization of the network, Chennault showed that he had studied the English observer network carefully. His observation posts were to be connected to information centers and those, in turn, were to be tied to area defense headquarters, with lateral communication where needed.

Although persistent, Chennault was outnumbered and outranked by his opponents. In November 1934, Lieutenant Colonel Henry H. Arnold, the Air Corps' foremost bombardment specialist, forwarded to the Chief of the Air Corps certain conclusions drawn from recent exercises held at March Field, California, where an intelligence net was simulated by having the bombers radio position reports to pursuit headquarters.[20] Arnold had little faith in the ability of

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20. Lt. Col. H. H. Arnold to Chief of the Air Corps, "Employment of Tactical Units Equipped with Modern Pursuit and Bombardment Airplanes," November 26, 1934.

pursuit aircraft to stop his bombers, but this did not intimidate Chennault. In a letter to the Commandant of the Air Corps Tactical School, Chennault ripped into his superior officer's arguments without mercy.[21]

The main feature of Chennault's rebuttal was his faith in an improved aircraft warning service. Throughout, he drew upon the wartime experience of Great Britain to illustrate the feasibility of an observer network. Finally, he urged that annual tests be conducted to determine the value of an aircraft warning service and to improve procedures for interception.

The controversy in the War Department between the Air Corps and ground commanders over responsibility for coastal defense in the early thirties had stimulated thought on tactics and procedures in air defense. In 1933,the Air Corps had submitted a plan featuring the designation of seven critical areas along both coasts, each to be defended by coastal air defense units under Air Corps control and composed of aircraft released by ground commanders for the purpose. When the location of the enemy strike was determined, aircraft from all of the coastal units were to be concentrated to meet the threat. There was no development of

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21. Captain C. L. Chennault to Commandant, Air Corps Tactical School, "Comments on Letter to Chief of the Air Corps, dated November 26, 1934," March 7, 1935.

this proposal pending the outcome of the Air Corps' concurrent bid for autonomy. An air warning service was not a feature of the plan.[22]

In 1935 the General Headquarters (GHQ) Air Force was created, freeing the air forces from control by field commanders. Nevertheless, they were still subject to the authority of the Army General Staff. In May of that year the latter directed its army commanders to prepare a detailed plan for defense against air attack.[23] A pioneer feature of this directive was provision for the establishment, during an emergency, of an aircraft warning service employing civilian spotters and using commercial communications.

The directive stipulated that detailed plans be prepared covering the organization of an aircraft warning service in areas extending inland from coastal and land frontiers. The mission of the service was to "warn centers of population, industrial plants, public utilities and military and naval establishments of the approach of hostile aircraft in order that measures for their protection could be put into effect, and to alert Air Corps and antiaircraft artillery units." The service was to consist of observers

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22. AAF Historical Study No. 25, op. cit., pp. 89-94.

23. Ltr. AG to 1st Army, "Antiaircraft Defense of the Continental United States, May 21, 1935, Appendix I to History of the Air Defense Command, February 26, 1940 to June 2, 1941.

and information centers, plus the necessary communications. Observation stations were to cover the principal lines of approach to critical areas.

The directive went on to say that the general use of all-around networks of the type and density set up in the exercises at Fort Knox in 1933 did not appear necessary. Observers were for the most part to be qualified civilians under military supervision. Army commanders were to provide for necessary supervision from whatever personnel were available. The communication network for the Aircraft Warning Service (AWS) was to be based on the commercial wire system. Special equipment was to be improvised or provided locally.

The first opportunity to test an aircraft warning service under the new philosophy took place in May, 1937, at the GHQ Air Force maneuvers at Muroc Lake, California.[24] An arrangement was made with the Southern California Edison Company for the use of its communications system in the area, a 9,000 square mile triangle. It included ten sub-stations of the Edison Company, and one of the San Joaquin Light and Power Company. Observers at the 11 locations were provided with flash message forms and traines as AWS observers.

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24. P. Alan Bliss, "Air Defense of the Continental United States, 1935-1945," (MS in USAF Historical Division Archives, Maxwell Air Force Base, Alabama), pp. 53-56; History of the Air Defense Command, February 1940 to June 1941, Appendix IV.

Rapid telephone connections between the observation posts and an information center were arranged for by specifying exact connections and an "urgent message" signal. The attendants at each sub-station were put on the alert outdoors during two specified four-hour periods on each day of the maneuver. An enlisted man was detailed to each of the five principal stations to act in advisory capacity. On observing an approaching formation the observer requested the line for an "urgent message." The switchboard operator immediately made the proper connection to the information center and the observer reported in the required manner. The results were deemed satisfactory.

The commanding general of the First Wing of the GHQ Air Force, Lieutenant General Delos C. Emmons, praised the Aircraft Warning Service saying: "It is the belief of this headquarters that with little expense to the government, a very efficient antiaircraft intelligence net covering the critical areas of the United States can be organized by utilizing the available personnel of communications facilities and public utilities corporations, government services such as the Forest Service, and private vessels. Unless such a net is established, defense pursuit aviation cannot perform effectively."[25] Emmons recommended that

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25. History of the Air Defense Command, February 1940 to June 1941, Appendix IV.

the War Department, in cooperation with the Navy, take early steps to organize such a net, beginning in California. He was of the opinion that the Air Corps was not the proper agency to supervise the Aircraft Warning Service.

The Commanding General of the Fourth Army, which participated in the maneuvers, agreed with Emmons that it was not an Air Corps responsibility and that it should become a facility of the Fourth Army. According to the Commanding General of the 9th Coast Artillery District, the Signal Corps was the proper agency to maintain the AWS under the Fourth Army. The Chief of the Coast Artillery in a letter to the Chief of the Air Corps summarized his view of the prevailing situation as follows:[26]

> The few exercises that have been held, widely scattered in place and time, have resulted in no coordinated effort in establishing policies and doctrines as to a warning service. It is not even determined who, other than the local army or sector commander is to be in charge of this duty. Nothing is laid down to assist them in the work, nor are they given any information to build on. Isolated reports have been made after each of the exercises. These reports have never been digested, or even distributed. A junior officer, working under an army or sector commander would have little or nothing to work on if ordered by that commander to prepare a warning service plan.

He went on to recommend that the War Department prepare a study outlining the method to be followed and the

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26. Ibid.

minimum result to be forthcoming from any plan to be laid down by local commanders.

> It is understood that plans for the establishment, maintenance and operation of aircraft warning nets are to be incorporated in the four coastal defense plans. It is probable that this work will be delegated to sector commanders, and as there are ten or twelve such sectors all told, it is likely that, unless a central source of information is available, the type of net that is decided upon and the procedure to be followed in their establishment, the sources of personnel, training and related matters will differ greatly in practically all of the sector plans....It is believed that there should be collected and embodied in training service regulations or other War Department instruction, the principles involved in establishment of nets and other information gained as a result of warning service exercises already held.

The Chief of the Air Corps recommended that the Chief Signal Officer propose a comprehensive plan for an Aircraft Warning System in the future.[27]

Following the Muroc maneuvers, it was decided to hold, from April 13-15, 1938, a similar, but more elaborate exercise in the same general area of Southern California. Its objective was not to test the ability of the attacking planes to avoid detection but rather to determine the ability of the civilian observers to report properly and to test the speed of their communications. A corollary purpose was to determine if the communications systems of the various companies involved could be cross-connected so that information could

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27. Ibid.

be transmitted to a central information center, and whether such a system could be established without the use of facilities of public utilities. As in the previous exercise, the time of the employees and use of facilities were freely contributed. Eighty-five observation posts were established, all except one being manned by civilian observers. The odd post was a fire lookout station, manned by the Coast Artillery. Instructions to the observers were limited to a brief letter of information and a chart showing in silhouette different types of planes. The exercies demonstrated that an Aircraft Warning Service was "effective, efficient and flexible."[28]

Later in the year, in September, a joint AA-AC exercist was held at Fort Bragg, North Carolina to test the practicability of organizing an Aircraft Warning Service utilizing non-military personnel as observers, as well as to test the comparative efficiency of both kinds of personnel. Two hundred and forty commercial telephone stations were manned by civilians. In addition, there were 47 fire towers of the Forest Service manned by reserve officers and 15 Coast Guard stations. The network was termed "an unqualified success."[29]

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28. Ibid., Appendix V.

29. Ibid., Appendix VI.

Though the Aircraft Warning Service was taking shape, the technology of aircraft detachment was still inadequate. The Signal Corps had experimented during and after World War I with search-lights and sound and thermal devices, none of which offered much promise.[30] In the Fort Knox exercise of 1933 the searchlight and the "ear trumpet" had been the primary tools of early warning.[31]

The solution to the problem was eventually found in radar.[32] Study of this principle had been initiated at the Naval Research Laboratory in 1930 where the Doppler technique was successfully demonstrated. Aircraft were detected when they penetrated a radio-wave barrier between transmitter and receiver, but the technique did not reveal the altitude or location of the aircraft. Since the Army was interested in the problem of detection for antiaircraft needs, the Doppler principle was not pursued further.[33] The Signal Corps turned instead to short-pulse emission of radio waves. Pressure on the War Department for research

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30. Dulany Terrett, The Signal Corps: The Emergency ("United States Army in World War II"; Washington: Office of the Chief of Military History, Department of the Army, 1959), pp. 36-38.

31. Chennault, "Role of Defensive Pursuit," p. 25.

32. Terrett, pp. 39-47.

33. Ibid., pp. 39-40. The Doppler technique was to be used later in the Distant Early Warning (DEW) Line.

authorization and funds was successful and a first priority for antiaircraft detection research was set up.[34]

In December 1936, using short-pulse techniques, the Signal Corps succeeded in tracking an aircraft to a distance of seven miles, and the prototype of a short-range radar for controlling searchlights was demonstrated in May 1937. The Air Corps saw the value of the device for alerting pursuit aircraft and requested the Signal Corps to develop a similar set with a range of 120 miles. Development was successful and service trials of the first EW set, the SCR-270, were held late in 1939, the device was officially adopted the following year.[35]

Fighter design was a relatively unknown art in the United States at the end of World War I, the conflict having

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34. Mark S. Watson, Chief of Staff: Prewar Plans and Preparations, ("United States Army in World War II" Washington: Office of the Chief of Military History, Department of the Army, 1950), pp. 45-46.

35. Terrett, pp. 46-47, 121-129. There has been much controversy over the discovery of radar and British and American priorities. It appears that the U.S. and Britain developed early warning radar independently. However, subsequent refinements, such as the cavity magnetron, rotating antennas, PPI scopes, airborne radar, and IFF resulted from British discoveries. On the history of radar to 1940, the best accounts are Terrett, cited above; Royal Air Force, The Second World War, 1939-1945: Signals; Vol. IV: Radar in Raid Reporting (London: The Air Ministry, 1950); and Robert Watson-Watt, Three Steps to Victory (London: Odhams Press, 1957). The U.S. edition of the latter work, entitled The Pulse of Radar (New York: Dial Press, 1959) contains a provocative discussion of priorities in the development of radar.

been fought chiefly with French and British aircraft. American designers got their first good opportunity to enter the pursuit field in 1922 when the Air Service asked four manufacturers to design entries for the Pulitzer Trophy Races of that year, hoping that one or more could be converted to military use. The competition was won by the Curtiss bi-plane at an average speed of 205.8 miles per hour and the plane established a pattern for the design of American pursuit aircraft for the following decade. Production aircraft of this era--the Curtiss PW-8, P-1 and P-6 and the Boeing PW-9 and P-12--were all derivative of the Curtiss racer. In all cases the production orders were small by later standards (less than 100 for the P-6, for example).

The next major breakthrough in fighter design came in 1932, when Boeing successfully developed an all-metal monoplane that became known as the P-26. In the development of pursuit aircraft during the period between the wars, the most notable characteristic, however, was the continual improvement in power plants. Successive fighters flew higher and faster as a result.

When war erupted again in Europe in 1939, the Air Corps possessed two relatively modern pursuit aircraft, the Seversky P-35 and the Curtiss P-36. Both were all-metal

monoplanes capable of speeds of about 300 miles per hour and altitudes of about 30,000 feet. In terms of quality, these fighters were roughly equivalent to those of the major combatants at the beginning of World War II. Like all major powers, however, the United States had aircraft of more promising performance on the drawing boards. These, designed in 1936 in accordance with Air Corps demands for better interceptors, became operational later than similar British aircraft but did yeoman service soon after America's entry in the war. Among the interceptors approaching the production stage in 1939 were the Lockheed P-38, the Bell P-39 and the Curtiss P-40. In 1939, therefore, the Air Corps possessed two good operational fighters and several more were under development. Because of financial strictures, however, fighters were sadly deficient in quantity.[36]

Thus, the ingredients for an effective air defense system were in existence late in 1939, though not in sufficient quantity or in effective organization. Pursuit development had been intensified, an aircraft warning system had

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36. Air Corps Tactical School, "Course in Pursuit Aviation," February 1929 (MS in USAF Historical Archives, Maxwell Air Force Base, Alabama), pp. 188-197; Doris A. Canham, "Development and Production of Fighter Aircraft for the United States Air Force," (Air Materiel Command Monograph, MS in USAF Historical Division Archives, Maxwell Air Force Base, Alabama), pp. 11-36, 56, 72. Capt. H. T. McCormick, "History and Development of Pursuit Aircraft," (1937, MS Air Corps Tactical School files, USAF Historical Division Archives, Maxwell Air Force Base, Alabama).

been demonstrated as feasible, and radar was in existence. Antiaircraft, too, had been improved by the development of searchlight and gun-laying radar. It remained to refine and train the AWS, produce and deploy the radars, train pursuit pilots in the tactics of ground-air teamwork, and integrate fighters, antiaircraft, radar and AWS into a smoothly functioning air defense system.

That all this was not the subject of crash action was due in large measure to the fact that military planners still did not envision a large-scale bomber assault on this country. In spite of the appearance of an aggressive Axis coalition, the War Department took a calculated risk that precipitous preparations for air defense were unnecessary. As General George C. Marshall testified before the Senate in May 1940:[37]

> What is necessary for the defense of London is not necessary for the defense of New York, Boston or Washington. Those cities can be raided...but... continuous attack would not be practicable unless we permitted the establishment of air bases in close proximity to the United States.

Airmen shared General Marshall's assumption that the defense of the country could be assured by denying a potential enemy bases in the Western Hemisphere. A leading role in this objective was allotted to the air forces, resulting

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37. Watson, p. 151.

in an expansion of the bomber fleet. Nevertheless, there were deficiencies in air defense which were too obvious to await solution much longer. General Arnold took the lead in late 1939 by recommending to the War Department the establishment of a special agency to study the organization and tactics of air defense.[38] General Marshall agreed, and on February 26, 1940, the Air Defense Command, a unit composed of Air Corps, Coast Artillery, and Signal Corps personnel, was activated at Mitchel Field, under the command of the commanding general of the First Army, to study the problems of an effective integration of air defense weapons and procedures.[39]

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38. Craven and Cate, VI, 84.

39. History of the Air Defense Command, February 1940 to June 1941, chap. i.

CHAPTER II

ON THE EVE OF WAR

The Air Defense Command, never numbering more than ten officers, under the command of Brigadier General James E. Chaney, an Air Corps officer, had a truly pioneering assignment.[1] Its mission was to study the entire air defense problem, embracing "the development of a system of unified air defense of an area and the determination of tasks within the capabilities of the various combination of tactical units which might be assembled for the air defense of cities, continental bases, manufacturing and industrial areas, or of armies in the field."[2] Its heritage consisted of an early warning radar which had never been field-tested; the concept of a civilian-manned ground observer network which had been realized only several times before and under atypical circumstances; pursuit planes manned by pilots who were totally untrained in ground-controlled interception; a widely-scattered antiaircraft artillery capability; and an assortment of auxiliary devices such as sound detectors, barrage balloons, and

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1. Ibid.
2. Ibid., p. 62.

searchlights. Air Defense Command's job was to find effective tactics and techniques. and evoke to an organizational framework and a doctrine capable of application to a wide variety of defensive tasks.

Soon after its activation in April 1940, Air Defense Command was ordered to participate in First Army maneuvers to be held that August in New York.[3] One of the purposes of the exercise was "to develop a system of unified air defense for the protection of armies in the field." General Chaney decided to create an aircraft warning system capable of expansion into a permanent nation-wide organization which would afford protection to civilian populations and industrial areas as well as armies in the field.

For observation posts, telephones were indispensable. The Bell Telephone Company was asked to chart the locations of 346 telephones in the maneuver area. The Forest Service and the Coast Guard also assisted, since it was difficult to determine the ideal location of posts from maps alone. ADC also turned to the American Legion for aid in establishing and operating the posts. Representatives of the Legion in New York State designated those Legion posts which were best able to organize the observation posts. ADC then wrote to the Legion posts requesting they obtain a telephone at each

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3. Ibid., pp. 101-109.

of the locations, and appoint a Chief and a Deputy Chief Observer for each post. It was the Chief Observer's job to select the exact location of the post and inform Air Defense Command. When the post was approved, Air Defense Command notified the Chief Observer to recruit eight volunteer observers and supplied him with flash message forms and printed instructions for the observers.

During the maneuvers, 360 observer posts were organized and 46 fire lookout stations manned--a total of 406, the largest number in any exercise of an Aircraft Warning Service held in the United States to that time. There were 700 Chief and Deputy Chief Observers and 4,600 observers manning the network. The sole information center located at Watertown, New York, was manned entirely by military personnel.

According to the final report of the exercise, "all components functioned smoothly and well," and reaction times were deemed "eminently satisfactory." In fact, the report concluded, "methods employed in the organization and operation of the Aircraft Warning Service, with revisions indicated by present experience in the maneuvers, are considered very satisfactory as a guide to future operations."[4]

Participation in the First Army maneuvers had given Air Defense Command experience in preparing and testing the

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4. Ibid., p. 259 and Appendix XI.

air defense of a militarized area. From its inception, however, Air Defense Command had interpreted its mission as giving higher priority to the development of an air defense of a non-militarized area. Accordingly, Air Defense Command had planned a "Test Sector" embracing most of Massachusetts, Connecticut, Rhode Island, and that part of New York east of the Hudson River, including Long Island, an area to be typical of the whole Northeast and one that could serve as a laboratory where doctrines and procedures for air defense applicable to the entire United States might be developed and demonstrated.[5] Plans for the organization and testing of an air defense system within this Test Sector had been temporarily postponed while the ADC availed itself of the opportunity to take part in the First Army maneuvers. As soon as these had ended, ADC resumed preparations for Test Sector exercises to be held in January 1941.

The boundaries of the Test Sector had been purposely drawn to include parts of both the Boston and New York sectors of the First Army area to afford practice in coordinating adjoining sectors. Furthermore, in order to test differing procedures in the various regions, the organization of the AWS was to vary in different sections of the Test Sector. Thus, the New York Information Center at

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5. Ibid., p. 110 ff.

Watertown was to receive its information from filter centers at Hempstead, White Plains, and New Haven, while the Boston Information Center was to have its filter center located with it in the same building. Each information and filter center was to be organized differently to test the relative efficiency of skilled women telephone operators, untrained civilian men and women, and trained military personnel. Even the relative merits of different types of telephone communication facilities between observers and filter centers were to be tested by having ground observers report to the White Plains Filter Center over private line circuits, each having three to seven observation posts, and to the Hempstead Filter Center over regular subscriber lines. Following the system in use in Great Britain, the Boston Information Center employed ex-telephone employees, paying them 48 cents an hour.

To control and operate the extensive air defense system, ADC installed or contracted with the telephone companies for the use of a complex communications system. Direct telephone lines connected the ADC operations room at Mitchel Field with each information and filter center, and others connected the ground observers with plotters in the filter centers, plotters with tellers, and tellers with information and filter centers.

For the Test Sector exercise, ADC, working primarily through the American Legion, as it had done in 1940, supervised the organization of some 700 observation posts manned by more than 10,000 civilian observers. Their information was telephoned directly to the plotters at the filter centers, thus eliminating the time lost in the Watertown maneuvers of the preceding summer when messages had been transcribed in the filter center and delivered by runner to the plotters. Under the new system, influenced no doubt by the British experience of the Battle of Britain, plotters in the filter centers immediately affixed colored pips or arrows on the filter plotting board to indicate number, type, and estimated altitude of the aircraft being reported by the observers. When enough of these pips for a given flight justified an evaluation, the filterers replaced the markers with a colored arrow and cards showing number, type, and altitude of the flight; this "filtered" information was then transmitted by tellers to the plotters where it was displayed for the benefit of the controllers in making their tactical decisions. Tellers overlooking the operations board transmitted, at the direction of the controller, pertinent information to pursuit intercept boards for the use of the intercept officers, and "overlap" tellers reported to plotters at other information filter centers airplane flights occurring

within 20 miles of the boundaries of their areas.

Civilian volunteers who served as plotters, filterers, and tellers received training from Signal Corps personnel who supervised the operation of the information and filter centers, but ground observers, whose duties seemed less technical, were given their instructions by mail.

ADC was disappointed with the performance of the ground observers.[6] Due probably to the fact that they had been instructed only by mail, they made frequent time-wasting errors in their reports. The reports themselves were often inaccurate: friendly or civilian aircraft were reported as enemy bombers, altitudes were misjudged, and planes above 10,000 feet were missed entirely. Some of the observation posts were poorly located in valleys, on hillsides, in places hard to reach in bad weather, and from which visibility was limited. ADC doubted that the ground observer system was suitable for night interception.

While conceding that the use of unpaid civilian volunteer observers had been satisfactory for the limited period of exercises and would probably serve adequately during the early weeks of a war, ADC thought it possible that the observers might need a greater measure of supervision. Paid

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6. For a detailed account of the exercise, see History of the Air Defense Command, February 1940 to June 1941, pp. 262-314.

volunteers might have to be used in wartime, as Great Britain was then doing.

ADC recommended that ground observers be trained in aircraft recognition and in the estimation of altitudes. In cases where several observers used the same party line, posts should be arranged in a straight line to minimize simultaneous plots and congestion of telephone communications. ADC suggested that its representatives meet with commanders of the American Legion posts and the Chief Observers to relocate observation posts found to be poorly situated.[7]

Personnel in the information and filter centers had functioned more efficiently than the ground observers. The experimental use of women in these centers had been a success. Their efficiency seemed little different from that of the men, women being generally more adept in the use of telephone equipment, men slightly faster and more accurate at orienting themselves on the map boards and at plotting. The chief difficulties in the centers had been caused not by inefficient personnel but by faultily designed equipment. Plotters sometimes obscured the boards from tellers; filterers' blocks in some cases were hard to read; and in the Hempstead Filter Center the plotting board was so unevenly divided that while four plotters had nearly half the board

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7. Ibid., p. 309.

to operate, four others had only one-sixth. ADC felt it should, in the future, work out standardized communication and operating equipment for information and filter centers, a task still unaccomplished when ADC responsibilities were taken over by the I Interceptor Command some four months later. But it was convinced that the use of civilian volunteers to man those centers had been successful enough to warrant its recommendation that future information and filter centers use civilians to operate the equipment and military personnel only as instructors, supervisors, and key personnel. Meanwhile, cadres of military and civilian individuals sufficient to activate a complete regional AWS should be maintained at all times.[8]

Immediately after the conclusion of the Test Sector exercise on January 24, 1941, the Air Defense Command took steps to close down the filter centers and also the information center which had served the Boston area. The thousands of civilian ground observers as well as the trained plotters, filterers, and tellers who had participated in the exercise remained available, in case an emergency required the AWS to be reactivated. ADC tried to keep the New York Information Center in readiness as a part of a permanent AWS, and accordingly the command negotiated a new lease to run from February

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8. Ibid.

to June 30, 1941. But the Audit Division of the General Accounting Office in Washington objected to it on the ground that it had been contracted without advertising for bids.[9]

ADC submitted its plan for the air defense of the Northeastern area to the First Army on December 26, 1940. This area, extending from Maine to Cape Lookout, North Carolina, and embracing land and coastal frontiers of the First, Second, Third, and part of the Fourth Corps areas, was to be defended against air attack by AWS, pursuit aviation, and AAA. The civilian ground observers were to be organized by the end of May, 1941. Within each "sector" the air defense commander was to designate a commander to take charge of active air defense troops, coordinate with neighboring sectors, exchange intelligence, and activate and operate the Aircraft Warning Service. The six sectors were to be based in Boston, Albany, Buffalo, New York, Philadelphia, and Norfolk.[10]

Air Defense Command expressed a preference for facilities of the commercial telephone companies over those of railroad, utility, and telegraph companies because of their greater flexibility, dispatch, and coverage.[11]

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9. Ibid., pp. 147-148.

10. Bliss, I, 103.

11. Ibid., p. 105.

Approximate locations of observation sites were ascertained from telephone maps, and the American Legion assisted in the actual work of organizing the posts. Arrangements were made also for coordinating the Aircraft Warning Service in the First Army area with those of adjacent army areas through the exchange of information. An agreement was reached for exchange of information between the First Army AWS and the Canadian Aircraft Detection Corps of the Royal Canadian Air Force's Eastern Air Command via a leased telephone wire from the filter center at Portland, Maine, to St. John, New Brunswick.[12]

Air Defense Command was not to live long enough to see its plan realized for a permanent air defense system in the Northeast. In March 1941, a far-reaching reorganization of the Army air arm earmarked Air Defense Command for inactivation. Air Defense Command's role in the air defense of the Northeast was assumed by the I Interceptor Command, and on June 2, 1941 Air Defense Command ceased to exist; most of its personnel transferring to the new interceptor command.

In the year of its existence, Air Defense Command had generated a revolution in air defense thought. Originally, AAA had been the acknowledged "area defense" weapon, but Air Defense Command doctrine had elevated pursuit as the

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12. Ibid., p. 106.

principal deterrent, with AAA ensconced as the chief "point defense" weapon. The big gain for pursuit, however, was that it was given operational control over AAA, so that ground fire would not interfere with the more vital area defenses.

This shift in emphasis produced a corresponding increase in the importance of the Aircraft Warning Service, for interceptor planes could not function on ground alert without it. Air Defense Command had continually exerted its influence in favor of a more complex Aircraft Warning Service, one which would not only serve to initiate air raid warnings and to alert AAA and pursuit aviation as the early and more crude warning services had done, but which would also play an integral part in the succeeding interceptions themselves. As Air Defense Command expressed it,[13]

> The Aircraft Warning Service does not merely "alert" defending pursuit aviation, it furnishes pursuit with the detailed, timely, and continuous intelligence necessary for pursuit interception. An Aircraft Warning Service also collects and disseminates information of friendly planes....A proper conception of an Aircraft Warning Service is that of a complex and highly organized service carefully adjusted to the tactical requirements of the agencies it serves and efficiently integrated into the defense of a strategic area. Its complete organization should be effected in peace. Its operations control should have continuity from peace to war....

Such an Aircraft Warning Service, to Air Defense Command, required an extensive system of ground observers, a

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13. Ibid., p. 117.

chain of long-range radars along the coasts, highly trained operators in strategically-placed information and filter centers, and specialized communications equipment to supply the necessary information continuously and speedily enough to assure effective interceptions.

From the experience of Air Corps and Army authorities in early exercises and maneuvers, from the reports of Royal Air Force success in Great Britain, and from its own observations and studies, Air Defense Command had worked out general principles of air defense which it believed applicable to the continental United States, and it had taught those principles to its successors. Those principles stressed the importance of an extensive aircraft warning service to any economical system of air defense, yet only in the areas involved in the First Army maneuvers of August 1940 and the Test Sector exercise in January 1941--in New York and southern New England--had any aircraft warning service with a pretension of permanency been established anywhere in the United States. Consequently, when in the spring of 1941 its successors took over the responsibility for the peacetime organization and training for active air defense in the continental United States, first attention had to be given to establishing a fixed aircraft warning service along the coastal and international land boundaries of their areas.

CHAPTER III

THE OBSERVER SYSTEM IN WARTIME, 1941-1945

In the reorganization of March 1941, the mission of air defense was assigned to the General Headquarters Air Force (GHQ AF), which was organized into four air forces, the First and Third in the eastern part of the United States, and the Second and Fourth in the West. Each contained bomber and interceptor commands, the latter being the prime agencies for the accomplishment of the air defense mission. Soon after, on April 12, 1941, GHQ AF directed each air force to set up an Aircraft Warning Service (AWS) and to have it ready to begin training with pursuit aviation by August 1. Realizing that the recruitment of civilian volunteers to participate in the Aircraft Warning Service would be time-consuming, General Headquarters Air Force waived prior approval of the civilian recruiting portions of the air defense plans that it required from each air force.[1]

The pattern that the emerging Aircraft Warning Service was to reveal was familiar to the staffs of the

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1. GHQ AF to Air Forces, "Organization and Planning for Air Operations and Training," April 12, 1941, in History of the Air Defense Command, February 1940 to June 1941, Appendix XXVI.

interceptor commands. In 1941, Air Defense Command had trained approximately 60 officers in the intricacies of air defense and some of the graduates had been dispatched to the new interceptor commands. These officers had been indoctrinated to expect the air defense format which would ensue.[2]

In establishing a ground observer system, the interceptor commands had first to decide approximately where the posts should be located. Of paramount importance was the need to keep every flying aircraft under observation. If one ground observation post lost sight of an aircraft, another post had to be located so as to pick up the plane without losing the track. Experience in previous exercises had shown that this could be achieved if at least one observation post were located in each 36 square miles of territory.[3] It was of course indispensable that the post have a telephone. Consequently, it was first necessary to ascertain where the telephones were located. The telephone companies were asked to indicate on grid maps divided into one-square-mile areas whether a telephone was or was not located in each square. The commands then prepared their observation networks according to the 36-square-mile principle.

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2. History of the Air Defense Command, February 1940 to June 1941, pp. 199-201.

3. Bliss, I, 132.

In recruiting civilians during the First Army and Test Sector exercises, ADC had depended upon the American Legion to obtain the volunteers. The Legion had selected the chief observers who then selected the rest of the observer staff and pinpointed precisely the location of the posts within the general area designated by Air Defense Command.[4] The interceptor commands took it for granted that they would also use the services of the American Legion. But this was not to come to pass altogether. Instructions soon came from GHQ AF that the Legion would not be the chief agent for recruitment. Instead, the Office of Civil Defense (OCD) a subdivision of the Office of Emergency Mobilization (OEM), was to have the responsibility.

The Office of Civil Defense, under Mayor Fiorello H. La Guardia of New York City, was to recruit through its state and local Defense Councils, although it could ask the Legion to help. At first, the interceptor commands were somewhat confused by this but they accepted it after GHQ Air Force explained that singling out the Legion might cause resentment among other patriotic organizations. As it turned out, the Legion continued to play an important role in recruiting. For example, in the Test Sector area the posts which had been

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4. History of the Air Defense Command, February 1940 to June 1941, pp. 105-126.

organized by the Legion were reactivated, and in many other areas the Legion was called on by the Office of Civil Defense state councils for assistance.[5]

The usual method of recruitment was to organize a state-wide recruitment drive in which the local Defense Councils, with the assistance of the Legion and other non-governmental agencies, compiled rosters of civilian volunteers. The OCD councils were responsible for choosing the chief observers who then received from the interceptor commands instructions and maps showing the area in which the post was to be located. The chief observer then chose the exact location and the rest of his staff, generally consisting of an assistant and 16 other observers. This information was then relayed through the state Defense Council to the interceptor command.[6]

Everything did not go as smoothly as planned. It turned out, once in a while, that no telephones existed where they were thought to exist and that sometimes the telephones were on party lines, making them undesirable for military purposes. And, in some cases where proper telephones existed, the area proved to be so sparsely populated that no volunteers could be found.[7]

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5. Bliss, I, 134-35.

6. Ibid., pp. 136-137.

7. Ibid., pp. 137-138.

In some cases too, the organizers turned out to be less than efficient. Such was the case in Louisiana where the III Interceptor Command had to plead with the governor to stimulate the OCD officials to greater efforts. Similar situations existed in North Carolina, Pennsylvania, Virginia, and Maryland. The situation was ticklish in that the recruitment effort had been accepted by the state governments through their OCD State Defense Councils and recriminations by Air Force agencies might result in a wet blanket being thrown over the flickering interest of state officials.[8]

Once the posts were established, it was the job of the interceptor commands to train the observers. Sending military personnel to do this proved to be almost impossible. The Air Force was at this time expanding manyfold and demands on the interceptor commands were too great to allow military personnel to train the civilian volunteers. Although the interceptor commands had misgivings, they were obliged to resort to training the observers by mail. There was no guarantee that the recipients of the instructions would do what they were supposed to do, or that the impersonal training-by-mail technique would provide sufficient stimulation to the volunteers' morale.

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8. Ibid., pp. 138-139.

Indeed, the misgivings of the interceptor commands were soon justified. Though they were willing to learn, the new observers had no acquaintance with military terminology and used their own frames of reference to report their observations. For example, a blimp was reported as "one submarine flying high." The P-38 was described as "something that looks like two planes with their arms around each other." Another aircraft was described as having "raglan sleeves, flared bodice and a nipped-in waist." The glaring training deficiency continued down to the time of Pearl Harbor.[9]

Organization of the posts proceeded farthest in the area of the Test Sector where some 700 posts had been established by Air Defense Command. Even outside the Test Sector, Air Defense Command had completed preliminary map studies and with the help of the American Legion had made some progress in recruiting ground observers. Nevertheless, the I Interceptor Command was disappointed at its progress. By mid-July only Delaware had been completely organized and only 48 per cent of the 6,000 observation posts needed were operationally ready. The First Air Force scheduled an exercise

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9. Ibid., pp. 140-142; AAF Historical Study No. 19, Mae Link, "Civilian Volunteer Activities in the AAF," (Maxwell Air Force Base, Alabama: USAF Historical Division, October 1944. Typewritten.) p. 13.

for the period from October 16 to 19 which required posts in all of the seaboard states from New Hampshire to North Carolina. By the end of September, approximately half of the number required for the exercise outside Delaware had been organized. The worst offenders were Pennsylvania, Virginia, and Maryland. The exercise was held on schedule, but after it ended little effort was made to extend the observer network while the results were being evaluated.[10]

In 1940 the Army had held maneuvers in Louisiana and a ground observer network of sorts had been organized there with the help of the American Legion and after the maneuvers it had been dissolved. In the summer of 1941, the III Interceptor Command began recruiting again in an area from North Carolina to Texas. Special emphasis was given to Louisiana and the Carolinas where maneuvers were scheduled for September and October, 1941. But recruiting proved to be very difficult. The maneuvers were duly held, but, of 678 observation posts planned, only 394 were organized in time and, of these, only 236 participated in the exercise.[11]

In the state of Washington the II Interceptor Command was hampered by the fact that there was no Office of Civil Defense organization in existence. Organization of

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10. Bliss, I, 142-144.

11. Ibid., pp. 144-145.

the posts was accomplished by the State Emergency Defense Commission, consisting of officials of veterans' organizations. When the Office of Civil Defense did eventually establish a state Defense Council in Washington, it replaced the initial organizers with Office of Civil Defense personnel who thereby became supervisors of a network that they had no part in assembling. An air defense exercise was planned for the period from October 28 to November 2 but bad weather intervened and the Aircraft Warning Service was not tested adequately. Another test was planned for December but, before it could take place, Japan's surprise attack on Pearl Harbor occurred. Consequently, when the United States entered the war it did so with an inexperienced Aircraft Warning Service in the Northwest.[12]

In California, it may be recalled, pioneer experiments in organizing Aircraft Warning Service had taken place in 1937 and 1938.[13] Then, the latter had used the facilities of utilities and railroad companies with some success, but these precedents were abandoned in favor of the principles established by Air Defense Command's air defense school that favored the use of commercial communication.[14]

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12. Ibid., pp. 146-148.

13. Supra, pp. 18-23.

14. Bliss, I, 148.

In the territory of the IV Interceptor Command, the Aircraft Warning Service was restricted to California because of inadequate funds. In this area, recruitment of ground observers was successful; in fact, ahead of other elements of the Aircraft Warning Service. Because of the lag, it was impossible to have a system exercise to test the efficiency of the observers. Exercises were scheduled for the period from December 11-16, 1941, but the attack on Pearl Harbor on December 7 caused the exercise to be abandoned. Consequently, like their colleagues in the II Interceptor Command, the observers of the IV Interceptor Command began their wartime activities without any experience. It had been hoped that 1,300 observation posts, manned by 22,000 civilian volunteers, would participate in the exercises scheduled in mid-December.[15]

The network of ground observer posts was only one element in a complex organization. Radar stations and information and filter centers completed the Aircraft Warning Service.

The territory of each interceptor command was divided into a small number of air defense regions. The focal point of each region was the information center. Subordinate to the information center were two or more filter centers.

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15. Ibid., pp. 149-151.

It was the job of the filter centers to receive reports from the ground observation posts, screen them, and make a preliminary evaluation. If the information appeared to be significant, it was forwarded to the information center where a final evaluation was made and tactical decisions reached. From the information center, air raid warnings were disseminated to military and civilian agencies when necessary. Before the attack on Pearl Harbor, work had been begun on 15 information centers and 21 filter centers in priority regions along the Atlantic and Pacific coasts.[16]

Like the ground observers, the civilians in the filter and information centers were recruited by the Office of Civil Defense through its local agencies. Here, too, the Office of Civil Defense took full advantage of the assistance offered by other civic agencies and service organizations. After the volunteers were registered, they were interviewed by representatives in the interceptor commands to ascertain if they had the proper qualifications for work in the centers. The volunteers were given a short training course at the appropriate centers. In the Atlantic area some of them had an opportunity to participate in the maneuvers held in the autumn of 1941 before America's entry into the war.[17]

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16. Link, pp. 17-19; Craven and Cate, VI, 90.

17. Bliss, I, 175-177.

Recruiting the volunteers for the filter and information centers proved to be no easy task. In the East civilian quotas for the centers were only partly filled at maneuver time, and in some cases where an adequate number of volunteers registered, not all showed up when the time came to report.[18]

Training of civilians in the information and filter centers was the job of the Signal Corps. As the air defense system expanded rapidly during the last half of 1941, Signal Corps units were hard pressed to keep up with their military duties. Consequently, the increasing shortage of military instructors for the civilians resulted in the volunteers in the information and filter centers being inadequately trained as America's entry into the war approached.[19]

Generally speaking, in the air defense maneuvers of 1941, civilian personnel in the filter and information centers showed up better than the ground observers, though their performance still left much to be desired.[20]

During the wartime months, the number of civilians in the ground observer network fluctuated. Specific figures of the numbers of volunteers on a national scale are

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18. Ibid., pp. 177-180.

19. Ibid., pp. 180-189.

20. Ibid., pp. 227-231.

unreliable, ranging from 500,000 to 1,500,000.[21]

Observation posts were deployed along the Atlantic, Pacific, and Gulf coasts. Along the Eastern seaboard, about 9,000 posts incorporating 300,000 observers, were in existence shortly after America's entry into the war. At the same time, along the Pacific, nearly 2,400 posts with 150,000 observers were in existence. One year later, along the Gulf, there were 3,800 posts with 51,000 volunteers manning them.

The posts were deployed along the seaboards. In certain locations along the U.S.-Canadian border in Washington, and in New York and Pennsylvania, the posts were located as much as several hundred miles inland. Those more than 150 miles from the sea on the Pacific or north Atlantic and more than 50 miles from the Gulf coast were rarely activated on a full-time basis and then only for training purposes. Along the Gulf, posts that were within 50 miles of the coast or the Mexican border reported daily from one-half hour before daylight to one-half hour after sunset. Those that were between 50 and 100 miles inland sent two reports a week to their filter centers. Those still further inland reported for one three-hour period each month.[22]

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21. Bliss, II, 107-108; Link, p. 8.

22. Bliss, II, 106-107.

The basic requirement for a ground observer post was a facility where two or more observers could survey the skies from horizon to horizon without serious impedence. It was desirable that each facility afford shelter from the elements, and it was, of course, indispensable that it contain a telephone. No prefabricated facilities or standard plans were provided by the authorities and, consequently, each post was left to the resourcefulness of its personnel.

The variety of facilities which sprang up during the war defies description. The most conventional among them consisted of roof-top vantage points and hilltop shelters. Others included a remodeled water tank and a school bus with a hole cut through its roof. Funds and labor to erect the shelters were usually provided by civic organizations and clubs, including American Legion posts. Occasionally, a civic-minded individual built and furnished a post. Once in operation, the resourcefulness of the observers was manifest. Furniture and accessories were contributed and some shelters were almost luxurious in their appointments.[23]

All kinds of persons of both sexes were represented among he observers. The very old with their infirmities,as well as the vigorous young,took part. Rich rubbed elbows with the poor and celebrities and nonentities shared observer

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23. Ibid., p. 108.

duty. The following quotation from an article in the Oakland Tribune gives some indication of the many different types of observers and the great variety of observation posts:[24]

> The convicts at Folsom Prison man one twenty-four hour post. The priests at the Alma College novitiate keep another in operation. The paupers at an alms house in another place are the plane observers... On the other side of the observer personalities are the big people, no less loyal to their duty than the small. On a hill overlooking Brentwood, exclusive Los Angeles suburb, is a camouflaged post that was manned by Henry Fonda, the actor, until his recent enlistment in the Navy. A few miles away, Ward Bond and Alan Jenkins, two other motion picture stars, help scan the skies between shooting schedules....The observation posts are log cabins, old bread wagons, water tanks, tool sheds, farmhouses, trees, dugouts, school rooftops, benches, porches--any place where men and women can wait and watch for aircraft.

It was not always a simple matter to choose the location of observer posts and to keep them there. Though the maps indicated the need for a post in a certain location, sometimes closer examination showed that there were no people in the area, or they were so few that enough volunteers were not available. Some of the posts proved to be so badly located that it was necessary to move them, often more than once.[25]

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24. Headquarters, Fourth Air Force, "History of the Fourth Air Force, 1942-1944," Vol. III-2 (Maxwell Air Force Base, Alabama: USAF Historical Division Archives, 1945), p. 76.

25. Bliss, II, 109.

In "dead spots" where civilians were not available for recruitment, the manpower resources and facilities of the United States Forest Service and the United States Coast Guard were solicited. Along the coasts, Coast Guard stations were made available and, in the interior, the fire towers of the U.S. Forest Service were pressed into service. The Department of Agriculture, in June 1941, agreed to put its Forest Service towers at the disposal of the interceptor commands. A supplementary agreement, on January 1, 1942, between Agriculture and the War Department, resulted in the latter's payment for any extra expenses incurred, such as communications, installations, and salaries of Forest Service personnel for observer duty. In all, approximately 1,000 fire towers were pressed into use during the war.[26]

The psychological impact of the attack on Pearl Harbor and America's entry into World War II rekindled enthusiasm among the volunteers. Those who were on the rosters reported for duty with enthusiasm and thousands more volunteered. But, as it became apparent that the continental United States was not going to be an arena in the conflict, the interests waned and many resigned or just failed to show up for duty. Combined with the belief in America's

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26. Ibid., pp. 109-110. History of the Fourth Air Force, op. cit., pp. 89-92.

realtive invulnerability to air attack in deflating volunteer enthusiasm, was the boredom and monotony of observer duty, especially in areas where flights were infrequent.

The fact that the posts were manned by civilians who contributed their services without pay made it extremely difficult to impose discipline upon them. There were no penalties for failure to report for duty or for inefficiency. In consequence, there were many among the military who were irked and frustrated in their dealings with the independent observers.

Early in the wartime operation of the ground observer system, the subject of pay for the civilians was broached by the air forces. Behind the proposal was the thought that the withholding of pay might be a sufficient penalty to discourage insubordination and to increase efficiency. Another proposal was that free uniforms be provided for the observers to improve their morale and make them more amenable to the requirements of the military.

Soon after Pearl Harbor, the II Interceptor Command proposed that civilians be uniformed and paid, and the War Department directed that a study be made of the problem. The interceptor commands concluded that the costs would be excessive. The IV Interceptor Command estimated that it alone would need 2,200 observation posts equipped with four

observers each and supervised by 700 officials. Some 3,000 civilian workers in information and filter centers would also have to be paid, resulting in a total monthly expense of almost $1 million. On the East Coast the I Interceptor Command estimated that it would need $3.5 million for its civilian payroll monthly in order to pay observers at a rate of 25¢ an hour.[27] Army Air Forces Headquarters was of the opinion that the low salary would not attract the type of worker required, whereas those civilians who worked without pay were generally motivated by patriotic reasons.[28]

In commenting on the studies, the War Department emphasized that the ground observers were not vital to the survival of the United States, unlike the British observer organization. Secretary of War Henry L. Stimson wrote to a senator who brought up the matter of pay:[29]

> The volunteer system permits the Army to draw upon a vast pool of loyal citizens who, because of other responsibilities or for reasons of health or age, could not assume this or any other duty as a full time job. The formation of a paid group would deprive thousands of such persons of the opportunity to serve their country in the Aircraft Warning Service, and would intensify the manpower shortage as a national problem rather than relieve it.

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27. Bliss, II, 112-113.

28. Ibid., p. 113.

29. Ibid., p. 116.

Stimson was supported in this by President Franklin D. Roosevelt.[30]

The original number of 16 observers per post proved to be inadequate as the months wore on. Some posts increased their complement to as many as 100 observers, mainly because original estimates of the time that the civilians could devote to their duties were too optimistic. The expansion in the number of volunteers per post, plus the continuous loss resulting from resignations, made the recruiting effort a continuous one.[31]

The shortage of military personnel to supervise and train the observers caused the I and IV Interceptor Commands to shift some of their responsibilities to the Office of Civil Defense. This was not welcomed by the rank and file of the observers who feared that operation of the observer network might thus come under political control. The I Interceptor Command was able to strike a balance by appointing civilians to serve as regional civil directors of the Aircraft Warning Service. These civilians in turn appointed other civilians to act as state, district, and sub-district directors, the latter having from eight to ten observation posts under their supervision. By mid-February

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30. Link, p. 28, quoting a letter from Roosevelt to J. Stambaugh, National Director of the American Legion, dated July 1, 1942.

31. Bliss, II, 116-117.

1942, all of the states in the East except Virginia and Maryland had been provided with state directors of the Aircraft Warning Service.

At the same time, the I Interceptor Command set up a ground observer section under an Air Force officer whose purpose was to absorb administrative problems that otherwise had to be farmed out among the staff of the headquarters. This left the I Interceptor Command mainly responsible for the operating efficiency of the volunteers. The civilian intermediaries at state, district, and sub-district level were responsible for correcting the deficiencies noted by the military staff.[32]

In spite of this system of dual control over the civilians, the military tended to absorb most of the responsibilities. This was welcomed by the volunteers who enjoyed being associated with the glamorous Army Air Forces. Eventually, the desire of the civilians to be identified with the military effort was recognized by the Army Air Forces. On July 15, 1942, the War Department designated the civilian volunteers as members of the Army Air Forces Ground Observer Corps (GOC).[33] The justification for this was stated by the

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32. Ibid., p. 119.

33. Adjutant General to Commanding Generals of the Defense Commands, July 15, 1942, cited in Bliss II, 119.

commanding general of the Army Air Forces in a memorandum to the Chief of Staff of the Army.[34]

> ...Confusion in terminology is undesirable for many reasons. It is not conductive to good morale among observers. It multiplies the problems of obtaining publicity, and has a tendency to confuse the public.. ..The public was often not sure whether reference was being made to air raid wardens of the OCD or to ground observers of the AAF, and the same confusion even existed to some degree within the armed services.

As the war progressed it became apparent that more instead of less contact between the military and civilian ground observers was needed. In the course of 1942 on the East Coast the state and regional civil directors were replaced by civilian state liaison officers without administrative responsibilities over the observers. The district civil directors, on the other hand, became area supervisors of the Ground Observer Corps in the chain of command between the chief observers and the filter area military authorities. Thus, the regional military ground observer authorities coordinated the military filter area units which supervised the activities of the posts. Civilian area supervisors were intermediaries, therefore, between the military and the chief observers of the posts within the filter area.[35]

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34. Link, p. 26.

35. Bliss, II, 119-120.

The same tendency prevailed on the West Coast. GOC staff sections were established in the IV Interceptor Command Headquarters with civilian district directors under them to supervise the posts. As in the East, state officials assumed liaison functions between the Army and civilian agencies like the OCD and the American Legion.[36]

Although the civilians continued throughout the war to be in charge of recruiting volunteers, in reality the effort was a joint one in which the military found it necessary to help as much as possible because of the continuing shortage of observers. The role of the military was mainly in participation in radio programs, lectures, meetings, and in newspaper campaigns.

The morale of the ground observers was a continuing problem. As the likelihood of attack decreased and as the role of the AWS was inadvertently downgraded by military officials in unguarded public statements, observer morale took a downward turn. Attempts on the part of the fighter commands to drum up enthusiasm through motion pictures, lectures, and other means were not always effective.[37]

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36. Ibid., p. 121.

37. Ibid., pp. 121-123; in March 1942 the designation "interceptor" was replaced in commands and subordinate tactical units by "fighter."

Many volunteers also had specific grievances concerning their duties which caused morale to dip. There were some who felt that paying their own telephone and transportation bills was unfair in view of their sacrifice of time and effort. It is true that very often local governments and groups installed and maintained the observation posts and funds were raised by group efforts, but the observers still had to pay their own incidental expenses. In June, 1942, the Army was given permission to reimburse civilian supervisors for such expenses. Perhaps the biggest morale factor among the observers was the fact that they had to use their own gasoline and tires to get back and forth, items which were extremely scarce and which required valuable ration tickets for purchase. Sometimes distances in rural areas involved as much as 30 miles of travel by observers to their posts. But demands upon the Army to replace gasoline and tires consumed in travel were unavailing because the Army had no authority over rationing.

In the East, as early as February 1942, regional civil directors in Boston, New York, and Philadelphia warned of a possible breakdown of the entire civilian volunteer system unless automobiles were supplied. According to one estimate, if government transportation were supplied, the number of volunteers affected in the East alone would be about

600,000. If special tire priorities were given to the volunteers, it was feared that many persons would enroll in the Ground Observer Corps just to obtain the valuable ration stamps. On the West Coast the IV Fighter Command wanted to replace gas and tires consumed by their observers, but the best they were able to obtain from higher authority was permission to hire automobiles to transport those workers who did not have commercial transportation available. It was able to do so, however, in only a small fraction of the cases involved.

An increasing number of posts began to close during 1942 as gasoline rationing made it difficult for volunteers to continue to work. The Office of Price Administration was appealed to, but with negative results. Local rationing boards, however, were more liberal, and members of the Ground Observer Corps were permitted to buy extra gasoline at their own expense. Thus, what might have been a very severe handicap to the Ground Observer Corps was alleviated through local action. Finally, at the end of December 1942, the Office of Price Administration did authorize an extra gas coupon in cases of military necessity for each observer on the East Coast. On the West Coast, volunteers were authorized extra gas if their chief observer approved.[38]

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38. Ibid., pp. 123-127; Link, pp. 22-24; History of the Fourth Air Force, op. cit., pp. 104-109.

Almost as important as gasoline and tires among the factors which made for morale was prestige. Efforts to acquire favorable publicity for the work of the volunteers were unremitting. In addition, recognition was forthcoming in the form of medals. More than 7,000 medals for observers with 500 hours of duty were distributed by the IV Fighter Command during 1942, and in the following year, service bars indicating 1,000 and 2,000 hours of service were added. A similar scheme was adopted on the East Coast in June 1943 with 500-hour medals and pins awarded, the latter to liaison officials and civilian supervisors. It was the consensus among observers that the insignia did much to improve their morale.[39]

Publicity was intensified during the many recruiting drives. The I and IV Fighter Commands published special magazines for their ground observers. In the East, in March 1942, a monthly magazine called "The Observation Post" began publication and was merged in June 1943 with "The Listening Post," a magazine for information and filter center volunteers, to form the monthly "Aircraft Warning Volunteer." In February 1942, along the West Coast, the magazine "Eyes Aloft" began publication. Radio programs for the benefit of ground observers were broadcast both in the Pacific and

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39. Bliss, II, 127-128.

Gulf Coast regions. In the West, the period from August 1 to 7, 1943, was proclaimed as Aircraft Warning Service Week by the governors of California, Oregon, and Washington.[40]

Because of the very cursory training which the observers had in the period before Pearl Harbor, Ground Observer Corps operations during wartime left much to be desired. The biggest problem concerned errors in reporting procedures. Efforts were made to standardize these, but they continued to be inadequate.

A standard technique employed whenever an observer detected a plane in flight was to call the telephone operator, say "Army Flash," and give the code name of his post. The operator connected him immediately with a plotter in the filter center. Information was reported in a prescribed manner and immediately plotted on the filter board. In addition to the reporting of planes in flight, it was noted very soon after operations began that the observers could report emergency-type situations involving aircraft, such as the dropping of parachutes. In consequence, a technique was devised whereby the observer called "Army Red Flash" to make his alternative information known to the operator. This secondary function of the observers on several occasions saved the lives of pilots and passengers in airplane crashes

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40. Ibid., pp. 128-130.

and made timely reports of fires.[41]

Normally, no mechanical equipment was furnished to the observers who had to furnish their own field glasses if they deemed it necessary. A mechanical position finder was invented by Charles Sadowsky, a civilian volunteer in the New York Information Center. This device was termed a success after military tests, but it required a telescope and the cost was high. Although 5,000 of them were ordered for the East Coast, they were not put into use before the fall of 1943, at which time the Aircraft Warning Service was put on a stand-by basis.[42]

The training of observers improved in the spring of 1942 when the I Fighter Command organized a number of contact squads. These were military personnel who were sent to the observer posts to conduct first-hand training of the observers. In November 1942 the IV Fighter Command initiated the use of "sector sergeants" who were permanently stationed in local communities to supervise the training of volunteers from a number of posts. The "sector sergeants," traveling in a government vehicle, sometimes visited as many as six posts a day, showing slides, films, answering questions, and generally helping to boost the morale of the civilian

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41. Ibid., pp. 130-134.

42. Ibid., pp. 134-135.

observers. During 1943, when the volunteers reacted to the diminishing priority of the air defense mission, the sergeants did yeoman service in helping to rebuild morale.[43]

During the war, as flying training gathered momentum, there was a great increase in air traffic in the Zone of the Interior, and the number of activity reports from the ground observers increased proportionately. This resulted in the congestion of telephone circuits, especially at the filter center terminals. To reduce the congestion a number of solutions was attempted. The most obvious was to restrict observer reports to aircraft which were manifestly hostile. This, of course, involved extensive training of the observers to distinguish friend from foe. Training the thousands of observers in aircraft recognition was a tremendous task, but it was initiated. In I Fighter Command, some enlisted men were sent to the Navy Recognition School at Ohio State University and were commissioned on completion of the course. On returning to duty with the 1st Fighter Wing, they established recognition courses at the Hotel McAlpin. headquarters of the New York Air Defense Wing in New York City. Civilian volunteers were sent there at government expense to take the courses, returning to their areas as instructors for their civilian colleagues in the Ground Observer

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43. Ibid., pp. 135-137.

Corps. By the fall of 1943, it was estimated that 45 per cent of the New York Air Defense Wing observers had completed local courses in aircraft recognition.

In July 1943, the I Fighter Command began to require the volunteers to report aircraft by type wherever possible. A similar program initiated subsequently in the IV Fighter Command did not reach its full momentum until October 1943, at which time the Ground Observer Corps was reduced to a stand-by alert status. Interestingly enough, the requirement to report aircraft by type was considered to be a definite stimulus to the morale of the observers, no doubt because of the additional challenge offered.[44]

When the volume of reports continued to increase, observers were instructed to withhold reports on certain of the most common types of airplanes. Small-scale withholding programs were introduced in a number of places during 1942 and 1943. For example, flights near airports were eliminated near Philadelphia and Washington. As the fighter commands gained confidence in the ability of the observers to recognize common types of aircraft, a number of very obviously friendly military planes were ruled non-reportable. Among these was the AT-6 trainer used by both the Army and the Navy. Though the effort resulted in fewer

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44. Ibid., pp. 137-141; History of the Fourth Air Force, op. cit., pp. 109-110.

communications, the ground observer section of the New York Air Defense Wing charged that withholding had the effect of confusing the observers and lowering their efficiency. Before much else was done on this subject, however, the observer posts were put on a stand-by status.[45]

In addition to the observer posts, civilians were also assigned to the filter and information centers. When the Japanese struck on December 7, 1491, operational information centers had been established at Boston, New York, Philadelphia, and Norfolk in the East, and at Seattle, Portland, San Francisco, and Los Angeles in the West. Operational filter centers had been set up at Harrisburg, Baltimore, Bellingham, Olympia, Port Angeles, Eugene, Roseburg, North San Francisco, Sacramento, Redding, Fresno, San Diego, and Bakersfield. Other information and filter centers were under construction or finished, but lacked personnel at the time of Pearl Harbor. On the Gulf Coast, centers were in the planning stage when America entered the war.

After December 7, 1941 the network of centers expanded. In the East, filter centers were set up in Portland and Bangor, Maine, reporting to the Boston Information Center. A filter center was established in Scranton to report to the New York Information Center and another in

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45. Bliss, II, 141-144; History of the Fourth Air Force, op. cit., 110-119.

Richmond reported to the Norfolk Information Center. New information centers were set up in Buffalo and Albany with filter centers in Pittsburgh and Syracuse, respectively. In August 1943, still another filter center began operating in New Haven. Farther south, an information center was set up in Wilmington, Delaware, with subordinate filter centers at Raleigh and Charlotte. An information center at Charleston, South Carolina, received reports from filter centers at Columbia and Savannah. All of the above were ready at the time of Pearl Harbor, but were not manned for immediate operations, though they became operational soon thereafter. Thus, by the summer of 1942, the information and filter center network was practically complete with the exception of the few that became operational later.[46]

At the time of Pearl Harbor, the Aircraft Warning Service included 12 regions along the Atlantic and Pacific coasts that could be put into operation on 24-hours notice: three in Florida which were in partial readiness, and four on the Gulf Coast which were in the planning stage. On February 17, 1942, the I Interceptor Command took over control of the AWS along the south Atlantic from the III Interceptor Command. At the same time, the IV Interceptor Command

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46. A thorough discussion of the establishment of information and filter centers during the war may be found in Bliss, II, 152-164.

became responsible for the active air defense of the entire Western shore. Thus the I and IV Interceptor Commands shared the air defense of the continental United States.

In charge of each region when the United States entered the war was a chief controller who was also the commanding officer of a pursuit group stationed within the region. This officer operated through a regional controller on duty within the information center. As it turned out, the chief controller was unable to devote sufficient time to this aspect of his responsibilities, and on May 21, 1942, a reorganization took place. Each region was made the responsibility of an air defense wing with a permanent commander and staff in charge of technical and administrative activities. Activation of eight air defense wings took place in August 1942. Defense wings on the East Coast were established in Boston, New York, Philadelphia, and Norfolk. On the West Coast, wings came into being in Seattle, San Diego, San Francisco, and Los Angeles. This was slightly modified on September 22 when the San Diego wing was attached to the Los Angeles wing and the Portland wing was attached to the Seattle wing. Because no fighter aircraft were assigned along the Gulf Coast, no air defense wings came into existence there. Instead, information centers

were established in the spring of 1942 at Mobile, New Orleans, Houston, and San Antonio, with subordinate filter centers.[47]

Civilian volunteers made up most of the operating personnel of both types of centers. Most were women, though males usually manned the boards during the night hours. Recruitment was more careful than in the case of the ground observers. Volunteers were interviewed and investigated before they were accepted for training. Entrances to the centers were guarded at all hours.

As in the case of the Ground Observer Corps, the civilians working in the filter and information centers represented a problem to the military where discipline was concerned. Attendance by the volunteers was irregular and the rate of turnover was high, requiring continuous training and recruiting. As the war progressed, it was more difficult to find recruits. The decrease in the possibility of air attack and the attraction of well-paying jobs in industry drained off many civilian volunteers. Sign-up drives were undertaken in department stores, recruiting centers, and women's clubs. In New York, a radio program went on the air for 15 minutes weekly to stimulate the recruitment effort. Such campaigns were not sufficiently successful to maintain the needed

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47. Ibid.

volunteer force needed to operate the New York Information Center. Although many signed up, as many resigned. Public relations officers of the fighter wings encouraged newspaper publicity featuring the work of the civilian volunteers. Newspapers were printed for the benefit of the volunteers. Like the ground observers, the filterers and plotters were issued wings and medals for the completion of a specific number of hours of service. The experiences of New York were duplicated in other wings.[48]

The work of the filter and information center operators was more specialized and required more training than that of the Ground Observer Corps personnel. Training in the centers was accomplished both by Signal Corps troops and civilian instructors who were themselves volunteers. Because of the large turnover, training was a continuous process.[49]

Perhaps the biggest blow to the morale of the civilian volunteers in the information and filter centers was the War Department decision in the summer of 1942 to introduce members of the Women's Army Auxiliary Corps (WAAC) into the

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48. Ibid., pp. 165-174.

49. Ibid., pp. 174-179.

centers to replace civilians as plotters and tellers.[50] They began to arrive at the centers in September 1942 and, by the end of November, were stationed in New York, Norfolk, Boston, Philadelphia, Portland, Albany, Harrisburg, Baltimore, Syracuse, Wilmington, Charleston, Jacksonville, and Miami. Although many had worked as civilian volunteers before their enlistment, there were also many who were inexperienced, and for them training under civilian volunteers was conducted at the centers. The assignment of the Women's Army Auxiliary Corps varied according to the station. In Miami and Charleston they worked the night shifts. In New York, in addition to working in the filter center, they worked tactical positions in the information center as well. In Bangor and Portland they replaced civilians entirely in the filter centers.

Although the air forces soon reported that the centers showed an increase in efficiency, neither the civilians nor the Women's Army Auxiliary Corps were pleased. The civilians resented being replaced and many resigned even before the latter arrived for duty. In their turn the Women's Army Auxiliary Corps disliked working under civilian supervisors and were disappointed at replacing volunteer workers

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50. Ibid., pp. 180-186; Mattie E. Treadwell, The Women's Army Corps ("United States Army in World War II", Washington: Office of the Chief of Military History, Department of the Army, 1954), pp. 78-82, 87, 129.

rather than male soldiers. The drop in the number of civilian volunteers caused by resignations resulted in severe shortages at the centers in spite of the presence of the uniformed ladies. To fill out the Women's Army Auxiliary Corps units where sufficient local women were not obtainable, WAAC's who had been recruited for general service were assigned to filter center work. Since these non-local recruits could not live at home, government quarters had to be provided for them. Because many of the centers were located in the poorer areas of large cities, leased accommodations turned out to be less than adequate, causing a deterioration in WAAC morale. Prominent women in several communities caused congressional pressure to be placed upon the air forces to withdraw the WAAC's. Eventually, the discontent had an effect upon the War Department, and on February 9, 1943 it was announced that WAAC's were to abstain from filtering, evaluating, and displaying of information in the Aircraft Warning Service.

On May 7, 1943, the War Department organized the civilian volunteers in the information and filter centers into the AAF Aircraft Warning Corps (AWC) with the intention of making them feel more closely a part of the Army and at the same time bringing about more standardization in the operation of information and filter centers. Regulations were published by the War Department in which the Corps was

to have the mission of assisting in the assembling, evaluating, and displaying of information concerning all planes in flight within certain areas. Its members, appointed and dismissed by the fighter commands or other air defense agencies, were to be at least 18 years old and citizens of the United States. Their loyalty to the United States was to be investigated prior to their appointment. They were to serve without pay for such number of hours a week as the fighter command might specify but they were to be reimbursed for the cost of public transportation to and from their work, and they were allowed 65¢ for each meal their duty schedule required them to buy near their post of duty. While at work they were to be subject to direction by their military and civilian supervisors. At the discretion of the commanding officer they might be required to make up time lost, but they were free to resign at any time.[51]

By early May 1943 most of the WAAC's had been withdrawn from the centers. Their withdrawal, however, caused a severe volunteer shortage and recruitment drives were accelerated.[52]

Because the volunteers in the information and filter centers lived in urban communities, the transportation

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51. History of the First Air Force, Volume III, Appendix E-14, cited in Bliss, II, 169.

52. Bliss, II, 183-186.

problem which plagued the ground observers in rural areas did not exist thanks to readily available commercial transportation. Gas and tires, therefore, were no problem, but coffee and food money were important considerations to some workers. Those affected registered complaints; remedies were effected in May 1943 when the Aircraft Warning Corps was created. The effect on morale was beneficial. Thus, in mid-1943, it appeared that most of the major problems concerning the morale of the civilian volunteers were well on the way to solution. As it turned out, however, the solution of the remaining problems was academic because the days of the wartime GOC and AWC were numbered.

Just at the height of efficiency in the civilian volunteer effort in air defense, when it appeared as if the remaining problems would be ironed out, the civilian network began to decrease quite noticeably.

At the beginning of the war, observer posts and filter centers were organized as far inland as Buffalo on the East Coast. Some of these centers never participated in any operations except for practice. In August 1942 a number of inland posts along the eastern seaboard were put on a standby status as it became obvious that the areas they served would not be subject to air attack. There was no guarantee, however, that in an emergency there would be enough volunteers to man the posts because of the diminishing interest

in air defense. In consequence, in March 1943, some posts in the Southeast that were inland but near a major industrial or population center, were returned to full-time operation.

As the war progressed, further reductions in the ground observer network were dictated by manpower shortages and increasing expenses of operation. On June 14, 1943 the War Department directed that all posts in the eastern area outside of the Eastern Air Defense Zone (EADZ) were to be inactivated. Posts south of Norfolk were to be eliminated except for a few key locations. In the operational areas, less efficient posts were to be dropped wherever possible. Closing of these posts caused no difficulties because sufficient time was allotted to explain the reasons for the inactivations.[53]

On September 20, 1943 the War Department ordered that all observation posts be manned only at intervals to maintain efficiency, leaving the details to the air defense commanders. Along the East Coast, the posts were ordered to cease reporting as of October 4, 1943, thereafter operating four hours every Wednesday afternoon. The news was broken to the civilian volunteers on September 30; insufficient time to drive home the reasons for the curtailment. In some

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53. Ibid., pp. 146-147.

cases information did not reach the observers until after they had read it in the newspapers, resulting in some ill feeling. Soon after, all volunteers received a letter from General Arnold thanking them for their service and explaining why the curtailment had been undertaken.[54]

Along the Gulf Coast, the posts had never operated on a regular 24-hour basis; those within 50 miles of the coast or border operating during the daylight hours and those farther inland operating for one three-hour period a month. On June 29, 1943, the War Department ordered all Gulf Coast posts to close except those within the 50-mile zone and even then they were to remain open not more than one day a week. This resulted in the inactivation of 2,300 interior posts, leaving about 700 in part-time operation.[55]

On the West Coast by September 15, 1943, the IV Fighter Command had closed 106 observation posts and 62 Forest Service posts, with plans for the inactivation of more. This was done on instructions from the War Department to eliminate duplication and post coverage and to close out tactically unnecessary posts.[56]

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54. Bliss, II, 147-149.

55. Ibid., pp. 149-150.

56. Ibid., p. 150.

On September 20, 1943, the War Department virtually ended the Ground Observer Corps by directing that it stop full-time operations and operate only at intervals. This time, sufficient care was taken to explain to the observers the reason for the movement and to provide them with copies of General Arnold's letter of appreciation before the curtailment of operations took place. Thus, from October 1943 to May 1944, the Ground Observer Corps operated only at intervals. Along the West Coast the posts were manned two or three times a month for drill. On the East Coast they were manned each Wednesday afternoon. On the Gulf Coast they operated for three three-hour periods weekly. The assumption was that all posts that had not been inactivated would go into operation on short notice if necessary.[57]

On May 29, 1944, the Ground Observer Corps and its filter center counterpart, the AWC, came to a complete rest. By that time it was obvious that the danger to the country from air attack was virtually non-existent. On May 16 Secretary of War Henry L. Stimson addressed a letter to all civilian volunteers announcing the impending closure and the reasons behind it.[58]

> The aircraft warning centers at which so many of you have served and to which so many others have

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57. Ibid., pp. 150-151.

58. Link, p. 46.

> reported as ground observers are to be closed. The Aircraft Warning Service on a reduced scale will be absorbed into installations used for the training of fighter pilots. The resulting savings in military personnel and equipment will be substantial.
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> This does not mean that the War Department is of the opinion that all danger of enemy bombing has passed. On the contrary, a small scale sneak raid is still within the capabilities of our enemies. We must win this war in Europe and Asia, however, and the calculated risk we are assuming in reducing our air defense measures is justified by the offensive power we will thereby release.

In the next month telephones were disconnected, the observers presented with terminal certificates, and the wartime story of the Ground Observer Corps came to an end.

CHAPTER IV

THE POSTWAR RESPITE, 1946-1950

For almost two years following the end of the Second World War, the national mood concerning foreign affairs was one of complacency. The official cordiality between the United States and Russia, the existence of the United Nations as a shock absorber for any unforeseen threat, and America's monopoly of atomic weapons were convincing arguments for regarding air defense as an academic matter. But the subject was not ignored by military planners.[1]

The tasks of the War Department at this time were many and pressing. Its major preoccupation was the liquidation of the wartime establishment while retaining forces required for continued active service. Equally important, it had to assess the potential threats of the near and distant future and prepare to counter them. So far as the AAF was concerned, its planners were distracted by the excellent prospect that it would soon be separated from the War Department. Their plans for the continental defense of the United States remained tenuous pending final decision as to whether antiaircraft artillery would be included in the new

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1. Richard F. McMullen, Air Defense and National Policy, 1946-1950, ADC Historical Study No. 22 (Colorado Springs: Hq. Air Defense Command, 1962). pp. 9-38.

Air Force and the type of threat to be defended against.

Although decisive action in air defense was delayed, the War Department set in motion two relevant efforts. Late in 1946, it established the War Department Civil Defense Board headed by Lieutenant General Harold R. Bull. The board invited prominent civilian and military leaders to express their views and, in February 1947, produced a document which soon became the official policy of the new Defense Department on the subject of civil defense.

The report approved the principle that civil defense should be administered by a separate civilian hierarchy but recommended that, pending the creation of a national civil defense agency, the Secretary of Defense should create an office responsible for overall civil defense planning. The report did not come to grips squarely with the troublesome question of organizing and administering ground observers. being content to state rather inconclusively that civilian volunteers engaged in active air defense were "a responsibility of the Armed Forces."[2]

The other major step was the creation of the Air Defense Command (ADC) on March 21, 1946 as a major command of the Army Air Forces (AAF).

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2. U.S., War Department, A Study of Civil Defense (Washington: U.S. Government Printing Office, 1947), pp. 3, 20-24.

Thus, by initiating discussion of civil defense at a high Pentagon level and by creating a military organization charged with planning for air defense, the War Department embarked on two courses of action which were destined within a few years to create an air defense-in-being and a national civil defense organization--both indispensable to the future of the ground observer system.

The experiences of the AAF overseas in the late war and, especially, the memory of the disaster at Pearl Harbor, left no doubt in the minds of AAF planners that air defense should remain one of their major concerns. It was this unanimity that resulted in the inclusion of the Air Defense Command, along with the Strategic and Tactical Air Commands, in the very first major commands to be activated in the new peacetime AAF.

ADC's new commander, Lieutenant General George E. Stratemeyer, received from AAF Headquarters a mission which left little doubt that it was the latter's intention to take charge of the entire national air defense effort. Stratemeyer was charged with organizing and administering "the integrated air defense system of the Continental United States" and "exercising direct control of all active measures and coordinating all passive means of air defense."[3] Active measures,

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3. Hq. AAF to ADC, "Interim Mission," March 12, 1947.

of course, included the ground observers. Passive measures encompassed all other measures required to minimize the effect of an enemy attack. The Air Defense Command viewed itself at the key agency in the national air defense effort.

In spite of ADC's impressive responsibilities, it was assigned only two fighter squadrons and not a single operational radar.[4] Though AAF's intentions were honorable, ADC found itself without the wherewithal to execute its mission. This inconsistency between responsibilities and resources was to continue for at least two more years, during which ADC was obliged to resign itself to a planning role.

The plans which were drawn up at Mitchel Air Force Base varied from elaborate programs for the total defense of the continental United States to modest proposals for "island" defenses of only the most vital target complexes in the country.[5] An unquestioned assumption in Air Defense Command's planning was that it had the responsibility "to determine the necessity for civilian participation in air defense and when so determined to take such steps as are necessary to insure civilian cooperation."[6]

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4. Ibid., p. 21.

5. Hq., ADC, "The Evolution of the Mission: A History of the Air Defense Command, March 1946-March 1947," (Mitchel Field: Hq., Air Defense Command, 1947. Typewritten), chap. i.

6. Address by Lt. Gen. George E. Stratemeyer to the Air War College, October 15, 1946.

At the end of World War II the AAF had to decide what kind of air defense system was required as well as when it would be needed.[7] Some planners took the view that a bold new approach was necessary: that air defense should concern itself chiefly with countering guided missiles and that radar should be utilized to that end. The opinion that prevailed, however, was that while more sophisticated equipment was desirable, that available had to be put to use.

Within USAF Headquarters the Assistant Chief of Staff for Operations, Major General Earle E. Partridge, took the position that an air defense in being was hardly worthwhile in view of sufficient resources capable only of providing a thin early warning screen of radars. As to organizing a civilian observer corps in the near future, General Partridge disapproved, because, in his opinion, it would give the public the belief that the Army Air Forces was anxious about an attack.[8]

Partridge's views did not represent the consensus within the Army Air Forces. Most of the key figures believed that Stratemeyer should have more than good wishes.

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7. C.G. Grant, Air Defense of the Continental United States to 1954, USAF Hist. Study No. 126 (Maxwell Air Force Base: USAF Historical Division, 1954), chap. i.

8. Memo., AD/S-3, AAF, to DC/AS, AAF, "Mission of the ADC," August 24, 1946, cited in Grant, op. cit., p. 6, n. 1.

The difficulty, however, was that there were important questions to be answered before the resources to be given him could be determined. For example, was the air defense mission properly the Army Air Forces's, or was it shared with the Army Ground Forces (AGF)? In the summer of 1946 a debate on this question took place between Generals Spaatz and Devers, commanding generals of the Army Air Forces and Army Ground Forces respectively.[9] The real stake in the debate was jurisdiction over antiaircraft artillery. Because of these and other issues, Stratemeyer's pleas for men and weapons were held in abeyance.

Though rebuffed, Stratemeyer was encouraged to continue planning, at the same time Army Air Forces Headquarters continued its own intramural discussions on the subject. General Partridge urged a policy of watchful waiting. Not only was an elaborate air defense system premature, he said, but existing radars were obsolete and would raise a public outcry against "a scandalous waste of public funds."[10] Major General O. P. Weyland, Army Air Forces's chief planner,

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9. "Evolution of the Mission," op. cit., pp. 11-14; R. C. Kelley, Army Antiaircraft in Air Defense, 1946-1954, ADC Historical Study No. 4 (Colorado Springs: Hq. ADC, 1954, Photo-Offset), pp. 1-10.

10. Memo., AAF AC/S A-3 to AAF AC/S A-4, "Proposed Air Defense Policy," March 13, 1947 (document 37 in Hq. Air Materiel Command, "Case History of the Aircraft Control and Warning System."); McMullen, ADC Historical Study No. 22, op. cit., pp. 22-24.

did not agree. Acknowledging that it was unlikely that an air defense system would be needed for another five years, Weyland urged that the time be put to good use in training for the day when an operational system would be needed.[11] Also in Army Air Forces Headquarters, Major General Gordon P. Saville, the country's wartime air defense expert, was busy drawing up his own ambitious blueprints for the future--plans for the utilization of Canadian resources, as well as those of the United States, in a common air defense system.

The creation of the Department of the Air Force seemed to release energies which General Stratemeyer had almost ceased to believe existed. For example, Thomas K. Finletter, chairman of President Truman's Air Policy Commission, told the New York Times that "in these times air defense assumes a special importance in the creation of national policy."[12] A few days later, James Forrestal, the new Secretary of Defense, publicly announced that planning for a nation-wide radar early warning system was underway.[13] Then, Senator Henry Cabot Lodge of Massachusetts told the

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11. Memo., AAF AC/S-5 to AAF AC/S-3, "Defense Policy," March 13, 1947 (contained in Air Materiel Command's "Case History" op. cit., as document 42); McMullen, ADC Hist. Study 22, op. cit., pp. 23-24.

12. New York Times, November 10, 1947, cited in McMullen, ADC Hist. Study 22, op. cit., p. 34.

13. Ibid., November 13, 1947, cited in McMullen, ADC Hist. Study 22, op. cit., p. 35.

Senate Foreign Relations Committee that the United States did not have, and should have, an organization equipped to deal with massive air attack.[14] The New York Times on December 3, 1947 editorialized on testimony given before the Finletter Commission. "Practically without exception," it said, "witnesses, military and civilian, have hammered with all the force at their command at the fact that the nation's security rests on adequate air defense."[15]

The plan announced by Secretary Forrestal had its origin with General Saville. Nicknamed SUPREMACY, it was introduced to Congress for the necessary appropriations early in 1948 but that body adjourned in June before hearings were held.[16]

Early in 1948, international tension mounted. On February 24, the Communists took over Czechoslovakia. On March 5, General Lucius Clay, U.S. commander in Berlin, wired his superiors that a hostile move on the part of the USSR was anticipated. Such events turned the thoughts of

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14. Ibid., November 14, 1947, cited in McMullen, ADC Hist. Study 22, op. cit., p. 35.

15. Ibid., December 3, 1947, cited in McMullen, ADC Hist. Study 22, op. cit., p. 35.

16. For an account of SUPREMACY, see History of ADC, January-June 1951, pp. 56-60, and document 18 therein, General Saville's Presentation to Secretary Forrestal, September 9, 1948; also Grant, op. cit., pp. 21-23.

the USAF sharply towards the condition of the nation's air defenses.[17]

They were virtually non-existent. Among likely enemy targets was the Atomic Energy Commission's plant at Hanford, Washington, easily vulnerable to the TU-4, Russia's copy of the U.S. B-29 bomber. On March 27, 1948, USAF ordered ADC to install radars in the vicinity of Hanford and to operate them around the clock. It also directed SAC to move a fighter group of P-51 aircraft there to share alert duties with an ADC squadron of P-61's.

The results were disheartening. The aircraft, lacking all-weather capability, were almost useless in the bad weather of the Seattle area. The Strategic Air Command aircrews were not trained in ground control interception techniques and their cooperation with the radar units was poor. The radar technicians were generally trainees who had not mastered the intricate art of directing an interceptor to a precise point in the air.[18] In spite of these problems, Air Defense Command was directed, on April 23, 1948, to extend

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17. Warner R. Schilling, Paul Y. Hammond, and Glenn H. Snyder, Strategy, Politics, and Defense Budgets (New York: Columbia, 1962), pp. 40-41, cited in ADC Historical Study No. 22, op. cit., p. 40.

18. Thomas A. Sturm, "Air Defense of Atomic Energy Installations, 1948-52;" ADC Historical Study No. 1 (Colorado Springs: 1953; Typewritten), pp. 1-9.

its operations to the populous Northeast and the Los Alamos area in New Mexico.

Although SUPREMACY had been ignored by the 80th Congress, planning continued. USAF decided that Congress might be more willing to support a more austere radar network than SUPREMACY. Saville prepared a new plan and presented it to the Secretary of Defense on September 9, 1948. It proposed only 61 radars, instead of the almost 300 in SUPREMACY. But this number, he warned, would provide a network that was only a token defense--only what was possible with minimum funds.[19]

Forrestal concurred with the new plan and, in October 1948, released enough money to start site surveys pending Congressional action. In a corollary action on December 1, USAF dissolved Air Defense Command and the Tactical Air Command as major commands and pooled their resources and missions under a new Continental Air Command (ConAC) commanded by General Stratemeyer.[20] The air defense for which Stratemeyer had been agitating for more than two years looked as if it might finally come to pass.

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19. ADC Historical Study No. 22, op. cit., pp. 44-45.

20. History of ADC, January-June 1951, chaps. iii and ix.

A House resolution authorizing the construction of the 61-radar network (later raised to 75) was introduced on February 9, 1949, but no funds were available until Congress passed an appropriation, and this was not done immediately. In the meantime, USAF scraped the bottom of its equipment barrel to deploy what radars it could. Appropriately enough, this deployment became known as the LASHUP system; the interim program under consideration by Congress was called the Permanent System.

LASHUP began in the Northeast in the Spring of 1949, with deployment of a score of radars. Its weaknesses as a token defense system were revealed during an exercise in June. Interception of "faker" bombers was poor and radar performance varied from excellent to useless.[21]

Civil defense had also come in for a share of attention in 1948. On March 27, 1948, Forrestal created the Office of Civil Defense Planning (OCDP), headed by Russell J. Hopley, President of Northwestern Bell Telephone Company. His mission was to prepare a program of civil defense including a plan for a permanent Federal agency. In defining "civil defense," Forrestal specifically excluded active defense measures such as "aircraft warning," that, like the Bull Board Report, he deemed to be a responsibility of the

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21. Ibid., chap. iv.

armed forces, even though they might utilize civilian volunteers. Nevertheless, he encouraged OCDP to consider them also in drawing up its civil defense program.[22]

This step was greeted with enthusiasm by ADC, but also with impatience. Stratemeyer reported to USAF on April 24 that "it is considered advisable to hurry along the organization of a civil defense agency."[23]

There was no civil defense hierarchy in existence with which to deal in planning for a realistic air defense system. In desperation, Stratemeyer proposed to take limited action with local authorities in key areas until the civil defense agency became operational.[24]

In Washington, in mid-May, Hopley asked for a conference with USAF to advise him on the role that ground observers might be expected to play. USAF deferred to ADC, which submitted a written statement of its views as follows:[25]

> The Air Defense Command encourages civil defense authorities to undertake organizing spotters and

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22. James Forrestal, Memo. for Director, OCDP, "Office of Civil Defense Planning," March 27, 1948, in U.S., Office of Civil Defense Planning, Civil Defense for National Security (Washington: U.S. Government Printing Office, 1948), pp. 291-93.

23. Stratemeyer to USAF, "Air Defense of the United States," April 24, 1948.

24. Ibid.

25. Report of Air Defense Conference, May 19, 1948.

> ground observers as a civil defense activity, particularly in areas where adequate military coverage is not installed. However, Air Defense Command does not desire at this time to be required to receive reports from or classify the reliability of information reported by these civilian spotters and observers. Future study may develop a need for tying these activities into air defense control centers.

Stratemeyer was consistent in expressing his desire for a ground observer system, but he was not anxious for it to begin operations immediately in view of the fact that his command was still engaged in deploying LASHUP radars, training personnel to handle them, and systematizing air defense procedures. ADC's views became the official USAF position as expressed in a memorandum by Cornelius V. Whitney, Assistant Secretary of the Air Force.[26] The OCDP was at the same time given carte blanche to organize a ground observer system by independent action. Thus, USAF was on record as advocating a civil defense organization with administrative responsibility for recruiting and organizing a ground observer corps.

The Hopley Report was issued on October 1, 1948.[27] Like the Bull Board Report of the previous year it proposed

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26. C. V. Whitney, Memo. for Director of Civil Defense Planning, "Relationship and Responsibilities of Civil Defense and Air Defense," June 21, 1948.

27. Office of Civil Defense Planning, Civil Defense for National Security (Washington: U.S. Government Printing Office, 1948).

a Federal office of civil defense. Taking a cue from Whitney's policy statement, it assumed that civilian observation posts were to supplement USAF's air defense operations and that they were the responsibility of the civil defense organization, which was to develop plans for selecting and training the observers and was to organize and administer the corps "with the assistance of the United States Air Force."[28]

Organization of the observer posts and the recruiting of volunteers, according to the report, was to be performed on the state level by the state directors of civil defense. The posts were to be established and maintained on a stand-by basis with a required number of volunteers fully organized and trained, ready for immediate activation in the event of an emergency. Planning of the posts was to be coordinated between USAF and the civil defense office. Establishing and organizing the posts, administering the activity, and supervising the observers were to be the responsibility of the civil defense agency; while collection and evaluation of information were to be the responsibilities of the Air Force. Specific locations of the posts was to be the responsibility of the air defense commander.[29]

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28. Ibid., p. 21.

29. Ibid., passim.

The appearance of the Hopley report did not end civil defense planning. In May 1949, its work done, the OCDP was abolished, and in its place, on August 1, there was set up an Office of Civil Defense Liaison (OCDL), with a greatly reduced staff. In March 1949, responsibility for civil defense planning was assigned by the President to the National Security Resources Board (NSRB). That body, making full use of the Hopley report, published its own document in 1950.[30] It recommended a civil defense law, the establishment of a civil defense administration, and the appointment of an administrator. The basic philosophy underlying the report was that[31]

> The Federal Government cannot and should not operate the State and local civil defense systems with Federal employees. The States are established with inherent powers and accompanying responsibility, and have clear qualifications to coordinate civil defense operations within their boundaries, and in emergency to direct them. Similarly, the cities, counties, and towns are best qualified to handle their own operating functions.

The responsibility of the Federal Government was restricted in civil defense matters to the preparation of a national plan with an accompanying policy and the issuance of information about both. In all matters of civil defense,

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30. National Security Resources Board, United States Civil Defense (Washington: U.S. Government Printing Office, 1950).

31. Ibid., p. 5.

the Federal Government was to deal directly with the States through the governor or the civil defense directors, if so delegated. There was no question that, in the opinion of the NSRB, the States were the key operating units. They were the "field armies of civil defense" and the counties or cities were the "divisions."[32]

The report recognized the impending creation of a ground observer corps, but fitting it into its philosophy of civil defense organization was no easy task. Under the title "Civilian Auxiliaries to Military Activities", the report specified that civil defense officials of state and local governments were to be responsible for the recruiting, organizing, and administration of civilian auxiliaries to military activities. The requirements for these groups were to be established by the armed service requiring the assistance, and it was to be responsible for directing operations. A typical civilian auxiliary organization was specified as "the aircraft observer system which operates (sic) under the direction of the Continental Air Defense Command of the Department of the Air Force."[33]

The justification for the assignment of responsibility for recruiting, organizing, and administering the civilian

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32. Ibid., p. 5.

33. Ibid., p. 100.

auxiliaries to the state was based on the assumption that[34]

> The developments and characteristics of war produce many operational functions and tasks which, if performed by the uniformed military services, would quickly exhaust the manpower supply. Many of these functions can be performed by using a reasonable portion of the spare-time hours of civilians primarily engaged in other activities. The careful use of part-time civilian help in this manner can achieve the manning of many essential activities without depleting the general manpower pool of the Nation.

As the air defense system painfully emerged, an urgent need developed for a demonstration of the willingness of civilian volunteers to participate in it. The opportunity arose in September, 1949, when the Continental Air Defense Command scheduled a test of its new LASHUP defenses in the Northeast. Ten states were involved, in whole or in part, in the exercise, including Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, and Delaware. Representatives of these states met in Washington with Lieutenant Colonel Barnet W. Beers, Chief of the Office of Civil Defense Liaison, on May 3, 1949, to plan the organization of a temporary observer net in conjunction with the exercise. The states were asked to furnish OCDL with names of persons who were willing to organize Ground Observer Corps posts in areas designated by ConAC. After these "supervisors" were

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34. Ibid.

designated, ConAC was to issue instructions to them, receive a description of the chosen locations, and determine whether the posts were properly located. State civil defense officials were advised to use the services of any state agencies that they deemed useful in the recruiting process.[35]

At a follow-up conference on June 15, 1949, the question of using veteran ground observers from World War II was discussed, but some of the conferees complained that rosters were not readily available, most of them having been sent to the USAF Archives in Kansas City. Some states did obtain "alumni" from the wartime Ground Observer Corps to serve in the forthcoming exercise. For example, Connecticut obtained the services of 275 people out of approximately 400 solicited. On the other hand, in Maine, only one in ten who had served during World War II volunteered.

The exercise in the Northeast, nicknamed Operation LOOKOUT, was held from September 10 to 16, 1949, with a test of the observer system as a major objective. The GOC operated four hours a day for the first five days and 12 hours a day for the last two days of the exercise. Routes were flown by military aircraft in such a manner as to give observers as much opportunity as possible to call in reports to their

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35. Office of Civil Defense Planning, "Minutes of Conference," May 3, 1949.

filter centers. Initially 1,208 posts were required for complete coverage, based on 32 square miles per post. The volunteers were recruited by temporary civil defense state agencies, though no two states utilized the same recruiting system. Temporary filter centers were constructed in Manchester, New Hampshire; New Haven, Connecticut; Providence, Rhode Island; Trenton, New Jersey; and White Plains, New York. Their personnel were recruited also through local civil defense agencies with a total of 720 enrolled. Of the observation posts required, 566 or 56.8 per cent were actually organized. Commercial lines were used to transmit flash reports to the filter centers and from them to the ground control intercept stations. There were 29,473 flash calls made with an average elapsed time of 116.5 seconds from observation to plot.[36]

Continental Air Command was generally satisfied with the way the ground observer information was handled. However, density of the posts was too great. They were only 5.6 miles apart. Experience indicated that a separation of 7.9 miles was desirable. The performance of the observers was expected to improve with more training. It

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36. Hq. 26th Air Division, "Final Report and Overall Evaluation for LOOKOUT," September 19, 1949; also, AF Technical Report No. 6032, Dunlap and Associates, A Survey and Analysis of the Ground Observer Net: A Human Engineering Study (New York: 1950).

was the consensus among those who participated in LOOKOUT that the work of the state agencies in recruiting and organizing the Ground Observer Corps would have been more effective had there been a civil defense organization in existence prior to the exercise.

Soon after LOOKOUT, ConAC proposed the establishment of a permanent Ground Observer Corps consisting of 8,000 observation posts and 26 filter centers throughout the country. Both of its subordinate headquarters were directed to begin planning immediately for their respective areas. On November 21, 1949, ConAC submitted to USAF a requirement to establish five ground observer squadrons, one at each of the headquarters of its five subordinate air divisions: Silver Lake, Washington; Hamilton AFB, California; Selfridge AFB, Michigan; Stewart AFB, New York; and Mitchel AFB, New York. Each squadron was to have subordinate detachments located at the 25 filter center locations. The squadrons were to be composed entirely of Air Force Reserve officers, a total of 160 men. The officers were to serve as cadres at each of the filter centers to supervise and train the volunteers. Filter centers were designated at Portland, Seattle, and Spokane in the Northwest; Santa Ana, Hollywood, and Oakland (two centers) in California; Chicago, South Bend, Grand Rapids, Minneapolis, Canton, Columbus, and Green Bay in the Middle West; Baltimore,

Trenton, White Plains, Harrisburg, Pittsburgh, and Richmond in the New York-Washington area; and New Haven, Bangor, Manchester, Albany, Syracuse, and Buffalo in the Northeast.[37] Without any official directives, only verbal encouragement from USAF Headquarters, Air Defense Command had launched plans for a ground observer network.

The Western Air Defense Force was the first in the field with a ground observer plan of its own, dated November 25, 1949.[38] Two separate island defense systems were to be established in the West: one in the Washington-Oregon area based at Silver Lake, Washington, and the other in California with Hamilton AFB as its hub. Both complexes were to contain a total of 2,000 ground observation posts reporting to seven filter centers. Posts located in sparsely populated areas were to be manned by the federal and state forestry services and the U.S. Coast Guard. Reserve officers with mobilization assignments were to handle the filter centers. Posts and centers were to be manned only during test exercises; at other times they remained on stand-by status.

WADF was to submit a list of locations by county

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37. ConAC to USAF, "Organization for Ground Observer Systems," November 21, 1949.

38. WADF to ConAC, "Ground Observer Systems Plan," November 25, 1949.

and community where it desired posts and centers. It was to send this to the Assistant for Civil Defense Liaison in Washington. From that point, recruiting was to be the job of the state civil defense agents, guided by the Assistant for Civil Defense Liaison. The states were to nominate supervisors for the posts and centers, whereupon Western Air Defense Force Headquarters was to give them detailed instructions. After the system was completely organized, it was to be turned over to the air divisions under Western Air Defense Force Headquarters for operation. Training was to be performed by the supervisors and it was hoped that five hours of instruction would give them the necessary proficiency. Filter center operators, however, were to receive as much as 25 hours of training, directed by an officer and two airmen assigned permanently to each filter center.[39]

Eastern Air Defense Force submitted its plan on December 23, 1949. It was identical to the Western Air Defense Force plan except in the number and deployment of its facilities. About 6,500 observer posts were to be organized, reporting to 19 filter centers.[40]

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39. Ibid.

40. EADF to ConAC, "Ground Observer Corps Plan," December 23, 1949.

On December 15, 1949, ConAC formally asked Headquarters USAF to initiate action and furnish funds to implement the ground observer system, asking that it be given official status as an auxiliary to the USAF. In turn, ConAC offered to organize, install, and test the system within five months from receipt of the necessary funds and directives.[41]

A USAF directive, dated February 3, 1950, gave to ConAC the authority to provide the facilities and supervision necessary to form the Ground Observer Corps. USAF admonished ConAC that recruiting was to be on a cooperative basis between the proper civil authorities of the states and ConAC and that all actions were to be coordinated with the Assistant for Civil Defense Liaison in the Office of the Secretary of Defense. By that date USAF had already requested legislation to establish the Ground Observer Corps as a permanent part of the air defense of the United States. ConAC was directed to furnish a detailed plan to be used in obtaining the legislation and to provide funds for a modest beginning.[42] The die appeared to be cast. On February 27, ConAC's plan was dispatched to USAF with July 1, 1950 as a target date for implementation. The postwar Ground Observer Corps was on its way to realization.

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41. ConAC to USAF, "Implementation of Ground Observer Corps--Aircraft Warning Service," December 15, 1949.

42. 1st Ind., USAF to ConAC, February 3, 1950, to ConAC to USAF, "Implementation of Ground Observer Corps--Aircraft Warning System," December 15, 1949.

CHAPTER V

FOUNDING THE POSTWAR GROUND OBSERVER CORPS

The most conspicuous deficiency in implementing the ground observer system was the absence of a national civil defense agency to direct the recruitment effort in the states. In its absence, a tiny group of officers under Lieutenant Colonel Barnet W. Beers--the Office of Civil Defense Liaison (OCDL)--represented the Department of Defense in its dealings with the states. The first item on the agenda of OCDL in 1950 was to tell the governors of the 48 states what could be expected of them. Ten of the states had the benefit of recent experience in LOOKOUT and some had established budding civil defense agencies, but states in the West and Great Lakes area had to be persuaded to create civil defense organizations from scratch.

In early 1950 the Cold War was in full blast. The Berlin blockade had recently been lifted and the Korean war lay just ahead. The nation was becoming accustomed to the prospect of intensified crises yet to come. So, when the OCDL invited those states in which ground observer systems were to be organized to attend or send their representatives to a conference to be held during January 19-20 at the Pentagon, the states prepared to face what could become a major effort on their part.

The conference was devoted to the problems arising from the absence of a civil defense law, the indifferently organized state civil defense activities, and the uncertainties inherent in the relationship of the civilian volunteers to the military.[1] It was understandable that there be some confusion in view of the incongruity of the Ground Observer Corps being recruited and administered by the states but used by the Air Force in active operations. It was inevitable also that the most embarrassing question of all be asked: What if a state did not care to participate? Beers could give no answer under the circumstances. The conferees agreed that upon their return to their states they would begin action immediately to carry out their part of the effort so that the goal of May 1, 1950 for the beginning of Ground Observer Corps operations could be met. This expectation was too optimistic.

President Truman recognized the existing incongruity of the Defense Department making demands upon the states, on March 3, 1950, when he vested primary responsibility for civil defense planning in the National Security Resources Board, headed by Senator W. Stuart Symington. The NSRB was directed to produce a plan for the creation of a Federal civil defense administration. But, until that agency

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1. "Minutes of the OCDL Representatives Conference," January 19, 1950.

appeared, the OCDL remained as the only point of contact between USAF and the states.

On the military side, too, ranks were closing. On April 24, 1950, the Secretary of Defense assigned to the Armed Services specific responsibility for planning and preparation of civil defense programs. The USAF was given the job of "planning and operation of an aircraft observer system involving the use of civilian volunteers as an augmentation of the radar screen."[2] In its turn, on June 1, USAF delegated this mission to ConAC.[3]

On July 14, 1950, ConAC directed its two chief operational field headquarters, Eastern Air Defense Force and Western Air Defense Force, to establish civil defense staff sections to discharge the observer function. It defined its own responsibilities as the "coordination of national recruiting and organizing of ground observers with Federal and state agencies." Eastern Air Defense Force and Western Air Defense Force were to implement standard Ground Observer Corps training and operations procedures, and coordinate on coverage and filter center facilities with ConAC. The latter was to recommend policies and procedures for the

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2. DAF to ConAC, "Responsibility for Planning and Preparation of Certain Civil Defense and Allied Programs Within the Department of Defense," June 1, 1950 (document 204 in History of ADC, January-June 1951).

3. Ibid.

standardization of communications and other equipment and assume responsibility for coordination with the Royal Canadian Air Force ground observer program.[4] Though these authorizations were, in a sense, anticlimactic, in view of the fact that USAF Headquarters had already given ConAC the authority on February 3, 1950, to provide the facilities and supervision necessary for the formation of a ground observer corps, the effort was now endowed with the necessary official DOD credentials.

Late in 1949 it will be recalled, ConAC had asked its two air defense forces to prepare plans for the implementation of a Ground Observer Corps. The combined plans called for the establishment of about 8,000 observation posts and 26 filter centers. The posts were to be distributed in those areas of the East and West Coasts and Great Lakes regions where installation of LASHUP was taking place. Completion of the Ground Observer Corps program had been set for July 1, 1950, but since it proved impossible to meet this deadline, it was delayed until November, 1950. Causes for the failure to implement the program on time included difficulty in recruiting observers; problems associated with the acquisition of filter centers; and difficulties in

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4. ConAC to EADF and WADF, "Civil Air Defense Responsibilities and Organization," July 14, 1950 (document 205 in History of ADC, January-June 1951).

locating and establishing the ground observer posts.

Perhaps the most persistent problem encountered in this implementation effort was the apathetic attitude of the American people. In spite of an intensive publicity program, only 402 of the approximately 8,000 observation posts, or slightly less than five per cent, were manned by July 1.[5]

The outbreak of hostilities in Korea in late June did much to bring about a change. Though interest was heightened, the fortunes of war created peaks and valleys in the public mood with respect to the Ground Observer Corps. Western Air Defense Force Headquarters observed that "whenever the situation in Korea improved, the interest of the public at home in serving with the Ground Observer Corps declined in proportion."[6] In the final analysis, Korea did inject a note of realism into the publicity campaign in the last six months of 1950 with encouraging results. By the end of the year, 61 per cent of the posts in the Eastern Air Defense Force area and 52 per cent in the Western Air Defense Force area were completely manned.[7]

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5. ConAC to CG AAF, "Increased Emphasis, Organization of Ground Observer Corps," July 21, 1950, (document 209 in History of ADC, January-June 1951).

6. History of Western Air Defense Force, July-December 1950, p. 145.

7. History of ADC, January-June 1951, p. 266.

The struggle against public apathy was closely related to the problem of stimulating interest among the responsible state civil defense officials. In order to bring pressure to bear on the states, ConAC had no recourse but to take its complaints to the Office of Civil Defense Liaison which was equally lacking in authority to direct the state agencies.

Difficulties were also encountered in manning the filter centers. Generally it was easier to secure civilian volunteers to man the centers than to man the posts. Each center required some 500 volunteers for around-the-clock operation. Additional personnel had to be drawn from the Air Force. It had been realized for some time that even the most loyal and willing civilians could not carry on their duties efficiently without adequate professional supervision. At first, volunteer air reserve officers were asked to serve in Air Reserve units, but the experiment was unsuccessful. In the summer of 1950, ConAC applied for and received approval to activate the Reserve units as Ground Observer Squadrons in the regular USAF.

That delay also affected the filter centers. Until a responsible officer was assigned, there was no one authorized to take custody of about $2,000 of Air Force property allocated to each center. Not until in July did ConAC

allocate one regular officer and two airmen for each filter center.[8]

Another difficulty facing ConAC was the proper siting of the observer posts. Normally posts were separated by eight miles. Local factors, however, frequently required greater or lesser distances. In sparsely populated areas it was difficult to find volunteers, and telephone facilities sometimes were non-existent. For this reason it was necessary to abandon some of the arbitrarily locations. Western Air Defense Force was obliged to reduce the number of observation posts in its area from 2,000 to a little more than 1,600.[9]

Fortunately, in some areas, the state and Federal forest services provided needed facilities. These agencies had been satisfactorily employed in World War II. By the end of July 1950, ConAC secured authority from the Department of Agriculture for the use of U.S. Forest Service installations and the Air Defense Forces had been authorized to contact the appropriate regional officials for their use. Another windfall in the search for sites was the facilities of the Coast Guard. Since these stations were manned

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8. History of ADC, January-June 1951, p. 271

9. Ibid.

continuously, their integration was considered desirable in sparsely populated areas.[10]

The Korean War introduced an element of urgency in ConAC operations. Though the GOC was in its infancy, there was a possibility that it might see active duty if the international situation worsened. Consequently, during the latter part of 1950, a procedure was evolved for alerting the observer network in the event of imminent hostilities.

Published on January 4, 1951, the procedure was as follows: The Ground Observer Corps was to be alerted on the official declaration of hostilities or by authority of Headquarters ConAC. Notification of an alert was to be sent to a key person in each filter center by the air divisions on receipt of instructions from the Air Defense Force headquarters. Alerted by the key person, the officers in charge were then to alert the supervisor and initial crew and notify the telephone company to prepare for handling calls to the observation posts. The telephone company was to be provided with a sequence list of the numbers of all the observation posts. Approximately 30 calls per page were to be prepared with each page numbered so that one operator at the telephone company would be able to work with one operator at the filter center, each using the same list.

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10. ConAC to EADF and WADF, "Utilization of U.S. Forest Service Installations in Air Defense," July 31, 1950.

Under this system it was anticipated that all the posts in the filter center area could be notified within an hour. On the basis that 30 calls could be made in that time, each filter center was to have sufficient personnel at the filter center telephones to complete the calls. Thus, if a filter center had 180 posts to alert, it would need a minimum of six operators.[11]

Canadian-American cooperation in air defense matters received much attention during 1950 and 1951. The groundwork had been laid during World War II.[12] The vulnerability of certain U.S. areas to attack by a force that overflew Canada made it vital that Canada's air defenses, including a potential ground observer network, be linked to those of the United States. Without this warning, cities like Detroit, Toledo, Cleveland, Erie, Buffalo, and Rochester would be exposed to attack by low-altitude bombers. The Northwest required similar augmentation north of the border.

In mid-1949, when informal discussions began, an RCAF officer was assigned to observe operations in Operation

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11. History of WADF, January-June 1951, pp. 166-167.

12. Stanley W. Dziuban, Military Relations Between the United States and Canada, 1939-1945 ("United States Army in World War II"; Washington: Office of the Chief of Military History, Department of the Army, 1959).

LOOKOUT. In mid-December of that year, ConAC received authority to communicate directly with Canada's Air Defence Command.

Until the outbreak of hostilities in Korea, little was done to implement plans for linking the two systems. In August 1950, ConAC requested that the RCAF furnish Canada's radio communication stations with a standard operating procedure for reporting all relevant aircraft sitings. Arrangements were made with personnel of the Hudson Bay Company, weather stations, the Royal Canadian Mounted Police, the Canadian Armed Forces, and the Canadian Department of Transport to report the movement of aircraft. Since most, if not all, of these reports would concern friendly aircraft and since it was assumed that only four-engine aircraft would be employed by the Soviets, only such aircraft were to be reported to the American authorities.

As it developed, the civilian ground observer program in Canada differed from its American counterpart in certain important respects. The northern reaches of Canada were very sparsely populated and could not support the same widespread system which existed in the United States. There were, however, relatively dense areas bordering the United States in which a Ground Observer Corps along United States lines was feasible. Because of these considerations the Canadian civilian volunteer effort underwent two parallel

courses. Eventually, the Air Warning Service (Long Range) and the Canadian Ground Observer Corps were constituted to provide for the area north of the 55th parallel and south of it, respectively.

The Air Warning Service (Long Range) went into operation in October 1950. Besides the armed services, the Department of Transport, the Hudson Bay Company, and the Royal Canadian Mounted Police, private mining interests and other outposts also provided reporting points. At the end of 1951 action was taken by the RCAF to integrate this system into the Canadian Ground Observer Corps. A special plotting board was to be set up in each of the northernmost filter centers of the Canadian Ground Observer Corps to receive and to evaluate reports from the Long-Range reporting stations and to forward the information to associated Canadian stations and, subsequently, to the radar network in the United States. Actual implementation of this plan was to occur as soon as the Ground Observer Corps filter centers in Canada were established and the target date for the completion of the integrated system was set for April 1952.

The other civilian early warning system in Canada was the Ground Observer Corps proper. Its area of operation was to be in those regions to the south were population was sufficient to support observer activities. The

Canadian Ground Observer Corps, like its U.S. counterpart, consisted of a network of observer posts and filter centers employing telephones as the primary means of communications. For the most part, reporting techniques and filtering procedures were the same in both systems. To harmonize the two systems, a quota of three officers per class at the newly-created Filter Center Officers Course at Tyndall AFB, Florida, was allocated to the RCAF.

By early 1952, the Canadian Ground Observer Corps was still largely in the planning state and, because of fund shortages, little implementation was expected until the spring of that year. Plans called for 24 filter centers covering 26 designated areas, with two officers and four airmen to be assigned to each center. In addition, one or more staff coordinators were to be assigned to each province to expedite the task of organizing the Ground Observer Corps. Plans were also made to engineer cross-border overlap circuits between filter centers in Canada and in the United States.[13]

The long-awaited United States civil defense agency finally came into being in December 1950. Without waiting for Congressional action, the President on December 1, 1950 created the Federal Civil Defense Administration (FCDA) by

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13. History of ADC, January-June 1951, pp. 274-277.

executive order. This was confirmed on January 12, 1951 by Public Law 920 of the 81st Congress. In a declaration of policy which accompanied the law, Congress declared its intent that the responsibility for civil defense be vested "primarily in the several States and their political subdivisions," with the Federal Government providing "necessary coordination and guidance."[14] But no mention was made of ground observer activity.

The absence of clear-cut Congressional definition of the role of the ground observers in civil defense inevitably resulted in semantical confusion. Many state civil defense officials were inclined to believe that the civilians of the Ground Observer Corps should not be considered civil defense personnel since it was assumed that the Ground Observer Corps was an auxiliary of the Air Force. It was Air Defense Command's contention that, not being Federally constituted, the Ground Observer Corps was not an auxiliary of the Air Force. This interpretation had the virtue of leaving the selection and administration of the civilians to the Federal and state civil defense agencies with USAF responsible only for training and operations.

Practically, the Air Defense Command interpretation

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14. U.S., Congress, House, To Authorize a Federal Civil Defense Program, 81st Cong., 2d Sess., 1950, Public Law 920, p. 1.

worked well. Administration remained in the hands of the civil authorities and the affairs of the Ground Observer Corps progressed satisfactorily. Accordingly, in April 1951, Air Defense Command recommended that its interpretation be sanctioned by both the civil defense authorities and USAF Headquarters. But the latter preferred to let sleeping dogs lie, stating that "the ground observer corps must be considered as a voluntary Air Force auxiliary which is neither a constituted Air Force auxiliary nor an integral part of the civil defense organization."[15] Though the NSRB had suggested that the Ground Observer Corps become an auxiliary to the Air Force, neither Congress nor USAF was willing to confirm it officially.[16]

On January 1, 1951, the Air Defense Command had been reactivated with headquarters at Ent Air Force Base in Colorado Springs, Colorado. The air defense mission was relinquished by ConAC and both TAC and ADC were restored to their former status as major air commands.

The legacy of ConAC to the revived Air Defense Command included a blueprint for enlarging the Ground Observer Corps. The plan had been submitted to USAF Headquarters for

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15. WADF to ADC, "Ground Observer Corps as Civilian Auxiliary to Military Activities," April 6, 1951 and three indorsements.

16. National Security Resources Board, op. cit., p. 100.

approval in November 1950. It consisted of two parts: Phase I called for expansion to 25 states and Phase II further extended it in those states as well as to 11 more, or 36 in all. Air Defense Command made a number of changes in the plan and resubmitted it to USAF. By the end of March 1951, it had been approved by the Secretary of Defense.[17]

The 11 new states in Phase II were in the southeastern and north central areas of the United States. A total of 11,400 observation posts and 24 filter centers were to be established in addition to those in existence in Phase I, with a completion date of July 1, 1951. By that time it was expected that 500,000 civilian volunteers would be enrolled in 19,400 ground observer posts and 50 filter centers.[18]

The new plan contained some important innovations for military personnel in the filter centers. The assignment of one officer and two airmen to each filter center during 1950 had not completely filled the need for military personnel. The new plan authorized five officers and ten airmen for each center. In addition, three officers and four airmen were to establish a squadron for the purpose of training and administering the regular Air Force personnel

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17. History of the Air Defense Command, January-June 1951, p. 277, n. 37.

18. ADC, "Ground Observer Corps Plan," January 18, 1951.

assigned to the filter center detachments in the area of each air division. Another innovation called for the appointment of liaison officers to each state where the Ground Observer Corps was organized.

Accordingly, nine ground observer squadrons were activated: four in the eastern area, four in the western area, and one in a newly activated Central Air Defense Force area. Military personnel for the squadrons came from the Air Force Reserve units.

It was also necessary to requisition by separate action the officers to serve in each state for liaison. These were redesignated Ground Observer Corps Coordinators, with one being assigned to each state to encourage the organization of the Ground Observer Corps there as well as to maintain continuous contact with the appropriate air defense force headquarters. Acting in an advisory capacity only, the officer was to assist with the organization and selection of the observation posts and to help clarify Air Force policies in all matters relating to civil defense.[19] In actual practice the coordinators ended up performing the functions of the directors of civil defense in those states where the Ground Observer Corps program was receiving little impetus from the civil authorities.[20]

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19. Ibid.

20. History of EADF, January-June 1951, p. 153.

The first test of the Ground Observer Corps since World War II (other than the experimental Operation LOOKOUT in 1949) was held during September 1950 in the Western Air Defense Force area. Only the Oakland and Pasadena filter center areas were tested because the organization of the system in those areas was more nearly complete than elsewhere. As expected, the exercise indicated a need for further training and improvements in operating procedures and techniques in the filter centers. Inexperience was the chief drawback of the observers. They frequently failed to identify their posts, to stick to the compass directions on the orientation charts, to write down the reports before calling, to deliver the entire message before stopping for acknowledgment, and to follow other directions. The performance of the filter center personnel also reflected their inexperience and uncertainty. The test report recommended intensive training, with military personnel making field visits to the posts to aid, advise, and further train the observers.[21]

Eastern Air Defense Force held its first exercise on November 4-5, 1950. A chief motivation was the belief that the test would stimulate those who had already volunteered and interest others in enrolling. There was cause to stress

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21. History of WADF, July-December 1950, p. 147.

this objective. Recruitment of filter center operators had provided only 25 per cent of the number required. In some cases, local authorities had not appointed center supervisors, the key men in the recruiting program. In November, the posts had less than 14 per cent of their required observers.

The exercise revealed a serious lag in recruitment; many of the posts were not manned and because the observers were not sufficiently trained, few continuous tracks were established. It also indicated that the plotting tables at certain filter centers were too small and that the plotting cards and their holders were unsatisfactory. In some cases it took so long for calls to get through that the plots were of no value when they were displayed. Eastern Air Defense Force's expectation that the test would stimulate enrollment was justified. Much local interest was aroused and the percentage of recruits more than doubled as a result. Time magazine was of some help by giving the test news coverage.[22]

The first national exercise of the Ground Observer Corps was held from June 22-24, 1951 and involved about 210,000 volunteers manning some 8,000 observation posts and

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22. History of EADF, January-June 1950, pp. 118-124 and documents 173-183 therein; EADF to ConAC, "Organizational Failures of the Ground Observer Corps," September 22, 1950, and 1st Indorsement, September 29, 1950, ConAC to EADF: Time, October 2, 1950, p. 12.

26 filter centers. It was the largest test of its kind since World War II and the first joint maneuver of the combined air defense forces. It also provided the first night training for ground observers since Operation LOOKOUT two years earlier.[23] Results of former tests were confirmed.

In March 1951 a third air defense force was established in mid-America, including the southeastern states. Headquarters of the new Central Air Defense Force (CADF) was at Richards-Gebaur AFB near Kansas City, Missouri. Organizing the Corps in these states largely duplicated the experiences of Eastern Air Defense Force and Western Air Defense Force; some states responded with alacrity and enthusiasm while others were hesitant and apathetic. The latter situation, for example, was encountered in Iowa where during 1951 there was neither a civil defense organization nor a full-time director, mainly because funds had not been provided by the legislature.

In one respect, Central Air Defense Force's problems were more difficult than those of its two sister defense organizations. Its territory being largely rural, Central Air Defense Force encountered more public apathy. It was difficult to convince the people of mid-America that they were in

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23. EADF, "Report of Air Defense Exercise," June 22-24, 1951 (document 610 in History of EADF, July-December 1951).

danger of airborne attack. Central Air Defense Force tried hard to explode this illusion by stressing that biological warfare could be used against human, plant, and animal life. It was pointed out that rural or not, they were still American citizens and had an obligation to do what they could to assist in the defense of their homeland. Although the United States had been deeply involved in world affairs since its entry into World War II, threads of isolationist sentiment still remained in the heartland of America to hamper recruiting activities.[24] This compounded difficulties inherent in an already ambitious program comprising 200,000 civilian volunteers manning 17 filter centers and 3,125 observation posts.[25]

In extending its organization according to Phase II of the Ground Observer Corps plan, Western Air Defense encountered difficulties similar to those of Central Air Defense Force. Large expanses of territory were included in which population was skimpy. Needless to say, Coast Guard and state and Federal forestry personnel were solicited. In addition, at the end of 1951, Western Air Defense Force was working on plans to extend its Ground Observer Corps capability still further through the cooperation of commercial

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24. History of CADF, January-June 1951, pp. 73-74.

25. Ibid., July-December 1951, p. 244.

firms such as lumber companies, mining camps, railways, and other facilities possessing organized communications systems of their own. These facilities were to provide information on flights of heavy or very heavy type aircraft, other than those flying on established airways, to a designated air defense control center or GCI station. Toll terminals were to be provided at these radar stations to receive the observer data.[26]

Noted by both Western Air Defense Force and Central Air Defense Force was the adverse morale effect upon the ground observers of waiting in vain for aircraft to fly over their areas. To remedy this, Western Air Defense Force decided during 1951 to conduct special exercises limited to such areas as could be readily covered by the flights available. Civil Air Patrol agencies were invited to provide as many flights as possible to supplement what military flights were available. This training increased the efficiency and morale of the civilians but, since only a portion of the organized posts were actually manned, it was very difficult to establish tracks.[27]

Another morale problem observed by Central Air Defense Force, was caused by the lack of a critique after an

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26. History of WADF, July-December 1951, pp. 68-70.

27. Ibid., July-December 1951, p. 65.

exercise. After every test a number of volunteers resigned, when they were not informed of the results of their efforts.[28] There also seemed to be a definite relationship between civilian apathy and the amount of information available to them. Central Air Defense Force observed that there were frequent requests by observers to be briefed on the big picture during an exercise or after. Some requests had to be turned down because of security considerations, with the result that the honest curiosity of the observers could not be satisfied.[29]

A major activity during the latter half of 1951 was an effort to relocate certain filter centers that had been poorly placed. The initial filter center acquisitions had been conducted under circumstances which were not conducive to ideal selection. There had been no precedent to guide the survey teams and, since the civil defense organizations of the states were still in their infancy, aid from them was negligible. The result was facilities which proved to be unsuitable. Some had insufficient parking space, lack of sanitation facilities, or were in undesirable neighborhoods, which seriously restricted the effort to recruit volunteers. In some neighborhoods women volunteers complained of being

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28. History of CADF, July-December 1951, p. 66.

29. Ibid., January-June 1951, p. 66.

embarrassed in going to and from the centers. It became obvious that recruiting was being severely hampered as a result of the poor location of certain centers.

The solution, to find new facilities, was not always easy since the concurrence of the state civil defense authorities was necessary. Even when they saw eye to eye with the Federal agents, there were inevitable administrative delays in acquiring a new location. Eastern Air Defense Force, for example, discovered that the General Services Administration (GSA) usually resorted to the slow process of advertising for bids instead of proceeding immediately to acquire title to needed land. That agency was obliged to follow this practice, however, because filter centers were classified by it as "general purpose accomodations," which required open bidding.[30]

Another source of frustration for the defense forces was lack of logistical support for the filter centers. The difficulty lay in the fact that filter centers were at the end of a long and tenuous supply line. The centers frequently had to obtain supplies from the nearest radar sites--which were themselves low on the supply priority list.

An example of the logistical problem occurred in

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30. Many instances of EADF's dissatisfaction with the GSA are given in History of EADF, January-June 1951, pp. 161-172.

February 1951, when Air Defense Command ordered that filter center plotting tables be altered by superimposing the World Geographic Referencing Grid on them. This required the resurfacing of tables with a special linoleum that contractors had trouble in obtaining.[31]

An important innovation was made in June 1951, when the old plotting stands holding information on cards were replaced by the "plotting pip" and the "Christmas tree" or raid stand. The latter was easy to put together and could be read from any position on the teller's balcony.[32]

Another source of annoyance to the USAF was the news media's tendency to reach conclusions which hampered the recruiting effort. For example, an article in an Eastern newspaper pointed out that a Ground Observer Corps along the seaboard was useless because the warning network could not detect airborne raiders until it was too late to do anything about them. Major General Frederic H. Smith, Jr., Eastern Air Defense Force commander, was obliged to rebut this argument by pointing out that the Corps along the seaboards was necessary to detect an attack aimed at valuable targets further inland.[33]

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31. Ibid., p. 160.

32. Ibid.

33. Smith to Maj. Gen. N. D. Cota, February 1, 1951.

CHAPTER VI

THE BIRTH OF SKYWATCH

In December 1950, General Hoyt S. Vandenberg, USAF's Chief of Staff, asked the Massachusetts Institute of Technology to undertake an intensive study of air defense in the United States. A study group was appointed by MIT under the direction of Dr. F. W. Loomis, chairman of the Physics department at the University of Illinois. Working under the code name of Project CHARLES, the study group began its work in April 1951 and issued a final report the following August.[1]

The group addressed itself at some length to the ground observer system.[2] Acknowledging the "admittedly low effectiveness of the present ground observer organization," it expressed anxiety that there might be a "widespread and lasting destruction of public willingness" to support it because its ineffectiveness was well-known to the volunteers. CHARLES remarked that "it seems urgent that a decision be made either to reduce the observer corps drastically or to

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1. Massachusetts Institute of Technology, Problems of Air Defense: Final Report of Project CHARLES (3 Vols., Cambridge: 1951).

2. Ibid., I, 76-82.

take, wholeheartedly, those steps necessary to make it effective."[3]

CHARLES had no doubt of the potential value of the observers, noting their excellent work in England and in the United States during World War II, but believed that it would take major surgery to make the present Ground Observer Corps work. Among its recommendations CHARLES stressed the requirement that the volunteers should be immediately available when the need arose. It did not consider it absolutely necessary to keep the Ground Observer Corps on duty round the clock, so long as sufficient early warning of an attack were provided to alert the volunteers in time to take up their stations.[4]

Especially significant were the following observations:[5]

> The corps must be honestly convinced that it has a definite and important responsibility, that it is capable of being effective, and that it has the wholehearted support of the country. For this, a major public campaign is required, with encouragement from the highest civil and military authorities. Words are not enough; the provision of equipment and facilities and the creation of the organization necessary for effectiveness are essential supplements to the publicity.

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3. Ibid., p. 76.

4. Ibid., p. 78.

5. Ibid., p. 81.

> Complete and wholehearted cooperation by the military organization should be provided. This involves adequate indoctrination of the military personnel in the air defense system. The Ground Observer Corps should not be regarded as a civil defense organization, but as a part of the military defense system.
>
> Above all, the organizers and leaders of the Ground Observer Corps, and the military and civil authorities in the United States, must be determined at all costs to make the corps successful. Continuation of the ground observer corps in its present form is of little use.

These observations made a strong impression on the commander of Air Defense Command's Eastern Air Defense Force, Major General Frederic H. Smith, Jr.[6] Smith went to Cambridge to discuss the CHARLES recommendations and returned convinced that even more drastic solutions might be necessary.

In October 1951, at a conference of Air Defense Command commanders in Colorado Springs, General Smith expressed his views on the way the Ground Observer Corps could be improved. He reminded his colleagues that Air Defense Command had been trying for several years to create an efficient observer system but had made little progress. In his opinion, this was because the Corps was a stand-by organization; the

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6. "Proceedings of ADC Commanders' Conference, October 15-16, 1951." General Smith became Vice Commander of ADC in 1952 and, eventually, Vice Chief of Staff, USAF.

public had not been taught to appreciate overall air defense needs; and methods of training had been clumsy and time-consuming.[7]

Smith then proposed that a part of the Ground Observer Corps be put on 24-hour operations, with the rest remaining on stand-by status. The round-the-clock operation was to take place in a zone 100 to 200 miles in depth along the eastern, northern, and western frontiers of the United States. Within the belt, intensive training was to be conducted and maximum efforts made to improve the morale of the volunteers--even to the extent of providing them with uniforms.

A perimeter zone of 24-hour operation was necessary, according to Smith, to detect incoming raiders bent on striking targets further inland. A low-flying bomber could evade the radar beams, climb to altitude in the traffic-congested interior airways, and bomb its target without hindrance. An observer system along the perimeter, on constant alert, could detect the intruder, track him while he was gaining altitude, and pass the track to the radar net and the interceptors.

Smith also called attention to the fact that a Russian attack was most likely in the period from May to

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7. Ibid., p. 18.

October when the long daylight period in much of Russia would give their defenses an advantage. Anticipating American retaliation, Russia would choose that period to strike and defend herself effectively. Smith urged no delay in establishing the 24-hour zone by the following spring.[8]

But operational needs were not the only arguments Smith presented. As he wrote General Chidlaw in December,[9]

> The only way we can overcome the so-called apathy is by clearly demonstrating that we are sincere when we say there is a vital need for the Ground Observer Corps. We can only do this by asking for a Ground Observer Corps in being. It is my opinion that the public will discount anything less as an unimportant and perhaps unnecessary effort.

General Chidlaw was convinced by these arguments and took immediate action to prepare the way for 24-hour operations in the perimeter zone, such as persuading USAF Headquarters to allocate higher supply priorities for the filter centers and asking his subordinate units for detailed plans for 24-hour operations in their areas.[10]

Chidlaw presented his proposal for 24-hour operations to USAF Headquarters on January 22, 1952, asking that 32

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8. Ibid., pp. 20-21.

9. Smith to Chidlaw, "Activation of the Ground Observer Corps," December 3, 1951 (document 14 in History of ADC, July-December 1951).

10. Chidlaw to Ramey, November 20, 1951 (document 206 in History of ADC, January-June 1952); Ramey to Chidlaw, December 19, 1951 (Ibid., document 209).

filter centers and 8,483 observation posts in 27 states be put on 24-hour status at once.[11]

USAF agreed on March 28, authorizing Air Defense Command to proceed subject to the latter's ability to raise the additional funds needed through its own resources and the clearance of public announcements through USAF Headquarters.[12] USAF's tardiness in approving the plan and additional delay in finding the necessary funds postponed the start until July 14.[13]

Public announcement of SKYWATCH, as the 24-hour operation was named, was made by the USAF Chief of Staff, General Hoyt S. Vandenberg, on April 23, 1952. Vandenberg did not cite any special emergency for the new operation, only that two years of painstaking effort had not resulted in an adequate Ground Observer Corps; that a more effective Corps was still a requirement; and that SKYWATCH would expose

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11. ADC to USAF, "24-Hour Operation of Ground Observer Corps," January 22, 1952 (document 15 in History of ADC, July-December 1951).

12. USAF to ADC, "24-Hour Operation of Ground Observer Corps," March 28, 1952 (document 214 in History of ADC, January-June 1952).

13. Message ADC to EADF, April 8, 1952 (document 84 in History of EADF, January-June 1952); Message, ADC to USAF, April 4, 1952 (document 213 in History of ADC, January-June 1952).

weaknesses in the system and help correct them. He made no mention of the duration of SKYWATCH.[14]

Prior to Vandenberg's announcement, Air Defense Command had tipped news of SKYWATCH to state civil defense officials. One state director was told that "Public announcement will emphasize that this limited operation of the Ground Observer Corps is not an emergency measure, but simply the next logical and necessary step in the continued development of an air surveillance system."[15]

The response of the state civil defense officials was uniformly hostile. High echelons of the Department of Defense received anxious calls by state governors or their representatives urging that SKYWATCH be called off.[16] The newly-formed Association of State Civil Defense Directors, meeting in San Francisco three days after Vandenberg's announcement, lost no time in passing a formal resolution urging that USAF reconsider its action, and warned that SKYWATCH could endanger the entire civil defense program by undermining the good will of the Ground Observer Corps

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14. Message, ADC to EADF, April 24, 1952 (document 220 in History of ADC, January-June 1952).

15. "Resolution Passed by Association of Civil Defense Directors in San Francisco," enclosure in Memorandum to General Kenneth P. Bergquist by Colonel John F. Fletcher, May 2, 1952 (document 221 in History of ADC, January-June 1952); History of EADF, January-June 1952, pp. 30-31.

16. Chidlaw, Memorandum for the Record, May 19, 1952.

volunteers. The Association noted that the states had been led to believe that the Ground Observer Corps would continue to be a stand-by organization; that responsibility for recruiting, organizing, and administering it was vested in the states; and that any emergency warranting putting the Ground Observer Corps on a 24-hour basis should be announced by "appropriate authority." Finally, the state directors asked that, in the future, USAF consult with them "in all matters which will affect the administration of the Civil Defense program in the separate states."[17]

USAF Headquarters immediately began to have second thoughts. On May 9,Air Defense Command was informed that USAF believed it essential "that a full-fledged discussion be held" on the public relations campaign for SKYWATCH, and that certain "policy decisions had to be resolved on the departmental level."[18] Air Defense Command's Director of Civil Defense and Director of Public Information were summoned to Washington. Sensing that USAF's resolve might be weakening, General Chidlaw also went along.

Two days before SKYWATCH was scheduled to begin, on May 15, Chidlaw was told by Secretary Thomas K. Finletter of

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17. As in n. 15.

18. Message, USAF to ADC, May 9, 1952 (document 226 in History of ADC, January-June 1952).

the Air Force that Secretary of Defense Robert M. Lovett was under fire by state officials on the SKYWATCH issue, and that it might be wise to discuss the matter in person with him. Finletter and Chidlaw went to see Lovett, who confirmed that he was under strong pressure by the states to revoke SKYWATCH. Chidlaw rose to the defense of SKYWATCH, but Lovett decided to postpone it "until such time as the country would accept the philosophy of a 24-hour operation in a volunteer organization such as the Ground Observer Corps." Lovett noted that the state directors had called attention to the fact that concurrence on SKYWATCH was lacking at the top echelons of the Department of Defense.[19]

Announcement of the postponement of SKYWATCH was made by General Nathan F. Twining, Acting Chief of Staff of USAF, on May 16. Attributing it to the fact that "a number of state civil defense directors recently requested that the Air Force reconsider its decision to start the round-the-clock watch by the Ground Observer Corps," Twining promised to restudy the problem "in cooperation with Federal and State civil defense authorities" before putting SKYWATCH

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19. Chidlaw, Memo. for the Record, May 19, 1952. Chidlaw commented in this memorandum that though he had been assured by USAF Headquarters that full coordination had been afforded SKYWATCH, "it had been effected by the Indians and apparently not the Chiefs, since General Twining (then Acting Chief of Staff, USAF), Mr. Finletter, and Mr. Lovett had themselves only fragmentary knowledge of this matter prior to the time we were to start operations."

into effect. Nevertheless, he reiterated the USAF position that it was essential to place the Ground Observer Corps on 24-hour operation at the earliest possible date.[20]

General Chidlaw began preparations for a renewed campaign, this time to carry the message to the volunteers that they were as vital to air defense as the 24-hour radar net. But the key to SKYWATCH was in the hands of the state directors and a conference with them was scheduled. In preparation for the meeting, General Chidlaw wrote personally to each state director stressing again the operational need for SKYWATCH.[21]

The conference took place in the Pentagon on June 16, 1952.[22] A guest speaker, Millard Caldwell, FCDA Administrator, took a position squarely on the side of the state directors, stating that wars were won by "the people of Main Street" and that less than half of them believed that war was likely at that time. Caldwell put the blame for the public complacency on the shoulders of the Air Force, largely because of boasts by USAF publicity men that "vast numbers" of enemy bombers could be destroyed by the defenders.

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20. Message, ADC to EADF, May 15, 1952 (document 227 in History of ADC, January-June 1952).

21. History of ADC, January-June 1952. pp. 227-278.

22. "Proceedings of the Conference of State Civil Defense Directors on the Ground Observer Corps," June 16. 1952 (document 201 in History of ADC, January-June 1952).

These statements, he said, neutralized the publicity of the civil defense officials who, on the contrary, tried to move the public with a sense of the danger of a devastating enemy air attack.

The Air Force was represented by a blue-ribbon team of briefers headed by Secretary Finletter and Generals Twining, Chidlaw, and Frederic H. Smith. Twining began by apologizing to the directors for any detrimental effect the Air Force announcement had on them, admitting that USAF coordination had left much to be desired. With that, he and his colleagues hammered away at the theme of operational necessity for 24-hour operation in the perimeter zone to compensate for the shortcomings of radar at low altitudes.

Secretary Finletter addressed himself to the problem of persuading the volunteers, but he added little towards convincing the state officials. Coming out against scare tactics in favor of "cold patriotism," he admitted that his line would be very hard to sell, and ended by telling the directors "it is for you to decide what you want to do about this thing....Don't start it unless you think you can finish it."

Reaction to Finletter's remarks was almost uniformly hostile. The New Jersey director said that if anyone had to convince people to get up in the morning to man an observation post, it should be the Air Force, and not the civil

defense officials. The Pennsylvania director remarked that "the people of the country look to the Air Force for air defense and the Air Force in no uncertain terms has to claim ownership of this ground observer corps and not look at it as an orphan child."[23]

These remarks served to highlight the most troublesome problem in the relations between the Air Force and the states: that of the legal distribution of responsibilities between the Federal Government and the states. The anomaly was obvious to all those present, but, since most were aware that little or nothing could be done about it soon, it remained barely articulated. The recent trouble over the first SKYWATCH announcement, however, suggested that more trouble might be lying ahead.

The specific issue of the conference, whether the state directors would support SKYWATCH or not, was not in serious doubt after the barrage of operational data by the Air Force briefers. Disagreement existed only on the question of timing. The Air Force's preferred target date of July 14 was agreed to by a two-thirds majority of the state directors, but the minority was opposed to such an early start, arguing that not enough time was available for a proper publicity offensive. The Air Force stressed that it

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23. Ibid.

did not expect miracles on July 14, but that every day of even a minimum 24-hour effort would afford experience upon which to build a more effective SKYWATCH operation.[24] The Air Force officers left the conference with the parting complaint of Standish Hall, president of the State Directors Association, echoing in their ears: "We have sort of felt that we weren't being recognized in this thing and that we were being given a job to do without being consulted."[25]

The career of SKYWATCH coincided with a general build-up in air defense resources. In 1950, the intensification of the Cold War had resulted in a re-assessment of national military policies in which the conclusion was reached that the Soviet Union would have the capability by 1954 of striking a devastating blow at the United States. Consequently, the National Security Council had recommended, and the President had approved, a large increase in the Strategic Air Command's bomber fleet and the accelerated arming of U.S. allies in Europe.[26] The outbreak of fighting in Korea in

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24. Ibid.

25. Ibid.

26. Samuel P. Huntington, The Common Defense: Strategic Programs in National Politics (New York: Columbia, 1961), pp. 47-59. For additional discussions of strategy in this period, see McMullen, ADC History Study 22, op. cit., chap. iii, and Richard F. McMullen, Air Defense and National Policy, 1951-1957 (Colorado Springs: 1964), chap. i.

June loosened Congressional purse strings to the advantage of air defense as well. The Air Defense Command had been re-established as a major USAF command, construction of the new radar network had been accelerated, and additional interceptors had been procured. Also, 21 squadrons of the Air National Guard had been federalized and assigned to the Air Defense Command.

As we have seen, the Project CHARLES group had also been created in late 1950 to study the continental air defense problem. In the summer of 1952, another group of civilian experts was convened by the Air Force for the same purpose. This body, alarmed by progress in thermonuclear weapons, strongly urged the building of a chain of radars across the northern rim of the continent and the deployment of a system of computerized control facilities to integrate air defense operations for greater speed and accuracy. Their cost was estimated to be about $15 billion.[27]

Reaction to these ambitious recommendations was mixed. Many scientists, Congressmen, and journalists were enthusiastic about the prospect of tightening air defense in light of the danger of a general war. The Air Force, however, was ambivalent; its internal debate centering about the possibility that the huge sums for air defense could weaken the SAC

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27. Huntington, p. 329.

bomber force. Also, the new emphasis on defense was contrary to the cherished Air Force doctrine that the best defense was a good offense.

Discussions were continuing in 1953 when the new Eisenhower administration began its own assessment of military needs. The debate ended suddenly, however, with a victory for the Summer Study Group proposals when news arrived in August of the explosion of a Russian thermonuclear device. As a result, the following October, the National Security Council recommended, and the President approved, a five-year air defense buildup, to cost $20 billion, including the Distant Early Warning (DEW) Line, the computerized Semiautomatic Ground Environment (SAGE), and additional interceptors and ground-to-air missiles.[28] Thus, the Ground Observer Corps, and its SKYWATCH component, were to be part of an expanding new air defense system.

There were times during the first two years of SKYWATCH when it seemed that the program would be halted, or even terminated, by the obstruction of certain states. It has been noted that the relationship between the state civil defense officials and the Air Force, though generally cordial, was occasionally marred by misunderstanding about their respective responsibilities for the Ground Observer

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28. Ibid., pp. 330-340.

Corps. The states had formally given their support for SKYWATCH, but there were still unresolved questions about the extent of their commitment in money and time to the program.

The West Coast states gave the Air Force its biggest problem in this regard. The state of Washington stunned the Air Defense Command in September 1952 when it notified USAF Headquarters that it was rejecting its responsibilities for recruiting and administering the Ground Observer Corps because of a ruling by its Attorney General that it was unconstitutional to expend the state's funds for a Federal function. Within a few days, Oregon followed suit.[29]

Though the outcome of these actions was not too clear at the time, General Chidlaw feared that other states might desert, leaving his command with what he thought would be the staggering task of recruiting and administering several hundred thousand civilian volunteers. Chidlaw hurried to visit Washington's governor, Arthur B. Langlie, in an effort to reverse the tide, but to no avail.[30]

Somewhat discouraged, Chidlaw called in his chief advisers and reviewed the requirement for SKYWATCH, but was reinforced in his belief that it was the right thing to do. He was even persuaded that SKYWATCH should be a permanent

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29. Chidlaw, Memorandum for the Record, September 16, 1952.

30. Ibid.

feature of air defense. In this he received the full support of the USAF Chief of Staff, General Nathan B. Twining. Later the same month, Chidlaw reaffirmed the Air Force position to the assembled state directors at their annual meeting in New Orleans, but without moving Washington and Oregon.[31]

Another conference of state civil defense directors convened in Colorado Springs in January 1954.[32] Its liveliest debate was over the question of whether the Federal Government should contribute funds for the construction of observation post shelters. A motion in favor was defeated by a vote of 19 against, 13 for, and 6 abstaining. The determining factor was the difficulty of compensating volunteers who had already given time and money in the construction of existing shelters, and the conviction that self-help was a beneficial element in furthering esprit de corps among the volunteers.

At the latter conference the Air Force floated a trial balloon which soon burst. A suggestion was presented by a representative of the Office of the Secretary of the Air Force for a uniform agreement to be drawn up on the responsibilities of the Air Force and the states to the Ground

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31. Ibid.

32. "Proceedings, Civil Defense-Ground Observer Corps Conference, January 7-8, 1954."

Observer Corps. Discussion soon revealed, however, that the civil defense laws of the states were so divergent that it was futile to try to find a common denominator at the conference. A major effort was foreseen to ascertain the relevant facts.

The meeting in Colorado Springs had revealed a deep rift among the state directors on a number of issues. One of the results of the debates was a report by Vice Admiral Barbey (Ret.), the civil defense director of Washington,[33] expressing his unhappiness with the effectiveness of the Ground Observer Corps. Barbey was of the opinion that the Ground Observer Corps was a partnership between the states and the Air Force and recommended intensive consultation between the partners to remedy its deficiencies.

Barbey's suggestion bore fruit in August, when Air Defense Command sponsored a meeting with the West Coast civil defense directors at Hamilton Air Force Base, California.[34] General Smith, representing Air Defense Command Headquarters, affirmed the continued need of the Ground Observer Corps for an indefinite period in the future. He even thought it very likely that the Ground Observer Corps would be required even after gap-filler radars, specially

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33. Barbey to Chidlaw, February 1, 1954.

34. "Minutes of Western Regional Civil Defense-GOC Conference, August 3, 1954."

designed for low-level coverage, were put in operation. Smith rebutted the assumption that the Federal Government was niggardly in its expenditures for the Ground Observer Corps by reminders of USAF payments of telephone bills, rents, supplies for filter centers, provision of military vehicles, military training, and cited the fact that 14 per cent of all the SKYWATCH posts were manned by government agencies.

As it turned out there was no rush by other states to follow the lead of Washington and Oregon. California seemed on the verge of following suit, but an Air Force briefing on the need for SKYWATCH to the state legislature confirmed it in its course of support for the Ground Observer Corps.[35]

The defection of Washington and Oregon was, perhaps, beneficial in the long run. At the local level in those states citizens continued to support recruitment and statistics showed that both states remained in the above-average category in this respect. Their state officials continued to voice encouragement for the efforts of private individuals and groups to promote enrollment. Eventually, the state governments also welcomed permanently-assigned Air Force personnel at their capitols to advise them on Ground Observer Corps affairs.[36]

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35. History of WADF, January-June 1954, p. 137.

36. "Minutes of WADF Conference of State Directors of Civil Defense, Aug 3, 1954" (Document 82 in History of WADF, January-June 1954).

Though Air Defense Command's personnel had actively assisted the Ground Observer Corps states from the beginning in recruiting, the command had been wary of taking over that responsibility in full because of the possibility of antagonizing them. In time, however, it found that most states welcomed its efforts and were not touchy at all about its encroachment on their legal responsibilities.

Although Air Defense Command had continuous difficulty in finding the needed military personnel to handle the recruiting effort, it resigned itself to the inevitable fact that active assistance from state officials would become increasingly rare.

By the end of 1954, Air Defense Command had virtually abandoned efforts to convince the states of their legal recruiting responsibilities. In its operation plan for the Ground Observer Corps of December 1, 1954 it acknowledged that "assistance obtainable from the states for the functions of recruiting and administration was voluntary on their part."[37]

Thus, at the expense of increased effort and expenditure by Air Defense Command, a source of friction between

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37. ADC Operations Plan 10-54, December 1, 1954. Subsequently, ADC undertook to establish written agreements with each of the states involved, to clarify mutual responsibilities. Some 16 agreements were completed at the time the GOC was inactivated.

the Air Force and the states was removed. By eliminating the states from recruiting the Air Force and the public were brought face to face at the local level with results beneficial to the Air Force. It also cleared up another potentially troublesome matter, that of the possible interference of state officials in the operations of the Ground Observer Corps.

Admiral Barbey was a case in point. The Washington state civil defense director took an intense personal interest in Ground Observer Corps operations, asking questions and recommending better procedures, sometimes to the embarrassment of the Air Defense Command.[38] By by-passing the state governments, Air Defense Command removed this potential source of misunderstanding.

Nevertheless, the attitude of top state officials remained very important to the recruiting effort. Words of encouragement from them were of value in persuading civilians to volunteer. Thus, in Georgia, Ernest Vandiver, the state director of civil defense, was untiring in his support of the Ground Observer Corps, a fact which probably helped him in his later successful campaign for the governorship.[39]

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38. "Minutes of WADF Conference of State Directors of Civil Defense, August 3, 1954."

39. History of CADF, January-June 1953, p. 287; Interview with Col. John F. Fletcher, November 23, 1967.

Conversely, the hostility of some state officials was detrimental.

Increased contacts between the Air Force and the public may have redounded to the advantage of the former in other ways. In early 1956, Major General Norris Harbold, the commander of the Eastern Air Defense Force, wrote his superior, General Earle E. Partridge, then Air Defense Command commander, that[40]

> These men are really selling the Air Force to civilian communities and to a great number of American families. The good public relations and the recruiting value to the Air Force is immense. In fact the returns to the Air Force from this may be greater in the long run than the accomplishment of the assigned mission.

The immediate reaction of the public to SKYWATCH was gratifying. The number of posts increased markedly in July and August 1952.[41] But the increase in volunteers encouraging as it was, was not expected by Air Defense Command to last long. Volunteer increases were common during summer when students of school age were available and the weather was favorable for aircraft surveillance. The true test of the reaction of the public to SKYWATCH would come with the winter.

The secret of a successful recruitment effort was

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40. Harbold to Partridge, May 21, 1956.

41. History of ADC, January-June 1953, pp. 290-91.

effective publicity. Unlike the abortive attempt to begin SKYWATCH in May, 1942, an intensive effort was made to prepare the ground for the renewed attempt.

National publicity was conducted by the Advertising Council, Inc., a non-profit, public-service body created by the advertising industry during World War II to keep the nation informed on vital wartime problems and developments. Art work and copy for the publicity were provided by the firm of Ruthrauff and Ryan at a cost of about $80,000 per year. Five annual campaigns were conducted from mid-1952 to mid-1957. A great quantity of materials was distributed to newspapers, magazines, and spot announcements were made on national radio programs. Occasional longer broadcasts, like "Bomb Target, U.S.A." narrated by Arthur Godfrey, were made on coast-to-coast networks. Posters were distributed, featuring the well-publicized slogan, "Wake Up, Sign Up, Look Up." At the beginning of the campaign, a number of leaflet drops were made over cities, but the Air Force soon discouraged this when complaints were made that city streets were being littered. Industry also contributed; Lockheed Aircraft Corporation spending $40,000 in November 1952 by taking out full-page ads in popular magazines and trade journals.

The Air Force especially welcomed this assistance because its own public information program had been

drastically curtailed by severe manpower cuts. By 1954, however, the function had been revitalized and it contributed substantially to the publicity. In the Air Defense Command, the information program was especially aggressive. One of its efforts was the publication of a well-edited magazine for volunteers, called Aircraft Flash, of which 200,000 to 300,000 copies were distributed monthly.[42]

Perhaps the most effective of all publicity activities were those performed by the volunteers themselves. Promotional devices, such as contests and parades, kept the Ground Observer Corps in the public eye at the local level. Retention of volunteers being a continuous preoccupation, awards were given for length of service; buttons, pins, and certificates being distributed in large numbers. The best observation posts were honored monthly by Aircraft Flash, and banners for outstanding posts were presented by the Air Defense Force headquarters.

Other incentives were resorted to, such as expense-paid visits to special Air Force activities. In 1956, for example, 58 volunteers traveled to Las Vegas to watch the explosion of an air-to-air nuclear missile launched by an Air Defense Command interceptor, 30 post supervisors were

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42. Aircraft Flash: The Official GOC Magazine, 1952-1959, contains a wealth of detailed information on specific filter centers, observation posts, personalities, and volunteer activities.

sent to Yuma, Arizona, to attend a rocket meet, and 127 volunteers attended a USAF fire-power demonstration at Eglin Air Force Base in Florida.

Publicity given to distinguished enrollees like 87-year old John Nance Garner, former Vice-President of the United States, was effective. Continuity between the wartime Ground Observer Corps and SKYWATCH was made graphic when the Sunset Observation Post at West Linn, Ohio, was reestablished--most of its members having seen service at the same post during World War II. Volunteers who persuaded others to join were given certificates of appreciation by the Air Force.

As indicated earlier, one of the most distressing results of Air Force publicity in the past had been optimistic evaluation of the Air Force's air defense weapons. With this in mind the Advertising Council deliberately played down the role of Air Force weapons, stressing the indispensable activities of the Ground Observer Corps volunteers in low-level detection and tracking. President Harry S. Truman emphasized this on July 12 in a statement to the nation:[43]

> If an enemy should try to attack us we will need every minute and every second of warning that our skywatchers can give us...our greatest hopes for

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43. History of ADC, January-June 1952, pp. 282-83.

> peace lie in being so strong and so well prepared that our enemies will not dare attack. Every citizen who cooperates in operation SKYWATCH as well as in other defense activities, is helping prevent the war none of us wants to happen.

Expectation that the winter months would see a drop in volunteer participation in the Ground Observer Corps was borne out. As General Chidlaw informed his Western Air Defense Force commander:[44]

> I realize that posts will drop out, volunteers quit and there will be a lessening of operational efficiency as we get along into winter. It is going to take a lot of effort to even hold together what we have, much less improve it, during the next few months, but it's a job that's going to be done.

Although the number of volunteers in the Ground Observer Corps as a whole stayed fairly constant during the six-month period from July to December 1952, there was no question that 24-hour duty hurt the recruiting effort. This was indicated subsequently by a steady decline in the number of active posts.[45]

With the loss of volunteers of school age and the arrival of cooler weather many persons dropped out. Though publicity was intensified and efforts were made to make duty more attractive, the number of new volunteers was insufficient to make up for those lost. Recruitment continued to

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44. Chidlaw to Todd, November 3, 1952 (in History of ADC, July-December 1952, Document 151).

45. History of EADF, July-December 1952, p. 29.

be slow for the balance of the year and throughout 1953. Significantly, CADF noted that recruitment for the standby area progressed somewhat better than for the SKYWATCH zone.[46]

When the "critical" year 1954 arrived, volunteer strength was far short of the goal with 355,000 enrolled in SKYWATCH, little more than one-third of the optimum requirement, but only 100,000 of those were deemed to be active.[47]

Air Defense Command believed that the most important reason for the disappointing public reaction to SKYWATCH was the requirement that some volunteers attend their posts at night or in inclement weather. Round-the-clock duty showed up the inadequacy of having observation posts in private homes and other locations not suitable for 24-hour operation. Another of the reasons for the disaffection of the volunteers as Central Air Defense Force noted for its area, was that there was little or no aircraft activity to report. One post at the end of 1952 reported that although it had been operating continually since the inception of SKYWATCH it had been unable to report a single aircraft seen.[48]

The maximum number of posts organized during the existence of operation SKYWATCH was 17,000, during 1956,

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46. History of CADF, July-December 1953, pp. 217-18.

47. History of ADC, July-December 1953, p. 40.

48. History of CADF, July-December 1952, p. 264.

when about 388,000 volunteers were enrolled in the Ground Observer Corps. Of the 17,000 posts, only 1,700, however, were then on 24-hour SKYWATCH duty.

CHAPTER VII

THE SKYWATCH ERA, 1952-1957

With the start of 24-hour operations on July 14, 1952, the Ground Observer Corps was on continuous duty for the first time since World War II. The SKYWATCH area embraced almost all of the West Coast states, a broad belt of territory along the Canadian-American border from Washington to the Atlantic coast, and a similar strip down the East Coast to the North Carolina border. It included all or part of 27 out of the 36 states participating in the Ground Observer Corps. Of the 200,000 volunteers in the Corps at the time, 150,000 were enrolled in SKYWATCH, and of 49 filter centers, 32 were on 24-hour duty. About 6,000 observation posts out of a total of 8,000 already organized, were included in SKYWATCH.[1]

At the time the new procedure went into effect, the air defense system was struggling with the enormously difficult problem of distinguishing between friendly and enemy

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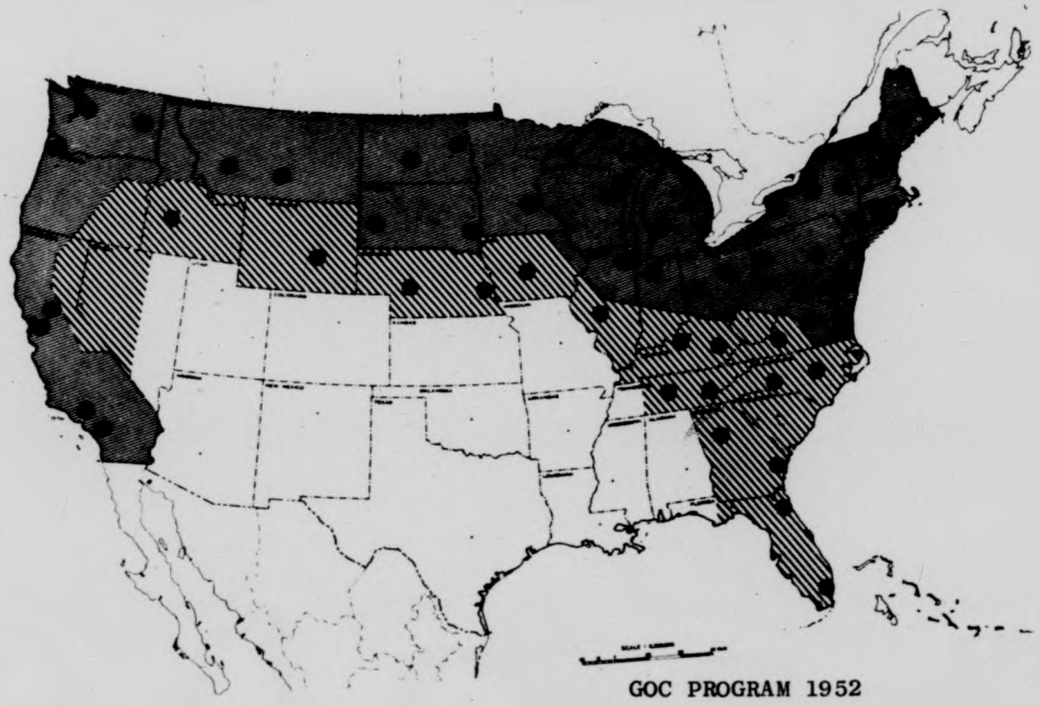
1. See map following this page.



GOC PROGRAM 1952

SKYWATCH. . . . . .Dark areas
Standby . . . . . .Light areas

aircraft among those entering or using the airspace over the continental United States.[2]

If an enemy chose to use the route over the polar regions to attack the United States, then his approach routes over Alaska, Canada, and Greenland had to be under surveillance by radar or ground observers. If he chose to penetrate the continental United States from the oceans, then radar or ground observers had to be positioned along the coasts to report his progress from the ground up. The prospect of an attack from the south was discounted in the early fifties, although it was taken more and more seriously as the sixties approached.

To identify "friend from foe", therefore, along the borders of the United States on the north, east, and west, was a primary objective. To the north, in mid-1952, an extension of the U.S. radar network was manned jointly by Canada and the United States (the Pinetree Line), but did not become operational until mid-1953. It extended surveillance an additional two hundred miles north of the border. If both Pinetree and the Canadian Ground Observer Corps were effective, early warning would be forthcoming of aircraft en route to the United States, with some indication of

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2. Denys Volan, The Identification Problem in the Air Defense of the United States, 1946-1953, ADC Historical Study No. 3 (Colorado Springs: Headquarters, Air Defense Command, 1953), chap. v.

their purpose as a result of visual identification, or the pre-filing of flight plans.

Any aircraft which crossed the border without prior identification had to be identified, whether it was a single or multi-engine aircraft. U.S. radars along the Canadian border, and fighters on strategically-located bases stood ready to make interception of "unknowns". Radar, however, was notoriously incapable of "seeing" low-flying aircraft and the possibility that they might easily evade the radar screen by coming in low worried Air Defense Command.

To plug this "hole", Air Defense Command, in cooperation with the Civil Aeronautics Administration, created an Air Defense Identification Zone (ADIZ) south of the Canadian border in which all aircraft had to be identified if they flew higher than 4,000 feet.[3] Since it was impractical to mass radars to cover the lower altitudes, a calculated risk had to be taken. SKYWATCH operation in the identification zone, however, was expected to lessen the risk because its ability to identify aircraft below 4,000 feet was promising.

Therefore, if a multi-engine aircraft penetrated the northern border without detection and then either flew low or gained altitude, air defense radars and SKYWATCH together

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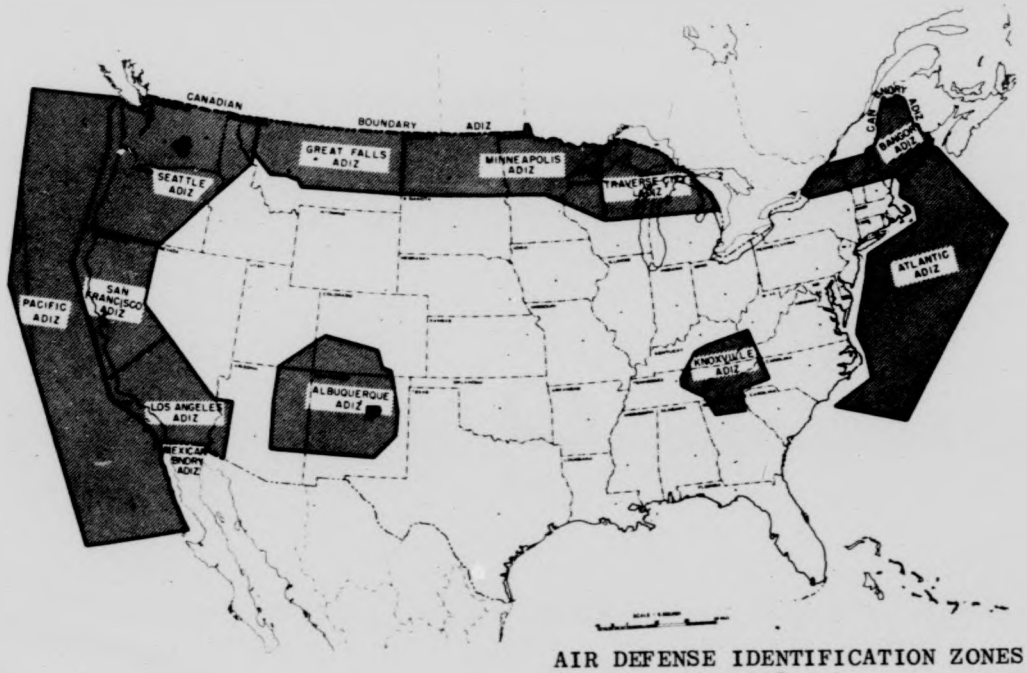
3. See map following this page.



AIR DEFENSE IDENTIFICATION ZONES
1952

in the domestic ADIZ behind the border would have a second opportunity to detect and identify it.

If an attacker tried to penetrate into the continental United States from seaward, the plight of the defender was more critical because identification in the coastal zone was only as effective as the coverage of the shore-based radars and the range of the fighters. No SKYWATCH was present to complement the radars with low-level coverage. The best that an active air defense could do to back up radar coverage was to survey the airspace over the seaboards by radar and SKYWATCH.

Unfortunately, this solution was not common to both seaboards. Along the West Coast, ground radars and observers had an excellent chance to plug the holes left open by the offshore radar coverage. There, air traffic over the seaboard was not so congested that the air defense system did not have a fair chance of identifying interloping aircraft. Consequently, along the seaboard, a broad identification zone was created in which the radar strove to identify all aircraft above 4,000 feet and SKYWATCH was to report multi-engine aircraft movements from the ground up.

Along the East Coast, however, such a solution was impractical. There, the Air Defense Command was obliged to resign itself to the unpalatable fact that identification of the congested air traffic was hopeless under existing

radar programs and the state of electronic progress. Consequently, no identification zone was along the Eastern seaboard and Air Defense Command prescribed no identification mission for its forces there.

Nevertheless, SKYWATCH went into operation throughout the Northeast with the duty of reporting all multi-engine aircraft. The rank and file of the military air defense system were puzzled by SKYWATCH filter centers reporting aircraft tracks to military control centers since there was no requirement at all to do anything about them. Air Defense Command's justification for the practice was that, eventually, radar deployment in the Northeast would be thick enough to make identification possible. Unfortunately, air traffic did not remain at its 1952 level and the growing radar system found it increasingly more difficult to cope with it.

Thus, SKYWATCH reports became less and less significant as air defense lagged in capability to identify the mounting volume of air traffic. The lag soon became evident also in the Western identification zone.

Even before SKYWATCH began, air defense exercises in which the Ground Observer Corps participated had resulted in the saturation of some direction centers with unnecessary data. The coming of SKYWATCH, consequently, was looked upon with some trepidation by Air Defense Command and plans were

made to curtail the amount of data supplied by the filter centers.[4]

Soon after SKYWATCH began operations, Air Defense Command Headquarters formulated a plan whereby all important target complexes in the continental United States would be surrounded by "perimeter zones" in which SKYWATCH posts would report all traffic heading into the target complex. The zones would be wide enough so that from two to four observation posts would have the opportunity to report on the same aircraft.[5] The plan was offered to the Air Defense Force headquarters for comment and met with mixed reactions. Western Air Defense Force objected on the ground that since most of its targets were close to the coast it was almost impossible for the observation posts to provide sufficient early warning from seaward.[6] Eastern Air Defense Force, however, having a dense concentration of likely bombing targets further inland, was enthusiastic and immediately began to experiment with a perimeter zone around its White Plains, New York, and Trenton, New Jersey, filter center areas.[7]

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4. History of ADC, January-June 1952, p. 294; Ibid., July-December 1952, p. 181.

5. History of ADC, July-December, pp. 181-2.

6. Ibid.

7. History of EADF, January-June 1955, pp. 55-60.

While the Eastern Air Defense Force experiment was going on, the first attempt was made to find out how well SKYWATCH worked. A test, known as Operation BLUEBIRD, involving a B-29 aircraft, flew from the East Coast to the West Coast and back along SKYWATCH airspace. Flying approximately 1,000 feet above ground level, the B-29 was reported by 50 per cent of the posts along its line of flight.[8] Although this was less than Air Defense Command hoped for, the command was optimistic that increased manning and better training would improve the performance. Central Air Defense Force Headquarters observed that very light air traffic density along the route in states such as Montana, the Dakotas, and Minnesota made it difficult to maintain the enthusiasm of SKYWATCH volunteers and, consequently, their effectiveness.

The experiment with the Eastern Air Defense Force perimeter zones was so successful that Air Defense Command decided in April 1953 to put them in operation throughout SKYWATCH.[9] By July they were in operation. SKYWATCH observation posts that were not in the perimeter zones were to report only aircraft that possessed three or more engines or were in a formation.[10]

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8. History of ADC, July-December 1952, p. 184.

9. Msg, ADC to WADF, April 17, 1953.

10. Aircraft Flash, Sept. 1953, p. 3.

Western Air Defense Force, still unhappy with its dilemma, initiated in late 1953 an intensive study of the efficiency of SKYWATCH.[11] The study, performed by its Office of Operations Analysis, confirmed the suspicion that the perimeter zones along the coasts were too narrow. The analysts were pessimistic about efforts to widen the zone because most of the potential volunteer population lived along the coastal road and not further inland where they were needed.[12] The study also revealed that the efficacy of the observers left much to be desired. But the major complaint, however, was that an excessive number of manifestly friendly tracks were being reported by the Ground Observer Corps to the over-taxed radar network. Western Air Defense Force's recommendation was that only the posts in the perimeter zones be kept on 24-hour operations and all others be placed on standby status. The analysts went so far as to say that in their opinion the efficiency of the observers was so poor at night and in winter that the whole Ground Observer Corps should be placed on standby except in summer daylight hours.[13]

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11. History of WADF, July-December 1953, pp. 89-91.

12. "Study of Ground Observer System, Western Air Defense Region, Presented to State Directors of Civil Defense at Hq. ADC, January 7, 1954."

13. Ibid.

The analysis had a sobering effect on Air Defense Command Headquarters. To test its conclusions, General Chidlaw ordered that periodic exercises be held throughout the SKYWATCH area.[14]

Western Air Defense Force Headquarters continued to be the most outspoken element of ADC about the inefficiency of the Ground Observer Corps. Late in 1953, Major General Walter E. Todd, the commander, stated that the Corps was useless in peacetime, basing his criticism on the deluge of reports of what was obviously friendly air traffic.[15]

An innovation alleviated part of the problem. The Sacramento filter center was made the scene of an experiment to reduce the transmission of reports from the filter centers to the radar system.[16] This was done by establishing there an "air movements identification" position, which was provided with a telephone "drop-line" so that the operator could listen to conversations between military control

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14. History of EADF, January-June 1954, p. 35.

15. Todd to Chidlaw, December 11, 1953.

16. ADC Office of Operations Analysis, Test of Identification of Ground Observer Corps Track at the Sacramento Filter Center. OOA Technical Memorandum No. 14. (Colorado Springs, Headquarters Air Defense Command, 1954); Aircraft Flash, March 1954, p. 4.

and the Civil Aviation Administration traffic control centers. The latter centers provided flight plan information that permitted the radar control centers to correlate their own tracks with the civilian flight plans. Thus, if a Ground Observer Corps track was deemed to be friendly as a result of this "eavesdropping" there was no need to pass it along to the air defense control center.

Air Defense Command Headquarters was enthusiastic with the result. But its attempt to convince Eastern Air Defense Force that identification sections should be established in its filter centers met resistance.[17] The objections were based on the possibility that the filter centers by usurping a military air defense function, might establish a hostile track as friendly. But Eastern Air Defense Force was overruled and directed to establish identification sections in its SKYWATCH filter centers.

Another attempt to reduce the flow of data from the filter centers to the air defense control centers was Operation SKYLARK.[18] This procedure made it possible for private pilots who were not required to file flight plans with the Civil Aviation Administration to inform the nearest

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17. History of EADF, January-June 1955, pp. 73-77.

18. Aircraft Flash, July 1955, p. 3.

filter center voluntarily of their proposed flights. The filter centers were to correlate the actual tracks with the flight plans and identify them before fighters were sent aloft for identification. The aircraft pilot who said "Aircraft Flash SKYLARK" to the telephone operator was immediately connected with the appropriate filter center and gave details of the proposed flight.

It will be recalled that two domestic identification zones had been established overland the length of the West Coast and along the Canadian border. On December 1, 1955, a drastic revision of identification zones took place which saw the West Coast identification zone discontinued. On that date an entirely new zoning plan known as the Double Perimeter Plan went into effect.[19] This envisaged the western seaboard as a vital target area completely surrounded by narrow identification zones in which all air traffic headed into the target area had to be identified. The same was done to the huge northeastern territory. Aircraft passing into these "defense areas" from seaward were to be identified through flight plan correlation or by interception. Flights over the polar regions toward continental U.S. targets were to be identified when they crossed the Canadian identification

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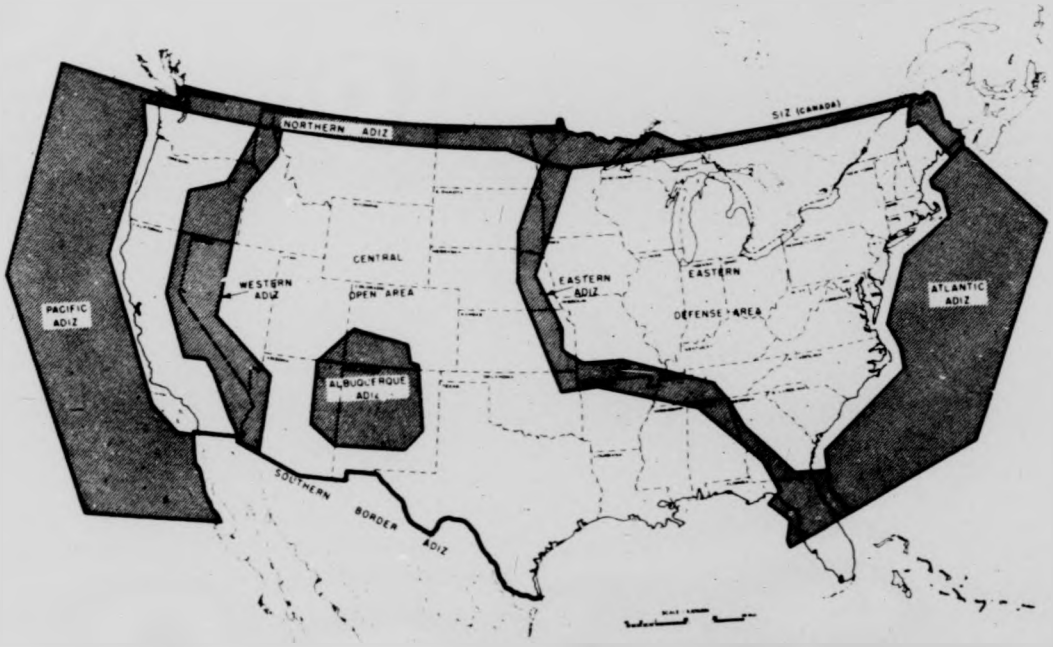
19. History of WADF, July-December 1954, pp. 70-72; See map following this page.



DOUBLE PERIMETER IDENTIFICATION ZONES
1955

zone along the border or domestic identification zones along the rear of the target areas. In addition, a zone several hundred miles in diameter centered on the Los Alamos atomic energy complex was created in which all air traffic had to be identified.

The new zones resulted in little change in the Northeast where air traffic had always been "free" and unidentified. But the new plan caused much concern in the western region. There the entire seaboard had been an identification zone where traffic above 4,000 feet had to be identified. In spite of this, however, the GOC SKYWATCH observer posts were still required to report multi-engine aircraft, even though such aircraft were automatically friendly to the air defense system. The situation in the WADF region was now identical to that in the Northeast before the Double Perimeter Identification Plan went into effect. The anomaly was pointed out by the commander of the 25th Air Division in the Northwest who, like General Todd, termed his Ground Observer Corps "useless" in peacetime.[20]

This opinion was confirmed by a study made by an operations analysis group at Air Defense Command Headquarters.[21]

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20. History of WADF, January-June 1956, p. 147.

21. ADC Operations Analysis Office, Utilization of GOC Data by ADDC's, OOA Technical Memorandum No. 17, (Colorado Springs: Headquarters, Air Defense Command, 1956).

The analysts ascertained that only 21 per cent of all SKY-WATCH posts were located within the area where identification was mandatory; the remaining 70 per cent being in "open" or "defense areas". They found that few reports passed to the military control centers were ever used, even where they concerned aircraft flying in areas where identification was required. The reason for the latter situation was that most Ground Observer Corps "tracks" consisted of a single report, thus making it impossible to ascertain aircraft track speeds and headings. Even then, many such reports were incorrectly passed to the direction centers.[22]

Since the question of the utility of the Ground Observer Corps was becoming embarrassing, the Office of the Secretary of the Air Force asked the commander of Air Defense Command, in February 1957, to query his air division commanders as to their opinions about its value.[23] To a question whether the GOC was needed to supplement the air division electronic air defense system, the answers revealed a deep split. Five of the commanders maintained it was necessary, seven believed that it was not needed at all, and seven maintained that it was of value only in an

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22. Ibid.

23. Message, ADC to Air Defense Forces, February 21, 1957, and answers thereto.

emergency. Ten commanders indicated that they would prefer to see the Ground Observer Corps go on a standby status. Answers to a question as to how long it would take to alert standby observation posts and filter centers to full-time operation ranged from 30 minutes to 3 hours with a majority estimating between 30 minutes and 1 hour.[24]

These opinions reflected important changes in the circumstances of continental air defense. In 1952, when SKYWATCH began, the military air defense system was in its infancy and the Ground Observer Corps loomed large among the air defense resources of the day. The amount of air traffic in the continental United States, though considerable, did not seem to be beyond the capacity of a motivated and well-manned network of observers. But, with the passage of time, air traffic increased greatly, including, high-speed jet aircraft. The advent of jets reduced the contribution that the naked eye and the acoustic device could make to air defense because of the very high altitudes at which they normally operated. In fact, the military air defense system, though growing in capability, acknowledged its own incapacity to cope with the congested air traffic over the continental United States by creating more and more "free areas" inside identification

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24. Ibid.

zones, where the calculated risk was taken that aircraft were friendly. This tendency reached its logical conclusion early in 1959 when the entire continental United States land mass was declared an open area with identification restricted to the coastal and international boundary zones.[25]

The inception of the space age, heralded by the orbiting of the first Sputnik in October 1957, further suggested that identification was a losing cause. Although the bomber remained the primary threat in the late 1950's it was becoming more and more obvious that the military future belonged to the ballistic missile.

Meanwhile, the training of ground observers in the SKYWATCH era proved to be troublesome. Simulated training in observing aircraft in flight was not practical, and Air Defense Command had to settle for recognition manuals and lectures.[26]

Because the number of aircraft available to Air Defense Command for "live training" was extremely limited, exercises of the air defense system, which included the Ground Observer Corps, were held infrequently, using as strike vehicles not only aircraft of Air Defense Command, But those of other major Air Force commands, the Civil Air

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25. History of ADC, January-June 1959, p. 168.

26. Air Force Manual 50-12, "Aircraft Recognition for Ground Observers," 1954; ADC Letter 50-3, "GOC Training Aids," August 5, 1957.

Patrol, and the Air National Guard. Standby posts as well as those on SKYWATCH participated in the tests. In posts located in areas of very low traffic density, lack of opportunity to observe aircraft overhead contributed to low morale and decreased efficiency. For such posts, Air Defense Command allowed field commanders to authorize reports of aircraft of all types instead of just multi-engine aircraft.

Air Defense Command Regulation 50-24, of August 13, 1955, specified the precise training required of civilian volunteers.[27] This was to be supervised by military personnel organized in ground observer squadrons attached to air division headquarters. Observers were to be provided with three hours of initial training and progressive training thereafter was at the discretion of the squadron commanders. Training was to concentrate on the transmission of aircraft flash reports and on aircraft recognition.

Military teams from air division headquarters conducted training at the observer posts. Travel was considerable and expensive and complaints inevitably arose that some posts were being neglected. The problem was more acute in remote areas of little air traffic density where the morale of the volunteers was likely to be lower.

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27. See also Revision of December 13, 1956.

At such locations contact with uniformed USAF personnel was important in instilling the volunteers with conviction in their mission.

In 1953, state civil defense officials in California proposed that the World War II procedure be revived of settling "sector sergeants" near the posts they were to train.[28] Although allowing noncommissioned officers to live with their families without superior military supervision in the midst of the civilian population was unusual, there had been a successful precendent in wartime, and Air Defense Command approved a test of the procedure in April 1953. The criterion for deployment of the airmen was to be their ability to visit any location within their territory in one working day. The plan was tested in several areas in California in April and May 1953 and Western Air Defense Force Headquarters was enthusiastic with the resultant savings in money, transportation, and time.[29]

While Western Air Defense Force studied the plan, Eastern Air Defense Force Headquarters asked Air Defense Command for permission to test the procedure in selected filter center areas in its jurisdiction.[30] The test

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28. History of WADF, January-June 1953, pp. 254-55; Ibid., July-December 1953, p. 80.

29. Ibid., July-December 1954, pp. 121-22.

30. EADF to ADC, March 31, 1954; History of EADF, January-June 1954, pp. 37-38.

began in mid-1954 in the 26th Air Division area and concluded with glowing reports of money savings and increased enrollments as a result of the good impression made by the airmen.

Another Eastern Air Defense Force air division, the 30th, received permission to test a variation of the plan which was thought to be better suited to its area in the Middle West.[31] One officer and two airmen were to operate as a team, residing, like the sector sergeants, near the posts. This procedure was tested between August and October 1954 in the Chicago area. Eastern Air Defense Headquarters indicated that it liked it better than the Western Air Defense Force procedure because it was more flexible and gave the airmen the opportunity to receive training under experienced military colleagues.[32] The Western Air Defense Force plan prevailed, however, and the upshot was the adoption of the "sector sergeant" program throughout the Air Defense Command.[33]

As established, the procedure called for a number of airmen under the supervision of an officer to form a subdetachment of the filter center detachment of the Ground

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31. History of EADF, January-June 1954, pp. 54-56.

32. Ibid., p. 56.

33. ADC Regulation 55-62, February 21, 1955; Aircraft Flash, April 1956, p. 6.

Observer Squadron with jurisdiction over approximately 120 observation posts. Each airman was to supervise approximately 30 posts. The sub-detachment was to be based at a location designated by the filter center commander. Each airman, (the term "sector sergeant" was soon dropped) was to train volunteers, organize posts where required, and help to stimulate and maintain the interest of volunteers in the Ground Observer Corps.[34]

The first nationwide test of the Ground Observer Corps, since inauguration of SKYWATCH, was Operation SKYSCAN, held at the end of May 1954.[35] It had been generated by the interest in Western Air Defense Force's analysis of the Ground Observer Corps mentioned earlier. To verify that study's conclusions, General Chidlaw ordered a test throughout the country with the analysis to be made by Headquarters Air Defense Command. The latter study duly concluded that the Ground Observer Corps had the capability of making a substantial contribution to the defense of the United States, especially by detecting low-flying strikes and reporting the number of engines in an aircraft in daylight, something that radar could not do. On the other hand, the observers

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34. ADC Regulation 55-62, February 21, 1955.

35. ADC Office of Operations Analysis, Ground Observer Corps Exercise SKYSCAN, OOA Technical Memorandum No. 15, (Colorado Springs: Headquarters, Air Defense Command, 1954).

committed many errors in reporting and the filter centers proved inadequate in filtering operations. The outstanding shortcoming was the average track length. too short to allow interceptions to be based on them. The analysts also found strong evidence that observation posts reported as manned, were in fact unmanned. This was highlighted by the discovery that the highest average of manned positions was in the Eastern Air Defense Force with 7.1 per 1,000 square miles. The Air Defense Command goal was 16 posts per 1,000 square miles of SKYWATCH territory.[36] The report was hopeful that the Ground Observer Corps could be a valuable asset to the air defense system if it were fully supported by its military counterpart and if deficiencies in filtering and reporting techniques were overcome.[37]

Dissatisfied with SKYSCAN, General Chidlaw ordered analyses of the Ground Observer Corps performance at regular intervals. It participated in nationwide air defense exercises in October 1954 (Operation CHECKPOINT) and in December 1965 (Operation CRACKERJACK).[38]

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36. Ibid.

37. Ibid., Aircraft Flash February 1955. p. 4.

38. Aircraft Flash, February 1956. p. 3.

In addition, an intensive evaluation program was undertaken in the Eastern Air Defense Force area beginning in March 1955. This consisted of a series of periodic, realistic low-altitude tests. The conclusion was that the Ground Observer Corps had shown an immense improvement in the past two years but that a serious obstacle remained--full manning of the posts.[39] Another large-scale test was held in 1955 (SKYSCAN 1955).[40] Although Air Defense Command jet fighters participated, they flew too high to be seen by the observers. Again, the Ground Observer Corps was found to be deficient in establishing tracks of sufficient length.

A major difficulty in testing the Ground Observer Corps was scheduling air strikes. Air Defense Command had much difficulty in prevailing upon the Strategic Air Command to provide the "faker" aircraft and was forced to rely more often than not on its own fighters, as in SKYSCAN 1955.[41]

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39. History of EADF, July-December 1954, pp. 48-51.

40. ADC Office of Operations Analysis, Ground Observer Corps Exercise SKYSCAN 1955, OOA Technical Memorandum No. 17 (Colorado Springs, Headquarters Air Defense Command, 1956).

41. Speech by Col. J. F. Fletcher, July 21, 1954; Message ADC to SAC, August 13, 1954.

In mid-1952, at the start of SKYWATCH began operations, there had been 49 filter centers in the Ground Observer Corps, of which 37 were on 24-hour duty. Recruiting to build up the around-the-clock capability of the centers began at once and was continuous thereafter.

The relocation of filter center buildings, already under way before SKYWATCH, continued. Those in undesirable neighborhoods where women volunteers were reluctant to work were relocated.[42] Shortage of parking facilities was another reason for relocation. In some cases volunteers complained of excessive heat in the summer and air conditioning was provided where necessary.[43] Here and there there were troublesome landlord problems. Some owners threatened to revoke leases on their buildings while others resisted relocation.[44] Some filter centers got along with the most modest furnishings while others were handsomely equipped, like the Seattle filter center, outfitted by the Boeing Aircraft Company.[45]

Recruiting of civilians for the filter centers was never the problem that it was with the observation posts. The centers were in areas of relatively high population

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42. History of WADF, January-June 1953, pp. 92-93; Ibid., July-December, pp. 129-30; History of EADF, January-June 1953, pp. 66-67.

43. History of CADF, January-June 1953, pp. 281-86.

44. Ibid., July-December 1953, pp. 230-31; Ibid., January-June 1953, p. 286.

45. History of WADF, January-June 1953, p. 258.

density, work was more congenial, and there was a better esprit de corps, enhanced by continuous contact with military personnel permanently stationed at the filter centers.

On November 26, 1951, a school for the GOC emphasizing the training of military personnel and filter center volunteers was opened at Tyndall AFB, Florida. Until it closed on June 20, 1958, the school trained a total of 619 officers, 1384 airmen, and 589 civilians.[46] Although it was created originally for military personnel, civilians were admitted in January 1954 and thereafter. Civilians were paid the cost of transportation to the school and all expenses for the two-weeks course. It was estimated that the Federal Government spent an average of $360 for each volunteer so trained.[47] Because Air Defense Command was the only major command that used the school, the Air Training Command which operated it, was less than enthusiastic about providing the instruction. Attempts were made by the latter to turn it over to the Air Defense Command, which successfully resisted such a move.[48]

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46. History of ADC, 1958, p. 138; Aircraft Flash, September 1955, p. 4.

47. "Minutes of GOC-Civil Defense Conference, Feb 29-Mar 31 1956," p. 18.

48. History of ADC, January-June 1957, p. 74. For the school curriculum, see Col L. R. Larson, Memo. to Col. J. F. Fletcher, June 8. 1953.

In September 1953, Mr. H. Lee White, Assistant Secretary of the Air Force, posed a troublesome question in a memorandum to the Chief of Staff of the Air Force.[49] White noted that no policy had been formulated by USAF on the subject of the vulnerability of filter centers to bomber attack. Since the centers were often located in communities that were prime targets, he suggested that the more vulnerable of them be moved to the relatively safer residential periphery of the metropolitan areas. Asked to comment, General Chidlaw agreed that of the 49 filter centers in existence, 25 of them were on the USAF list of 100 prime Soviet targets and should be moved. He estimated that it would cost about $200,000 to relocate them.[50]

The question of relocating vulnerable observation posts was raised by Eastern Air Defense Force Headquarters.[51] Air Defense Command responded that the initial detection of a hostile raid was the chief mission of observation posts and that subsequent tracking by them was probably not worth the risk of keeping the posts active.[52] It acknowledged

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49. White to Twining, September 29, 1953.

50. Chidlaw to White, October 27, 1953; Chidlaw to White, December 23, 1953; ADC to USAF, "Relocation of Filter Centers," n.d.

51. EADF to ADC, "OP's in Critical Target Areas," April 14, 1955.

52. Ibid.

that evacuation of civilians from critical target areas, or insistence that they take cover, was the perogative of the state directors of civil defense. It was Air Defense Command policy that continued operation of the posts was beneficial but it interposed no objection to discontinuance of post activities after air raid warnings were issued to the post observers by civil defense officials.[53] As to the filter centers, Air Defense Command directed that they continue to operate with military personnel, whether assisted or not by civilian volunteers.[54]

The latter policy, however, aroused objections in Eastern Air Defense Force. EADF noted that it took between 25 and 30 people to man a plotting board in the filter center and that an average of only two officers and six airmen would be available to do the job if the civilians were eliminated. Although Air Defense Command Headquarters refused to change its policy, it encouraged EADF to prevail upon local civil defense officials to permit the civilian volunteers at the filter centers to remain on the job after the announcement of an air raid warning.[55]

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53. ADC to EADF, "Policy on Organization of Observation Posts in Critical Target Complexes," April 14, 1955.

54. EADF to ADC, "Policy with Respect to Filter Center Volunteers," October 17, 1955, and indorsements.

55. Ibid.

Air Defense Command was thus reconciled to the fact that in an emergency warning period, or actual hostilities, the Ground Observer Corps in observation posts and filter centers would be severely decimated by withdrawal of civilians. It followed, therefore, that it considered the Ground Observer Corps of value mainly for early warning, even though Colonel Broun H. Mayall, Director of Civil Air Defense at Air Defense Command Headquarters, thought that because "of the American tradition of patriotism and attention to duty" it was "reasonable to believe that many volunteers would stay at their posts in spite of personal risks."[56]

Whether the centers would be able to function in wartime even if the civilians remained, was also questionable. It was probable, under combat conditions, that commercial telephone communications would be destroyed or severly damaged. This caused Air Defense Command to give thought to the establishment of alternate filter centers. The problem was dramatically illustrated when a filter center was burned out and another forced to evacuate when the owner terminated the lease.[57]

As noted, 25 filter centers were to be relocated, but it was easier said than done. Headquarters USAF

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56. ADOCD to Commander, "Impact of GOC Realignments on Civil Defense," March 22, 1956.

57. Draft Memo., "GOC Alternate Filter Centers" n.d.

approved the change but told Air Defense Command to do it with its own funds.[58] The latter remonstrated that it had no money for the purpose, but USAF was adamant.[59] By February 1956, Air Defense Command had relocated nine of the filter centers.[60] After that a general reduction of the Corps undermined the relocation project.

Military personnel were used in Ground Observer Corps activities in a number of roles. The chief staff position in ADC Headquarters was that of Director of Civil Air Defense, held until 1953 by Colonel John F. Fletcher, and until 1957 by Colonel Broun H. Mayall.[61] USAF Headquarters was represented by the Chief of the USAF Ground Observer Corps Project Office, who acted as liaison between that headquarters, the Federal Civil Defense Administration, and the state governments. Throughout its existence, the office was headed by Colonel Owen F. Clarke. From the beginning, the White House and the Office of the Secretary of the Air Force took a special interest in the Ground Observer Corps because of the political significance that its 300,000

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58. History of ADC, July-December 1956, pp. 56-57.

59. ADC to EADF, "Relocation of Filter Centers," February 9, 1956.

60. History of ADC, July-December 1956, pp. 56-57.

61. "Functions of OCD in ADC," February 25, 1955.

civilian members could have for the Administration's political fortunes. The Administrative Assistant to the Secretary of the Air Force, Mr. John J. McLaughlin, and a Special Assistant to the President, Mr. James M. Lambie Jr., played an important role in monitoring Ground Observer Corps programs and activities for the President and the Secretary of the Air Force.

Air Defense Command s military field organization on behalf of the Ground Observer Corps was vested in a number of ground observer squadrons, one of which was assigned to each air division headquarters.[62] A detachment of each squadron was located at each filter center, and, as we have seen, one or more sub-detachments were eventually based at central locations within the filter center area for the training of ground observers. In addition, there was assigned to each state administration a military officer with the rank of major or lieutenant colonel, called a Ground Observer Corps Coordinator, who coordinated the activities of the state civil defense officials with those of the military.[63] As time went on, it was apparent that the states were content

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62. ADC Regulation 36-23, "Policies and Procedures for Manning GO Squadrons," August 17, 1956.

63. ADC Regulation 20-2, "Duties and Responsibilities of a GOC State Coordinator," October 12, 1955; ADC Regulation 36-22, "Selection of GOC state Coordinators," January 27, 1956.

to rely upon the Coordinators to discharge their responsibilities towards the Ground Observer Corps. In most of the states where such officers were assigned, their relationships to the civil defense officials were congenial and mutually beneficial.[64] There were instances where state officials objected to the withdrawal of Coordinators because they came to depend on them exclusively for COC matters.[65] In some cases, however, just the opposite occurred, but, fortunately, examples were few.[66]

The greatest difficulty in the military effort was a shortage of officers.[67] Air Defense Command's air divisions were authorized five officers and ten enlisted men for each filter center, but it was a rare case when as many as even three officers were assigned. Air Defense Command had to scrape the bottom of its manpower barrel for officer personnel and was forced to rely often on new ROTC graduates.[68]

But ROTC officers, being young, were usually inexperienced in dealing with the public. Their duties required a

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64. ADC Regulation 20-2, "Duties of COC State Coordinators," December 11, 1957.

65. Wyse to Talbott, August 24, 1954.

66. History of CADF, January-June 1953, p. 285.

67. Ibid., July-December 1953, p. 230.

68. History of WADF, July-December 1954, p. 125.

certain degree of poise and experience in public relations.[69] They were seldom given the opportunity to acquire experience, however, because of the extreme turnover rate of officer personnel. This also had an adverse effect upon the morale of the volunteers who were often bewildered by the rapid succession of filter center commanders.[70]

Efforts by Air Defense Command to alleviate the officer shortage were many and varied. At the beginning it was hoped that reservists could undertake filter center duties on a part-time basis and receive service credits, but the duties proved to be too specialized for the rounded training the Air Force required of its reservists.[71] The Air Defense Command received permission from USAF Headquarters to "freeze" the tour of duty of filter center officers to two years. Also, USAF approved a policy whereby officers about to return to the continental United States from overseas tours were permitted to volunteer for filter center assignments in locations of their choice.[72] These efforts were of slight help, however, and the officer shortage continued

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69. History of CADF, January-June 1953, pp. 282-284.

70. Ibid., July-December 1954, p. 258.

71. History of EADF, January-June 1953, pp. 50-58; History of WADF, July-December 1953, pp. 80-81; Aircraft Flash, March 1954, p. 3; U.S. Navy, BUPERS Instruction 1300.22, September 6, 1955; ADC Ltr 45-10, December 5, 1956.

72. Msg. USAF to all commands, March 4, 1955.

until the demise of the Ground Observer Corps.[73]

Most officers and airmen assigned to filter center duty underwent training at the Ground Observer Corps Training School at Tyndall Air Force Base. In 1955 the curriculum of the school was significantly revamped to include special emphasis upon public relations training.[74]

In 1956 the Eastern Air Defense Force pioneered in a program to assign the military personnel at the filter centers directly to the air defense control center to which the filter center reported, rather than to the air division headquarters. But the procedure was never applied throughout the Ground Observer Corps.

In the construction of observation post shelters the volunteers displayed their resourcefulness in peace as they had in the late war. In footing the costs communities and individuals dug deep into their pockets. The pages of Aircraft Flash are replete with instances of the ingenuity of the observers in raising funds. Christmas tree and bake sales were often resorted to; private businesses also subscribed willingly and often industries volunteered space on their rooftops for construction of observation posts.

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73. History of ADC, January-June 1957, p. 73.

74. Col. B. H. Mayall to DCS/O, "Report of Activities 1953-54".

As noted elsewhere, whether the Federal Government should pay for post construction came in for a sharp debate at the annual meeting of the state civil defense directors in 1954.[75] A vote to determine their views on this issue revealed that a small majority favored continuation of the existing practice whereby the volunteers and the communities paid the costs. The main argument for the status quo was that it instilled the volunteers with a sense of accomplishment and gave them a greater stake in the success of the Ground Observer Corps.

Not only private citizen volunteers were recruited for observer duty but certain special categories of persons collectively contributed their services. Thus, in North Dakota and Wisconsin, the state highway patrol served as an auxiliary, radioing observations to police sub-stations which, in turn. relayed them to main police stations and thence to the appropriate filter center.[76] Prisoners at four Northern Michigan prison camps also served; three inmates at each camp being assigned full-time duty as spotters. One of them spotted a jet aircraft bursting into flames and helped to locate the wreck.[77] The California State Prison at Folsom

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75. See above chapter vi.

76. Aircraft Flash, January 1953, p. 3, and September 1953, p. 6.

77. Ibid., March 1954, p. 2.

was on SKYWATCH duty, serving as it had in World War II.[78] In St. Cloud, Minnesota, the state reformatory employed full-time observers.[79] At the Imperial Dam at Yuma, Arizona, dam-tenders organized a post.[80]

Posts were also established on the Thousand Island Bridge and the Roosevelt Bridge in St. Lawrence County, New York.[81] The Seminole Indians in Broward County, Florida. manned a SKYWATCH post,[82] and there were many instances of Sea Scouts, Boy Scouts, and Girl Scouts serving.[83]

As in World War II, the Forest Service contributed greatly. In 1953, 1,300 U.S. Forestry Service fire towers served as observation posts.[84] The biggest problem there was the use of its stations during winter when they were not in use for their primary task.[85] A drastic solution was proposed by the 29th Air Division, which suggested that in winter, in the event of imminent hostilities or actual war,

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78. Ibid., January 1956, p. 10.
79. Ibid., October 1953, p. 7.
80. Ibid., March 1953, p. 6.
81. Ibid., February 1953, p. 6.
82. Ibid., July 1953, p. 7.
83. Ibid., passim.
84. Ibid., July 1953, p. 4.
85. History of CADF, July-December 1953, p. 238 ff.

observers be parachuted to the forestry stations.[86] Operation of the Forest Service stations in winter employing their regular personnel was deemed to be too expensive.[87] Western Air Defense Force Headquarters estimated that it would cost $20,000 per station over the winter months to do so.[88]

Private lumber firms in Washington, Idaho, and Montana agreed to establish posts in their camps.[89] Members of the National Forest Industries in the northwestern states authorized their mobile radio units that patrolled the forests looking for fires, to watch for aircraft.[90] Facilities owned by the Minnesota and Ontario Paper Company (MANDO) were employed also.[91] Twenty-two MANDO camps were located in Canada, the latter approving the passing of aircraft movement reports to the Minneapolis filter center. To facilitate communication, Air Defense Command agreed to provide the camps with needed radio equipment and telephone circuits.[92] The Rural Cooperative Power Association

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86. Ibid., January-June 1953, p. 294.
87. Ibid., January-June 1954, pp. 134-35.
88. History of WADF, January-June 1954, p. 132.
89. Aircraft Flash, December 1953, p. 3.
90. History of WADF, July-December 1953, p. 85.
91. Aircraft Flash, October 1953, p. 4.
92. History of CADF, January-June 1954, pp. 128-32.

in Minnesota, which maintained mobile maintenance units for line duty, instructed them to call in aircraft flash reports on their two-way radios to the powerhouse at Elk River which then relayed messages to the Minneapolis filter center.[93]

During World War II Japanese fishing fleets were notoriously efficient in reporting U.S. aircraft movements in the Pacific and it was inevitable that this precedent suggest the use of ships at sea in the Ground Observer Corps. In July 1953, Rear Admiral Richard E. Wood, commander of the 5th Coast Guard District on the East Coast, proposed using fishing vessels for SKYWATCH in his area of jurisdiction, from Maryland to North Carolina.[94] The ships were to contact Coast Guard installations on shore which would relay the reports to the filter centers. A test in December and January, 1953-1954, in which 220 ships participated, was deemed a success. The United States Navy agreed to replace the Coast Guard as intermediary between the fishing vessels and the filter centers when it became apparent that shortages of personnel and radio frequencies would hamper Coast Guard participation.[95]

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93. Aircraft Flash, August 1955, p. 3.

94. Commander 5 CGD to EADF, November 8, 1953; History of EADF, July-December 1953, pp. 58-60.

95. History of EADF, July-December 1953, pp. 60-62.

The fishing fleet experiment was applied also to the Great Lakes where about 500 ships of American and Canadian registry operated.[96] Most of these were members of the Lake Carriers Association which agreed to employ its shore-based radio stations to relay ship reports to the filter centers. Operations began in May 1954, and by mid-July approximately 900 aircraft reports had reached the appropriate filter centers.[97] Instructions were given by mobile training teams from the 31st Air Division Headquarters to crews at Duluth and Two Harbors, Minnesota.[98] The Great Lakes flash report system continued to do yeoman service until SKYWATCH went out of operation at the end of 1957.

On the West Coast, tugboats, belonging to six different companies operating from Seattle to Adak, Alaska, agreed to report aircraft by radio telephone to a Seattle radio station, which then relayed the reports to the military control center at McChord Air Force Base.[99]

In October 1953, all three armed services advised their field units to give the Ground Observer Corps maximum

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96. Ibid., pp. 62-64.

97. History of EADF, January-June 1954, pp. 33-34.

98. History of CADF, January-June 1954, pp. 127-28.

99. History of WADF, July-December 1953, p. 84.

support by establishing observer posts.[100] The job of determining the location of the posts was allocated to the Ground Observer Corps Coordinators in the various state administrations. In September 1954, the state civil defense administrator of New York, Major General John Huebner, forwarded a suggestion to Major General Frederic H. Smith Jr. at Air Defense Command Headquarters that military personnel and their dependents quartered in civilian communities serve in the GOC. Smith replied that the suggestion was impracticable because military personnel would be performing military duties in an emergency and could not be in two places at once. He indicated, however, that many dependents were in fact serving in the Ground Observer Corps.[101]

By November 1956, 1,804 observation posts had been established on military and other government agency installations, roughly 12 per cent of the 15,000 organized posts listed as of that date. More than 17 agencies participated, including: Air Force, 117; Army, 86; Navy, 43; Marine, 15; Coast Guard, 152; U.S. Forestry Service, 775; United States ordinance plants, 56; United States parks, 47; United States dams and locks, 115; United States Wildlife Service, 16;

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100. Dept of the Army, AG to CG's Continental Armies, October 15, 1953; U.S. Navy SECNAV Instr. 3320.1A, October 7, 1953.

101. Smith to Huebner, September 22, 1954.

United States prisons, 20; Atomic Energy Commission, 19; United States Weather stations, 3; United States Customs stations, 82; United States Agency for Indian Affairs, 78; United States fish hatcheries, 33; and 147 other miscellaneous government facilities.[102]

It would seem from the pages of Aircraft Flash that an unusual number of handicapped persons volunteered for observer duty, even including blind persons and those incapable of walking.

The Canadian Ground Observer Corps began operations in June 1953.[103] At that time it had ten filter centers in operation, a number which remained constant until the corps was inactivated in 1958. The centers did not go on a SKY-WATCH basis but were manned 24 hours a day in preparation for an emergency. Although observation posts were not similarly on alert, observers were encouraged to report anything suspicious or unusual, such as aircraft in distress. Operationally, the Canadian Ground Observer Corps, or GObC, as it was officially abbreviated, was virtually identical with its U.S. counterpart. The same procedures were used in making flash calls and the filter centers were identically equipped. The criterion for the placement of

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102. Aircraft Flash, March 1957, p. 3.

103. Aircraft Flash, June 1953, p. 4, and December 1957, p. 4. See below, p. 117.

observation posts was the same--one for every eight miles --and both systems used the same grid coordinates. An unusual requirement in French-speaking communities was the necessity that plotters and training officers be bilingual. Unlike in the United States, the GObC was under the supervision of the RCAF's Air Defense Command. Filter centers were divided into sub-areas, each covering from four to ten observation posts. In each, the RCAF selected a local citizen, usually a retired military person, to serve as the regional supervisor. The latter organized the posts in his region and selected the chief observer for each who in turn recruited the observers to man the posts.

Canada's greatest problem concerned its vast and sparsely populated areas. To compensate, it used every available means of visual and audio surveillance, especially forestry towers. Because of the absence of population in the north the Ground Observer Corps limited its operations to the area below the 55th parallel. In the Far North, however, trappers, miners, Hudson Bay fur traders, government officials, Royal Canadian Mounted Police, and anyone who had access to radio communications were organized into the Northern Division of the Ground Observer Corps. Observations there were relayed to the nearest RCAF Air Defense Control Center. If the flight could not be identified there

the information was passed to Air Defence Command Headquarters at St. Hubert, Quebec. Integration between the American and Canadian systems was such that, with few obstacles, tracks established by Canadian filter centers were "told" smoothly to the American system and vice versa via "hot" lines. The same manual used to train American filter center operators was employed by the Canadians, being published jointly by the two countries.[104] An indication of the value of the Canadian Ground Observer Corps came in December 1955 when the continental-wide air defense exercise, CRACKERJACK, was triggered by an aircraft flash report from the Canadian Ground Observer Corps.[105]

By the end of 1957, the Canadian Ground Observer Corps comprised more than 5,000 observation posts and over 36,000 active and 16,000 reserve volunteers.[106] The northernmost observation post in the Canadian Ground Observer Corps was situated on Ellesmere Island, farther north than even the American base at Thule, Greenland.[107]

In April 1952, several railroads in the north central plains area had been solicited to use their

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104. Air Force Manuals 50-12, and 50-13; Col. B. H. Mayall, Report to the Deputy Chief of Staff, Operations, for the period 1953-54.

105. Partridge to GObC, December 19, 1955.

106. Aircraft Flash, December 1957, p. 4.

107. Ibid.

employees as observers, their headquarters in Chicago being visited by a representative of the Central Air Defense Force headquarters. Company executives were willing, subject to the overriding priority of the employees' normal duties. The appropriate filter center officer in charge was to survey the facilities of the railroads and determine how best they could be integrated into the observer system.[108]

By the end of July 1952, section crews of the Chicago, Burlington and Quincy Railroad were already being used in the North Platte, Nebraska, filter center area. Telephone equipment was available to these maintenance crews, but some railroad crews, however, did not have the proper communications equipment readily available. It was proposed that Air Defense Command supply the equipment, but labor unions demurred, insisting that the equipment be operated by authorized union labor only. The possibility of railroad repair crews on isolated sections of track using the rail itself on a radio frequency to transmit flash reports was investigated, but the idea was discarded because the rail could not carry the messages for the required distance or under inclement weather conditions. The Rock Island and the Chicago and Northwestern railroads, as well as the CB&Q

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108. History of CADF, January-June 1952, p. 263.

put the personnel of more than 490 railroad depots on the available list for Ground Observer Corps use.[109]

In Georgia, in late 1952, the state Ground Observer Corps Coordinator proposed the establishment of Aircraft Spotters Clubs in the state's high schools. The Georgia Department of Education approved the plan, authorizing the participation of high schools. Membership was limited to juniors and seniors and administration was by faculty members. Ground Observer Corps wings were awarded on completion of full training programs by the detachments from the Ground Observer Squadrons. Students residing in communities where there were filter centers were encouraged to serve in them. A merit of the plan was that the recruiting problem would be eased by continuous supply from the school population. Graduates would have some experience to take with them in their postgraduate careers where it was hoped they would continue to serve as spotters or filter center workers.[110]

A proposal was made in Western Air Defense Force Headquarters early in 1953 to have posts in veterans hospitals, but it was turned down on the grounds that such

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109. History of CADF, July-December 1952, pp. 261-62; CADF to ADC, "Utilization of Railroad Crews in National Defense," July 30, 1952 (document 1954 in History of ADC, July-December 1952).

110. History of CADF, July-December 1952, pp. 270-72.

hospitals would claim sanctuary in wartime, a privilege that could be jeopardized by the presence of a Ground Observer Corps post.[111]

In the southeastern part of the United States, under the jurisdiction of the Central Air Defense Force, the wide dispersal of prison camps lent itself naturally to the needs of the Ground Observer Corps and efforts were made to incorporate them into the network. In North Carolina, for example, approval was obtained from the state capitol and prison wardens were contacted and briefed on the requirements. Usually the warden was designated the post supervisor and the assistant warden as chief observer and the prison guards and trustees were organized as spotters. Only the more strategically-located camps were utilized. In December 1952, 48 such prison camps were fully organized and trained in the North Carolina Ground Observer Corps network. Similarly, in that state about 100 bridge attendants of state-owned bridges were incorporated as spotters.[112]

In December 1951, Air Defense Command had proposed to Headquarters USAF that the Air Force provide necessary telephones and circuits to the observation posts at government expense. Justification was that the state and local

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111. History of WADF, January-June 1953, p. 259.

112. History of CADF, July-December 1952, pp. 278-79.

civil defense authorities would believe that the Air Force was sincere in its intent to establish and use the Ground Observer Corps and that it would alleviate much apathy and resentment and greatly increase the effectiveness of the Corps.

Air Defense Command requested 3,000 new installations for the first half of 1952, and an additional 3,000 in the next 12 months. The proposal was approved by USAF on March 13, 1952. In its instructions to its subordinate units, ADC stated that only areas of relative air traffic density were to be considered for the government phones. Field echelons were to survey specified well-traveled air routes and posts on these routes. The posts had to be the best for practical visual and aural coverage and adequate shelter had to exist for the instruments. Construction costs were to be held to a reasonable minimum. Survey parties were to include filter center officials and state and local agency officials and telephone company agents as well as the USAF representatives. A regulation covering the technique of payment was issued on August 1, 1952. It further specified that only 24-hour posts were to be eligible for the telephones.[113]

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113. Letter from ADC to USAF, "Ground Observation Post Telephones," December 3, 1951. and 1st Ind. to above (document 247 in History of ADC, January-June 1952); Letter ADC to EADF. "Ground Observation Post Telephones," April 12, 1952 (document 248 in above history); ADC Regulation 100-15, August 1, 1952 (document 249 in above history.)

Installation of the telephones proved popular with the volunteers. Up to this time the Air Force had depended on volunteered private telephones. Provision of the telephones removed one of the objections of state officials to SKYWATCH, i.e., that volunteers would not use their own instruments for round-the-clock operation of the posts.

A problem developed in the payment of bills. In some instances the phones were removed because the bills were unpaid.[114] Western Air Defense Force illustrated specifically some of the problems caused by the delay in payment. The Gilroy, California, post had a $6 bill for installation and a $7 monthly bill for service which went through 13 indorsements in 6 months without effecting payment. This was a source of embarrassment and friction at the operating levels. The Oakland Filter Center, for example, in August 1952 had a $5 discrepancy in a $6,000 bill. Because of this, the telephone bill was not paid for over six months until the discrepancy was straightened out. Because of these complaints Air Defense Command proposed and won approval from USAF to pay the bills itself. This went into effect as of October 1, 1953 and the result was generally beneficial to all concerned.[115]

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114. History of EADF, January-June 1953, p. 54.

115. History of WADF, January-June 1954, p. 132.

From the beginning, confusion existed in the minds of state civil defense agencies as to whether members of the Ground Observer Corps were entitled to the benefits accorded civil defense workers by state workmen's compensation laws. The matter was finally resolved on March 20, 1952 when the Air Force notified the Federal Civil Defense Administration that it was making the Corps "available for inclusion" in the provisions of the Federal Civil Defense Act of 1950, which made the Civil Defense Corps eligible for such benefits.[116]

In turn, the FCDA Administrator undertook to issue necessary regulations permitting contributions to be made by the Federal Government to the states for the purpose of assisting and providing such benefits for the members of the Corps. Whether the civil defense workers would obtain the benefit of the state workmen's compensation acts was a matter for decision by the states and state laws varied considerably on this subject. FCDA recommended to the states that appropriate action be taken to provide benefit for such members.[117] By an advisory bulletin dated April 25, 1952, the FCDA notified all state civil defense directors of the integration of the Ground Observer Corps into the United

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116. Huggins to Caldwell, March 20, 1952 (document 224 in History of ADC, January-June 1952.)

117. Caldwell to Huggins, March 26, 1952 (document 224 in History of ADC, January-June 1952.)

States Civil Defense Corps and also notified the states of a proposal before Congress to contribute to the states funds for the purpose of assisting and providing compensation benefits for Civil Defense Corps Members.[118]

From the beginning of the Ground Observer Corps thoughts were directed to obtaining technical equipment to increase the efficiency of the observers. Items that came to mind were devices to obtain accurate direction and altitudes of aircraft, and acoustic aids where vision was limited or where the weather was too inclement for outdoor observation. As in the case of World War II experience, home-made devices proliferated. Money was often gathered by popular subscription to finance the innovations.[119] Air Defense Command also began investigating appropriate equipment to assist in acoustic detection. The value of this equipment was that observers could remain indoors in bad weather letting the device listen for aircraft. When one was detected, an alarm would alert the observer. This was considered to be especially desirable for farmers who could thus go about their normal duties until alerted. In early 1953, Air

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118. FCDA Advisory Bulletin No. 110, April 25, 1952 (document 224 in History of ADC, January-June 1952.)

119. The pages of Aircraft Flash contain many accounts of such devices, especially of the acoustic variety; see April 1953, July 1953.

Defense Command formally requested 5,500 of a specific model, but it was not until 1956 that the first production models were obtained for field use.[120]

USAF hoped to have these devices in the perimeter zones of SKYWATCH areas. Early tests resulted in enthusiastic appraisals, but greater exposure to actual conditions also brought in many complaints to the effect that city noises, wind, and rain triggered the alarms. Efforts were made to improve them, accounting for delays in production. Observers in remote areas were especially enthusiastic. The Air Defense Command considered them to be of value also in recruiting by their appeal to the interest in "gimmicks" of the average American and evidence of the solicitude of the Air Force for the efficiency and welfare of the observers. In 1956 Air Defense Command increased its request to 16,500, but increasing economy-mindedness in the Air Force curtailed it to 5,500, the number which was eventually procured. The cost was $136 each, with SKYWATCH posts getting first priority in allocation. The final article was manufactured by the firm of Harvey-Wells Electronics, Inc. of Southbridge, Massachusetts and consisted of a microphone, amplifier with alarm, alarm bell, loudspeaker, and interconnecting cable.

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120. ADC to USAF, "Requirement for an Acoustic Device as an Air for the Ground Observer," March 7, 1953. A picture of this device is in Aircraft Flash, March 1954, p. 7.

The amplifier, bell and speaker were located inside the shelter and the microphone outside.[121] Distribution began in 1956, but at the end of 1957, many were still undistributed.

Early during SKYWATCH a direction finding computer was developed by Colonel Donald Gates (Ret.) in the Western air defense region and another also by Mr. Harry Heywood, supervisor of the Port Jefferson observation post in New York. Colonel Owen F. Clarke, at that time director of civil air defense of Western Air Defense Force Headquarters, invented an altitude finder which was produced by USAF and distributed to the posts.

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121. Aircraft Flash, April 1956, p. 7.

CHAPTER VIII

THE DILEMMA OF SKYWATCH

When Major General Frederic H. Smith, Jr., the chief protagonist of SKYWATCH, justified the need for 24-hour operations in 1952, he did so chiefly on the ground that civilians, if instilled with a sense of urgency by participation in the 24-hour vigil, would be motivated to join and remain in the Ground Observer Corps. Smith also used the classic argument that the defense was inadequate against low-level penetrations and that only human observers could remedy the deficiency. SKYWATCH was also supported by intelligence estimates of rapid Soviet strides in nuclear weapons and advanced bomber technology--1954 being pointed to as a time when the danger of attack would be at its height.

The geographical area for SKYWATCH was where the potential targets of Soviet bombers were most concentrated. In most such target complexes air defense identification zones existed. In the vital Northeast, however, there was no identification zone, though it was hoped there would be one there by the time the "Permanent" postwar radar network was implemented.

By 1954, when SKYWATCH was operating in much of the Northeast, an identification zone there was still unrealized. Radar deployment, although carried out as programmed, was inadequate to cope with the growing air traffic. SKYWATCH aircraft reports were being made to the military air defense system, in spite of the fact that the latter felt itself too inadequate to initiate its own observations and make its own identification of air traffic.

This incongruous situation caused a re-examination of operating procedures with the result that it was decided to eliminate the old identification zones and to permit air traffic to fly therein without any effort to identify it. Instead, the areas of target densities were to be surrounded by new domestic identification zones in which all air traffic determined to be on a penetration course would be identified. The zones were to be only wide enough so that a track could be established by an adequate number of aircraft observations from the ground.

This new "double perimeter" strategy, similar to the "perimeter zones" used unofficially by the Eastern Air Defense Force[1] threw plans about the future of SKYWATCH into confusion. If it were necessary to identify air traffic within the

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1. See above, p. 160.

huge "defense" areas where the vital targets were located, then why were 24-hour GOC operations needed there? If SKYWATCH were needed at all it was only in the narrow new identification zones to the "rear" of the new "defense" areas--the"front" of the defense areas being covered by the coastal and international boundary identification zones.

Headquarters Air Defense Command was thus faced with a serious dilemma. If SKYWATCH were ended in the existing identification zones and reestablished in the new domestic identification zones, 24-hour operations would be greatly curtailed and the impact of that program on the rest of the Corps diminished.

There was an alternative to this gloomy prospect. That was to extend 24-hour operations greatly, including the expansion of the standby GOC throughout the entire continental United States.

On September 8, 1954, Headquarters ADC offered such a proposal to Headquarters USAF, noting that[2]

> The situation today and for the foreseeable future continues to be such that enemy aircraft must be given the capability of entering the United States air defense areas from any direction at certain relatively low altitudes without detection by present radars. A ground observer system including filter centers, is required to augment the Aircraft

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2. ADC to USAF, "Expansion of the GOC," September 8, 1954; also see ADC, "Plan for the Expansion of the GOC," August 21, 1954, with staff comments.

Control and Warning System in order to provide a means for detecting and identifying enemy aircraft in this category.

In addition to keeping the existing SKYWATCH area intact, ADC asked that it be extended to include the entire southern border, an enlarged western area, and virtually the whole eastern half of the United States. Twenty-four new filter centers and 4,600 more observation posts required an additional one million volunteers. Military personnel were to include an additional 151 officers and 829 airmen.

In its proposal ADC enunciated a novel doctrine, that in areas where no radar coverage was programmed, such as the southern border and Rocky Mountain regions, the GOC was to have an active surveillance and identification role. The justification was that it would prevent "the enemy's capability of end-running present surveillance systems."[3] In such areas, the GOC was to identify by correlating flight plans in its filter centers and by extending Operation SKYLARK (voluntary flight plan filing to GOC filter centers by private aircraft operators exempt from filing by CAA regulation.) All filter centers, therefore, whether in an identification zone or not, were to perform identification functions.[4]

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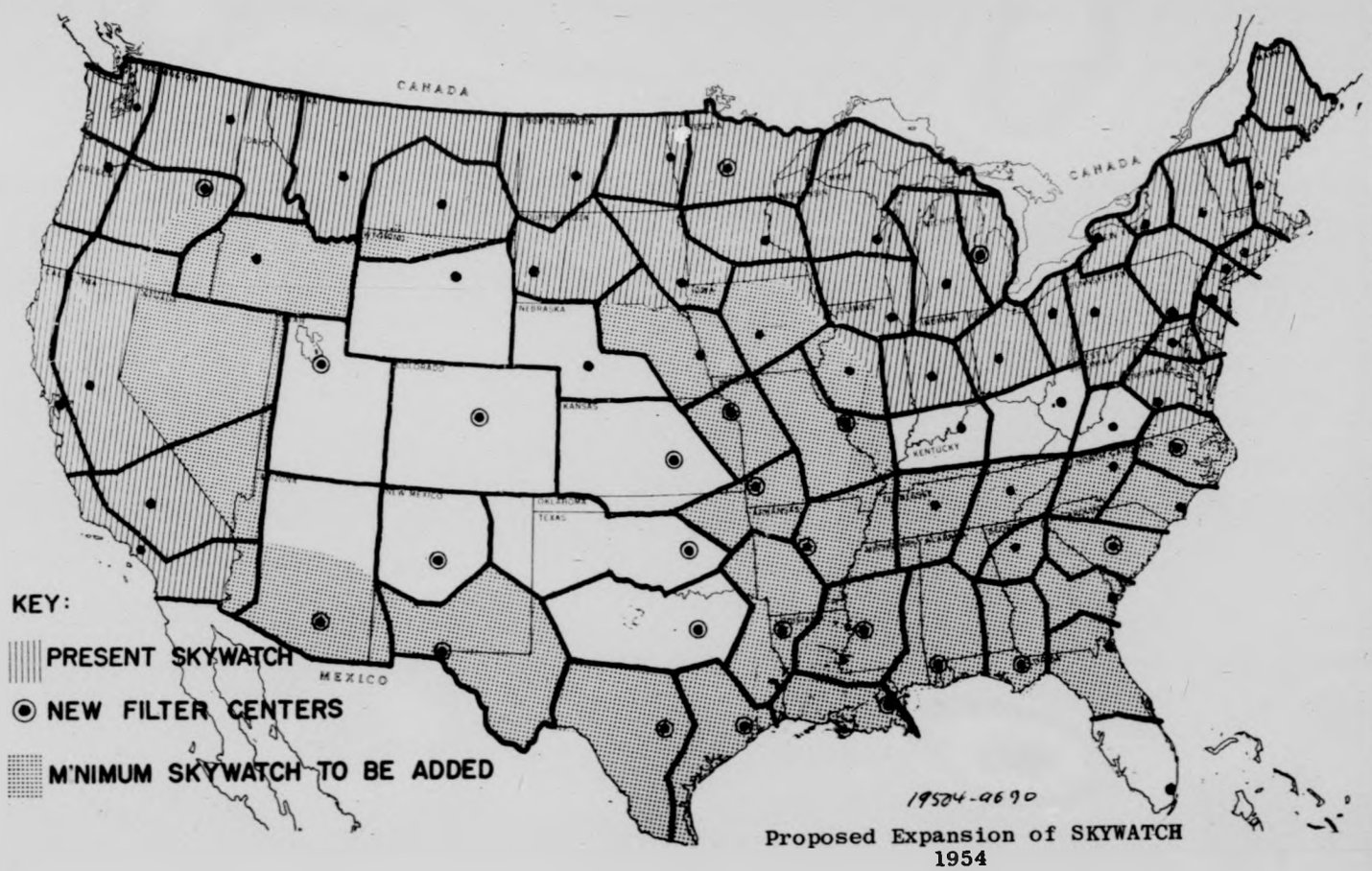
3. Ibid.

4. ADC Operations Plan 10-54, December 1, 1954. See map on the following page.



Proposed Expansion of SKYWATCH
1954

Headquarters USAF approved ADC's recommendations, but at the same time reminded ADC that the implementation of an ambitious program of low-altitude gap-filler radars was underway and that it envisioned that when these radars were installed, the GOC would be reduced, or even eliminated. It asked that ADC furnish it a plan for phasing out the GOC or placing it on standby as the new radars were integrated into the air defense system.[5]

ADC's formal implementation plan for the expansion was issued to subordinate echelons on December 1, 1954, including the statement that "the Ground Observer Corps will be required until such time as radar and/or other electronic means are available and capable of satisfactorily detecting and identifying aircraft of all altitudes penetrating the continental United Staes from any direction."[6] Public notice of the expansion was given in an address by General Chidlaw before a White House conference of Mayors and City Managers the following day.

Thereafter, ADC moved speedily to put its plans into effect. Site selection teams were dispatched to find suitable

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5. 1st indorsement, September 27, 1954 to ADC to USAF, "Expansion of the GOC," September 8, 1954.

6. ADC Operations Plan 10-54, December 1, 1954.

locations outside probable target areas for the new filter centers; the Corps of Engineers was instructed to acquire the needed properties; and arrangements were made to install telephone communications.

General Smith, the prime mover for the expansion, pushed for rapid implementation. But, since it was uncertain when the double perimeter identification plan would go into effect, no specific date could be established for the expansion though Smith used September 1955 as a planning date.[7] He was convinced that the expansion would encouter less resistance if it were accomplished gradually, by filter center areas, rather than all at once throughout the nation.[8]

In January 1955, Smith, in a memorandum to Worthington Thompson, Assistant Secretary of the Air Force for Manpower, rebutted the USAF Headquarters assumption that the fap-filler radars might render the entire GOC unnecessary. Smith reiterated that "as long as there remains a threat, the GOC must remain in the air defense system."[9] He acknowledged that a "good part" of

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7. Col. B.H. Mayall, "Chronological Background and Progress Report of the GOC Expansion Plan," 12 January 1955; Draft Memo., Mayall to Col. O'Dell, "GOC Programming Information," 11 February 1955.

8. WADF to ADC, "Expansion of SKYWATCH Area in WADF," December 3, 1954 and 1st indorsement, December 23, 1954.

9. Smith to USAF, "Future Need for the Ground Observer Corps," March 19, 1955.

the Corps could be placed on standby, but he insisted that the Air Force would be remiss "in not utilizing every means and weapon at our disposal to counter an attack."[10]

A revision to the expansion plan, issued on May 18, 1955, included General Smith's modification of policy concerning the need for the organization in the future. In addition to its operational need stated in the earlier version of the plan, the claim was now made that "the Ground Observer Corps will be required as long as there remains a threat to this country." As for SKYWATCH, it was foreseen that a "good part" of it could be placed on standby "upon full implementation of the electronic detection system." Thus ADC not only met, in part, Headquarters USAF's request for a "plan" for the future,[11] but also added a novel justification for the GOC, arguing that in the event of jamming, sabotage, or other interference with the electronic system, the ground observers constituted an excellent backup to that system.[12]

General Smith's goal of September 1955 for implementation of the new GOC configuration proved to be premature by

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10. Ibid.

11. ADC to Commanders, Air Defense Forces, "Amendments to ADC Operations Plan 10-54," May 18, 1955, and inclosures.

12. Ibid.

three months, the new zones going into effect on December 1, 1955. Smith was disappointed in another respect. The plan to extend SKYWATCH along the Gulf Coast was based upon the assumption that an identification zone in depth would be established along that seaboard. A Gulf Coast ADIZ, however, was not approved by USAF and the Federal Aviation Agency. This made it necessary to eliminate filter center areas there (Houston, Jackson, Mobile, and part of Montgomery) from SKYWATCH plans, though both centers and posts were to be organized on a standby basis.[13]

The new identification zones duly went into effect on December 1, 1955, when ADC Headquarters issued instructions to its subordinate units to implement the expansion of SKYWATCH.[14] The new filter center areas were to begin 24-hour operations on the following dates:[15]

December 1, 1955 (North Platte, Tucson, Albuquerque, El Paso)

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13. ADC to Commanders, Air Defense Forces, "Ground Observer Corps Implementation of the new Air Defense Identification Zones," October 14, 1955.

14. ADC to EADF, "Implementation of Expanded GOC Operation SKYWATCH," December 27, 1955.

15. The Des Moines, Springfield (Illinois), and Boise filter centers had been put on 24-hour operations unilaterally in July 1955 by their Air Defense Force headquarters.

January 1, 1956 (Durham, Charlotte, Columbia, Jacksonville, Savannah, Miami, Knoxville, Nashville)
February 1, 1956 (Salt Lake City, Colorado Springs, Joplin, Hutchinson, Little Rock)
March 1, 1956 (St. Joseph, San Antonio, Corpus Christi)
September 1, 1956 (Atlanta, Montgomery)

Throughout 1955, many ADC officers found it difficult to defend 24-hour operations in areas where GOC tracks could not be used because the military air defense system was not required to identify aircraft. The commander of the 35th Air Division in the Southeast stated the dilemma cogently in a letter to the Commander of Eastern Air Defense Force Headquarters:[16]

> It is essential that good faith be maintained with the civilian volunteers, and that no volunteer be asked to perform duties which have no useful result. This factor has an impact not only upon the decision as to filter center areas assuming a SKYWATCH status, but also the timing of that action. In particular, no filter center area should be required to assume a SKYWATCH status until an operational direction center is available to use the data from the ground observers.

A discussion of this problem was held at Headquarters Continental Air Defense Command in November 1955. It was acknowledged that the coastal identification zones were

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16. 35th Air Division to EADF, "GOC Implementation of the New Air Defense Identification Zones," October 21, 1955.

sufficiently vulnerable to penetration by low-flying aircraft from seaward that a "buffer zone" along the coast should be set up on the air defense direction centers. Significant tracks generated in these zones and reported by the filter centers to the direction centers were to be acted upon for immediate identification by the military air defense system.[17]

Although this was a recommendation of the CONAD conference, action to establish the buffer zones was so dilatory that Colonel Owen F. Clarke, the GOC Project Officer at Headquarters USAF, fel obliged to warn Major General Kenneth P. Bergquist, the USAF Headquarters Director of Operations, that "If the conscientious and patriotic volunteers in the Ground Observer Corps within some of these areas learn that the information which he or she is providing is not being used and is not vital to our air defense, it would be extremely detrimental to the recruitment program for the Ground Observer Corps and difficult to explain by the Air Force."[18] Clarke urged Bergquist to delay expansion of the SKYWATCH areas "until the entire system was ready to use the information."[19] Bergquist did not, however, halt the progress

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17. Col. Owen F. Clarke, Memo. to Maj. Gen. K.P. Bergquist, January 20, 1956.

18. Ibid.

19. Ibid.

of SKYWATCH and by the end of February 1956 it was well underway with only five filter center areas remaining to be implemented.

However, this was to be the apogee of SKYWATCH's career. A number of factors were converging at this time to cause a retrenchment and by the end of the following year, the complete elimination of SKYWATCH. The first factor has been stated, that there were influential forces that resisted General Smith's campaign to expand SKYWATCH and to keep the GOC intact "as long as there remains a threat to this country." In May 1955, General Chidlaw retired as commander of the Air Defense Command, leaving General Smith as acting commander pending the arrival of the new commander, General Earle E. Partridge. Partridge took command of Air Defense Command in July, remaining until he relinquished that post in September 1956 to devote all his time to his additional duty of Commander-in-Chief of the Continental Air Defense Command. Smith continued to serve as vice commander of ADC until July 20, 1956 when he left for another assignment. Partridge was not nearly so sympathetic to the Ground Observer Corps as was his predecessor Chidlaw. Though he was appreciative of its work, he did not believe, as did General Smith, that its services would be needed indefinitely.

At the end of February 1956, during a meeting with state civil defense directors in Colorado Springs, Partridge informed the conferees that though the GOC was still "badly" needed, the implementation of the Distant Early Warning (DEW) Line and the gap-filler program in the not too distant future would "make it possible for us to relax somewhat in the GOC." The Corps could be reduced at some future date, he added, either in the late fifties or early sixties.[20]

Partridge's optimism was based on the impending realization of plans made in 1953 for the improvement of defenses against the manned bomber. In early 1956, the Semiautomatic Ground Environment (SAGE) system was only a year away from initial operation; the Distant Early Warning Line was surmounting enormous obstacles and was expected to become operational about the same time; and the several hundred low-altitude, unmanned gap-filler radars that USAF had approved early in 1954 were also expected soon. In addition, plans were being prepared to replace almost all prime ground radars with more powerful models designed to overcome electronic jamming. Of special relevance to the problem of detecting

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20. "Proceedings, Civil Defense-Ground Observer Corps Conference," February 29-March 1, 1956," p. 5.

aircraft penetrating the ocean coasts from seaward was the progress being made by the Texas Tower program, the Airborne Early Warning and Control program, and the off-shore picket ship force.

The first of these programs envisioned the positioning of radar platforms anchored to the sea floor several hundred miles off the coast. The second consisted of a force of radar-equipped long-range aircraft patrolling the coastal identification zones still farther from shore. The third contemplated the use of U.S. Navy destroyers equipped with long-range radars to detect airborne intruders from seaward.

These innovations promised to go far in detecting enemy raiders. They promised also, to provide a deterrent to attack, since by increased early warning it would be possible to alert the retaliatory bomber force of the Strategic Air Command in time to inflict unacceptable damage on the enemy's homeland.

The imminence of these new air defense resources during the early months of 1956 caused many persons at ADC and USAF Headquarters to reassess the future of the GOC. The notorious low-altitude deficiency of radars might be corrected by the new gap-fillers and the new off-shore radar systems could detect sneak attacks from the sea.

With these new capabilities, the GOC might be restricted to backing up the electronic detection system if the latter were jammed or otherwise incapacitated.

In the meantime, regardless of what the future held, the Air Defense Command was committed to a vast expansion. In fact, growth was so vigorous that Headquarters USAF was uneasy with what it suspected was a "runaway train" at ADC. At the end of February 1956, it heard a rumor that ADC was planning to place the entire Ground Observer Corps on 24-hour operations and to so inform the public. To ADC went a warning that "this is a policy matter which requires consideration...at the Washington level,"[21] plus a request that ADC submit a plan if it wished to extend SKYWATCH further.[22]

The recommendations drafted by the meeting at Headquarters CONAD in November 1955, bore fruit four months later, when ADC directed its field forces to establish buffer zones.[23] That directive noted that the inference that the radar coverage over the coastal air defense identification zones was invulnerable to penetration could not be assumed, unless the

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21. Message, USAF to ADC, February 28, 1956.

22. Message, ADC to USAF, February 28, 1956.

23. ADC to Air Defense Forces, "Establishment of GOC Buffer Zones," March 14, 1956.

Texas Tower, picket ship, and Airborne Early Warning and Control programs were fully implemented.

A buffer zone for surveillance and identification behind the coastal ADIZ's and international boundaries was deemed to be necessary in order to prevent potential raiders from flying inland undetected, particularly at the lower altitudes. Consequently, the command directed that such zones be established along coastal perimeters and along international borders. In them, all aircraft movements were to be reported by SKYWATCH observation posts. The zones were to vary in depth to insure a minimum of two observations of tracks on penetration headings.

It was estimated that a zone would be from 25 to 75 miles in depth. Coastal metropolitan complexes were to be exempt from the requirement, presumably because the density of the air traffic overhead would make it difficult to identify aircraft. The observation posts were to report all aircraft movements in the buffer zone to the filter centers, which, in turn, would establish tracks on a single observation in the buffer zone when the aircraft was reported on a penetration heading. The filter centers were to forward all penetration tracks of jet aircraft, multi-engine aircraft, formations, aural unknowns, and unusual occurrences to their associated direction centers. The direction centers, in turn, on receipt of tracks on penetration headings

in the buffer zone, were to attempt to identify them and take air defense action on all aircraft that could not be matched with the flight plans.[24]

The anxiety expressed by Headquarters USAF at the action contemplated by Air Defense Command in extending SKYWATCH throughout the United States was not lost on ADC. On March 30, 1956 it admonished its air defense forces that reduction or expansion of SKYWATCH was a matter of delicacy and that under no circumstances were the field units to unilaterally change the status of the filter centers from standby to SKYWATCH without the prior approval of higher authority.[25]

At Headquarters USAF doubts about ADC's plans reached a climax on April 6, 1956 when the Assistant Secretary of the Air Force, David S. Smith, sent a memorandum to General Nathan F. Twining, expressing the belief that the GOC was becoming a source of embarrassment to the Air Force. He alleged that a great amount of GOC-generated data was passing into the air defense system that was not being used and

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24. Ibid.

25. ADC to Air Defense Forces, "Policy on GOC SKYWATCH Operation," March 30, 1956.

pointed out that some areas had no radar facilities but that nevertheless posts were required to make reports of sightings. If the Air Force did not believe that the area warranted a radar coverage, then, Smith assumed, the GOC data was logically useless. He also called attention to the fact that in September 1954, when authorization was granted for an expanded GOC program, the Air Defense Command had been asked to submit a plan for phasing out or placing the GOC on a standby status, but no such plan had been received. In his opinion "we should develop a definite policy with regard to the future of the Ground Observer Corps for possibly the next ten years."[26] Finally, Smith stated that "in view of the investment in money and manpower and the public relations impact connected with the present program, I am led to the conclusion that the entire program should be subjected to a most searching reappraisal."[27]

In spite of the Pentagon's hesitation, ADC was determined to proceed with its expansion. On April 12, 1956, over General Smith's signature, ADC asked Headquarters USAF for permission to expand SKYWATCH throughout the entire country.

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26. Memo. Assistant Secretary of the Air Force David S. Smith to the Chief of Staff, USAF, April 6, 1956.

27. Ibid.

28. ADC to USAF, "Expansion of the Ground Observer Corps SKYWATCH Operation," April 12, 1956.

Smith noted that ADC had been "placed in an untenable position" because some SKYWATCH areas were established in support of the identification function whereas others were not. A decision was mandatory: "Either further expansion of SKYWATCH needs to be made to emphasize the detection and tracking capabilities of the GOC or some of the present SKYWATCH areas need be reduced to standby status."[29] He did not favor the latter alternative because, in his opinion, the GOC had to detect and track low-altitude penetrations. He anticipated that need would exist even with gap-filler radars in operation.

Smith called attention to the fact that the southern part of the United States, hitherto deemed closed to enemy bombers because of the long distances from their home bases involved, was now an attractive port of entry for them. Research in meteorology had recently determined the existence, at extremely high altitudes, of the jet stream that could add significantly to the range of enemy bombers. Since the southern flank of the continental defense system did not contain radar coverage, an enemy attack might be detected first by elements in the interior of the United States. Here the GOC could play an important role. Smith maintained that the standby GOC was useless, since "alerting procedures have not proved sufficiently rapid to place any significant portion of

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29. Ibid.

the GOC on SKYWATCH status in sufficient time to provide any measure of assistance to the radar network."[30]

Smith further emphasized that the capital investment in the Ground Observer Corps was approximately $6 million. An additional $3.5 million was needed to put the balance of the organization on 24-hour operation, without an increase in capital investment, since the filter centers were already established. This, in his opinion, was an economical outlay for the benefits to be received.[31]

In the light of the anxiety already manifest at Headquarters USAF concerning ADC's ambitious plans, it was perhaps inevitable that the last request for expansion be viewed with skepticism. On May 8, General Twining informed General Partridge that the expansion was not favored.[32] Also, he forwarded David S. Smith's complaint about ADC's handling of the Ground Observer Corps. Twining agreed with the memorandum, suggesting that the entire program be subjected to a searching reappraisal.[33]

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30. Ibid.

31. Ibid.

32. Twining to Partridge, May 8, 1956.

33. Ibid.

This negative reaction was anticipated. When ADC had requested approval for the expansion, it had submitted an alternative proposal to reduce SKYWATCH.[34] The latter called for placing 11 SKYWATCH filter centers, not in direct support of air defense identification zones, on a standby basis.

Because of USAF's action, retrenchment was the order of the day. General Partridge wrote Twining that he planned to put the 11 non-ADIZ filter centers on standby as soon as possible. In addition, he proposed to reduce SKYWATCH in two additional phases. In the first, he wanted to curtail operations in the interior of the United States "compatible with day to day operation of the air defense system." SKYWATCH was to be retained only where it supported ADIZ's in coastal and perimeter areas. After that, a third phase was to eliminate all GOC activities by mid-1960.[35]

ADC's course was now charted. Expansion had reached its apogee, SKYWATCH shifted into reverse gear. At that time there were 67 filter center areas covering 48 states. Fifty-six were on a 24-hour status, including their posts. Of 17,730 organized posts, 889 were on SKYWATCH. In all, some 350,000 volunteers were deemed to be "active" in the GOC.[36]

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34. ADC to USAF, "Expansion of the GOC SKYWATCH Operation," April 12, 1956.

35. Ibid., inclosure, "Outline Plan for Reducing GOC SKYWATCH Operation."

36. Commanders Status Book, September 24, 1956.

CHAPTER IX

THE END OF THE GOC

While General Twining accepted the decision to curtail SKYWATCH, he approved only Phase I of the reduction plan, noting that if the volunteers knew that it was scheduled to end in the near future they would be hesitant about staying in the program. Twining also believed that any commitment to the total elimination of SKYWATCH would be risky since implementation of the gap-filler program might result in less than the desired radar coverage at low altitudes.[1]

Twining's reluctance to commit the Air Force to a complete cessation of SKYWATCH was revealed in the following dialogue which took place on February 28, 1956 before the Sub-Committee on Military Operations of the House of Representatives.[2]

Mr. Holifield. Could you tell us... General, why you say that the Ground Observer Corps is important? There has been a discussion in our committee...as to the

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1. Twining to Partridge, June 8, 1956.

2. U. S. Congress, House, Sub-Committee on Military Operations of the Committee on Government Operations, Hearings on Civil Defense, 84th Cong., 2d Sess., 1956, (meeting of February 28).

actual worth of the Ground Observer Corps, in view of the fact that we could anticipate that the enemy would take advantage of darkness possibly, and either low flying or extremely high flying, in order to strike the nation. What real contribution can the Ground Observer Corps make?

General Twining. Well, we have the mile-high zone under our radar screen, in which we are not too effective today with our radar. That is the place we are concerned about, and that is why we have the ground observers and their job is to look and listen and report, and they are doing well. We do not have them up to the number we would like to have but we have a considerable number of people, as you know, in the Ground Observer Corps. Now, some day, maybe the next three or four years, maybe as short as that, we will gradually be able to put in our new type of radar to cover this zone from the surface to about 5000 feet, and at that time the requirement for them will diminish considerably, I should think. We are putting in gap-filler radars, we call them. We are putting some in right now, and in parts of the United States, although there may always be some Ground Observer Corps people, certainly when we get that equipment in, the requirement for them will diminish and certainly the around-the-clock requirement will, but right now we feel we must have them.

Mr. Holifield. Would they be effective at night?

General Twining. They could be at night, yes, they hear, sir, they hear planes and see them.

Mr. Holifield. Your considered judgment then is that they do render service and will render service until you are able to fill the radar gaps at the lower level?

General Twining. That is right.... I do not see the time when we can do away with all of them. We can do away with some and perhaps some day we will not need the large numbers we are thinking of today.

Although Twining approved Phase I of the reduction proposal, slight modifications were made subsequently by Headquarters, USAF. Three filter centers were deleted

from the 11 centers to be reduced to standby status. The Baltimore area was left on SKYWATCH because Washington, D. C. was located within it and a reduction of status "might cause national significance to be attached to a standby of that entire area."[3] USAF also insisted that the time of implementation of Phase I be postponed from January-March 1957 to March-June 1957.[4]

The Ground Observer Corps Review Council, on August 8, 1956, concurred in the first phase of reduction plan. The representative from Headquarters USAF stressed that no firm commitment should be made to place the entire GOC on inactive duty. He thought that any statement along those lines would hamper the construction of observer posts and have adverse effects upon recruiting and retaining civilian volunteers. The council adopted the principle that the GOC was needed "as long as there remains an air defense threat." Also, it recommended that the entire Ground Observer Corps be renamed SKYWATCH with 24-hour duty areas referred to as "operational ready" areas and standby areas referred to as "ready reserve" areas.[5]

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3. USAF to ADC "Outline Plan for the Reduction of the Ground Observer Corps to Standby Status", August 6, 1956.

4. Ibid.

5. "Minutes of the Ground Observer Corps Review Council", August 8, 1956.

In directing its field forces to proceed with plans for the reduction, ADC stressed that every effort should be made to get volunteer leaders to take over the recruiting and administration phases of the program. Eventually, volunteers were to do most of the actual training.[6]

ADC and Headquarters USAF considered it to be especially important that the officials of the states be thoroughly prepared for the impending reduction of SKY-WATCH. In October 1956, Secretary of the Air Force Donald A. Quarles notified each state governor of the reasons for the curtailment and reiterated that "as long as an air defense threat exists, we will need a well-organized and trained civilian volunteer Ground Observer Corps."[7]

At approximately the same time, Colonel Broun H. Mayall, Director of Civil Air Defense at Headquarters Air Defense Command, explained the reduction in detail to the state civil defense directors assembled at their annual

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6. Gen.N. B. Harbold to Air Defense Force Commanders, September 28, 1956.

7. Quarles to State Governors, October 1956.

conference in Battle Creek, Michigan. Again, Mayall stressed that the GOC would remain in being indefinitely.[8]

The modification of SKYWATCH coincided with a shortage of funds for air defense. The Ground Observer Corps had to bear its share of the austerity program. In January 1957, ADC directed its subordinate units to keep expenditures to the minimum. This was to be done in part by having the GOC report only aircraft which were "significant" and by reducing telephone costs, the latter, in part, by the elimination of non-significant aircraft "flash" messages.[9]

The monetary shortage posed another threat to the GOC. On January 23, 1957, ADC's commander, Lieutenant General J. H. Atkinson, informed Headquarters USAF that an extreme shortage of operation and maintenance funds made it necessary that SKYWATCH be further reduced. He recommended that 24-hour operations be continued within the ADIZ on the northern border of the U. S. and that there be established a 24-hour perimeter on the East and West coasts varying in depth from 25 to 100 miles. All other facilities were to be placed on a ready-reserve

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8. Briefing by Col. Broun H. Mayall to Conference, National Association State Civil Defense Directors, Battle Creek, Michigan, October 16, 1956.

9. Message, ADC to Air Defense Forces, January 23, 1957.

status. Atkinson justified the reduction from an operational standpoint by noting that the mid-Canada radar line was to become operational on April 1, 1957, affording ample means for alerting the GOC and preventing undetected penetration of the Canadian border. He directed that the changes be carried out not later than that date and asked for Headquarters USAF's immediate approval.[10]

At this time the Pentagon expressed fear that ADC was moving too fast to close down the ground observer program. Mr. John J. McLaughlin, of the Secretary of the Air Force's office, reported "a growing belief that the interest of ADC in the GOC has diminished."[11] He requested a conference with appropriate officers to determine a future course of action and in preparation for it he asked that the comments of all ADC air division commanders and defense force commanders concerning their requirement in their specific areas for the GOC should be submitted to him.

The conference resulted in a new recommendation to Headquarters USAF. All peripheral filter centers around the United States were to be retained on 24-hour duty, with the exception of Houston, Jackson, Mobile, and Montgomery, which were to remain on ready-reserve status.

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10. ADC to USAF, "Ground Observer Corps Operational Status," January 23, 1957.

11. McLaughlin to Bond, February 18, 1957.

All other filter centers throughout the country were to be put on ready-reserve. In the period from July to September 1957 the GOC along the northern perimeter was to be reduced to ready-reserve status. All interior filter centers were to be inactivated. These two actions were predicated on the operational success of the Distant Early Warning (DEW) Line, expected to become operational during this period. After these actions a third phase to take effect in the period from July to September 1958, was to be implemented. At that time the GOC on the East and West Coast was to be reduced to ready-reserve status and the filter centers along the northern border were to be inactivated. Up to this point the filter centers along the Mexican border were to be retained on an operational status depending upon the completion of the radar network in that area.

The fourth and final phase of the reduction program was to take place in the early sixties. At that time the entire GOC was to be inactivated because "the state of the art of aerial warfare, including the ICBM threat, precludes any further need for the GOC." [12]

In spite of the fact that ADC's proposal for reduction had been concurred in by Mr. McLaughlin, General Twining at Headquarters USAF did not go along with it. He

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12. ADC to USAF, "ADC Policy and Program for Ground Observer Corps," March 14, 1957.

approved only the first phase of ADC's plan and turned down ADC's recommendation for inactivation of the GOC in the 1960's.[13] Twining's refusal to contemplate inactivation in the near future was in line with his policy statement of the previous October that the GOC would be needed a long "as there remains an air defense threat."

Thus the ground was prepared for the reduction of 14 more operational filter centers to a ready-reserve status before July 1, 1957. On that date there would remain an operational perimeter on the East, North, West and the Mexican-U.S. border. News of the additional reduction was released by Colonel Mayall to the state civil defense directors at their national meeting on April 15, 1957 in Washington DC.[14]

A detailed answer to ADC's proposal came on May 7, 1957 over the signature of General Thomas D. White, Vice Chief of Staff of USAF.[15] White noted that intelligence estimates showed that the major air threat against the continental United States would continue to be subsonic manned bomber until the mid-1960's. Until then, Russian

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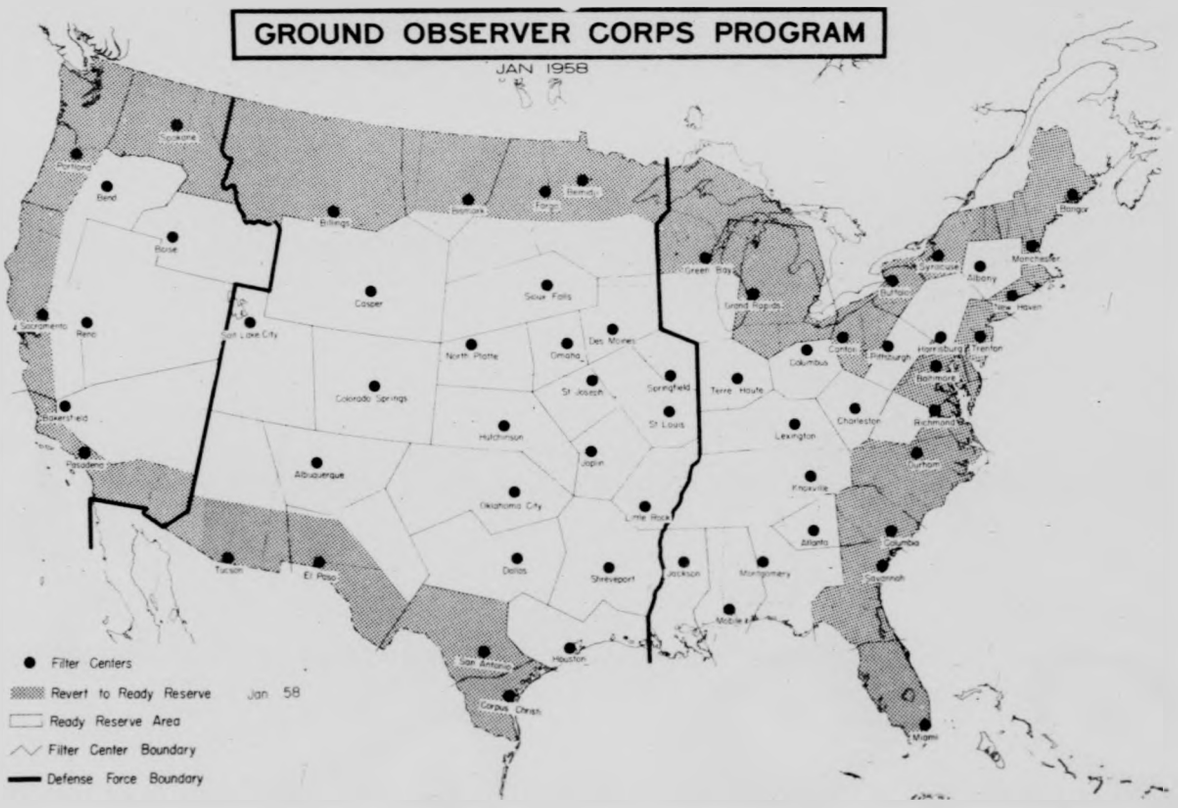
13. Msg., Twining to Atkinson, March 19, 1957.

14. ADC to Air Defense Forces, "Procedures for Changing Certain Ground Observer Corps areas to Ready-Reserve Status," April 2, 1957, and inclosure, Col. Mayall's speech to National Association of State Civil Defense Directors.

15. USAF to ADC, "ADC Policy and Program for Ground Observer Corps," May 7, 1957.



bombers would have the capability of making low-altitude penetrations so that the GOC, although limited in its capability, would continue to make a significant contribution "until adequately replaced by other systems." [16] White emphasized that the GOC was relatively an expensive system, in some areas of the country might be the only capability in air defense, and that serious consideration should be given to its backup capability.

White remonstrated that "utilization in efforts to attain maximum effectiveness of the GOC have been diminishing." Noting that "this may be a natural result of recent economy considerations and a pseudo-devaluation of GOC operational capabilities in the light of overshadowing expansion and improvement in electronic warning and tracking systems," he directed that Air Defense Command revaluate its surveillance procedures "with the view toward fully explaining and integrating the capbilities of the GOC into the air defense resources." [17]

With respect to a second phase of ADC's plan--retaining a 24-hour capability for the GOC on the East and West coasts and on the Southwest border of the United States --White made Headquarters USAF approval contingent on the

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16. Ibid.

17. Ibid.

successful operation of the Distant Early Warning and Mid-Canada Lines that he hoped would take place by July 1958. As to the third phase of ADC's reduction program--putting the entire country on a ready-reserve status--Hq. USAF made that contingent upon successful completion of additional early warning programs such as Navy-operated airborne early warning and control aircraft (Newfoundland to the Azores and the Aleutians to Midway) as well as the completion of a ground radar program along the Aleutians and from Greenland across Iceland to the United Kingdom. When all of these programs were operational then the GOC could be inactivated. White called for a detailed ADC plan based upon his guidelines.[18]

The financial strictures on the Air Defense Command had the effect of quickening its desire to reduce the GOC even more rapidly. Thus, Major General Harold W. Grant, ADC's Deputy for Operations, recommended to his superiors that the entire GOC be put on a ready-reserve status effective January 1, 1958, a proposal which would save $800,000 in communications funds for the new fiscal year. In his opinion, there would be no adverse effect on the operational capability of the GOC.[19] The proposal was accepted by the Commander of

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18. Ibid.

19. Gen. Grant, "Memorandum for the Vice Commander," August 6, 1957.

ADC and, consequently, on August 14, 1957 a recommendation for a phase-down of the GOC throughout the entire country to ready-reserve status was made.[20] This time, ADC was careful to make no reference to plans for inactivation of the GOC "until we are completely sure there is no further operational requirement for the GOC to supplement and complement our electronic surveillance system."[21]

It was the opinion of Lieutenant Colonel Charles R. Stapp, successor to Colonel Broun H. Mayall as the officer in charge of GOC matters in the ADC Directorate of Operations, that everybody concerned with the GOC believed that peacemeal changes had done a great deal of harm and that the program would be much better off to have one big change than to have two or three small ones. He told McLaughlin he thought that there would be a stronger and more dependable program if it were all to go on ready-reserve. As to inactivation, he thought that any programming to that effect should be held in abeyance in view of delays in completing the electronic and gap-filler and surveillance programs. More important, Stapp insisted that the existing air defense identification zones were useless. By this time, the radar reporting system had

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20 ADC to USAF, "Recommended Change in the Operational Status of the Ground Observer Corps," August 14, 1957.

21. Ibid.

virtually declared all aircraft in ADIZ's as friendly by location. Consequently, in his opinion there was no point to having the Ground Observer Corps inside the domestic ADIZ's on 24-hour operations.[22]

Nevertheless, McLaughlin did not go along with the proposal to place the entire GOC on ready-reserve by January 1, 1958. If anything, he was repared to speed up the inactivation, especially in the enterior of the nation because he believed that the program was needed only on the periphery.[23]

Headquarters USAF, however, did not agree that the time had arrived to begin inactivating the GOC. On the contrary, it agreed to put the filter center along the Canadian border on ready-reserve by November 1, 1957, but it believed that ADC had sufficient funds as a result of recent fiscal actions to continue the remaining 17 filter centers on 24-hour duty by having the observers report sightings on a more selective basis and by economizing on

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22. Record of Telephone Call, Lt. Col. Charles R. Stapp, Sept. 11, 1957.

23. McLaughlin to Bergquist, Memorandum, Sept. 16, 1957. A very influential voice in GOC matters was now interposed in the debate about the future of the GOC. That was the voice of General Earle E. Partridge, Commander-in-Chief of the Continental Air Defense Command and former Commander of ADC. In a memorandum to his Operations staff, Partridge noted that "It seems to me that the time has come to discontinue the Ground Observer Corps flat out and without any reservations whatsoever." Memo., Partridge to DCS/P&O, Sept. 19, 1957.

telephone circuits and leased lines. If it became necessary to economize further, however, Headquarters USAF was agreeable to reducing the 17 filter centers, which were located in the coastal and southern border regions, to ready-reserve in the spring of 1958.

It will be recalled that in a proposal to Headquarters USAF, ADC had indicated its desire to keep in abeyance any inactivation of GOC units. The former did not agree with this since it had approved ADC's request of May 14 to inactivate certain filter centers and posts in the interior of the United States according to Phase II of the reduction program. USAF insisted that keeping inactivations in "abeyance" would require lenghly justification.[24] Therefore, in the interests of further economy Headquarters ADC directed its air defense forces to consolidate as many filter centers as possible in the near future.[25]

The refusal of Headquarters USAF to postpone indefinitely the inactivation of the Ground Observer Corps in the interior of the United States (except for the perimeter) prompted Headquarters ADC to draw up a plan in accordance with the former's policy. ADC actually went beyond the phase-out of the interior units to program an orderly

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24. USAF to ADC, "Recommended Change in the Operational Status of the Ground Observer Corps," Sept. 30, 1957.

25. ADC to Air Defense Forces, "Consolidation of Ground Observer Corps Filter Centers," Oct. 2, 1957.

phase-out of the entire Ground Observer Corps. The perimeter of the country was to be put on ready-reserve on January 1, 1958 and the entire GOC inactivated on January 1, 1959. The plan provided, therefore, for complete inactivation in at one step on the ground that it would cause the lease amount of public criticism and ill will toward the Air Force. The phase-out was also in accordance with the desire of General Partridge to inactivate the GOC as rapidly as possible and it had the concurrence of John J. McLaughlin of the Office of the Secretary of the Air Force. [26]

The proposal was relayed to Headquarters USAF for its approval on October 18, 1957. USAF approved putting the entire corps on ready-reserve on January 1, 1958 but withheld approval of inactivation pending further study. [27]

Thus, the stage was set for the elimination of 24-hour operations in the very near future. On November 14, 1957, news of this was broken to the National Association of State Civil Defense Directors at their annual meeting in Washington, D.C. by Colonel Owen F. Clarke, the USAF GOC Project Officer. Justification was progress in the seaward extensions of the DEW Line over the Atlantic and Pacific Oceans,

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26. ADC to NORAD, "Plan to Orderly Phaseout the Ground Observer Corps," Oct. 10, 1957.

27. ADC to USAF, "Proposed Changes in the Ground Observer Corps," Oct. 18, 1957.

and progress with Navy picket ships and Air Force picket aircraft along the coasts. Clarke also announced that telephones and other equipment in the posts would remain installed and that both posts and filter centers would be in operation only during periods of training exercises and emergencies.

Clarke also emphasized that increasing speeds and altitudes of enemy bombers combined with the development of radar and weapons systems capable of stopping an attack force were fast outstripping manual capabilities. He noted that the GOC was more and more becoming limited to warning and raid recognition though in an emergency it would play a valuable role when called up to 24-hour operations. He added that the GOC was of value in other respects as well as air defense including reporting warning of tornadoes, floods, hailstorms and hurricanes, of airplanes in distress; of unidentified flying objects, and nuclear detonations; and educating the American people on the threat of air attack. On the latter point he stressed that "probably no other organized group of civilian volunteers in this or any other country is better informed on the nature of the threat of air attack as a result of continuous training and

indoctrination over the years." [28]

On January 1, 1958, 24-hour GOC operations came to an end. But the future was uncertain. No date had been established for total inactivation. Though General Partridge believed that the GOC should be phased out as quickly as possible, Headquarters USAF had not disclosed its views though it seemed willing to accept partial inactivation in the interior, behind the 24-hour peripheral zone.

Within Headquarters ADC, some second thoughts developed about inactivation. The Deputy Chief of Staff of Operations, Major General Harold W. Grant, was encouraged by what he believed was an enthusiastic reaction of the volunteers to the announcement of the ready-reserve status. Concerned about the low-level threat, he advocated the retention of the GOC in a ready-reserve status for an indefinite period to come. [29]

Grant's recommendation did not have the concurrence of the commander, Lieutenant General J. H. Atkinson. The

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28. ADC to Air Defense Forces, "Procedures for Changing Certain Ground Observer Corps Areas to Ready-Reserve Status," November 1, 1957, and inclosure, "Presentation by Col. Owen F. Clarke to National Association of State and Territorial Civil Defense Directors," Washington D.C., November 14, 1957.

29. Grant to Commander, ADC, "Proposed Recommendation to Hq. USAF on the Ground Observer Corps," February 24, 1958.

latter's action was influenced by Grant's predecessor as Deputy Chief of Staff for Operations, Major General Hugh Parker. Parker, now Commander of the Western Air Defense Force, wrote Atkinson that [30]

> During the past few years this command has been confronted with the problem of integrating the Ground Observer Corps into the air defense system. Surveillance information submitted by the GOC has not been timely, nor has it been accurate enough to be acted upon by the air defense system. It is logical to assume that this situation would not change during an actual war condition...

Parker went on to disagree with General Grant's assumption that the volunteers were happy in their reserve status. On the contrary, he noted that even before the phase-down to ready-reserve "it was apparent that the military personnel in the ready-reserve areas were finding it extremely difficult to keep themselves productive." Now that the entire GOC was on a ready-reserve status Parker was of the opinion that the problem of inactivity was compounded. He noted that the sector sergeants were "finding it increasingly difficult to maintain a feeling of purposefulness within their respective communities and in the Air Force."

Perhaps the most telling point that General Parker made was that key military personnel were discovering that "feelings of indifference, lack of purpose, and resentment

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30. Parker to Atkinson, February 12, 1958.

were growing among the civilian volunteers." He went on to say that "if this condition is allowed to continue and progressively deteriorate it could very easily neutralize the tremendous gains in public support that the Air Force has enjoyed in recent years and could subsequently tend to negate necessary public support for other more important USAF projects." Judging from Atkinson's marginal comments to Parker's opinions, the former was of a like mind, noting, "this is strong ammunition to close the GOC out before it is now planned. USAF might be willing to go along." With respect to Parker's comment about the resentment among the civilian volunteers, he noted, "we may be waiting too long."[31]

Atkinson had the enthusiastic support of General Earle E. Partridge. On March 17, 1958, with Partridge's concurrence, Atkinson notified USAF that he desired to inactivate the entire Ground Observer Corps on January 1, 1959.[32] Headquarters USAF, however, was pessimistic that inactivation would be approved by the White House within the required time.

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31. Ibid.

32. ADC to USAF, "Deactivation of the Ground Observer Corps," March 17, 1958.

As weeks and then months passed without official reply, ADC became restless. On July 14, 1958, the sixth anniversary of Operation SKYWATCH arrived. Hitherto the anniversaries of SKYWATCH had been celebrated with nation-wide publicity. This time, however, ADC did not wish to be put in an embarrassing situation by celebrating the SKYWATCH anniversary according to custom only to have to announce soon thereafter the total inactivation of the Ground Observer Corps. Consequently, military personnel in the GOC were given instructions to play down the anniversary as much as possible.

During this waiting period ADC also took advantage of the impending implementation of the Semiautomatic Ground Environment (SAGE) to rearrange, through consolidation, the boundaries of the GOC filter centers to conform to the boundaries of SAGE. By end of June 1958, 22 filter centers had been consolidated, leaving 50 in operation, controlling approximately 18,500 observation posts and a hard core of 280,000 volunteers.[33]

ADC's anxiety was also increased by the fact that time was drawing near for preparation of its new budget. The question whether the GOC was to be retained had to be resolved before definite steps could be taken concerning

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33. Memo. ADOOP to ADODO, "Status of the Ground Observer Corps," June 24, 1958.

funds. Formal queries to Headquarters USAF at the end of July indicated that the Secretary of the Air Force and the Secretary of Defense, as well as Headquarters USAF, had approved inactivation but the Federal Civil Defense Agency (FCDA) was required to concur and was currently deliberating the matter, after which the White House would make the final decision.[34] On October 1, 1958, the White house decided to concur, but held inactivation in abeyance until the spring of 1959.[35]

The timetable was accelerated. On October 20, 1958, Headquarters USAF asked ADC what date it preferred for inactivation of the GOC. In answer, ADC requested January 31, 1959, a month after its earlier proposed date, because the delay by the White House required additional time to prepare publicity.[36]

Headquarters USAF approved the January 31, 1959 inactivation date. On November 21, 1958 news releases were given to the news media in Washington by the White House, and on the target date the GOC ceased to exist.

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34. Weekly Activity Report, ADOOP-G, July 18, 1958.

35. Gen. Puryear, Memo. for the Chief of Staff ADC, October 1, 1958.

36. Gen. Puryear, Memo. for the Vice Commander ADC, October 20, 1958.

It should go without saying that an evaluation of the role of the GOC in American history is meaningless unless it is placed firmly in the context of the American air defense problem--a problem which has never been static, but which has changed its assumptions continuously in pace with the evolving threat of air attack.

In the thirties, the continental United States was not in mortal danger of a devastating attack by air, a fact that was recognized by General George C. Marshall in public as late as 1939. Nevertheless, thanks to the foresight of Billy Mitchell and Claire Chennault, among others, attention was drawn to the mounting threat of intercontinental air bombardment. Indispensable in meeting that threat, under foreseeable circumstances, was a "ground environment" of air defense in which a ground observer system played a major role. And so, even though the danger was still remote, tests of an observer system were made, the British experience was studied, and valuable lessons learned.

At the turn of the decade, two events dramatized the need for an American air defense system. The first was the Battle of Britain in which the Royal Observer Corps shared the honors bestowed on air defense. The second was the Japanese carrier attack on Pearl Harbor, which destroyed the complacency of the American public about its invulnerability to air attacks.

There was hardly any resistance to the creation of a civilian observer system on continuous operation following the attack on Pearl Harbor. But, after two years, it was evident that no potential enemy had the naval strength to launch a sustained carrier attack on our shores, or that bombardment aviation had reached the point where our cities could suffer unacceptable damage. Though it observed no enemies during the war, the GOC left a favorable impression among the military airmen who worked with the volunteers. The GOC kept its ranks filled and performed its duties willingly. In contemplating its future use, the military had few disagreeable memories to discourage them.

After the war, when the structure of a permanent system of continental air defense was studied, it was inevitable that the GOC be given serious consideration--in spite of the fact that it had seen no action in the late war. Until an adequate permanent postwar military air defense system was erected, a GOC appeared to be indispensable. Shortly, with the coming of the Cold War, the feeling of urgency about air defense, including the GOC, was heightened.

Though the United States was still flanked by the Atlantic and the Pacific, a new factor entered the air defense equation in the postwar years. That was the atomic bomb. In arguments for an air defense in being, the Air Force stressed the point that timely warning of the presence

of even one enemy aircraft could save a million American lives, though the death of other millions might not be prevented. In this respect, the argument for the GOC was similar to that used in the late sixties for the erection of an anti-ballistic missile system. The argument prevailed and the decision was made to reactivate the GOC on a reserve basis.

The most controversial question in the entire history of the GOC was that concerning the establishment of SKYWATCH. Its moving spirit was Major General Frederic H. Smith, Jr. Taking his cue from Project CHARLES--that GOC volunteers had had to have the conviction that they were indispensable to a vital military operation--and believing strongly himself in the dangers facing the United States, Smith made a strong case for putting a good part of the GOC on duty around the clock.

Smith's proposal was favorably considered because the USAF was also imbued with a sense of urgency, and because it was assumed that the GOC could dovetail successfully into peacetime air defense operations. That assumption turned out to be wrong.

The chief peacetime task of air defense was the identification of air traffic in the sovereign airspace of the United States. The task of the GOC was expected to insure the detection of aircraft at low altitudes. But it was soon

apparent that identification of the ever-increasing air traffic was beyond the powers of the evolving new air defense system. In that part of the United States where the air traffic was heaviest--the Northeast--the Air Force soon admitted defeat and adopted the alternative of identifying traffic penetrating that area from without. Nevertheless, SKYWATCH continued to identify multi-engine and jet aircraft within the Northeast.

Before long USAF headquarters began to question the need for 24-hour operations of the GOC. Its doubt was reinforced by the approaching completion of air defense projects begun some years before and a sense of confidence that a major breakthrough in air defense against the bomber was approaching. In high echelons enthusiasm for the GOC was replaced by impatience to see its relegation to a reserve status and even its total abolition in the near future. Both duly came to pass.

The relations between the state civil defense agencies and the Air Force concerning the GOC are instructive. The inclusion of the GOC in the Federal Civil Defense Act caused confusion in the minds of both military and civilian officials as to whether the states or the Air Force possessed management responsibility over the GOC. In the long run, the good will of the volunteers themselves resolved this dilemma. They wished to help their country

regardless of who was constitutionally empowered to supervise them.

That more of them would have volunteered had they been convinced of the need for their services seems clear. In World War II they turned out in great numbers and willingly. In the SKYWATCH era a hard corps of volunteers also did so, but there were never enough of them to satisfy the operational needs of the program. The urgency stated by the Air Force was not accepted by enough of the public.

In any final assessment it should be recognized that the GOC was a form of national accident insurance in which the insured paid the premiums, but fortunately, remained unscathed.

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Research for this history was based almost entirely on official histories and documents of the United States Air Force. A brief description of their nature, the manner in which they were assembled, and their location, may be of interest to readers of this history.

In 1942, President Franklin D. Roosevelt directed that all government agencies prepare current histories of their participation in World War II. In the Army Air Forces, the wartime historical effort was of considerable magnitude. All AAF units down to squadron level were required to prepare detailed histories of their organizations and to submit them to higher authority, where they were reviewed and forwarded to the archives of the AAF Historical Division in Washington. AAF units that worked closely with the GOC, such as First and Fourth Air Force Headquarters and their subordinate interceptor commands, fighter wings, and information and filter centers, prepared such histories. Toward the end of the war, two civilian historians assigned to the AAF Historical Division mined these histories in the preparation of special monographs on air defense and civilian volunteer activities. One of these historians, Dr. P. Alan Bliss, prepared a two-volume study of the air defense of the continental United States that contained fairly lengthy

sections on the Ground Observer Corps. The other historian, Dr. Mae Link, prepared a shorter study of civilian volunteer activities that featured the GOC. Neither of these studies was ever published by the Air Force, and are available to researchers at the USAF Historical Division archives at Maxwell Air Force Base, Alabama, as are the unit histories on which they were based.

The above-mentioned monographs were especially useful in the preparations of Chapters II and III of the present history. Of considerable value for the pre-war period was a lengthy, unpublished history of the Air Defense Command from February 1940 to June 1941 written by Dr. Arthur P. Watts. Dr. Watts' history was especially useful because it included data on experiments with civilian observer systems as far back as 1937. It had the added virtue of a lengthy appendix of documents illustrating those events.

After World War II, the AAF continued its current history program, requiring its major units to prepare narrative histories for consecutive semiannual periods and to append to the histories copies of the major documents cited. Air Defense Command Headquarters began preparing such histories in 1946. Three years later, the Eastern and Western Air Defense Forces were created and were joined in 1951 by the Central Air Defense Force. All three of ADC's chief subordinate organizations also prepared semiannual histories and collected supporting documents illustrative of their activities--among which the Ground Observer Corps

was conspicuous. These histories and documents provided the chief sources for the history of the GOC in the post-war era. These materials, in either typewritten or multilithed form, are also to be found at the USAF historical archives at Maxwell Air Force Base. Copies are also available at Aerospace (formerly Air) Defense Command Headquarters in Colorado Springs, Colorado.

The historical archives of ADC also contain two documentary collections that are not available at Maxwell Air Force Base, though their most important documents will eventually be sent there. The first of these collections is the files of the Directorate of Civil Air Defense of ADC Headquarters that were transferred to the historical archives when the GOC was discontinued in 1959. The second collection comprises the files of the Federal Civil Defense Administration dealing with the GOC that were transferred to the ADC historical archives in 1966.

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