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# AIR DEFENSE OF ALASKA 1940-1957

Historical Reference Paper  
Number Two

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**AIR DEFENSE  
of ALASKA  
1940 - 1957**

By  
Thomas A. Sturm

Directorate of Command History  
Office of Information Services  
Headquarters Continental Air Defense Command

## PREFACE

This paper seeks to bring together as succinctly as possible all of the information currently available in the Headquarters CONAD historical archives on the subject of Alaskan air defense.

The primary purpose of these reference papers is to make the record of subjects of particular interest at the moment available to CONAD officers as quickly as possible. Later, if there is a need for it, the subjects (or aspects thereof) will be treated more comprehensively in full-dress historical monographs.

The historical office will welcome any suggestions for improving the form or content of the papers to better meet their purpose.

Credit for whatever service the paper performs is shared with Dr. Ira E. Chart, Alaskan Air Command historian, whose semiannual and monographic studies provided a large part of the information used. Elsie L. Joerling and S/Sgt Derril E. Howell, members of the CONAD historical office, performed the exacting chores of preparing the manuscript and illustrations for publication.

Ent Air Force Base  
Colorado Springs, Colorado  
17 April 1957

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## THE WORLD WAR II DEFENSES

Before World War II, Alaska was the forgotten frontier for defense. As late as the spring of 1940 the Alaskan garrison consisted only of a battalion combat team of the 4th Infantry Division, totaling about 700 men. There were no air forces in the Territory and little naval strength.

The War Department had set out to try to improve the situation in late 1939. In November, General George C. Marshall, the Army Chief of Staff, pointed out that the unprotected harbors and major population areas in Alaska invited seizure by small enemy forces. He recommended garrisoning ground troops in these areas immediately. He also recommended that an Army airbase be built at Anchorage.

His recommendations were approved in May 1940. The next month the Alaskan Defense Force was created and given the mission of defending Alaska. Under the stimulus of the now very real prospect of aggression against Alaska by either Japan or Russia, work began in earnest to develop ground and air stations at Unalaska, Anchorage, and Fairbanks. At the same time, ground troops began to arrive in ever-greater numbers to guard these areas and the fast-expanding Navy bases at Kodiak, Sitka, and Dutch Harbor.

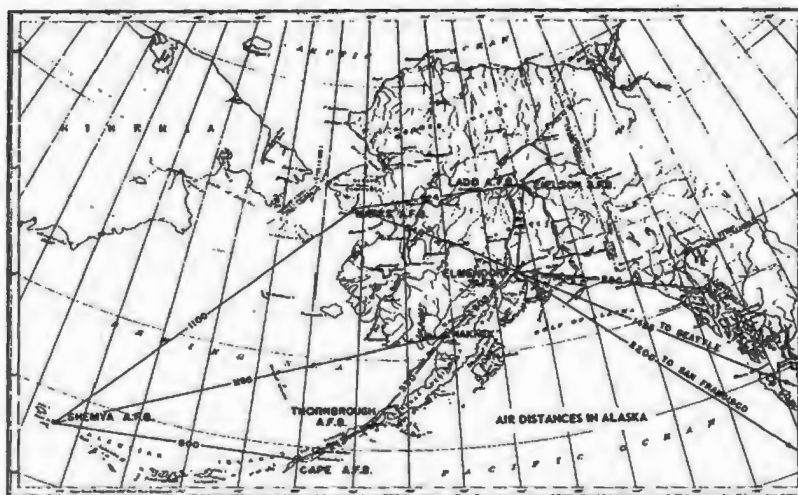
In February 1941, the Alaska Defense Force was renamed the Alaska Defense Command. The next month it was placed under the control of the newly formed Western Defense Command in San Francisco, commanded by Lieutenant General John L. DeWitt. This placed the ultimate responsibility for Alaskan defense in the hands of the officer charged with defending the western United States, where it remained throughout the war.

Meanwhile, the first Air Corps officers and men had arrived in Alaska in August 1940. By the following February, the 18th Fighter Squadron had been transferred from the States to Elmendorf Field, the new airstrip outside Anchorage, and directed to ready its P-36's for



action.\* Soon after, the 73d and 36th Bombardment Squadrons, flying B-18A's, arrived from the States. In May, the Headquarters Air Forces was formed under the Alaskan Defense Command as the top air organization in Alaska.\*\* Its jobs were to prepare and carry out an adequate Alaska air defense plan and otherwise support the mission of the Alaska Defense Command.

The pre-war plan for defending Alaska had centered on the Seward-Anchorage areas, supplemented by joint Army and Navy defense of Navy installations at Kodiak Island and Dutch Harbor. By 1941, the area to be defended had been extended to include the islands in the Aleutian Chain, which were now wide open to Japanese occupation. The new plan (followed throughout the war) concentrated air strength along the axis from Elmendorf Field to Umnak Island. The defenses were "anchored" at Elmendorf and from there shifted back and forth along the chain as necessary. Skeletal defense arms were located at Cordova, Yakutat, Annette, and Juneau airbases to the south of Elmendorf, and Bethel and Nome to the North, with staging and intermediate fields along the way. Had the mainland been attacked, forces could then have been shifted in any one of three directions.



\* The appropriation for Elmendorf was passed in early 1940 and work began on it soon after. It was named in memory of Hugh T. Elmendorf, an Air Corps Lieutenant killed in an air accident at Wright Field.

\*\* Called the Air Field Forces until October 1941.

[REDACTED]

A plan for a radar aircraft warning and control system was completed in the fall of 1941, calling for stations along the Aleutian chain, the west coast of the mainland, and in the vicinity of the major population and military centers. After war broke out, General DeWitt pressed for what he called a "cordon defense" comprised of twenty radar stations. Washington replied that commitments to other theaters made it impossible to grant the request, reducing the planned number of stations to ten. Later, it was raised to sixteen.

At the time of the Pearl Harbor attack the Alaskan defenses had been built up to two infantry regiments, four battalions, and the one pursuit squadron and two bombardment squadrons. Four airbases were capable of handling full military operations -- Elmendorf, Ladd at Fairbanks, and Yakutat and Annette on islands south of Anchorage. Finally, work had begun and was being pushed to completion on operational airstrips at Nome, Naknek, Cold Bay, Gulkana, McGrath, Juneau, Umnak, and Cordova, and staging bases at Big Delta, Northway, Galena (Ruby), and Port Heiden. Cold Bay, near Fort Randall, and Umnak were given highest priority for completion. Located far out on the chain, they were desperately needed both for protecting Army and Navy installations against Japanese air strikes and for bomber operations against possible Japanese landings on the islands.

It had now become necessary to immediately strengthen the air forces. Early in January 1942 the 11th Fighter Squadron, flying P-40's, and the 77th Bombardment Squadron, with B-26's, were flown in from the States. The 54th Fighter Squadron arrived soon after.

Also, Canada moved to our aid. On 5 May, RCAF No. 115 Fighter Squadron, with 14 Bolingbroke fighter-bomber aircraft, moved onto the airbase at Annette Island.\* The next month, RCAF No. 8 Squadron of Bolingbrokes flew into Yakutat from Sea Island, B.C. Later, it moved up to Elmendorf and sent detachments to Nome and Kodiak on occasions. Soon after, No. 111 Squadron, flying P-40's, arrived at Elmendorf. These Canadian units stayed on to perform invaluable patrol missions through the critical months of the war.

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\* Since its location was well suited to the defense of Prince Rupert, B.C., this squadron remained under the operational control of the commander of the Prince Rupert Defences. Presumably, the other squadrons operated under the operational control of the Alaskan Air Forces commander.

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In early February 1942 the Alaska Air Force was re-formed into the Eleventh Air Force. It was assigned to the Western Defense Command and placed under the operational control of the Alaska Defense Command. In March, it formed under it the XI Fighter Command to take charge of organizing and operating the strictly air defense portion of its mission. Headquarters for all of the new organizations were located on Fort Richardson, adjacent to Elmendorf Field.

S.S.

By this time, Alaska had been divided into seven priority areas for defense. The Fort Richardson-Elmendorf-Anchorage area was given first priority. Second was the Naval base and air station at Kodiak. The military forces at Fort Greeley on Kodiak and the Navy and Army installations in the vicinity of Dutch Harbor received third. Yakutat, Annette, Naknek and Cold Bay held fourth, fifth, sixth, and seventh priority, in that order. These areas were considered the most vital ones; so long as they could be held the rest of Alaska would be safe.

D.F.

S.F.

By April 1942 the fields at Annette, Big Delta, Kodiak, Northway, and Yakutat and, of course, Elmendorf and Ladd, were in full use. The first combat planes landed at Umnak (later named Cape Field in memory of Lieutenant John Cape, first Eleventh Air Force pilot to lose his life in battle) on 20 May. Cold Bay, Naknek, and Nome were usable by this time but were not quite ready to bear a full military load.

This was the aircraft picture at the time the Japanese attacked Dutch Harbor in June 1942.\* The radar warning and fighter control system had not progressed as well. The stations were usually inaccessible by road and most of them did not have landing strips for flying in materials. Consequently, the only avenue for reaching them was by boat, and this only when the waterways were not frozen over. Too, many of the stations were found to be improperly sited and had to be re-located. As a result of these problems, only two of the stations were operating by June 1942. Four heavy bombers equipped with radar gear had been assigned to the Eleventh Air Force in March 1942 and were on aerial patrol to uncover information on enemy movements. They did not make up for the lack of ground radar stations, however.

Final

\* The actual strength and deployment of the Eleventh's aircraft at the time of the Dutch Harbor attack were as follows: 13 B-26's and 32 P-40's in the Aleutians, half of them at Umnak the rest at Cold Bay; 8 B-17's, 15 newly arrived P-39's, and 17 P-40's at Kodiak. Twelve B-26's and 23 P-38's at Elmendorf. The Navy had patrol planes and 12 F-4F's at Kodiak.

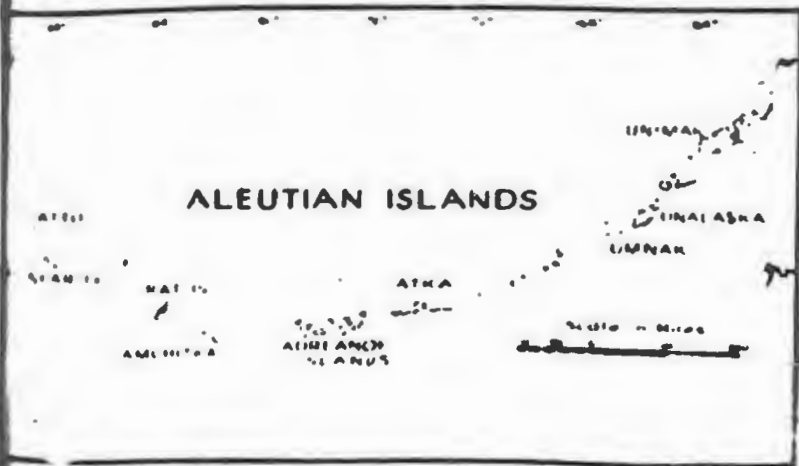
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## March 1942



### LEGEND

- ⊕ AIRBASE
  - OPERATING AIRDROME
  - + STAGING FIELD
  - ⊙ DEPOT
  - AIRCRAFT WARNING  
(ACTUAL OR PROMISED)
- TOWNS OR CITIES



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From this time until the withdrawal of the Japanese from the islands of Attu and Kiska by August 1943 the main defense effort was naturally concentrated in the Aleutians. Two additional fighter squadrons, the 56th and 57th, were eventually formed and the airbases in the Aleutians and on the mainland developed to an adequate operational level. By 1943, some ten to fifteen radars were operating from hastily built and generally inadequately sited stations, the majority of them along the Aleutians. Communications were poor and the equipment was not capable of performing adequately. Various plans were drawn up for improving the system. But by the time production had reached a point where better equipment and communications could be installed the threat of invasion had ebbed to such a low point that there was no longer any need for them.

In early 1944 most of the airbases and other Eleventh Air Force holdings on the Aleutians were drastically reduced to furnish increased support to the war in the other areas of the world. Elmendorf was kept in full operation but the rest of the bases were cut to the point where they were only capable of performing aircraft servicing duties in emergencies. By the end of the year the war was over for Alaska and all but a few of the airbases closed down entirely.<sup>1</sup>

### PREPARING FOR POST-WAR AIR DEFENSE

Following the inactivation of the Alaska Defense Command and the Eleventh Air Force, the Army Air Forces organized what was left of its men and forces in Alaska into the Alaskan Air Command (AAC), which it activated on 21 December 1945 on Davis airfield.\* The new command divided the Territory into two sectors for air defense, the Aleutians and the Yukon, and deployed its forces accordingly.<sup>2</sup>

On 15 August 1946, the 57th Fighter Interceptor Group was activated at Shemya with three squadrons -- the 64th, 65th, and 66th.

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\* Known as Adak Field until 13 January 1946 when it was re-named after Colonel Everett Sanford Davis. Colonel Davis went to Alaska as a major in early 1940 to plan and build the air defenses of the Territory. The first commander of the Eleventh Air Force, he died in an aircraft crash in November 1942.

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In early April 1947 the Group and its squadrons were transferred to Elmendorf. Soon after, elements of the Group flew onto Ladd to provide some fighter strength in the northern area. Originally equipped with F-51's, the Group converted to the first U.S. jet, the F-80, in early 1948.<sup>3</sup> In May 1947, the 449th Fighter Interceptor Squadron was activated on Davis and equipped with the twin-fuselage F-82 "Mustang" night fighter.\*

Meanwhile, the World War II radar stations had been dismantled and the personnel re-formed into the 625th and 626th Aircraft Control and Warning (ACW) Squadrons, activated on 15 August 1946. Formed at Shemya, the 626th moved to Ladd in April 1947. By mid-year it had a CPS-5 search radar in operation on Ladd and had set up a detachment at Fort Richardson to operate a TPS-1B search radar. With these limited resources the 626th began to engage in practice air defense operations with the men and planes of the 57th Group.<sup>4</sup>

The 625th remained on Davis, where it was activated, to train with the 449th. It began operating with the lightweight SCR 588, which the World War II stations had employed, switching to a TPS-1B in mid-1947. Finally in late 1947 it received the heavy CPS-5 and a CPS-4 search radar.<sup>5</sup>

In late 1946 the War Department, anticipating unification of the armed forces, directed that "unified commands" be set up in several of the overseas theaters to assume operational control of the forces of all three services for carrying out their missions. They would report directly to the Joint Chiefs of Staff for their orders and on their operational problems. In accordance with this plan, the Alaskan Command was activated in January 1947 with headquarters at Elmendorf.<sup>6</sup> From this time until the Continental Air Defense Command assumed the responsibility in late 1956, the ultimate responsibility for defending Alaska against air attack rested with the Commander-in-Chief, Alaskan Command (CINCAL). He, in turn, delegated the task of planning and executing the mission to the Commander, Alaskan Air Command. To insure efficient employment of all the weapons available for air defense in the Theater, the AAC commander was authorized to exercise operational control over the antiaircraft forces assigned to the Alaskan Army component command (USARAL) during practice maneuvers or in an emergency.

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\* Called "Fighter Squadron (All Weather)" until early 1950 when all air defense fighter units were given the "fighter interceptor" designation.

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Meanwhile, the new polar concept of air threat had caused the Alaskan defense planners to revise their thinking on the deployment of the air defense forces.\*

Probable routes for attacking Alaska and the U. S. now crossed directly over key installations on the Alaskan mainland. In other words, the Aleutians could no longer serve as a buffer in the defense of the mainland; this meant that the bulk, if not all, of the air defense forces had to be concentrated on the mainland.

Consequently, AAC Headquarters was moved from Davis to Elmendorf in

late 1946. Soon after, the Aleutian sector was deactivated (at which time action began to close down completely all AAC holdings on the islands) and plans made for forming the air defenses into a northern and a southern sector, centered at Ladd and Elmendorf.<sup>7</sup>



*Elmendorf Air Force Base*

Having set the basic deployment and organization patterns for Alaskan air defense, the War Department now invited recommendations on radar system requirements. The first study of the problem was begun in mid-1946 by the "Hoge Board," a group of air, ground, and navy officers who were directed to prepare what the Army Chief of Staff and the Chief of Naval Operations called "a completely integrated Army-Navy plan for the military development of Alaska." The group recommended that a total of 36 stations be built -- ten to be operated in peacetime, the rest to go into operation if war broke out. Seven of the peacetime stations would be built on the mainland -- at Point Barrow, Nome, Nunivak Island, Cape Newenham, Cordova, Edgecumbe, and Sitkinak. The remaining three would be built on the Aleutian chain -- at Dutch Harbor, Shemya, and Davis.<sup>9</sup>

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\* The new concept was first enunciated by the JCS in early 1946. All of the nations capable of warring on the U. S. in the foreseeable future lay north of the 45th parallel, they said. The shortest bomber routes from these nations to the U. S. were across the pole. Therefore, future U. S. air defenses had to be oriented to the north rather than to the east and west as they were during World War II.<sup>8</sup>

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AAC was apparently not informed of these proceedings, for in early 1947 it came up with a radar plan of its own which differed considerably from the Hoge Board recommendation. AAC said that it would need 58 stations, many of which could be placed on sites used or planned for use during World War II.<sup>10</sup>

Still a third study was made in the summer of 1947 when a team from AAF Headquarters journeyed to Alaska to explore possible sites. This group (headed by Lieutenant Colonel H. J. Crumley) recommended that 13 stations be built to cover the approach routes to vital Alaskan areas. Once these were completed and operating, it was recommended that 13 additional stations be built at key points along the coast to extend warning and provide greater GCI (ground control intercept) capability.<sup>11</sup>

By late 1947 the newly created USAF Headquarters had considered all of these proposals and come up with what it called the SUPREMACY plan, which set forth its recommended radar construction programs for both Alaska and the U. S. The Alaskan portion of the plan called for 37 stations, and AAC was asked to submit its recommendations for siting the stations as soon as possible. Apparently AAC had changed its mind considerably since 1947 on the number of stations it believed it needed, for in its reply (forwarded in March 1948) it asked for only 22 stations.<sup>12</sup> The subject soon became an academic one, however, for by the summer of 1948 SUPREMACY had run into funding troubles and USAF was forced to substitute for it a much more limited proposal. Called the Modified Plan, it reduced the total of stations to be built in Alaska to ten, plus two control centers.

Congress approved the Modified Plan in the spring of 1949 and authorized funds for construction. Given an advance of some \$200 thousand, Alaska was able to begin siting and station designing immediately.<sup>13</sup> The target date for completing construction of this so-called "permanent radar system" was set for the last half of 1951, with the stations becoming operational in early 1952.

In planning the deployment of the ten stations, AAC sought to place them where they could provide early warning of attack along probable approach routes and, at the same time, afford coverage in depth for GCI. In accordance with this plan, five were programmed as early warning stations, to be sited along the Bering coast. Backing them up would be three "intermediate GCI" stations and two "master GCI" stations. The latter would be equipped with CPS-6B radars, the rest with FPS-3's. Each of the FPS-3 stations would be equipped with the

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newest type of height-finder (FPS-4 or FPS-6) and all would have light-weight standby sets for emergency use in case the primary sets broke down. The two control centers were programmed for construction on Ladd and Elmendorf airbases which, as mentioned earlier, had been selected as the centers of the northern and southern air defense sectors.<sup>14</sup>

### BUILD-UP OF THE INTERIM AIR DEFENSE SYSTEM

While the permanent radar system was being built, AAC created an interim system with the fighter and antiaircraft forces on hand and comprised of radar stations located on temporary sites and operating obsolescent equipment. With it AAC 1) worked out organizational and operational principles and procedures later carried over into the permanent system, 2) provided realistic training to the radar, anti-aircraft, and fighter forces pending completion of the permanent system, and 3) afforded Alaska some air defense capability during the critical months following the outbreak of the Korean War in mid-1950.

Little change took place in the forces assigned AAC during 1948. Emphasis was placed on developing the U. S. air defense systems and AAC had to wait patiently for reinforcements. During this time it set up a makeshift combat center on Elmendorf and moved the 449th Fighter Interceptor Squadron (FIS) from Davis to Ladd. Also, it moved the 625th ACW Squadron from Davis to Elmendorf where it assumed responsibility for operating the radar stations on Ladd and Elmendorf.\* By mid-1948 it had set up two additional, temporary radar stations on Naknek and Marks (Nome) airbases.<sup>15\*\*</sup>

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\* The 626th ACW Squadron was transferred to the U. S. in July 1948, and its men and gear reassigned to the 625th.

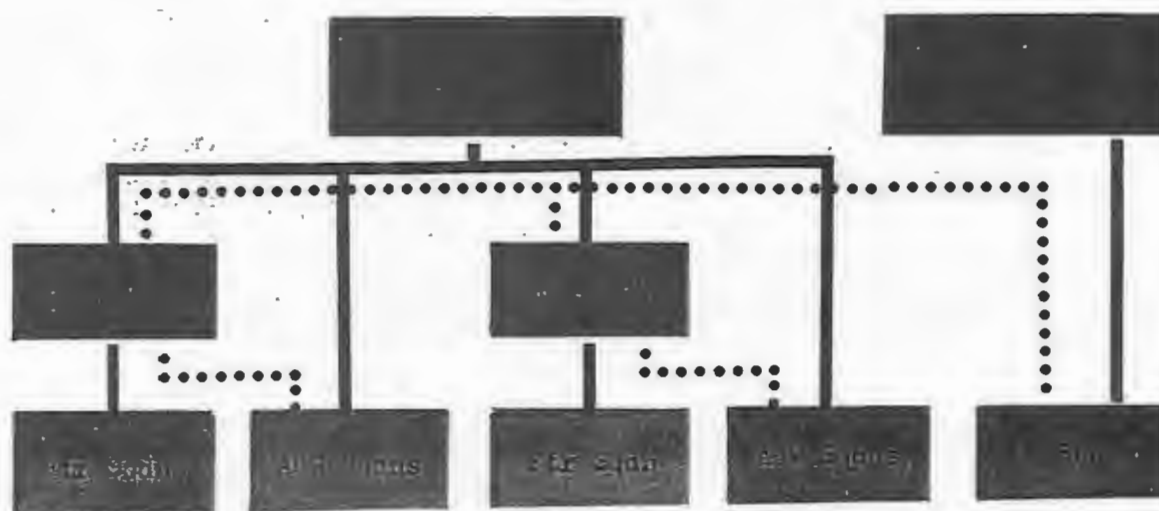
\*\* The Berlin blockade and the seizure of Czechoslovakia caused the Air Force to direct its U. S. and Alaskan air defense commanders to place their forces on 24-hour alert in March 1948. To bolster the Alaskan air defenses men and equipment of the Tactical Air Command's 502d Tactical Control Group were flown to Alaska. By April they had set up and were operating radars at Unalakleet, Clear, and Galena. By June, the crisis had abated, the air defenses returned to a training schedule, and the 502d returned to its home stations in the U. S.<sup>16</sup>

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Build-up of the radar forces began in the spring of 1949 when the advance parties of the 531st ACW Group and the one squadron assigned it, the 632d, began to arrive.\* The move was completed by mid-July. The Group Headquarters was located on Elmendorf and the 632d on Ladd. The 625th Squadron was then assigned to the 531st Group.<sup>17</sup>

Up to this time the fighter wings -- the 5001st Composite Wing at Ladd and the 57th Fighter Interceptor Wing at Elmendorf\*\* -- had been responsible for carrying out AAC's air defense mission in the two sectors. With the arrival of the ACW group it became necessary to re-study this command arrangement. The conclusion reached was that the 531st was an unnecessary organization. Consequently, it was immediately reduced to skeleton strength and eventually (on 1 January 1950) inactivated.<sup>18</sup> In the meantime, orders were issued to the two wing commanders reaffirming their air defense responsibility in what was now referred to as Area II in the north and Area I in the south. The separating line between them followed generally along the crest of the Alaska Range.

**ORGANIZATION  
ALASKAN AIR DEFENSES  
January 1950**



— Command  
..... Operational

\* The 531st Group and the 632d Squadron were activated at McChord AFB on 21 June 1948 and manned and trained by the Air Defense Command's 505th ACW Group.

\*\* Note on following page.

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When the Korean War broke out in June 1950 the Alaskan air defenses consisted of 1) five temporary radar stations at Ladd, Elmendorf,\* Naknek, Nome, and Gambell (St. Lawrence Island),\*\* 2) a squadron of F-82's at Ladd, 3) the 867th Antiaircraft (AA) Battalion deployed for the point defense of military installations on Fort Richardson and Ladd and Eilson airbases,\*\*\* and 4) three squadrons of F-80's at Elmendorf that deployed small numbers of planes to Naknek and Ladd. On 27 June these meager forces were placed on twenty-four hour operation on order of higher headquarters.<sup>19</sup> As in the case of the U. S. system, continuous operation of the Alaskan air defenses dates from this time.

In July, the 96th Antiaircraft Gun Battalion arrived at Elmendorf and the 502d Gun Battalion at Eilson airbase outside Fairbanks to provide point defense of these key bases.<sup>20</sup> The following month the 449th FIS began converting to F-94A's and B's, completing the project by the end of the year.<sup>21</sup> In November, the radar forces were strengthened by the activation of two new ACW squadrons and the establishment of several new temporary stations soon after.

In November 1950 the organization for air defense was drastically overhauled. In the new organization, two air divisions (defense), patterned after those which had been in operation in the U. S. system

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(\*\* cont'd from page 11) The various types of air units and air-base facilities at Ladd had been organized first under the "Yukon Air Division" and, later, under the "Ladd Composite Wing." With the advent of the Wing-base organization in mid-1948, the 5001st Composite Wing was activated on Ladd and the 57th Fighter Interceptor Wing at Elmendorf, the latter assuming command of the 57th Group and its three squadrons.

\* The facility operated by the 625th ACW Squadron at Elmendorf served both as the theater control center (CC) and the sector direction center (DC).

\*\* This station was first set up in early 1948 to provide intelligence on Russian shipping in the northern sea lanes. For lack of adequate communications and support it did not prove very effective and was taken out in December 1949. In May 1950, however, it was set up again and this time AAC was able to keep it in operation.<sup>22</sup>

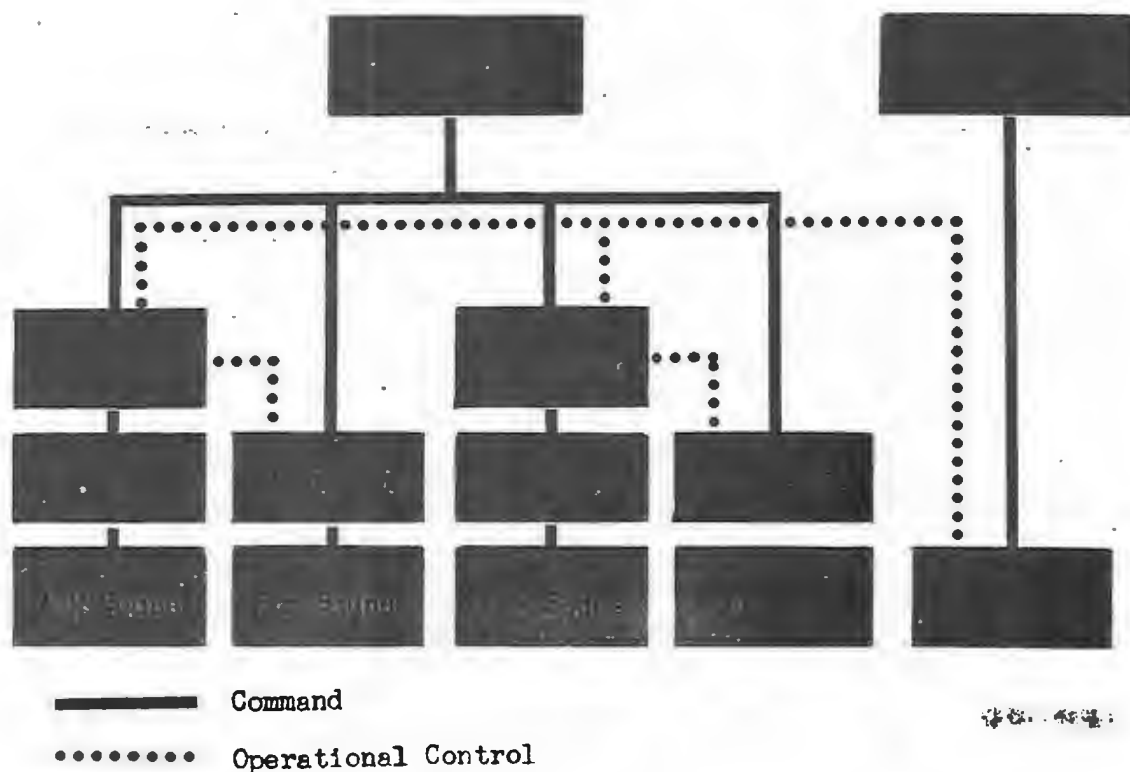
\*\*\* The 867th moved to Alaska in May 1948.<sup>23</sup>

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for the past two years, were activated on 1 November 1950 -- the 10th at Elmendorf and the 11th at Ladd. Responsibility for air defense was then taken from the fighter wings and placed in the divisions. On 17 November, the 531st ACW Group was reactivated and assigned all the ACW squadrons in Area I. The same day, the 532d ACW Group and the 633d and 626th ACW Squadrons were activated at Ladd and all the squadrons in Area II assigned to the Group. The fighter squadrons remained assigned to the wings and the wings to AAC Headquarters. The ACW Groups were assigned to the divisions.<sup>24</sup> In contrast to previous organizations, sector air defense responsibility now rested with commands whose only major function was the conduct of that mission.

**ORGANIZATION  
ALASKAN AIR DEFENSES  
November 1950**



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By the end of 1950, the Area II temporary radar net was made up of five stations -- the Ladd, Nome, and Gambell stations, plus two new ones at Kotzebue and Galena. The 449th Squadron was equipped with 25 F-94's and 11 F-82's. Area III was operating with four radar stations -- Elmendorf and Naknek, plus two new ones at Farewell and Bethel. The 57th Fighter Interceptor Wing was armed with 90 F-80C's.

The major developments in the system during 1951 were 1) a large increase in the number of radar troops, 2) the establishment of an additional temporary radar station (at Willow, in Area I), 3) the re-siting of the Ladd direction center station (at Clear, to the southwest of Fairbanks), 4) the improvement -- in terms of men, equipment, and communications -- of the whole of the temporary radar system, and 5) a change in the organization of the sector defenses which, as seen from the vantage point of hind-sight, was a mistake.

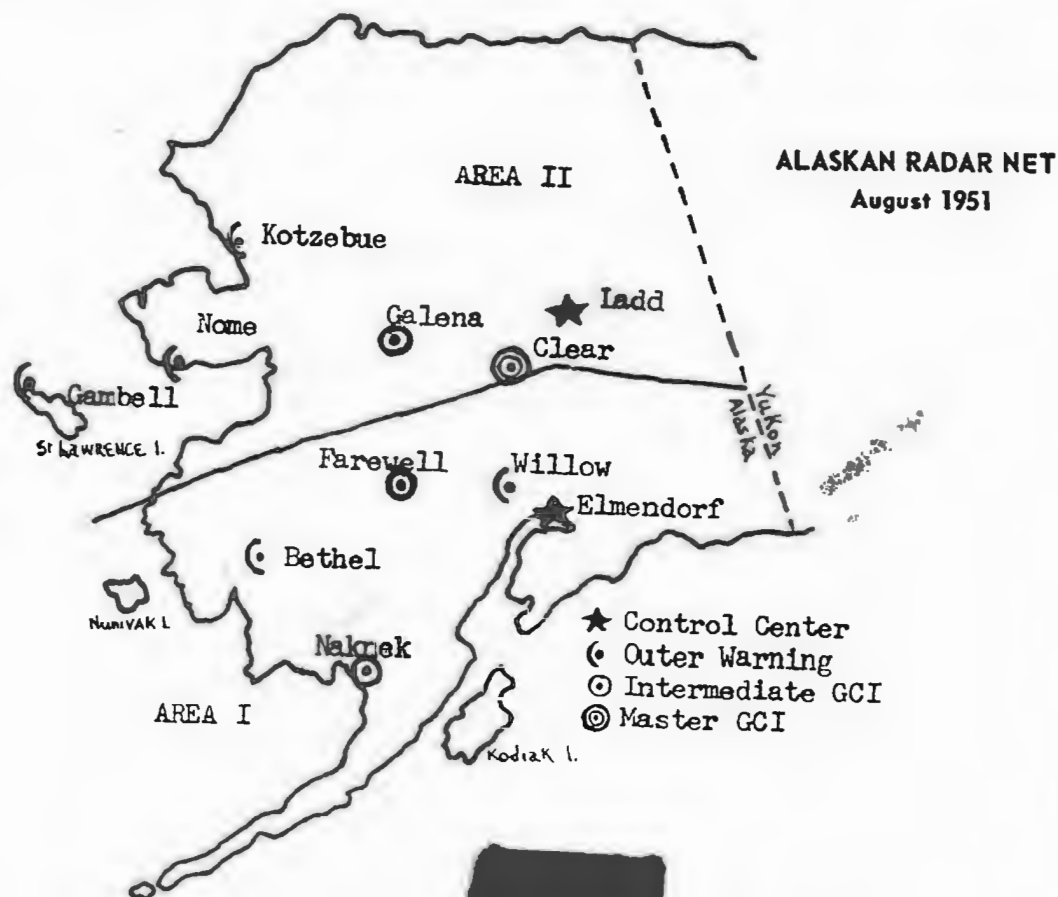
# ALASKAN RADAR NET August 1951

|                            | Station<br>Designation | Location  | Function | Equipment                 |
|----------------------------|------------------------|-----------|----------|---------------------------|
| A<br>R<br>E<br>A<br><br>II | A-1                    | Nome      | EW       | TPS-1B                    |
|                            | A-2                    | Galena    | GCI      | CPS-5                     |
|                            | A-3                    | Clear     | GCI      | TPS-10A<br>CPS-5<br>CPS-4 |
| A<br>R<br>E<br>A<br><br>I  | A-4                    | Gambell   | EW       | TPS-1B                    |
|                            | A-5                    | Kotzebue  | EW       | TPS-1B                    |
|                            | C-1                    | Naknek    | GCI      | CPS-5<br>TPS-10A          |
|                            | C-2                    | Farewell  | GCI      | CPS-5<br>TPS-10A          |
|                            | C-3                    | Bethel    | EW       | TPS-1B                    |
|                            | C-4                    | Willow    | GCI      | TPS-1C                    |
|                            | C-5                    | Elmendorf | GCI      | CPS-5<br>CPS-4            |
|                            | C-6                    | Elmendorf | ADCC     |                           |
|                            |                        |           |          |                           |
|                            |                        |           |          |                           |



The increase in radar troops came about as the result of the recall to active duty of the Air National Guard 160th ACW Group in early 1951 and its assignment to AAC the following June. Comprised of three squadrons (the 141st, 142d, and 143d), it took over the Area II defenses from the 532d Group, which was inactivated. Prior to the 106th's arrival, the radar stations in Area II had been only 40 to 50 per cent manned. Now it was possible to bring them up to sufficient strength to put them on the same twenty-four hour operating schedule the southern stations had been on.<sup>25</sup>

In mid-July 1951, the two divisions were inactivated and responsibility for air defense in Area II returned to the commander of the 5001st Composite Wing. The AAC Commander, Major General William D. Old, then placed responsibility for Area I air defense directly onto his headquarters staff. His reason for deactivating the divisions was that they had overly complicated administrative, supply, and logistical matters.<sup>26</sup> While the reorganization may have overcome these objections, it also threw air defense back onto commanders and staffs who had too many other jobs to do to give it the proper attention. This must have been the case because the divisions were brought back the next year.





## COMPLETION OF THE PERMANENT RADAR NET

The era of the interim system began to draw to a close in the fall of 1951 when the first of the ten permanent radar stations began operating. The five stations built in the interior were located at 1) Fire Island, 2) Murphy Dome, 3) King Salmon (originally known as Naknek), 4) Campion (originally known as Galena), and 5) Tatalina (originally known as Takotna). The coastal stations were deployed at 1) Wales (Prince of Wales Island), 2) Newenham, 3) Romanzof, 4) Lisburne, and 5) Northeast Cape (St. Lawrence Island).

Bids on the Fire Island and Murphy Dome stations were let in March 1950. Equipped with CPS-6B search and height-finding radars, these two direction center stations (originally called "master GCI's") would do the identifying of targets in the two air defense areas. So it was natural that they be among the first stations built. Bids for the King Salmon, Campion, and Tatalina GCI stations (originally called "intermediate GCI's") were let in April and May. The bids on the coastal or early warning stations were let the following June. Construction began soon after.<sup>27</sup>



*Sparrevohn Radar Station (with interim CPS-5 radar)*

Meanwhile, the program had been increased from the original ten stations to twelve. The outbreak of the Korean War had resulted in a relaxing of fund restrictions and studies had begun on how to expand the net to give Alaska the radar cover it needed. In the original system, gaps appeared between the coastal and inland stations and to the north and northwest of Ladd and the south and southwest of Anchorage.

As noted in a later section of the paper, it was several years before work began on a radar augmentation program to fill these gaps. However, because two of them were particularly critical, AAC received permission to begin work on stations to fill them immediately. By June 1951, sites had been selected at Indian Mountain in the

Allakaket area west of Ladd, and at Sparrevohn Mountain west of Anchorage.<sup>28\*</sup>



Base Camp, Wales Radar Station

The Murphy-Dome and Fire Island CPS-6B stations were in limited operation by September 1951. The King Salmon, Tatalina, Campion, and Sparrevohn stations came into limited operation soon after, the first three with FPS-3's, the latter with a CPS-5.<sup>29</sup> By the spring of 1952 these stations were able to go on full operation; consequently, the temporary stations at Naknek, Farewell, and Bethel were taken down and their personnel transferred to the permanent stations.<sup>30</sup> For the most part, then, the interior stations were completed reasonably close to the schedule drawn up in late 1949.

As the result of unusually bad weather and unanticipated labor problems, construction of the coastal stations was considerably delayed. Each of these stations (like Sparrevohn and Indian Mountain in the interior) were "remoted sites." That is to say, their equipment

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\* AAC first selected Taylor Mountain as the site for the Sparrevohn station. However, when it learned it could not get an FPS-3 radar for it until late 1952 or 1953 it decided to build a temporary station at Sparrevohn to fill the gap, equipping it with a CPS-5. Later, it was decided to keep the permanent station here and an FPS-3 was installed in late 1953.<sup>31</sup>

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was sited on mountain tops and connected with the operations buildings by a special cable. To facilitate travel between the centers and the peaks, tramways had to be built since the heavy snowfall in the winter would make travel by road extremely precarious if not impossible.



The AAC historian gave the following picture of conditions on these sites at the beginning of the spring 1952 construction season:<sup>32\*</sup>

\* The stories of the building of the Alaskan radar net, communications system, and DEW Line are picturesque enough to challenge the pen of a Jack London. Details on the magnitude of the construction problems encountered in these projects may be found in the 1952-1956 AAC and 10th and 11th Air Division histories.

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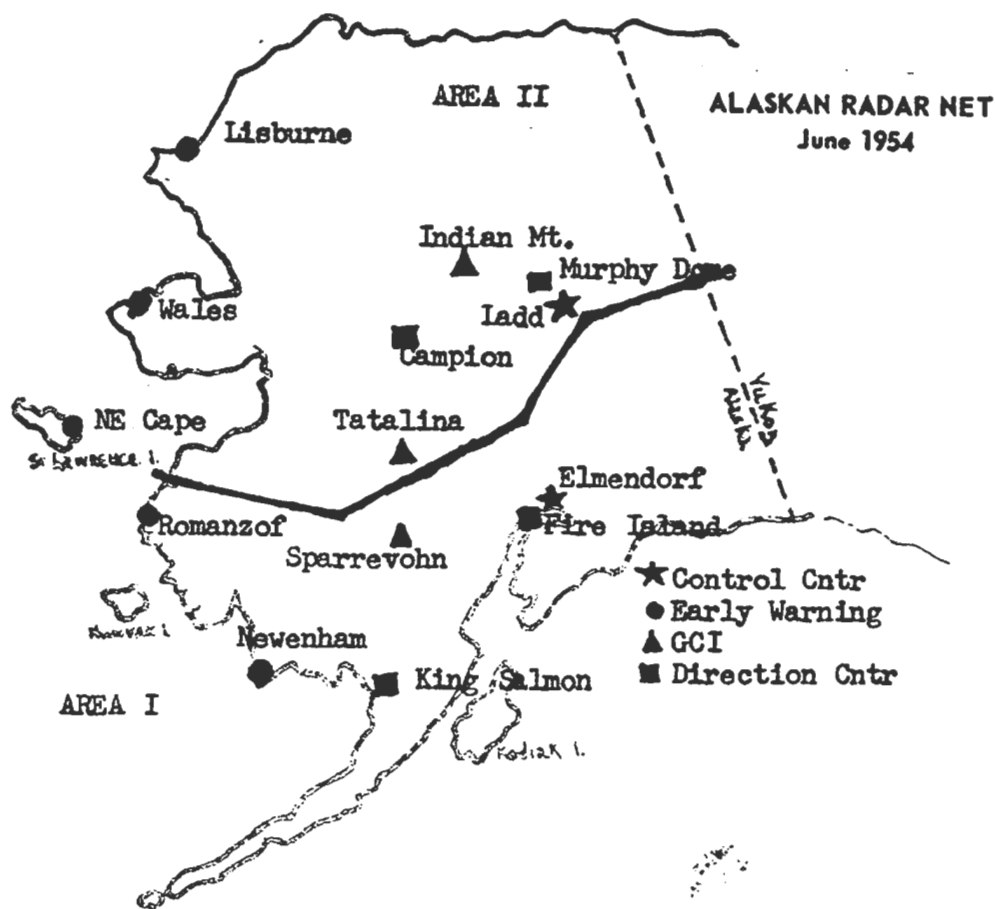
The camp site at St. Lawrence as of 1 May was covered by 7 feet of snow. The contractor had a crew of 35 Eskimos working with shovels to start preliminary clearing. Ice in the bay was holding firm with no sign of early breakup. At Lisburne most of the snow had cleared from the flats, but the campsite was still covered with heavy drifts. The ice at the beach was holding notwithstanding large open leads in the ice pack. The camp site at Cape Wales was completely covered with heavy drifts and access to the tower construction area necessitated long days of snow removal.

At Newenham the camp site was covered with 7 to 10 foot drifts which were not dissipating as rapidly as in previous years. The airstrip could not be used, and planes were landing on the ice at Security Cover about 5 miles from the site itself. During the winter one tower was severely damaged by ice accumulations and the falling of a gin pole used for handling materials.

The situation at Romanzof was typical of all the early warning sites on the coast. An inspection [here] in April showed that the project was shut down and under caretaker status. At that time snow depth varied from 4 to 30 feet. All vehicles and heavy equipment were completely covered in hard-packed wind blown snow. The contractors cranes and "A" frames had but a portion of the superstructure visible. Three permanent buildings had already been erected -- the supply warehouse, the BOQ, and the airmen's quarters. In April the snow was level with the tops of these buildings. Access was gained to the warehouse by a hole through the snow to the upper half of the windows. ...To show the extent of the high winds...the large [gas] tank -- 15 feet in diameter and 20 feet high -- had moved 19 inches northward along its horizontal bed timbers.

Because of these problems, construction of the coastal stations was not completed until the end of 1952. By the following spring all were in full operation with FPS-3 radars except Newenham. It was another year before the tramway was finished at this site and the radar installed.<sup>33</sup> Meanwhile, Indian Mountain went on limited operations in late 1953 and assumed a full air defense role a few months later.<sup>34</sup>

Summarizing briefly, then, six of the seven permanent radar stations in the interior became operational in early 1952. For the rest of the year the radar net was comprised of these stations plus temporary stations on the coast. With the coming into operation of four of the five coastal stations in early 1953 the phase-over from the temporary to the permanent radar systems was completed. Finally, the system was finished (in the sense that all of the 12 stations were operating) by early 1954.





*Campion Radar Station*

early 1957.

From this time through 1955 the major equipment problem at the stations was the dire shortage of height-finding radars. In December 1955 the only adequate height-finders were the two built into the CPS-6B's at Fire Island and Murphy Dome. By mid-1956 the situation was considerably relieved, King Salmon, Campion, and Tatalina having received their programmed FPS-6's<sup>35</sup>. The remaining GCI stations, Sparrevohn and Indian Mountain, were slated to receive their FPS-6's in

#### CLARIFYING THE COMMAND STRUCTURE

Meanwhile, AAC's experiment with direct command of the air defense forces in the southern area had apparently not proved workable, for on 8 November 1952 it reactivated the 10th Air Division (Defense) at Elmen-dorf.<sup>36</sup> A few months later (8 April 1953), the 11th was reactivated at Ladd.<sup>37</sup>

The new organization differed from previous ones in one important respect. For the first time AAC's radar and fighter forces were both directly assigned to the commands



*Newenham Base Camp and Tramway  
Leading to Mountain Top*

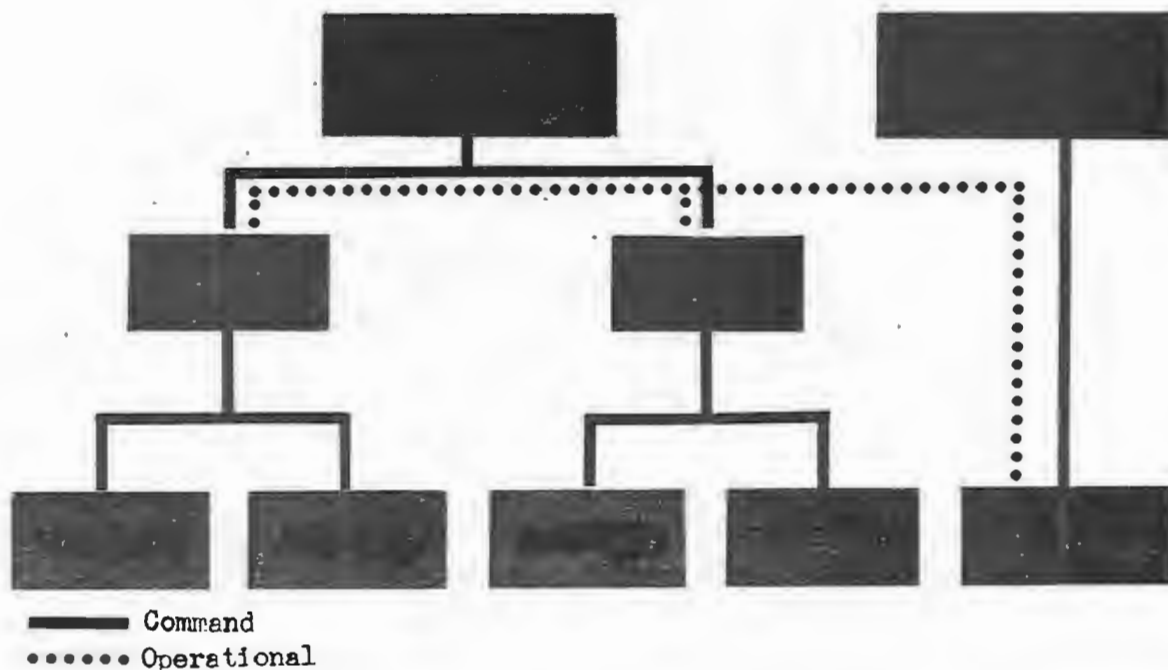
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charged with conduct of the air defense mission in the two sectors. In other words, the Alaskan air defenses were for the first time organized along the time-proven principle of "unity of command."

To man the new division headquarters, the 531st and 548th ACW Groups were inactivated in April 1953 and their personnel transferred to the new organizations. The 57th Fighter Interceptor Group at Elmendorf was inactivated at the same time.\* Also, the 5001st Composite Wing at Ladd was abolished and most of its personnel reassigned either to the new 11th Division Headquarters or to the new units formed to take over base supply and maintenance duties formerly handled by the Wing. Brigadier General Donald B. Smith, formerly commander of the 5001st, became the first commander of the 11th; Colonel Allen R. Springer of the 10th.<sup>38</sup>

**ORGANIZATION  
ALASKAN AIR DEFENSES  
April 1953  
(also January 1957)**



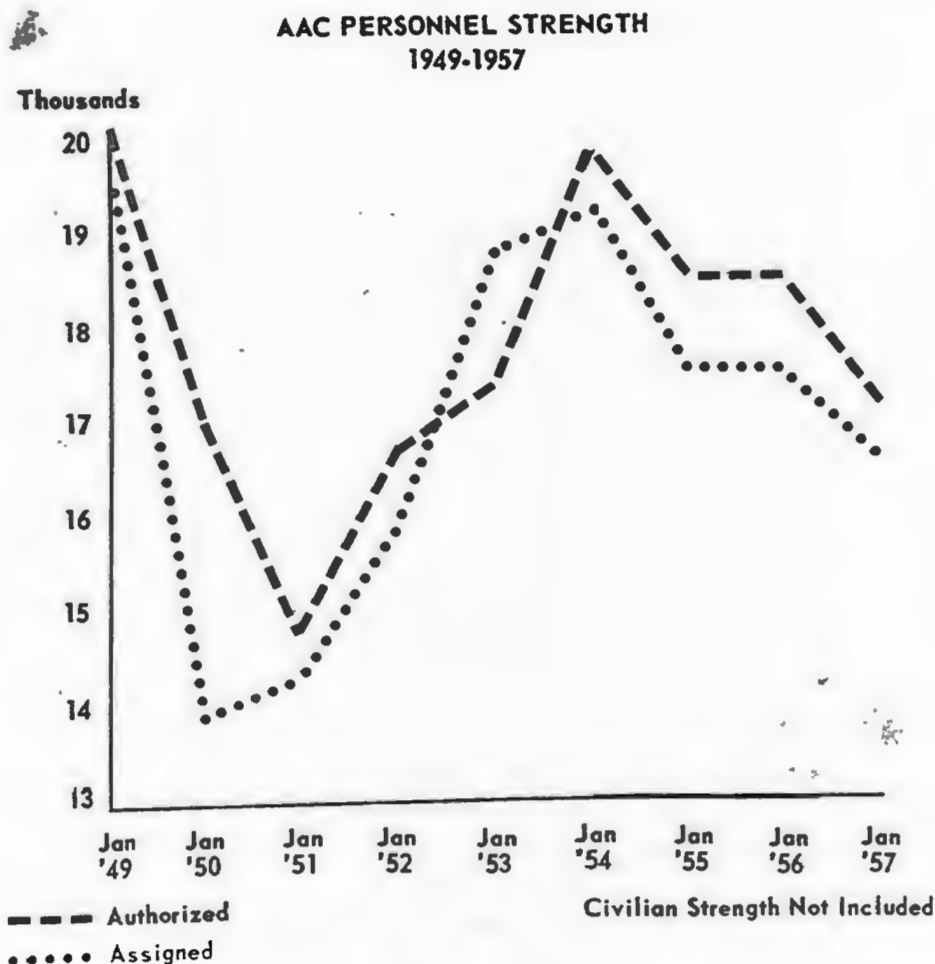
\* The 57th Fighter Interceptor Wing had been inactivated in January 1951.



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With the activation of a number of ACW squadrons in December 1952 to man the permanent radar stations that were coming into operation, AAC settled the question under debate for some time as to whether it was best to put a squadron on each radar station or have one large squadron run several stations. The squadron-station plan, it was concluded, while perhaps a little more costly in manpower, was in the long run the most efficient.<sup>39</sup>

Only one significant change took place in the organization over the following years. On 20 September 1954 the 5001st Air Base Group at Ladd was redesignated the 5001st Air Defense Group and the fighter squadrons reassigned to it. The reason for the change, presumably, was to afford the squadrons better support. The change lasted only a year; on 1 October the AAC commander ordered the dissolution of the Air Defense Group and the reassignment of the squadrons directly to 11th Air Division Headquarters.<sup>40</sup>



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Thus, with the exception of this one instance, the radar and fighter forces remained assigned directly to the division headquarters from April 1953 through 1956. The antiaircraft forces remained assigned to the Army component command with the divisions exercising operational control of them.

## CONTROL AND COMBAT CENTER DEVELOPMENTS

When the interim radar system began operating in 1949 the stations at Elmendorf and Ladd assumed the duty of identifying the tracks detected and reported by the other stations in the two air defense sectors. In other words, they served as direction centers (DC). Gradually their operations were expanded until the commanders of the two defense areas were also using them as their command posts, or for what came to be called the air defense control centers (CC). Then, in the spring of 1950, the Elmendorf facility was given the additional job of serving as the Theater combat operations center (COC).<sup>41</sup> With each change the stations revised their plotting boards and other displays to accommodate the extra information required.

When the 10th Air Division was first activated in late 1950 it separated the Elmendorf facility into a DC and a CC-COC, locating the latter in makeshift quarters in the wooded area about five miles northeast of the airstrip.<sup>42</sup> About the same time, the Ladd station was also separated; the DC was moved to Clear, southwest of Fairbanks, and a CC was set up in temporary quarters on Ladd. Presumably, this remained the situation until late 1952.

Upon its reactivation in November of that year, the 10th moved its CC into its headquarters building, completing the project in February 1953. As described by the 10th's historian, the CC was built by excavating one end of a large room into which a horizontal board was installed. This provided "a fully lighted room and definitely made for a more efficient operation." Also, a "combat post" was included in the facility from which the AAC commander could control air activity in alert or combat situations in the whole of the theater. Thus, the new center provided data on the forces and activities in both air defense areas, serving both as the division CC and the AAC COC.<sup>43</sup>

In mid-1953, the two facilities were separated when an AAC COC was set up in a small room on the second floor of the AAC Headquarters Building. The AAC historian said that the working tools of the new

facility were comprised of "a simple magnetic, vertical plotting board for display of the air battle, together with locally fabricated communications terminals."<sup>44</sup> Initially manned by five officers and ten airmen, it was increased in strength to eight officers and 21 airmen in early 1954. In December 1955, it was moved to larger quarters in Room 17 in the basement of the Headquarters building.



*Elmendorf Control Center, 1951*

Meanwhile, the 10th had become dissatisfied with the horizontal board and begun to consider the possibility of switching to a vertical one. However, it was decided that the cost of excavating and re-locating communications within the present facility was too much. Finally, in April 1956, the 10th was notified that funds had been set aside for construction of a new CC, which was programmed for completion around mid-1958.<sup>45</sup>



*AAC Combat Operations Center, 1956*

At Ladd, the CC was moved into the 11th's Headquarters building in early 1956.<sup>46</sup> Presumably, the 11th was also scheduled for a completely new CC in the near future.

### PROGRESS OF THE WEAPONS

As mentioned earlier, the 449th FIS at Ladd was flying F-82's when the Korean War began. The

64th, 65th, and 66th Squadrons at Elmendorf were equipped with F-80's. The first improvement in this obsolete air force came in August 1950 when the 449th received its first F-94.\* By the end of the year it was fully equipped with 25 of the new aircraft (the A and B models).<sup>47</sup> While still not true all-weather jets, the new planes were a vast improvement over the prop-driven, worn out Mustangs.\*\* The three squadrons at Elmendorf had followed suit by June 1951, trading in their F-80 day jets for the F-94's.<sup>48\*\*\*</sup>

These four squadrons of F-94's remained the air strength of the Alaskan air defenses until the fall of 1953, when the 65th Squadron converted to F-89C's.<sup>49</sup> By June 1954, the 64th and 66th had gone their brother squadron one better and were flying the more satisfactory all-weather F-89D jets.<sup>50</sup> The 449th got its F-89D's in November of that year and the 65th traded in its "C's" for the improved model the next month.<sup>51</sup>

#### **F-89D Rocketry Training**

Meanwhile, the fighter strength in Area II was strengthened by two squadrons in the summer of 1954. On 14 July the 433d FIS, equipped with F-89C's, flew into Ladd from Truax AFB, Wisconsin. Formed from the 176th Squadron of the Air National Guard which had been called to active duty in early 1951, it had been reorganized as the 433d when the 176th reverted to State control in late 1952.<sup>52</sup> The 433d converted to F-89D's, beginning in September 1955.<sup>53</sup>

\* The 449th was originally scheduled to convert to F-94's in April and May 1950 but the manufacturer could not meet the schedule.

\*\* Following the conversion to F-94's, the 449th kept a number of the F-82's for reconnaissance and surveillance duties and for possible offensive missions. The last F-82 was finally "carried out" in October 1953.

\*\*\* In January 1950 USAF offered to equip the three squadrons of the 57th Group with F-86A's. AAC asked to keep the F-80's, because the F-86A's were not equipped with Mark X IFF.<sup>54</sup>

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On 1 September 1954, the 18th FIS, equipped with F-89D's, arrived at Ladd. This was a homecoming for this squadron, since it had begun its career in Alaska in 1940.<sup>54\*</sup>

**FIGHTER INTERCEPTOR FORCE**  
December 1956

| Sqdn | Location  | Date Assigned | Aircraft     |                               |                                  |
|------|-----------|---------------|--------------|-------------------------------|----------------------------------|
|      |           |               | Orig.        | Converted to                  | Approx. Date                     |
| 449  | Ladd      | May 1947      | F-82         | F-94A<br><u>F-89D</u>         | Aug 1950<br>Nov 1954             |
| 64   | Elmendorf | Aug 1946      | F-51         | F-80<br><u>F-89D</u>          | Jan 1948<br>May 1954             |
| 65   | Elmendorf | Aug 1946      | F-51         | F-80<br>F-89C<br><u>F-89D</u> | Jan 1948<br>Sep 1953<br>Dec 1954 |
| 66   | Elmendorf | Aug 1946      | F-51         | F-80<br><u>F-89D</u>          | Jan 1948<br>May 1954             |
| 433  | Ladd      | Jul 1954      | F-89C        | <u>F-89D</u>                  | Sep 1955                         |
| 18   | Ladd      | Sep 1954      | <u>F-89D</u> |                               |                                  |

The fighter program at mid-1956 called for the first F-102's to arrive in Alaska in June 1957, with three squadrons converting to them by the end of the year. Modification of the F-89D's to carry atomic-missiles (F-89J's) was scheduled to begin in January 1957 and be completed the following October. Finally, the first F-104's were due to arrive in early 1960. The following chart shows the number of squadrons assigned and the aircraft they were programmed to fly between January 1957 and early 1960:<sup>55</sup>

\* Alert hangars were built at Elmendorf and Ladd in Late 1954 and put into use in early 1955.

**AAC FIGHTER INTERCEPTOR PROGRAM**  
January 1957-March 1960

| Date            | F-102A | F-89D | F-89J | F-104A |
|-----------------|--------|-------|-------|--------|
| Jan 57 - Jun 57 | 0      | 6     | 0     | 0      |
| Jul 57 - Sep 57 | 2      | 3     | 1     | 0      |
| Oct 57 - Dec 59 | 3      | 1     | 2     | 0      |
| Jan 60 - Mar 60 | 3      | 0     | 2     | 1      |

The antiaircraft forces increased from three to five battalions over the period July 1950-December 1956. As noted earlier, the following battalions were placed in operation soon after the Korean War began: the 867th at Ladd, the 96th at Elmendorf, and the 502d at Eilson.

By the end of 1951, the 867th Battalion had been moved to Elmendorf to bolster the 96th's defenses. A battery of the 450th was then moved onto Ladd. By mid-1954 the Ladd point defenses had been re-built through the assignment of the 93d Battalion to that base.<sup>56</sup>



90mm Gun Emplacement on Elmendorf, 1951

The major improvement in the antiaircraft weapons over the years came with the assignment of the 75mm Skysweeper to the 450th and 867th Battalions at Eilson and Elmendorf in mid-1954.<sup>57</sup> At the end of 1956 these units were still equipped with this weapon, while the 93d and 502d Battalions were armed with 120mm and the 96th with 90mm guns.<sup>58</sup>

Meanwhile, the subject of re-arming the Alaskan AA forces with the Nike missile was under study. Plans in early 1957 were to equip the three non-Skysweeper battalions with Nike in the June 1958-June 1960 time-period.<sup>59</sup>

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**ALASKAN  
ANTIAIRCRAFT FORCES  
March 1957**

| Unit             | Location                       | Weapon     |
|------------------|--------------------------------|------------|
| 96 Bn v          | Elmendorf<br>(Fort Richardson) | 90mm       |
| 867 Bn v         | Elmendorf                      | 75mm (Sky) |
| 502 Bn v         | Eilson                         | 120mm      |
| 450 Bn v         | Eilson                         | 75mm (Sky) |
| 93 Bn v          | Ladd                           | 120 mm     |
| C Btry<br>450 Bn | Ladd                           | 75mm (Sky) |

**EXPANDING THE RADAR SYSTEM**

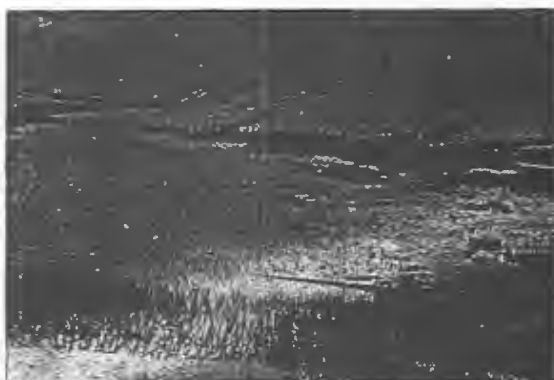
After the Korean War broke out, funds became available for expanding the Alaskan radar net. As mentioned earlier, the original ten-station permanent radar program enabled AAC to build five early warning stations on the coast and five GCI stations in the interior. This was a great improvement over the temporary system, but still not good enough. Additional stations were needed to extend coverage to the north and northwest of Ladd and to the south and southwest of Elmendorf. Or as the AAC commander later expressed it, with a few more stations "exposed flanks will be protected by early warning and our intermediate GCI ring will provide more adequate detection capability and control of aircraft during interception."60

On 21 February 1951 USAF sent AAC a recommended plan for augmenting the system which called for the construction of ten more stations. The areas recommended by USAF for siting the stations were 1) Point Barrow, 2) Fort Yukon, 3) Willow, 4) Anchor Point-Homer, 5) Kodiak



Island, 6) Bethel, 7) Kotzebue, 8) Nome, 9) Gambell, and 10) Shelikof Strait.<sup>61\*</sup>

But by mid-1951, funding restrictions again arose and AAC was not able to complete its study of where best to locate the stations until the end of the following year. Then it proposed several changes in the USAF recommended deployment, including the placing of stations on the Aleutian chain and an additional one on the Arctic coast. This plan called for stations to be deployed as follows: 1) Umiat, 2) Crazy Mountain, 3) Ushagat Island, 4) Middleton Island, 5) Trinity Island, 6) Adak, 7) Cold Bay, 8) Gulkana, 9) Barter Island, and 10) Point Barrow.<sup>62</sup>



Typical "Bush Strip" at Sparrevohn

The plan did not last long, however. Soon after Major General George R. Acheson took over as commander of AAC in early 1953, USAF asked AAC to review its radar augmentation plan to see if it would get the most defense possible out of it. General Acheson said he did not think so. First of all, he agreed with USAF that the proposed Cold Bay and Adak stations on the Aleutians were not necessary. He visualized the Alaskan axis of defense to extend

from Fairbanks to Anchorage to Kodiak and did not see how early warning stations on the Aleutians would contribute much to it. He also recommended deletion of the proposed arctic stations at Barter Island and Point Barrow for the same reason.<sup>63</sup>

He then suggested that three stations be built at Bethel, Unalakleet, and Kotzebue to provide continuous cover between the present coastal and interior stations. To overcome any objections to the cost of the stations, he recommended that the height-finder and back-up equipment originally programmed for the five coastal early warning

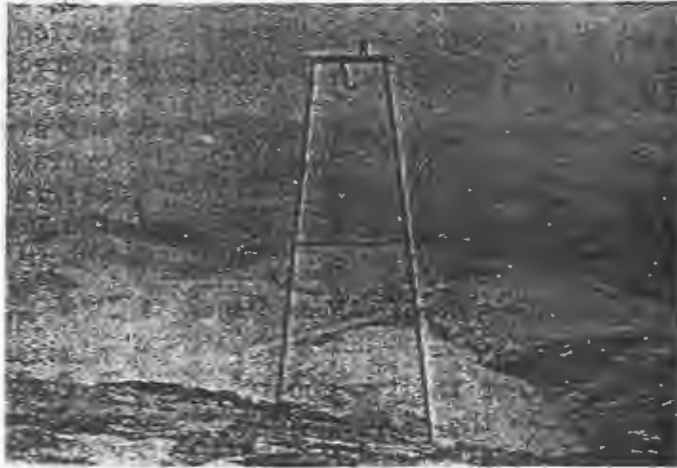
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\* This plan actually called for 12 sites, including ones in the Taylor Mountain and Allakaket areas. As noted in an earlier section of the paper, AAC asked and received permission to build stations in these areas at Sparrevohn and Indian Mountain in 1951.

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stations be reprogrammed for the new stations. This equipment was not needed at the coastal sites, he believed. "Present GCI coverage permits full utilization of interceptor aircraft...against an attacking strike before it can reach the bomb release line," he said. "Therefore, the minimal defense capability gained by augmenting the EW sites with height-finder radar does not justify placing such costly installations at those highly vulnerable locations."<sup>64</sup>

By December 1953 only three of the stations which AAC had selected the previous year remained on the program. These were 1) Umiat, 2) Middleton Island, and 3) Gulkana. The three so-called "axis stations" at 4) Bethel,\* 5) Kotzebue, and 6) Unalakleet had been approved for construction by higher headquarters.\*\* The Crazy Mountain site had been re-located at 7) Fort Yukon.



*Tramway from Operations to Base Camp, Sparrevohn*

\* In late 1953, Aniak was picked as the site for the station originally intended for Bethel. However, in early 1954 AAC returned to the Bethel station, presumably because it would be more economical to build it there.

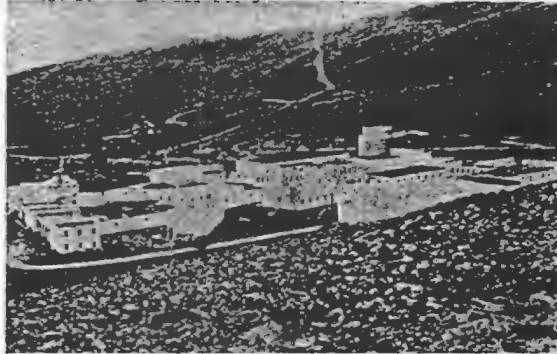
\*\* USAF was reluctant to authorize construction of these three stations at first, claiming that their expense had not been figured on. General Acheson defended their construction as follows: "...revision of the Alaskan AC&W plan as requested will result in a net saving of over five hundred thousand dollars, by the most conservative estimate available, through deletion of the requirement for installing two AN/FPS-8's and two AN/FPS-4's at coastal sites. This saving will be realized even though some funding (not to exceed one million dollars total) will be required to provide minimum facilities at Kotzebue, Unalaklett and Bethel. There is no more justification for labeling these locations as new sites than there would be if the equipment were installed on a ridge adjacent to the present location of the primary search radar at [the early warning stations]."<sup>66</sup>

\*\*\* To have built the station on Crazy Mountain would have meant, as in the cases of Indian Mountain and Sparrevohn, running a remoted site under severe weather conditions. Fort Yukon offered far less expensive and more easily managed facilities.

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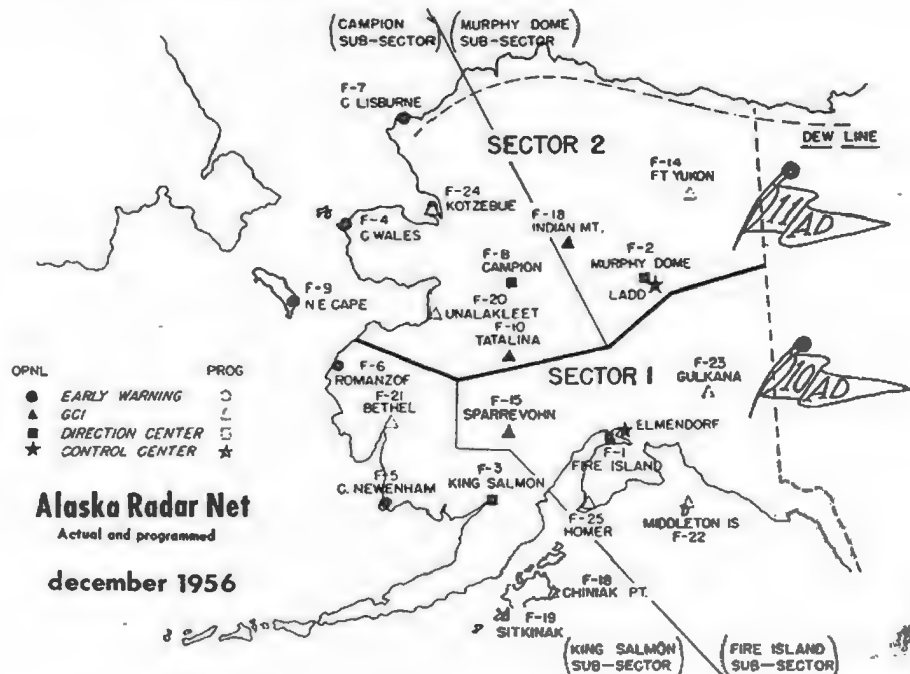
Finally, three sites had been selected in the vicinity of Shelikof Strait to provide an early warning and GCI capability on the southern approaches to Kodiak and Anchorage. These were 8) Chiniak, on the east coast of Kodiak Island, 9) Homer, on the Kenai Peninsula south-east of Anchorage, and 10) Sitkinak Island, south of Kodiak.<sup>65</sup>



Base Camp, Romanzof Radar Station

The only change made in the program by late 1956 was the elimination of the Umiak station. Deferred for several years while the cost of building and maintaining it was studied in the light of its operational value, it was finally eliminated when it was seen that the DEW Line stations would provide adequate cover in the area.<sup>67</sup>

Thus, at the end of 1956 the Alaskan radar system was scheduled to consist of the two control centers (Ladd and Elmendorf) and 21 stations -- the 12 currently operating plus 9 new ones under construction. It was estimated that the new stations would begin operating in the summer and fall of 1957. The status of the AAC radar system at the end of 1956, including both the operational and the programmed stations, is shown on the following chart and map.



ALASKAN RADAR NET  
ACTUAL AND PROGRAMMED

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# ALASKAN RADAR NET

## ACTUAL And PROGRAMMED

### December 1956

| Site No.          | Location     | AC&W Sq | Function | Search        |        |                  |       | Height        |       |                |       | IFF             |        | Air/Gnd Comm            |       | PT/PT Comm      |       |
|-------------------|--------------|---------|----------|---------------|--------|------------------|-------|---------------|-------|----------------|-------|-----------------|--------|-------------------------|-------|-----------------|-------|
|                   |              |         |          | Now Installed |        | Future           |       | Now Installed |       | Future         |       | Now Instld      | Future | No of Channels QPS/PROG |       | Temp            | Perm  |
|                   |              |         |          | Prim          | Sec    | Prim             | Sec   | Prim          | Sec   | Prim           | Sec   |                 |        | VHF                     | UHF   |                 |       |
| 10th Air Division |              |         |          |               |        |                  |       |               |       |                |       |                 |        |                         |       |                 |       |
| F-1               | Fire Island  | 626th   | DC       | CPS-6B        | CPS-5D | FPS-7            | GPS-3 | CPS-6B        | CPS-4 | FPS-7          | FPS-6 | GPX-6           |        | 4/4                     | 6/11  | Opg             | CY 58 |
| F-3               | King Salmon  | 705th   | DC       | FPS-3         | CPS-5D | FPS-20           |       | FPS-6         |       |                | FPS-6 | GPX-7           |        | 3/4                     | 6/11  | Opg             | CY 57 |
| F-5               | Newenham     | 794th   | EW       | FPS-3         | TPS-1D | FPS-20           |       |               |       |                |       | GPX-7           |        | 2/4                     | 2/3   | Opg             | CY 57 |
| F-6               | Romanzoff    | 795th   | EW       | FPS-3         | TPS-1D | FPS-20           |       |               |       |                |       | GPX-7           |        | 2/4                     | 2/3   | Opg             | CY 57 |
| F-15              | Sparrevohn   | 719th   | GCI      | FPS-3         |        | FPS-20           |       |               |       | FPS-6          | FPS-6 | GPX-7           |        | 3/4                     | 10/11 | Opg             | CY 57 |
| F-18              | Chiniak      | 749th   | GCI      |               |        | FPS-8            |       |               |       | FPS-4          | FPS-6 | GPX-18          |        | 0/4                     | 0/8   |                 | CY 57 |
| F-19              | Sitkinak     | 936th   | GCI      |               |        | FPS-3A<br>FPS-20 |       |               |       | FPS-6          |       | GPX-7           |        | 0/4                     | 0/8   |                 | CY 57 |
| F-21              | Bethel       | 713th   | GCI      |               |        | FPS-8            |       |               |       | FPS-6<br>FPS-4 | FPS-6 | GPX-18          |        | 0/4                     | 0/8   |                 | CY 57 |
| F-22              | Middleton Is | 720th   | GCI      |               |        | FPS-3<br>FPS-20  | GPS-3 |               |       | FPS-6          | FPS-4 | GPX-18<br>GPX-7 |        | 0/4                     | 0/11  | CAA&<br>10th AD | CY 56 |
| F-23              | Gulkana      | 714th   | GCI      |               |        | FPS-8            |       |               |       | FPS-4          | FPS-6 | GPX-18          |        | 0/4                     | 0/8   | ACS             | CY 58 |
| F-25              | Homer        | 937th   | GCI      |               |        | FPS-3A<br>FPS-20 |       |               |       | FPS-6          |       | GPX-7           |        | 0/4                     | 0/8   |                 | CY 57 |
| 11th Air Division |              |         |          |               |        |                  |       |               |       |                |       |                 |        |                         |       |                 |       |
| F-2               | Murphy Dome  | 744th   | DC       | CPS-6B        |        | FPS-7            | GPS-3 | CPS-6B        |       | FPS-7          | FPS-6 | GPX-6           | GPX-18 | 17/4                    | 10/11 | Opg             | CY 58 |
| F-4               | Wales        | 710th   | EW       | FPS-3         |        | FPS-20           |       |               |       |                |       | GPX-7           |        | 2/4                     | 2/3   | Opg             | CY 58 |
| F-7               | Lisbourne    | 711th   | EW       | FPS-3         |        | FPS-20           |       |               |       |                |       | GPX-7           |        | 2/4                     | 2/3   | Opg             | CY 57 |
| F-8               | Campion      | 743rd   | DC       | FPS-3         | TPS-1D | FPS-20           |       | FPS-6         |       |                | FPS-6 | GPX-7           |        | 6/4                     | 4/11  | Opg             | CY 57 |
| F-9               | NE Cape      | 712th   | EW       | FPS-3         |        | FPS-20           |       |               |       |                |       | GPX-7           |        | 2/4                     | 4/3   | Opg             | CY 58 |
| F-10              | Tatalina     | 717th   | GCI      | FPS-3         |        | FPS-20           |       | FPS-6         |       |                |       | GPX-7           |        | 4/4                     | 4/11  | Opg             | CY 57 |
| F-14              | Ft Yukon     | 709th   | GCI      |               |        | FPS-3<br>FPS-20  |       |               |       | FPS-6          |       | GPX-7           |        | 0/4                     | 0/8   |                 | CY 58 |
| F-16              | Indian Mt    | 708th   | GCI      | FPS-3         |        | FPS-20           |       |               |       | FPS-6          | FPS-6 | GPX-7           |        | 4/4                     | 5/11  | Opg             | CY 58 |
| F-20              | Unalakleet   | 718th   | GCI      |               |        | FPS-8            |       |               |       | FPS-4          |       | GPX-18          |        | 0/4                     | 0/8   |                 | CY 57 |
| F-24              | Kotzebue     | 748th   | GCI      |               |        | FPS-8            |       |               |       | FPS-4          |       | GPX-18          |        | 0/4                     | 0/8   |                 | CY 57 |

## THE DEW LINE: EXTENDING EARLY WARNING

AAC's interest in the DEW (Distant Early Warning) Line began in the spring of 1953 when it was called upon to furnish logistic support to a segment of the line which the Air Research and Development Command had started to build along the Arctic coast.\* This was Project 572, which called for the construction of one master station at Point Barrow and two auxiliary and four intermediate stations spaced between Point Barrow and Barter Island.\*\* It was an experimental project, designed to test the feasibility of the fluttar radars and other equipment. If the experiment worked, the Line would then be extended west to the Bering Sea and east to the North Atlantic.<sup>68</sup>

By mid-1954, this Arctic experimental line was operating and (according to procedures developed between AAC and the Western Electric Company, which was given the contract to build the Line) was feeding early warning information into the Alaskan radar stations.<sup>69\*\*\*</sup>

The workability of the system having been proved, USAF moved ahead with the plan to extend it. In accordance with AAC's recommendation that the Lisburne ACW station form the western terminus of the Line, USAF asked the Western Electric Company in September 1954 to build the Point Barrow-Lisburne segment. By mid-1955, a formal contract had been drawn up for Western Electric to design, construct, and

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\* For further background information on the Dew Line project, see 1) CONAD/ADC Historical Study No. 11, A Decade of Continental Air Defense, 1946-1956, and 2) CONAD/ADC Historical Study No. 10, Seaward Extension of Radar, 1946-1956.

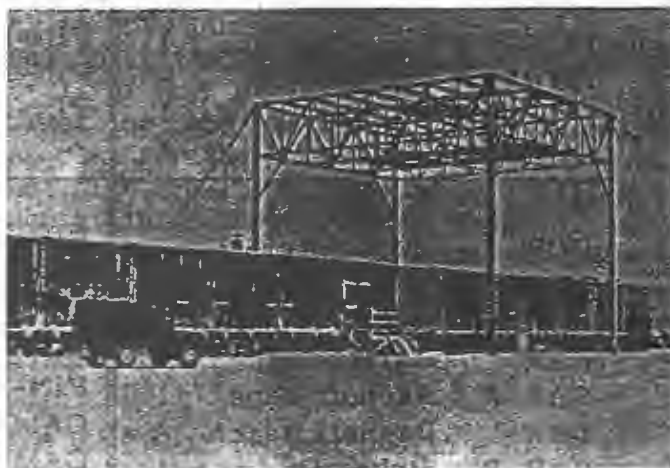
\*\* The project was originally called COUNTERCHANGE. It was renamed CORRODE in mid-1953 and changed to Project 572 in early 1954.<sup>70</sup>

\*\*\* The DEW system comprised a combination of attended and unattended radar installations. There were 1) fluttar stations (unattended) with radar only; 2) auxiliary stations (attended) with both radar and communications to main stations, and 3) main stations (attended) with radar and communications links to the auxiliaries and the rear bases. The principal radar at main and auxiliary stations was the AN/FPS-19, with a "dual" antenna system. The CW radars (fluttars) interconnecting main and auxiliary stations operated in the 500 mc range at 1000-watt power output.<sup>71</sup>

install the equipment in the whole of the Line. The target date of mid-1957 was set for its completion.<sup>72</sup>

Canadian approval for constructing the Line across its territory was given in late 1954. A total of 56 stations were to be built -- six main, 23 auxiliary, and 27 intermediate.\* By the terms of the agreement with Canada, the Line was divided into an eastern and western sector, with separation drawn between Cambridge Bay and Hall Lake main stations. AAC was given operational responsibility for the western half, the Northeast Air Command for the eastern. The Line was to be manned with civilian contract personnel with only enough military men assigned to supervise and command operations.<sup>73</sup>

Of the total stations in the Line, 4 main, 16 auxiliary, and 19 intermediate stations (or approximately 70 per cent) were located in the AAC area. As of mid-1956 they were divided into four sub-divisions, two lying in Alaska and two in Canada, as shown in the chart on the following page.<sup>74</sup>



Typical DEW Station

Meanwhile, the decision had been made on the location of the land-based stations in the western extension of the DEW Line. In January 1955 the JCS approved a plan for extending the Line west from Kodiak to Hawaii solely with picket vessels and airborne early warning aircraft. The JCS changed the plan late in the year, however, adopting the Navy suggestion that the Line be extended along the Aleutian chain to Adak by ground stations, then by picket vessel and AEW aircraft to Midway Island.<sup>75</sup>

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\* Originally, 57 stations were programmed. In early 1956, the intermediate station programmed for Cape Sabine in Sector I of the AAC area of responsibility was eliminated.<sup>76</sup>

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**DEW STATIONS TO BE OPERATED  
BY AAC (as of end 1955)**

| Station   |               |       | Station    |                  |      |
|-----------|---------------|-------|------------|------------------|------|
| Sector I  |               | *Type | Sector III |                  | Type |
| LIZ-A     | Cape Sabine   | I     | BAR-3      | Tuk-Tuk          | A    |
| LIZ-2     | Point Lay     | A     | BAR-D      | Atkinson Pt..    | I    |
| LIZ-B     | Icy Cape      | I     | BAR-4      | Nicholson Penin  | A    |
| LIZ-3     | Wainwright    | A     | BAR-E      | Horton River     | I    |
| LIZ-C     | Peard Bay     | I     | PIN        | Cape Parry       | M    |
| POW       | Point Barrow  | M     | PIN-A      | Pearce Pt        | I    |
| POW-A     | Cape Simpson  | I     | PIN-1      | Clinton Pt       | A    |
| POW-1     | Lonely        | A     | PIN-B      | Clinton Pt       | I    |
| POW-B     | Kongru River  | I     | PIN-2      | Young Pt         | A    |
| POW-2     | Oliktok       | A     |            |                  |      |
| Sector II |               |       | Sector IV  |                  |      |
| POW-C     | Pt McIntyre   | I     | PIN-C      | Bernard Harbor   | I    |
| POW-3     | Bullen Pt     | A     | PIN-3      | Lady Franklin Pt | A    |
| POW-D     | Simpson Cover | I     | PIN-D      | Ross Pt          | I    |
| BAR       | Barter Is     | M     | PIN-4      | (Unnamed)        | A    |
| BAR-A     | Aschoft Cape  | I     | PIN-E      | Cape Peel        | I    |
| BAR-1     | Bagnell Beach | A     | CAM        | Cambridge Bay    | M    |
| BAR-B     | Stokes Pt     | I     | CAM-A      | Stuart Point     | I    |
| BAR-2     | Blow River    | A     | CAM-1      | Jenny Lind Is    | A    |
| BAR-C     | Tununuk       | I     | CAM-B      | Hat Is           | I    |
|           |               |       | CAM-2      | King William Is  | A    |
|           |               |       | CAM-C      | Matheson Pt      | I    |
|           |               |       | CAM-3      | Shepherd Bay     | A    |

\*I - Intermediate  
A - Auxiliary  
M - Main

In May 1956, Lieutenant General Joseph H. Atkinson, CINCAL, suggested that the land-based portion of the extension be terminated at Umnak Island instead of Adak. This would eliminate the need for four stations without appreciably affecting operations, he believed. The Navy preferred the original plan but, on 31 May, the JCS adopted General Atkinson's proposal.<sup>77</sup>

By mid-1956, one main and seven auxiliary stations were programmed for the land-based portion of the extension, stretching out some 500 miles along the chain at the following places: 1) Cape Greig (Pilot

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Point), 2) Port Heiden, 3) Port Moller, 4) Cold Bay (main station), 5) Cape Sarichef, 6) Cape Winslow, 7) Reindeer Point, and 8) Nikolski. Given the code name STRETCH OUT, this extension line would be tied into the AAC radar station at King Salmon, with data on unknown (or hostile) penetrations, as determined by the main station at Cold Bay, reported simultaneously to the 10th Air Division, the AAC COC, CONAD, and RCAF ADC. For the sake of economy it was planned to build the stations with military construction funds (not by industrial contract as in the case of the northern segments) and to man it with military not civilian contract personnel. The target-date for the western extension to begin operating was September 1958.<sup>78</sup>

The project for extending the DEW Line down the Bering coast between the Lisburne and King Salmon stations underwent considerable change over the years. Approval for such a link was given by the JCS in January 1955. CONAD confirmed the need for it the following March in its preliminary operational plan for the DEW Line. Soon after, Western Electric estimated that nine FPS-19 and nine flutter stations would be needed to provide such a link. However, USAF promptly scratched the flutter stations off the list as unnecessary and scaled the proposed FPS-19 stations down to six. AAC in turn, further reduced the number of FPS-19 stations required to four, recommending that they be located at 1) Mulgrave Hills, 2) Kalik River, 3) Cape Vancouver, and 4) Cape Constantine.<sup>79</sup>

All in all, this so-called WEST WALL project was in a state of flux at mid-1956. AAC, dissatisfied with the low capability of its radar net against low-flying aircraft, was looking for a program that would both solve this problem and satisfy the DEW Link requirement.

### WHITE ALICE: IMPROVING COMMUNICATIONS

The engineered VHF point-to-point voice and teletype radio system which comprised the primary communications link between the components of the Alaskan air defenses in 1956 was not satisfactory. Because of the paucity of relay stations, communications were frequently disrupted. To overcome the problem, a multi-million dollar relay station construction program had been embarked on in 1954. Called WHITE ALICE, the program was designed to eliminate not only the air defense communications problem, but to satisfy the needs of all the military and civilian agencies in Alaska whose satisfactory functioning was vital to national defense.

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Efforts to improve the communications problem in Alaska began in late 1953 when the Department of Defense established a Theater Communications Study Group to analyse the situation. By early 1954 the group had boiled down the hundreds of reports on the problem sent to Washington by the Alaskan agencies into a single requirements study. The solution offered by the group was for a communications network comprised of powerful, permanent relay stations. This, the group said, would provide reliable, instantaneous, and jam-free communications immediately and also handle future radar system and other needs.<sup>80</sup>

The Pentagon approved the study in May 1954 and hired the services of the American Telephone and Telegraph Company to select the best locations for the stations. AT&T finished its study the following November, after which USAF commissioned the Western Electric Company to build the system.



The system was Artist's Concept of WHITE ALICE Station at Hinchinbrook to consist of 33 stations, that would provide 24 links of tropospheric propagation and eight links of TD-2 microwave radio.\* Western Electric would design the buildings and construct 23 of the stations. The Air Force would build the rest, since they were located on or adjacent to AAC radar stations and presented no unusual construction problems.<sup>81</sup>

\* The TD-2 microwave operated in the 3700-4200 mc frequency band and was designed for handling multi-channel telephony, telegraphy, and other wide-band communications signals. Its antenna was a 20-foot high shielded horn capped by a paraboloidal-shaped reflector. Initially, microwave routing ran from Homer to Wasilla, and from Fairbanks to Gilmore. On all other trunks, Forward Propagation Tropospheric Scatter (FPTS) radio, manufactured by the Radio Engineering Laboratories, would be installed. Capable of transmitting-receiving multi-channel voice and data signals in the UHF band, under 10-kilowatt power, trop resorted to special parabolic antennas, 30 to 60 feet in diameter. They were designed to withstand 150 mile per hour winds and 16 inches of radial ice, and also incorporated deicing equipment for areas of severe cold temperatures.<sup>83</sup>

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The Western Electric Company received authorization to proceed with construction on 6 June 1955. By the end of the month, bids were let and construction was placed underway.<sup>82</sup>

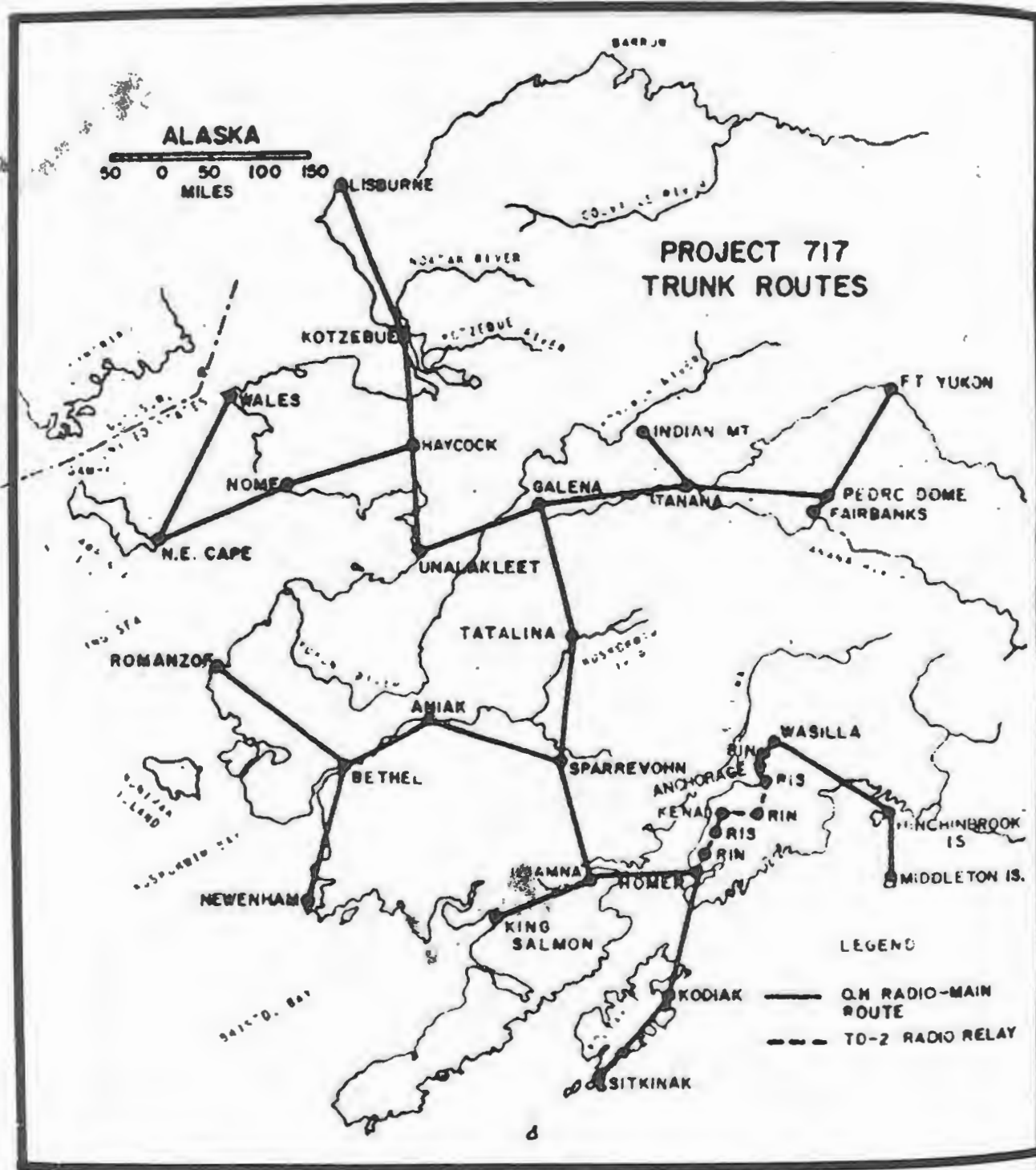
The schedule drawn up in mid-1955 called for most of the WHITE ALICE stations to be completed by the end of 1956. However, due to fund shortages it became necessary to limit work on all stations except those comprising the Middleton Island-Hinchinbrook-Wasilla-Anchorage leg in the south and the Lisburne-Haycock-Galena leg in the north during 1955. As the following chart shows, the revised schedule called for the first stations to be operating by late 1956, with the rest completed by February 1958.<sup>84</sup>

**WHITE ALICE PROGRAM**  
(as of mid-1956)

| Station          | Date Complete | Station    | Date Complete |
|------------------|---------------|------------|---------------|
| Middleton Island | Sep 56        | Anchorage* | Oct 56        |
| Hinchinbrook     | Oct 56        | Kenai*     | Oct 56        |
| Wasilla          | Nov 56        | Kenai*     | Oct 56        |
| Anchorage*       | May 56        | Kenai      | Mar 57        |
| Anchorage        | Dec 56        | Homer*     | Oct 56        |
|                  |               | Homer      | Feb 57        |
| Lisburne         | Mar 57        | Kodiak     | Feb 57        |
| Kotzebue         | Mar 57        | Sitkinak   | Mar 57        |
| Haycock          | Jun 57        |            |               |
| Unalakleet       | Apr 57        | Tataline   | Jul 57        |
| Galena           | May 57        |            |               |
|                  |               | Tanana     | Dec 57        |
| Romanzof         | Jun 57        | Indian Mtn | May 57        |
| Newenham         | Feb 57        | Pedro Dome | Feb 58        |
| Bethel           | Mar 57        | Fairbanks  | Jul 57        |
| Aniak            | May 57        | Fort Yukon | May 57        |
| Sparrevohn       | Apr 57        |            |               |
| Iliamna          | Jan 57        | Wales      | Dec 57        |
| King Salmon      | Feb 57        | N. E. Cape | Jan 58        |
|                  |               | Nome       | Dec 57*       |

(\*radio relay stations)

# WHITE ALICE TRUNK ROUTES





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## BADGE

The last big project on the AAC calendar was that of improving the data processing and weapons control functions. Action began on this project in May 1955 when USAF approved the BADGE (Base Air Defense Ground Environment) system for Alaska. AAC had studied both the SAGE and BADGE systems and concluded that the latter would best suit Alaska's needs.

By the end of 1956 funds had been set aside in future budgeting for the installation of the system in Alaska. Of the several overseas commands scheduled to receive the equipment, Alaska was put at the head of the list for it. In the meantime, AAC officers were studying the system at the Air Force Cambridge Research Center (monitors of the BADGE projects) and working up the operations plan for it.<sup>85</sup>

## CONAD ASSUMES OPERATIONAL CONTROL

Early in 1956, USAF prepared a study recommending the disestablishment of the Alaskan Command and the assignment of the USAF forces in Alaska to the Air Defense Command. Responsibility for the air defense of Alaska would then be invested in CINCONAD. The study was made on direction of the JCS as part of a larger project to simplify the world-wide unified command structure.<sup>86</sup>

In the Joint Strategic Planning Committee discussions of the subject, the Navy and Marine Corps representatives agreed with this proposal. The Army stated its desire to see the unified command structure in Alaska remain the same, however.<sup>87</sup>

In March, USAF asked General Earl E. Partridge to review the matter before it went to the JCS for final decision. Compromising with the Army view, USAF now proposed that the unified command be kept in Alaska, but that the responsibility for the air defense of Alaska be invested in CINCONAD. General Partridge agreed with this plan.<sup>88</sup>

The new arrangement went into effect on 1 September 1956. CINCONAD took the following specific actions on this date: 1) assumed responsibility for all air defense activities in Alaska; 2) assumed operational control over all air defense forces assigned or allocated for the air defense of Alaska; 3) designated CINCAL as the commander responsible to CINCONAD for all air defense activities in Alaska; and



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4) delegated to CINCAL the authority to exercise operational control over all air defense forces assigned or allocated for the air defense of Alaska, this control to be exercised in the same manner as before -- i.e., through the AAC commander.<sup>89</sup> To insure that everyone understood exactly how the new arrangement was to work, General Partridge and Lieutenant General Joseph H. Atkinson, CINCAL, set down the duties of their respective offices in a "memorandum of agreement," a copy of which is included in the appendices to this paper.

The anti-aircraft forces in Alaska remained assigned to USARAL. Department of the Army's instructions to Lieutenant General Stanley R. Mickelsen, CGUSARADCOM,\* and Major General James F. Collins, CGUSARAL, following the change was that their commands "maintain the close and continuous coordination with relation to AAA matters in Alaska referred to in [the] Memorandum of Agreement." CGUSARADCOM would continue to provide CGUSARAL data on the "latest thoughts and developments on AAA matters...[and] plans." CGUSARAL, in turn, would continue to coordinate plans for the anti-aircraft defense of Alaska with CGUSARADCOM.<sup>90</sup>

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\* Commanding General, United States Army Air Defense Command. The command was named Army Antiaircraft Command (ARAACOM) until 21 March 1957.

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# Appendix I

## ROSTER of COMMANDERS

Date of  
Office

### ALASKAN COMMAND (ALCOM)

|                                  |             |
|----------------------------------|-------------|
| Maj Gen Howard A. Craig (USA)    | 1947        |
| Lt Gen Nathan F. Twining (USAF)  | 1947 - 1950 |
| Lt Gen William E. Kepner (USAF)  | 1950 - 1953 |
| Lt Gen Joseph H. Atkinson (USAF) | 1953 - 1956 |
| Lt Gen Frank A. Armstrong (USAF) | 1956 -      |

### ALASKAN AIR COMMAND (AAC)

|                             |                 |
|-----------------------------|-----------------|
| Brig Gen Edmund C. Lynch    | Dec 45 - Oct 46 |
| Brig Gen Joseph H. Atkinson | Oct 46 - Feb 49 |
| Brig Gen Frank A. Armstrong | Feb 49 - Dec 50 |
| Maj Gen William D. Old      | Dec 50 - Oct 52 |
| Brig Gen W. R. Agee         | Oct 52 - Feb 53 |
| Maj Gen George R. Acheson   | Feb 53 - Feb 56 |
| Lt Gen Joseph H. Atkinson * | Feb 56 - Jul 56 |
| Lt Gen Frank A. Armstrong * | Jul 56 - Oct 56 |
| Brig Gen James H. Davies    | Oct 56          |

### UNITED STATES ARMY, ALASKA (USARAL) \*\*

|                           |                 |
|---------------------------|-----------------|
| Maj Gen J. W. Cunningham  | 52 - Aug 54     |
| Maj Gen James F. Collins  | Aug 54 - Feb 57 |
| Maj Gen Gilman C. Mudgett | Feb 57 -        |

### 10th AIR DIVISION (DEFENSE)

|                        |                 |
|------------------------|-----------------|
| Col Alan R. Springer   | Nov 52 - Aug 54 |
| Col Dolf E. Muehleisen | Aug 54 - Jul 55 |
| Col James R. Gunn, Jr. | Aug 55          |

\* Commanded both ALCOM and AAC during these periods.

\*\* Complete data not available at time of publication. To be subsequently compiled.

11th AIR DIVISION (DEFENSE)

Brig Gen Donald B. Smith  
Brig Gen T. Alan Bennett  
Brig Gen Kenneth H. Gibson

Aug 53 - Aug 54  
Aug 54 - Jul 57  
Jul 57

## Appendix II

### CHRONOLOGY of KEY UNIT CHANGES

- 21 Dec 45 - Alaskan Air Command (AAC) activated at Davis AFB.
- 15 Aug 46 - 57th Fighter Interceptor Group with assigned 64th, 65th, and 66th Fighter Interceptor Squadrons activated at Shemya. Group assigned to AAC headquarters.
- 15 Aug 46 - 625th ACW Squadron activated at Davis. 626th ACW Squadron activated on Shemya. Both assigned to AAC headquarters.
- Dec 46 - AAC Headquarters moved from Davis to Elmendorf.
- 1 Jan 47 - Alaskan Command (ALCOM) activated as unified command. AAC designated to carry out ALCOM's air defense mission.
- 3 Apr 47 - 57th Fighter Interceptor Group and 64th, 65th, and 66th Squadrons moved from Shemya to Elmendorf. Elements of group also placed on Ladd.
- Apr 47 - 626th ACW Squadron moved from Shemya to Ladd.
- May 47 - 449th Fighter Interceptor Squadron arrived in Alaska and placed on Davis. Assigned to AAC headquarters.
- 15 Nov 47 - U. S. Army Alaska Command (USARAL) and Alaskan Sea Frontier officially formed.
- 21 Apr 48 - Yukon Air Division formed on Ladd. Assigned to AAC headquarters.
- May 48 - 867th AA Battalion moved to Alaska, with headquarters at Fort Richardson and batteries at Fort Richardson-Elmendorf, Ladd, and Eilson. Forces assigned to USARAL but placed under operational control of AAC.
- 10 Jun 48 - Yukon Air Division inactivated.
- 1 Jul 48 - 626th ACW Squadron moved to U.S., without personnel and equipment. Later inactivated.
- Jul 48 - 57th Fighter Interceptor Wing activated at Elmendorf (Approx. date) and assigned to AAC headquarters. 57th Group and

Jul 48 - squadrons assigned to Wing.  
(Cont'd)

Aug 48 - 625th ACW Squadron moved to Elmendorf from Davis and (Approx. date) assumed charge of operating radar stations at Elmendorf and Ladd.

20 Sep 48 - 5001st Composite Wing activated at Ladd. Assigned to AAC headquarters.

Mar 49 - 449th Fighter Interceptor Squadron completed move from Davis to Ladd and assigned to 5001st Wing.

12 Jul 49 - 531st ACW Group (activated in U.S. on 21 Jun 48) completed move to Alaska. Possessed one squadron, 632d. 531st Headquarters based on Elmendorf, 632d Squadron on Ladd. 626th ACW Squadron assigned to Group. Group assigned to AAC headquarters.

1 Jan 50 - 531st ACW Group inactivated and radar squadrons assigned directly to AAC headquarters.

Jul 50 - 96th AA Battalion arrived at Elmendorf. 502d AA Battalion arrived at Eilson.

1 Nov 50 - 10th Air Division (Defense) activated at Elmendorf. 11th Air Division activated at Ladd. ACW squadrons assigned to divisions. Divisions assigned to AAC headquarters.

17 Nov 50 - 531st ACW Group reactivated at Elmendorf and assigned to 10th Division. 532d ACW Group activated at Ladd and assigned to 11th Division. ACW squadrons assigned to groups.

17 Nov 50 - 626th ACW Squadron reactivated at Elmendorf.

17 Nov 50 - 633d ACW Squadron activated at Ladd.

1 Jan 51 - 57th Fighter Interceptor Wing inactivated. 57th Group assigned directly to AAC headquarters.

7 Jun 51 - 160th ACW Group with assigned 141st, 142d and 143d ACW Squadrons arrived at Ladd. ANG organization activated in the U.S. earlier in the year. Assigned to 11th AD.

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- 20 Jul 51 - 10th and 11th Air Divisions inactivated. ACW Groups, with assigned squadrons, assigned to AAC headquarters.
- 1 Aug 51 - 532d ACW Group and 632d and 633d ACW Squadrons inactivated and their duties assumed by 160th Group.
- 8 Nov 52 - 10th Air Division reactivated at Elmendorf. 531st ACW Group and squadrons assigned it.
- 5 Dec 52 - Following ACW Squadrons activated to man and operate permanent radar stations: 705th; 708th; 717th; 719th; 710th; 711th; 712th; 794th; and 795th. Assigned to ACW Groups.
- 1 Feb 53 - 160th ACW Group and 141st, 142d, and 143d ACW Squadrons reverted to State control.
- 1 Feb 53 - 548th ACW Group activated to take place of 160th at Ladd.
- 1 Feb 53 - 742d, 743d, and 744th ACW Squadrons activated.
- 31 Mar 53 - 742d ACW Squadron inactivated.
- 8 Apr 53 - 11th Air Division reactivated at Ladd. Assigned to AAC headquarters.
- 8 Apr 53 - 548th ACW Group inactivated and personnel reassigned to 11th headquarters. ACW squadrons assigned directly to division.
- 8 Apr 53 - 5001st Composite Wing inactivated and 5001st Air Base Wing activated. 449th Fighter Interceptor Squadron assigned to Division headquarters.
- 8 Apr 53 - 531st ACW Group inactivated (having operated at record strength since reactivation of 10th Division in Nov 52). ACW squadrons assigned to 10th Division.
- 8 Apr 53 - 57th Fighter Interceptor Group inactivated and 64th, 65th, and 66th Fighter Interceptor Squadrons assigned directly to 10th.
- 8 Apr 53 - 625th ACW Squadron inactivated.

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- 18 Aug 53 - 715th ACW Squadron activated.
- 14 Jul 54 - 433d Fighter Interceptor Squadron arrived at Ladd and assigned to 11th.
- 6 Aug 54 - 715th ACW Squadron inactivated.
- 1 Sep 54 - 18th Fighter Interceptor Squadron arrived at Ladd and assigned to 11th.
- 20 Sep 54 - 5001st Air Base Wing inactivated and 5001st Air Defense Group formed at Ladd. Fighter interceptor squadrons reassigned to Group, Group assigned to 11th Division.
- 8 Sep 55 - 720th ACW Squadron activated.
- 1 Oct 55 - 5001st Air Defense Group inactivated. Fighter Interceptor Squadrons on Ladd reassigned directly to 11th Division headquarters.

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## Appendix III

### MEMORANDUM OF AGREEMENT BETWEEN CINCAL AND CINCONAD CONCERNING AIR DEFENSE RESPONSIBILITIES AND ARRANGEMENTS IN ALASKA

28 Aug 1956

1. Under the provisions of the revised Unified Command Plan, dated 5 July 1956 (SM 548-56), the missions of CINCONAD and CINCAL are defined as follows:

a. CINCONAD:

(1) Maintain the security of the Continental Air Defense Command, and defend the United States, Alaska, and the Northeast area against air attack.

(2) Assist in the defense of Canada and Mexico against air attack in accordance with approved plans and agreements.

(3) Support CINCAL, CINCPAC, CINCLANT, CINCARIB and CINCSAC in their missions.

(4) In coordination with commanders concerned, prepare and submit to the Joint Chiefs of Staff for approval, plans for the full utilization of all military forces including reserve component forces which have an air defense capability and which can temporarily augment the air defense forces in the event of emergency.

(5) In coordination with appropriate national authorities and commanders of unified commands, plan for early warning systems which will provide early warning of air attack for the defense of the continental United States, Alaska, Mexico and Canada, to ensure that such systems are designed and operated in a manner responsive to CINCONAD's air defense requirements and in consonance with national policy.

b. CINCAL:

(1) Maintain the security of the Alaskan Command being guided by such special agreements as may be made between the United States and Canada in the planning for and conduct of pertinent operations.

(2) Support CINCPAC, CINCONAD, and CINCSAC in their

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Memorandum of Agreement Between CINCAL and CINCONAD Concerning Air Defense Responsibilities and Arrangements in Alaska (Cont'd)

missions.

(3) Report to the Joint Chiefs of Staff through CINCONAD on all matters pertaining to the air defense of the North American Continent. Operational control of the Alaskan Air Defense forces will be vested in CINCONAD.

2. By direction of the Joint Chiefs of Staff, CINCONAD and CINCAL have been enjoined to develop mutually agreeable plans to insure the orderly and economical reassignment of tasks and responsibilities as they pertain to the air defense of Alaska. In consonance with these instructions CINCONAD and CINCAL mutually agree on the following arrangements, effective 010001Zebra September 1956.

a. The designation of CINCAL by CINCONAD as the commander responsible to him for all air defense activities in Alaska.

b. Operational control over all air defense forces assigned or allocated for the air defense of Alaska will be exercised by CINCAL in the manner hitherto exercised, i.e., through the Commander, Alaskan Air Command, a component commander of the Alaskan Command.

c. The surveillance procedure presently employed in the Alaskan Command is essentially the same as CONAD's and compatible therewith. Standardization is the continued goal.

d. CINCAL will report to the JCS through CINCONAD on all matters pertaining to the air defense of the North American continent.

3. In order to accomplish the mission of defending the continental United States against air attack the JCS have specified that CINCONAD will be responsible for developing broad plans and requirements for continental air defense and will exercise operational control over all air defense forces assigned or allocated for continental air defense. It is agreed that CINCONAD is now also responsible for these functions insofar as they relate to the air defense of Alaska. In order to discharge these functions CINCAL will participate with CINCONAD in the development of plans and requirements for the air defense of Alaska. Such plans and requirements are to

Memorandum of Agreement Between CINCAL and CINCONAD Concerning Air Defense Responsibilities and Arrangements in Alaska (Cont'd)

be reflected in JCS approved CONAD documents which particularly refer to:

- a. Concept and philosophy of air defense.
- b. Force structure and general deployment.
- c. Level of air defense or expected capability of the air defense force required.
4. Realization of approved CONAD requirements will be accomplished through service channels. In this respect it is noted that there is no official relationship between like-component commands of CONAD and ALCOM. Close and continuous coordination between these component commands will be necessary.
5. Plans and requirements on matters of air defense which have been submitted by CINCAL and by the component commanders of CINCAL and which have been approved or are undergoing study at Departmental level will be initially unaffected. Timely revisions will be made by CINCONAD within the scope of his responsibility and as the situation dictates.

/s/ EARLE E. PARTRIDGE  
/t/ EARLE E. PARTRIDGE  
General, USAF  
Commander-in-Chief  
Continental Air Defense Command

/s/ J. H. ATKINSON  
/t/ J. H. ATKINSON  
Lieutenant General, USAF  
Commander-in-Chief, Alaska

1. This account of World War II air defenses in Alaska was taken from the following: (a) Stanley W. Dziuban, U.S. Military Collaboration with Canada in World War II (manuscript of PhD dissertation, copies in CONAD and USAF Historical Division files); (b) Wesley F. Craven and James L. Cate (Editors), The Army Air Forces in World War II, Vol I - pp 166-70, and Vol IV - Chap II; (c) History of the 11th Air Force, 1942-1945 (in USAF Historical Division files); and (d) AAF Historical Study No. 4, Alaskan Air Defense and the Japanese Invasion of the Aleutians, by Lt. Arthur B. Ferguson (copies in CONAD and USAF Historical Division files). For the story of Navy forces and operations in Alaska during the war see: Samuel E. Morison, History of United States Naval Operations in World War II, Vol VII, Part I.

2. History of Alaskan Air Command (hereafter cited as Hist. AAC), Jul-Dec 1955, pp 7-10.

3. See Histories of 57th Fighter Group, 1947-8.

4. See Histories of 626th ACW Squadron, 1947-8.

5. See Histories of 625th ACW Squadron, 1947-8.

6. Air University Documentary Research Study, Unification of the Armed Forces: Administrative and Legislative Developments 1945-1949, by R. Earl McClendon, p 31.

7. Same as n 2.

8. Draft, USAF Historical Study No. 126, The Development of Continental Air Defense, by Clement L. Grant, p 26.

9. AAC Historical Monograph, Development of Aircraft Control and Warning in Alaska, (through August 1953).

10. Same as n 9.

11. Same as n 9.

12. Same as n 9.

13. Same as n 9.

14. Same as n 9.

15. Hist. AAC, Jan- Dec 1949.

16. Hist. of 502d Tactical Control Group, Jan-Mar 1948, pp 3-4.  
See also, Hist. of Yukon Air Division, Apr-Jun 1948, p 17.

11th

17. Hist. AAC, Jan-Dec 1949, pp 91-2.

18. Hist. AAC, Jan-Jun 1950, p 16.

19. Draft, USAF Historical Study No. 126, The Development of Continental Air Defense, by Clement L. Grant, p 49.

20. Hist. AAC, Jan-Jun 1950, p 12.

21. Hist. AAC, Jul-Dec 1950, p 21.

22. Hist. AAC, Jan-Dec 1949, p 50.

23. Hist. of Ladd Air Force Base, Apr-Jun 1948.

24. Hist. AAC, Jul-Dec 1950, pp 21-2.

25. Hist. AAC, Jan-Jun 1951, p 22.

26. Same as n 25, p 15.

27. Hist. AAC, Jan-Jun 1950, p 41.

28. Hist. AAC, Jan-Jun 1951, pp 170-3.

29. Hist. AAC, Jul-Dec 1951, pp 175-7.

30. Hist. AAC, Jan-Jun 1952, pp 198-200.

31. Same as n 28.

32. Same as n 30, pp 193-5.

33. Hist. AAC, Jan-Jun 1954, p 140.

34. Hist. AAC, Jul-Dec 1953, p 99.

35. Hist. AAC, Jan-Jun 1956. See chart following p 123.

36. Hist. of 10th Air Division (ADiv), Nov 1952-Jun 1953.

37. Hist. of 11th ADiv, Apr-Jun 1953.



pp 3-4.

38. Hist. of 10th ADiv, Nov 1952-Jun 1953. See also, Hist. of 11th ADiv, Apr-Jun 1953.

39. Hist. AAC, Jul-Dec 1952, p 20.

40. Hist. AAC, Jul-Dec 1954, p 82.

41. Hist. AAC, Jan-Jun 1950, p 3.

42. Hist. of 10th ADiv, Nov 1952-Jun 1953, pp 42-3.

43. Same as n 42.

44. Hist. AAC, Jul-Dec 1955, pp 25-6.

45. Hist. of 10th ADiv, Jan-Jun 1956, p 38.

46. Hist. of 11th ADiv, Jul-Dec 1955, p 99.

47. Hist. AAC, Jul-Dec 1950, p 21.

48. Hist. AAC, Jan-Jun 1951, p 20.

49. Hist. AAC, Jul-Dec 1953, p 162.

50. Hist. AAC, Jan-Jun 1954, p 90.

51. Hist. AAC, Jul-Dec 1954, pp 79-80.

52. Hist. AAC, Jul-Dec 1954, pp 53-4.

53. Hist. AAC, Jul-Dec 1955, p 96.

54. Hist. AAC, Jul-Dec 1954, pp 54-5.



55. Hist. AAC, Jan-Jun 1956, p 25.

56. Hist. AAC, Jul-Dec 1954, pp 160-1.

57. Same as n 56.

58. From data in the CONAD COC.

59. Data furnished by the USARADCOM Historical Office.

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60. Hist. AAC, Jul-Dec 1951, p 177.
61. Hist. AAC, Jan-Jun 1951, p 169.
62. Hist. AAC, Jul-Dec 1952, pp 179-87.
63. Hist. AAC, Jan-Jun 1953, pp 76-83.
64. Same as n 63, p 77.
65. Hist. AAC, Jul-Dec 1953, pp 118-25.
66. Hist. AAC, Jan-Jun 1953, p 105.
67. Hist. AAC, Jul-Dec 1955, p 160.
68. Hist. AAC, Jul-Dec 1953, pp 146-9.
69. Hist. AAC, Jan-Jun 1954, p 191.
70. Hist. AAC, Jan-Jun 1954, p 187.
71. Same as n 70.
72. CONAD/ADC Historical Study No. 10, Seaward Extension of Radar, 1946-1956.
73. Hist. AAC, Jan-Jun 1955, pp 175-7.
74. Hist. AAC, Jul-Dec 1955, pp 196-7.
75. Same as n 72, pp 67-9.
76. Hist. AAC, Jan-Jun 1956, p 154.
77. Same as n 76, pp 167-8.
78. Same as n 77.
79. Hist. AAC, Jan-Jun 1956, p 158.
80. Hist. AAC, Jan-Jun 1954, pp 197-9.
81. Hist. AAC, Jul-Dec 1954, p 213.
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82. Hist. AAC, Jul-Dec 1955, p 219.

83. Same as n 82, Chap VIII.

84. Hist. AAC, Jan-Jun 1956, p 180. For a detailed account of AAC communications problems and the steps taken to overcome them, see the following AAC Historical monographs: 1) Background to Communications in Alaskan Air Defense (to 1954); and 2) Introduction to WHITE ALICE - Integrated Defense Communications for Alaska (through Aug 1955).

85. Hist. of 10th ADiv, Jan-Jun 1956, pp 65-7.

86. Hist. of CONAD/ADC, Jan-Jun 1956, pp 1-2.

87. Same as n 86.

88. Same as n 86.

89. CONAD DF, DCS/P&R to Staff, "Implementation of the Unified Command Plan," 11 Sep 1956.

90. Msg, Dept of Army to CGUSARADCOM (ARAACOM), 2 Oct 1956.