[redacted] UNCLASSIFIED

U. S. AIR DEFENSE IN THE NORTHEAST 1940-1957

HISTORICAL REFERENCE PAPER

NUMBER ONE

Downgraded to UNCLAS
by NDC Memo, 14 Apr 95.
(also RELCAN)

Headquarters

Continental Air Defense Command

[redacted] UNCLASSIFIED

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

14 APR 1995

MEMORANDUM FOR NORAD/PAX

FROM: HQ NORAD/NDC

SUBJECT: Declassification Review of Historical Document

HQ NORAD has conducted a thorough review of "US Air Defense in the Northeast 1940-1957". A determination has been made to declassify the document and make it releasable to Canada.

Thomas M. Petitmermet

THOMAS M. PETITMERMET, Colonel, USAF
Deputy Chief of Staff
Director, NORAD Support Staff

cc: HO

MEMORANDUM FOR NDC 8 March 1995

FROM: NORAD PAX
Attn: Mr Johnson

SUBJECT: Declassification Review of Historical Document

1. PA is responsible for processing NORAD specific public information requests IAW NORAD Regulation 35-6, Applicability of the Freedom of Information Act (FOIA) and Canadian Access to Information Act (ATIA). The historical summary, "US Air Defense in Northeast 1940-57" was requested by a private citizen who is writing a history on CONAD and NORAD operations.

2. Using applicable Security Classification Guides, please have appropriate directorate security managers review the attached historical summary for possible downgrading and/or declassification of portions of the document or all of it. Additionally, please make a determination as to releasability of this document to Canadian personnel (RELCAN).

3. Please conduct a line-by-line review and use brackets or a highlighter for that information deemed exempt from public disclosure and cite the applicable exemption.

4. Once an action officer/security manager is assigned to review this document please have that individual contact me (4-3714) so we can discuss in greater detail.

5. Request release determination be provided undersigned by 24 March 1995 if possible.

S.W. JOHNSON
Plans/Policy Officer

Attachment:
Historical Summary

~~(Note - when attachment is removed this cover memo is unclassified)~~

OTHER PUBLICATIONS OF THE DIRECTORATE OF COMMAND HISTORY

SEMI-ANNUAL HISTORIES

Twelve volumes dating from January 1951

HISTORICAL STUDIES

No.	Title
1	*The Air Defense of Atomic Energy Installations, March 1946-December 1952,* by Thomas A. Sturm (Secret)
2	*The Use of Nuclear Weapons in Air Defense, 1952-1953,* by Denys Velan (Top Secret)
3	*The Identification Problem in the Air Defense of the United States, 1946-1954,* by Denys Velan (Secret)
4	*Army Antiaircraft in Air Defense, 1946-1954,* by Dr. Robert L. Kelley (Secret)
5	*Emergency Air Defense Forces, 1946-1954,* by Lydus H. Buss (Secret)
6	*The Development of Program Control in Headquarters Air Defense Command,* by Dr. Robert L. Kelley (Confidential)
7	*All-Weather Interceptor Weapons Training in the Air Defense Command, 1950-1954* by Lydus H. Buss (Secret)
8	*Electronic Countermeasures in the Air Defense of the United States, 1948-1955,* by Dr. George L. Montagno (Secret)
9	*Organization and Responsibility for Air Defense, 1946-1955,* by Thomas A. Sturm (Secret)
10	*Seaward Extension of Radar, 1946-1956,* by Lydus H. Buss (Secret)
11	*A Decade of Continental Air Defense, 1946-1956,* by Staff (Secret)

Copies of these publications and their supporting documents may be obtained from the Director of Command History, Headquarters Continental Air Defense Command, Ent AFB, Colorado Springs, Colorado, or the USAF Historical Division, Air University, Montgomery, Alabama.

UNCLASSIFIED

HISTORICAL REFERENCE PAPER
NUMBER ONE

U.S. AIR DEFENSE IN THE NORTHEAST 1940-1957

By
Lydus H. Buss

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 United States air defense in the Northeast.

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.

Ent Air Force Base
Colorado Springs, Colorado
1 April 1957

CONTENTS AND REFERENCE OUTLINE

ILLUSTRATIONS

HOW THE UNITED STATES OBTAINED BASES IN THE NORTHEAST *

When war broke out in Europe in 1939, the people of the United States became worried about the security of this hemisphere. Their concern grew with the success of the Nazis. By June 1940, they looked across the ocean with some anxiety: Germany had overrun Poland, Norway, Denmark, and the Low Countries; France had collapsed and Italy had joined her Axis partner. The British Expeditionary Force had barely escaped from Dunkirk. A complete Axis victory in Europe seemed probable.

America realized that Germany might next want to take over European colonial possessions in the New World. By so doing, it could lodge itself at the doorsteps of either American continent. With such bases, the air weapon had ominous potentialities.

The danger zones were obvious. Iceland, Greenland, and Newfoundland lay as stepping-stones between Norway and the New England-New York area. In the South Atlantic, Brazil was a likely avenue of approach.

Beginning in 1939, the U. S. had taken a number of steps to combat the threat. It entered into numerous agreements with the other American nations to achieve solidarity and build a total hemispheric defense. These agreements included the Act of Havana in July 1940 which provided that the American republics might take over the administration of the threatened territory of non-American nations.

Another important link, bringing Canada into the inter-American security system, came in August 1940 with the creation of the Canada-United States Permanent Joint Board on Defense.

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* The term Northeast, as used in this paper, means the entire area where U. S. forces operated including Newfoundland, Labrador, Northeastern Canada, and Greenland -- unless otherwise defined.

In the meantime, U. S. military and civil authorities had been seeking additional and greater safeguards. In the summer of 1940, the President began negotiating with British Ambassador Lord Lothian for the American lease of British bases, the "rental" to take the form of fifty over-age destroyers.

On 2 September 1940, the negotiations were completed. In exchange for the destroyers, the U. S. got ninety-nine-year leases for bases in Newfoundland, Bermuda, British Guiana, Antigua, Trinidad, St. Lucia, Jamaica, and the Bahamas.[1] The detailed lease agreements were not signed until March 1941. But by that time, American troops were already in Newfoundland.

Next, the U. S. obtained rights to build bases in Greenland. On 9 April 1941, these rights were secured in a pact signed with the Danish minister in Washington, Henrik de Kauffmann, which provided for American defense of Greenland as a Danish colony.[2]*

The U. S. put forces in Labrador, a dependency of Newfoundland which was a British crown colony at this time, through an agreement made by Canada.** In late 1940, Newfoundland had granted land to Canada near Goose Bay in Labrador for 99 years.[3] This agreement had also provided that the base which Canada had said she would build be made available to U. S. planes for the duration and for such time after as the governments agreed was necessary. The first plane ever to land at Goose came in on 9 December 1941.[4]

U.S. FORCES IN THE NORTHEAST DURING WORLD WAR II

The destroyer-base deal provided that the U. S. would have title for 99 years to three base areas in Newfoundland. One was located near St. John's (Fort Pepperrell), a second at Argentia (Fort McAndrew), and a third at Stephenville (Ernest Harmon). Construction of these bases, which started in April and May 1941, took almost exactly two years to finish. However, they were all occupied within a few months after work started.

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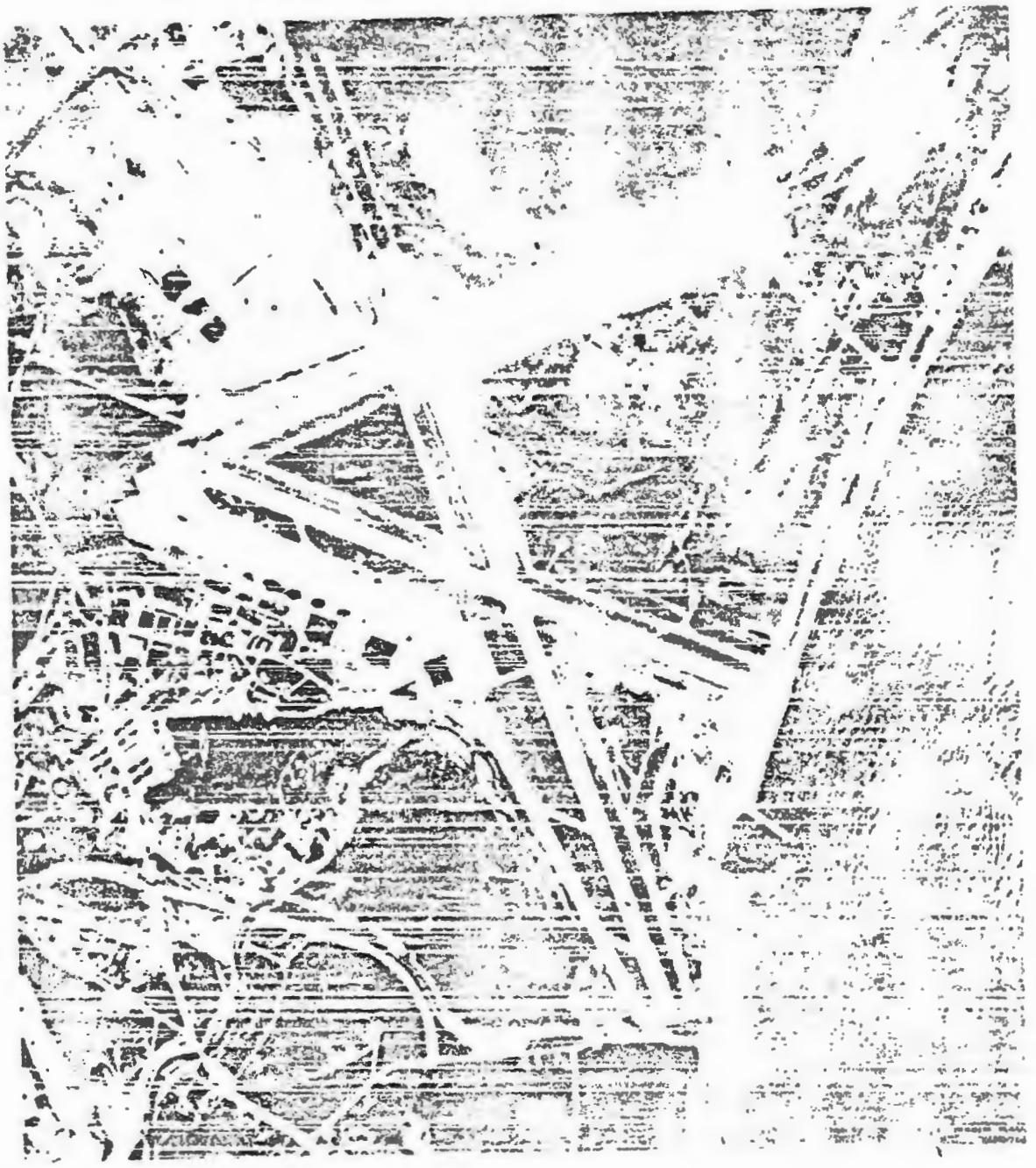
* Denmark ratified this agreement in 1945 with some minor changes. See note, page 9, for discussion of 1951 agreement between Denmark and the U. S.

** Newfoundland became the tenth province of Canada on 31 March 1949.



Ernest Harmon AFB

The first troops arrived in Newfoundland, which had been given emphasis by the PJBD, before any base construction started -- on 24 January 1941.* The first base occupied was a temporary tent camp near St. John's called Camp Alexander. Nearby Fort Pepperrell (renamed Pepperrell Air Force Base on 16 June 1949) received its first troops in November 1941.

To take charge of U. S. forces and facilities, the Newfoundland Base Command was activated under the command of Colonel Maurice D. Welty. The headquarters of the new command was placed at Fort Pepperrell. The Headquarters and Headquarters Detachment of the Newfoundland Base Command was activated on 15 January 1941 on board the ship that brought the first troops.

The Newfoundland Base Command (NBC) was assigned to the Northeastern (later Eastern) Defense Command whose area included the east coast of the United States. This was one of the four regional commands responsible for air-ground defense. NBC's mission was to provide ground, antiaircraft, and harbor defense of U. S. bases in Newfoundland, to work with Canada in defending Newfoundland, and to cooperate with the Navy in Newfoundland defense.

American planes, six B-18's, arrived in Newfoundland on the first of May 1941. These aircraft, belonging to the Photo Reconnaissance Squadron of the First Air Force, went to Newfoundland Airport at Gander Lake. U. S. air force units also used the RCAF field at Torbay near St. John's.

Both Canada and the United States built radar stations in Newfoundland. The U. S. net of five stations operated under the NBC; that of Canada under the RCAF 1 Group. Although both systems were independent, they each received data from all stations on the island. Beginning in the spring of 1944, the American stations were phased over to the RCAF so that American personnel could be moved to more active theaters.

In Greenland, primary responsibility for development of facilities fell to the United States. Preliminary surveys had already been made and in July 1941, a task force of service troops arrived at

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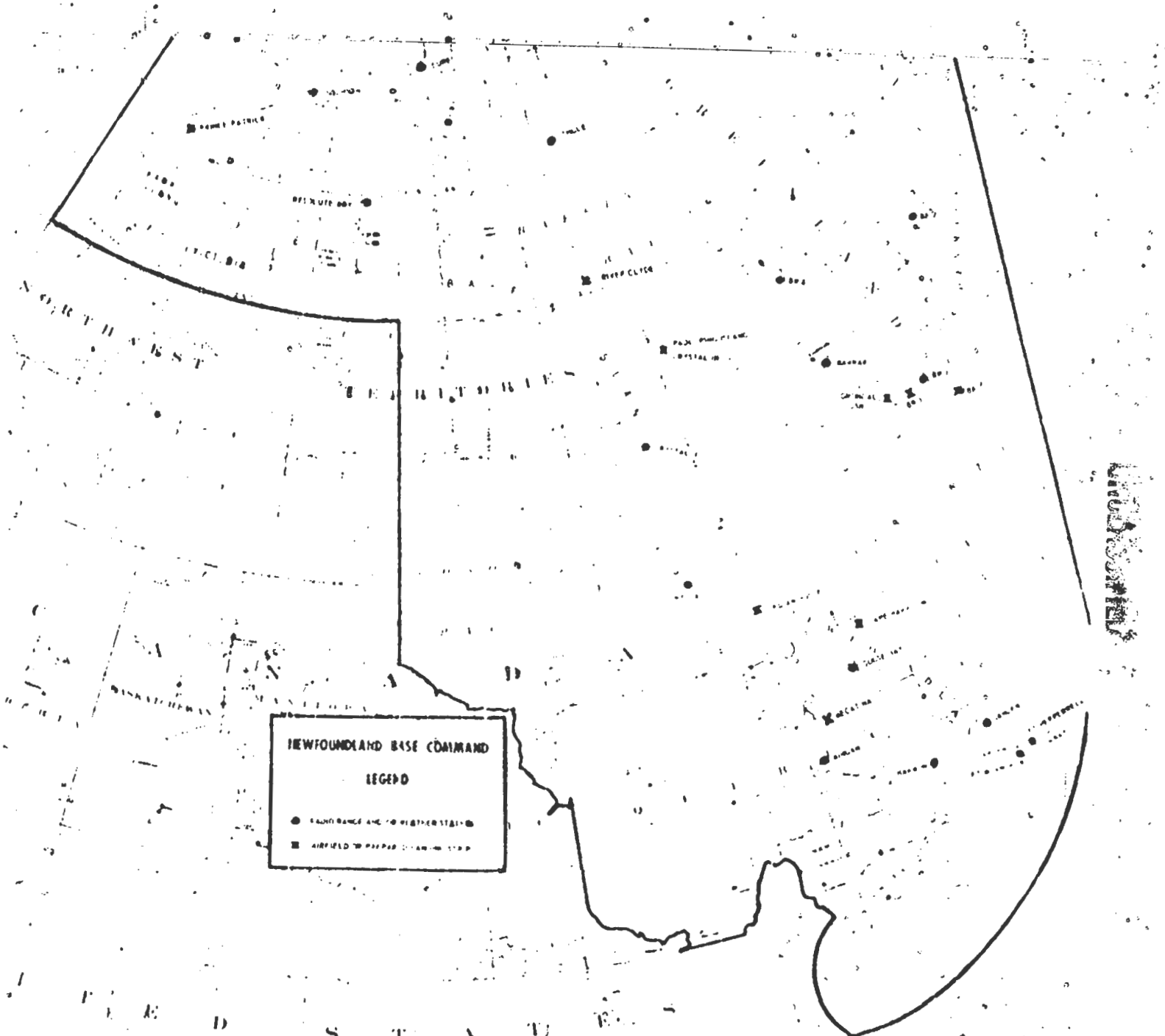
* See Appendix III for a complete list of NBC, USNEC/NEAC, and 6Hth Air Division commanders.


NEWFOUNDLAND BASE COMMAND
LEGEND

Narsarssuak. This site had been chosen as a major staging base between Labrador and Newfoundland.[4] Work began at once on the base, which was given the code name Bluie West One (BW-1), and the first plane set down on 24 January 1942.

Work on a second west coast base further north, Sondrestrom or Bluie West Eight, began in September 1941. A third field was placed on the east coast almost directly across from BW-1 at Angmagssalik (Bluie East 2).

A Greenland Base Command with headquarters at Narsarssuak was established to take charge of the U. S. forces and facilities on the island. Colonel Benjamin F. Giles was its first commander. The first mission of the GBC was to cooperate with the U. S. Navy and the United Nations forces in defending Greenland and to establish fields for staging aircraft to England.[5] The GBC, as the NBC, was eventually assigned to the Eastern Defense Command.

At Goose Bay, Labrador, the U. S. forces built complete facilities on the opposite side of the base from the RCAF. The unit was assigned to the North Atlantic Wing Ferrying Command which on 1 July 1942 became the North Atlantic Wing of the Air Transport Command.

In addition to the above bases, weather and communications stations were built from Maine to Iceland. These included Fort Chimo, Labrador; Frobisher Bay, Baffin Island; and Padloping Island.

By mid-1943, the War Department decided that there was no longer a requirement for active defense of the areas of the North Atlantic

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4 A NEAC historian made some interesting comments on the choice of Narsarssuak. "The exact reason for the choice of Narsarssuak is not clear. An early history of the Air Transport Command in Greenland remarks that in the late spring or early summer of 1941 a party surveyed southwestern Greenland 'in a rather casual manner.' It also appears that a Major Gorlinsky of the Engineers reported on the site without actually visiting it. He spoke of gravel, but when the task force arrived in July, they found not gravel, but a mass of large rocks for which their equipment was inadequate. The term 'Gorlinsky Gravel' was given to the glacial till." Quoted from NEAC, U. S. Operations in the Northeast, 1940-1945, p. 45.

bases. The mission of the NBC was changed to providing local security for and maintaining U. S. Army installations, to facilitate operations of the Air Transport Command, and to maintain liaison with other U. S. and Allied military agencies.[9]

Soon after, the Greenland Base Command and the U. S. Army forces in Labrador and eastern Canada were placed under the NBC. And both the NBC and the GBC were relieved from assignment to the Eastern Defense Command and assigned to the Air Transport Command. The latter became the Military Air Transport Service on 1 June 1948. This arrangement continued until late 1950.

By the latter date, the threat of a Russian air attack had created a new need for air defense and caused a new build-up to be started. The next ten years would see a much greater American force in the Northeast area than had been there in the preceding ten years.

NEW BUILD-UP: CREATION OF USNEC AND NEAC

On 1 October 1950, the Joint Chiefs of Staff established the U. S. Northeast Command as a unified command. The purpose was "to provide a more direct operational control by the Joint Chiefs of Staff over U. S. forces on bases in Canada and Greenland."[10] USNEC's mission was to defend the U. S. from attack through the arctic regions in the northeast area, defend the USNEC area, and support SAC, MATS, and other military and governmental agencies using Northeast bases.[11] The headquarters was placed at Pepperrell AFB.

Also on 1 October, USAF relieved the Newfoundland Base Command from assignment to MATS and redesignated it the Northeast Air Command as a major command of the Air Force and as the Air Force component of USNEC.[12] All units of the NBC and the Greenland Base Command were assigned to NEAC. And NEAC became responsible for all forces in Newfoundland, Labrador, eastern Canada, and Greenland. Major General Lyman P. Whitten who had commanded the NBC was named commander of both USNEC and NEAC.

NEAC discontinued the Greenland Base Command on 19 October 1950, substituting in its place (12 December 1950) the Greenland Air Base Command.[13] It was to control all U. S. forces in Greenland with the exception of those at the Naval Operating Base, Grondahl. NEAC also

set up the Goose Air Base Command for control of U. S. forces in Labrador.*

NEAC was the only component of USNEC. Neither the Army nor the Navy ever established component commands. But Army and Navy officers served on the staff of USNEC. The Air Force officers served in dual positions -- on the staff of NEAC and on the staff of USNEC.

This resulted in the problem of one command predominating. The NEAC historian explained the situation in 1951:[14]

> Wearing two hats caused many problems during the first year. Primarily, there was difficulty in determining which authority to use. With one officer acting for two commands, the tendency developed to ignore the United States Northeast Command entirely. Particularly since NEAC was the action agency in most instances and USNEC primarily for planning purposes. The same tendency existed outside the headquarters. Correspondence which should have been addressed to the Commander-in-Chief was marked Commanding General NEAC.

Air Force personnel continued to hold dual jobs, however, right down to the day that USNEC was abolished on 1 September 1666.

THE NEAC RADAR SYSTEM

Most of the NEAC heavy radars were part of the stations built throughout Canada under the Canada-United States Radar Extension Plan (known as the "Pinetree" plan). In early 1950, the Continental Air Command (ConAC), which was responsible for air defense, drew up the first plan. USAF approved this plan, but it hit a cost-sharing snag in the PJBD.

It was eventually worked out, however, and on 6 February 1951, the PJBD gave its approval. The agreement with Canada became official with a formal exchange of diplomatic notes on 1 August 1951.

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* The U. S. and Canada signed a lease on 5 December 1952 that gave the U. S. certain rights to 7,000 acres of land at Goose for 20 years.

The approved plan provided for a total of 33 radar stations. Ten of these went into the NEAC area. Of the total, America financed 22 stations, Canada eleven. The U. S. also manned seventeen of the American-financed stations. Nine of these seventeen were in the NEAC area (eight Pinetree stations in other areas of Canada were manned by ADC); the one additional station in NEAC was manned by the RCAF.

In addition to the ten Pinetree stations located on Canadian soil, three stations were built in Greenland.[15]* The ten Pinetree stations consisted of three direction centers and seven early warning stations, four of which had GCI capability. In Greenland, there were two early warning stations and a direction center. An air defense control center was built at Pepperrell AFB.

Preliminary work on the above 13 stations, which were called NEAC's permanent system, began on 15 August 1950. ConAC sent a survey party to look at sites in Newfoundland, Labrador, and Baffin Island. USAF authorized the Army Engineers to proceed on 27 March 1951 with design and construction of the sites in these areas.[16]

While work went ahead on the so-called permanent system, a five station temporary [often referred to as lash-up] radar net was thrown up. Four of the temporary radars were in the same area as the permanent radars. The one exception was a station at McAndrew Air Base which adjoined the Argentia Naval Station. The Air Force agreed in

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* United States forces had remained in Greenland on the basis of the 1941 agreement (mentioned on page 2), which was ratified by Denmark in 1945. A new agreement was completed by Denmark and the U. S. on 27 April 1951 (it went into force on 8 June 1951). This agreement was made at the request of the North Atlantic Treaty Organization which was formed by the nations signing the North Atlantic Treaty in 1949. Both Denmark and the U. S. signed this treaty. NATO asked that the two nations arrange for the use of facilities in Greenland by the armed forces of the parties to the NATO in defense of the North Atlantic Treaty area. The agreement provided for the mutual use of bases and other facilities in Greenland and guaranteed that the sovereignty of the Kingdom of Denmark would not be prejudiced. The agreement, being in implementation of the North Atlantic Treaty, was to remain in effect for the duration of the North Atlantic Treaty. Thule Air Base was built by the U. S. as a result of this agreement. It was completed in 1953. The complete Denmark-U. S. agreement may be obtained from the Directorate of Command History, Headquarters CONAD.

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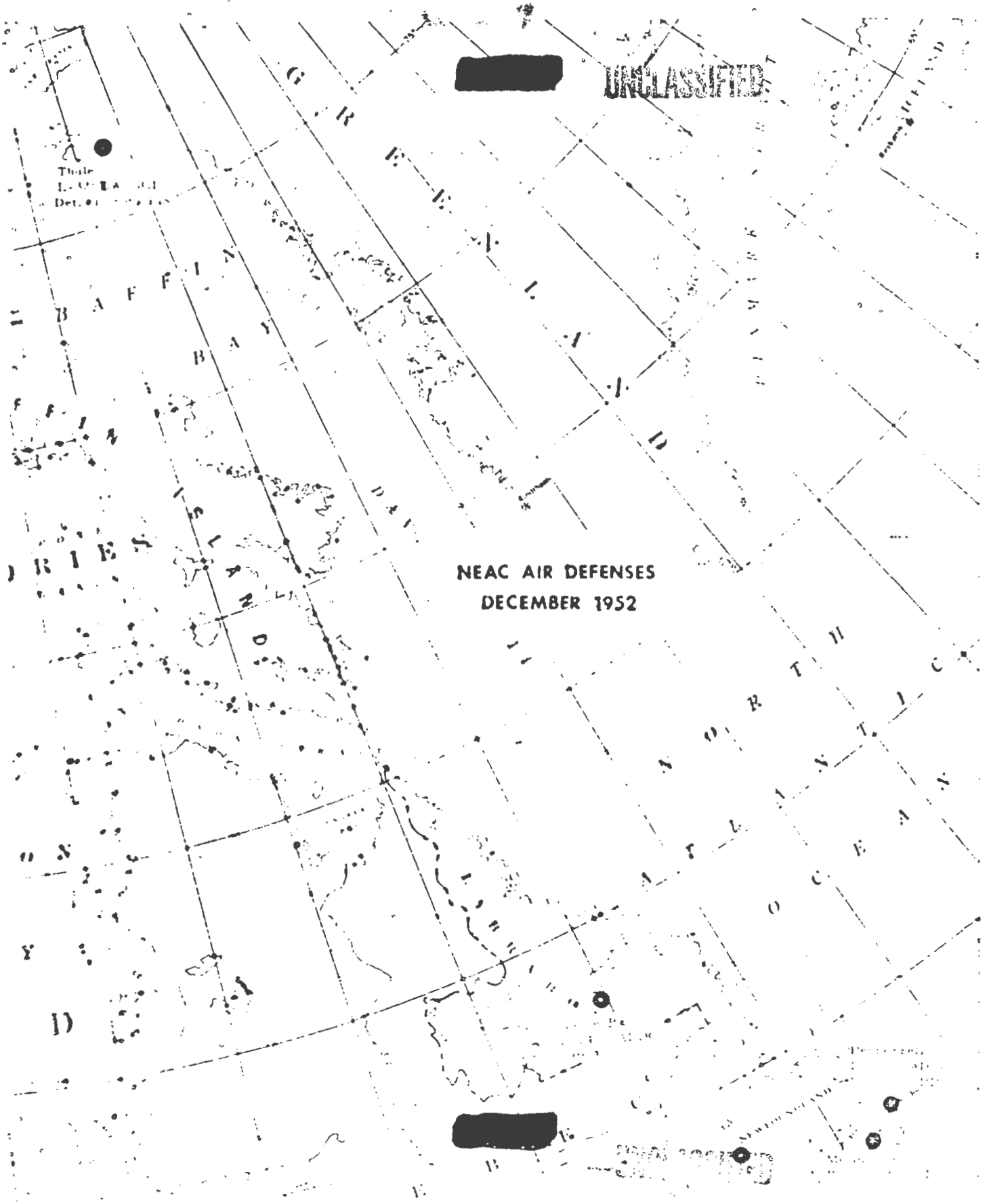
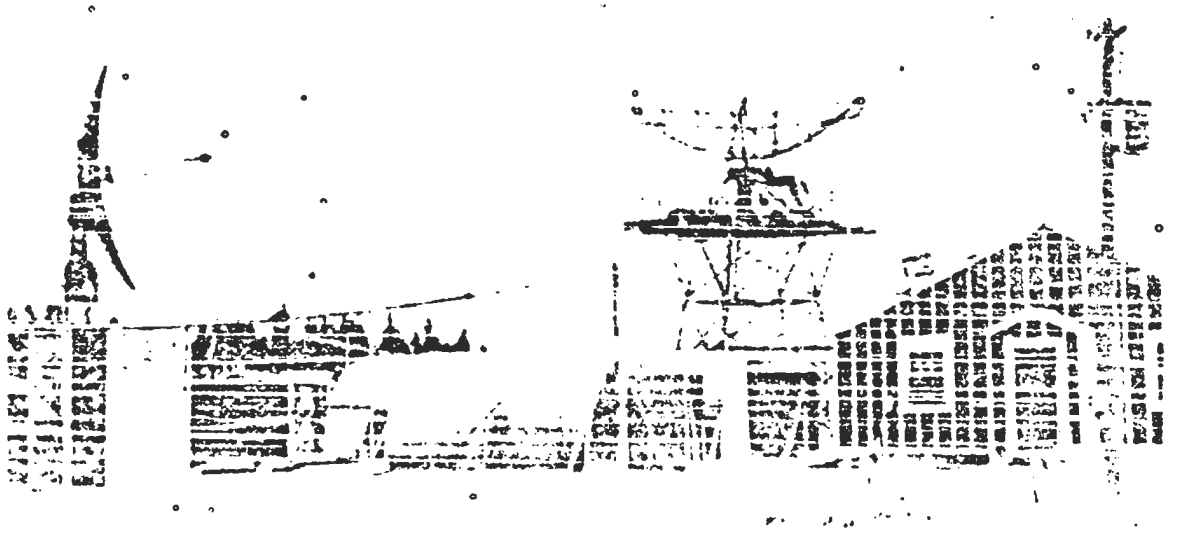


[redacted]

1952 to get out of McAndrew on or before 1 July 1955. The permanent location of the unit manning this station became Resolution Island. These five stations had either the AN/CPS-5 or the AN/TPS-1B as their search radar and either the AN/[illegible] or the AN/TPS-10 for their height finder.[17]

To man these stations, air national guard units were called up in August 1951. These were the Headquarters 152d ACW Group, and the 105th, 106th, 107th, 108th, and the [illegible]th ACW Squadrons. After a period of training in the U. S., they moved to NEAC in the spring of 1952.[18] By the summer of 1952, the temporary stations were in operation.

Also in the spring of 1952, the 64th Air Division (Defense) was activated at Pepperrell AFB.[19] The 152d ACW Group was assigned to it. In December 1952, the group, the 106th ACW Squadron, and the division were inactivated. At the same time the division was reestablished as a Table of Distribution unit and all U. S. air defense units in the Northeast assigned to it.[20] The force at this time was five ACW squadrons (105th, 107th, 108th, [illegible]0th, and 931st) and one interceptor squadron (the 59th). The new ACW squadron, the 931st, had been activated in November to take the place of the detachment of the 152d Group which had been serving at Thule.[21]



105th ACW Squadron, L-23, Harmon AFB

[redacted]

NEAC TEMPORARY RADAR SYSTEM

Site	Location	Unit	Remarks on ACW Units	Radar	Approx. Date Station Operational
L-27A ADCC	Pepperrell	152d Gp 64th AD	1 Aug 1951 Federalized 8 Apr 1952 Activated		June 1952
L-27 ADCC	Red Cliff, Pepperrell	108th Sq	1 Aug 1951 Federalized	AN/CPS-5 AN/MPS-4	June 1952
L-[illegible] ADCC	Harmon AFB, Stephenville, Nfld.	105th Sq	1 Aug 1951 Federalized	AN/CPS-5 AN/MPS-4	April 1952
L-31 ADCC	Goose Bay, Lab.	107th Sq	1 Aug 1951 Federalized	AN/CPS-5 AN/MPS-4	May 1952
L-32 EW/GCI	Thule, Greenland	Det. 1, 152d Gp 931st Sq	July 1952 Activated [illegible] Nov 1952 Activated	AN/TPS-1B AN/MPS-4	July 1952
B-2 EW/GCI	McAndrew, Nfld.	920th Sq	1 Aug 1951 Federalized	AN/CPS-5 AN/TPS-1[illegible]	July 1952

NEAC PERMANENT RADAR SYSTEM

(As of December 1956)

Site	Location	Unit	Remarks on ACW Units	Radar	Approx. Date Station Operational
N-27A ADCC	White Hills, Pepperrell	64th AD	8 Apr 1952 Activated		June 1954
N-27 ADCC	Red Cliff, Pepperrell	642d Sq	1 Aug 1953 Redesignated from 108th	AN/CPS-6B AN/GPS-[illegible] AN/TPS-[illegible]	Mid-1954
N-[illegible] ADCC	Stephenville (Harmon), Nfld.	640th Sq	1 Aug 1953 Redesignated from 105th	AN/CPS-6B AN/MPS-[illegible] AN/TPS-[illegible]	May 1953

Site	Location	Unit	Remarks on ACW Units	Radar	Approx. Date Station Operational
N-24 ADDC	Melville (Goose Bay), Lab.	64lst Sq	1 Aug 1953 Redesignated from 10/7th	AN/CPS-6B AN/FPS-502 AN/TPS-502	Spring 1953
N-25 EW/GCI	Gander, Nfld.	226th Sq (RCAF)	1 Aug 1953 Formed	AN/FPS-3C AN/FPS-502 AN/TPS-502	Fall 1953
N-26 EW/GCI	St. Anthony, Nfld.	921st Sq	1 Oct 1953 Assigned to 64th ADiv	AN/FPS-3C AN/FPS-502 AN/TPS-502	November 1953
N-27 EW/GCI	Cartwright, Lab.	922d Sq	1 Oct 1953 Assigned to 64th ADiv	AN/FPS-3C AN/FPS-502 AN/TPS-502	November 1953
N-28 EW/GCI	Hopedale, Lab.	923d Sq	1 Nov 1953 Assigned to 64th ADiv	AN/FPS-3C AN/FPS-502 AN/TPS-502	November 1953
N-29 EW	Saglek Bay, Lab.	924th Sq	10 Dec 1953 Assigned to 64th ADiv	AN/FPS-3C AN/FPS-502 AN/TPS-502	Fall 1953
N-30 EW	Resolution Island	920th Sq	1 Aug 1951 Federalized	AN/FPS-3C AN/FPS-502 AN/TPS-502	November 1954
N-31 EW	Frobisher Bay, Baffin Island	926th Sq	19 Dec 1953 Assigned to 64th ADiv	AN/FPS-3C AN/FPS-502 AN/TPS-502	December 1953
N-32 ADDC	Pingassuit (Thule), Greenland	931st Sq	8 Nov 1952 Activated	AN/FPS-3 AN/FPS-6 AN/FPS-4	July 1953
N-33 EW	Etah, Greenland	Det. 1, 931st Sq	1 Oct 1953 Activated Deactivated Fall 1956	AN/TPS-1D AN/TPS-1D	December 1953
N-34 EW	Ice Cap, Greenland	Det. 2, 931st Sq	1 Oct 1953 Activated	AN/TPS-1D AN/TPS-1D	Spring 1954

The permanent stations gradually began operations starting in the spring of 1953. By June of the next year, all permanent stations were operating save one -- N-30 out on Resolution Island. N-30 began

Cape Warwick, Resolution Island

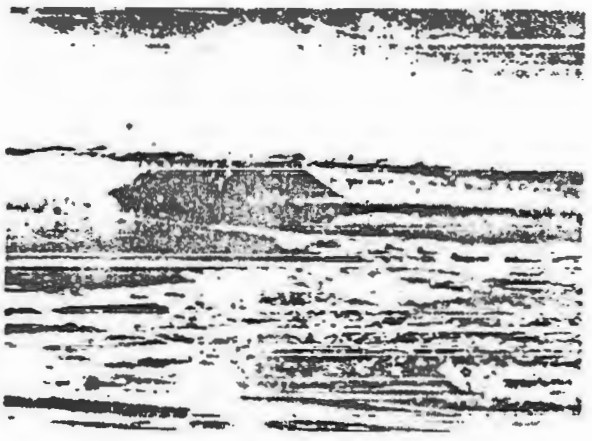
operating in November 1954. To man these new stations, a number of new squadrons were assigned.[22] The ANG squadrons were returned to state control. At the same time that the new or permanent stations began operating, the old or temporary stations were phased out.

Of the AEW sites in NEAC, many of which were in rugged areas, probably the most interesting and the one where life was the hardest were those in Greenland. Station N-32 was on Pingarssuk Mountain near Thule, N-33 at Etah, and N-34 on the ice cap about 125 miles northwest of Thule.[23] These stations were first manned in September 1953.

Both N-33 and N-34 were out on the ice cap itself. Putting a relatively permanent installation on the ice cap was something never

[redacted]

before attempted.



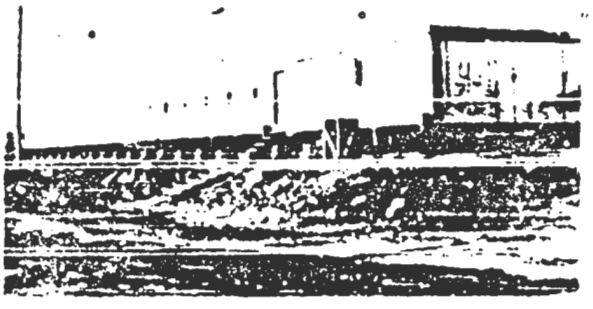
Thule AB

The constantly churning ice would not support any structure for long. Knowing that any installation would sink into the ice, the structures for N-33 and N-34 were designed to sink at a predetermined rate. Heavily insulated single-story structures (homes) were placed inside galvanized steel tubes 18 feet in diameter.[23] Each tube was connected with the others and the outside by escape hatches. Extensions to the hatches could be added as the tubes sank. It was believed that in about ten years, the tubes would sink to a depth where the pressures would make them uninhabitable.

Life at these sites and at Thule as well was made more difficult by what a flight surgeon in 1953 called the "Thule Effect." Among the difficulties he listed in explaining this was "ennui occasioned by a combination of weather, darkness and lack of diversions of the type to be found in a civilized community."[24]

> Constant darkness for long periods and constant light for long periods both act as depressants. There is a period of expectancy for a change which wears thin quickly when the change does not occur. This disturbs the normal sleep, hunger, and other bodily habits that have been ingrained for years. It occasions a feeling of confusion that transmits itself in a desire not to get up in the morning, the appearance of hunger at unusual hours, and actual changes in bowel habits. The combined effect is one of lassitude. During the relatively short periods when light begins to appear, we find people excited, and frequently running outdoors just to look. When light appears constantly, boredom soon sets in again and the opposite occurs, confusing all the previously established habits.

COMMUNICATIONS



Barracks, Thule AB

Tying the NEAC radar system together at first was only a H/LF communications system. Construction began in the summer of 1954 on a UHF tropospheric scatter system, called the "Pole Vault" system by communications men. The tropospheric system, completed a year later, ran from Fepperrell to Frobisher Bay including all the stations in between.[25] Later extensions were to go from Frobisher to Cape Dyer and on to Thule. The 6612th Radio Relay Squadron was activated in November 1954 to service this system.

There was also another communications system, a forward propagation ionospheric system, connecting Goose, Labrador, and Narsarssuak, Sondrestrom, and Thule. The first circuit of this system was placed into operation in February 1953. It went between Thule and Sondrestrom. The Air Force took over the complete system in 1954.[26]

Between Newfoundland and the United States, there were land line and cable communications and radio. A land line went from the U. S. to Sydney, Nova Scotia, a cable continued across Cabot Strait, then a land line went to St. John's.

Readiness and Maintenance Hangars Being Built at Thule AB, June 1953

INTERCEPTOR FORCE

NEAC's first fighter-interceptor unit arrived in September 1953. This was Detachment 1 of the 54th Fighter-Interceptor Squadron which went to Thule with four F-94B's.[27] It began limited

operations on 11 September and on the seventeenth began standing alerts with two aircraft on five minute readiness from one hour before sunrise to one hour after sunset.[28] When the shorter hours of daylight came, the alert period was changed to 0800 to 1700. For an alert hangar, the detachment used Atwell-type buildings located near the runway.

The 59th Squadron itself arrived at Goose Bay in October with eight F-94B's. It became operational on 20 December 1952 when it started standing a 24 hour alert.[29]

The 59th did not add much to NEAC's fighter potential. An indication of the strength in these first months is shown by a report of June 1953. There were two combat ready F-94B's in all of NEAC.[30]

However, in July 1953, the NEAC force increased considerably. The 61st Squadron with 12 F-94B's arrived at Harmon AFB and the 318th Squadron arrived at Thule with 12 F-94B's.*

FIGHTER INTERCEPTOR FORCE

Unit	Location	Date Arrived	Acft. Orig.	Acft. New	Date Converted
59th Sq	Goose Bay	Oct 1952	F-94B	F-89D	May 1955
Det 1, 59th Sq	Thule	Sep 1952	F-94B (Inactivated Aug 1953)		
61st Sq	Harmon	Jul 1953	F-94B	F-89C F-89D	Dec 1953 Jun 1955
74th Sq	Thule	Jul 1954	F-89C	F-89D	Jun 1955
318th Sq	Thule	Jul 1953	F-94B (Returned to U. S. Aug 1954)		

* On 19 August 1953, after arrival of the 318th Squadron at Thule, the 59th's Detachment was deactivated and the equipment and men returned to the parent squadron.

[redacted]

Three fighter squadrons were the most NEAC ever had, although at one time there were plans for five squadrons (two at Goose, one at Harmon, Thule, and Argentia). All the squadrons eventually converted to F-89D's.

A fighter augmentation plan was made early in 1954 by CINCNE. There were always a large number of fighters belonging to other commands staging through the Northeast. NEAC kept a list of all aircraft in its area at all times. In an emergency CINCNE was to assume operational control of these fighters for employment in air defense.[3]

ANTIAIRCRAFT DEFENSE

Plans were made in 1952 to station antiaircraft units at Thule for the protection of the base. The first Army antiaircraft personnel arrived on 3 July 1953; the main body of troops on 27 August. The units deployed were the 549th AAA Gun Battalion (90mm), 429th AAA Battery (Light) (75mm), 428th AAA Battery (Light) (75mm), 177th AAA Operations Detachment, 557th Signal Radar Maintenance Unit, 127th Ordnance Artillery Repair Detachment, and 152d Ordnance Integrated Fire Control Repair Detachment.

All of the units were attached to the 549th AAA Battalion which was commanded by Lieutenant Colonel George W. Best, Jr. The battalion was assigned to the U. S. First Army and attached to NEAC (not USNEC) for operational control.[32] NEAC established rules of engagement for the AAA units and exercised operational control through the 64th Air Division.[33]

The antiaircraft units reached readiness in very short order. The first firing occurred on 7 October 1953. By 10 December, all sites were fully operational under readiness condition of "secure" -- ready to fire in ten minutes.[34] The 549th capability report for December 1953 showed that it had all gun crews authorized and combat ready; 34 of 36 guns authorized were on hand; 98 per cent of the wire communications were in; 100 per cent of the radio communications in; and 100 per cent of the ammunition requirements were on hand.

One organizational change was made in September 1955. The 7th AAA Group was activated at Thule and the 549th Battalion was attached to it.

THE PROBLEM OF DISTANCE AND EFFECTIVE CONTROL

NEAC Headquarters felt that the 64th Air Division was too far away from Thule to effectively control the units located there. Both the 931st ACW Squadron and the detachment of the 59th Fighter-Interceptor Squadron at Thule had initially been placed under the operational control of the Thule 6612th Air Base Group.[35] The 64th Division was not given control of these units until 1953.

In 1953, NEAC decided to activate a separate division at Thule. It issued a general order on 1 June 1953 activating the 70th Air Division effective 20 July 1953.[36] Higher headquarters opposed this, however, and on 6 July NEAC revoked the order.

Another reorganization was proposed by NEAC at the end of 1954. NEAC recommended deactivating the 64th and setting up three new divisions -- one at Harmon, Goose, and Thule.[37*] This too was turned down.

CANADIAN OPERATIONAL CONTROL

There was no air defense organization in the Northeast from the end of World War II until the time that USNEC and NEAC were formed. With the coming of these organizations and the build-up of forces that followed, the problem of operating on Canadian soil was emphasized. An important consideration was in regard to control of the forces. The situation was nicely explained by a Colonel Maurice A. Preston of the USNEC staff after a visit to RCAF Headquarters in August 1951:[38]

> "There has been much study and inter-service dispute on this subject. The Canadian Government feels that

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* The NEAC territory grouped itself conveniently into three areas for defense: (1) Thule area which had the 74th Fighter-Interceptor Squadron, 549th AAA Battalion, 931st ACW Squadron; (2) Newfoundland area which had the 61st Fighter-Interceptor Squadron, 642d ACW Squadron, 640th ACW Squadron, 921st ACW Squadron, 226th AW Squadron, and the ADCC; (3) Goose area which had the 59th Fighter-Interceptor Squadron, 641st ACW Squadron, 923d ACW Squadron, 924th ACW Squadron, 920th ACW Squadron, and the 926th ACW Squadron.

there should be a NATO arrangement in the Northeast. The Canadian Army feels that there should be a Canadian commander in the Northeast. The RCAF opposes this and takes the stand that it is unreasonable to suggest a Canadian Commander in view of the fact that all forces are U. S. forces. They have come up with the proposal, which has been accepted at the Joint Planners level, that there be a Canadian second in Command in the Northeast. This proposal is now before the "Chiefs."

It is my impression that the Canadians are not after a Combined Command but will be content with a Canadian Vice Commander. I explained that such a person could not legally assume administrative command in the CG's absence; they understood and agreed. I am of the opinion that we should support this proposal when it is raised, since it will remove most of the obstacles generated by 'political considerations," national sovereignty, etc.

No decision was made on the assignment of an RCAF officer to USNEC, however, and the problem remained.

A different approach was suggested on 30 June 1952 by CINCNE, Lieutenant General Charles T. Myers. He proposed to USAF that the Commander of the RCAF Air Defence Command be given operational control of USNEC air defense forces located in Canada.[39]

USAF advised that Air Vice Marshal James of the RCAF ADC concurred. And in August 1952, USAF approved the plan.[40]

A formal agreement was signed by CINCNE and the AOC RCAF ADC on 21 April 1953. Under its terms, the AOC ADC was to have operational control of all USNEC air defense [illegible] in Canada.[41] This control was to be exercised through CINCNE. [illegible] of engagement were to be prescribed by the AOC ADC.

This agreement was renewed periodically. It was renegotiated by General Earle E. Partridge, Commander-in-Chief of the Continental Air Defense Command after he took over [illegible] defense responsibility in 1956. Before discussing this change in responsibility in the Northeast, it is appropriate to consider the final area in which NEAC had responsibility -- the Mid-Canada Early Warning System and the Distant

[illegible]

Early Warning Line.

THE MID-CANADA EARLY WARNING SYSTEM

The Pinetree radars from Hopedale, Labrador, to Pepperrell, Newfoundland, were to be tied into a doppler detection line being built across Canada's 55th parallel. Together these two lines were to form the Mid-Canada Early Warning System.

The line across Canada, called the Mid-Canada Line,* was to run from Hopedale to Dawson Creek, British Columbia. It was being built by Canada. The line would have 33 doppler detection (Flutter) stations and eight section control stations, all interconnected by microwave communications. The line was scheduled to begin operating on 1 July 1957.

A USAF-RCAF Operational Plan for this line, dated 1 June 1956, divided it into five operational segments called doppler sectors.[42] Four of the five sectors were to be the responsibility of RCAF air divisions. The fifth sector was to be the operational responsibility of NEAC. This sector, the smallest of all the sectors, contained nine doppler detection stations and one section control station (Hopedale).

As noted above, the Mid-Canada Line would connect with the Pinetree radars at Hopedale. This would provide a continuation of the line to St. John's. There were seven heavy radars between Hopedale and St. John's. To increase low altitude coverage along this line and to provide some back-up for these radars, a small, light-weight radar (the AN/FPS-14), called a Gap Filler, was to be placed in between each of the heavy radars.[43] This required a total of six Gap Fillers.

The Gap Filler sites (approved in March 1956) and the detachments

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* For information on the Mid-Canada Line and the Distant Early Warning Line, see CONAD Historical Study 10, Seaward Extension of Radar, 1946-1956, pp 64-67; and History of CONAD/ADC, July-December 1955, pp 66-77.

that would operate the stations were as follows:[44]

Location	Number	Detachment
Cape Makkovik, Lab.	N-2[illegible]	Det. 1, [illegible] Sq
Cut Throat Island, Lab	N-27[illegible]	Det. 1, [illegible] Sq
Spotted Isle, Lab.	N-27B	Det. 2, [illegible] Sq
Fox Harbour, Nfld.	N-26A	Det. 1, [illegible]st Sq
La Scie, Nfld.	N-26B	Det. 2, [illegible] Sq
Elliston Ridge, Nfld.	N-25B	Det. 1, [illegible] Sq

Elliston Ridge, Fox Harbour, and Cape Makkovik became operational in February 1957: the other three stations were scheduled to become operational by the end of April 1957.

THE DISTANT EARLY WARNING LINE

North of the Mid-Canada Line another line was being built for operation by 1 July 1957, the Distant Early Warning Line.[45] Its route was from Cape Lisburne, Alaska, generally within about two degrees of the 69th parallel to Cape Dyer, Baffin Island. The USAF-RCAF Plan, mentioned above, made NEAC responsible for operating the stations in the eastern part of Canada.

The DEW Line was to consist of three types of stations: six Main stations at about 500 statute miles apart, 23 Auxiliary stations at about 100 statute miles apart, and 29 Intermediate stations some 50 statute miles apart. Main stations, equipped with the AN/FPS-19 search radar and the AN/FPS-23 (fluttar) receivers, were to serve as the center of operations, communications and maintenance for a sector of the line. Auxiliary stations would also have the AN/FPS-19 radar and the AN/FPS-23 receivers, but the Intermediate stations would have only the AN/FPS-23 transmitters.

The DEW Line, according to the USAF-RCAF plan, was to be divided into eastern and western sections.[46] The Alaskan Air Command was to be responsible for operating (which included operational control) the western section, NEAC the eastern.

Each section was termed a region. The dividing line between regions was to be between the Cambridge Bay (CAM) and Hall Lake (FOX) Main stations. The NEAC region was to go from this point between CAM

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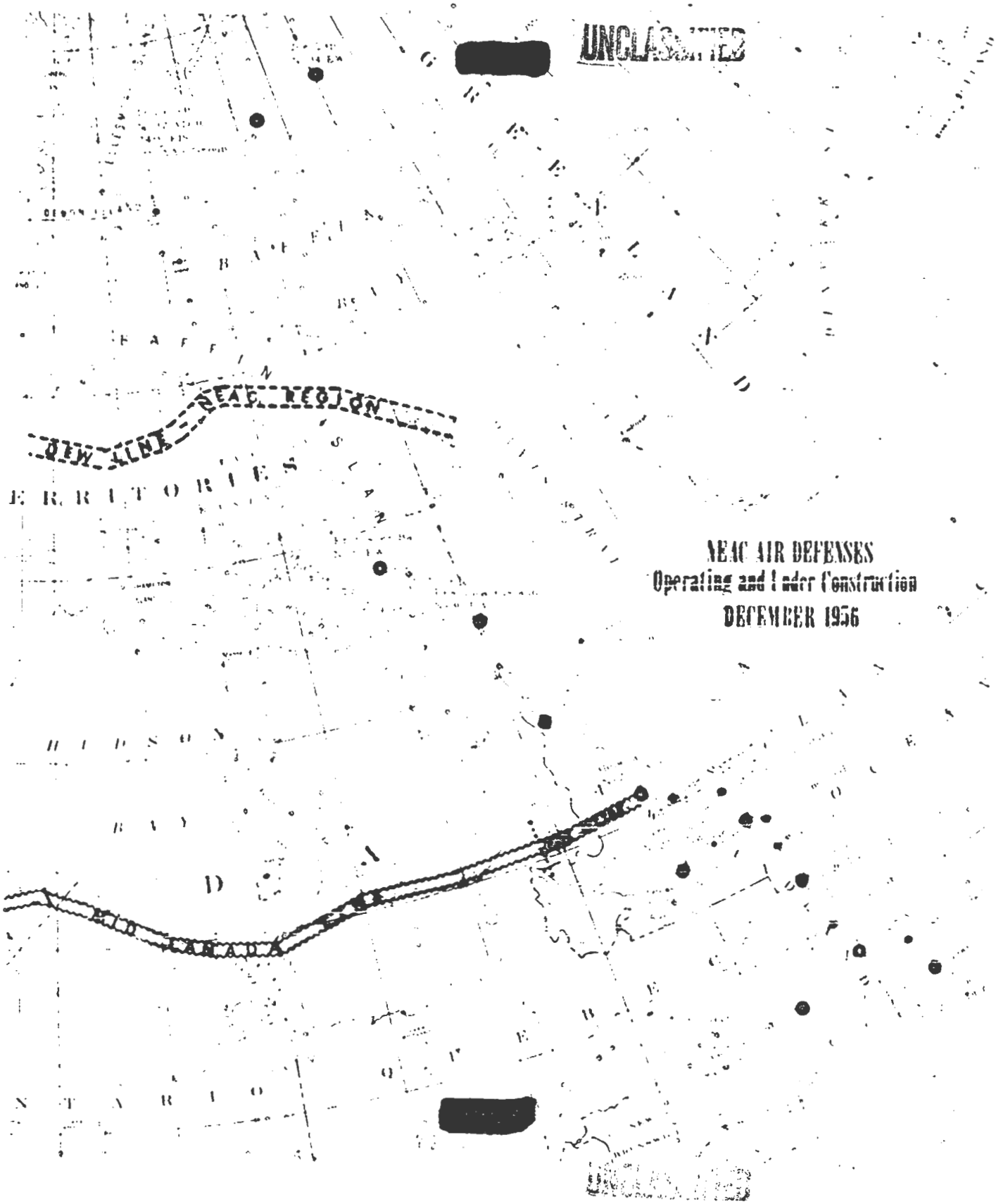

and FOX, which was located on the Boothia Peninsula (92° 00' 38" to be exact), over to Cape Dyer. There were a total of 17 stations in this region, which was further divided into two sectors -- FOX and DYE (both of which were Main stations).[46]

NEAC also had responsibility for the Greenland part of the DEW Line extension beyond Cape Dyer. In February 1956, the Joint Chiefs of Staff approved a line from Cape Dyer across Greenland to Iceland, to the Faeroes, and to a termination point in Scotland. They also approved a southern line to Cape Farewell, Greenland, and on to the Azores.

NEAC was given responsibility in early 1956 for planning, implementing, and operating the Greenland part of these extensions.[47] The route of the line was to be from Cape Dyer over to Holsteinsborg, Greenland. A high-powered radar was to be installed at the latter site. Possibly also, both Dyer and Holsteinsborg would get passive detection equipment to increase low level coverage.

The line would split coming out of Holsteinsborg. The eastern part would cross the ice cap to Ikateq, the location of a World War II landing strip (BE-2). A heavy radar was to be placed there. Going south, a high-powered radar was to be placed at Cape Farewell.

RESPONSIBILITY FOR NORTHEAST AIR DEFENSE GIVEN TO CONAD

At mid-1956, the Joint Chiefs of Staff completed a world-wide reorganization plan which they called the Unified Command Plan. Its aim was a more efficient structure and reduced cost. It achieved this by consolidating organizations and eliminating the excess superstructures.

Under the Unifed Command Plan, the U. S. Northeast Command was disestablished on 1 September 1956.[48] Responsibility for air defense of the Northeast was given to CONAD.* The latter designated NEAC as a subordinate joint command responsible for U. S. air defense activities in the Northeast.[49]

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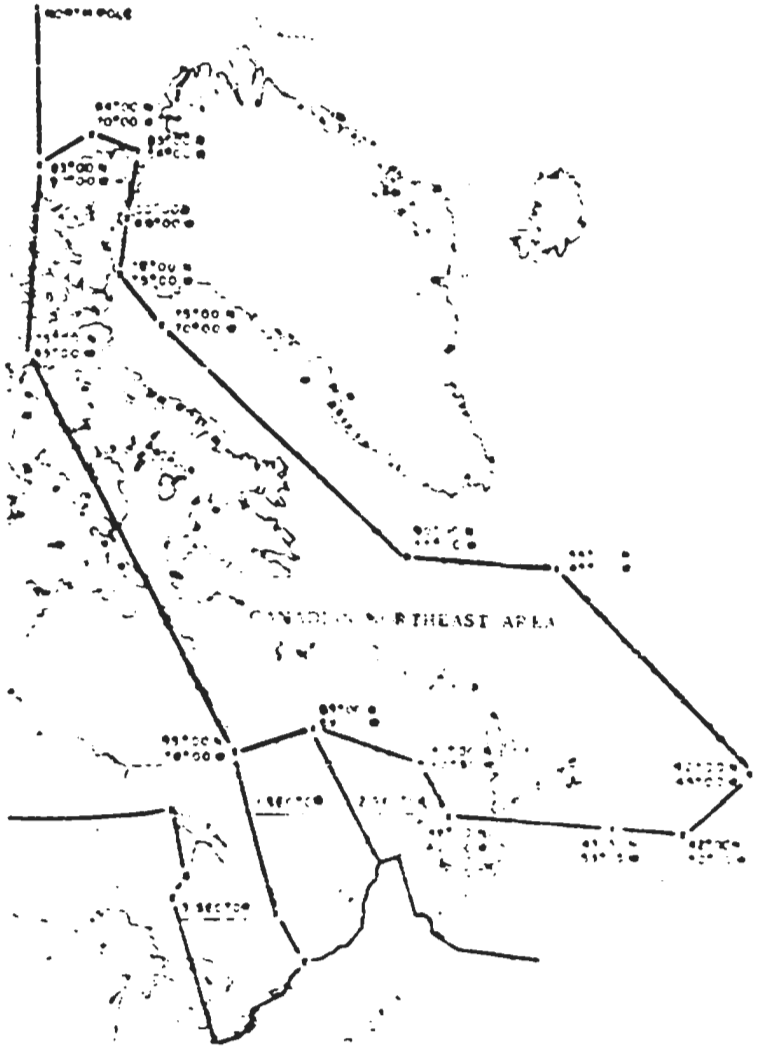
* Northeast as used here means both the Canadian and the Greenland areas.

This was an interim arrangement only, however, for it was planned that NEAC would follow USNEC as soon as possible. This date was eventually set as 1 April 1957.

On this date, USAF discontinued NEAC. The Air Defense Command and the Strategic Air Command divided the Air Force units and property that had been under NEAC. ADC took over the USAF air defense forces (including the 64th Air Division).[50] ADC also took possession of Pepperrell AFB and all U. S. ACW stations. SAC assumed ownership of Goose, Harmon, Thule, Narsarssuak, Sondrestrom, and Frobisher Bay Airport. Finally, ADC succeeded NEAC in its responsibilities for supporting and operating the DEW Line stations in Canada and Greenland.



The Army antiaircraft group in the area, the 7th at Thule, had been assigned to the U.S. Army Air Defense Command in 1956.

As noted earlier, the RCAF Air Defence Command had operational control of the U. S. air defense forces in the Canadian portion of the NEAC area. This arrangement remained. However, a new agreement, dated 1 January 1957, was signed by General Earle E. Partridge, CONAD's Commander-in-Chief and Air Vice Marshal L. E. Wray, Commander of the RCAF Air Defence Command. It provided that the Air

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* See Appendix I for a complete list of units.

Officer Commanding the RCAF ADC would exercise operational control over all U. S. air defense forces in what was termed the Northeast Area (see inset preceding page) through CINCONAD's subordinate commander in the area.[51] The air defense forces listed in this agreement were squadrons, bases, aircraft, AEW units, GOC units, communications units, and antiaircraft units. Operational control was defined as the power of directing, coordinating, and controlling the operational activities of deployed units. Redeployment of units was specifically excluded.

CONAD established the 64th CONAD Division effective 1 April 1957 and designated the division its subordinate joint air defense commander in the Northeast.[52] The area of responsibility of the 64th CONAD Division included the Northeast Area as defined by the CONAD-RCAF ADC agreement, the DEW Line identification zone for the region which NEAC (ADC after 1 April 1957) had responsibility, and Greenland (in accordance with the terms of the 1951 Danish - U. S. agreement).

APPENDIX

APPENDIX I

AIR DEFENSE UNITS - 64TH GUARD DIVISION AREA
(As of 31 December 1956)*

Interceptor Squadrons		ACW Units		Antiaircraft Units		Other	
Unit	Base	Unit	Base	Unit	Base	Unit	Base
59th	Goose	640th	Harmon	7th AAA Gp	Thule	6630th REV/ECM	Goose
61st	Harmon	641st	Goose	127th AAA Btry (Augmentation)	Goose	62d GOBC Det	Gander (RCAF)
74th	Thule	642d	Pepperrell				
		Det #1	Elliston Ridge				
		920th	Resolution Is.				
		921st	St. Anthony				
		Det #1	Fox Harbour				
		Det #2	La Scie				
		922d	Cartwright				
		Det #1	Cut Throat Is.				
		Det #2	Spotted Is.				
		923d	Hopedale				
		Det #1	Cape Makkovik				
		924th	Saglek Bay				
		925th	Frobisher Bay				
		931st	Thule				
		Det #1	Ice Cap				
		226th	Gander (RCAF)				

* SOURCE: 64th Air Div (Def), Command Mission Progress Summary, January 1957, p [illegible].

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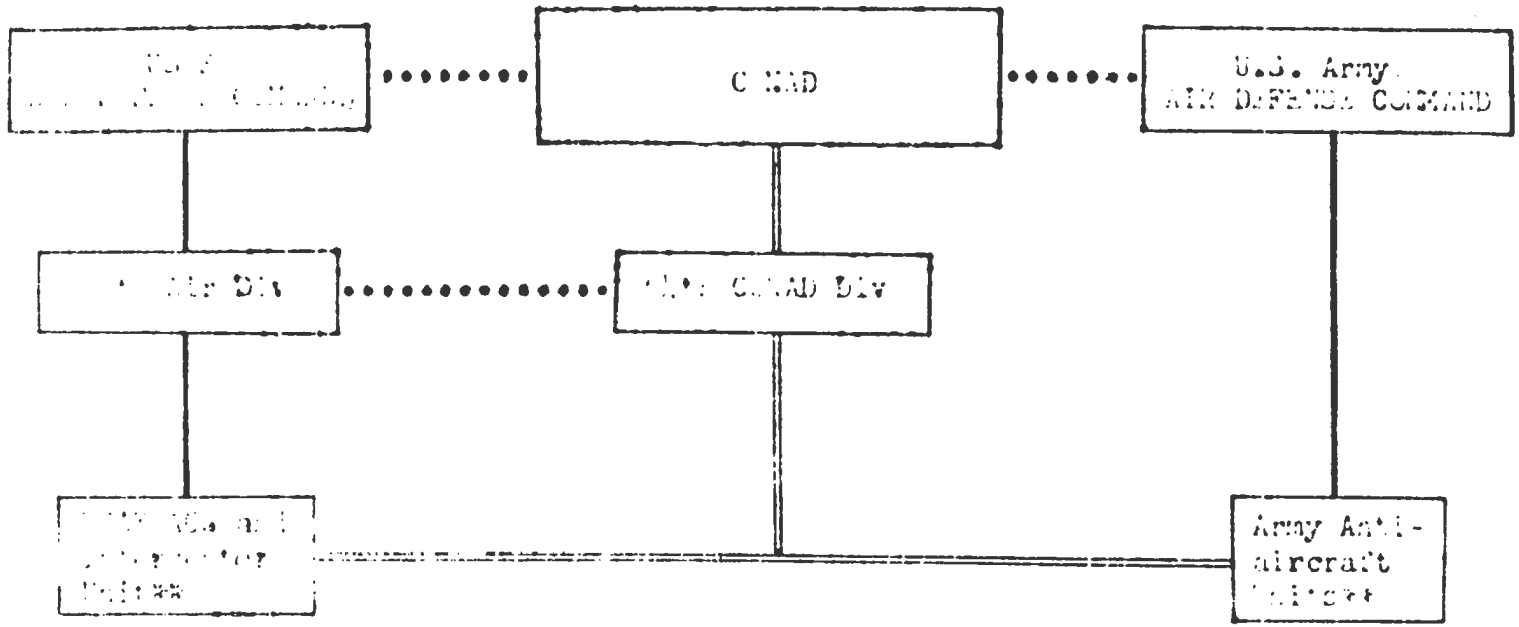

* The Northeast Area, as used here, includes both Canada and Greenland.

** Operational control of CONAD forces in the Canadian Northeast was to be exercised by the Air Officer Commanding the RCAF Air Defence Command through CINCONAD's subordinate joint air defense commander in the Northeast.

——— Command

═══ Operational Control

••••••••••••••• Consultation and Interstaff Liaison

1 April 1957

APPENDIX III

KEY COMMANDERS

NEWFOUNDLAND BASE COMMAND

15 January 1941 - 16 July 1941: Colonel Maurice D. Welty

16 July 1941 - 22 September 1941: Brig. Gen. H. W. Harms

22 September 1941 - 18 October 1941: Colonel Maurice D. Welty

18 October 1941 - 7 January 1943: Maj. Gen. Gerald C. Brant

7 January 1943 - October 1944: Brig. Gen. John B. Brooks

October 1944 - 1 January 1946: Brig. Gen. Samuel Connell

1 January 1946 - 20 January 1946: Colonel Albert L. Edson

20 January 1946 - 1 July 1949: Brig. Gen. Caleb V. Haynes

1 July 1949 - 1 October 1950: Maj. Gen. Lyman P. Whitten

NORTHEAST COMMAND AND NORTHEAST AIR COMMAND

1 October 1950 - 20 March 1952: Maj. Gen. Lyman P. Whitten

20 March 1952 - 31 July 1954: Maj. Gen. Charles T. Myers

31 July 1954 - 1 September 1956 - USNEC:
1 April 1957 - NEAC: Lt. Gen. Glenn O. Barcus

64th AIR DIVISION (DEFENSE)

8 April 1952 - 12 September 1952: Colonel Willard S. Magalhaus

12 September 1952 - 20 May 1954: Colonel Charles R. Bond Jr.

23 May 1954 - 1 December 1954: Colonel Charles B. Downer

1 December 1954 - (?) Colonel Wallace R. Jordan

(?) - 23 July 1955: Colonel Joseph Myers

23 July 1955 - ~~1 April 1957~~ Colonel Carroll W. McColpin

~~1 April 1957~~ ~~Brig Gen Charles B. Brown~~

64th COMAD DIVISION

1 April 1957 - Col. Carroll W. McColpin
~~Brig Gen Charles B. Brown~~

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4. Ibid.

5. Ibid., pp 9-15.

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7. Ibid., p 45.

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13. NEAC GO # 3, 10 Oct 1950 (DOC 6); NEAC GO # 9, 12 Dec 1950 (DOC 7).

14. Hist. NEAC, Jul-Dec 1951, p II (Introduction).

15. Ibid., Jul-Dec 1952, pp 54-56; Danish - U. S. Agreement, 27 April 1951 DOC 8).

16. Ibid., Jan-Jun 1951, pp 37-40.

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18. Ibid., Jan-Jul 1952, p 70.

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21. Hist. NEAC, Jul-Dec 1952, p 12.

22. Hist. 64th Air Div (Def), Jul-Dec 1952, pp 12--12; Jul-Dec 1953, pp 5-6.

33. Hist. 64th Air Div, Jan-Jun 1954, "Special Monograph on the Greenland Ice Cap Early Warning Sites of the 64th Air Division," pp 1-2.

34. Ibid., Jan-Jun 1953, p 11.

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36. Ibid., p 201.

37. Ibid., Jul-Dec 1952, p 12.

38. Hist. 64th Air Div, Jul-Dec 1952, p 134.

39. Ibid., p 141.

40. Hist. NEAC, Jul-Dec 1953, p 85.

41. Hist. 64th Air Div, Jan-Jun 1954, p 12.

42. USNFC GO # 18, 16 Nov 1953 (DOC 11).

43. NEACR 55-21, "Rules of Engagement and Employment of Anti-Aircraft Weapons," 28 Dec 1953 (DOC 12).

44. Hist. NEAC, Jul-Dec 1953, p 123.

45. Ibid., Jul-Dec 1952, p 65.

46. Hist. 64th Air Div, Jan-Jun 1953, p 2.

47. Ibid., Jan-Jun 1955, p 2.

48. Hist. NEAC, Jul-Dec 1951, p 108.

49. Ibid., Jan-Jun 1952, pp 36-37.

50. Ibid., Jul-Dec 1952, pp 70-72.

51. Ibid., Jan-Jun 1953, p 45.

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53. Ibid., Jan-Jun 1955, p 128.

54. Ibid.

55. USAF to Dist., "Decisions Relative to Operation of the DEW Line," 20 Jun 1956 (DOC 13).

56. As in n 52, p 56.

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49. Msg., CINCONAD to CINCNE, 28 Aug 1956 (DOC 15).

50. ADC GO # 13, 26 Feb 1957 (DOC 16): NEAC-ADC-SAC-MATS-AMC Agreement Pertaining to the USAF Reorganization in the Northeast Area, 5 Dec 1956 (DOC 17).

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