U.S. NAVAL SUPPORT FORCE, ANTARCTICA
BUILDING "D"
SIXTH & INDEPENDENCE AVE., S.W.
WASHINGTON 25, D.C.

IN REPLY REFER TO
FF3/43
321/ko
5213
Serial W-531
9 July 1963

From: Commander, U.S. Naval Support Force, Antarctica
To: Chief of Naval Operations
Via: Commander in Chief, U.S. Atlantic Fleet

Subj: Report of Operation DEEP FREEZE; submission of

Ref: (a) COMNAVSUPPFOR ANTARCTICA (CTF-43) OP PLAN 1-62 of 13 Aug 62

Encl: (1) CTF-43 Report of Operation DEEP FREEZE 63

1. Enclosure (1) contains the CTF-43 Report of Operation DEEP FREEZE 63.

2. Operations throughout the season were conducted in accordance with reference (a) except for minor deviations primarily an indirect result of weather and climate conditions. As in previous DEEP FREEZE operations, all of the United States military services and the U.S. Coast Guard were represented. The operation was characterized by its marked effectiveness in international and interservice cooperation. The latter was reflected in two noteworthy ways. First, the New Zealand Naval Board contributed by assigning HMNZS ROTOITI as relief ship for USS DURANT (DER-389) in the single ocean station and by assigning the HMNZS ENDEAVOUR for the purpose of delivering bulk POL products to McMurdo. Second, the New Zealand Civil Aviation Administration granted permission to this command to exercise positive in-flight control of all aircraft operating south of, but outside of, the New Zealand airway system. This resulted in the establishment of an aircraft control and reporting system similar to other overseas airway controls. U.S. Navy personnel and communications facilities were used for this.

3. During this operating season, there were three DEEP FREEZE "firsts." First, a system for en route control of aircraft between New Zealand and Antarctica was established. Second, on 4 February 1963, three UH-1B turbo-driven helicopters landed at the South Pole. This is the first time any U.S. helicopters have landed here, and records indicate this is the first time helicopters of any nation have landed at the Pole. Third, an advance party of personnel, totaling 81, were airlifted by LC-130F from Christ-church, New Zealand, to McMurdo Sound on 16 September 1962, eleven days earlier than any previous operations commencement. The earliest previous date was 27 September 1961.

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4. Particularly noteworthy items for Operation DEEP FREEZE 1963 were:

a. Williams Field (one ice runway and an ice aircraft parking ramp) was relocated three miles to the south of the old field. The former site had become untenable because ice breakout during late summer operations in recent years posed an increasing possibility of losing personnel and equipment. The new site is on much firmer ice with the danger of loss reduced for several years to come.

b. Ice conditions confronting ships were much more severe than in previous years. Fast ice was encountered 67 miles from Hut Point. It became necessary to cut a channel this entire distance in order to assist support ships to reach McMurdo Station.

c. The icebreaker USS STATEN ISLAND (AGB-5) conducted an exploratory voyage in the Palmer Peninsula area for the purpose of examining prospective station sites, one of which will be selected for the establishment of a new scientific research station during DEEP FREEZE 64.

d. USS GLACIER (AGB-4) made an unscheduled mercy trip to the eastern side of the continent in the vicinity of Wilkes Station to effect the transfer of a critically ill civilian crew member from the Danish resupply ship NELLA DAN. The ship was under lease to Australia. Subsequently, the patient was brought to McMurdo and transferred to Christchurch in a VX-6 LC-130F.

5. During Operation DEEP FREEZE 63, one particularly noteworthy and critical problem arose. It became apparent that, as science laboratories are established in the more distant areas, as field parties penetrate deeper into the Antarctic continent, and as planned short-ranged aerial photo requirements are completed, the ability of the Task Force adequately to support this effort is becoming more critical with currently assigned equipment. Larger payloads must be carried greater distances in less time with increasing frequency. Already, aerial photography for mapping has been curtailed because of the limited range of the LP-2J, and no photo-equipped aircraft suitable for Antarctic operations with sufficient range will be available after DEEP FREEZE 64. The assigned helicopters are very limited in both range and altitude. The assignment of four LC-130E aircraft (two photo-configured) recommended in separate correspondence would result in an estimated annual savings of about 1.6 million dollars. In addition to this savings, further savings could be obtained, and this force could better carry out its assigned mission, if six UH-1E's and eight long-range turbine powered helicopters were assigned AIRDEVRON SIX. These helicopters would replace the obsolescent LC-47's, U1-B's, and LH-34D's. The additional savings and other intangible benefits would result from the following:

a. The removal of all conventional powered aircraft from the VX-6 allowance. This, in turn, would reduce the problem of shipping aircraft spare parts for nine types of aircraft over 11,000 miles; it would increase aircraft availability in that turbine engines have proven more adaptable to severe weather conditions than radial engines; and it would negate the requirement to maintain extremely expensive ice runways for wheeled aircraft.

b. Assignment of the fourteen helicopters would be more practical and economical because of their turbine engines; their increased range and payload; higher availability; ability to readily operate at high altitude in mountain ranges and to land in remote and unprepared areas of the Antarctic.

c. The assignment of all-turbine aircraft to VX-6 for use in the Antarctic would reduce significantly the logistics requirements in support of the aircraft by reducing the huge inventory of spares required to support eight types of aircraft at McMurdo to that required for only three types. The requirement for AVGAS at McMurdo would also be eliminated, and thereby simplify POL logistics.

6. This report has been compiled from data available within this headquarters and augmented by data, including excerpts, from the DEEP FREEZE 63 reports of all units of Task Force 43, which were:

Air Development Squadron SIX, Report of Operation DEEP FREEZE 63 of 23 April 1963

NINTH Troop Carrier Squadron, Heavy, Final Report Operation DEEP FREEZE 63 of 15 January 1963

Antarctic Support Activities, Final Report Operation DEEP FREEZE 63 of 11 April 1963

USS EDISTO (AGB-2), Report of Operation DEEP FREEZE 63 of 18 March 1963

USCGC EASTWIND (WAGB-279), Report of Operation DEEP FREEZE 63 of 30 March 1963

USS GLACIER (AGB-4), Report of Operation DEEP FREEZE 63 of 25 March 1963

USS ARNEB (AKA-56), Report of Operation DEEP FREEZE 63 of 15 March 1963

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USS STATEN ISLAND (AGB-5), Report of Operation DEEP FREEZE 63 of 14 March 1963

HMNZS ROTOITI Letter, Report of Operation DEEP FREEZE 63

USS DURANT (DER-389), Report of Operation DEEP FREEZE 63 of 12 March 1963

USS FORSTER (DER-334), Report of Operation DEEP FREEZE 63 of 6 March 1963

USS TOMBIGBEE (AOG-11), Report of Operation DEEP FREEZE 63 of 20 March 1963

Task Group 43.1, Report of Operation DEEP FREEZE of 18 March 1963

USNS CHATTAHOOCHEE (T-AOG 82), Report of Operation DEEP FREEZE 63 of 10 March 1963

J. R. REEDY

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# REPORT OF

# OPERATION DEEP FREEZE 63

# UNITED STATES NAVY

# COMMANDER TASK FORCE FORTY-THREE

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# CHAPTER I

## OPERATIONS

### SECTION A. SHIP OPERATIONS

New Zealand.

1. The DEEP FREEZE 63 team of ocean station vessels consisted of HMNZS ROTOITI and two Pacific Fleet DER's with home ports in Pearl Harbor; USS DURANT (DER-389) and USS FORSTER (DER-334). During the period 6 September 1962 through 30 November 1962 ROTOITI and DURANT rotated on ocean station to provide a search and rescue capability, weather reporting, aircraft navigation aids, and an aircraft position reporting facility in support of air operations between New Zealand and Antarctica. Due to operational commitments in conjunction with the Queen's visit to New Zealand, ROTOITI was not available from 30 November until the last fly-out from Antarctica on 4 March 1963. Consequently, USS FORSTER arrived in Dunedin, New Zealand on 14 January 1963 and rotated with DURANT on ocean station throughout the remainder of the season. The ocean station ships operated from Dunedin, that port being ideally situated and suited for logistic support of DEEP FREEZE DER's. The ocean station was fixed at 60 south 160 east for the first fly-in to Antarctica on 15 September 1962. This position is west of the flight course from New Zealand to McMurdo and was chosen to give maximum advance weather information while still within suitable range for search and rescue and to act as a navigation aid. From 6 October 1962 until mid-December, the station was directly on the flight track between New Zealand and McMurdo, at 60 south 170 east, enabling aircraft to make visual or radar contact with the ocean station vessel while en route to or from Antarctica. From 5 January 1963 until termination of air operations the station was relocated 60 south 165 east to increase the effectiveness of early weather reporting.

Ross Sea Operations.

2. In order to deliver critically needed fuels and supplies to McMurdo, Antarctica as early as possible in the season, the ships of Task Group 43.1 were scheduled for the earliest penetration of the Ross Sea in DEEP FREEZE history. Rear Admiral James R. REEDY, USN, who soon was to relieve Rear Admiral David M. TYREE, USN, as Commander Task Force FORTY-THREE and Commander, U.S. Naval Support Force, Antarctica was embarked in USS GLACIER (AGB-4) to make the trip from New Zealand to Antarctica and to observe the early penetration of the ice into McMurdo Sound. The prospective Commander of DEEP FREEZE operations chose an exceptional year to "ride the ships" for the twenty-two hundred miles from New Zealand to McMurdo because the ice conditions were considered to be the most severe ever to have been encountered.

3. On 2 November 1962, Commander Task Group 43.1, Commander Price LEWIS, Jr., USNR, broke his broad command pennant on GLACIER and on that date,

with Rear Admiral REEDY embarked, GLACIER departed Lyttelton, New Zealand for Antarctica. The other ships of the group, having already departed Lyttelton, were proceeding independently to rendezvous in the Ross Sea. USCGC EASTWIND departed on 30 October 1962 in order to install a portable weather station by helicopter on Scott Island; and USNS MIRFAK (T-AK-271), USNS CHATTAHOOCHEE (T-AOG-82) and USS STATEN ISLAND (AGB-5) departed on 1 November.

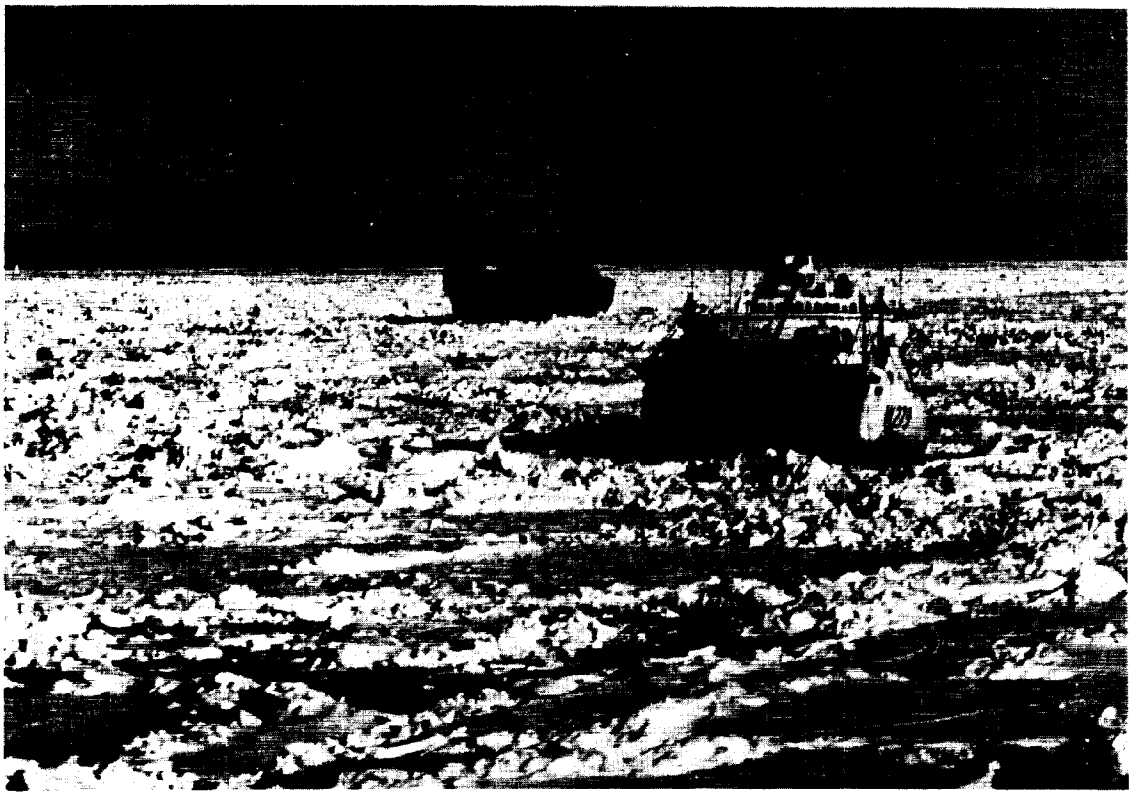


Figure 1. U. S. Coast Guard Cutter EASTWIND (WAGB-279) crushes through pack-ice while escorting the Navy cargo ship USS ARNEB to her mooring site at McMurdo Sound, Antarctica.

4. Task Group 43.1 effected rendezvous in the vicinity of Scott Island on 7 November 1962 and with GLACIER in the van of a column formation, followed in order by EASTWIND, CHATTAHOOCHEE, STATEN ISLAND and MIRFAK, the convoy commenced the long trip through the seven hundred and twenty miles of Ross Sea pack-ice that stretched continuously from Scott Island to McMurdo Sound. After averaging one hundred miles a day through ice for seven days, Task Group 43.1 arrived in the vicinity of Beaufort Island

only to discover that the "fast" bay ice extended northward from Hut Point, a distance of 67 miles. This ice, estimated up to 14-16 feet thick, completely covered McMurdo Sound and necessitated the commencement of channel cutting operations 67 miles from the offloading point vice 20 miles, which normally is the distance.

5. On 14 November, GLACIER, EASTWIND and STATEN ISLAND commenced breaking the long channel to McMurdo and towing CHATTAHOOCHEE and MIRFAK through the brash-choked channel to turning basins carved at five to seven mile intervals. By 20 November, USS EDISTO arrived from Lyttelton and joined the task group to assist in ice breaking and towing operations.

6. On 4 December 1962, GLACIER, having sustained serious damage to her propeller blades with resultant reduced effectiveness in ice breaking, was ordered to Wellington to have her screws replaced. Thus the pennant of CTG 43.1 was shifted to STATEN ISLAND.

7. Meanwhile, the diesel fuel supply for the base at McMurdo, which had been precariously low, reached the critical point and on 9 December CHATTAHOOCHEE was required to commence discharging her precious cargo of diesel fuel into drums drawn alongside the ships by sled. Portable fuel pumps were used for this purpose because the ships pumps had too great a capacity. During the next several days, 782 fifty-five gallon drums were filled by this method and were delivered by tractor train across twelve miles of ice to McMurdo. On 14 December, the channel had been extended to a point where CHATTAHOOCHEE could be moved to within 7.2 miles of Hut Point and the remainder of her fuel cargo was discharged through the four inch rubber hose line extended over the ice to McMurdo. By 16 December, both CHATTAHOOCHEE and MIRFAK had been offloaded and were towed back out of the channel by STATEN ISLAND. This 54 mile transit, under tow, took 7½ hours for MIRFAK and 27 hours for the thinner hulled CHATTAHOOCHEE. On 17 December both ships, under escort by EASTWIND, departed McMurdo Sound from the vicinity of Beaufort Island, the initial resupply of McMurdo Station having taken over a month to accomplish.

8. On 22 December, CTG 43.1 hauled down his pennant on STATEN ISLAND and departed McMurdo by air for Christchurch, New Zealand to prepare for the Palmer Peninsual expedition. EDISTO, which had originally been slated for this expedition but had since suffered damage to her stem and AVGAS storage tank, was replaced by STATEN ISLAND which departed McMurdo 22 December 1962. EDISTO was required to support operations and this precluded her return to Wellington for repairs. Temporary repairs by ship's force kept her operational in McMurdo Sound and the Ross Sea for the remainder of the season.

Figure 2. USS ARNEB (AKA-56) offloading cargo on the sea ice at McMurdo Sound, Antarctica. Note dispersal of heavy equipment in that it is not allowed to accumulate near edge of ice near shipside.

9. On Christmas Day, USS ARNEB with escort EASTWIND, arrived at the entrance of the channel to McMurdo, and after the combined towing and icebreaking efforts of EDISTO and EASTWIND, she was finally moored on 29 December seven miles from Hut Point. Here she was in a suitable position for offloading her cargo onto sleds positioned alongside.

10. USNS MERRELL arrived at McMurdo on 29 December having been escorted through the Ross Sea by GLACIER returning from Wellington with new screws.

11. EASTWIND departed McMurdo on 31 December to make a fast delivery of cargo and fuel to Hallett Station. Arriving at Moubray Bay on 1 January 1963, EASTWIND anchored 200 yards off Seabee Hook. A LCVP towed a four inch rubber hose out from the station to the ship. After hooking up the hose with one portable booster pump ashore and one on the ship, EASTWIND discharged 100,000 gallons of arctic diesel to rubber bladders at Hallett Station within the next twenty-four hours.

12. On 2 January 1963, MERRELL, having been towed to within seven miles of McMurdo Station and moored to the bay ice, commenced discharging cargo. En route it was discovered that MERRELL had sustained propeller damage

but not to the extent that would necessitate replacement prior to her return to CONUS.

13. HMNZS ENDEAVOUR penetrated the Ross Sea without escort and arrived at McMurdo 4 January with her first load of N.Z. Department of Scientific and Industrial Research cargo for Scott Base and POL for McMurdo Station.

14. Departing Cape Hallett on 2 January, EASTWIND effected rendezvous with CHATTAHOOCHEE near Scott Island on 4 January and escorted the tanker with her second load of POL which arrived at McMurdo on 7 January.

15. ARNEB completed unloading operations on 9 January and departed McMurdo on that date. Since ARNEB also had her propeller damaged by ice while she was transiting the channel to McMurdo, arrangements were made for drydocking her in Wellington upon her return to New Zealand.

16. The steady flow of ship traffic at McMurdo continued with ENDEAVOUR departing 19 January, CHATTAHOOCHEE on 14 January, and the tanker USS TOMBIGBEE arriving and departing on 18 and 22 January.

17. By 23 January the AGBs had extended the ship channel to the vicinity of Old Williams Field and carved a turning basin at this point four miles from McMurdo Station. Since GLACIER had damaged her second set of propeller blades during this operation, she departed again for drydocking in Wellington.

18. On 29 January, one month after arrival, MERRELL completed offloading cargo and was turned around to depart McMurdo and headed back to Lyttelton, having completed her part in DEEP FREEZE 63 operations.

19. CHATTAHOOCHEE arrived at McMurdo on her third trip from New Zealand 4 February and was towed to a berth near Old Williams Field by EASTWIND.

20. EDISTO departed McMurdo 6 February and headed north into the Ross Sea to take ocean stations. EASTWIND had originally been scheduled to support the oceanographic program, but since EDISTO had recently sustained a broken crankshaft on number one main engine and reduced her towing and ice breaking capability, EASTWIND was reassigned to provide ice breaking and towing services at McMurdo and EDISTO, in turn, was assigned the oceanographic tasks.

21. On 8 February CHATTAHOOCHEE departed for Lyttelton again, destined to make a fourth delivery of POL to McMurdo before the summer ended.

22. On 12 February ARNEB and EDISTO arrived at Cape Hallett to commence the annual amphibious resupply of Hallett Station. ARNEB, having just returned to Antarctica from Wellington, via Lyttelton, had encountered considerable fog and many icebergs north of Cape Adare and on one instance, with zero visibility, she counted approximately one hundred and seventy bergs within a ten mile radius on her radar scope. ARNEB anchored in Moubray Bay, 800 yards from the beach, and with four LCMs shuttling be-

tween the ship and shore, completed offloading cargo in a most expeditious manner. This permitted her to depart for McMurdo on 15 February and permitted EDISTO to return to and continue her Ross Sea oceanographic work. Although the speed of accomplishment would make it appear that the operation was uncomplicated, in actuality, operations at Hallett were characteristically dangerous and difficult at best. Icebergs and floes continually moved in and out with the tides and currents to glut Moubray Bay and press around the two ships; necessitating EDISTO to break a way through compacted ice floes for the Mike boats to reach the beach. Both the ice and the insidious, black basalt landing beach inflicted their usual toll of damage on the boats. Replacement of twisted propellers and bent shafts became routine on each watch. Despite these obstacles and the perversity of Antarctic weather, which, at Hallett, can change almost instantaneously from reasonable operating conditions to low visibility of blowing snow and high winds, the one hundred and eight tons of supplies required to sustain remote Hallett Station for another year were offloaded quickly and without loss of damage.

23. When ARNEB arrived at McMurdo on 16 February, the one available AGB, EASTWIND, assisted her to moor to annual ice on the east side of the turning basin at Old Williams Field and the offloading of her cargo proceeded rapidly.

24. On 22 February, GLACIER, en route from Wellington to McMurdo, was requested to assist in an urgent mission of mercy and to rendezvous with the Danish ship NELLA DAN, under Australian charter, at 65S-118E. A seaman aboard the NELLA DAN was seriously ill and required transportation to medical facilities in New Zealand as quickly as possible. An immediate situation analysis eliminated the possibility of an air evacuation due to lack of landing facilities in the vicinity of NELLA DAN. Thus, Rear Admiral REEDY quickly directed GLACIER to proceed at best speed from her position near Scott Island to a position about sixteen hundred miles to the west, to rendezvous with NELLA DAN to embark the stricken seaman. GLACIER, averaging 16½ knots, reached the NELLA DAN on 26 February, transferred the sick man aboard by helicopter, then raced to McMurdo where, early in the morning on 4 March 1963, a waiting VX-6 Hercules aircraft flew the evacuee to Christchurch, New Zealand.

25. CHATTAHOOCHEE, arriving McMurdo on 27 February with her final cargo of fuel, found that the ice had broken out revealing open water that extended to Hut Point. To cope with this new condition, CHATTAHOOCHEE moored by positioning her bow hard against the ice shelf at Hut Point with her propellers continuously turning to maintain this aspect and she utilized a single dead man on the beach for added stability. She departed for the least time 2 March having delivered, in four fast turnarounds from New Zealand, some five million gallons of JP-4, AVGAS, MOGAS, Arctic Diesel, Marine Diesel and Lube Oil to Antarctica.

26. On 3 March, EASTWIND turned ARNEB around and the two ships headed

north to New Zealand. ARNEB's departure from McMurdo commenced the ship phase of the final evacuation of summer support personnel from Antarctica. During DEEP FREEZE 63 EASTWIND established a new record, having operated 126 consecutive days in Antarctica.

27. On 9 March GLACIER proceeded to Hallett to deliver the last mail and cargo and to evacuate summer support personnel. Arriving at McMurdo 11 March, GLACIER loaded the last of the departing evacuees and headed for Lyttelton.

28. EDISTO officially brought to a close DEEP FREEZE 63 Antarctic ship operations on 12 March 1963 when she completed over thirty days of extensive oceanographic research program in the western Ross Sea. EDISTO, as "last ship out", headed north for Lyttelton after completing 122 days of continuous operations in Antarctica.

Palmer Peninsula Expedition.

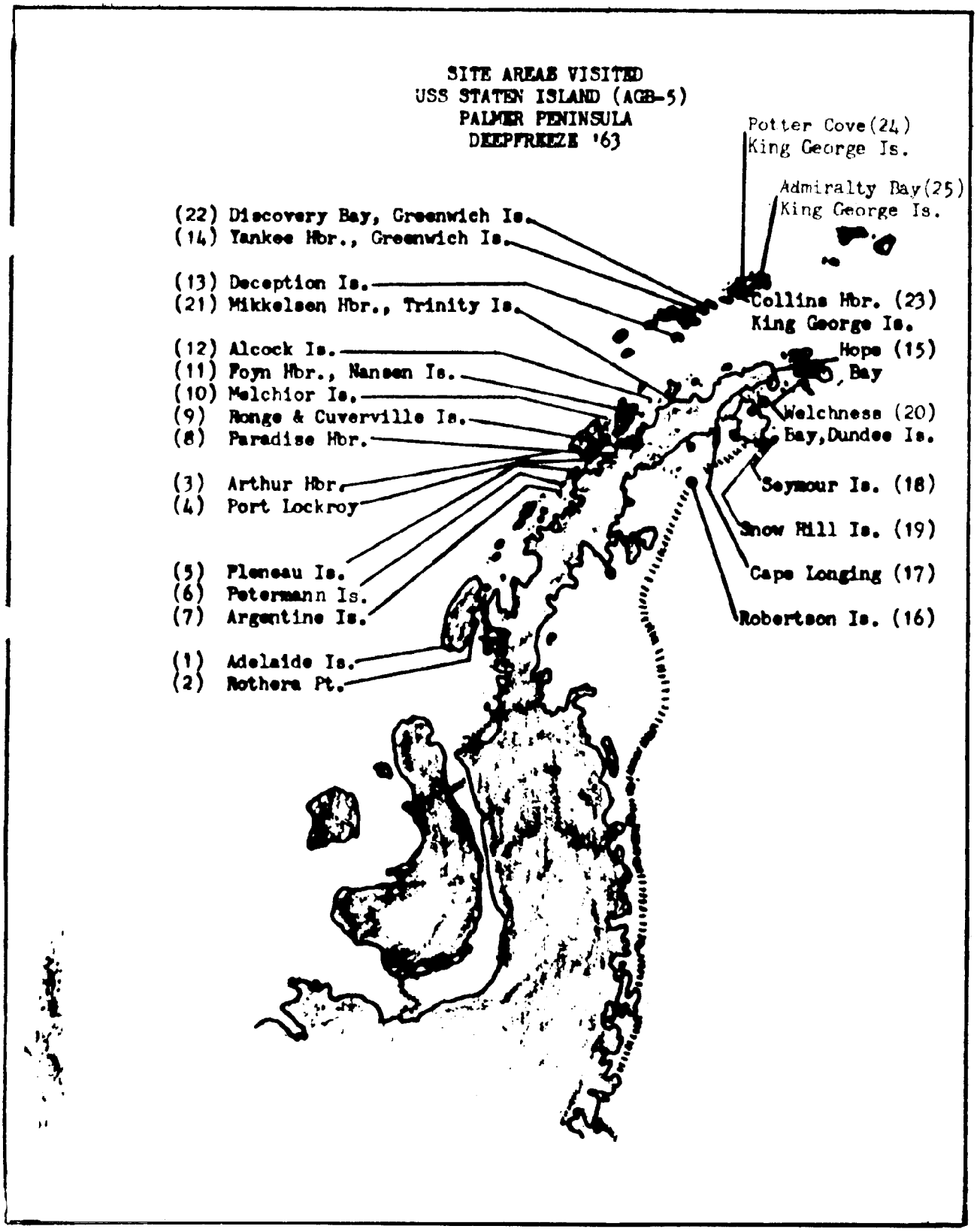
1. During DEEP FREEZE 63, Commander, Task Force FORTY-THREE (Commander, U. S. Naval Support Force, Antarctica) undertook, as a secondary task, an icebreaker expedition to the Palmer Peninsula for the purpose of examining the accessible coastline and the off-shore islands between the Bellingshausen Sea and the Bransfield Strait. This was an effort to find a suitable site on which a small scientific station for geological and biological work could be constructed during the austral summer of 1963-1964. USS STATEN ISLAND, having been designated Task Unit 43.1.1, returned to Lyttelton from McMurdo on 30 December 1962 to replenish for this 4500 mile expedition.

2. On 5 January 1963, Commander, Task Group 43.1, Commander Price LEWIS, Jr., USNR, broke his broad command pennant in STATEN ISLAND and departed Lyttelton with a representative of the British Foreign Office and various representatives of the National Science Foundation embarked. STATEN ISLAND entered the continental ice pack at latitude 64°43'S - longitude 130°00'W and followed the edge of the ice in an easterly direction passing about twenty-five miles north of Peter Island. On 18 January, thirteen days out of Lyttelton, STATEN ISLAND arrived at Adelaide Island off the west coast of the Palmer Peninsula to commence an extensive search for the small station site. This search most appropriately could be called a penetrating exploration of the little known coastline and adjacent islands of the Palmer Peninsula, Antarctica.

3. For almost two months, STATEN ISLAND cautiously probed and poked through the uncharted, or at best, inadequately and inaccurately charted, shoal waters of the Palmer Peninsula. The perverse Antarctic weather often changed so quickly that survey teams in helicopters or boats were frequently found returning to the ship in sub-marginal and dangerous operating conditions. Marginal weather conditions were necessarily an acceptable operating norm to accomplish the tremendous task at hand within the short, compressed Antarctic summer. This required men and equipment to be driven well beyond normal limits of endurance.

4. Since detailed reports of the Palmer Peninsula Expedition have been made under separate cover, it is sufficient to report here that the track of STATEN ISLAND encompassed much of the peninsula from Adelaide Island off the west coast to Robertson Island in the Weddell Sea before she finally departed for the west coast of South America on 5 March. Comprehensive surveys and actual landings were made at thirty-three prospective sites and twenty-five air photographic missions were completed.

Figure 3. Arthur Harbor, Palmer Peninsula, note USS STATEN ISLAND mid picture.


SITE AREAS VISITED
USS STATEN ISLAND (AGB-5)
PALMER PENINSULA
DEEPFREEZE '63
Potter Cove(24)
King George Is.
Admiralty Bay(25)
King George Is.
(22) Discovery Bay, Greenwich Is.
(14) Yankee Hbr., Greenwich Is.
(13) Deception Is.
(21) Mikkelsen Hbr., Trinity Is.
(12) Alcock Is.
(11) Foyn Hbr., Nansen Is.
(10) Melchior Is.
(9) Monge & Cuverville Is.
(8) Paradise Hbr.
(3) Arthur Hbr.
(4) Port Lockroy
(5) Pleneau Is.
(6) Petermann Is.
(7) Argentine Is.
(1) Adelaide Is.
(2) Rothera Pt.
Collins Hbr. (23)
King George Is.
Hope (15)
Bay
Welchness (20)
Bay, Dundee Is.
Seymour Is. (18)
Snow Hill Is. (19)
Cape Longing (17)
Robertson Is. (16)

## SHIP ITINERARIES

All Dates Local

| SHIP | PORT OR ASSIGNMENT | ARRIVED | DEPARTED |
|---|---|---|---|
| USS DURANT (DER 389) | Pearl Harbor | | 17 Aug 62 |
| | Bora Bora, S.I. | 25 Aug 62 | 28 Aug 62 |
| | CHOP CTF-43 30 Aug 63 | | |
| | Raoul Island, Kermadec Islands | 2 Sep 62 | 2 Sep 62 |
| | Dunedin, N.Z. | 6 Sep 62 | 12 Sep 62 |
| | Campbell Island | 13 Sep 62 | 13 Sep 62 |
| | Ocean Station | 15 Sep 62 | 21 Sep 62 |
| | Campbell Island | 23 Sep 62 | 23 Sep 62 |
| | Dunedin, N.Z. | 24 Sep 62 | 26 Sep 62 |
| | Campbell Island | 27 Sep 62 | 27 Sep 62 |
| | Dunedin, N.Z. | 30 Sep 62 | 4 Oct 62 |
| | Ocean Station | 6 Oct 62 | 20 Oct 62 |
| | Campbell Island | 21 Oct 62 | 21 Oct 62 |
| | Dunedin, N.Z. | 22 Oct 62 | 28 Oct 62 |
| | Ocean Station | 30 Oct 62 | 16 Nov 62 |
| | Dunedin, N.Z. | 18 Nov 62 | 26 Nov 62 |
| | Campbell Island | 27 Nov 62 | 27 Nov 62 |
| | Ocean Station | 28 Nov 62 | 27 Dec 62 |
| | Dunedin, N.Z. | 29 Dec 62 | 5 Jan 63 |
| | Campbell Island | 6 Jan 63 | 6 Jan 63 |
| | Ocean Station | 7 Jan 63 | 18 Jan 63 |
| | Campbell Island | 19 Jan 63 | 19 Jan 63 |
| | Auckland Islands | 20 Jan 63 | 20 Jan 63 |
| | Dunedin, N.Z. | 21 Jan 63 | 30 Jan 63 |
| | Campbell Island | 31 Jan 63 | 1 Feb 63 |
| | Ocean Station | 3 Feb 63 | 16 Feb 63 |
| | Hobart, Tasmania | 19 Feb 63 | 28 Feb 63 |
| | Sydney, Australia | 2 Mar 63 | 5 Mar 63 |
| | CHOP CINCLANTFLT 5 Mar 63 | | |
| HMNZS ROTOITI | Lyttelton, N.Z. | | 16 Oct 62 |
| | CHOP CTF-43 16 Oct 62 | | |
| | Ocean Station | 20 Oct 62 | 30 Oct 62 |
| | Dunedin, N.Z. | 3 Nov 62 | 14 Nov 62 |
| | CHOP NZNB 3 Nov 62 | | |
| | CHOP CTF-43 14 Nov 62 | | |
| | Campbell Island | 16 Nov 62 | 16 Nov 62 |
| | Ocean Station | 17 Nov 62 | 28 Nov 62 |
| | Campbell Island | 29 Nov 62 | 29 Nov 62 |
| | Bluff, N.Z. | 30 Nov 62 | |
| | CHOP NZNB 30 Nov 62 | | |
| USS FORSTER (DER 334) | Pearl Harbor | | 29 Dec 62 |
| | Pago Pago, Samoa | 5 Jan 63 | 7 Jan 63 |
| | CHOP CTF-43 7 Jan 63 | | |

| SHIP | PORT OR ASSIGNMENT | ARRIVED | DEPARTED |
|---|---|---|---|
| USS FORSTER (DER-334) (Cont'd) | Dunedin, N.Z. | 14 Jan 63 | 18 Jan 63 |
| | Campbell Island | 19 Jan 63 | 19 Jan 63 |
| | Ocean Station | 21 Jan 63 | 31 Jan 63 |
| | Campbell Island | 1 Feb 63 | 1 Feb 63 |
| | Dunedin, N.Z. | 3 Feb 63 | 4 Feb 63 |
| | Hobart, Tasmania | 8 Feb 63 | 13 Feb 63 |
| | Ocean Station | 16 Feb 63 | 4 Mar 63 |
| | Dunedin, N.Z. | 6 Mar 63 | 8 Mar 63 |
| | Tauranga, N.Z. | 11 Mar 63 | 15 Mar 63 |
| | CHOP CINCLANTFLT 15 Mar 63 | | |
| USCGC EASTWIND (WAGB-279) | Boston, Mass. | | 21 Sep 62 |
| | Earle, N.J. | 22 Sep 62 | 22 Sep 62 |
| | Norfolk, Va. | 23 Sep 62 | 23 Sep 62 |
| | Panama | 29 Sep 62 | 3 Oct 62 |
| | Wellington, N.Z. | 23 Oct 62 | 28 Oct 62 |
| | Lyttelton, N.Z. | 29 Oct 62 | 30 Oct 62 |
| | McMurdo | 14 Nov 62 | 31 Dec 62 |
| | Hallett | 1 Jan 63 | 2 Jan 63 |
| | McMurdo | 6 Jan 63 | 31 Jan 63 |
| | Hallett | 1 Feb 63 | 2 Feb 63 |
| | McMurdo | 5 Feb 63 | 3 Mar 63 |
| | Hallett | 5 Mar 63 | 5 Mar 63 |
| | Lyttelton, N.Z. | 12 Mar 63 | 12 Mar 63 |
| | Wellington, N.Z. | 13 Mar 63 | 19 Mar 63 |
| | Auckland, N.Z. | 21 Mar 63 | 26 Mar 63 |
| | Suva, Fiji | 30 Mar 63 | 2 Apr 63 |
| | CHOP COMDTCG 2 Apr 63 | | |
| USS EDISTO (AGB-2) | Norfolk, Va. | | 5 Oct 62 |
| | Panama | 11 Oct 62 | 12 Oct 62 |
| | CHOP CTF-43 29 Oct 62 | | |
| | Lyttelton, N.Z. | 2 Nov 62 | 8 Nov 62 |
| | McMurdo | 20 Nov 62 | 5 Feb 63 |
| | Ross Sea Oceanography | 6 Feb 63 | 12 Feb 63 |
| | Hallett | 12 Feb 63 | 15 Feb 63 |
| | Ross Sea Oceanography | 15 Feb 63 | 21 Feb 63 |
| | Hallett | 21 Feb 63 | 22 Feb 63 |
| | Ross Sea Oceanography | 22 Feb 63 | 4 Mar 63 |
| | McMurdo | 4 Mar 63 | 7 Mar 63 |
| | Ross Sea Oceanography | 7 Mar 63 | 12 Mar 63 |
| | Lyttelton, N.Z. | 18 Mar 63 | 23 Mar 63 |
| | CHOP COMSERVLANT 27 Mar 63 | | |
| USS GLACIER (AGB-4) | Boston, Mass. | | 17 Sep 62 |
| | Earle, N.J. | 18 Sep 62 | 18 Sep 62 |
| | Norfolk, Va. | 19 Sep 62 | 21 Sep 62 |
| | Panama | 27 Sep 62 | 28 Sep 62 |
| | Bora Bora, S.I. | 10 Oct 62 | 13 Oct 62 |

| SHIP | PORT OR ASSIGNMENT | ARRIVED | DEPARTED |
|---|---|---|---|
| USS GLACIER (AGB-4) (Cont'd) | CHOP CTF-43 16 Oct 62 | | |
| | Lyttelton, N.Z. | 21 Oct 62 | 2 Nov 62 |
| | McMurdo | 14 Nov 62 | 4 Dec 62 |
| | Wellington, N.Z. | 12 Dec 62 | 21 Dec 62 |
| | McMurdo | 29 Dec 62 | 23 Jan 63 |
| | Wellington, N.Z. | 30 Jan 63 | 15 Feb 63 |
| | Lyttelton, N.Z. | 16 Feb 63 | 16 Feb 63 |
| | Hallett | 21 Feb 63 | 22 Feb 63 |
| | NELLA DAN rescue diversion | 22 Feb 63 | 4 Mar 63 |
| | McMurdo | 4 Mar 63 | 8 Mar 63 |
| | Hallett | 9 Mar 63 | 10 Mar 63 |
| | McMurdo | 11 Mar 63 | 11 Mar 63 |
| | Lyttelton, N.Z. | 16 Mar 63 | 25 Mar 63 |
| | CHOP COMSERVRON FOUR 28 Mar 63 | | |
| USS STATEN ISLAND (AGB-5) | San Diego, Calif. | | 2 Oct 62 |
| | Pearl Harbor | 10 Oct 62 | 12 Oct 62 |
| | Pago Pago | 19 Oct 62 | 19 Oct 62 |
| | CHOP CTF-43 27 Oct 62 | | |
| | Lyttelton, N.Z. | 27 Oct 62 | 1 Nov 62 |
| | McMurdo | 14 Nov 62 | 22 Dec 62 |
| | Lyttelton, N.Z. | 30 Dec 62 | 5 Jan 63 |
| | Palmer Peninsula | 18 Jan 63 | |
| | Adelaide Island | 18 Jan 63 | 20 Jan 63 |
| | Arthur Harbor, Anvers Island | 22 Jan 63 | 25 Jan 63 |
| | Port Lockroy, Wiencke Island | 26 Jan 63 | 27 Jan 63 |
| | Pleneau Island | 27 Jan 63 | 28 Jan 63 |
| | Petermann Island | 28 Jan 63 | 29 Jan 63 |
| | Argentine Islands | 29 Jan 63 | 31 Jan 63 |
| | Paradise Harbor | 1 Feb 63 | 4 Feb 63 |
| | Danco Island, Cuverville Island | 4 Feb 63 | 5 Feb 63 |
| | Melchior Islands | 5 Feb 63 | 6 Feb 63 |
| | Port Lockroy, Anvers Island | 7 Feb 63 | 8 Feb 63 |
| | Hughes Bay, Danco Coast | 9 Feb 63 | 10 Feb 63 |
| | Alcock Island, Danco Coast | 10 Feb 63 | 11 Feb 63 |
| | Deception Island | 12 Feb 63 | 13 Feb 63 |
| | Hope Bay | 14 Feb 63 | 15 Feb 63 |
| | Seymour Island | 15 Feb 63 | 15 Feb 63 |
| | Robertson Island | 16 Feb 63 | 16 Feb 63 |
| | Cape Longing | 16 Feb 63 | 17 Feb 63 |
| | Snow Hill Island and Seymour Island | 17 Feb 63 | 20 Feb 63 |
| | Cape Welchness | 20 Feb 63 | 21 Feb 63 |
| | Alcock Island | 22 Feb 63 | 24 Feb 63 |
| | Livingston Island | 25 Feb 63 | 25 Feb 63 |
| | Discovery Bay | 25 Feb 63 | 27 Feb 63 |
| | Collins Harbor | 27 Feb 63 | 28 Feb 63 |
| | Port Lockroy and Arthur Harbor | 1 Mar 63 | 1 Mar 63 |

| SHIP | PORT OR ASSIGNMENT | ARRIVED | DEPARTED |
|---|---|---|---|
| USS STATEN ISLAND (AGB-5) (Cont'd) | Paradise Harbor | 2 Mar 63 | 2 Mar 63 |
| | Collins Harbor | 3 Mar 63 | 4 Mar 63 |
| | Potters Cove and Admiralty Bay | 4 Mar 63 | 4 Mar 63 |
| | Admiralty Bay | 4 Mar 63 | 5 Mar 63 |
| | Valparaiso, Chile CHOP COMSERVRON ONE 19 Mar 63 | 14 Mar 63 | 19 Mar 63 |
| USNS CHATTAHOOCHEE (T-AOG-82) | Aruba, N.W.I. CHOP CTF-43 26 Sep 62 | 26 Sep 62 | 27 Sep 62 |
| | Panama | 29 Sep 62 | 29 Sep 62 |
| | Lyttelton, N.Z. | 23 Oct 62 | 1 Nov 62 |
| | McMurdo | 14 Nov 62 | 16 Dec 62 |
| | Lyttelton, N.Z. | 26 Dec 62 | 29 Dec 62 |
| | McMurdo | 7 Jan 63 | 14 Jan 63 |
| | Lyttelton, N.Z. | 22 Jan 63 | 26 Jan 63 |
| | McMurdo | 4 Feb 63 | 8 Feb 63 |
| | Lyttelton, N.Z. | 16 Feb 63 | 18 Feb 63 |
| | McMurdo | 27 Feb 63 | 2 Mar 63 |
| | Lyttelton, N.Z. CHOP COMSTS 18 Mar 63 | 9 Mar 63 | 18 Mar 63 |
| USS TOMBIGBEE (AOG-11) | Pearl Harbor CHOP CTF-43 20 Dec 62 | | 19 Dec 62 |
| | Lyttelton, N.Z. | 5 Jan 63 | 9 Jan 63 |
| | McMurdo | 18 Jan 63 | 22 Jan 63 |
| | Lyttelton, N.Z. | 30 Jan 63 | 7 Feb 63 |
| | Nelson, N.Z. | 8 Feb 63 | 14 Feb 63 |
| | Lyttelton, N.Z. | 15 Feb 63 | 20 Feb 63 |
| | Sydney, Australia CHOP COMSERVPAC 4 Mar 63 | 25 Feb 63 | 4 Mar 63 |
| HMNZS ENDEAVOUR | Wellington, N.Z. | | 18 Dec 62 |
| | Lyttelton, N.Z. | 19 Dec 62 | 22 Dec 62 |
| | Dunedin, N.Z. | 23 Dec 62 | 24 Dec 62 |
| | Auckland Islands | 25 Dec 62 | 26 Dec 62 |
| | McMurdo | 4 Jan 63 | 10 Jan 63 |
| | Dunedin, N.Z. | 18 Jan 63 | 19 Jan 63 |
| | Lyttelton, N.Z. | 20 Jan 63 | 22 Jan 63 |
| | Wellington, N.Z. | 23 Jan 63 | 25 Jan 63 |
| | McMurdo | 3 Feb 63 | 11 Feb 63 |
| | Lyttelton, N.Z. | 20 Feb 63 | 25 Feb 63 |
| | Auckland, N.Z. | 28 Feb 63 | |
| USNS MIRFAK (T-AK-271) | Davisville, R.I. CHOP CTF-43 13 Sep 62) | 13 Sep 62 | 21 Sep 62 |
| | Mayport, Fla. | 24 Sep 62 | 24 Sep 62 |
| | Panama | 29 Sep 62 | 30 Sep 62 |
| | Lyttelton, N.Z. | 21 Oct 62 | 1 Nov 62 |

| SHIP | PORT OR ASSIGNMENT | ARRIVED | DEPARTED |
|---|---|---|---|
| USNS MIRFAK (T-AK-271) (Cont'd) | McMurdo | 14 Nov 62 | 16 Dec 62 |
| | Lyttelton, N.Z. | 27 Dec 62 | 31 Dec 62 |
| | CHOP COMSTSPACAREA 31 Dec 62 | | |
| USS ARNEB (AKA-56) | Davisville, R.I. | 24 Oct 62 | 7 Nov 62 |
| | Panama | 14 Nov 62 | 16 Nov 62 |
| | CHOP CTF-43 3 Dec 62 | | |
| | Wellington, N.Z. | 7 Dec 62 | 9 Dec 62 |
| | Lyttelton, N.Z. | 10 Dec 62 | 14 Dec 62 |
| | McMurdo | 26 Dec 62 | 9 Jan 63 |
| | Lyttelton, N.Z. | 17 Jan 63 | 19 Jan 63 |
| | Wellington, N.Z. | 20 Jan 63 | 26 Jan 63 |
| | Lyttelton, N.Z. | 27 Jan 63 | 6 Feb 63 |
| | Hallett | 12 Feb 63 | 15 Feb 63 |
| | McMurdo | 16 Feb 63 | 3 Mar 63 |
| | Lyttelton, N.Z. | 10 Mar 63 | 18 Mar 63 |
| | Wellington, N.Z. | 19 Mar 63 | 22 Mar 63 |
| | Sydney, Australia | 26 Mar 63 | 1 Apr 63 |
| | Auckland, N.Z. | 5 Apr 63 | 11 Apr 63 |
| | CHOP COMPHIBLANT 19 Apr 63 | | |
| USNS MERRELL (T-AK-275) | Port Hueneme, Calif. | 26 Nov 62 | 3 Dec 62 |
| | CHOP CTF-43 26 Nov | | |
| | Lyttelton, N.Z. | 19 Dec 62 | 22 Dec 62 |
| | McMurdo | 29 Dec 62 | 30 Jan 63 |
| | Lyttelton, N.Z. | 5 Feb 63 | 6 Feb 63 |
| | CHOP COMSTS 6 Feb 63 | | |

## NAVIGATION, HYDROGRAPHY AND OCEANOGRAPHY

1. Navigation.

a. Commanding officers of all U. S. Navy ships maintained a continuous navigation watch on the bridge while underway or anchored (in the ice) to take advantage of every bit of navigation assistance. Once again, due to overcast skies, celestial fixes were the exception and dead reckoning the rule.

b. There was a definite improvement in the availability and reliability of Antarctic charts during DEEP FREEZE 63, however, there is still great need for extensive coordinated chart work in this area. Action will be initiated to improve this situation. Some ships reported that soundings agreed with known ship's position about half of the time. Piloting in McMurdo Sound resulted in aberrant positions, indicating that many well known peaks and Beaufort Island have yet to be accurately positioned. STATEN ISLAND utilized British Admiralty and Argentine charts during extensive survey and exploration of the Palmer Peninsula. TOMBIGBEE submitted a detailed sketch of Nelson Harbor, New Zealand to support reinstatement of H.O. 3389. Charts were evaluated by individual ships and data forwarded direct to the Naval Oceanographic Office (NAVOCEANO).

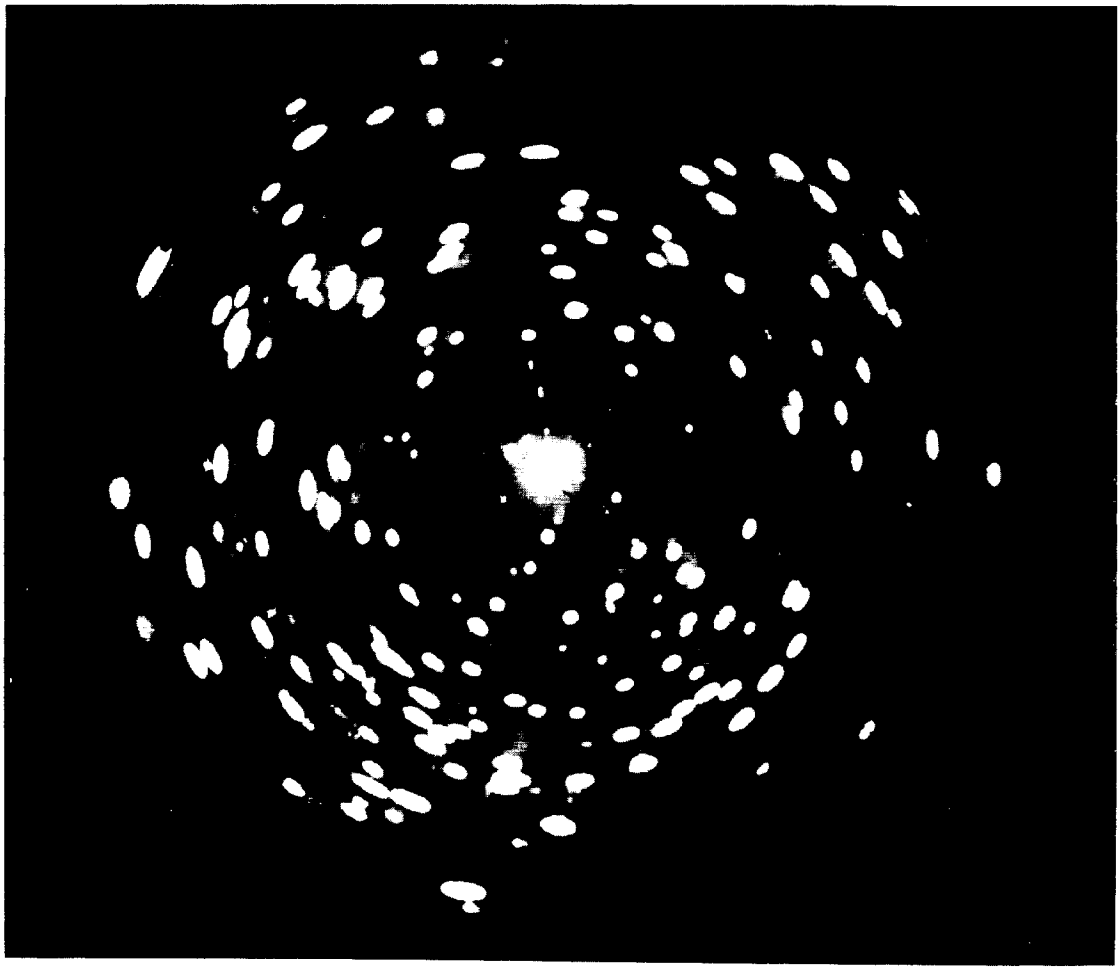


Figure 4. Icebergs on radar scope - USS ARNEB in zero visibility, en route Hallett Station, Antarctica, 11 February 1963 at latitude 68°41' South, longitude 171°32' East.

2. Hydrography.

a. Ships accumulated a total of 141,355 miles of sonic soundings and filed results direct with NAVOCEANO. STATEN ISLAND ran extensive soundings in the Palmer Peninsula area including numerous small boat surveys utilizing its Greenland Cruiser. EDISTO plotted two hundred miles of the ice shelf while on its ocean stations and determined that a considerable portion of the shelf, between latitude 169-30E and longitude 176-20W, extended from two point five to sixteen miles further north than that shown on the current edition of H.O. 6636. EASTWIND took a series of soundings in the vicinity of Seabee Hook, Cape Hallett and at Cape Adare. Furthermore, EASTWIND conducted a sounding program

in the area northwest of Hut Point in conjunction with a survey party from McMurdo Station, which revealed that it is feasible for most any ship to proceed within a very few feet of the Hut Point shoreline.

3. Oceanography.

a. Funded by a National Science Foundation grant, the U. S. Naval Oceanographic Office supplied four civilian oceanographers with associated equipment to conduct the Marine Geophysical Program in DEEP FREEZE 63.

b. Ice conditions were extremely rigorous during DEEP FREEZE 63 and ice damage to all ships was extensive; hence, the commencement of the Oceanographic Program was necessarily delayed five days. However, the bulk of the planned time was devoted to Oceanography. The Oceanographic equipment was placed aboard EDISTO, and the program undertaken and completed with pronounced enthusiasm and success by EDISTO ship's company. A minimum of interruptions for escort duty and the Hallett cargo operation facilitated completion of an unprecedented 122 ocean stations plus an effective area coverage of the Ross Sea during the period 5 February through 12 March 1963.

c. The ship took standard ocean stations which required taking water samples from which measurements of temperature, phosphates, oxygen and salinity data were derived. Bottom cores and/or grab samples were taken in addition to sporadic bottom photography. EDISTO made BT casts on and between each ocean station. All AGB's, ARNEB, FORSTER and DURANT made sea and swell or ice observations plus Bathythermograph (BT) observations where appropriate.

d. The Oceanographic Program was greatly enhanced by augmentation of icebreaker crews with "BT Teams". The service of these teams made it possible to collect bathythermograph observations at greater frequency resulting in a total acquisition of 4699 bathythermograph observations despite extensive ice condtions and rough seas. DURANT attached a PIBAL (Pilot Balloon) light to the BT to facilitate safe retrieval at night. The bathythermograph team personnel again proved to be a vital asset to the successful completion of the Oceanographic Program. Specific information regarding oceanographic-hydrographic data gathered during DEEP FREEZE 63 is available from individual ship reports and the NAVOCEANO Technical Report for DEEP FREEZE 63.

## SUMMARY OF OCEANOGRAPHIC ACCOMPLISHMENTS

### USS ARNEB (AKA-56)

| | |
|---|---|
| BT's | 86 |
| Miles of Sonic Soundings | 30,708 |
| Miles of Ice Observations | 1,910 |

### USCGC EASTWIND (WAGB-279)

| | |
|---|---|
| BT's | 884 |
| Miles of Sonic Soundings | 21,300 |
| Miles of Ice Observations | 12,360 |

### USS GLACIER (AGB-4)

| | |
|---|---|
| BT's | 1,700 |
| Miles of Sonic Soundings | 35,080 |

### USS EDISTO (AGB-2)

| | |
|---|---|
| Ocean Stations | 122 |
| BT's | 998 |
| Plankton Tows (surface) | 19 |
| Miles of Sonic Soundings | 17,780 |
| Miles of Ice Observations | 2,000 |
| Whales Sighted | 21 |
| Bottom Samples | 41 |

### USS STATEN ISLAND (AGB-5)

| | |
|---|---|
| BT's | 208 |
| Dredge Hauls | 30 |
| Plankton Tows | 20 |
| Miles of Sonic Soundings | 10,598 |
| Miles of Ice Observations | 7,654 |
| Miles of Marine Mammal Observations | 13,510 |
| Bottom Samples | 22 |
| Fish Caught | 248 |

### USS FORSTER (DER-334)

| | |
|---|---|
| BT's | 265 |
| Miles of Sonic Soundings | 6,119 |

### USS DURANT (DER-389)

| | |
|---|---|
| BT's | 558 |
| Miles of Sonic Soundings | 19,770 |

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations:

a. It was recommended that the channel through the fast bay ice into McMurdo be aligned to utilize prevailing winds to help clear the channel of block and brash and that the entrance be wide and vee shaped to facilitate widening by AGB's. This concept could not be applied during DEEP FREEZE 63 since the fast bay ice reached from Hut Point north to Beaufort Island, an unprecedented 67 miles instead of the usual 22 miles. This recommendation is considered valid for normal ice years.

b. It was recommended that the fueling of Hallett Station be accomplished before the ice leaves Moubray Bay in order that the fueling hose can be laid across the ice from ship to shore. Operational commitments caused the refueling of Hallett Station to be accomplished two days after the ice broke out of Moubray Bay since EASTWIND could not be released from duties at McMurdo until 31 December 1962. The fuel hose was floated on the water from ship to shore. This recommendation is still considered valid.

c. It was recommended that two D-8 tractors be on hand to assist ships in mooring to the ice at McMurdo. Experience in DEEP FREEZE 63 proved this practice could, at times, be unsafe for tractors. This recommendation is cancelled.

d. It was recommended that bollard type deadmen in 6-8 foot ice be inclined in a hole drilled by ice auger. This operation was highly successful.

e. It was recommended that ships be reminded that operating schedules in Operation Plan are at best tentative since unforeseen casualties and conditions often cause changes in ship's schedules and cancellation of liberty ports. This was accomplished and should be continued.

f. It was recommended two ocean station vessels meet in port to improve liaison. Operational commitments precluded this during DEEP FREEZE 63 but when feasible this liaison would facilitate operations.

g. It was recommended that the staff oceanographic-hydrographic officer obtain and distribute all Antarctic charts to participating ships and VX-6 and stock additional charts in Christchurch. This was done during DEEP FREEZE 63 and proved effective, but very cumbersome. Ships should acquire their own charts in the normal manner and new charts not ready for distribution prior to deployment will be requisitioned by the staff for each ship and forwarded by NAVOCEANO. The basic list of DEEP FREEZE charts will be sent to all ships in June to facilitate timely ordering.

h. It was recommended that all oceanographic equipment be aboard

all ships at least one week prior to departure CONUS in order to utilize cargo space to the maximum extent. This proved to be a problem in DEEP FREEZE 63 in that one wire reel and two bottles of helium were missing and located at the end of the season in CONUS. However, this recommendation is still valid and will be applied in DEEP FREEZE 64.

i. It was recommended that COMNAVSUPPFOR ANTARCTICA INST 3160.1C be revised. This was accomplished and COMNAVSUPPFOR ANTARCTICA INST 3160.1D was issued effective 17 May 1962.

j. It was recommended that GLACIER submit a request for SHIPALT to replace her obsolete oceanographic winch with a modern 30,000 feet capacity winch. This request was not submitted as it was later felt that this winch could be used to better advantage in a wind class breaker since they accomplish the bulk of the oceanographic work.

k. It was recommended that all ships use 3000 feet of wire on BT winches. This was done during DEEP FREEZE 63 to great advantage and will be encouraged in all future operations.

l. It was recommended that a BT team be assigned to ARNEB for DEEP FREEZE 63. This was not possible because of the unavailability of qualified personnel. The BT teams have since been dissolved by CNO but ships allegedly now have this capability.

m. It was recommended that charts V30-SP5, SP-6, SP-7, SP-8, SP-9, SP-10, SP-11, H.O. 16384-3,4, H.O. 16384-6,7, H.O. 16384-8,9, H.O. 16384-10,11 be revised with completion dates of 1 and 15 September for designated charts. These charts were revised on schedule and used effectively in DEEP FREEZE 63.

n. It was recommended that H.O. charts 6712, 6626, 6636, 6637, 6638, 6639, and 6640 be revised and ready for issue on 1 September 1962, that proposed charts H.O. 6948, 6943, 6944, 6940 be available by 1 November 1962, and that all nautical charts be constructed on the mercator projection. All H.O. charts except 6636, 6639 and proposed charts were completed on time. Completion of the exceptions was precluded by insufficient data and higher charting priorities in other areas, but they will be requested again for DEEP FREEZE 64.

2. DEEP FREEZE 63 Comments and Recommendations:

a. "Towing" is one of the most common seamanship evolutions in Antarctic waters. For example, during DEEP FREEZE 63, CHATTAHOOCHEE was taken in tow fifteen times while in the McMurdo area. The cargo ships and tankers are usually towed to their moorings in the ship channel in order to avoid, or at least minimize, propeller damage that would occur if the ship was maneuvering with its own engines and propeller in the brash-clogged channel.

IT IS RECOMMENDED FOR TOWING:

(1) THAT THE TOW RIDE BETWEEN 100 AND 200 FEET AFT OF THE TOWING SHIP, SINCE A TOW WILL NOT RIDE PROPERLY IN THE AGB STERN NOTCH.

(2) THAT BOLT PIN SHACKLES BE USED IN LIEU OF SCREW PIN SHACKLES TO FACILITATE UNSHACKLING AT THE TERMINATION OF THE TOW.

(3) THAT A SECOND AGB PRECEDE THE TOWING VESSEL TO RELIEVE ICE PRESSURE.

b. Helicopters on the AGBs are exposed to considerable salt water corrosion, since canvas covers do not afford sufficient protection, especially when the ship is transiting the storm swept waters of the South Sixties en route to Antarctica.

IT IS RECOMMENDED THAT A HELICOPTER HANGAR BE INSTALLED ON WIND CLASS ICEBREAKERS.

c. CTF-43 Operation Plan for DEEP FREEZE 63 scheduled each of the AGBs for a mid-season return to New Zealand for liberty, replenishment and upkeep. Unfortunately, due to operational exigencies and propeller damage that necessitated GLACIER returning twice during the season to Wellington for replacement of screw blades, EASTWIND and EDISTO were never able to take their scheduled "liberty break" in Lyttelton.

IT IS RECOMMENDED THAT AT LEAST ONE LIBERTY PORT CONTINUE TO BE SCHEDULED DURING THE OPERATING SEASON FOR EACH AGB.

d. Tide and current data for the McMurdo area could be useful from a scientific and an operational standpoint.

IT IS RECOMMENDED THAT NAVOCEANO INSTALL A TIDE GAUGE (PRESSURE TYPE) AT MCMURDO TO FACILITATE GATHERING DATA DURING DEEP FREEZE 64.

e. There is a need for an Antarctic table of distances that covers numerous stations or ports which are not presently listed in H.O. 27.

IT IS RECOMMENDED THAT THE ANTARCTIC TABLE OF DISTANCES (H.O. 27 PAGES 92-95) BE REVISED TO INCLUDE STATIONS, PORTS OR ISLANDS REQUESTED BY SEPARATE CORRESPONDENCE.

f. USCGC EASTWIND (WAGB-279) reports that green water taken over the after part of the ship greatly endangered equipment and personnel.

IT IS RECOMMENDED THAT THE POSSIBILITY OF INSTALLING A BULWARK IN EASTWIND ALONG THE MAIN DECK AFT IN THE VICINITY OF THE BT WINCH BE INVESTIGATED.

g. EASTWIND's BT boom dips into the water when the ship rolls.

IT IS RECOMMENDED THAT EASTWIND'S BOOM BE RAISED SUFFICIENTLY TO PREVENT DIPPING INTO SWELLS.

h. Icebreakers often find that they are in an area where they could acquire control points badly needed to accurately position various landmarks and correlate aerial photographs used in mapping the Antarctic.

IT IS RECOMMENDED THAT ICEBREAKERS BE REQUIRED TO HAVE TWO GROUPS OF ONE OFFICER AND TWO ENLISTED MEN TRAINED BY NAVOCEANO IN THE USE OF THE THEODOLITE.

i. Beaufort Island has been reported out of position on charts of the Ross Sea and McMurdo Sound.

IT IS RECOMMENDED THAT BEAUFORT ISLAND BE PROPERLY POSITIONED ON APPLICABLE CHARTS UTILIZING DATA GATHERED BY THE U. S. GEOLOGICAL SURVEY.

j. Some of the ships had difficulty acquiring BT instruments for DEEP FREEZE 63, partly because they ordered late and partly because there were not sufficient BT instruments available in the distribution system.

IT IS RECOMMENDED THAT SHIPS PLACE THEIR ORDER FOR BT INSTRUMENTS EARLY AND THAT CLOSE LIAISON BETWEEN THE STAFF AND BUSHIPS BE MAINTAINED TO ENSURE THAT SUFFICIENT BT INSTRUMENTS ARE AVAILABLE IN THE DISTRIBUTION SYSTEM TO ALLOW AT LEAST FIFTEEN PER ICEBREAKER FOR DEEP FREEZE 64.

k. DER's have a BT boom made of aluminum which is susceptable to damage from heavy seas.

IT IS RECOMMENDED THAT THE EXISTING ALUMINUM BT BOOM IN DER'S BE REPLACED WITH A STRONGER BOOM, PERHAPS OF A DIFFERENT METAL.

l. Under present conditions, when ships operate in the Palmer Peninsula area NAVOCEANO must purchase charts at comparatively high expense from the Argentine, Chilean or British governments.

IT IS RECOMMENDED THAT NAVOCEANO PRODUCE H.O. CHARTS OF THE PALMER PENINSULA AREA BEGINNING WITH THE ANVERS ISLAND, PORT LOCKROY AREA AND MORE SPECIFICALLY, PROPOSED CHARTS H.O. 6650, 6943, 6944, and 6945.

m. Much of the data gathered by shipboard personnel during explorations could be utilized much more effectively if prepared in a more precise manner.

IT IS RECOMMENDED THAT THE SERVICES OF AT LEAST ONE CARTOGRAPHER BE PROVIDED TO AID IN TRAINING SHIPBOARD PERSONNEL TO GATHER USEFUL CARTOGRAPHIC DATA DURING DEEP FREEZE 64.

n. Due to the nature of polar operations, it is felt that charts should contain the most accurate sounding information possible.

IT IS RECOMMENDED THAT NAVOCEANO PROVIDE A PRECISION GRAPHIC RECORDER (PGR) AND ONE BATHYMETRIST FOR USE ABOARD AN ICEBREAKER DURING DEEP FREEZE 64.

o. Considerable significant data is available for inclusion in nautical charts, aeronautical charts, and sailing directions.

IT IS RECOMMENDED THAT THE FOLLOWING CHARTS AND PUBLICATIONS BE REVISED FOR DEEP FREEZE 64:

(1) AERONAUTICAL:

(a) V30-SP5 THROUGH 11, H.O. 16384-3,4, H.O. 16384-5, H.O. 16384-6,7, H.O. 16384-10,11. V30-SP5 THROUGH 10 WILL BE REQUIRED NO LATER THAN 15 SEPTEMBER 1963. THE REMAINDER ARE REQUIRED PRIOR TO 1 SEPTEMBER 1963.

(2) NAUTICAL:

(a) H.O. 6667, 6712, 6666, 6636, 6665, 6639, 2526D, 16429A, 16321N, 3389 6646, ALL OF WHICH ARE REQUIRED PRIOR TO 1 SEPTEMBER 1963.

(3) SAILING DIRECTIONS:

(a) H.O. 27 BE REVISED AND UPDATED, INCORPORATING DATA GATHERED BY ALL UNITS THROUGH DEEP FREEZE 63.

## SECTION B. AIR OPERATIONS

1. General.

Air operations during DEEP FREEZE 63 are categorized as follows:

a. Transportation of personnel and cargo between CONUS and Christchurch, New Zealand was provided predominantly by the MATS C-118 and C-135 personnel transport aircraft and C-124 cargo aircraft, supplemented by the C-121J and other deploying/redeploying aircraft of VX-6 and the NINTH Troop Carrier Squadron.

b. Transportation of personnel and cargo between Christchurch, New Zealand and McMurdo Sound, Antarctica was provided predominantly by the MATS C-124 aircraft for cargo and by VX-6's, C-121J and LC-130F's for passengers.

c. Transportation of personnel and cargo between McMurdo and the inland stations of Antarctica was the major task of the four LC-130F's of VX-6, which accomplished the greater portion of this phase of the airlift. The C-124's of the NINTH TCS (MATS) were assigned that portion of the airlift which exceeded the capability of the LC-130F's, and consisted solely of airdrop of POL.

d. Scientific support was provided almost solely by the aircraft of VX-6, with the MATS C-124 making one drop to the Wilkes Traverse Party.

e. Ice reconnaissance was carried out mainly by the C-124's, being combined with the personnel/cargo flights between New Zealand and Antarctica, and augmented by VX-6 aircraft and icebreaker helicopters.

f. The search and rescue (SAR) function was the responsibility of VX-6 south of 60° throughout the entire operation, with the C-124's at McMurdo providing assistance when required. North of 60° South Latitude the NINTH Troop Carrier Squadron was delegated this responsibility during the period of Air Force operations, about 15 September to 15 December. After 15 December VX-6 assumed SAR responsibility for all air operations.

2. Air Development Squadron SIX (VX-6)

a. General.

Air Development Squadron SIX, commanded by Commander W. H. EVERETT, USN, consisted of 60 officers, 346 enlisted personnel and 24 aircraft. At various times during the DEEP FREEZE 63 season, the squadron was split into four units. On deployment a small detachment remained at its home port, NAS Quonset Point, Rhode Island; a larger maintenance detachment was stationed at Christchurch, New Zealand; a small detachment was located at Byrd Station, and headquarters was established at McMurdo Station, Antarctica.

Summer support air operations in Antarctica began with the earliest fly-in ever accomplished when four LC-130F's with Admiral TYREE (CTF-43) aboard touched down at McMurdo at 2126Z on 16 September 1962. Summer support operations were secured on 4 March. The squadron began redeployment to its home port at Quonset Point leaving Detachment ALFA (VX-6 wintering-over group) to conduct local flight operations at McMurdo and to prepare for the long winter. This unit consisting of 3 officers and 24 men also will make preparations during the winter for the return of the squadron in October 1963. The Byrd Station detachment was activated and deactivated as required when air operations were to be conducted from there. This element flew photographic missions primarily for mapping, scientific support flights, and to assist in providing ground support services for the LC-130F's when they landed at Byrd Station.

The VX-6 detachment at Christchurch, which up until this year had been deployed on a temporary basis, became a permanent unit on 1 April 1963. As Detachment BRAVO, it will maintain and improve the VX-6 facilities, equipment and supplies, and will prepare for the arrival of their parent organization each September.

b. Aircraft Assigned.

To carry out its primary mission, logistic support of the scientific program, the following aircraft were assigned:

| Beginning Inventory | Ending Inventory |
|---|---|
| 2 LC-117D | 1 LC-117D |
| 4 LC-47H/J | 3 LC-47H/J |
| 1 C-121J | 1 C-121J |
| 1 C-54Q | 1 C-54Q |
| 4 LC-130F | 4 LC-130F |
| 2 LP-2J | 2 LP-2J |
| 6 U-1B | 6 U-1B |
| 4 LH-34D | 3 LH-34D |

(1) LC-130F Flight Operations.

As in DEEP FREEZE 62, the four LC-130F Hercules proved to be the backbone of the Antarctic airlift mission. In spite of a slow start, due successively to lack of material handling equipment, shortage of JP-4 fuel, lack of cargo, and major mechanical troubles, the Hercules performed an even greater task than in any previous year.

The LC-130F's made the earliest penetration of the Antarctic Continent in DEEP FREEZE history when the first of four landed at McMurdo on 16 September in -56°F temperature. The other three landed successively within the next two hours having completed the 2175 mile flight from Christchurch to McMurdo. The purpose of this early fly-in was to bring additional personnel to assist in completing the new ice runway and the camp at new Williams Field, and to establish the summer weather stations at Beardmore and Little Rockford in preparation for the commencement of

C-124 and C-121J turnaround flights commencing on 1 October. The LC-130F's were to establish these weather stations immediately and return to Christchurch to conduct pilot training until 15 October. However, because of the extreme cold and consequent mechanical difficulties with both equipment and aircraft, Little Rockford and Beardmore were not opened, and all LC-130F's returned to Christchurch by 20 September. The delay had allowed the aircraft to become cold-soaked resulting in cracked cockpit window glass, hydraulic failures and other mechanical troubles. As in DEEP FREEZE 62 when the aircraft commenced operations about 1 October, the maintenance problems encountered showed that routine flight operations are much more difficult when aircraft have to remain for long periods on the ground in temperatures below -40° F. Two LC-130F's returned from Christchurch and opened Beardmore on 6 October. This delay in opening both Beardmore and Little Rockford was a result of inability of generators and radio equipment at those stations to function. DEEP FREEZE 63 LC-130F operations in the Antarctic were, for the first time, conducted solely on skis. Because of the poor surface conditions of the new ice runway, the Commanding Officer of VX-6 elected to utilize the adjacent skiway for all take-offs and landings. This skiway, however, was also unsatisfactory due to the shortage of construction equipment available for use in maintaining the runway. As a result, aircraft were subjected to much more severe stress than necessary. It is believed that the rough skiway caused the ski failures and pressure hull failures that came in rapid succession during November and December. All aircraft had to be returned to the Lockheed plant at Marietta, Georgia for repairs. Fortunately, these defects developed during the time when full utilization of the LC-130F's was not required since there was a shortage of JP-4 and drummed diesel cargo. The one or two flyable aircraft were able to meet all commitments during this period. Through the concerted efforts and cooperation of BUWEPS, the manufacturer, and Representative Commander, NSFA, in Washington, the aircraft were expeditiously repaired and returned to service. This prompt attention to solving the aircraft repair problems contributed greatly to the timely completion of resupplying of all inland stations. It was not until the end of December, when all aircraft were operational again and JP-4 fuel and cargo available, that an all out resupply effort was possible. With only 60 days remaining of approximately 135 days of summer support air operations available, the LC-130F's had less than 50 percent of their missions accomplished and the outlook appeared grim. The remaining missions included the very difficult task of establishing Eights Station 1,384 miles away from McMurdo - 575 miles beyond Byrd Station near the foot of the Palmer Peninsula. Eights Station required 42 flights, eleven of them consisting of vans of 8'x8'x27' which could not be jettisoned in case of a forced landing. The performance of all hands indicated that they realized a maximum effort was required if Eights Station was to be occupied as planned during the coming winter and if all stations were to have sufficient fuel and supplies to last through the forthcoming winter. During the month of January the LC-130F's flew a total of 1268 hours, and at one point the VX-6 flight surgeon recommended to the Task Force Commander that flight operations be discontinued for a 24-hour period due to fatigue of the pilots, aircrewmen and ground crews. The recommendation was approved and was a well earned respite from the grinding monotony and fatigue of around-the-clock operations. The fact that the mission was completed on

28 February, in spite of all unanticipated obstacles, was due to determination and can-do spirit of all personnel.

In logging 2,834 hours on the Antarctic continent and a total of 3,683 hours from deployment to return to Quonset Point, the LC-130F again proved itself to be the workhorse of the Antarctic. The appearance of this versatile aircraft on the Antarctic scene has enhanced the capability of opening the interior of the continent and altered the concept of the operations. With the addition of four more C-130 aircraft (of the "E" model, with skis), the entire continent would be accessible without undue hazard because of the much greater range of the C-130E. Operations could be conducted during the winter months as long as the aircraft did not have to remain on the ground for long periods of time as a part of their routine. These aircraft can range over any point on the continent from McMurdo. These winter operations would permit an orderly rotation of the personnel at McMurdo Station and would reduce the necessity for a large "wintering over" group.

A new concept in the use of the LC-130F was initiated at the close of DEEP FREEZE 63 when the first delivery of bulk fuel was made to an inland station. Late in February an LC-130F with a removable internal fuel tank delivered 3,000 gallons of JP-4 fuel to Byrd Station. This is 500 gallons more than can be delivered per flight in drums. The two tanks arrived late in the season and it was not until the resupply mission was assured that the bulk delivery method was tested. The test was highly successful. Delivery of approximately 200,000 gallons of diesel fuel by the bulk method is anticipated in DEEP FREEZE 64. This will eliminate 4,000 expensive ($7.35 each - $29,400 total) drums of diesel fuel and reduce personnel requirements and support equipment for handling this cargo. The entire 339,000 gallons of diesel scheduled for delivery in DEEP FREEZE 64 to Byrd and Pole could have been effected by this method if sufficient bulk storage facilities were available at these stations. In addition, the number of flights required will be reduced at the ratio of 5 bulk-flights versus 6 drum-flights. All four LC-130F's are equipped with the necessary plumbing to accommodate these tanks.

These tanks can also be used to extend the range (at the expense of equivalent weighted cargo) of the LC-130F. At the end of the season, one aircraft with Commander, Task Force 43 aboard made an exploratory flight (another Antarctic "first") out of McMurdo of about 3,470 miles ranging several hundred miles beyond the South Pole from McMurdo, east to the Pole of Inaccessibility and returning to McMurdo. The route of this flight is shown in Figure 5. Two bulk fuel tanks were returned to Christchurch at the end of DEEP FREEZE 64 should an emergency fly-in be required during the winter months.

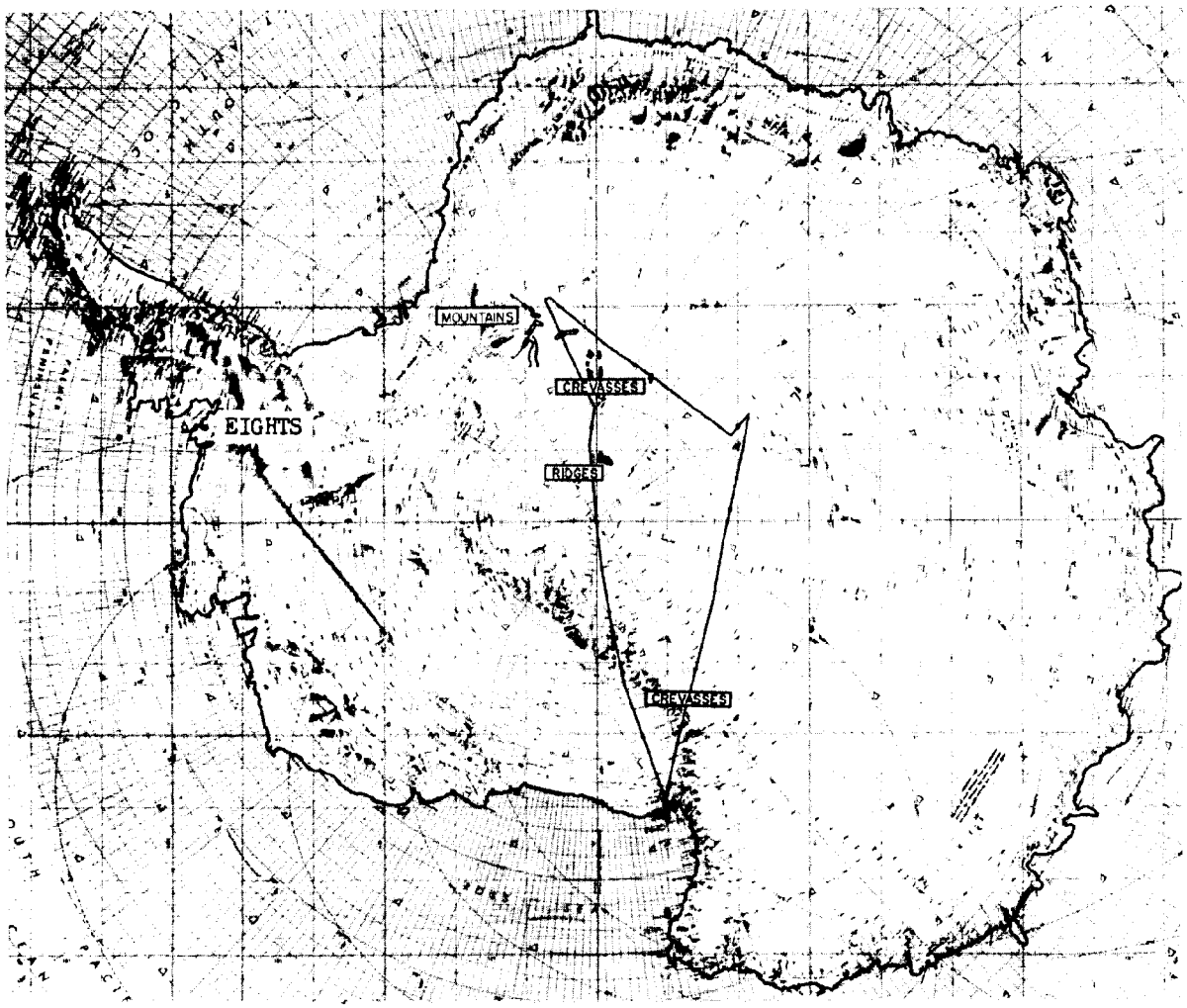



Figure 5. Chart indicating (1) route of LC-130F from McMurdo Sound over the South Pole and Pole of Inaccessibility, a flight covering 3,470 statute miles and utilizing an auxillary cabin tank for extended range, and (2) the route from Byrd Station to Eights Station taken by Task Group 43.5, a distance of 973 statute miles.

Significant dates in the LC-130F operations are chronologically listed below:

| Date | Event |
|---|---|
| 1962 | |
| 16 Sep | Four LC-130F's made earliest fly-in to McMurdo. |
| 17 Sep | First and earliest flight to Beardmore Station. |
| 18 Sep | First and earliest flight to Little Rockford Station. |
| 14 Oct | First flight of season to Byrd. |
| 2 Nov | First flight of season to Eights Station. |
| 5 Nov | First flight of season to Pole. |
| 9 Nov | Sentinel Mountains Party and Pensacola Mountains Party established. |
| 11 Nov | Roosevelt Island Party established. |
| 1963 | |
| 13 Feb | Sentinel Mountains Party pick-up. |
| 6 Feb | Pensacola Mountains Party pick-up. |
| 15 Feb | Last flight to Eights Station. |
| 16 Feb | Last flight to Pole Station. |
| 19 Feb | Little Rockford personnel picked-up. |
| 2 Mar | Last flight to Byrd Station. |
| 3 Mar | Beardmore personnel picked-up. |
| 4 Mar | Last LC-130F departed for Christchurch. |
| 11 Mar | Last LC-130F arrived Quonset Point. |

(2) C-121J Operations.

The C-121J was based at Christchurch during the operating season and flew support flights to McMurdo Station and CONUS. This aircraft was used primarily as a passenger transport, but utilized all remaining space for cargo. It also has trimetrogon photography capability although this capability was not exploited. Several attempts were made to make a trial photo run this season, but due to unfavorable factors such as crew-time limitations, AVGAS shortage, mechanical troubles, and necessity for passenger flights, they were never carried out.

The C-121J made one passenger turnaround flight to New Zealand departing CONUS on 25 August and then deployed to New Zealand on 22 September. The aircraft returned to CONUS for progressive aircraft rework (PAR) at Lockheed Aircraft Service, New York on 20 December, and redeployed to New Zealand on 22 January 1963. The aircraft arrived back at Quonset Point, Rhode Island on 11 April having returned RADM REEDY and the remaining members of his staff to Washington, D.C. During the deployed period, the C-121J made 27 Christchurch-McMurdo turnaround flights. A summary of the passengers and cargo carried is included at the end of this section.

A change in the concept of C-121J operations is planned for DEEP FREEZE 64. This has been brought about by the need for continuous air communications between Christchurch and McMurdo during the entire summer support season and particularly during the period of 20 December to

20 January - the height of the operating season when, as in the past years, air support was virtually non-existent. The need for specific support items is also at a premium during this period. This situation existed because the Air Force always has completed its mission in the Antarctic (which included frequent flights between Christchurch-McMurdo) early in December and redeployed to CONUS, while the C-121J annually returned to CONUS for maintenance about 20 December. For DEEP FREEZE 64 the C-121J will be scheduled for maintenance 15 November to 15 December, and will return to operations as the Air Force terminates its deployment. This schedule change became possible as a result of a new heavy maintenance interval promulgated by BUWEPS. This requires a maintenance period every 180 days or every 600 hours of flight operations vice every 400 hours.

(3) C-54Q Flight Operations.

This aircraft had been given a one-year reprieve from Antarctic operations, having been removed from the operating allowance of VX-6 at the close of DEEP FREEZE 61. Justification for return of this venerable aircraft to VX-6 arose from the need for a Search and Rescue (SAR) capability at Christchurch for the northern half of the South Pacific Ocean route between Christchurch and McMurdo. About mid-December, when Air Force operations are completed and they withdraw their SC-54 aircraft, there is a requirement for a SAR aircraft to guard the C-121J and other VX-6 aircraft for the latter half of the season and also to provide SAR at McMurdo in the first half of the season in order to relieve the LC-130F's and LP-2J's for other tasks. The C-54Q was equipped with Albedo equipment and a vertical camera before deploying to Christchurch on 15 September 1962. Consequently, besides standing SAR duty, it also flew dual purpose Albedo flights and ice reconnaissance, covering over 9,600 miles. Ski-equipped, it was occasionally used to ferry passengers and cargo to Hallett Station. The C-54Q deployed to McMurdo from Invercargill, N.Z. (the closest airport to McMurdo) on 21 October and returned to Christchurch on 23 November where it remained until it departed for Quonset Point in March.

While standing SAR duty at Christchurch the C-54Q made one precautionary intercept on 27 January 1963 of the C-121J, when the aircraft commander secured number four engine in the vicinity of 63° South. It also made one "turnaround" flight to McMurdo in order to deliver parts for an AOCP LC-130F. Thirty-one flights were made in the New Zealand area to transport mail and for other support purposes

(4) LC-47H,J and LC-117D, Flight Operations.

The LC-47/LC-117 type aircraft is used primarily in direct support of science. On rare occasions, it is used for ice reconnaissance and to transport personnel and cargo to Hallett Station, Beardmore, and Little Rockford. The LC-47 is rugged, dependable and easy to maintain. The LC-117D is equally rugged and dependable but less easy to maintain, although it has advantages in range, speed, and payload that makes its use highly desirable. Both aircraft are used primarily to place scientific parties in remote areas as far as 600 miles from a permanent station. It

is the trail blazer for the LC-130F in that the LC-47 lands first in remote and strange areas to determine if the surface is suitable for the heavier aircraft, and then uses its radio as a homing beacon for the LC-130F. Although LC-47/LC-117 is rugged and can be landed in areas where hard satrugi of as much as eighteen inches exist, the landing gear is vulnerable and the aircraft can easily receive strike damage. Loss of one or two of these aircraft can be anticipated each season due to the type of operations in which they engage. One LC-117D and one LC-47 were operable at the start of DEEP FREEZE 63. One LC-47 was damaged during a windstorm late in the winter at McMurdo and was awaiting parts. The only other LC-117D had suffered damage from a skis-up landing at Byrd Station at the end of DEEP FREEZE 62. It was awaiting repairs for a one-time flight to McMurdo and eventual back-loading on the USS ARNEB for repairs in Christchurch. Two C-47's were converted to LC-47's during the DEEP FREEZE 63 pre-deployment period and were flown to McMurdo, one arriving on 10 October and the other on 21 October. Many Search and Rescue flights were made by the LC-47's that would not have been necessary had the scientific field parties had adequate means of communications with the home base. It is the policy of the Task Force Commander to launch SAR aircraft as soon as possible after a field party has not been heard from or sighted within five days. Several flights are often required before a field party can be contacted due to low visibility and poor communications. There have been times when as much as 10 days have gone by without contacting a party. The importance and value of field parties maintaining radio schedules, and having adequate radio equipment cannot be stressed too highly. A portable homing device is needed for field party use. Also, field parties must be thoroughly briefed on problems that may face pilots upon landing and taking off, and they should include best weather information available on all radio contacts, emphasizing ceiling and surface conditions. Poor surface definition is an important factor in the number of LC-47 landing accidents, as the roughness of the surface cannot be definitely determined and depth perception is almost totally lacking.

Due to the attrition of two LC-47's, two more C-47's are now being converted to LC-47's which will make available five LC-47H,J's and one LC-117D for DEEP FREEZE 64. One of these aircraft will be placed in a non-operating status either at Quonset Point or Christchurch as a reserve.

Due to the requirement for landing on untested areas, and its marginal single engine performance, the LC-47 and LC-117D are highly susceptible to damage. These aircraft should be phased out of this operation and replaced as soon as possible with a VTOL or a rugged STOL aircraft, preferably the former.

(5) LP-2J Flight Operations.

The two LP-2J's assigned to VX-6 were used as in previous years, primarily for aerial photography of the Antarctic continent, with a secondary mission of Search and Rescue. The aerial photographic commitment included the trimetrogon and vertical mosaic photographic mapping, as well as reconnaissance photography in support of the United

States Antarctic Research Program. The photographic program is covered in detail in the photographic section of this report.

The first of two LP-2J's departed Quonset Point on 8 September and the second on 15 September arriving at Christchurch, New Zealand, on 18 and 25 September, respectively. Both arrived at McMurdo on 8 October and commenced aerial photography on 28 October, successfully photographing more than 71,000 square miles during the season. The most difficult area to photograph proved to be the Pensacola Mountain Range because of its distant location and lack of available weather reports from that area.

Several photo problems were encountered this season, the most grievous being that of camera malfunction in extreme cold. Most flights are conducted at 20,000 to 25,000 feet where the outside air temperatures are in the vincinity of -55°F. The heaters are ineffectual above 20,000 feet in preventing freezing of the camera mechanism. The LP-2J does not have a pressurized cabin for photographic work, which necessitates photographers wearing oxygen masks in addition to the cumbersome cold weather flight clothing, thereby reducing their efficiency. The most significant factor concerning the photographic program is the range limitation of the LP-2J. This aircraft is incapable of flying to the more distant areas and the requirements for aerial photography in more remote areas is becoming more pressing. There is a definite requirement NOW for a long range, high altitude, pressurized aircraft equipped for trimetrogon photography.

(6) Helicopter Flight Operations (LH-34D and HU-1B).

Helicopter utilization in support of Operation DEEP FREEZE 63 provided by VX-6 consisted of flights for the following purposes:

USARP project support
Local area guest and press flights
Aerial photography
Ice reconnaissance
General utility work
Search and Rescue

To accomplish the above missions three LH-34D's were available most of the time. The number was reduced temporarily to two as a result of an accident on 22 November in the Wright Dry Valley and one burning up at the McMurdo helo pad when its engine oversped and exploded. However, CNO, BUWEPS, CINCLANTFLT and COMNAVAIRLANT quickly responded to an urgent request for a replacement LH-34D; and in less than a month an LH-34D was winterized at NAS Jacksonville (O&R) and air transported via C124 to McMurdo. Another is being winterized in CONUS for use in DEEP FREEZE 64. During the periods (about 3 weeks each) when these aircraft were reduced to two, it was mandatory to utilize the icebreaker helicopters for SAR and general utility work.

Since the requirements for helicopter operations were less during DEEP FREEZE 63 than they were during DEEP FREEZE 62, because the ice between McMurdo and Williams Field remained safe for vehicle transportation for a longer period and less support was necessary for the Topo Projects--all scientific requirements were filled and operations were deemed highly successful. The LH-34D's proved to be adequate for medium altitude operations (up to 5,000 feet). The LH-34D's provided SAR assistance on three occasions at altitudes of 5,000 feet. However, a better SAR helicopter, such as the turbine powered Army HU-1B, is required to provide the high altitude capability and for minimum engine warm up time.

In addition to the helicopter operations by the regularly assigned aircraft, helicopter operations utilizing U.S. Army HU-1B's with Army crews were conducted in connection with the placing of ground control points for the compilation of topographic maps from aerial photography. For this purpose three HU-1B helicopters and crews were loaned to VX-6. The project was divided into two phases: Topo West and Topo East. Topo West was a westerly continuation of the Topo North project completed in Operation DEEP FREEZE 62, from the Cape Hallett region to the vicinity of the South Magnetic Pole, and part way back towards McMurdo. This project was as highly successful as its earlier counterpart, having commenced 13 November and completed on 30 November, utilizing only two HU-1B's as the third did not arrive until late November.

Topo East commenced on 2 December utilizing three HU-1B's and was an easterly extension of Topo South from the vicinity of the Beardmore Glacier to the Eastern Horlick Mountains. It, too, was highly successful and was terminated on 22 January solely because of technical difficulties encountered with the tellurometers.

While in the Mount Weaver area to the east of the Beardmore Glacier, the helicopters provided valuable support to the Ohio State University Field Party, moving them quickly to hitherto inaccessible areas. After completion of the Topo projects all three HU-1B's returned to the Mount Weaver area and prepared to launch for the South Pole, 190 miles distant.

With fuel delivered to Mount Weaver by a VX-6's LC-130F, three HU-1B's took off for the South Pole on 4 February, escorted by the Commanding Officer, VX-6 in an LC-130F, for SAR and as an navigational aid. The flight to the South Pole was completed without incident, all three HU-1B's landing at 1715 local 4 February and becoming the first helicopters ever to land at the South Pole. A few hours after landing the HU-1B's were loaded in LC-130F's and returned to McMurdo.

For two successive seasons, the high performance and versatility of these U.S. Army helicopters have been demonstrated. Ease of maintenance, reliability, no warm-up time, high altitude capability (in excess of 14,000

feet) with sizeable pay-load, and air-transportability are some of the factors which make the HU-1B a desirable addition to the VX-6 aircraft allowance--replacing the U1-B (Otters) and to some extent, the LH-34D.

It is planned to use the HU-1B's again in DEEP FREEZE 64 for operating with field parties in distant locations such as the Sentinel Mountains and the Pensacola Mountains, some 1200 miles from McMurdo. The LC-130F's will be utilized to transport the helicopters to these locations and to support them logistically.

(7) U-1B Flight Operations.

Otter utilization during DEEP FREEZE 63 consisted of airlift support of the Topo East Project, local photographic coverage at McMurdo, and local field party and scientific support. It was also used to flight check navigational aids at McMurdo. This single engine, short range, limited capacity aircraft is very well suited for close-in support at McMurdo (within 150 miles); but was recommended for phase-out at the end of DEEP FREEZE 62. Phase-out is still recommended as soon as additional helicopters can be made available. During the operating season two Otters were kept in commission at McMurdo. The other four were in storage, transit, or overhaul.

3. Shipboard Helicopters.

a. General.

Helicopter detachments were assigned to each icebreaker for ice reconnaissance, transport of cargo and personnel, and exploratory missions as required. These detachments consisted of the following:

| SHIP | UNIT | OFF/EM | TYPE AIRCRAFT |
|---|---|---|---|
| USS STATEN ISLAND (AGB-5) | HU-1 DET 43 | 3/8 | 1 CH-19E<br>1 UH-13P |
| USCGC EASTWIND (WAGB-279) | HU-4 DET 81 | 3/8 | 1 CH-19E<br>1 TH-13N |
| USS EDISTO (AGB-2) | HU-4 DET 86 | 3/8 | 1 CH-19E<br>1 TH-13N |
| USS GLACIER (AGB-4) | HU-4 DET 88 | 4/9 | 2 CH-19E |

During the course of the operating season while attached to Task Force FORTY-THREE, these detachments flew the following number of flight hours in support of all missions:

| | |
|---|---|
| HU-1 DET 43 | 385 Hours |
| HU-4 DET 81 | 342 |
| HU-4 DET 86 | 382 |
| HU-4 DET 88 | 278 |

In addition to carrying out their primary mission of ice reconnaissance, the helicopter detachments performed yeoman service in the McMurdo area by supplementing the services provided by the hard pressed helicopters of AIRDEVRON SIX. It was common to require one or two of these ship based helos to stand search and rescue duty at the helo pad in McMurdo and to make regular and frequent fuel hose patrols while fuel was being discharged from the tankers to McMurdo. These versatile aircraft did much toward accomplishing the support mission of the Task Force. HU-1 Det 43 accompanied the STATEN ISLAND on its exploration of the Palmer Peninsula, and engaged in much aerial photography in exploring sites for a new station.

There were no unusual incidents or accidents in connection with shipboard helicopter operations. The only difficulties encountered in their operation is attributed to the assigned helicopters being obsolescent. The CH-19E is not a good helicopter for ice reconnaissance due to its limited visibility. The TH-13N and UH-13P are superior in this respect. There is a definite need for IFF in helos to give positive radar detection and control over longer ranges when low cloud cover prevents climbing to higher altitude. There was some difficulty in navigation because most of the helos were not equipped with any electronics homing equipment. Maintenance of the helicopters aboard the USS GLACIER was greatly facilitated by its heated hangar. The other icebreakers do not have the benefit of a hangar, thus maintenance and operations become extremely difficult in low temperatures with only moderate winds. A hangar of some type is urgently needed on the Wind class icebreakers.

4. USAF Ninth Troop Carrier Squadron.

a. General.

The USAF Ninth Troop Carrier Squadron, commanded by Lt. Col. Foy B. FROST, USAF was designated for the fourth consecutive year as the U.S. Air Force agency to provide logistic airlift support using both conventional and airdrop methods of delivery. The selection of this experienced unit eliminated the necessity of preliminary orientation and training. Flight personnel requirements could not be completely fulfilled from the resources of the 9th Troop Carrier Squadron, and as a result, all flying organizations of the 63rd Troop Carrier Wing were called upon to aid in mainning the squadron flight crews. This was the final year for the participation of the Ninth Troop Carrier Squadron and its venerable C-124's in Operation DEEP FREEZE. It is regretted that the services of this fine organization and its supporting units will no longer be employed. The operation will be supported in DEEP FREEZE 64 by a new unit, the 1608th Troop Carrier Wing operating a new type aircraft, the C-130E, which is an outgrowth of the LC-130F (without skis), having much longer range and greater payload capability than the latter.

The lack of sufficient heavy airlift capability by Task Force 43 to move priority equipment, supplies and personnel from Christchurch, New Zealand, to Antarctica, plus the POL resupply of the inland scientific stations, generated the requirement for MATS heavy transport aircraft to participate in the logistic support mission. The original requirement for the MATS aircraft was to airlift approximately 600 tons of cargo and 700 personnel from Christchurch, N.Z., to McMurdo Sound, Antarctica, plus another 82 aerial deliveries to the various inland stations.

There are no alternate airfields in Antarctica and all flight plans are made accordingly. However, until about 15 November, an emergency landing could have been made on the bay ice at Hallett Station 350 miles to the north of McMurdo. C-124's were diverted to Hallett on 28 October when below minimum weather conditions occurred at Williams Field. However, Hallett Station is never used as an alternate in flight planning.

b. Pre-season Planning.

A planning conference was held at Christchurch, New Zealand, at the close of DEEP FREEZE 62. This conference aided both the United States Air Force and the United States Navy in establishing the airlift requirements for DEEP FREEZE 63 and was instrumental in determining the number of Air Force aircraft and crews that would be required. The data developed from this conference was used in all of the NINTH Troop Carrier Squadron planning phases.

A communications conference was conducted at Donaldson Air Force Base, South Carolina, on 4 June 1962. This conference was attended by representatives of MATS, EASTAF, 63rd Troop Carrier Wing, U.S. Navy Task Force 43 and other interested agencies. The primary purposes of the conference were to reach an agreement on a method of air traffic control and also to establish standard communications procedures to be used on the route between Christchurch and McMurdo Sound. Other subjects pertained to the types of communications gear to be utilized as well as some discussion on navigation equipment in the C-124 aircraft. This conference precipitated another conference in July with the New Zealand Civil Aeronautics Administration and government officials to establish the control procedures. As a result of the two conferences, the New Zealand government ultimately delegated certain aircraft control authority to Commander, Naval Support Forces, Antarctica and workable procedures were established prior to the beginning of flight operations. The requirements of the mission, as established by the planning conferences, dictated the utilization of nine C-124 aircraft and two SC-54 air rescue aircraft. The manpower requirements to maintain the aircraft, provide aerial port functions, weather forecasting support, communications, medical, administration, flight crews and augmenting base support, was originally established as 64 officers and 344 airmen. In addition to those flying personnel provided from the 63rd Troop Carrier Wing, personnel support was provided by Air Rescue Service, Air Weather Service, 1710 USAF Hospital, AFCS, EASTAF, and the

Air Defense Command. Various minor changes in the mission concept resulted in a final deployment of 60 officers and 343 airmen.

c. C-124 Operations.

To aid in the initial deployment of personnel, EASTAF was called upon to provide one C-135 aircraft for a personnel lift from Donaldson Air Force Base to Christchurch. The support C-135 aircraft and the first C-124 mission aircraft departed Donaldson Air Force Base on 7 September 1962. The last C-124 mission aircraft departed for Christchurch on 6 October 1962.

Original plans established by CTF-43 called for a new replacement ice runway for use by 1 October. This was delayed by shortages and breakdown of heavy construction equipment, and the runway was not ready until 5 October 1962.

The Commander of the 9th Troop Carrier Squadron departed Christchurch for McMurdo on 5 October in a LC-130F aircraft to inspect the runway and facilities prior to launching C-124 aircraft for landings on the newly constructed runway. The established criterion for the runway was 6000 feet long, 200 feet wide. Upon inspection it was found that the usable portion of the runway was only 5500 feet long and that there were runway areas which would not permit safe operation of wheeled aircraft. Thus, the departure of the C-124 aircraft from Christchurch was further delayed until 7 October while these flaws were corrected.

Approximately 26 turnaround flights were programmed to place high priority cargo and personnel into McMurdo before attempting air-drop missions at the inland sites. Factors governing this decision were primarily weather and temperature conditions at the inland sites that could hamper aircraft recovery operations early in the season.

The first twenty turnaround flights were completed before the parking ramp for wheeled aircraft adjacent to the landing strip had been completed. This meant only one aircraft could be accommodated at any one time and necessitated unloading, loading, and maintenance functions to be performed while the aircraft was parked on the landing strip. Refueling lines had to be extended from the original location in the proposed parking area to an area adjacent to the strip. This concept of operation prevented landings or take-off while these services were being performed and required a very close scheduling of turnaround aircraft. Fortunately, no extensive maintenance or loading delays were encountered while this condition existed. Thirty turnaround flights were made prior to the first drop at Byrd Station on 24 October 1962. The last drop was made at Eights Station on 10 December 1962.

Although the weather at McMurdo Sound is normally the principal factor in impeding the progress of the DEEP FREEZE operations, this season was different. The relatively small amount of time lost as a result of unsuitable weather was overshadowed by two major delays. One was the failure to complete the runway on schedule, which resulted in a

late start. The second was the failure to prepare a parking area for wheeled aircraft, which meant that since only one aircraft could be accommodated at a time, the full "turnaround" capability of the C-124 was not utilized. The cause for these was overaged equipment breakdown.

Both of these delays as well as the glaring omission of the programmed "cross wind" runway were attributed to the unfortunate choice of a runway site in an area of heavy and irregular "sastrugi" ice, which proved to be more than a match for the heavy construction equipment pitted against it. The attrition rate of the machinery was prohibitive, and with the lack of replacements, the construction program practically came to a standstill.

The cargo drop platforms used for the DEEP FREEZE 63 mission had been carried to the Antarctic continent at the close of the previous year's operation by ship. These rigged platforms had been placed in a cache and covered on the ice approximately one-half mile from the proposed new runway complex. The pre-positioning of this equipment eliminated approximately seven turnaround flights from Christchurch. At the same time, drummed POL for the operation was off-loaded from ships at the close of DEEP FREEZE 62. Original plans called for caching this POL adjacent to the cached drop platforms in order to expedite rigging and loading. This cache had been improperly stowed at the end of DEEP FREEZE 62 which made recovery and rigging extremely slow and difficult. Several additional delays were caused when equipment and manpower were not available to dig these POL drums out of the snow in order to rig them for dropping. The caching of fuel in DEEP FREEZE 63 was done in systematic and orderly manner and these problems should not recur in DEEP FREEZE 64.

Aviation gasoline for the C-124 operation was provided by a gravity-flow system from the McMurdo Tank Farm, through an assault pipe approximately five miles long, to a series of four fuel bags at the aircraft parking area. These bags had a total capacity of 50,000 gallons. During the first half of the operations, all bags had to be filled and then allowed to settle for three or four hours before fuel could be transferred from the bags to the aircraft. This system caused some delays during the first drop missions. This was late corrected by the installation of shut-off valves that would enable aircraft to load fuel from one bag while the other bags were being refilled. On one occasion, condensation in several sections of the fuel line froze and stopped the flow of fuel from the tank farm. This created a delay of 30 hours. A subsequent undetected rupture of the fuel line accounted for a loss of over 230,000 gallons of gasoline and resulted in a delay of several days during the mission. A formal investigation of this loss ensued, and will result in improved fuel handling procedures.

The lack of sufficient maneuvering space in the parking area for wheeled aircraft created several delays. The refueling area at the parking ramp could accommodate only two aircraft at a time. The congestion created by two or three C-124 aircraft, the R5D, R4D, P2V and

and the R7V, plus, on one occasion, a special C-121 Project Magnet aircraft, operating at various times and in various numbers, necessitated a chain movement of all aircraft. Some difficulty was experienced in removing some of the Navy aircraft after they had been refueled in order that other aircraft could be refueled.

Initially, the surface of the new runway appeared to be excellent and no problems were anticipated. The continued operation of the wheeled aircraft, plus inadequate equipment to properly maintain the runway, caused a rapid deterioration. Equipment was not available to cut down the high ice ridges. Instead, the low areas were flooded with sea water and allowed to freeze. As long as the temperatures remained -20°C or below, this was a reasonable solution. The warming trend during late October 1962 and early November 1962, however, resulted in the sea water ice, with its high saline content, turning to mush and slush, thus damaging the permanent ice below and creating holes and pits that would not allow for a safe operation of wheeled aircraft. By 18 November the runway had deteriorated to the extent that the 9th Troop Carrier Squadron Commander elected to cease all operations on the new strip and move to the old runway which was still in excellent condition.

The move to the old runway created more problems of refueling, transportation and housing. Additional refueling lines were required over the three and one-half mile expanse of ice to the old strip. The first plan of the base commander was to terminate this line at the end of the crosswind runway and have all aircraft taxi to this position for refueling. This plan was unacceptable because it would require aircraft to be taxied from the parking area either before or after loading and maintenance had been performed, and would also require a crew to be standing by at all times. Another limitation was that only one aircraft at a time could be on the fuel pit. As long as this aircraft was on the pit, the cross-wind runway could not be used. The final decision was made to locate the refueling pit in the parking area to permit loading, maintenance and refueling without having to move aircraft. Seven days were required to complete this change during which all C-124 aircraft and crews were returned to Christchurch to await readiness of the old runway facilities.

The programmed air drops at Byrd Station and Pole Station progressed at a constant rate during latter October and early November 1962 and were completed by the time the aircraft returned to Christchurch to await the move to the old runway. During this period, a decision was made to redeploy four aircraft and crews along with some support personnel to Donaldson Air Force Base. Five aircraft and eight crews were retained to complete the mission. Four aircraft and six crews were deployed to McMurdo on 24 November 1962 to accomplish the remaining 24 drops to Eights Station.

The loss of 230,000 gallons of 115/145 aviation fuel required a re-evaluation of the drop and turnaround commitments. The fuel shortage was expected to be relieved with the arrival of the icebreakers and the

tankers. These ships, however, were experiencing difficulty in breaking a channel to reach an off-loading position. The situation was further aggravated by the failure of the PM-3A atomic reactor that had been supplying electrical power to the McMurdo camp. The reactor failure necessitated holding the diesel fuel oil which originally was scheduled for the Eights Station drop to provide fuel for generator power and heat at McMurdo.

Late in November a request was made to the 9th Troop Carrier Squadron for an additional 20 air drops at Byrd and Pole in order to insure delivery of the POL and to reduce the possibility of having to request additional airlift from MATS late in the season with the accompanying large increase in costs for deploying their aircraft. This situation developed because the drummed diesel to be carried by the LC-130F's was consumed by McMurdo Station, and difficulties developed with the aircraft skis. This request was made prior to the completion of the Eights Station drops. In view of the time element involved and the amount of flying time being accumulated by the flight crews, command assistance on the decision to make these additional drops was requested by the 9th Troop Carrier Squadron Command of higher headquarters. Approval of the request was granted and plans were made to accomplish the drops during and after the completion of the Eights Station drops. The arrival of 200,000 gallons of aviation gasoline on a tanker relieved the fuel shortage to some extent but there was still insufficient fuel to complete the Eights Station drops and the additional drops requested for Pole and Byrd. As a result, only fifteen of the additional drops were completed.

The drops at Eights Station had been programmed to begin on 5 November 1962, but due to the many delays mentioned above and some weather problems, the first drop was not accomplished until 18 November 1962. The station had been established during DEEP FREEZE 62 and there was an ample amount of personnel and equipment in place for recovery purposes. Free-fall delivery methods, using extraction chutes, were effected for all Eights Station drops with no difficulty. The last Eights Station drop and the last drop of the operation was completed on 8 December 1962. Redeployment to Christchurch of all United States Air Force aircraft, equipment and personnel was accomplished on 11 December 1962.

5. MATS Special Mission Passenger Airlift.

a. C-118 and C-135 Operations.

During the deployment phase from July through November 1962, 24 passenger-cargo configured C-118's carried personnel and equipment from CONUS to New Zealand. Mechanical difficulties and attendant delays on route became the rule rather than the exception during this phase.

For the redeployment phase from New Zealand to CONUS, MATS employed C-135's for the first time. The advantages of this aircraft over the C-118's previously used was evident. See the comparison chart on

page 42. However, the Christchurch runways were too short to permit take-offs with sufficient fuel to fly direct to Hickam AFB, Honolulu. Therefore, on the northbound flights all aircraft landed at Pago Pago, American Samoa, for fuel. On 13 Feburary, the extension of the main runway at Christchurch was commenced, and after that all C-135 operations were required to operate outside of normal working hours in order to prevent interference with construction. C-135 operations were hampered further by the requirement for these aircraft to arrive at Pago Pago during normal daylight operating hours. As a result, the C-135's arrived at and departed from Christchurch between the hours of 0600-0800 local. The Christchurch runway construction is planned to be completed by 31 October 1963. Then it is anticipated that all C-135's will be able to fly non-stop between Christchurch and Honolulu.

Due to the speed of the C-135's, flight advisories, departure reports, arrival reports, and delay reports were not received at either the Christchurch Headquarters or the Washington, D.C. Headquarters in time to take appropriate action on several occasions. Particular difficulty was experienced in arrivals at Christchurch as the C-135's flew non-stop from Hickam AFB and arrived within an hour of their departure message. This caused considerable difficulty as New Zealand Customs and Agriculture Officers had to be alerted and arrangements made for handling the incoming passengers. The problem will be rectified by having C-135 commanders pass continuous flight information to the Task Force Flight Following Section in Christchurch via SSB radio on all flights to and from CONUS.

C-135's are configured to carry 75 passengers, with each passenger being allowed 100 lbs of baggage. This allowance has proved satisfactory for personal gear but very little additional cargo such as hand-carried equipment, rock samples, unit files, and high priority cargo can be accommodated due to space limitations rather than maximum aircraft load limitations. However, man-days and per diem saved by use of the C-135 compensated for this.

COMPARISON OF C-118 AND C-135 FLIGHT SCHEDULES

| | HOURS C-118 ENROUTE TIME | HOURS C-118 CREW REST & REFUEL | C-135's | HOURS C-135 ENROUTE TIME | HOURS C-135 CREW REST & REFUEL |
|---|---|---|---|---|---|
| Quonset Point to Lincoln, Neb. | 6 | 2 | Quonset Pt. to Hickam | 12½ | 15 |
| Lincoln to Travis | 6 | 18 | Hickam to Christchurch | 9½ | 24 |
| Travis to Hickam | 11½ | 15 | Christchurch to Pago Pago | 4½ | 1½ |
| Hickam to Canton | 8½ | 2 | Pago Pago to Hickam | 5½ | 15 |
| Canton to Nandi | 5½ | 2 | Hickam to Quonset Pt. (See Note) | 10 | |
| Nandi to Christchurch | 7½ | 48 | | | |
| Christchurch to Nandi | 8 | 2 | | | |
| Nandi to Canton | 5½ | 2 | | | |
| Canton to Hickam | 8 | 24 | | | |
| Hickam to Travis | 10 | 15 | | | |
| Travis to Quonset Point | 11 | | | | |
| | 87½ | 130 | | 42 | 55½ |
| Total Elapsed Time Round Trip | 217½ hrs. | | | 97½ hrs. | |

NOTE: Approximately half of the C-135 Special Mission C-135 flights are required to stop at either Andrews AFB or Travis AFB, and sometimes both, adding approximately 3 hours flight time and 7 hours elapsed time.

b. C-124 Special Mission Operations.

These special mission operations are distinguished from the C-124 operations of the 9th Troop Carrier Squadron in that the latter is a preconceived planned-for operation whereas the former missions are ordered as required. These flights usually consist of airlift of urgently required cargo from CONUS to New Zealand or vice versa. On one occasion, a flight from CONUS to McMurdo was required to deliver an urgently required replacement LH-34D helicopter. Six special mission flights were utilized during DEEP FREEZE 63.

6. Statistics on Air Operations.

a. AIRDEVRON SIX Air Operations.

LC-130F (4 AIRCRAFT)

BYRD STATION

| | |
|---|---|
| Flights (See Note 1) includes 3 flights to Sub-Aurora Station | 198 |
| Tonnage Delivered (See Note 2) | 2,103.63 |
| Tonnage Backloaded | 294.49 |
| Passengers Delivered | 530 |
| Passengers Backloaded | 441 |
| Average Tonnage per flight | 10.79 |

SOUTH POLE STATION

| | |
|---|---|
| Flights | 107 |
| Tonnage Delivered | 2,244.79 |
| Tonnage Backloaded | 156.46 |
| Passengers Delivered | 460 |
| Passengers Backloaded | 470 |
| Average Tonnage per flight | 11.63 |

EIGHTS STATION

| | |
|---|---|
| Flights | 40 |
| Tonnage Delivered | 306.31 |
| Tonnage Backloaded | 67.43 |
| Passengers Delivered | 118 |
| Passengers Backloaded | 121 |
| Average Tonnage per flight | 7.97 |

HALLETT STATION

| | |
|---|---|
| Flights | 4 |
| Tonnage Delivered | 73.23 |
| Tonnage Backloaded | 6.56 |
| Passengers Delivered | 38 |
| Passengers Backloaded | 15 |
| Average Tonnage per flight | 12.20 |

BEARDMORE STATION

| | |
|---|---|
| Flights | 12.5 |
| Tonnage Delivered | 141.87 |
| Tonnage Backloaded | 28.83 |
| Passengers Delivered | 66 |
| Passengers Backloaded | 71 |
| Average Tonnage per flight | 11.35 |

LITTLE ROCKFORD STATION

| | |
|---|---|
| Flights | 7 |
| Tonnage Delivered | 41.86 |
| Tonnage Backloaded | 13.12 |
| Passengers Delivered | 52 |
| Passengers Backloaded | 56 |
| Average Tonnage per flight | 5.98 |

SPECIAL FLIGHTS (Field Parties, Recon., etc.)

| | |
|---|---|
| Flights | 12.5 |
| Tonnage Delivered | 78.21 |
| Tonnage Backloaded | 13.65 |
| Passengers Delivered | 19 |
| Passengers Backloaded | 23 |
| Average Tonnage per flight | 6.25 |

LC-130F OTHER FLIGHTS

QUONSET PT. - CHRISTCHURCH - QUONSET PT.

| | |
|---|---|
| Flights | 4 |
| Tonnage Delivered | 26.59 |
| Tonnage Backloaded | 41.54 |
| Passengers Delivered (Christchurch) | 15 |
| Passengers Backloaded | 13 |
| Average Tons per flight | 6.65 |

QUONSET PT.-CHRISTCHURCH - ATLANTA

| | |
|---|---|
| Flights | 4 |
| Tonnage Delivered | 16.35 |
| Tonnage Backloaded | 4.14 |
| Passengers Delivered (Christchurch) | 24 |
| Passengers Backloaded | 22 |
| Average Tons per flight | 4.09 |

CHRISTCHURCH - MCMURDO - CHRISTCHURCH

| | |
|---|---|
| Flights | 24 |
| Tonnage Delivered | 116.81 |
| Tonnage Backloaded | 57.73 |
| Passengers Delivered | 216 |
| Passengers Backloaded | 252 |
| Average Tons per flight | 4.87 |

LC-130F SUMMARY OF FLIGHTS TO INLAND ANTARCTIC STATION

| | |
|---|---|
| Total Flights Completed | 382 |
| Total Flight Time (Hours) | 2,738.40 |
| Total Tonnage Delivered | 3,990.20 |
| Total Tonnage Backloaded | 580.04 |
| Total Passengers Delivered | 1,283 |
| Total Passengers Backloaded | 1,197 |
| Average Tons per trip | 10.42 |
| TOTAL DF 63 FLIGHT TIME (SEE NOTE 3) | 3,877 |

C-121J (one aircraft)

CHRISTCHURCH - MCMURDO - CHRISTCHURCH

| | |
|---|---|
| Flights | 23 |
| Passengers Delivered to McMurdo | 746 |
| Passengers Backloaded | 797 |
| Tonnage to McMurdo (See note 2) | 107.5 |
| Tonnage Backloaded | 8 |

QUONSET PT. - CHRISTCHURCH - QUONSET PT.

| | |
|---|---|
| Flights | 3 |
| Passengers Delivered to Christchurch | 113 |
| Passengers Delivered to CONUS | 116 |
| Tonnage Delivered to Christchurch | 3.96 |

OTHER FLIGHTS (Utility, Test, Aborts, etc.)

| | |
|---|---|
| Flights | 24 |
| Hours | 181.6 |

UH-1B FLIGHTS

| | |
|---|---|
| Number of flights | 142 |
| Total Hours Flown | 216.8 |
| Hours in Support - TOPO WEST | 85.3 |
| Hours in Support - TOPO EAST | 83.2 |
| Passengers Carried - Topo Program | 400 |
| Tonnage Carried - Topo Program (See Note 2) | 114 |
| Tonnage Carried - Utility Flights | 48.2 |

NOTE: 1. Includes 3 flights to Byrd - Aurora Substation.
2. All tonnage figures include passenger tonnage.
3. Includes all flight time between departure from and return to Quonset Point.

C54-Q (one aircraft)

| | |
|---|---|
| Hours flown | 341 |
| Tonnage carried (includes passengers) | 73.1 |
| Passengers Carried | 305 |
| JATO used | 54 |

LC-47/117D (average 4 aircraft)

| | |
|---|---|
| Hours flown | 1,319 |
| Flights | 260 |
| Total Passengers | 452 |
| Tonnage Carried (exclusive of passengers) | 158.6 |
| JATO used | |

LP-2J (2 aircraft)

| | |
|---|---|
| Hours flown | 549 |
| Flight Line Miles Flown | 8,682 |
| Passengers Carried | 10 |
| Cargo | 0 |
| JATO Expanded | 428 |

U1-B (2 aircraft)

| | |
|---|---|
| Hours flown | 337 |
| Passengers Carried | 158 |
| Tonnage Carried (excludes passengers) | 29.5 |

LH-34D (average 3 aircraft)

| | |
|---|---|
| Hours flown | 840 |
| Passengers Carried | 2,173 |
| Tonnage Delivered (excludes passengers) | 115 |

b. Icebreaker Helicopters

| UNIT | SHIP | AIRCRAFT | FLIGHTS | HOURS |
|---|---|---|---|---|
| HU-4 DET 88 | USS GLACIER | 2 CH-19E | 242 | 278 |
| HU-4 DET 81 | USCGC EASTWIND | 1 CH-19E | 104 | 203 |
| | | 1 TH-13N | 85 | 139 |
| HU-4 DET 86 | USS EDISTO | 1 CH-19E | 159 | 239 |
| | | 1 TH-13N | 128 | 143 |
| HU-1 DET 43 | USS STATEN ISLAND | 1 CH-19E | (270)* | 184.5 |
| | | 1 UH-13P | — | 200.8 |
| | | TOTAL | 988 | 1387.3 |

* Total CH-19E and UH-13P flights by Staten Island Detachment.

c. Army Air Operations.

Army HU-1B

| | |
|---|---|
| Hours flown | 216.8 |
| Number of Flights | 142 |
| Passengers Carried | 400 |
| Tonnage Carried (exclusive of passengers) | 13.4 |

d. Air Force Operations.

NINTH Troop Carrier Squadron (Nine C-124's)

| | |
|---|---|
| Total Hours flown | 3,362.40 |
| Total turnaround flights (See note) | 58 |
| Total tons gross (Christchurch to McMurdo) | 574.7 |
| Total tons gross (McMurdo to Christchurch) | 211.1 |
| Total Passengers (Christchurch to McMurdo) | 592 |
| Total Passengers (McMurdo to Christchurch) | 273 |
| Total Drops | 95 |
| Total Gross Tons Dropped | 1,536 |
| Aircraft Daily Utilization Rate | 4.80 |

NOTE: The statistics above do not reflect the valuable ice-reconnaissance obtained on 25 of the Christchurch-McMurdo turnaround flights.

e. MATS Special Mission Passenger Airlift.

| | | CONUS TO NZ | | NZ TO CONUS | |
|---|---|---|---|---|---|
| | | PAX | CARGO (LBS) | PAX | CARGO (LBS) |
| 24 C-118s | 15 July-3 Dec 1962 | 1,229 | 22,000 | 358 | 6,000 |
| 14 C-135s | 9 Feb-1 April 1963 | 68 | 206,000 | 963 | 27,300 |
| | TOTALS | 1,297 | 228,000 | 1,351 | 33,300 |

MATS Special Mission Cargo Airlift (C-124 aircraft)

CONUS - CHRISTCHURCH

| | |
|---|---|
| Flights | 6 |
| Tonnage | 66 |
| Passengers | 20 |

CHRISTCHURCH - CONUS

| | |
|---|---|
| Flights | 6 |
| Tonnage | 19 |
| Passengers | 55 |

CHRISTCHURCH - MCMURDO

| | |
|---|---|
| Flights | 1 |
| Tonnage | 9.5 |
| Passengers | 0 |

MCMURDO - CHRISTCHURCH

| | |
|---|---|
| Flights | 1 |
| Passengers | 40 |

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

a. It was recommended that off-season commitments for LC-130F aircraft attached to Air Development Squadron SIX be curtailed and that only the minimum amount of time consistent with training requirements and good maintenance practices be permitted. This is being accomplished on a continuing basis. Outside commitments are inevitable but all echelons have been made aware of the possible effects on Operation DEEP FREEZE of excessive flight time on these aircraft during the off-season.

b. It was recommended that airlifts, which would entail extended periods away from Quonset Point, be scheduled only in emergencies. Commands which are interested in the utilization of these aircraft have been made aware of this requirement.

c. It was recommended that additional LC-130F aircraft be procured and made available to Air Development Squadron SIX prior to the commencement of DEEP FREEZE 65. A staff study was accomplished and forwarded through the chain of command to CNO. This study recommended that four additional C-130E aircraft be procured. This study has progressed through the office of the Chief of Naval Operations and has been approved at all echelons to date.

d. It was recommended that the LP-2J aircraft not be replaced and that LC-130F aircraft be configured for aerial photography. This was included in the staff study mentioned in paragraph c. above.

e. It was recommended that efforts be made to obtain turbine driven, ramp loading, long range helicopters to replace the LC-47/LC-117's. This item has been included in the Task Force 43 "Long Range Plan".

f. It was recommended that Air Development Squadron SIX be assigned six additional LH-34D helicopters and operating personnel for shuttle service between McMurdo Station and Williams Field. This recommendation is still pending.

2. DEEP FREEZE 63 Comments and Recommendations.

a. In support of DEEP FREEZE 63 the four LC-130F's flew a total of 3,817 hours including deployment/redeployment time. This leaves only 923 hours remaining for training and airlift missions during the northern summer season if all 4,800 hours (1,000 hours plus two 10% extensions per aircraft) are available between Progressive Aircraft Rework (PAR) periods. A reduction in LC-130F employment in future operations is not possible without increasing Air Force support with wheeled aircraft and airdrops which greatly complicates and increases the cost of the operation. All available LC-130F hours are required for the support of DEEP FREEZE airlift requirements and VX-6 training.

IT IS RECOMMENDED THAT:

(1) NO AIRLIFT REQUIREMENTS BE PLACED ON VX-6 AIRCRAFT DURING THE NORTHERN SUMMER SEASON UNLESS THEY ARE COMPATIBLE WITH THE SQUADRON TRAINING SYLLABUS AND PLANNED DEEP FREEZE OPERATIONS.

(2) AFTER EACH INDIVIDUAL LC-130F AIRCRAFT COMPLETES PAR, ONLY THE MINIMUM AMOUNT OF FLIGHT TIME, IN CONSONANCE WITH THE TRAINING SYLLABUS AND GOOD MAINTENANCE PRACTICES, BE PUT ON THE AIRCRAFT.

(3) ALL AIRLIFT FOR OTHER ACTIVITIES BE RESTRICTED TO THE PERIOD BETWEEN REDEPLOYMENT TO CONUS AND INDUCTION OF THE AIRCRAFT INTO PAR IF THE TRAINING SYLLABUS PERMITS.

b. During the northern summer season VX-6 is requested to perform airlift missions that require extended deployment. Since there are usually only two LC-130F available during this period, aircraft availability for basic training is reduced.

IT IS RECOMMENDED THAT AIRLIFTS IN THE NON-OPERATING SEASON WHICH ENTAIL EXTENDED PERIODS AWAY FROM QUONSET POINT BE GRANTED ONLY IN EMERGENCIES.

c. Airlift requirements in Antarctica demand every available hour that can be obtained from the four LC-130F's. This heavy requirement will continue for several years. The loss of one LC-130F during the Antarctic summer support season would drastically reduce the logistic support capability to the inland stations and the Scientific programs and would require costly emergency measures such as deployment of additional MATS aircraft.

IT IS RECOMMENDED THAT FOUR SUPPLEMENTAL C-130E's WITH SKIS BE PROCURED IMMEDIATELY.

d. Several areas require trimetrogon photography by the LP-2J's which could not be obtained due to their limited range. Areas scheduled in future operations are beyond the limited range of the LP-2J's unless costly advance bases are established.

IT IS RECOMMENDED THAT ONE OF THE FOUR C-130E's RECOMMENDED ABOVE FOR PROCUREMENT BE CONFIGURED FOR PHOTOGRAPHY.

e. The most hazardous flight operation in the Antarctic is the landing and take-off of the LC-47 aircraft in unfamiliar and remote areas. These operations caused the loss of one LC-117D in DEEP FREEZE 62; one LC-117D and one LC-47 in DEEP FREEZE 63. Additional losses can be expected each season.

IT IS RECOMMENDED THAT ALL POSSIBLE EFFORTS BE MADE TO OBTAIN TWIN TURBINE, RAMP LOADING, LONG RANGE HELICOPTERS OR STOL AIRCRAFT TO REPLACE THE LC-47's and LC-117D's.

f. Many man hours are lost at McMurdo due to slow transportation between the main camp and the ice runway or skiway. When the sea ice is still present the trip by vehicle to the ice runway takes 30 to 45 minutes one way. However, vehicle transportation is not always available. After the sea ice becomes unsafe, it is necessary to travel a long circuitous route around Scott Base to the ice runway which takes two to three hours one way. It also takes one hour to reach the skiway on the Ross Ice Shelf.

IT IS AGAIN RECOMMENDED THAT AIR DEVELOPMENT SQUADRON SIX BE ASSIGNED SIX ADDITIONAL LH-34D's OR SIMILAR HELICOPTERS AND OPERATING PERSONNEL FOR SHUTTLE SERVICE BETWEEN THE MAIN CAMP AND WILLIAMS FIELD.

g. The usefulness of the Ul-B "Otter" has diminished during the past few years. The LC-47's and the helicopters can do everything that the Otter does and do it better.

IT IS RECOMMENDED THAT THE OTTERS BE REPLACED WITH HU-1B's.

h. Helicopters assigned to icebreakers are inadequately instrumented for operation when cloud cover is low and radar cannot pick them up over the horizon.

IT IS RECOMMENDED THAT ADEQUATE INSTRUMENTATION INCLUDING LF ADF BE PROVIDED IN HELICOPTERS ASSIGNED TO ICEBREAKERS.

i. Many SAR flights are made by the LC-47's and LH-34D's to ascertain the condition of scientific field parties after they have not been heard from for five days. Such flights have often interfered with other planned missions.

IT IS RECOMMENDED THAT ALL FIELD PARTIES BE PROVIDED WITH ADEQUATE RADIO TRANSMITTERS AND RECEIVERS, BE INSTRUCTED TO MEET ALL RADIO SCHEDULES, AND GIVE BEST POSSIBLE WEATHER REPORTS, INCLUDING SURFACE LANDING CONDITIONS. Portable UHF Voice Radio equipment for use by field parties for both Voice Communications and UHF Homing has been requested from Bureau of Naval Weapons for use in the Antarctic during DEEP FREEZE 64.

j. Piston-powered LH-34D helicopters require excessive warm-up time, do not have the altitude capability desired, and are not air-transportable. Army HU-1B's have these desired characteristics plus excellent visibility; however, due to Army commitments their HU-1B's cannot be guaranteed for use indefinitely in Operation DEEP FREEZE.

IT IS RECOMMENDED THAT SIX HU-1B's OR SIMILAR HELICOPTERS BE PROCURED AS SOON AS POSSIBLE FOR TOTAL REPLACEMENT OF THE Ul-B OTTER AND PARTIAL REPLACEMENT OF THE LH-34D.

## SECTION C. TRAIL OPERATIONS

1. Marble Point.

a. The mission of the traverse was to:

(1) Re-establish the unoccupied camp at Marble Point as a survival station.

(2) Salvage all usable material, equipment and supplies.

(3) Furnish daily weather reports.

b. Activities.

(1) The trail party staged at McMurdo and departed for Marble Point (Lat. 77°26'S, Long. 163°48'E) on 13 November 1962. The sixty-mile journey over sea ice was made, without incident, in 12 hours. On arrival, a Jamesway Hut was repaired and living quarters established. Salvage and rehabilitation of the camp began the next day.

Working a minimum of 14 hours a day for the following two weeks, the camp was cleaned up, all buildings repaired, food and fuel caches established, survival gear located strategically, and all salvagable material either retrograded by airlift (VX-6) or loaded on sleds.

A standard T-14 International tractor with boom was repaired and utilized around camp. Before departure on 4 December 1962 a complete inventory of material and location was made. The return journey was made without incident, although considerable trouble was encountered on the rafted pack ice.

c. Personnel.

Traverse group was composed as follows:

1. Chief Warrant Officer, USA, CTG 43.5
2. Equipment Operator, EOH2, USN
3. Equipment Operator, EON3, USN
4. Equipment Operator, EOH3, USN
5. Equipment Operator, EOCN, USN
6. Radioman, RM2, USN

d. Basic Equipment.

| | | |
|---|---|---|
| 4T10 | Trackmaster | Navigational Vehicle |
| 4T2 | Trackmaster | Cargo |
| 1-ton | Sled | Cargo |
| Survival | equipment | |

e. Salvaged Equipment.

(1) T-14 International tractor with boom
(2) M29C Weasel
(3) 1½ ton wheel trailer
(4) 3-ton wheel trailer
(5) Miscellaneous spare parts for standard D-9 tractor, 8,000 gallons diesel fuel (approx.)

f. Disposition of salvaged materials and records.

All mobile equipment was delivered to Commander, Antarctic Support Activities at McMurdo. Inventories of retrograded material and Marble Point Station property were also reported.

2. Eights Station.

a. Mission.

(1) To deliver heavy equipment to Eights Station (Lat. 72°19S, Long. 170°18'W) to be used in the planned construction and improvement of the station.

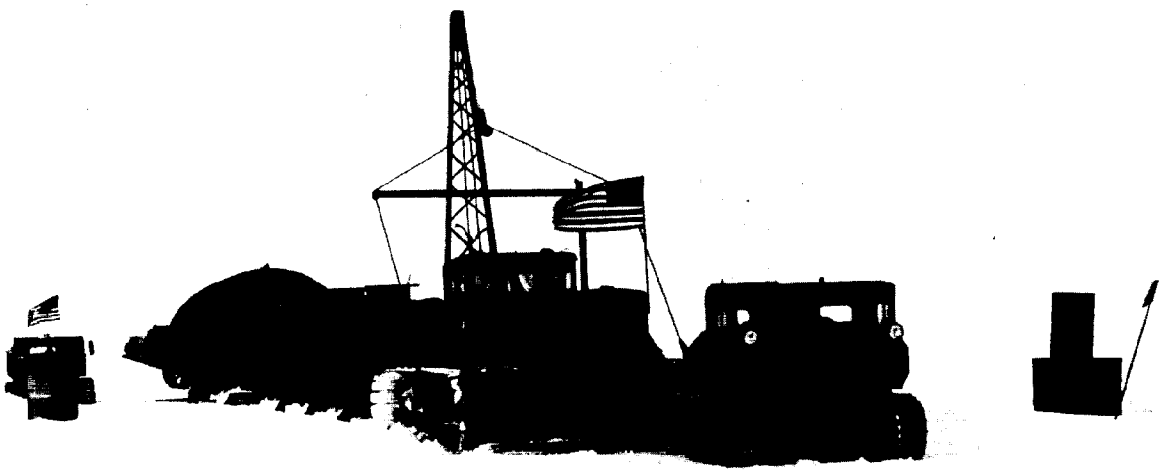


Figure 6. Byrd Station-Eights Station travers enroute to Eights Station. This traverse traveled a distance of 846 miles in 42 days.

(2) Mark a safe passage trail from Byrd Station to Eights Station.

(3) Furnish daily weather reports.

b. Activities.

Task Group 43.5 assembled at Byrd Station on 16 December 1962. Here final preparations were made, mobile equipment checked and supplies inventoried. A reconnaissance flight over the proposed trail was made by traverse members on 17 December 1962. At 2020Z on 20 December 1962 the traverse party departed Byrd Station on a true course of 081 degrees. Good progress was made although the party was hampered by inclement weather and many days of travel were lost. On 6 January 1963 the traverse sighted the Sentinel Mountain Range and also experienced the first mechanical breakdown. The LGP D-8 had a broken valve push-rod, which was rapidly repaired using a stud, some baling wire, and two ten-penny nails. Continually hampered by weather, slow progress was made until on 16 January 1963 the traverse was brought to a complete halt by a major breakdown of LGP D-8 Caterpillar Tractor. Investigation revealed a broken recoil spring, and the inter and outer bearing and seals were damaged beyond repair. A message was dispatched to McMurdo requesting necessary air support and repair parts. These were delivered by VX-6 on the 24th and by 1700Z the 25th the traverse was underway. A course change to 060° true was made on 29 January and Eights Station was sighted 31 January 1963. The following is an extract from the Log.

31 January 1963

0330Z Trail party arrived Eights Station after traveling 846.3 statute miles in 40 days or 257.9 hours, averaging 30.2 miles per day of actual days traveled. The trail party was evacuated on 14 February 1963, and returned to McMurdo Station.

c. Personnel.

(1) Chief Warrant Officer, CWO-3, USA, CTG 43.5
(2) Construction Mechanic, CM1, USN
(3) Equipment Operator, EOH2, USN
(4) Equipment Operator, EON3, USN
(5) Equipment Operator, EOH3, USN
(6) Equipment Operator, EOCN, USN
(7) Photographer, PH1, USN
(8) Radioman, RM2, USN

d. Equipment.

| | | | |
|---|---|---|---|
| (1) | LGP D-8 | w/Boom and Blade | Prime mover |
| (2) | 4T10 | Trackmaster | Navigation vehicle |
| (3) | 4T2 | Trackmaster | Cargo vehicle |
| (4) | Three | 1-ton sleds | Survival and Poles |
| (5) | Two | 10-ton sleds | Poles and Rations |
| (6) | One | 20-ton sled | Mounted with four sections of Jamesway for berthing and messing. |

| | |
|---|---|
| (7) Fuel | 82 drums diesel, 10 drums mogas, 1 drum 9170 oil, 1 drum anti-freeze, 1 drum white gas. |
| (8) Food | Nine pounds food per man per day for 45 days. Also 5 cases 10-1 emergency food rations. |

e. Disposition of Equipment.

All equipment, except the 4T2 Trackmaster and special navigation gear, was turned over to Eights Station leader.

f. Conclusions.

(1) Communication equipment, Collins KWM2-A SSB, proved completely satisfactory in all respects.

(2) The "Piggy Back" generators mounted on the two Trackmasters were completely reliable for all SSB transmissions. The only deficiency noted was mechanical failure of mounting brackets and drive belts, which were easily repaired.

(3) The light reconnaissance vehicles, Trackmasters, were reliable and efficient in all respects.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

a. It was recommended that action be taken to remark the trail from Little America V to Byrd Station. This is still pending.

b. It was recommended that Fashion Lane, be rehabilitated during during DEEP FREEZE 63. This is still pending.

c. It was recommended that all prospective trail party personnel be thoroughly oriented in trail operations prior to being sent to Antarctica. In this respect the best qualified personnel were made available for trail operations. Limited operations during DEEP FREEZE 63 negated the requirement for extensive special training.

d. It was recommended that equipment to be utilized in trail operations be placed in a proper state of repair. New trail vehicles were purchased this year. The old D-8 to be delivered from Byrd Station to Eights Station was put in the best practicable condition prior to departing from Byrd Station.

2. DEEP FREEZE 63 Comments and Recommendations.

a. The recommendation contained in paragraphs 1a. and 1b. above were made on the premise that a requirement existed for the overland delivery of bulk fuel to Byrd Station from the Little America area. This program has been abandoned in favor of aerial delivery of bulk fuel.

IT IS RECOMMENDED THAT THE TRAIL FROM LITTLE AMERICA TO BYRD STATION NOT BE MAINTAINED ANNUALLY BUT RATHER REESTABLISHED ON AN "AS REQUIRED" BASIS.

## SECTION D. BASE OPERATIONS

McMurdo Sound.

1. General.

There are two stations in the McMurdo Sound area; namely, McMurdo Station and New Williams Field. McMurdo Station is located on Ross Island between Hut Point and Cape Armitage. New Williams Field is located on the shelf ice at 77°55'S latitude 166°37' longitude approximately 4 miles from McMurdo Station.

2. McMurdo Station.

McMurdo Station is the primary Antarctic supply point for all of the U. S. Antarctic stations. With the single exception of equipment and supplies offloaded from ships at Hallett Station, all personnel and materials pass through either McMurdo Station or its satellite, New Williams Field. Also, McMurdo Station is the command post for Commander, Antarctic Support Activities during the summer operating season and for Commander, U. S. Naval Support Force, Antarctica while he is operating in Antarctica. All cargo arriving and departing the Antarctic is controlled by the Antarctic Support Activities supply officer at McMurdo Station.

a. Air Operations.

Aircraft operations at McMurdo Station are limited to helicopter operations and fixed wing aircraft operating entirely from nearby Williams Field. Helicopter logistic support from McMurdo Station is limited to passenger and cargo lifts to areas of scientific interest and to Williams Field. Flight following, SAR, and weather analysis and forecasting is conducted at McMurdo Station. These latter establishments are of a permanent nature and are maintained where reliable communications are available.

b. Ship Operations.

Ship offloading operations consisted of tanker offloading operations, which entailed the laying of considerable four inch hose from Hut Point to the tankers position, and cargo ship offloading. These operations were contingent upon the proximity of the ship position to Hut Point. Early in the season the icebreakers cut a channel through the unbroken ice that covers McMurdo Sound, and then escort the cargo ships to the offloading point. It is not possible to cut the channel to Hut Point until after mid-season, so it is necessary to commence offloading at a considerable distance from the station early in the season. During DEEP FREEZE 63 the first offloading site was 7.2 miles from Hut Point. At this site USNS CHATTAHOOCHEE and USNS MIRFAK were unloaded. The petroleum products from CHATTAHOOCHEE were piped ashore through four inch hose and the dry cargo from MIRFAK was hauled ashore by

tractor train. The second offloading site was seven miles from McMurdo Station at which point the USNS MERRELL and USS ARNEB were unloaded. The third offloading site was alongside the old permanent ice adjacent to the old air facility about three miles from McMurdo Station. The ARNEB and HMNZS ENDEAVOUR were offloaded and backloaded from this site. This was the ARNEB's last trip of the season, and supplies were inventoried and stowed at either Williams Field or McMurdo Station as the unloading progressed. A detachment from Cargo Handling Battalion ONE was assigned duty with Commander, Antarctic Support Activities for the purpose of unloading all ships arriving in Antarctica. Another small detachment of this battalion was located at Port Lyttelton in New Zealand for the purpose of handling cargo loading and unloading at that port.

3. New Williams Field.

DEEP FREEZE 63 marked the first year in which New Williams Field became a facility for year around occupancy. With the construction of a new runway about 3 miles south of the old one it was necessary to move a considerable amount of heavy equipment to the area. The number of personnel to maintain and operate this equipment during the winter months necessitated that a semi-permanent camp be constructed. Williams Field today is predominately a semi-permanent Jamesway camp capable of supporting approximately 350 persons. The facility consists of a single runway and skiway with required air navigational aids for making precision GCA and range approaches.

a. Runways.

Because of the threat of the ice runways breaking off and drifting to sea it was decided during DEEP FREEZE 62 that a new air facility should be constructed further to the south that was not likely to break out for several years. Runway construction commenced soon after the close of DEEP FREEZE 62 and continued well into DEEP FREEZE 63. Numerous delays were encountered because of mechanical problems arising from the operation of heavy equipment. To make a satisfactory snow runway it was necessary to remove about four to eight feet of snow covering the bare ice. When the ice surface was reached it was found to be quite rough and deeply rippled. It was possible to smooth out this ice with salt water by pumping from below through holes in the ice. This provided enough water to level the runway area and was more easily worked into a surface to support wheeled aircraft. As the season progressed and when the ice temperature reached -12° Centigrade the ice runway began to "pot-hole" and became slushy. Glaciologists estimate that it may take a year or more for this salt to leach out and for the ice to become fresh water ice. The runways at the previous site about 3 miles away had not broken away and were still in excellent condition; so it was decided to move wheeled operations to the old site. This meant that refueling pits, maintenance facilities and personnel shelters had to be reestablished. This was accomplished and all wheeled aircraft operations were conducted from that point for the remainder of the season.

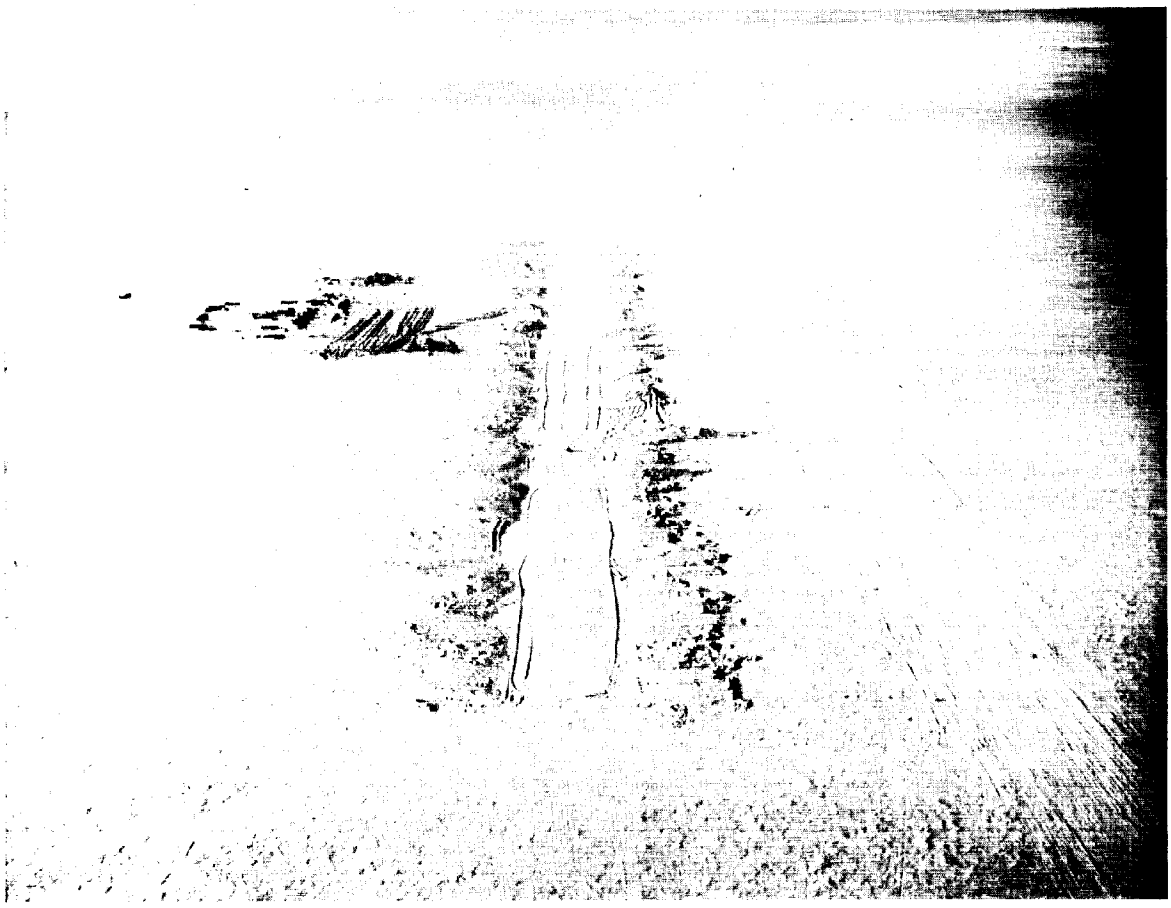


Figure 7. Aerial view of "New" Williams Field, McMurdo Sound, Antarctica. Runway for wheeled aircraft is shown nearing completion on 3 October 1962. Skiway is shown at right and was completed several weeks earlier. Ice runways for wheeled aircraft are difficult and expensive to construct and maintain as compared to skiways.

Figure 8. Wheeled aircraft parking area at "New" Williams Field, McMurdo Sound, Antarctica nearing completion on 11 October 1962.

b. Skiway.

A skiway was constructed parallel to the ice runway for the use of ski-equipped aircraft. No unusual problems were encountered. Skiways are quickly and simply constructed and amount to nothing more than smoothing the surface snow with a drag or snow planer. The skiway was operated for the entire season with no problems.

c. Fuel.

Two types of aviation POL products were required at Williams Field, 115/145 aviation gasoline and JP-4 jet fuel. This necessitated two four inch lines from the storage tanks at McMurdo Station to Williams Field four miles away. Eight bladders of 10,000 and 15,000 gallon capacity were installed at Williams Field and the aircraft were refueled from them. The fuel operation, as in past DEEP FREEZE operations was plagued with losses of fuel in quantity. These losses occurred with breaks in the fuel hoses. It was necessary to keep a continuous patrol on the fuel lines to keep such losses at a minimum. All helicopters operating into and out of

Williams Field were directed to follow the fuel lines and look for leaks. Another source of fuel loss was the frequent moving of fuel lines. Each 50-feet length of hose contains more than 30 gallons of fuel. It is not possible to completely strip the lines of fuel prior to moving, and a substantial amount of fuel is lost in moving and flushing the lines in preparing them for re-use. This is especially true where several miles of fuel line is involved. The greatest single loss of fuel occurred when the main 115/145 aviation fuel line from McMurdo Station to Williams Field parted under a deep snow drift over a crack in the sea ice. Approximately 230,000 gallons of fuel were lost in this one episode which seriously hampered flight operations.

Diesel fuel for base operations became critical during November. High usage rates during the winter airfield construction period coupled with the late arrival of the first tanker and failure of the nuclear power plant created a situation which called for very stringent conservation measures. Diesel fuel was brought in by helicopter from a cache at Marble Point and from the tanker prior to its arriving at the unloading site. Four inch hose was extended from Hut Point to the maximum distance to establish this site 7.2 miles north of Hut Point. In order to accomplish this, all available hose was laid and 5 booster pumps used. In addition, some fuel lines were removed from other uses and laid toward the tanker. The daily diesel fuel consumption for McMurdo Station and Williams Field averaged 110 drums a day for all purposes. The nuclear reactor was still in a test status and could not be depended upon for continuous power.

McMurdo Station has 16 bulk storage tanks totaling 3,850,000 gallons for all products. Fifteen miles of four inch hose is required for the distribution of these products.

Christchurch, New Zealand

The Navy complex at Christchurch International Airport was again the important staging facility in support of air operations for DEEP FREEZE 63. Commander, Task Force FORTY-THREE Advance Headquarters is located here. At the beginning of the operating season, accommodations were available for 96 officers and 480 enlisted men. This necessitated billeting overflow personnel at Camp Burnham, a New Zealand Army Base approximately 20 miles from headquarters. Two additional barracks have subsequently been rehabilitated which will increase the capacity to 640 men under normal conditions and up to 720 under emergency conditions. Cargo and aircraft parking areas are located at the field and considered adequate. Other improvements were completed to make the facility more habitable.

The "DEEP FREEZE" terminal, located in the Christchurch International Airport Terminal, was manned by Air Force and Navy personnel. During the operating season a total of 338 flights, 7,069 personnel and 1233 short tons of cargo were processed through the terminal.

A TSN-1/FPN-36 Ground Controlled Approach radar unit was in operation during the entire season. The unit was manned 24 hours per day during the heavier part of the operating season and on 30 minute call during light operating periods. On 31 March, the GCA equipment was shut down and a trained GCA technician was assigned to make weekly preventive maintenance checks on the equipment during the non-operating season.

As a result of a joint U.S. Navy-U.S. Air Force-New Zealand conference held in Wellington on 21 June 1962, an air traffic control agreement was consummated with the New Zealand Civil Aeronautics Administration for U.S. Navy control of aircraft on the Christchurch-McMurdo route. In general it was agreed that the United States, through the Force Commander, would exercise air traffic control over all aircraft operating this route. All controllers were U. S. FAA certified and, in addition, certified by New Zealand CAA. Single-side band radio equipment was used to carry out this responsibility. Back-up communications was furnished by New Zealand CAA through their Auckland air-ground station.

Port Lyttelton, New Zealand.

Port Lyttelton, located 22 miles from the Christchurch headquarters, is utilized for sea deployment and redeployment of both cargo and personnel. The facilities in use by DEEP FREEZE consist of two rental warehouses, one on a yearly basis and the other just during the operating season. Also stored at Port Lyttelton on a space rental basis are four LCMs. These are to be employed in subsequent operating seasons for use by USNS WYANDOT in resupplying Hallett Station.

Byrd Station.

1. General.

Byrd Station, located at 80°01'S longitude and 119°32'W latitude, is approximately 800 nautical miles from McMurdo Station. At this station local scientific studies in upper atmosphere physics, aurora studies, meteorology, and celestial radio noise are carried out on a year around basis. Summer scientific field parties are staged from here. In order to accomplish the latter, many additional support personnel are required, including a detachment from Air Development Squadron SIX. This station is an under-the-snow station which was completed in DEEP FREEZE 62. All supplies for this station were delivered by LC-130F aircraft except part of the POL products which were airdropped from C-124 aircraft.

a. Air Operations.

All air operations in support of Byrd Station originated at New Williams Field, McMurdo Sound. There were many flights that staged through Byrd Station in support of Eights Station. These flights stopped at Byrd for refueling only. A total of 261 flights delivered 3225.83 tons of cargo and POL to Byrd. A skiway was maintained at Byrd Station, and only ski-equipped aircraft could operate from there. Complete air navigational aids including GCA and TACAN were available for instrument approaches. No

unusual difficulties were experienced in maintaining the skiway or electronic equipment.

Figure 9. Storage area in tunnel M-1 at Byrd Station.

b. Base Operations.

(1) Fuel.

Storage facilities for diesel at Byrd Station consists of

eight 10,000 gallon bladders or a total bulk capacity of 80,000 gallons. Fuel is transferred from drums, either airdropped or delivered by LC-130F aircraft, to these bulk storage bladders. This station requires 150,000 gallons of diesel fuel per year plus a reserve of one year's supply.

(2) Base Power.

Base power is provided by four 150kw Caterpillar D342C generators. All generators can be parallel operated. There are no auxiliary generators at Byrd Station. Present plans do, however, include the temporary installation of two 30kw generators for standby power.

(3) Automotive Equipment.

The automotive equipment consists of twenty pieces of rolling stock. These pieces vary from weasels to LCP D-8 tractors. The spare parts situation which had been critical has been alleviated and all spare parts are now stowed and catalogued. Approximately 80% of spare parts needs are filled from on-hand supplies.

South Pole Station.

1. General.

South Pole Station, as its name indicates, is situated 90° south latitude on the site of the geographic South Pole. This station's mission is similar to Byrd Station. It consists of the original South Pole Station constructed during the International Geophysical Year in 1956 as modified by later additions. This station was constructed on the snow surface and has subsequently been drifted over.

2. Air Operations.

Air operations at South Pole Station, similar to those at Byrd Station, do not reach the same magnitude. Air drop operations amounted to six drops and LC-130F flights to only 107. A skiway quite like that at Byrd Station was maintained with all air navigational aids except GCA. GCA, though planned for installation in DEEP FREEZE 63, was not deemed necessary as the number of flights did not warrant the additional electronic equipment. The extra GCA thus made available was used at Old Williams Field, McMurdo Station.

3. Base Power.

Base power is provided by two 150kw D-342C generators and one 30kw D-318 installed in the garage for emergency and survival use. These generators were installed new during DEEP FREEZE 63, and the electrical distribution system was reworked.

4. Automotive Equipment.

The maintenance of automotive equipments was the most significant problem encountered during the season. The operation of old equipment without adequate enclosed maintenance areas and an adequate supply of spare parts resulted in many lost man hours. Automotive equipment is necessary not only at this station, but all stations in order that cargo handling, station maintenance and other operations can be maintained. South Pole Station had seven pieces of mobile equipment varying from D-8 LGP tractors to weasels. The adverse operating conditions make maintenance extremely difficult. Considerable "down" time was experienced because of the above conditions; station operations practically cease when this occurs.

5. Fuel.

Diesel storage has been changed from a drum cache to a bladder system of 75,000 gallon capacity. The fuel is pumped from drums to the bladders. In the future it is expected that LC-130F bulk deliveries will be made with pumping direct from the aircraft bulk fuel delivery system.

No substantial amount of aviation POL in on hand at South Pole Station. Only a sufficient supply to take care of emergency flights is available.

Hallett Station.

1. General.

Hallett Station is located at 72°19' latitude 170°18' longitude on Moubray Bay in northern Victoria Land. It is a United States station, supporting a joint U.S.-New Zealand scientific effort. This station is on the air route between New Zealand and McMurdo Sound. During the early part of the season, prior to the disintegration of the sea ice, it is the only alternate for wheeled aircraft in Antarctica, and this only under visual conditions. Early season air operationsin support of scientific field parties also operate from this station.

2. Ship Operations.

This is the only U. S. station in Antarctica with the exception of McMurdo Station which is resupplied by ship. During the late season both icebreakers and cargo ships visit Hallett. The icebreakers deliver bulk fuel for the support of the station, and the cargo ships bring in general cargo.

3. Air Operations.

Air Operations involved the early season resupply by LC-130F and C-54Q aircraft and the support of scientific programs utilizing C-47 and UH-1B types. Three C-124 aircraft operated from Hallett when bad weather precluded landings at McMurdo.

4. Equipment.

Hallett Station has a minimum of automotive equipment ranging from weasels and sno-cats to tournadozers. As operating conditions are more favorable there, maintenance problems were also minimal.

5. Base Power.

The main power supply is two 100kw generators with auxiliary power from one 30kw and one 75kw generator. These generators are old and in need of repair, or replacement. Power failures were frequent.

6. Fuel.

Main POL storage is four 25,000 gallon bladders. There are 94,000 gallons of drummed diesel divided in two dumps near the fuel bladders. In addition, there are minor supplies of aviation gasoline and JP-4 plus motor vehicle gasoline and lubricating oils. Diesel fuel is distributed about the station by a tanker pulled by a D-4 tractor.

Figure 10. Station module for Eights Station. Eight of these units were interconnected to form the station. Three additional units were established as outbuildings. Modules were fully equipped with collateral equipment and air-transported to the station site 1,384 miles from McMurdo Station.

Eights Station.

1. General.

Eights Station, located at 75°14'S latitude 77°10'W longitude, a new concept in portable station construction, was designed for upper atmosphere studies. This station, 1,384 nautical miles from McMurdo Sound, was of modular construction, consisting of units designed to fit into the LC-130F aircraft. These units were manufactured to be joined together to from a station complex to support 11 military and civilian scientific personnel on a year around basis.

2. Air Operations.

Eights Station is entirely supported by air. All equipment was flown in by LC-130F aircraft, with the exception of a D-8 Caterpillar tractor which was moved overland from Byrd Station. 1196 drums of diesel fuel were air dropped by C-124 aircraft. A skiway was prepared for use by LC-130F and C-47 aircraft. A drop zone was layed out according to criteria set forth by the NINTH TCS. Limited air navigational aids are available.

3. Station Construction.

Eights Station was built in two phases. During Phase I, late November and early December, a temporary station was constructed and an upper air radiosonde capability (AN/GMD-1) was air dropped during this period. Phase II commenced when ARNEB arrived at McMurdo on 26 December with the station buildings for air delivery to Eights Station. The station was completed and occupied with the construction forces removed in mid-February according to plan.

Seasonal Stations.

1. Beardmore.

Beardmore Glacier Station is located at 83°17'S latitude and 175°45'E longitude near the foot of the Beardmore Glacier. This station is composed of Jamesway huts and a small cache capable of supporting 4 to 6 men for the summer season. The primary task of this station is weather reporting for the route between McMurdo Sound and South Pole Station. During the summer months, this station often is utilized as a base for scientific parties operating in the area and was used extensively as a base camp for support of TOPO EAST. This station is opened as soon as feasible during the early part of the season and is closed only after the last flights are concluded.

2. Little Rockford.

Little Rockford is located at 79°16'S latitude and 147°30'W longitude at Mile 240 on the trail between Little America and Byrd Station. This station consists of 4 buildings,--three wannigans and a small improvised

shelter. This station was manned by 6 personnel for the purpose of weather reporting. Upper air sounding equipment is available at this station. Little Rockford is opened as early as feasible in the season and is closed with the termination of air operations to Byrd and Eights at the close of the season.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations:

a. It was recommended that all parachutes used in the Antarctic be of some color that contrasts with the snow. Streamers were provided when required to make airdrops. This will be a continuing requirement whenever the airdrop method of delivery is utilized.

b. It was recommended that a civilian fuel expert be assigned to Antarctic Support Activities during the period 1 October - 1 December each year and that an officer thoroughly qualified in fuel farm management and fuel distribution be assigned to Antarctic Support Activities, this to be a three-year tour. An officer for fuel farm management was provided. Civilian assistance was made available for limited periods on request.

2. DEEP FREEZE 63 Recommendations:

a. Early season ship operations are always hampered by ice conditions at McMurdo Sound.

IT IS RECOMMENDED THAT ACTION AT ALL ECHELONS BE INSTITUTED TO ELIMINATE ALL EARLY SHIP OPERATIONS AND THAT PIER FACILITIES BE CONSTRUCTED AT MCMURDO STATION TO EXPEDITE SHIP OFFLOADING OPERATIONS AT THE OPTIMUM TIME OF THE OPERATING SEASON, NORMALLY JANUARY THRU FEBRUARY.

b. The handling of four bulk POL products continues to be a major logistics problem.

IT IS RECOMMENDED THAT EFFORTS TO PRODUCE A SATISFACTORY UNIVERSAL FUEL BE CONTINUED.

c. The construction and maintenance of ice runways for wheeled aircraft require considerable expenditure of time and equipment. On the other hand the maintenance of a skiway for ski-equipped aircraft is a relatively simple operation.

IT IS RECOMMENDED THAT EFFORTS BE CONTINUED TO ELIMINATE WHEELED AIRCRAFT FROM OPERATION IN ANTARCTICA AND THAT ALL AIRCRAFT BE SKI-EQUIPPED.

## SECTION E, METEOROLOGY

1. Mission.

The primary mission of the meteorological program was to provide weather service in support of all surface and air operations involving units of the task force. Surface and upper air observations taken by ships, aircraft, land stations, automatic weather stations, and trail parties were utilized for operational forecasting and additionally served to add to the limited fund of Antarctic climatological information.

2. General.

Due to the seasonal characteristic of the weather services in Operation DEEP FREEZE, stations must be established or enlarged at the beginning of the season and disestablished or decreased at the end. The opening and securing steps for Operation DEEP FREEZE 63 follow:

| ACTIVITY | COMMENT | DATE, 1962 |
|---|---|---|
| Operational School at Detachment 3 | Predeployment Training | 23 July - 4 August |
| OPEN Christchurch office | Naval Air Station Capability | 10 September |
| McMurdo commence Fax and terminal forecasts | | 10 September |
| Commence 1200Z upper air soundings N.Z. and Australia | New Zealand - Auckland Christchurch, Invercargill and Campbell Island Australia - Williamtown, Hobart and MACQUARIE IS. | 13 September |
| Position Ocean Station vessel at 60S 170E | upper air soundings and 3 hourly surface reports | 15 September |
| Initial fly-in of summer support weather personnel | enlarge McMurdo to weather facility capability and on board personnel prepare for opening of outlying stations | 15 September |
| OPEN Beardmore Weather Station | capability (one man) - 3 hourly and twice daily pilot balloon observations | 20 September |

| ACTIVITY | COMMENT | DATE, 1962 |
|---|---|---|
| OPEN Little Rockford Weather Station | capability (3 men) - 3 hourly and twice daily GMD sounding observations | 8 October |
| OPEN Williams Field auxiliary weather office | capability - hourly weather and flight crew brief and debrief | 29 September |
| Establish and OPEN weather office at Eights Station | install GMD and commence twice daily soundings, 3 hourly weather observations and terminal forecasts | 1 November |
| INSTALL Automatic Weather Station at Scott Is. 67.5S 179.5W | use USCGC EASTWIND and helo for installing. 6 hourly reports. | 1 November |
| END Navy assistance in manning Weather office at Eights Station | end of flying season at Eights Station | 24 February 1963 |
| CLOSE Little Rockford Station for winter season | end of flying season to Byrd and Pole | 16 February |
| CLOSE Beardmore Station for winter season | last inbound flight to Antarctica | 1 March |
| Last summer support weather personnel depart McMurdo. Last McMurdo terminal forecast. | end of Antarctic flying season. Last outbound flight. | 4 March |
| Ocean Station vessel departs station | last northbound flight passes overhead. | 4 March |
| McMurdo ceases facsimile schedule. Christchurch weather office closes for winter season. | last ship crosses 60°S northbound. Last ship enters New Zealand waters. | 15 March<br>18 March |

3. McMurdo Station is the principal terminus for air operations within and to the Antarctic. The weather service unit at McMurdo provided route and terminal forecasts for flights between McMurdo and Christchurch, New Zealand, Byrd, Pole, Hallett, Eights Station, Little Rockford, and Beardmore. These same services were provided for reconnaissance, search and rescue, and special flights for delivery of supplies and personnel in support of

trail operations. The biggest trail parties were the Ross Ice Shelf Survey, Roosevelt Island and the Byrd to Eights Station traverse. Surface observations were taken hourly and upper air balloon ascents twice daily. Weather advisories and radio facsimile weather charts were transmitted routinely for ships in Antarctic waters and transiting the ocean area between New Zealand and Antarctica. These same charts were copied in Christchurch for use by the forecast office. Coded surface analysis and weather collectives were broadcast twice daily. The 500 MB chart was transmitted in coded form to Byrd, Pole, Eights Station, and the International Antarctic Analysis Center (IAAC), Melbourne, Australia. Weather reports from all Antarctic stations were collected at McMurdo and relayed to the IAAC. Pertinent portions of the observed data were collected and mailed to the National Weather Records Center, Ashville, North Carolina and the U.S. Navy Weather Research Facility in Norfolk, Virginia.

Preparations of forecasts at McMurdo Station in support of various task force operations required analysis twice daily of the surface and 700, 500, and 300 millibar charts. Continuity charts were maintained for surface and upper air data from all United States land and ship reporting stations and for the foreign station Dumont D'Urville. Continuity plots were also maintained for the automatic weather stations in the field. Pseudo-Adiabitic diagrams were constructed from McMurdo upper air reports. In support of LC-130F operations, two observers were stationed at Williams Field during the season. Data and cross sections were passed to them by FM radio and telephone.

4. Personnel.

In addition to one officer and 13 enlisted men assigned to Antarctic Support Activities, there were six officers and 15 enlisted men from the Air Force, Staff, and VX-6 assigned during all or part of the summer season. They were deployed as follows:

| Station | From | To | Observation | Officer | Enlisted |
|---|---|---|---|---|---|
| McMurdo | Continuous<br>OCT-FEB | | a,c,d | (1)f<br>3 | (6)<br>8 |
| Williams Field | OCT-FEB | | a, | | 2 |
| Beardmore | 20/07/62 | 03/01/63 | b,e | | 1 |
| Little Rockford | 10/08/62 | 02/16/63 | b,c,d | | 3 |
| Eights Station | NOV | 02/15/63 | b,c,d | | 3.i |
| Hallett | Continuous | | b,c,d | (1)g,h | 3 |
| Byrd | Continuous | | b,c,d | (1)g,h | (3)g |
| Pole | Continuous | | b,c,d | (1)g,h | (3)g |
| Christ-church | OCT | NOV | | 2 USAF<br>1 | 3 USAF<br>2 Staff |
| | DEC | FEB | | 1 | 2 |

a - Hourly surface observations.
b - Three hourly surface observations. Hourly intervals upon request.
c - Upper air soundings.
d - Rawins.
e - Pilot balloon winds aloft.
f - Personnel indicated by parentheses are year round complement.
g - Weather Bureau personnel.
h - Station M.I.C. issues terminal forecasts as required.
i - Staff forecaster assigned in support of air operations.

5. Automatic Weather Stations.

The automatic weather station program this year was one of the most successful to date. The program was still plagued with small parts failures that occurred after installation in the field. The clocks and relay systems were the major areas of trouble.

The stations locations and periods of installation follow:

a. AN/GMT-1 (IBH)

6 Nov 62 - Installed at Scott Island 67-47S 179-09W by USCGC EASTWIND
16 Dec 62 - Last transmission. Total usable transmissions 36.
6 Mar 63 - Recovered by USCGC EASTWIND.

b. AN/GMT-1 (NGV)

11 Oct 62 - Installed on Minna Bluff, 78-40S 167-10E, altitude 3300 feet.
21 Nov 62 - Last transmission. Total usable transmissions 84.
1 Jan 63 - Returned to McMurdo Station, suffered broken antenna, jammed anemometer, broken battery cable. Station evidently encountered severe high winds.
14 Feb 63 - Installed at Little Rockford for collection of winter data.

c. NET STATION (NIT)

1 Mar 63 - Installed at Beardmore for collection of winter data.

d. AN/GMT-4 (N21)

18 Oct 62 - Installed at 81S 170-00E.
18 Dec 62 - Ceased transmission abruptly during a readout.
9 Dec 62 and 1 Jan 63 - Trips made to recover station. Station site could not be located. Appears severe storm destroyed site markers. Late season adverse weather at site prevented other flights. Station to be recovered in DEEP FREEZE 64.

e. SNAP-7C (NM)

11 Oct 62 - Station component parts reinstalled after maintenance at McMurdo.
1 Feb 63 - Station commenced erratic transmissions.
7 Feb 63 - Component parts repaired at McMurdo and reinstalled in tank at station site.

6. Trail and Traverse Parties.

United States trail and traverse parties recorded weather data daily. Data from the Ellsworth Highland, Mount Weaver, Sentinel Mountains and Ross Ice Shelf parties were frequently received at McMurdo too late to be of much operational use, but should prove to be valuable climatological data. It was noted that the reliability of these reporting activities was enhanced by the scheduling of retrieving or supporting air operations. The New Zealand trail parties reported twice daily through Scott Base and these reports were very reliable. The most reliable field party was the Roosevelt Island party which reported daily at 0630 local and transmitted six hourly reports for the past 24-hour period.

7. Christchurch.

The DEEP FREEZE Meteorology Office at Christchurch International Airport provided flight forecast and briefing service for all aircraft flights to Antarctica and daily briefing for the standby search and rescue crews.

The provision of weather services at Christchurch required the twice daily analysis of the surface and 700, 500 and 300 millibar charts. The 850 MB chart was prepared as required in support of LC-47H and LP-2J flights. Time cross sections were maintained for Christchurch, Campbell Island, MacQuarie Island, the station ships, Hallett Station, and McMurdo. Summaries of flights from Antarctica to Christchurch were disseminated to interested weather activities. Facsimile weather charts from McMurdo were copied regularly with excellent results.

This weather unit at Christchurch operated as an integrated USN/USAF unit for that part of the operation during which Globemaster flights were being conducted to McMurdo Sound.

The New Zealand Meteorological Service provided terminal forecasts for Christchurch and alternate airfields in New Zealand. In addition, route and terminal forecasts were issued for all flights of DEEP FREEZE and MATS aircraft to points other than Antarctica.

8. Tiros Satellite.

During October the earth orbiting TIROS satellite was in a position to photograph areas of operational interest to DEEP FREEZE. These areas were:

a. The ocean area between Australia and Antarctica.

b. New Zealand

c. The McMurdo to Christchurch flight track.

Unfortunately, only a few transmissions were of value due to communications difficulties. These difficulties consisted mainly of equipment failures and atmospheric interferences. Utilizing the few transmissions that were received, two low pressure centers were located west of Australia and north of Antarctica. These centers would have not been located until later upon approaching the McMurdo to Christchurch flight track had they not been detected by TIROS. Satellite cloud photography holds much promise for future use in the Antarctic area. The scheduled installation of direct readout equipment for APT (Automatic Picture Transmission) satellite data at McMurdo will greatly increase the amount of useful data in the operating area.

9. Ocean Station.

This year for the first time three ships alternately manned the ocean station at 60°S 170°E. USS DURANT (DER-389), with six rated Aerographer's Mates assigned, observed and transmitted surface data every three hours and upper air information twice daily while at sea. DURANT was on ocean station for 97 days during the season.

The second ship to man the ocean station was HMNZS ROTOITI. Two officers and three ratings from ROTOITI were given a ten-day course in upper air sounding procedure by DEEP FREEZE Aerographers. Two of the three ratings had worked on upper air soundings during DEEP FREEZE 62. ROTOITI spent 23 days on station.

In January USS FORSTER (DER-334) replaced ROTOITI in the rotation schedule. FORSTER was on station for 28 days.

All three ships did excellent jobs and the observations and soundings were invaluable for flight forecasting for the Christchurch to McMurdo route. On special occasions the ships took extra upper air soundings when flights winds were critical. The excellent quality of the observations and soundings show the effort expended by the men of all three ships while working under adverse weather conditions.

10. Icebreakers.

USS GLACIER(AGB-4), USS STATEN ISLAND (AGB-5), USS EDISTO (AGB-2) and USCGC EASTWIND (WAGB-279), each with four rated Aerographer's Mates, carried out surface and upper air observations in accordance with provisions of CTF-43 Operation Plan 1-63. These observations proved to be invaluable for map analysis, especially when these ships were operating in areas away from the regular reporting stations. Due to the tough ice year at McMurdo, the icebreakers were not able to operate away from McMurdo as much as in past seasons.

11. Ice Reconnaissance.

From mid-October through mid-December, three U.S. Navy Oceanographic Office trained ice observers were assigned to DEEP FREEZE and conducted a program of observing and charting ice conditions from aircraft on the McMurdo to Christchurch flight line. A larger area of ice was observed by varying the track of the aircraft between 60°S and McMurdo. These tracks were designed to give good coverage to approximately 180°. A composite picture of the various flights was maintained at McMurdo to assist in planning the track for ships penetrating the pack ice. In addition to the regular Christchurch to McMurdo track flights, two special flights were flown from McMurdo to meet the initial convoy. As a result of the information acquired on these flights, the planned track of the ships was changed to take advantage of areas of lesser ice concentration.

Utilization of data acquired by aerial ice reconnaissance materially assisted the ships in the ice pack and advanced their arrival date at McMurdo by several days.

12. Project COAST.

At a conference at the Navy Weather Research Facility in July, it was determined to continue Project COAST (Clouds of Antarctica Study) data collection at McMurdo for the month of October. This period was selected because the sequences taken in DEEP FREEZE 62 had not included any of severe storms. Two horizon segment cameras were used to collect data at McMurdo. Due to camera malfunction caused by overuse, the data collected has missing sections of time. It is believed that one or both cameras recorded sequences of adverse weather formation at McMurdo.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

a. It was recommended that adequate and positive observing and radio reporting schedules be provided for trail parties and traverses. Improvement has been noted in reporting procedures.

b. It was recommended that operations research and climatological studies at Navy Weather Research Facility be continued. Indoctrinate newly reporting DEEP FREEZE weather services officers and enlisted men at NWRF prior to departure for Christchurch. Rotate and relieve meteorology officers and Aerographer's Mates in such a way that there is assured a nucleus of experienced personnel at the beginning of each DEEP FREEZE operation. Marked improvement was noted in the performance of meteorological personnel coming to the ice for the first tour of duty. This was primarily due to training received at Davisville, Rhode Island and at the Navy Weather Research Facility, Norfolk, Virginia.

c. It was recommended that the use of aircraft for weather and ice reconnaissance be expanded. All DEEP FREEZE icebreakers should have the AN/SMQ-1 radiosonde receptor and radar (other than SB band) suitable for tracking upper air soundings for winds aloft. The feasibility of rocket photography to augment Tiros Nimbus and other weather reporting satellites should be investigated. If feasible, conduct operational evaluation tests at the earliest opportunity. Progress is being made on this recommendation except for rocket photography which has not been possible due to budgetary limitations.

d. It was recommended that the use of land type automatic weather stations, including a monitoring system for simultaneous reception of two or more stations be developed and expanded. This recommendation is still being pursued.

e. It was recommended that an electronics technician be assigned to the staff for maintaining meteorological equipment when deployed to the Antarctic, and for handling resupply and spare parts procurement throughout the year. This has been accomplished.

f. It was recommended that the Ocean Station Vessel (DER) continue to be provided with 5 rated Aerographer's Mates, of which 3 should be graduates of the Radiosonde Operator's School. This has been accomplished.

g. It was recommended that Navy and Coast Guard icebreakers be assigned four rated Aerographer's Mates. At least two of these Aerographer's Mates should be graduates of Radiosonde Operator's School. This is presently being implemented.

h. It was recommended that the use of weather modification techniques in the Antarctic be investigated. This project is planned for McMurdo and Eights Station in DEEP FREEZE 64.

2. DEEP FREEZE 63 Comments and Recommendations.

a. Repairs to the SNAP-7C automatic weather station in the past have required a minimum of two flights, one to bring the instrument package in for repair and one for reinstallation.

IT IS RECOMMENDED THAT A SPARE DECK PLATE BE BUILT FOR SNAP-7C AUTOMATIC WEATHER STATION. THIS WOULD PERMIT COMPONENT CHANGES IN THE FIELD AND ALLEVIATE THE PROBLEM OF RETURNING THE PACKAGE TO MCMURDO FOR REPAIR PRIOR TO REINSTALLATION.

b. In areas of sparse data networks, as in the Antarctic, the speed of availability of data is even more critical than in other areas of operation. The loss of one upper air report due to delay in transmission can, under certain situations, delay flights on the Christchurch to McMurdo track.

IT IS RECOMMENDED THAT A DIRECT WEATHER RADIOTELETYPE CIRCUIT FROM THE WEATHER OFFICE IN MCMURDO TO THE WEATHER OFFICE IN CHRISTCHURCH AND RADIO AXM SYDNEY BE INSTALLED. MCMURDO AND CHRISTCHURCH SHOULD HAVE PRIVATE EXCHANGE CAPABILITIES FOR OPERATIONAL WEATHER NOT CONCERNING AXM.

## SECTION F. PHOTOGRAPHY

Photo production accomplishments of DEEP FREEZE 63 amounted to 115,058 prints, 5,027 surface negatives, and 42,500 feet of motion pictures or 70% of the quantities produced the previous year. However, the amount of usable negatives and motion picture footage accepted by the Naval Photographic Center for permanent retention in the naval archives was 38% higher. The quantity of 17,233 aerial negatives and 10,255 flight line miles of mapping photography surpassed that of DEEP FREEZE 62, but unfortunately 24% was unacceptable due to camera malfunctions. Another 19% was lost because of excessive cloud coverage and other specification deficiencies.

The special representative of the U.S. Geological Survey (Division of Special Maps) was present at Christchurch for the third consecutive year. His on-the-spot evaluation of the aerial film during and immediately after processing was of immeasurable help in determining successful runs in a timely fashion.

Following the success of the previous operation, Navy Bureaus and Commands were solicited to determine their specific requirements for photography. Where possible, these were met by Task Force personnel, with the required coverage exposed and marked for use by the requesting agency. Aerial photography, the major photographic commitment of Task Force 43, is assigned to VX-6. Two photo configured LP-2J type aircraft are used for tri-metrogon and special long range mapping missions. For other special photo missions, the C-54Q, U-1B and helicopters are used. A total of 19,427 flight line miles of tri-metrogon and special mapping was requested for DEEP FREEZE 63, of which 11,018 flight line miles were committed to aircraft at Byrd Station, and 8,409 flight line miles to McMurdo. Thirteen tri-metrogon mapping missions were assigned, with 29% of the area being completed. Of the twenty special mapping missions assigned, 48% of the area was completed.

The Palmer Peninsula exploration expedition on the USS STATEN ISLAND (AGB-5) was covered by three Task Force photographers with aerial and surface reconnaissance; documentary and historical photography in black and white; and color in both still and motion pictures were obtained. Twenty-eight potential station sites were photographed in addition to general coastal landmarks and formations, wild life, personnel and shipboard operations during the exploration mission.

Continuing an extensive training syllabus, all pilots, navigators, and photographers assigned to the aerial photo mission were brought to Washington, D.C. for a three-day seminar conducted by the Special Map Division of the U.S. Geological Survey. Similarly, all Task Force photographers were invited to Washington for a ten-day seminar period wherein they were afforded an opportunity to screen and evaluate their work, to be briefed by experts in the photographic profession, and to participate in individual and specialized training assignments designed

to improve their technical specialties. Ten Task Force photographers were selected to attend the advance five-day still photo school in New York City sponsored by E. LEITZ, Inc.

Documentary, historical and public information coverage in black and white and color, still and motion pictures was obtained of the scientific disciplines; operation of the nuclear power reactor; trail operations; VIP visits; Palmer Peninsula exploration by the USS STATEN ISLAND (AGB-5); VX-6 and ASA Activities; USARP programs; cargo handling; air and surface logistics; and the U.S. Army helicopter detachment.

Specific film footage was obtained for motion pictures on the PM3A nuclear power reactor, helicopter operations from non-aviation ships, and for a documentary motion picture now in production entitled The Polar Icebreaker. A special motion picture crew from the Atlantic Fleet Mobile Photo Unit was utilized for the production of color film footage for use in future Navy films. A total of 3,800 feet of 16mm color was exposed for specific film requests, and an additional 32,000 feet of general interest stock footage was obtained.

Major problems affecting photographic production during DEEP FREEZE 63 remain the same as the past several years:

a. The quality and quantity of water at McMurdo Station.

b. Power failures and fluctuations during critical processing stages.

c. The lack of suitable and continuously operable transportation.

The aerial photographic program suffered badly when the LP-2J photo planes did not operate early in the season when weather was generally clear. The first photo flight was made on 29 October. Very few days with suitable aerial photo weather can be expected after the 15th of November. Camera malfunctions in new aerial cameras caused by the freezing of rotating shafts and moving parts resulted in the loss of a large amount of aerial photography. Present findings indicate that most of the malfunctions were due to insufficient clearances and lubrication unsuitable for the temperatures at which operated. Camera winterizing procedures are being revised for DEEP FREEZE 64.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

a. It was recommended that the photographic efforts in McMurdo be confined to procurement of photography only. All processing, other than for immediate operational needs and proof prints, was to be performed at Christchurch until a plentiful pure water supply became available. This was partially accomplished and will be a continuing recommendation.

b. It was recommended that management control of the McMurdo laboratory be assigned to ASA, coincidental with procurement of a trained photographic officer; transferring eight PH billets from VX-6 to ASA with VX-6 retaining aerial responsibilities only. This is pending.

c. It was recommended that a maximum of transportation be procured and assigned for photographic use at McMurdo. A Dodge power wagon for photo is scheduled for delivery during DEEP FREEZE 64.

d. It was recommended that experienced photo pilots be assigned to VX-6. This was partially accomplished in that one LP-2J pilot is a graduate of the Naval School of Photography.

e. It was recommended that seminars for all personnel engaged in aerial photography and seminars for all task force photographers be continued. This was accomplished.

f. It was recommended that the U.S. Geological Survey (Division of Special Maps) continue to assign a representative for duty in Christchurch. This was accomplished.

g. It was recommended that ships assigned to the Task Force have photographic laboratories and insure that equipment and supplies are on board before departing CONUS. This was partly accomplished. It is expected that there will always be trouble in this area due to slow delivery of some supplies.

h. It was recommended that Task Force photographic personnel be retained at Christchurch until the end of the operating season to permit production printing of all requested work prior to shipment of negative material to the film archives in Washington. This was accomplished.

2. DEEP FREEZE 63 Comments and Recommendations.

a. IT IS RECOMMENDED THAT STEPS BE TAKEN TO COMPLETE THE ACTION INDICATED IN PARAGRAPH 1. ABOVE. THERE ARE NO NEW RECOMMENDATIONS FOR DEEP FREEZE 63.

# CHAPTER II

# LOGISTICS

## SECTION A. SUPPLY

1. Fuel.

a. Problem areas. Two fuel problems experienced in past operations continued to plague DEEP FREEZE 63. These problems were loss of fuel and a heavy workload with limited numbers of personnel. Most of the fuel loss was caused by hose rupture. The heavy workload on personnel resulted from constant surveillance requirement of a 32 square mile area for early detection of fuel hose breaks and the necessity for 12 relocations of fuel lines to Williams Field. A total of 300 fifty-feet lengths of hose were surveyed during this operating season.

b. Accomplishments. Progress was made in four areas: Improved storage capacity, bulk fuel delivery to inland stations, backloading of empty drums, and a fuel planning conference.

(1) Improved Storage Capacity. Two 250,000 gallon bulk fuel storage tanks were constructed at McMurdo Station. This brings total bulk capacity at McMurdo up to 3,850,000 gallons. In addition, materials for construction of a 100,000 gallon bulk tank were delivered to Hallett Station for erection in DEEP FREEZE 64.

(2) Bulk fuel delivery in inland stations. A successful test of bulk fuel delivery by LC-130F aircraft from McMurdo to Byrd Station was accomplished by VX-6. As a result, bulk fuel delivery to Pole and Byrd Stations is planned for DEEP FREEZE 64. The net effect should be a reduction in purchasing costs and improved man-hour availability resulting from the elimination of air-dropped POL in drums.

(3) Backloading of empty drums. Two thousand empty diesel drums were backloaded from Byrd Station to Christchurch, New Zealand. Of these, 660 were refilled and returned to Antarctica. The balance are positioned in Christchurch for later use. Savings should be realized by reduced drum requirements.

(4) Fuel Planning Conference. A fuel conference was held in Washington on 29-30 April 1963. Attendees included representatives of Commander, U. S. Naval Support Force, Antarctica, Commander, Antarctic Support Activities, Navy Fuel Supply Office and Bureau of Yards and Docks. The conference objective was "To develop an efficient, effective and economical fuel program for Antarctica." All known problem areas were analyzed and specific courses of action recommended.

(5) Fuel Statistics. 6.9 million gallons of bulk fuel and 1.0 million gallons of drummed fuel (18,247 drums) were delivered to Antarctica during DEEP FREEZE 63, for a grand total of 7.9 million gallons. Delivery statistics are listed in the following chart: (DEEP FREEZE Bulk Fuel Deliveries).

## DEEP FREEZE 63 BULK FUEL DELIVERIES

| Vessel | Loaded | Date Arr. | Station | AVGAS | JP-4 | MOGAS | Diesel | Marine Diesel | Total Load |
|---|---|---|---|---|---|---|---|---|---|
| CHATTAHOOCHEE | ARUBA | 14 Nov. | McMurdo | 229782 | 485608 | 52710 | 524496 | xx | 1292596 |
| TOMBIGBEE | Pearl | 18 Jan. | McMurdo | 108000 | 500000 | xx | xx | xx | 608000 |
| EASTWIND | N.Z. | 1 Jan. | Hallett | xx | xx | xx | 101546 | xx | 101546 |
| ENDEAVOUR | N.Z. | 4 Jan. | McMurdo | 255847 | xx | xx | 365901 | xx | 621748 |
| CHATTAHOOCHEE | N.Z. | 7 Jan. | McMurdo | 237303 | 583730 | 51881 | xx | 433634 | 1306548 |
| CHATTAHOOCHEE | N.Z. | 4 Feb. | McMurdo | 31083 | 529629 | 289200 | xx | 430610 | 1280522 |
| ENDEAVOUR | N.Z. | 3 Feb. | McMurdo | xx | xx | xx | 620391 | xx | 620391 |
| GLACIER | N.Z. | 4 Mar. | McMurdo | xx | xx | xx | 79697 | xx | 79697 |
| CHATTAHOOCHEE | N.Z. | 27 Feb. | McMurdo | xx | 851705 | xx | 135480 | xx | 987185 |
| | | | TOTALS | 862015 | 2950672 | 393791 | 1827511 | 864244 | 6898233 |

| R-E-C-A-P-I-T-U-L-A-T-I-O-N | AVGAS | JP-4 | MOGAS | Diesel | Marine Diesel | Total Load |
|---|---|---|---|---|---|---|
| Lifted From: ARUBA | 229782 | 485608 | 52710 | 524496 | xx | 1292596 |
| Pearl Harbor | 108000 | 500000 | xx | xx | xx | 608000 |
| New Zealand | 524233 | 1965064 | 341081 | 1303015 | 864244 | 4997637 |
| TOTALS | 862015 | 2950672 | 393791 | 1827511 | 864244 | 6898233 |

| | AVGAS | JP-4 | MOGAS | Diesel | Marine Diesel | Total Load |
|---|---|---|---|---|---|---|
| Lifted To: Hallett Station | xx | xx | xx | 101546 | xx | 101546 |
| McMurdo Station | 862015 | 2950672 | 393791 | 1725965 | 864244 | 6796687 |
| TOTALS | 862015 | 2950672 | 393791 | 1827511 | 864244 | 6898233 |

| | AVGAS | JP-4 | MOGAS | Diesel | xx | Total Drums |
|---|---|---|---|---|---|---|
| Drummed Fuels Procured and Delivered to McMurdo Station | 1160 | 1172 | 800 | 15515 | xx | 19247 |

2. Repair Parts Support.

a. Problem areas. A shortage of repair parts occurred in DEEP FREEZE 63. Contributing factors included (1) construction of a new ice runway at Williams Field during the DEEP FREEZE 62 winter, (2) major materials handling and construction equipment in need of overhaul at the beginning of DEEP FREEZE 63, (3) adverse ice conditions which delayed the arrival of resupply ships, and (4) inadequate inventory control.

b. Accomplishments. To overcome this repair parts problem, emergency procurement from New Zealand, Australia and CONUS was effected and a major stock recovery and identification program was initiated. Approximately nine thousand repair parts line items delivered in previous DEEP FREEZE years recovered, identified, and placed into ready-for-issue stock. In addition, excess shop store items were identified, recorded and stored. Resupply ships delivered an additional $800,000 worth of repair parts. As a result of this coordinated Commander, Antarctic Support Activities effort, over 20,000 line items of repair parts are now on stock cards, stowed and ready for issue.

3. Other Supply Operations.

a. Antarctic Stations. The development of a sound supply management program for Antarctica has been hampered by a shortage of storekeeper personnel and storage space. The construction of two supply warehouses at McMurdo during DEEP FREEZE 63 and the planned construction of two more in DEEP FREEZE 64 will result in a long step forward in improved supply management. While progress is evident in physical facilities, the need for additional storekeeper personnel at all stations to identify, store, record, issue and requisition material continues. As one harassed storekeeper put it, "If we don't know what we have, it is almost as bad as not having it at all."

b. Christchurch. Much supply control progress has been made in Christchurch, but a shortage of storekeeper personnel continues to be the primary obstacle to developing a truly effective supply support system.

## LOGISTICS

### SECTION B. COMPTROLLER

1. Financial Control Highlights.

a. The most important financial occurrence during DEEP FREEZE 63 was the promulgation of a funding limit of 20 million dollars for FY 63 and future years. The DOD decision was published on 17 December 1962 after Operation DEEP FREEZE 63 was well underway. The impact of the change is outlined in the chart on the following page. To meet this funding limit in DEEP FREEZE 64, planned programs must be reduced by 2.7 million dollars. Additionally, 4.6 million dollars must be re-programmed to present a balanced program in DEEP FREEZE 64.

b. Prior to Fiscal Year 1963, the Staff headquarters in Washington, D. C. and Christchurch, New Zealand, both used the same accounting number (55291) for all purposes except in accounting for the general mess at Christchurch (55418). This caused problems in requisitioning, shipping, and accounting for material ordered through the Navy Supply System. Action was taken to solve these problems by having accounting number 55418 assigned as a general purpose accounting number for Detachment ONE, U. S. Naval Support Force, Antarctica, Christchurch, New Zealand. This action improved financial control and reduced the misdirection of shipments to Washington which were meant for delivery to the Advance Headquarters at Christchurch.

c. In order to implement the NAVSTRIP Requisitioning System, it was necessary to obtain the assignment of additional fund codes from NAVCOMPT in the fund areas where the volume of requisitions was sufficiently great to justify the use of codes.

d. Improved control of funds was achieved when BUDOCKS allotted recurring funds directly to COMNAVSUPPFOR ANTARCTICA. In previous years, funds were allotted to CBLANT. Allotment accounting for BUDOCKS funds is now performed by the Construction Battalion Center, Davisville, R. I. This change was made in order to receive the benefits of having a regular mechanized fiscal office ashore perform the allotment accounting. This procedure has worked well and has eliminated the need for increasing the size of the comptroller's staff to perform this new function.

e. A system of funds control through the use of suballotments was developed. This improved the situation of previous years wherein fund control was uncertain and required reports could not be properly rendered. Continued development and extension of this system is planned.

f. An executive agreement was concluded with the New Zealand government for the delivery of bulk fuel to McMurdo in the HMNZS ENDEAVOUR. This results in saving of DEEP FREEZE funds since it eliminates the need for an additional tanker from CONUS.

(Dollars in Millions)

| | FY 62 | FY 63 (Rev) | FY 64 Requirements | FY 63/68 | FY 64 (Rev) | |
|---|---|---|---|---|---|---|
| | NavCompt Obligations | Estimated Obligations | 9 April 1963 | DOD Limit | Submission | Reprogram |
| MPN | | | | | | |
| BUPERS | 5.8 | 6.4 | 5.201 | 4.6 | 5.201 | +.601 |
| OPN | (1.2) | (2.2) | (2.508) | (2.2) | (1.598) | -- |
| BUWEPS | 1.2 | .7 | 1.008 | .7 | .998 | +.298 |
| BUDOCKS | | 1.5 | 1.500 | 1.5 | .600 | -.900 |
| OMN | (12.4) | (14.1) | (14.962) | 13.2 | (13.201) | -- |
| BUSHIPS | 2.2 | 2.5 | 3.885 | 2.5 | 3.665 | +1.385 |
| BUWEPS | 6.1 | 6.0 | 5.183 | 5.1 | 4.576 | -.524 |
| BUDOCKS | 4.0 | 5.5 | 5.804 | 5.5 | 4.6545 | -.8455 |
| SERVICEWIDE OPS | .1 | .1 | .090 | .1 | .0855 | -.0145 |
| TOTAL | 19.4 | 22.5 | 22.671 | 20.0 | 20.0 | 0/4.568/ |

g. Budget submission for Fiscal Year 1964 was accomplished on 22 April 1963. Although this failed to meet the target date of 15 April 1963, it represents an improvement over the previous year's submission date of 12 June 1962.

h. An instruction outlining the procedure for a composite recreation fund at Christchurch was completed and is now in effect.

2. Financial Control Problems.

a. Two instances of unsatisfactory funds control occurred during DEEP FREEZE 63. One case occurred when COMNAVAIRLANT and BUWEPS were required to furnish additional funds in the amount of $56,000.00 for the procurement of drummed aviation gasoline. A second case occurred when BUSHIPS was required to re-program funds in the amount of $65,000.00 to BUDOCKS due to depletion of repair parts funds through excessive expenditures early in the fiscal year.

b. Issues of fuel and material to the Air Force in Antarctica were not properly documented or receipted. This created difficulty in obtaining reimbursement for material issued. Procedures to eliminate this situation in future DEEP FREEZE operations have been developed.

## LOGISTICS

### SECTION C, CARGO OPERATIONS

1. Cargo Improvements.

a. The following improvements in cargo operations were made as a result of recommendations made at the conclusion of DEEP FREEZE 1962.

(1) NATCO Travis AFB and NATCO Hickam AFB provided more timely and complete cargo information, allowing increased utilization of DEEP FREEZE aircraft transiting these points.

(2) A new EAM cargo documentation system was developed providing Antarctica with more complete cargo information.

(3) Two five-ton stake trucks were positioned at Christchurch to provide additional trucking capabilities between Port Lyttelton, New Zealand and Harewood International Airport, Christchurch, New Zealand.

(4) Two storekeepers were assigned TAD from DET TWO, Davisville to DET ONE, Christchurch to assist in cargo operations during the summer support season in New Zealand.

(5) Responsibility for cargo operations in Antarctica was transferred from CTF-43 Staff to Commander, Antarctic Support Activities.

2. Cargo Documentation.

a. During DEEP FREEZE 62, it became apparent that the Navy Cargo Document (NCD) method of manifesting did not meet the needs of the end-user in Antarctica. The following problems were apparent during the operating season:

(1) Manual preparation of NCD's imposed a large clerical workload on the DEEP FREEZE cargo office.

(2) Various items of information needed to plan cargo operations had to be computed manually from the completed NCD.

(3) Preparation of the number of manifests required for clearing the ship, transshipment points, and the various users in Antarctica imposed a difficult workload on the loading activity.

(4) As many as 270,000 separate pieces of paper (90 manifests of 3,000 pages each) were produced by CBC Davisville, R. I. on one ship loading.

(5) The end-user in Antarctica had insufficient personnel to maintain current records on cargo movements.

b. It was determined that an Electric Accounting Machine system was needed to provide rapid, timely cargo information to the many shippers having programs in Antarctica. After receiving guidance from BUSANDA, a new mechanized cargo control system was devised and instituted. It provided machine listings for the following purposes:

(1) Ship manifests

(2) Requisitions listings

(3) Stock number listings

(4) Packing listings for each box

COMNAVSUPPFOR ANTARCTICA Instruction 4610.1D of 24 July 1962 provided detailed information to shippers on new cargo handling procedures. Overall results were favorable.

3. Shipping Plan.

a. Prior to the operating season, COMNAVSUPPFOR ANTARCTICA requested estimates from the various activities involved in cargo shipping to Antarctica. The following tentative cargo shipping plan was formulated:

(1) Ship 1 - ETA 15 July - Commercial ship from CBC Davisville to Port Lyttelton, New Zealand - an estimated 1,000 MT - primarily for Air Force drop gear and cargo required at Christchurch to prepare for the initial personnel deployment.

(2) Ship 2 - ETA 15 August - Commercial ship from CBC Davisville to Port Lyttelton, New Zealand - estimate 2,000 MT - Urgent cargo to be airlifted into Antarctica, and Christchurch cargo.

(3) Ship 3 - ETA 10 September - 2,000 MT - CBC Davisville to McMurdo Sound, Antarctica, via Port Lyttelton, New Zealand. Ice-strengthened MIZAR-class MSTS vessel to carry urgent material required at the beginning of the operating season.

(4) Ship 4 - ETA 24 October - 5,000 MT - USS vessel - CBC Davisville to McMurdo Sound, Antarctica, via Port Lyttelton, New Zealand - carrying the major portion of the general cargo for Antarctica from east coast, CONUS.

(5) Ship 5 - ETA 26 November - 7,000 MT - MSTS vessel - CBC Port Hueneme, California to McMurdo Sound, Antarctica, via Port Lyttelton, New Zealand - carrying drummed POL products and other general cargo to Antarctica from west coast, CONUS.

(6) Ship 6 - ETA 3 December - Estimated 1,500 MT - Commercial ship from Port Hueneme, California, to Port Lyttelton, New Zealand - west coast clean-up ship carrying the overflow cargo and reefer cargo from west coast to New Zealand to be transloaded to the second turn-around of the USS ARNEB.

(7) Ship 7 - ETA 22 December - 2,000 MT - Commercial ship - CBC Davisville, R. I. to Port Lyttelton, New Zealand - east coast clean-up ship to carry all remaining DEEP FREEZE cargo from CBC Davisville to Port Lyttelton, New Zealand, to be transloaded to the second turn-around of the USS ARNEB.

4. Actual Shipments.

a. The following shipments were made on the ships indicated:

(1) First commercial ship, Voyage 1.

S.S. PIONEER ISLE

Arrived Davisville - 15 July 1962
Total Weight - 738055
Total Cube - 62927

Departed - 15 July 1962
Total Long Tons - 330
Total Measured Tons - 1573

| | L/T | M/T |
|---|---|---|
| KILO AIR | 33 | 143 |
| KILO SHIP | 3 | 4 |
| REGULAR | 294 | 1426 |
| TOTALS | 330 | 1573 |

The following cargo was shipped on the PIONEER ISLE by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| USARP | 11 | 53 | 3 |
| AIR FORCE | 107 | 820 | 52 |
| METEOROLOGY | 1 | 2 | - |
| AIRDEVRON SIX | 54 | 224 | 14 |
| STAFF | 138 | 410 | 26 |
| ASA | 12 | 52 | 3 |
| CBIANT | 6 | 10 | 1 |
| MCB-8 | 1 | 2 | - |
| TOTALS | 330 | 1573 | 100% |

The PIONEER ISLE carried 294 L/T, 1326 M/T of Christchurch cargo--primarily Air Force cargo and staff cargo.

(2) Second commercial ship, Voyage 2.

S.S. PIONEER GEM

Arrived Davisville - 15 August 1962
Total Weight - 1226484
Total Cube - 73746

Departed - 16 August 1962
Total Long Tons - 547
Total Measured Tons - 1844

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| KILO AIR | 120 | 452 | 25 |
| KILO SHIP | 130 | 402 | 22 |
| REGULAR | 297 | 990 | 53 |
| TOTALS | 547 | 1844 | 100% |

The following cargo was shipped on the PIONEER GEM by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| USARP | 66 | 173 | 12 |
| AIR FORCE | 11 | 38 | 2 |
| METEOROLOGY | 9 | 31 | 2 |
| AIRDEVRON SIX | 72 | 297 | 13 |
| STAFF | 30 | 160 | 6 |
| DET TWO NAVSUPPFOR ANT | 43 | 169 | 8 |
| ASA | 122 | 456 | 22 |
| CBLANT | 182 | 496 | 33 |
| MCB-8 | 12 | 25 | 2 |
| TOTALS | 547 | 1844 | 100% |

270 long tons and 731 measured tons Christchurch cargo.
277 long tons and 1113 measured tons for Antarctica.

(3) First MSTS vessel, Voyage 3.

USNS MIRFAK

Arrived Davisville - 13 September 1962
Total Weight - 1705750
Total Cube - 78272

Departed - 20 September 1962
Total Long Tons - 761
Total Measured Tons - 1957

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| KILO AIR | 46 | 117 | 6 |
| KILO SHIP | 512 | 1380 | 71 |
| REGULAR | 203 | 460 | 23 |
| TOTALS | 761 | 1957 | 100% |

The following cargo was shipped on the USNS MIRFAK by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| USARP | 40 | 183 | 5 |
| AIR FORCE | 1 | 3 | - |
| METEOROLOGY | 3 | 22 | 1 |
| AIRDEVRON SIX | 12 | 50 | 2 |
| STAFF | 11 | 32 | 1 |
| DET TWO NAVSUPPFOR ANT | 47 | 193 | 6 |
| ASA | 366 | 624 | 48 |
| CBLANT | 156 | 451 | 20 |
| CBCENTER | 23 | 132 | 3 |
| NCEL | 75 | 213 | 10 |
| MCB-8 | 27 | 54 | 4 |
| TOTALS | 761 | 1957 | 100% |

(4) First USS vessel, Voyage 4.

USS ARNEB (AKA-56)

Arrived Davisville - 24 October 1962
Total Weight - 3563751
Total Cube - 189196

Departed - 7 November 1962
Total Long Tons - 1591
Total Measured Tons - 4730

The following cargo was shipped on the USS ARNEB by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| USARP | 69 | 360 | 4 |
| METEOROLOGY | 17 | 40 | 1 |
| AIRDEVRON SIX | 44 | 384 | 3 |
| STAFF | 20 | 89 | 1 |
| DET TWO NAVSUPPFOR ANT | 198 | 903 | 13 |
| ASA | 417 | 797 | 26 |
| CBLANT | 700 | 1697 | 44 |
| CBCENTER | 50 | 225 | 3 |
| MCB-8 | 12 | 63 | 1 |
| NCEL | 19 | 89 | 1 |
| DET ONE NAVSUPPFOR ANT | 45 | 83 | 3 |
| TOTALS | 1591 | 4730 | 100% |

(5) Second MSTS vessel, Voyage 5.

USNS MERRELL

Arrived Port Hueneme - 25 November 1962
Total Weight - 11228338
Total Cube - 313984

Departed - 3 December 1962
Total Long Tons - 5013
Total Measured Tons - 7850

The following cargo was shipped on the MERRELL by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| USARP | 4 | 10 | - |
| STAFF | 634 | 1063 | 14 |
| DET TWO NAVSUPPFOR ANT | 13 | 32 | - |
| ASA | 3773 | 5409 | 69 |
| CBLANT | 125 | 102 | 1 |
| CBCENTER | 118 | 353 | 5 |
| NCEL | 66 | 257 | 3 |
| MCB-8 | 280 | 624 | 8 |
| TOTALS | 5013 | 7850 | 100% |

(6) Third commercial vessel, Voyage 6.

CAP, CORRIENTES (German Flag Vessel)

Arrived Port Hueneme - 4 December 1962
Total Weight - 1422148
Total Cube - 46266

Departed - 8 December 1962
Total Long Tons - 635
Total Measured Tons - 1157

The following cargo was shipped on the CAP CORRIENTES by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| DET TWO NAVSUPPFOR ANT | 6 | 17 | 1 |
| METEOROLOGY | 5 | 10 | 1 |
| ASA | 598 | 1077 | 94 |
| CBLANT | 20 | 31 | 3 |
| CBCENTER | 6 | 22 | 1 |
| TOTALS | 635 | 1157 | 100% |

(7) Fourth commercial vessel, Voyage 7.

S.S. PIONEER REEF

Arrived Davisville - 21 December 1962
Total Weight - 1729663
Total Cube - 86886

Departed - 23 December 1962
Total Long Tons - 772
Total Measured Tons - 2172

The following cargo was shipped on the PIONEER REEF by activity:

| | L/T | M/T | Percent of M/T |
|---|---|---|---|
| USARP | 10 | 36 | 1 |
| METEOROLOGY | - | 1 | - |
| AIRDEVRON SIX | 31 | 269 | 4 |
| STAFF | 7 | 14 | 1 |
| DET TWO NAVSUPPFOR ANT | 109 | 224 | 14 |
| ASA | 253 | 660 | 33 |
| CBLANT | 173 | 473 | 23 |
| CBCENTER | 173 | 458 | 22 |
| MCB-8 | 6 | 14 | 1 |
| DET ONE NAVSUPPFOR ANT | 10 | 23 | 1 |
| TOTALS | 772 | 2172 | 100% |

5. Cargo Airlifted from CONUS.

a. Four special mission MATS C-124 aircraft were utilized for urgent over-sized cargo during DEEP FREEZE 63.

b. During the deployment stage early in DEEP FREEZE 63, all (18) C-118 aircraft carried small amounts of cargo in addition to their primary passenger-carrying role.

c. All AIRDEVRON SIX deployed aircraft were loaded to ACL with cargo when departing CONUS.

d. Additional space was made available to DEEP FREEZE shippers on deploying Air Force C-124 aircraft of the Ninth Troop Carrier Squadron on a space available basis.

e. Utilization was made of the increased ACL available at Hickam AFB, Hawaii, after aircraft transited the critical leg (Travis AFB to Hickam AFB) of the flight to Christchurch, New Zealand. This cargo included material generated by INDMAN FOURTEEN and Naval Supply Center, Pearl Harbor, Hawaii, and cargo positioned using the MATS channel lift from Travis AFB, California, to Hickam AFB, Hawaii. QUICKTRANS was also used for cargo movement within CONUS.

f. All (13) C-135 aircraft used to return personnel from New Zealand during the redeployment phase were loaded to ACL or cube on the NAS Quonset Point to Christchurch leg of the flight.

g. The following air cargo was lifted from CONUS locations:

| Location | Weight |
|---|---|
| NAS Quonset Point, Rhode Island | 144 S/T |
| Langley AFB, Virginia | 6 S/T |
| Lockheed Plant, Marietta, Georgia | 3 S/T |
| Travis AFB, California | 3 S/T |
| Hickam AFB, Hawaii | 92 S/T |

## TOTAL CARGO SHIPPED FROM CONUS BY ACTIVITY

| Activity | McMurdo L/T | McMurdo M/T | Byrd L/T | Byrd M/T | Pole L/T | Pole M/T | Hallett L/T | Hallett M/T | Eights L/T | Eights M/T | Christchurch L/T | Christchurch M/T | Total L/T | Total M/T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USAF | - | - | - | - | - | - | - | - | - | - | 120 | 865 | 120 | 865 |
| USARP | 98 | 474 | 38 | 121 | 31 | 117 | 6 | 29 | 17 | 56 | 19 | 37 | 209 | 834 |
| VX-6 | 53 | 407 | - | - | - | - | - | - | - | - | 157 | 642 | 210 | 1049 |
| DET ONE | - | - | - | - | - | - | - | - | - | - | 55 | 105 | 55 | 105 |
| STAFF | 635 | 1067 | - | - | - | - | - | - | - | - | 206 | 700 | 841 | 1767 |
| MCB-8 | 297 | 679 | 38 | 98 | 1 | 1 | - | - | 1 | 3 | 1 | 4 | 338 | 785 |
| DET TWO | 501 | 1023 | - | - | 1 | 2 | - | - | 84 | 601 | 163 | 419 | 749 | 2045 |
| METEROLOGY | 7 | 30 | - | - | - | - | 15 | 43 | - | - | 18 | 43 | 40 | 116 |
| NCEL | 165 | 578 | - | - | - | - | - | - | - | - | - | - | 165 | 578 |
| ASA | 4638 | 7376 | 289 | 644 | 91 | 203 | 77 | 160 | 73 | 161 | 30 | 151 | 5198 | 8695 |
| CBLANT | 847 | 2090 | 184 | 444 | 198 | 503 | 84 | 99 | 33 | 90 | 2 | 9 | 1348 | 3235 |
| CB CENTER | 280 | 864 | 19 | 86 | 10 | 45 | 66 | 208 | 1 | 5 | 1 | 1 | 377 | 1209 |
| TOTAL | 7521 | 14588 | 568 | 1393 | 332 | 871 | 248 | 539 | 209 | 916 | 772 | 2976 | 9650 | 21283 |

M/T - Measured ton is 40 cubic feet
L/T - Long ton is 2240 pounds

## TOTAL CARGO SHIPPING FROM CONUS BY PROJECT CODE

| Project Code | McMurdo | | Byrd | | Pole | | Hallett | | Eights | | Christchurch | | Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L/T | M/T | L/T | M/T | L/T | M/T | L/T | M/T | L/T | M/T | L/T | M/T | L/T | M/T |
| DA | 8 | 31 | - | - | - | - | 15 | 44 | - | - | 17 | 42 | 40 | 117 |
| DB | 1 | 4 | - | - | - | - | - | - | - | - | 13 | 30 | 14 | 34 |
| DD | 76 | 351 | - | - | - | 1 | - | 1 | - | - | 39 | 190 | 115 | 543 |
| DE | 4349 | 6309 | 27 | 40 | 1 | 2 | 23 | 30 | - | - | 25 | 45 | 4425 | 6426 |
| DG | 509 | 1485 | 62 | 179 | 35 | 92 | 14 | 40 | - | - | 136 | 376 | 756 | 2173 |
| DH | 279 | 701 | 52 | 80 | 8 | 22 | 6 | 25 | - | - | 19 | 47 | 364 | 875 |
| DJ | 337 | 678 | - | - | - | - | - | - | - | - | 35 | 122 | 372 | 800 |
| DK | 5 | 20 | - | 1 | - | - | - | - | - | - | 15 | 47 | 20 | 68 |
| DL | 4 | 16 | - | 2 | - | 1 | 1 | 2 | - | - | 5 | 36 | 10 | 57 |
| DM | 508 | 863 | 187 | 388 | 55 | 100 | 51 | 92 | 68 | 130 | 100 | 185 | 969 | 1758 |
| DN | 11 | 57 | - | 3 | 2 | 6 | - | - | 9 | 50 | 5 | 30 | 27 | 146 |
| DP | 44 | 129 | - | - | - | - | - | - | - | - | - | - | 44 | 129 |
| DQ | 53 | 407 | - | - | - | - | - | - | - | - | 157 | 642 | 210 | 1049 |
| DR | 98 | 474 | 38 | 121 | 31 | 116 | 6 | 29 | 17 | 56 | 19 | 37 | 209 | 833 |
| DS | - | - | - | - | - | - | - | - | - | - | 66 | 283 | 66 | 283 |
| DY | 17 | 50 | 36 | 95 | - | 1 | - | - | 1 | 3 | - | - | 54 | 149 |
| DV | 1 | - | - | - | - | - | - | - | - | - | 120 | 865 | 120 | 865 |
| DX | 1220 | 2971 | 161 | 478 | 199 | 529 | 133 | 277 | 114 | 676 | - | - | 1827 | 4931 |
| DZ | 6 | 41 | 2 | 6 | - | - | - | - | - | - | - | - | 8 | 47 |
| TOTALS | 7525 | 14587 | 565 | 1393 | 331 | 870 | 249 | 540 | 209 | 915 | 771 | 2977 | 9650 | 21283 |

Total DEEP FREEZE cargo airlifted from CONUS to Christchurch amounted to 248 short tons.

6. Cargo Handling in New Zealand.

A total of 8,694 measured tons were received from CONUS and handled across the piers at Port Lyttelton, New Zealand. Cargo totaling 6,941 measured tons was outloaded from Port Lyttelton to Hallett Station and McMurdo Station.

A cost of $3.40 per measured ton was incurred in handling cargo across the pier at Port Lyttelton when handled by commercial longshoremen.

The following cargo was handled across the piers at Port Lyttelton:

| INCOMING FROM CONUS | | L/T | M/T |
|---|---|---|---|
| PIONEER ISLE | | 330 | 1573 |
| PIONEER GEM | | 547 | 1844 |
| PIONEER REEF | | 772 | 2172 |
| CAP CORRIENTES | | 635 | 1157 |
| USNS MIRFAK | | 55 | 223 |
| USS STATEN ISLAND | | 6 | 22 |
| USS EDISTO | | 1 | 1 |
| USS ARNEB | | 188 | 562 |
| USS TOMBIGBEE | | 2 | 5 |
| INCOMING FROM ICE | | | |
| USNS MIRFAK | | 76 | 264 |
| USNS MERRELL | | 29 | 88 |
| USS ARNEB | | 61 | 783 |
| | TOTAL | 2702 | 8694 |
| OUTGOING TO ICE | | | |
| USNS MIRFAK | | 131 | 375 |
| USNS CHATTAHOOCHEE | | 86 | 218 |
| USNS MERRELL | | 21 | 76 |
| USS STATEN ISLAND | | 2 | 12 |
| USS EDISTO | | 6 | 11 |
| USS ARNEB | | 2132 | 4898 |
| USS TOMBIGBEE | | 11 | 37 |
| USS GLACIER | | 46 | 65 |
| | TOTAL | 2435 | 5692 |

| BACKLOAD TO CONUS | | L/T | M/T |
|---|---|---|---|
| USNS MERRELL | | 20 | 71 |
| USS ARNEB | | 272 | 1178 |
| | TOTAL | 292 | 1249 |

The following air cargo was handled at Christchurch, New Zealand:

| OUTGOING TO ICE | | BACKLOAD FROM ICE TO N.Z. | | BACKLOAD TO CONUS | |
|---|---|---|---|---|---|
| USAF | 575 S/T | USAF | 211 S/T | USAF | 119 S/T |
| VX-6 | 120 S/T | VX-6 | 44 S/T | VX-6 | 15 S/T |

7. Cargo airlifted on the Antarctic Continent.

a. Recapitulation of DEEP FREEZE 63 cargo airlifted from McMurdo to the several inland stations:

MATERIAL SEGREGATION CODES

| | |
|---|---|
| DA | METEOROLOGICAL |
| DB | PHOTOGRAPHIC |
| DD | CLOTHING, BEDDING, SAFETY, AND SURVIVAL MATERIAL SOFT GOODS |
| DE | PETROLEUM, CHEMICALS, EXPLOSIVES, ACIDS, GASES |
| DG | GENERAL MATERIAL, SUPPLIES, AND EQUIPMENT NOT OTHERWISE CODED |
| DH | MOBILE EQUIPMENT AND REPAIR PARTS |
| DJ | SHIP'S STORE STOCK |
| DK | WELFARE AND RECREATION, RELIGIOUS, LAUNDRY, I & E |
| DL | MEDICAL, DENTAL, PUBLIC HEALTH SERVICE MATERIAL |
| DM | PROVISIONS |
| DN | ELECTRONICS |
| DP | NUCLEAR POWER PLANT |
| DQ | VX-6 MATERIAL, EQUIPMENT, ETC. |
| DR | USARP MATERIAL, EQUIPMENT, ETC. |
| DS | STAFF MATERIAL, EQUIPMENT, ETC. |
| DV | USAF MATERIAL, EQUIPMENT, ETC. |
| DY | MCB MATERIAL, EQUIPMENT, ETC. |
| DX | SPECIAL PROJECTS (CONSTRUCTION MATERIAL) |
| DZ | TRAIL PARTY MATERIALS |

TO BYRD STATION, CARGO, AIR

| | C-124 BBLS | C-130 BBLS | C-124 WT | C-130 |
|---|---|---|---|---|
| AVGAS | 2789 | xx | 1084721 | |
| DIESEL | 1280 | 3771 | 572160 | 1690168 |
| JP-4 | 883 | 1723 | 376561 | 542828 |
| MOGAS | 96 | 234 | 38400 | 92760 |
| JATO | | 604 | | 101566 |
| IGNITERS | | 612 | | 1153 |
| CATEGORY | | | | |
| DB | | | | 132 |
| DD | | | | 7671 |
| DE | | | | 90180 |
| DG | | | | 192472 |
| DH | | | | 147317 |
| DJ | | | | 80566 |
| DK | | | | 1551 |
| DL | | | | 3166 |
| DM | | | | 433182 |
| DN | | | | 86314 |
| DQ | | | | 12665 |
| DR | | | | 147927 |
| DX | | | | 411258 |
| DY | | | | 46159 |
| DZ | | | | 26387 |
| PALLETS | | | | 57494 |

TOTALS 6244758 lbs
3122.4 S/T

TO POLE STATION, CARGO, AIR

| | C-124 BBLS | C-130 BBLS | C-124 WEIGHT | C-130 WEIGHT |
|---|---|---|---|---|
| AVGAS | 240 | | 93,360 | |
| DIESEL | 80 | 2481 | 34,560 | 1,106,324 |
| JP-4 | | 3 | | 1,245 |
| MOGAS | 160 | | 64,000 | |
| JATO | | 158 | | 26,010 |
| CATEGORY | | | | |
| DD | | | | 4,576 |
| DE | | | | 46,591 |
| DG | | | | 155,466 |
| DH | | | | 47,097 |
| DJ | | | | 19,849 |
| DK | | | | 200 |
| DL | | | | 1,463 |
| DM | | | | 122,938 |
| DN | | | | 3,363 |
| DR | | | | 79,200 |
| DX | | | | 555,616 |
| DY | | | | 51,280 |
| PALLETS | | | | 42,305 |

TOTALS 2455443 lbs
1227.6 S/T

TO EIGHTS STATION, CARGO, AIR

C-130 (40 flts.)

| | BBLS | WEIGHT |
|---|---|---|
| AVGAS | 12 | 4,668 |
| DIESEL | 55 | 24,012 |
| JP-4 | | |
| MOGAS | 33 | 13,200 |
| JATO | 36 | 6,040 |
| CATEGORY | | |
| DA | | 7,859 |
| DD | | 2,862 |
| DE | | 13,600 |
| DG | | 52,357 |
| DH | | 32,863 |
| DJ | | 6,596 |
| DK | | 3,173 |
| DL | | 1,271 |
| DM | | 83,600 |
| DN | | 30,104 |
| DR | | 60,376 |
| DX | | 221,565 |
| DY | | 1,234 |
| INDMAN 14 | | 7,287 |
| PALLETS | | 8,614 |
| | | 581,281 |

C-124

| | |
|---|---|
| DIESEL 1196 BBLS | 535,379 |
| TOTALS | 1,116,660 lbs |
| | 558.3 S/T |

TO HALLETT STATION, CARGO, AIR

| | BBLS | WEIGHT |
|---|---|---|
| AVGAS | 203 | 78,007 |
| DIESEL | | |
| JP-4 | 120 | 47,366 |
| MOGAS | 25 | 9,630 |
| JATO | 100 | 16,500 |
| IGNITERS | 44 | 249 |
| DD | | 735 |
| DE | | 69 |
| DG | | 4,436 |
| DH | | 997 |
| DK | | 220 |
| DM | | 1,115 |
| DN | | 1,260 |
| DR | | 10,870 |
| DX | | 11,297 |
| DSIR | | 323 |

TOTALS 183,124 lbs
91.6 S/T

TO BEARDMORE STATION, CARGO, AIR

| | | | |
|---|---|---|---|
| AVGAS | 255 Drums | | 109,195 lbs |
| DIESEL | 81 Drums | | 35,696 lbs |
| JP-4 | 171 Drums | | 69,600 lbs |
| MOGAS | 20 Drums | | 8,000 lbs |
| JATO | 190 Each | | 31,825 lbs |
| IGNITERS | 204 each at 393 lbs | PALLETS | 4,294 |
| OTHER CARGO | 88,290 lbs | TOTAL WEIGHT | 347,293 lbs<br>173.6 S/T |

TO LITTLE ROCKFORD STATION, CARGO, AIR

| | | | |
|---|---|---|---|
| DRUM PRODUCTS | 47,872 | PALLETS | 1,049 |
| OTHER CARGO | 63,620 | TOTAL WEIGHT | 112,541 lbs<br>56.3 S/T |

8. Problem Areas.

a. Pier, warehouse and access road facilities at Port Lyttelton were designed for loading and offloading by rail rather than truck. This creates a difficult situation since DEEP FREEZE operations require cargo movement by truck between Harewood and Port Lyttelton. At present, two warehouses and an open-field storage area are rented in Port Lyttelton during the operating season. The two warehouses are adequate for space requirements, but are in need of maintenance if long term use is planned. The open-field storage area is adequate for use during dry weather but both inadequate and dangerous to the forklift operator during wet weather.

b. Storekeeper personnel assigned to Harewood and Port Lyttelton were insufficient in number to handle documentation and movement of cargo during the DEEP FREEZE 63 operating season. The three storekeepers assigned were frequently required to work up to 20 hours a day in order to maintain the shipping schedule. This is considered to be a case of inadequate staffing.

c. Approximately 100 tons of frozen provisions were lifted from CONUS to Port Lyttelton in commercial bottoms. Since no freeze storage facilities are available in Port Lyttelton, these provisions were trucked about 18 miles to Christchurch in unrefrigerated trucks. This process was reversed when they were loaded in ARNEB for shipment to Antarctica. Risk of spoilage is unacceptably high.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

Air Cargo from CONUS

a. It was recommended that in early DEEP FREEZE 63 a storekeeper assigned to ASA or Staff be assigned TAD to Travis AFB to coordinate handling of DEEP FREEZE cargo. Investigation disclosed that NATCO Travis was effectively performing this function as a part of its normal mission. No further action is necessary.

MATS at NAS Quonset Point

b. It was recommended that all air cargo be delivered to the Supply Officer, NAS Quonset for loading aboard MATS special mission aircraft. This was explored and found to be infeasible. DET TWO will continue to load the planes.

c. It was recommended that a conference be held prior to the operating season between DET TWO, MATS and NAS Quonset. A conference was held and all problems resolved.

d. It was recommended that a written agreement be made between COMNAVSUPPFOR ANTARCTICA and MATS specifying responsibilities of the (a) MATS special mission officer, (b) aircraft commander, (c) Officer in Charge, DET TWO. A conference was held and problems were resolved.

USNS MIZAR, USS ARNEB, USNS MERRELL, and SS PIONEER GEM

e. It was recommended that a ship no smaller than a Victory-type be employed for hauling the PL3 Nuclear Power Plant for Byrd Station. No further action was required as the Power Plant installation has been dropped from the program.

f. It was recommended that COMNAVSUPPFOR ANTARCTICA make every effort to notify COMSTS as far in advance as possible of DEEP FREEZE 64 shipping requirements and that MSTS ships be manned by personnel desiring to make the DEEP FREEZE trip. MSTS was appraised of our needs as soon as known and no problems were encountered with personnel.

g. It was recommended that COMSTS start a supply readiness inspection of their ships designated for Antarctic deployment within 90 days of deployment date. This was already being accomplished by COMSTS.

h. It was recommended that all MSTS ships deploying to Antarctica be furnished cold weather survival clothing. COMSTS advised that it was the responsibility of each individual man to provide his own clothing, commensurate with the climate in which his ship will be operating.

Cargo Handling at Christchurch-McMurdo

i. It was recommended that two 5-ton trucks be borrowed from CBLANT motor pool for use in Christchurch. Two new 5-ton stake trucks were borrowed and shipped to Christchurch on the first commercial ship. These trucks were of real value to the cargo operation and resulted in considerable savings in commercial hauling costs. Arrangements were made to leave these trucks in Christchurch for use during DEEP FREEZE 64.

j. It was recommended that clerical functions now performed by personnel of NAVSUPPFOR ANTARCTICA, DET TWO, Davisville, R. I., be transferred to the CBCENTER, Davisville, thereby releasing three storekeepers to work in the Christchurch operations. This was found to be infeasible and the work continues to be performed by DET TWO.

k. It was recommended that ten men from CHB-1 be sent to Christchurch in August to work for the Cargo Officer and experience level and rate be considered in the initial selection of these men. Ten men were requested from CHB-1 for Christchurch in August and were provided. The level of rates and experience of the men were considered satisfactory.

l. It was recommended that CASA be responsible for all cargo operations in Antarctica, and that CHB-1 personnel be assigned to CASA. Both recommendations were adopted resulting in a more efficient DEEP FREEZE 63 cargo operation at McMurdo.

m. It was recommended that CHB-1 personnel be used primarily for offloading ships, cargo segregation, aircraft loading, etc. This recommendation was adhered to during DEEP FREEZE 63.

Fuel

n. It was recommended that two additional 250,000 gallon bulk tanks be installed at McMurdo during DEEP FREEZE 63. This was accomplished.

Equipment and Spare Part Support

o. It was recommended that the program to fill required equipment deficiencies, obtain necessary funding, and institute a systematic replacement plan be pursued on a continuing basis. This is being accomplished on a continuing basis.

p. It was recommended that the repair parts program be continued and additional assistance as required be requested from YDSO. This is being accomplished on a continuing basis.

q. It was recommended that the use of New Zealand commercial overhaul facilities be continued so long as overhaul charges remain competitive. This is being accomplished on a continuing basis.

Storage Facilities

r. It was recommended that two double-deck warehouses be constructed at McMurdo for supply storage during DEEP FREEZE 63. This was accomplished.

s. It was recommended that the needs for additional storage space at McMurdo be studied and a long-range program established to insure effective control of material in Antarctica. This will be part of a detailed study.

t. It was recommended that cold weather clothing for ASA and MCB EIGHT personnel be issued in two increments: Survival outfits from Christchurch, and working outfits from McMurdo. This was accomplished in DEEP FREEZE 63 and is expected to continue.

Funding

u. It was recommended that NAVCOMPT be requested to take action as necessary to ensure that the various Bureaus comply with NAVCOMPTINST 7110.41 to provide information concerning DEEP FREEZE costs. NAVCOMPTINST 7110.41 has not been favorably received by all of the Navy Bureaus due to differences in reporting requirements. For this reason, this recommendation is withdrawn and no further action will be taken.

2. DEEP FREEZE 63 Recommendations.

a. DEVELOP A FORMAL ISSUE SYSTEM FOR MCMURDO FUELS AND OTHER MATERIALS TO ENSURE PROMPT REIMBURSEMENT FROM THE AIR FORCE.

b. IMPROVE FINANCIAL MANAGEMENT CONTROLS BY CONTINUING PROGRAMS ALREADY INITIATED AND INSTITUTING NEW PROGRAMS AND TECHNIQUES AS RAPIDLY AS FEASIBLE. RELATED OBJECTIVES ARE:

(1) HOLD SUFFICIENT FUNDS IN RESERVE FOR FUTURE REQUIREMENTS DURING THE YEAR.

(2) AVOID "PANIC BUYING".

c. DEVELOP "PERT" TYPE SYSTEMS TO IMPROVE CONTROL, PROVIDE READY OPERATING APPRAISAL, AND TO PROVIDE FACTS AND INFORMATION UPON WHICH FUTURE PLANNING CAN BE BASED.

d. IN VIEW OF THE POOR CARGO HANDLING CONDITIONS AT PORT LYTTELTON, SHIP MOST OF THE CARGO FOR ANTARCTICA DIRECT FROM CONUS TO MCMURDO SOUND. An attempt will be made during DEEP FREEZE 64 to reduce Port Lyttelton trans-shipments by approximately 25 percent from last year's operation.

e. IF A LONG TERM USE OF PORT LYTTELTON FACILITIES IS CONTEMPLATED, MODERNIZE ONE WAREHOUSE AND HARD-TOP THE OPEN FIELD. The long-term situation will be examined during DEEP FREEZE 64.

f. HARD-TOP THE CARGO YARD AT HAREWOOD AIRFIELD AND CONSTRUCT WAREHOUSE FACILITIES. These projects have been referred by COMNAVSUPPFOR ANTARCTICA and CNO to BUSHIPS for funding approval.

g. USE THE USNS MERRELL-CLASS SHIP, WITH A CAPACITY OF 7,000 MEASURED TONS, AS THE STANDARD DEEP FREEZE CARGO SHIP FOR REASONS OF ECONOMY AND EFFICIENT CARGO HANDLING CAPABILITY. A COMPARISON OF TON-DAY COSTS FOR DRY CARGO SHIPS USED IN DEEP FREEZE 63 DEMONSTRATES THE ECONOMY OF THIS CLASS SHIP:

| | |
|---|---|
| USNS MIRFAK | $1.19 PER M/T DAY |
| USS ARNEB (EST BASED ON WYANDOT DF 64 COSTS) | 0.75 PER M/T DAY |
| USNS MERRELL | 0.47 PER M/T DAY |

h. ASSIGN AN ADEQUATE NUMBER OF SK RATINGS DURING THE OPERATING SEASON TO PROPERLY HANDLE AND DOCUMENT CARGO ARRIVING AND BEING SHIPPED FROM NEW ZEALAND TO ANTARCTICA.

## CHAPTER III

## PERSONNEL, ADMINISTRATION, LEGAL AND POSTAL

1. Personnel and Administration.

Personnel assigned to the staff, Antarctic Support Activity and Air Development Squadron SIX were adequate in numbers in Operation DEEP FREEZE 63 to perform all assigned tasks, however, in some cases there were not enough personnel to perform all evolutions most efficiently and economically. COMANTARCTICSUPPACTY was directed to conduct a study into the numbers of personnel required by him to best fulfill his presently assigned tasks. The result envisions the addition of 283 enlisted billets to ANTARCTIC SUPPACTY. The concept of level funding for DEEP FREEZE and a fixed MPN budget, on the other hand, indicate that no more personnel can be supported than were involved in Operation DEEP FREEZE 63, and possibly less. Future implications of this funding policy will be:

a. Operations of the same scope, accepting the less efficient situation, or

b. Reduction of the scope of operations to that which can be efficiently supported.

This staff is studying longer term possibilities that will probably result in a compromise between reducing the numbers of personnel, and consequently the magnitude of operations they conduct, and attempts to raise the funding level to support more personnel.

Per diem payments to deployed personnel were reduced by the necessity of unit deployment. This resulted, in the case of most married personnel, in a net financial loss for the period of the operating season. This problem, common to other branches of the armed forces, is being actively pursued on high levels. The immediate effect on morale is appreciable, and continued assumption by service members of financial loss as a result of assignment to Operation DEEP FREEZE will have the most serious implications.

Effects of the reorganization of ANTARCTIC SUPPACTY reported in the last season's summary could not be evaluated during this operating season due to the fact that most of the "three-year" personnel were ordered to COMANTARCTICSUPPACTY late in the summer season. With the experience of an operating season behind them, positive results should accrue for evaluation during the next season.

It was necessary during the operating season to replace three key personnel in ANTARCTIC SUPPACTY due to unsuitability for wintering over. This was accomplished expeditiously, but at the expense of considerable extra work and expenditure of funds by BUPERS and inconvenience to the

personnel involved. Since the DEEP FREEZE 64 winteriving over group was being screened at the time of these occurrences, it was determined immediately, insofar as was possible, to have personnel completely screened through final psychiatric examination prior to final acceptance and issuance of PCS orders.

With the issuance of PCS next assignment orders to the enlisted personnel of the DEEP FREEZE 62 wintering over party, a considerable step forward was realized. BUPERS assigned personnel to the duty of their first choice wherever there was any reasonable requirement for rate in the locality desired. This served to alleviate a major problem that was developing because word of mouth was spreading that assignments immediately subsequent to DEEP FREEZE were often to "undesirable" duty. Publicity was given to the assignment statistics of the DEEP FREEZE 62 wintering over group in service media. The avowed intention of BUPERS to do likewise with the DEEP FREEZE 63 wintering over group will produce positive benefits in morale and the quality of personnel who will volunteer for future operations.

The shortage within the Navy of CM, UT and SW ratings and the likelihood they will at some time or other be assigned to DEEP FREEZE, whether through their own choice to ANTARCTIC SUPPACTY or involuntarily to an MCB, is becoming troublesome to the volunteer program. The number of volunteers in these rates, especially CM, diminished in DEEP FREEZE 62 and the volunteer group for DEEP FREEZE 63 to less than those necessary to fill billets. In some cases drafts were made on EPDOs to fill the billets. In other cases, substitutions of EN were made for CM, and SF for UT and SW. This has repeatedly been noted by COMANTARCTICSUPPACTY to be undesirable since the average substitute rating is not sufficiently skilled, nor is there sufficient time to train him, in the new types of equipment and systems that he will be called on to maintain. The end result has been greater equipment and system down-time, primarily during the operating season when it can least be tolerated. Future selections of substitute ratings will have to be made from the outstanding group of the rating substituted in order to permit assimilation of the factory training that COMANTARCTICSUPPACTY is able to provide during the summer training period.

The pending military pay raise bill includes provisions for family separation allowance which will include married personnel wintering over in the Antarctic, if enacted. This would provide incentive in the solicitation of volunteer wintering over personnel. The advantages in morale are the significant consideration.

2. Legal and Discipline.

Legal and disciplinary matters come within the cognizance of the Staff Legal Officer, whose function it is to provide legal advice to the Commander, review proceedings of courts-martial and investigations, take action with respect to claims matters, serve as liaison with civil law enforcement

authorities, observe trials of United States personnel in foreign courts, provide advice and assistance in legal matters to the various units of Task Force FORTY-THREE, and provide legal assistance to personnel of the various units and their dependents.

COMNAVSUPPFOR ANTARCTICA is a general court-martial convening authority, and as such, is the supervisory authority for review of special and summary courts-martial (within the naval service). COMNAVSUPPFOR ANTARCTICA has been designated (CINCPACINST 5820.1A) as the single "commanding officer" having responsibility to act for all U.S. military services in matters of foreign criminal jurisdiction in New Zealand. He is responsible to CINCPACFLT in matters of foreign criminal jurisdiction affecting naval personnel in New Zealand (CINCLANTFLT AND CINCPACFLT endorsement on COMNAVSUPPFOR ANTARCTICA ltr ser 243 of 17 Feb 1961); and has responsibility for submitting reports required by CINCPACFLTINST 5820.1B. Exercise of jurisdiction over United States personnel in New Zealand is governed by the Agreement, with Memorandum of Understandings, Between the United States of America and New Zealand signed 24 December 1958 (TIAS 4151), as extended by the Agreement Between the United States of America and New Zealand signed on 18 October 1960 (TIAS 4591). That agreement also contains provisions concerning exemption of United States personnel from payment of certain taxes and import duties, and provides for submission of claims against the U.S. Government by New Zealand citizens for loss or damages caused by U.S. personnel.

Although military discipline cases were neither numerous nor serious in nature, legal activity and the number of problems increased during the DEEP FREEZE 63 summer operating season in comparison with the previous year. Motor vehicle accidents reported decreased from 12 to 8, probably as a result of planned weekly lectures by New Zealand traffic officers and revision in COMNAVSUPPFOR ANTARCTICA INST 5101.1B (subject: Traffic Regulations for personnel in New Zealand). Claims against the United States government under the provisions of the Foreign Claims Regulations resulting from those traffic accidents or accidents of the previous season increased slightly, from 7 to 11. Close liaison and frequent contact with New Zealand authorities resulted in waiver by New Zealand courts of all offenses by U.S. personnel.

One death occurred during the operating season. The fatality was a result of a New Zealand national driving a vehicle while he was intoxicated and causing the vehicle to strike the serviceman. The service member was in no way responsible.

The number of marriage requests and visa applications decreased from fifty-three to forty-two. It was discovered late in the season, however, that a number of personnel had married without obtaining permission through the command. A revision to COMNAVSUPPFOR ANTARCTICA INST 1752.1B (subject: Marriage of Task Force FORTY-THREE military personnel with the New Zealand area) will be issued to prevent recurrence of such incidents.

Numerical breakdown of matters requiring action by the Staff Legal Officer during DEEP FREEZE 63 summer operating season follows:

| | |
|---|---|
| Foreign claims processed | 9 |
| Investigations (all types) | 25 |
| Summary courts-martial | 9 |
| Police involvements | 9 |
| Traffic violations | 15 |
| Reports on exercise of foreign criminal jurisdiction | 4 |
| Other reports | 8 |
| Instructions and directives reviewed and/or revised | 3 |
| Statements or affidavits | 22 |
| Marriage requests processed | 42 |
| Complaints against personnel (including indebtedness, paternity, tenancy problems, personal disagreements, etc.) | 32 |
| Legal assistance | 183 |
| Advisory opinions to units of TF-43 | 35 |

3. Postal.

The U.S. Navy Post Office in Christchurch (Navy 531) in support of Operation DEEP FREEZE operates the entire year. During the operating season (September-March) it is staffed by one (1) chief postal clerk (PCCS) and one assistant postal clerk (PC2). A mail orderly from AIRDEVRON SIX assisted in mail handling during this period. From April through August only the PC2 mans the post office.

The Navy Post Office at McMurdo Station was staffed by one PC2 (Navy Postal Clerk) and two assistant postal clerks.

Mail handling and philatelic cancellation service are provided at Byrd Station and South Pole Station and are operated by mail orderlies. No post office stamp credit is held nor is money order service provided at these stations. Stamps are issued from the ship's store to the mail orderly for sale to personnel.

257,000 pounds of mail was handled at Christchurch (Navy 531) during DEEP FREEZE 63, an increase of 50,000 lbs above the previous year. Approximately 41,000 pounds was dispatched to deployed units at the five U.S. Antarctic stations and New Zealand's Scott Base; 45,000 pounds was dispatched to the ten U.S. Navy, Coast Guard and MSTS ships of Task Force FORTY-THREE. 37,909 pounds of mail was dispatched to the United States from Christchurch.

Air mail and first class mail was received and dispatched twice weekly via New Zealand and Pan American Airlines with the average transit time of two days between Christchurch and the United States.

Registered mail was received and dispatched once each week via Pan American Airlines at Auckland, New Zealand by one of the postal clerks from the Christchurch Navy post office.

Parcel post was received at approximately thirty-day intervals via commercial-surface transportation from San Francisco. During the pre-Christmas period (1-23 December) parcel post was received from FPO San Francisco via Pan American Airlines on the same bi-weekly schedule as air mail.

In January 1963 the chief postal clerk of COMNAVSUPPFOR ANTARCTICA visited the three Antarctic Stations operating postal facilities for an informal administration inspection. The postal facilities at McMurdo were considered adequate and the handling of mail by Navy postal clerks was excellent. South Pole Station has adequate mail handling space and Byrd Station will have a separate mail handling room by the beginning of DEEP FREEZE 64. The mail orderlies at both of these latter stations lacked basic instruction in proper mail handling.

The volume of philatelic mail continues to increase (over 800 pounds from Antarctic Stations; USS EDISTO cancelled and cacheted more than 12,000 pieces).

With the opening of new stations, the increase in use of new cachets by various units, and the increased activity by profiteering philatelists, the man hours required to cachet, cancel and process this mail, at Navy expense, has become increasingly time-consuming and costly. Instituted procedures and instructions to control philatelic mail have been ignored.

Considering the volume of mail handled; the availability of weight and cube allowed on aircraft to and from Antarctica and the uncertain movements of men, ships and aircraft, mail service during DEEP FREEZE 63 was considered excellent.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Comments and Recommendations.

a. It was recommended that favorable consideration be given to increasing the allowance of personnel for Antarctic Support Activities, in view of increases in the scope of the mission assigned that command as the number of personnel were not sufficient to execute all of the details assigned. The first paragraph of this chapter sets forth a discussion on funding imposed in the MPN budget for future operations and its implications.

b. It was recommended that still further restrictions be placed on the handling of philatelic mail during the summer operating season due to the increasing heavy workload imposed. Additional restrictions were imposed in instructions issued. The amount of philatelic mail has continued to increase. Reasons for this are set forth in the postal section of this chapter.

c. It was recommended that measures be continued to improve the command's record regarding traffic offenses and conduct ashore, through use by all units of education programs and strictest disciplinary measures in view of the increases of traffic violations and accidents being too high, and that military appearance and conduct ashore could be improved. Command attention is still directed to improve standards of conduct and military appearance ashore.

2. DEEP FREEZE 63 Comments and Recommendations.

a. Per diem payments to deployed personnel are not generally sufficient to cover expenses.

THIS STAFF WILL CONTINUE TO SUPPORT, AS REQUESTED, ACTION TO LIBERALIZE THE PRESENT PER DIEM SITUATION. HIGHER LEVELS OF COMMAND ARE REQUESTED TO TAKE THE LENGTHY DEEP FREEZE DEPLOYMENT INTO CONSIDERATION WHEN REVIEWING OR SUBMITTING MATERIAL IN SUPPORT OF INCREASED PER DIEM PAYMENTS.

b. Substitutions in allowed ratings in ANTARCTIC SUPPACTY are resulting in equipment and material readiness problems.

IT IS RECOMMENDED THAT BUPERS SUBSTITUTE RATINGS ONLY WHERE ABSOLUTELY NECESSARY, AND THEN PROVIDE ONLY OUTSTANDING PERSONNEL AS SUBSTITUTES.

c. Military appearance and conduct of personnel ashore still shows need for improvement.

COMMANDERS AND COMMANDING OFFICERS OF UNITS ATTACHED TO DEEP FREEZE MUST PROVIDE INCREASED GUIDANCE TO PERSONNEL AS TO THEIR APPEARANCE AND CONDUCT AND MUST CONDUCT SUCH INSPECTIONS AS ARE NECESSARY TO OBTAIN HIGHEST STANDARDS.

d. Mail orderlies at inland Antarctic stations were not thoroughly indoctrinated in all phases of mail handling.

IT IS RECOMMENDED THAT COMANTARCTICSUPPACTY CONDUCT INCREASED TRAINING IN MAIL HANDLING PROCEDURES FOR PERSONNEL WHO WILL BE ASSIGNED AS MAIL ORDERLIES. THIS STAFF'S SENIOR POSTAL CLERK IS AVAILABLE FOR SUCH INSTRUCTION AND WILL AGAIN CONDUCT AN INSPECTION OF MAIL HANDLING AT INLAND STATIONS DURING THE DEEP FREEZE 64 SEASON.

# CHAPTER IV

## MEDICAL AND DENTAL

### Health.

1. Physical Standards.

Experience acquired during previous DEEP FREEZE operations has yielded an improved capability for the detection and prognostication of those environmental situations and physical conditions likely to cause decreased productivity in personnel deployed in Antarctica. From this knowledge there has evolved a set of physical standards for Antarctic service. These standards judiciously applied during the physical and psychological screening examinations of Task Force FORTY-THREE and civilian scientific personnel, in conjunction with increased awareness at all levels of command of the need for such rigid screening, have led to an appreciable diminution in the number of personnel who have had to be hospitalized or returned to CONUS because of pre-existing pathological conditions incompatible with a productive existence on the Antarctic continent.

During DEEP FREEZE 63 U. S. Antarctic Projects Officer and CHINFO were requested to arrange physical examinations for all distinguished visitors and news media representatives prior to their departure from CONUS in an attempt to prevent any embarrassment which could occur as a result of their sustaining injuries or becoming ill due to pre-existent physical defects. This plan proved of value in several instances although it was hampered by late arrival of some physical examination results and the failure of some of the distinguished visitors to obtain examinations prior to arrival in New Zealand.

In order to maintain the operational capability necessary to insure continued success in future operations, rigid adherence to strict physical and neuropsychiatric standards must be continued and even strengthened in all areas where indicated.

2. Infectious Diseases.

No occurrence of water-borne or food-borne contagious disease was reported in Antarctica during the wintering-over period of 1962. Late during the following summer operation a case of amebiasis was diagnosed in a twenty-year-old enlisted man who had been stationed in North Africa one year previously. Diagnosis was established at McMurdo Station by laboratory identification of Endamoeba Histolytica cysts in three different stool specimens. Because of lack of facilities to handle body wastes in an approved hygienic manner, it was elected to treat him as an outpatient with carbarsone and diodoquin. His convalescence was uneventful and subsequent stool examinations have been negative.

No cases of infectious hepatitis were reported in Antarctica during DEEP FREEZE 63.

One opisode of suspected food poisoning occurred which involved ten passengers on a southbound C-124 flight from Christchurch to McMurdo. Tests of a saved box lunch in Christchurch and clinical examination of the involved personnel upon their arrival in McMurdo failed to substantiate the suspected diagnosis.

3. Sick Call and Admissions to the Sick List.

No statistically significant difference was observed in a comparison between frequency and nature of sick call visits during DEEP FREEZE 63 and the previous year's operation. As in past seasons, upper respiratory problems, minor dermatoses and acute trauma comprised the major reasons for frequent reporting to sick call. Accidental trauma was the most frequent reason for admission to the sick list. Nearly all instances of psychiatric illness developed in summer support personnel who had not been subjected to the thorough psychological testing and psychiatric screening procedures. Such patients were expeditiously transferred to hospitals within the United States.

Table 1 summarizes sick call visits and admissions to the binnacle and sick lists in relation to the mean station on-board counts during the summer operating season from 1 September 1962 to 31 March 1963. It must be remembered that the mean on-board population figures do not adequately reflect the population surges during the peak weeks of the season.

4. Cold Injuries.

There were no cold weather injuries of sufficient magnitude to merit admission to the sick list this season. Cold injuries consisted only of first and second degree frostbite of the face, hands and toes. These were more prevalent at the inland stations and were experienced by those personnel whose duties required prolonged periods out of doors or a fineness of coordination unobtainable while wearing gloves.

One episode of total immersion occurred, lasting fifteen seconds in water whose surface temperature was 30 degrees Fahrenheit. Wind velocity was 2 knots. The patient was warmed rapidly and suffered no ill effects from his brief immersion.

One case of snowblindness was reported by a helicopter pilot attached to an icebreaker. He had flown a two hour hop over snow-covered terrain while the sun was below the horizon. The patient responded well to symptomatic treatment and was reported cured in forty-eight hours.

The lack of serious cold weather injuries can be attributed to adequate indoctrination in the dangers of exposure, proper use of cold weather clothing and the rapid respect for Antarctic weather developed by all hands.

5. Aircraft Accidents.

CONSOLIDATED STATISTICAL DATA FOR PERIOD 1 SEPT 1962 THRU 31 MARCH 1963
DEEP FREEZE 1963

| | MCMURDO | WILLIAMS FIELD | CHRISTCHURCH | BYRD STATION | POLE STATION | HALLETT STATION | EIGHTS STATION | TOTAL |
|---|---|---|---|---|---|---|---|---|
| 1. AVERAGE STATION COUNT | 550 | 251 | 571 | 84 | 48 | 32 | 21 | 1557 |
| a. Nav & Mar | 493 | 189 | 330 | 67 | 36 | 19 | 17 | 1151 |
| b. Air Force | 1 | 58 | 130 | 0 | 0 | 0 | 0 | 189 |
| c. Army | 5 | 2 | 3 | 0 | 0 | 0 | 0 | 10 |
| d. Civilians | 51 | 2 | 108 | 17 | 12 | 13 | 4 | 207 |
| 2. TOTAL SICK CALL VISITS | 2002 | 639 | 1370 | 476 | 187 | 107 | 23 | 4804 |
| a. Nav & Mar | 1819 | 513 | 947 | 390 | 164 | 48 | 20 | 3901 |
| b. Air Force | 9 | 96 | 366 | 0 | 0 | 0 | 0 | 471 |
| c. Army | 33 | 19 | 2 | 0 | 0 | 0 | 0 | 54 |
| d. Civilians | 141 | 11 | 55 | 86 | 23 | 59 | 3 | 378 |
| 3. INITIAL VISITS | 998 | 514 | 1020 | 276 | 125 | 42 | 23 | 2998 |
| a. Nav & Mar | 878 | 401 | 698 | 236 | 111 | 30 | 20 | 2374 |
| b. Air Force | 8 | 88 | 276 | 0 | 0 | 0 | 0 | 372 |
| c. Army | 19 | 14 | 2 | 0 | 0 | 0 | 0 | 35 |
| d. Civilians | 93 | 11 | 44 | 40 | 14 | 12 | 3 | 217 |
| 4. REVISITS | 1004 | 125 | 350 | 200 | 62 | 65 | 0 | 1806 |
| a. Nav & Mar | 941 | 112 | 249 | 154 | 53 | 18 | 0 | 1527 |
| b. Air Force | 1 | 8 | 90 | 0 | 0 | 0 | 0 | 99 |
| c. Army | 14 | 5 | 0 | 0 | 0 | 0 | 0 | 19 |
| d. Civilians | 48 | 0 | 11 | 46 | 9 | 47 | 0 | 161 |
| 5. ADMITTED TO SICK LIST | 52 | * | 21 | 6 | 1 | 2 | 2 | 84 |
| 6. DISCHARGED FROM SICK LIST | 33 | * | 37 | 1 | 0 | 0 | 1 | 72 |
| 7. SICK DAYS | 264 | * | 812 | 22 | 2 | 15 | 3 | 1118 |
| a. Nav & Mar | 225 | * | 651 | 21 | 2 | 15 | 3 | 917 |
| b. Air Force | 2 | * | 59 | 0 | 0 | 0 | 0 | 61 |
| c. Army | 0 | * | 0 | 0 | 0 | 0 | 0 | 0 |
| d. Civilians | 37 | * | 102 | 1 | 0 | 0 | 0 | 140 |
| 8. ADMITTED TO BINNACLE LIST | 94 | * | 16 | 3 | 0 | 0 | 0 | 113 |
| 9. BINNACLE DAYS | 94 | * | 16 | 3 | 0 | 0 | 0 | 113 |
| 10. TRANSFERS | | | | | | | | |
| a. TRANSFERS RECEIVED | 20 | * | 55 | 0 | 0 | 0 | 0 | 75 |
| b. TRANSFERRED OUT | 39 | * | 36 | 5 | 1 | 2 | 1 | 84 |

* Denotes all statistical information reported by McMurdo Station and Eights Station only during the months of December 1962 thru 31 March 1963.

TABLE I

There were four aircraft accidents this season, each of which resulted in strike damage to the involved aircraft. Only two individuals sustained injuries and these were not serious. One pilot received a concussion and lacerations of the scalp. In another accident a passenger sustained a deep penetrating injury to the muscle, fascia and ligaments proximal to the knee. Both have been returned to duty. Neither accident demonstrated any unusual survival situations.

6. Medical Evacuations.

Thirty-nine patients were evacuated by air from Antarctica to Christchurch. Of these, seventeen were retained in Christchurch for treatment and the remainder were further evacuated in Tripler General Army Hospital or to hospitals in CONUS after having obtained a cite number from Chief, Armed Services Medical Regulating Office (CHASMRO). This letter system worked well in all cases where it could be utilized, since it permitted the patient to be hospitalized close to his duty station and family. Eleven patients who were admitted to the sick list in Christchurch or received by transfer from ships, were evacuated to Honolulu or CONUS making a total of thirty-three medical air evacuations to the United States, a decrease of twenty-two percent compared to DEEP FREEZE 62. Only those patients with neuropsychiatric diagnoses or with illnesses of such nature as to necessitate prolonged or specialized hospitalization were evacuated. In all other instances, patients requiring hospitalization were cared for in the dispensary at Christchurch or in Christchurch civilian hospitals. Because of the excellent cooperation demonstrated by VX-6, 9th TCS and MATS in rearranging flight schedules and passenger manifests in order to accommodate patients, it was not necessary to request a special medical air evacuation flight by 1453rd Aeromedical Evacuation Squadron.

An aeromedical evacuation which demonstrated splendid cooperation by several nations in the spirit of the Antarctic Treaty transpired in February. A seaman on the Danish ship NELLA DAN under scientific charter to the Australian Department of External Affairs developed signs and symptoms suggestive of gastric carcinoma with metastases. He was examined by a medical officer at Davis Station who decided that evacuation to a diagnostic and therapeutic center was mandatory. The GLACIER effected a rendezvous with the NELLA DAN off the Sabrina Coast of Wilkes Land and the patient was transferred to GLACIER. GLACIER returned to McMurdo at best speed where the patient was transferred to the last northbound C-130 of the season. In accordance with the wishes of the Danish Consulate the patient was met in Christchurch by a navy ambulance and taken to a New Zealand hospital for definitive treatment.

Medical Facilities and Personnel.

1. Christchurch, New Zealand.

U.S. Naval Support Force, Antarctica, Detachment ONE, Christchurch, New Zealand has a modern, well equipped and well maintained seven bed dispensary. The goal of maximum utilization of this facility for care of both inpatients and outpatients was approached this year and is reflected

by the number of personnel treated and returned to active duty. Since there is only one billet on the staff of CTF-43 for a corpsman, who functions solely in an administrative capacity, it was necessary to rely on Antarctic Support Activities, AIRDEVRON SIX and U.S. Air Force NINTH Troop Carrier Squadron to provide corpsmen to staff the dispensary in support of their personnel while in Christchurch. The commanding officers of these units were generous with their cooperation. During the peak of summer activity, the dispensary was staffed by a Navy Flight Surgeon, a Navy general medical officer, an Air Force Flight Surgeon, a Navy dentist, two summer support corpsmen, two VX-6 corpsmen, one VX-6 dental technician, three Air Force corpsmen and one Air Force veterinary technician. This is considered to be adequate personnel to fulfill satisfactorily the mission of the Medical Department, providing corpsmen receive satisfactory training prior to deployment.

Hospitals of the North Canterbury Hospital Board (Christchurch Public Hospital, Princess Margaret Hospital) were utilized for patients who required major surgery or specialized care beyond the capability of the dispensary. Occasionally patients were referred to civilian private practitioners for consultation in one of the medical specialties; some of these patients were subsequently hospitalized in private hospitals under the care of these specialists. An excellent professional relationship exists between the Task Force Medical Department and New Zealand physicians and hospitals.

A dental operating unit including a high speed air rotor was installed this year. If funds are available, the dental facility will be extended next season to include equipment for performing endodontia and prosthetic repair. This would eliminate expenditures for performance of these services by New Zealand practitioners.

A new metropolitan ambulance was procured this season and was extensively utilized for the movement of both inpatients and outpatients. The Air Force field ambulance was released to Navy custody and was utilized primarily for runway standbys.

2. McMurdo Station.

The on-board count at McMurdo Station during the peak month of the summer operation during DEEP FREEZE IV (1958-59) was 383. In DEEP FREEZE 63 it was 1065, nearly triple that of DEEP FREEZE IV. This rapid growth in the summer population at McMurdo in only four seasons has outstripped the growth in capability of the Medical Department to provide adequate care in the event of a minor disaster involving only several individuals. This is not due to lack of trained personnel, but results rather from a lack of space for an adequate number of beds and necessary equipment. Crowding due to the lack of space is of such extent as to preclude the maintenance of sterile technique in the operating room; it requires the use of bunk beds in the ward which makes it difficult, if not impossible, to administer adequate nursing care to seriously ill patients; it makes it impossible to maintain an isolation unit which is so urgently needed now that infectious hepatitis and amebiasis have been diagnosed on the

continent. In an attempt to gain space without major alternations of the facility, all medical personnel, with the exception of the duty corpsman, are berthed elsewhere. Nevertheless each new requirement for additional space, such as the recently established radiation safety laboratory and the physical therapy unit, further diminishes the capability of the Medical Department to fulfill its primary missions of maintaining personnel in satisfactory state of health and being able to render adequate treatment promptly in the eventuality of any creditable accident or disaster.

The dispensary is housed in a 1200 square feet Clements building which was constructed during DEEP FREEZE III (1957-58). Utilized for outside storage are two Jamesway buildings, four conex boxes and a trailer. There is a five-bed ward, but due to space limitations only one of these is a standard hospital bed, the remainder being double bunk beds. In addition to these is the duty corpsman's room which contains another double bunk bed. Complete laboratory, pharmacy and X-ray facilities are available. The facilities of the operating room were severly overtaxed this summer when an emergency appendectomy was performed on a civilian scientist who had been evacuated from the Sentinel Mountains. Because of inadequate relaxation of the patient and prolongation of the procedure due to technical difficulties, it became necessary to change the anesthetic agent from nitrous oxide to diethyl ether in a closed system. In an operating room not designed for the utilization of explosive agents this presented a very real hazard to both the patient and the attending medical personnel.

The McMurdo dispensary wintering-over complement of a flight surgeon, dental officer, dental technician, laboratory technician, operating room technician and medical administrative technician, was supplemented during the summer by three summer support corpsmen and one dental technician.

3. Williams Field.

The Williams Field temporary dispensary was again established this year and will be maintained during the winter months by a corpsman qualified for independent duty. During this third season of operation, it was expanded to a 16 X 32 feet Jamesway and was staffed by the VX-6 flight surgeon and three VX-6 corpsmen. Although the Williams Field dispensary major mission was to serve as a sick call and minor treatment facility for personnel at the air strip, it was conceived to serve also as a medical support and screening facility in the eventuality of an aircraft accident at the field. The forty man transient Jamesway at Williams Field was established as an emergency unit to care for the less critically injured overflow of patients from the main McMurdo dispensary, should a mass disaster occur. The McMurdo Nodwell ambulance, which can carry two stretcher cases with an attendant, or three without, was stationed most of the time at Williams Field on the premise that it was there where it was most urgently needed. The installation of a UQ (micro-wave relay) telephone system this year markedly improved communications between Williams Field and McMurdo dispensary. This system plus

the FM radio crash circuit provided adequate communications.

A trailer similar to the Eights Station buildings was ordered this year for use at the Williams Field dispensary. Construction was not completed with sufficient time for it to be delivered to the continent. It will be equipped to perform more extensive laboratory studies and limited x-ray procedures. Upon its outfitting and delivery early in DEEP FREEZE 64, it will afford the mobility required of a medical facility should it be necessary to move flight operations to the barrier once the ice breaks out. In addition it will serve as a permanent disaster station utilizable throughout the year.

4. Pole Station.

Pole Station dispensary occupies a two year old T-5 building with a floor space of 560 square feet. It is manned by a medical officer and one corpsman qualified for independent duty. It is equipped to handle routine minor surgical procedures, and in an emergency, major abdominal surgery. During the period of extensive construction this summer the medical staff was supplemented by an MCB-8 corpsman.

5. Byrd Station.

During DEEP FREEZE 63 the sick bay shared temporary quarters in Building 3 with the galley and mess hall. During this summer the new galley and mess hall were constructed. This winter Building 3 will be converted into a permanent medical facility which will be the most modern and spacious inland dispensary in Antarctica.

The wintering-over medical officer and corpsman were supplemented during the summer construction and air operation period with a VX-6 corpsman.

6. Hallett Station.

The medical facility at Hallett Station suffers the almost universal Antarctic complaint of lack of space. It occupies the rear one-third of the barracks Clements building and measures 12 X 16 feet. The shortage was partially resolved when USARP agreed to let the Navy utilize laboratory spaces in an adjacent building. A Tucker Sno-Cat is used as an ambulance and a heated wanigan is kept at the ice runway during the flying season in support of the crash crew.

7. Eights Station.

Requests for a medical officer to winter over at newly established Eights Station were denied. Medical support is being provided by a well qualified Senior Chief Hospitalman who also serves as Chief Petty Officer in Charge of the station. Because of the indecision as to whether a medical officer or corpsman would be ordered to Eights and the attendant problems in outfitting the medical facility according to the needs and

capabilities of a medical officer versus a corpsman, a series of medical field kits were relied upon heavily for the initial outfitting. With a view to the lack of medical spaces each kit was opened and repacked at Christchurch into a sequence of orderly units--sick call, pharmacy, laboratory, minor surgery and major surgery. The station is equipped to perform major surgery on an emergency basis and only if a medical officer can be flown in. During the construction phase and prior to the arrival of the Chief Hospitalman, an MCB-8 corpsman provided medical support.

Preventive Medicine.

1. General.

It is an incontrovertible fact that the standards of water supply, sewage disposal and living quarters in Antarctica are beneath minimums established by the Bureau of Medicine and Surgery. During the infancy of Operation DEEP FREEZE when each season was expected to be the final one, such conditions might have been excusable. Now that the operation is a continuing and growing one, no rational excuse can be advanced for permitting such substandard conditions to continue to threaten the health of personnel in Antarctica.

2. Water Supply.

Throughout Antarctica, water is laboriously and expensively produced by melting snow. McMurdo Station, which suffers most acutely from a water shortage because of its location on a comparatively snow free volcanic hill and its annual summer population explosion, has only two sources of potable water, namely the galley snow melters at the main camp and at Williams Field. Chlorination of these sources is carefully monitored and samples are cultured at weekly intervals. Chlorination of water from all other major snow melters was instituted this season in an effort to safeguard personnel who, even though cautioned against it, brushed their teeth in water from these melters. It must be emphasized that the infectious hepatitis virus and Endomeba histolytica cyst are resistant to concentrations of chlorine in excess of palatability.

Medical Supply.

1. General.

Medical supply is accomplished through Construction Battalion Center, Davisville, utilizing Antarctic Support Activities funds with resupply orders originating from individual Antarctic stations according to the needs of each station. Resupply requests, together with each station's annual inventory, are routed via the Staff Medical Officer for approval, additions and overall coordination. Procurement, processing and packaging of material for shipment to Antarctica is performed at Davisville.

Although the medical supply procedures and controls initiated during

DEEP FREEZE 62 and modified in DEEP FREEZE 63 proved very workable, conversion to MILSTRIP on 1 July 1962 created some problems. A lack of systematic follow-up procedures on requisitions resulted in late receipt of some critical items.

A master EAM listing of all medical supplies ordered and shipped to Antarctica was maintained by both the Staff Medical Officer and supply corpsman at McMurdo to facilitate management of material as it was received by each station. This method of control resulted in the expeditious handling of medical material shipments to all stations. Loss or damage of material was held to a minimum though there were several episodes of boxes being shipped to the wrong station which had to be backloaded. One case containing a diathermy appatatus shipped via USS ARNEB on her last trip was not received by McMurdo Station.

The dispensary at Christchurch was again utilized as a minor resupply facility for Antarctic stations during the summer season. This permitted a prompt filling of requests for additional or emergency medical material from Christchurch stock or commercial sources when funds were available. The amount of medical material that had to be ordered on an emergency basis from CONUS during the summer operations was held to a minimum.

No damage due to freezing was experienced this year. This can be attributed to better packaging and marking of boxes, as well as prompt handling and storage of material upon arrival at their destination.

Resupply of outlying stations during DEEP FREEZE 64 will, except for major equipment items, be provided by either McMurdo or Christchurch. This method of resupply will cut requisition processing and handling considerably which in turn will provide a better resupply service to outlying stations.

Cold Weather Clothing.

1. General.

It must be remembered that Antarctica does not present throughout its area a universal environment or climate. Likewise there is a similar variance in types of duty assigned personnel. Cold weather clothing suitable for an individual performing a particular task at McMurdo Station might be wholely unsuitable for an individual performing a similar job at Hallett or Byrd Station. Too often in the past these considerations had been neglected and personnel are given "stock issue" of Antarctic clothing without an attempt being made to correlate anticipated duties with prospective stations. This season personnel traveled from Christchurch to McMurdo with only a basic survival issue and drew their special issue upon arrival.

Military issue cold weather clothing was found to be adequate and serviceable. Unfortunately it tends to be heavy and bulky. Repeated washings of the woolen shirts and trousers result eventually in shrinkage

to the extent of unwearability. A dry cleaning plant would cure this situation.

Difficulty was encountered this season at inland stations where some items of clothing with high usage rates were found to be in short supply and/or unusable sizes. Although introduction of cotton sateen shirts, trousers and jackets met with favorable wearer acceptance due to retention of size after laundering, the wool shirts and trousers are the preferred attire for outdoor wear.

Dental

1. General.

Important in preventing major dental problems in Antarctica have been rigid screening examinations and the requirement that dental treatment of all wintering-over personnel must be completed prior to deployment. All USARP personnel whose original examinations performed in the United States disclosed a need for dental treatment were re-examined before departing Christchurch for McMurdo to insure that required restorations had been satisfactorily completed.

2. Christchurch.

A dental operating unit equipped with a high speed air rotor was installed this season and staffed by the VX-6 dental officer and dental technician. This new facility furnished the long needed capability of conveniently obtainable dental treatment for military personnel of Task Force 43. The dentist performed all screening examinations and was assigned on several occasions to ships without dental officers to render emergency dental treatment.

3. McMurdo.

Dental facilities are housed in the McMurdo dispensary and are staffed by a dental officer and dental technician to assure preventive and restorative dental treatment on a twelve month basis. The Dental Department is equipped to perform crown and bridge prosthesis, endodontia, peridontia, operative denistry and oral surgical procedures. All accessible inland stations were visited at least once during the summer by the dentist and his assistant in order to hold dental sick call and treat minor dental problems.

4. Ships.

The Dental Departments aboard SERVLANT icebreakers were deleted this year just prior to deployment. Because of late reporting of many in the crews it was impossible to bring the whole crew up to acceptable standards of dental hygiene. Consequently dental problems were common and dental emergencies were not rare. Had it not been for the assistance of dental officers from the dispensary at Christchurch, those ships having dental departments and McMurdo Station, many emergency evacuations due to dental illness could have resulted.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations:

a. A new dispensary for McMurdo has been recommended yearly since 1960. No action has been taken.

b. A recommendation for a second Nodwell ambulance to be used at McMurdo is still pending.

c. A permanent mobile dispensary similar in construction to the Eights Station trailers was recommended for use at Williams Field. Such a unit is presently under construction and will be available early in DEEP FREEZE 64.

d. A metropolitan type ambulance with adequate driver visibility was sorely needed in Christchurch. A new Pontiac ambulance was procured and delivered in October 1962. Although it is not a right hand drive vehicle, it has been extensively utilized and found to be adequate in all respects.

e. It was recommended that the Williams Field FM radio crash circuit be extended to include the McMurdo dispensary. This need has been obviated by the installation of the VQ micro-wave relay telephone system.

f. In order to provide continuity, coordination and adequate control of Antarctic Support Activities Medical Department in Davisville, it was recommended that an additional billet for a medical officer be established. Although no action has been taken, the problem has been partially resolved by ordering one of the returning DEEP FREEZE 62 medical officers to Davisville on a temporary duty basis.

g. Recommendations for improvements in water supply, sanitation and living spaces received minimal attention. Any improvements noted were minor in degree and localized in scope.

h. A reasonable set of physical standards and procedures for physical examination of distinguished visitors and news media were instituted this year. Unfortunately, in most instances they were ignored until the guests had arrived in Christchurch.

i. Recommendations for changes in packaging of medical supplies damagable by freezing were tabled because of increased cost.

j. Adequate heated storage space was made available at Williams Field.

k. Because Task Force 43 is a major user of general issue cold weather clothing it was recommended that an Antarctic Cold Weather Clothing Evaluation Board be established. No action has been taken.

l. It was recommended that a wind resistant balaclava be made an item of standard issue. No action has been taken.

m. The recommendation that all dental officers attached to icebreakers be trained in anesthesia received favorable consideration, but no ship followed the attendant recommendation to procure an anesthesia apparatus.

n. The non-inflammable dry cleaning plants recommended for use by each station to clean woolen garments were not procured.

2. DEEP FREEZE 63 Recommendations:

a. The present McMurdo dispensary has been demonstrated to be severely limited in its ability to handle the large inpatient and outpatient loads imposed by the continuing growth of the operation. Space limitations and the resultant overcrowding of patients, equipment, working areas and medical personnel preclude adequate emergency treatment of more than several patients simultaneously. The need for a new dispensary has long been recognized and plans and cost estimates were completed several years ago; but a new dispensary has been carried as a major deficiency item for the past four years.

IT IS RECOMMENDED THAT THE PRESENT DISPENSARY BE REPLACED BY A NEW ONE WHICH IS DESIGNED AND EQUIPPED TO HANDLE NOT ONLY ROUTINE MEDICAL PROBLEMS BUT ACUTELY INFECTIOUS CASES, PSYCHIATRIC ILLNESSES AND EMERGENCY CASES IN SUBSTANTIAL NUMBERS. IT IS FURTHER RECOMMENDED THAT A SUFFICIENTLY HIGH PRIORITY BE ASSIGNED SO AS TO INSURE EARLY COMPLETION.

b. Deletion of the Dental Departments aboard SERVLANT icebreakers without prior consultation with CTF-43, together with the late reporting of a significant portion of the crews and the resultant unavailability of dental treatment over prolonged periods, placed an unfair burden on each ship, her crew, her Medical Department and the Dental Departments of other commands.

IT IS STRONGLY RECOMMENDED THAT COMSERVLANT REVIEW HIS RECOMMENDATION WHICH RESULTED IN THE DELETION OF DENTAL DEPARTMENTS ABOARD SERVLANT ICEBREAKERS AND INITIATE APPROPRIATE ACTION FOR RESTITUTION OF SAME.

c. The appearance of an active case of amebiasis in McMurdo when coupled with the knowledge that amebiasis is transmitted by fecal contamination, adds real urgency to the need for an adequate sewage system. Continued neglect of sewage disposal in Antarctica could easily contribute to an outbreak of amebiasis sufficient in magnitude to injure the whole operation.

IT IS RECOMMENDED THAT A CONCERTED EFFORT BE MADE, AND A HIGH PRIORITY ASSIGNED, TO RAISING THE STANDARDS OF WATER SUPPLY, SANITATION AND LIVING SPACES TO MINIMUM ACCEPTABLE LEVELS AS ESTABLISHED BY THE BUREAU OF MEDICINE AND SURGERY.

d. During the summer season the Nodwell ambulance is maintained at Williams Field. An additional ambulance is urgently needed for use in the main camp during this period, because the great distance in time which

separates Williams Field from base camp makes it impossible to provide ambulance service in McMurdo on an emergency basis.

IT IS RECOMMENDED THAT A SECOND R-75 NODWELL VEHICLE CONFIGURED AS AN AMBULANCE BE PROCURED FOR USE AT MCMURDO DURING THE SUMMER SEASON OF DEEP FREEZE 64.

e. In previous seasons the operation of Antarctic Support Activities' Medical Department in Davisville has lacked continuity, coordination and control because no medical officer experienced in Antarctic medicine was on board. There is a need for a medical officer in Davisville from March until late August to insure adequate medical screening of summer support and wintering-over personnel. In addition he would provide invaluable assistance in supervising medical logistics and training of newly reported Medical Department personnel, including both corpsmen and medical officers. In August he would deploy to Christchurch to serve as the dispensary medical officer at Christchurch, New Zealand. As a result, no longer would adequate staffing of the Christchurch dispensary depend on a volunteer from the wintering-over medical officers.

IT IS RECOMMENDED THAT COMMANDER, ANTARCTIC SUPPORT ACTIVITIES INITIATE ACTION TO ESTABLISH AN ADDITIONAL BILLET FOR A MEDICAL OFFICER; THAT THE BILLET BE FOR A FLIGHT SURGEON; AND THAT HE BE DEPLOYED TEMPORARY ADDITIONAL DUTY (TAD) TO STAFF, COMMANDER, U. S. NAVAL SUPPORT FORCE, ANTARCTICA, CHRISTCHURCH, NEW ZEALAND FROM SEPTEMBER UNTIL APRIL.

f. IT IS RECOMMENDED THAT A PROPERLY EQUIPPED AMBULANCE VEHICLE MANNED BY QUALIFIED PERSONNEL AND WITH FIRE FIGHTING EQUIPMENT IN TOW BE ON THE AIRSTRIPS OF POLE, BYRD AND HALLETT STATIONS DURING LANDINGS AND TAKE-OFFS OF ALL AIRCRAFT.

g. IT IS RECOMMENDED THAT ADDITIONAL HEATED STORAGE SPACE BE PROVIDED AT WILLIAMS FIELD FOR MEDICAL SUPPLIES SUBJECT TO DAMAGE BY FREEZING WHICH ARE AWAITING SHIPMENT TO INLAND STATIONS.

h. IT IS RECOMMENDED THAT ALL DENTAL OFFICERS ATTACHED TO DEEP FREEZE SHIPS BE GIVEN A MONTH'S TRAINING IN ADMINISTRATION OF GENERAL ANESTHESIA AT A U. S. NAVAL HOSPITAL PRIOR TO DEPLOYMENT. ALL SHIPS WITH DENTAL OFFICERS ATTACHED SHOULD PROCURE A FOUR CYLINDER CAPACITY GAS ANESTHESIA APPARATUS, FSN 6515-301-0430 OR EQUIVALENT.

i. IT IS RECOMMENDED THAT AN ANTARCTIC COLD WEATHER CLOTHING EVALUATION BOARD BE ESTABLISHED FOR THE PURPOSE OF:

(1) TESTING NEW ARTICLES OF COLD WEATHER CLOTHING.

(2) INSURING THAT PERSONNEL ARE ISSUED APPROPRIATE AMOUNTS OF CLOTHING THAT IS SUITABLE IN RESPECT TO THEIR DUTIES AND ASSIGNED STATIONS.

(3) MAKING RECOMMENDATIONS TO CLOTHING AND TEXTILE OFFICE REGARD-

ING STANDARDIZATION AND PROCUREMENT OF CLOTHING SUITABLE FOR ANTARCTIC USE.

j. IT IS RECOMMENDED THAT AS LONG AS WOOLEN GARMENTS CONTINUE TO BE USED, A NON-INFLAMMABLE DRY CLEANING PLANT BE PROCURED AND INSTALLED AT EACH STATION.

k. IT IS RECOMMENDED THAT A WIND RESISTANT BALACLAVA PROVIDING MAXIMUM FACE, HEAD AND NECK PROTECTION BE DEVELOPED AND/OR PROCURED FOR ALL OUTSIDE WINTERING-OVER AND SUMMER SUPPORT PERSONNEL.

## CHAPTER V

## PUBLIC INFORMATION

1. The major objectives stressed in Operation DEEP FREEZE 62 remained the same for DEEP FREEZE 63. These objectives were:

a. To insure United States and world-wide public awareness and understanding of the role of the United States in Antarctica.

b. To insure United States and world-wide public awareness of the support provided to science by the peaceful employment of the armed forces.

2. The permanent information staff consisted of the following:

1 CDR
1 LTJG
1 JOCS
1 JO3

Arrangements were made in June, through the Task Force 43 Administrative Officer, and EPDOLANT to supplement the public information staff as follows:

2 JO2
2 JO3 (Sep 1962 - Apr 1963)
1 JOSN (Sep 1962 - Apr 1963)

3. Early in May 1962, the Public Information Officer began a series of consultations with the U.S. Information Agency, Department of State and the U.S. Navy Chief of Information (Media Relations Branch) in an effort to streamline the DEEP FREEZE 63 press program. It was considered that the programs of DEEP FREEZE 61 and DEEP FREEZE 62, although highly successful, could have been more effective with more selective advance screening of prospective media visitors and with a shortened but concentrated visitor season.

4. Accordingly, the entire concept of the press program was reviewed and revised. Instead of a six-weeks' tour for four separate groups, the program was scheduled for the thirty-days of November with three groups of twelve newsmen per group. Formerly the press program lasted from six to eight weeks, involving four to five groups.

5. Prior to extending initial invitations to news media, the U.S. Information Agency expressed great interest in the program and asked for an increase in quota for foreign news media from 12 to 20. Inasmuch as only 36 spaces would be available for the entire press program, it was decided to allot 18 spaces (or 50%) to the U.S. Information Agency in view of the intense international interest in DEEP FREEZE. Although this would result in a decrease in the domestic quota, it would permit CHINFO a much wider latitude and selectivity in the screening process of U.S. newsmen.

6. DEEP FREEZE press kits and specially selected photographs were turned over to CHINFO in late August 1962 for forwarding to selected reporters. Public Information personnel deployed to New Zealand at the end of August and to McMurdo in early October 1962, about one month before the first press group arrived in Antarctica, for supervision of the refurbishing of the Press Quarters. The remodeled press quarters, building J15, provided much more comfortable living conditions, and was completed shortly before the arrival of the first group 3 November 1962. At present there is space for a maximum of sixteen newsmen at McMurdo at one time.

7. A total of forty-two media representatives visited Antarctica this year. Of this total, 22 represented U.S. media and 20 represented the foreign press.

8. Experience in previous operations indicated that if weather conditions proved favorable, correspondents would have ample time to view the entire operation in from five to seven days. Ten days per group was chosen in view of the unpredictable weather factor. During this period the following itinerary was arranged:

a. Master briefing - 2 hours (COMNAVSUPPFOR ANTARCTICA and unit commanders).

b. Tour of McMurdo Station.

c. Tour of PM3A nuclear power plant.

d. Tour of Scott's hut at Hut Point.

e. Tour of New Zealand's Scott Base.

f. Tour of Amundsen-Scott South Pole Station in C130 Hercules.

g. Tour of Byrd Station in C130 Hercules.

h. Helicopter trip to Cape Royds and tour of Shackelton's Hut and adjoining penguin rookery.

i. Science Day. An all day tour of scientific facilities at McMurdo.

j. Tour of ice runway complex at Williams Field.

k. Aerology and communications briefing.

l. Helicopter trip to icebreaker.

m. Lunch or dinner with COMNAVSUPPFOR Antarctica.

9. Public Information Department shared with Administrative Department responsibilities connected with the co-ordination of the distinguished visitor program and coordinated all activities of visitors while in the Antarctic. The Public Information Office was instrumental in the preparation of COMNAVSUPPFOR ANTARCTICA INSTRUCTION 5050.1 which delineates various responsibilities in connection with the DEEP FREEZE distinguished visitor and press program.

10. The objective of the distinguished visitor program is to acquaint government and civilian agencies connected with DEEP FREEZE with the mission of this command. During DEEP FREEZE 63, 92 distinguished American and foreign visitors, including the Secretary of Commerce, U.S. Congressmen and other distinguished leaders visited Antarctica. The same tour was made available to these visitors as the press.

11. A survey of available clippings indicated wide coverage throughout numerous U.S., foreign, and New Zealand newspapers in addition to consistent coverage in U.S. military oriented publications. Approximately 27,500 column inches of print told the U.S. Navy DEEP FREEZE story throughout the world. Added to this was a very generous use of descriptive pictures included with many of the stories. As an example, an entire sixteen page supplement of Stars and Stripes featured DEEP FREEZE 63 Antarctic operations.

12. The U.S. Navy's Fleet Home Town News Center was provided with individual pictures of all personnel deployed with Task Force FORTY-THREE. Fleet Home Town News Center was an information addressee on all spot news releases. Of the individual and roster stories submitted on a total of 3,213 individual men, the center disseminated just short of 10,000 releases to home town media.

13. As a supplement to the Fleet Home Town News Program and to increase the domestic coverage, a series of conferences between the Public Information Officer and the Director of Naval Reserve Public Relations Companies in CHINFO resulted in a program whereby pictures and stories would be sent to forty Reserve Public Relations Companies located in key geographical locations throughout the United States. Press kit material was made available and forty copies of each story and picture released by Task Force 43 were forwarded on a regular basis to the Naval Reserve Coordinator in CHINFO.

14. Navy produced features known as "mailers" which contained Task Force 43 originated news releases and photographs were sent directly to 268 outlets, including all the correspondents who had visited Antarctica during the past three seasons. This involved 51 releases with 53,600 photographs.

15. Community relations was an active program in New Zealand. There was a steady call for speakers, motion pictures, and visits to Advance Headquarters. It is estimated public information personnel participated in over 100 movie showings to an overall New Zealand audience of 25,000 persons.

16. The Public Information Officer cooperated with the City of Christchurch in the staging of "Antarctic Week" 14-23 September. The purpose of this observance was to focus public attention on Antarctic operations conducted by the U.S. and to serve as an expression of mutual goodwill between the U.S. and New Zealand. To achieve these goals the Public Information Officer and the City arranged for the display of photographs and equipment in windows of various local merchants, and for a day long open house display of U.S. aircraft and other equipment associated with DEEP FREEZE. On 23 September Open House was held. Every hour from 10 a.m. to 3 p.m. Antarctic films were screened in the station chapel. Special events involved a jet assisted take-off by a Hercules and maximum climb demonstration. Estimates of total attendance range from between 45,000 and 50,000 persons.

17. The Public Information Officer supervised the publication of "OUR WORLD IN ANTARCTICA". This book has received outstanding reviews in over 40 major U.S. newspapers including the New York Times.

18. The following press were accredited to DEEP FREEZE 63:

Group ONE: 4 November - 10 November 1962

United States Media

| | |
|---|---|
| Allyn Baum | New York Times |
| Murray Moler | United Press International |
| Harold Scarlet | Houston Post |
| Walter Mathews | Fairchild Publications |

Foreign Media

| | |
|---|---|
| Pekka Holopainen | APU Helsinki |
| Ron Bedford | London Daily Mirror |
| Ron Poulton | Toronto Telegraph |
| Lenhart Lofthagen | Stockholm, Sweden |
| David Burke | Australian Broadcasting Company |
| Bill Hudson | Australian Broadcasting Company |
| Eric White | Australian Broadcasting Company |
| Bill Grimmond | Australian Broadcasting Company |

Group TWO: 11 November - 18 November 1962

| | |
|---|---|
| Peter Reich | Chicago American |
| Ken Weaver | National Geographic |
| Simon Nathan | Fawcett Publications |
| Larry Bush | Ann Arbor News |
| Everett Richards | Portland Oregonian |
| Ernie Richter | Star and Stripes (Tokyo) |
| Capt. Ferdinand Mendenhall, USNR | Van Nuys, Calif. News (Acdutra, CHINFO) |

Foreign Media

| | |
|---|---|
| Ken Ishimaru | Mainichi Shimbun |
| Eberhard Schulz | Frankfurter Allgemeine Zeitung |
| Werner Haller | Ringiersunterhaltunisblatter (Sweden) |
| Nicholas Skrotsky | France Soir |
| Arie De Kool | Nieuwe Rotterdamse Courant (Holland) |
| Jan De Laet | Belga Press Agency (Belgium) |

Group THREE: 19 November - 27 November 1962

| | |
|---|---|
| Zelig Adler | New York Mirror |
| John McDermott | Miami Herald |
| Bruce Jolly | Greensboro (N.C.) News |
| Jack Williams | WTVD Durham (N.C.) |
| Josef Grossman | New York Herald Tribune |
| Steve McCormick | Mutual Broadcasting Corporation |
| Scott Stone | Honolulu Advertiser |
| I. Ishii | Honolulu Advertiser |
| Howard Silber | Omaha World |
| Donald Pfarrer | Milwaukee Journal |

Foreign Media

| | |
|---|---|
| Philip V. Harkness | Waikato (N.Z.) Times |
| Horacio Estol | Clarin, Buenos Aires, Argentina |
| Ilario Fiore | Il Tempo Rome, Italy |
| Fritz Oien | Norway |
| Djordje Radenkovic | Yugoslavia |

The following distinguished individuals visited Antarctica during DEEP FREEZE 63:

Group ONE: 4 November - 10 November 1962

NEW ZEALAND GUESTS

| | |
|---|---|
| Mr. J. R. Osbaldiston | N.Z. Customs, Wellington, N.Z. |
| Mr. J. W. Walters | CAA Representative, Wellington, N.Z. |
| Mr. I. F. B. Redstone | Manager, Wellington Airport, Wellington, N.Z. |
| Mr. Geoffrey Hall Jones | Lawyer, Invercargill, N.Z. |
| Colonel R. E. Johnston | C.O. Burnham R.N.Z.A. Camp, Christchurch, N.Z. |
| Air Commodore William H. Stratton | Asst. Chief of Air Staff, Christchurch, New Zealand |
| Mr. Sam Boanas | N.Z. Harbor Board, Lyttelton, N.Z. |
| Mr. Bill Laing | N.Z. Harbor Board, Lyttelton, N.Z. |
| Mr. Leslie Amos | N.Z. Harbor Board, Lyttelton, N.Z. |
| Mr. R. Stanley | Antarctic Society, Lyttelton, N.Z. |
| Mr. Ted Porter | Agriculturalist, Lake Coleridge, N.Z. |
| Dr. Norman Ridgeway | D.S.I.R., Wellington, N.Z. |
| Mr. Guy Mannering | D.S.I.R., Wellington, N.Z. |

USARP GUESTS

| | |
|---|---|
| Mr. Fred Alberts | Board Geographic Names, Washington, D.C. |
| Dr. Kenneth Bertrand | Board Geographic Names, Washington, D.C. |

PROJECTS OFFICE GUESTS

| | |
|---|---|
| Capt. C. L. Kessler, USN (ret.) | Selective Service, Washington, D.C. |
| Cdr. M. M. Cook, USN | OPNAV, Washington, D.C. |

WORKING VISITORS

| | |
|---|---|
| Mr. W. O. Enright | Asst. Projects Manager, Allis Chalmers Co. |
| Mr. C. E. Klotz | Asst. Projects Manager, Allis Chalmers Co. |
| Mr. E. Wallner | Senior Projects Manager, Allis Chalmers Co. |
| Mr. Jack Marks | Portland Zoo, Portland, Oregon |
| Mr. Hicks | BUDOCKS, Washington, D.C. |
| Mr. Armstrong | BUDOCKS, Washington, D.C. |

EXCHANGE REPRESENTATIVES

| | |
|---|---|
| LCDR G. M. A. Brummer | Royal Netherlands Navy |

Group TWO: 11 November - 18 November 1962

| | |
|---|---|
| Mr. A. E. Allen | M.P. for Franklin, Auckland, N.Z. |
| Mr. H. R. Lapwood | M.P. for Rotorua, Rotorua, N.Z. |
| Mr. Horace Kirk | Lions International, Auckland, N.Z. |
| Mr. E. Somers | City Engineer, Christchurch, N.Z. |
| Mr. J. B. Collett | Mayor of Lyttelton, Lyttelton, N.Z. |

U. S. EMBASSY

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|---|---|
| Colonel A. H. Hislop | Army Attache, Wellington, N.Z. |
| Colonel Kenneth Wilson | Military Advisor, Wellington, N.Z. |

USARP GUESTS

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| Dr. Mark Meier | Coast & Geodetic Survey, Washington, D.C. |

PROJECTS OFFICE GUESTS

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| Mr. Stewart French | Chief Counsel Senate Interior/Insular Committee, Washington, D.C. |
| Dr. Fred Armstrong | U.S. Steel Foundations, Washington, D.C. |

WORKING VISITORS

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| Mr. Barnes O. Buckman | Naval Fuel Supply Office |

Group THREE: 19 November - 27 November 1962

PROJECTS OFFICE GUESTS

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|---|---|
| Hon. Luther Hodges | Secretary of Commerce, Washington, D.C. |
| Mr. Voit Gilmore | Director, U.S. Travel Service, Washington, D.C. |
| Hon. R. Taylor | U.S. Congressman, (D) North Carolina |
| Hon. G. Hosmer | U.S. Congressman, (R) California |
| Hon. C. Holifield | U.S. Congressman, (D) California |
| Hon. W. R. Poage | U.S. Congressman, (D) Texas |
| Hon. G. Purcell | U.S. Congressman, (D) Texas |
| Gen. J. E. Doolittle | U.S.A.F. (Ret.); Shell Oil Co., Calif. |
| Mr. Carl Fisher | Deputy Director Budget OSD, Washington, D.C. |
| Mr. Lowell Thomas | Movie producer, Radio commentator, New York |
| Dr. Gerald Johnson | Office Secretary of Defense, Washington, D.C. |
| Dr. James E. Mooney | Deputy U.S.A.P.O., Washington, D.C. |

U.S. EMBASSY GUESTS

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|---|---|
| Mr. Yakuhiro Makasone | Member House of Representatives, Tokyo, Japan |
| Mr. Takashi Hasegawa | Member House of Representatives, Tokyo, Japan |
| Mr. Nasayoshi Muraiama | Former Chief Japanese Antarctic Exp. Tokyo |
| Mr. Masataka Nakao | Nippon Educational TV Co., Tokyo, Japan |
| Mr. Misahiro Kato | Nippon Educational TV Co., Tokyo, Japan |
| Cdr. Chet Knowles, USN | Naval Attache, U.S. Embassy, Wellington, New Zealand |

NEW ZEALAND GUESTS

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| Mr. Ernie Marshall | Standard Vacuum Co., Christchurch, N.Z. |
| Mr. Max Whatman | Christchurch Star, Christchurch, N.Z. |

USARP GUESTS

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| Dr. Ardita Desio | Director Geological Institute, Milan, Italy |
| Dr. Orville Wyss | Department of Bacteriology, University of Texas |
| Rev. Theodore M. Hesburgh | President, Notre Dame University, South Bend, Indiana |
| Dr. Laurence M. Gould | National Academy of Science, Washington, D.C. |

Group FOUR: 2 December - 7 December 1962

U.S. EMBASSY GUESTS

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|---|---|
| Hon. William C. Battle | Ambassador to Australia |
| Mr. Richard Kingsland | 1st Asst. Secretary, Canberra, Australia |
| Capt. Jack Miller, USN | ALUSNA Canberra, Australia |

EXCHANGE REPRESENTATIVES

| | |
|---|---|
| Prince Antoine DeLigne | Belgium |
| Lt. Hernan Pacheco | Chilean Navy, Chile |
| Lt. Michael W. Hudson | Royal Australian Navy, Australia |
| Lt. Dario J. Goni | Argentine Navy, Argentina |
| Mr. Peter R. T. Dain | British Foreign Office, Great Britain |

USARP GUESTS

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|---|---|
| Dr. Hiroshi Fukushima | Biologist, Tokyo, Japan |

Group FIVE: 8 February - 12 February 1963

NEW ZEALAND GUESTS

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|---|---|
| Mr. Winn McGee | National Airways Corporation |
| Mr. James Waygood | Meteorological Service |
| Dr. M. Kronfeldt | Medical Officer, HMNZS ENDEAVOUR |

AUSTRALIAN GUESTS

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|---|---|
| Mr. George T. Rutherford | Meteorological Service |

MEDIA

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|---|---|
| Mr. Frank Uhlig | U.S. Naval Institute |

PROJECTS OFFICE GUESTS

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| Maj. Gen. Chester W. Clark, USA | Deputy Chief Research and Development, USA |
| Col. Gerald W. Homann, USA | CO, Polar Research and Development |
| Capt. Donald E. Gaston, USA | Polar Research and Development Command |
| Col. Elmer R. Clark, USA (Ret.) | USA Material Command |
| Col. David H. Byrd | USAF, Civil Air Patrol, Dallas, Texas |
| LCDR Richard Marriner, USN | OPNAV |
| Mr. William Mills | State Department |
| Mr. Raymond Butler | Antarctic Projects Office |
| Capt. Alexander E. Anthony, Jr. | Antarctic Projects Office Representative |
| Mr. Ralph Becker | Attorney, Washington, D.C. |
| Cdr. Franklin Searle, USN | SERVPAC |

## WORKING VISITORS

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|---|---|
| Mr. Gerald Hilty | OPNAV |

24 January - 4 February 1963

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|---|---|
| Mr. Ronald Reed | Buckingham Palace Photographer |
| Maj. Michael Orlando, USAF | USAF, OASD (PA) Representative |
| Col. Robert Burlin, USA | USA, AEC Representative |
| Capt. W. M. Heaman, USN | COM CB LANT |
| Cdr. Lloyd E. Stifler, USN | CB LANT STAFF |
| Mr. Robert B. Reed | CB LANT STAFF |
| Capt. Joseph P. Quinn, USN | CB Center Supply Office |

17 February - 22 February 1963

| | |
|---|---|
| Mr. William McDonald | New Zealand |
| Mr. Mortimer McCarthy | New Zealand |
| Mr. William Burton | New Zealand |

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

a. It was recommended that no changes in organizational structure or major functions be made. This recommendation was followed and no problems were encountered.

b. It was recommended that visitors and media be more carefully screened prior to deployment to insure that the expense and time invested in the Media/Visitor program is completely justified. This recommendation was carried out and proved beneficial to the Media/Visitor program objectives.

c. It was recommended that all individuals in the category of "working" guests be handled exclusively by the sponsoring department or organization in order that their primary mission of observing a certain facet of the operation may be fulfilled. This recommendation was carried out and provided smoother operation of the Media program.

d. It was recommended that appropriate coordination be established with the Directorate of Information, Headquarters, MATS, Scott AFB, Illinois to insure that guests transiting Travis are handled in accordance with current MATS directives pertaining to the treatment of news media and distinguished guests. This recommendation was carried out and helped the overall media program.

e. It was recommended that the requested construction on Press Quarters be completed during the winter, and if not action be taken to insure completion of this project prior to the arrival of the first press group during DEEP FREEZE 63. This recommendation was followed and Press Quarters were ready when the first press group arrived at McMurdo.

f. It was recommended that each guest be required to take a physical examination at a military or public health service facility indicating a reasonable degree of physical fitness considering the individual's age and stature in the community. This recommendation was not completely followed, numerous visitors arrived in Christchurch without having had physical examinations. (See recommendations.)

g. It was recommended that a representative from the sponsoring agency or department meet aircraft with such persons not falling in the press or distinguished visitor category manifested aboard in order to handle luggage, arrange transportation, and otherwise eliminate much of the confusion attendant to these arrivals. This recommendation was followed and proved successful.

2. Recommendations for DEEP FREEZE 64.

a. The Public Information program as administered during DEEP FREEZE 63 was properly organized and staffed to fulfill the mission.

IT IS RECOMMENDED THAT NO CHANGES IN ORGANIZATIONAL STRUCTURE OR MAJOR FUNCTION BE MADE.

b. Correspondence with the media relations branch of CHINFO indicates that several last minute cancellations occurred because individual newsmen did not have sufficient time to complete the accreditation process. Preliminary letters of invitation were not mailed out until August.

IT IS RECOMMENDED THAT CHINFO MAIL OUT THE PRELIMINARY LETTER OF INVITATION IN MAY RATHER THAN AUGUST.

c. This year numerous visitors arrived in Christchurch prior to receipt by the Staff Medical Officer of their medical report. Such instances result in embarrassing situations when a subsequent physical in Christchurch proves the individual in unsatisfactory health to continue his trip to Antarctica.

IT IS RECOMMENDED THAT BOTH CHINFO AND U.S. ANTARCTIC PROJECTS OFFICE INSURE SUCH REPORTS OF PHYSICAL EXAMINATIONS ARE FORWARDED TO THE STAFF MEDICAL OFFICER IN SUFFICIENT TIME TO ASCERTAIN ANY MEDICAL PROBLEMS PRIOR TO THE GUEST'S DEPARTURE FROM THE UNITED STATES.

# CHAPTER VI

## COMMUNICATIONS - ELECTRONICS

1. General.

Communications during DEEP FREEZE 63 showed additional improvements over DEEP FREEZE 62. This may be attributed to many factors including improved propagation conditions, equipments, personnel and training. Major communication/electronics projects undertaken this operating season included:

a. Installation of communication facilities and Air Navigation Aids at Eights Station.

b. Procurement of communications/Air Navigation Aids vans for Little Rockford and Beardmore summer weather stations.

c. Replacement of UHF Homers at McMurdo, Byrd and Pole Stations.

d. Procurement of field party antennas.

e. Installation and activation of GCA and TACAN at Byrd Station.

f. Rehabilitation and repair of log periodic antennas at Christchurch.

Total comparative traffic figures in round numbers for McMurdo and Christchurch are as follows:

McMurdo

| | |
|---|---|
| 1 Jan 1962 - 1 Jan 1963<br>164,500 | Daily average<br>450 |
| 1 Sep 1962 - 1 Apr 1963<br>120,500 | Daily average<br>560 |
| 1 Sep 1961 - 1 Apr 1962<br>116,000 | Daily average<br>550 |

Christchurch

| | |
|---|---|
| 1 Jan 1962 - 1 Jan 1963<br>160,000 | Daily average<br>440 |

2. Point to Point Communications.

As noted in the last report, the McMurdo/Christchurch and Christchurch/Honolulu circuits were converted from scheduled to full-time circuits. Records are not available for comparison of previous circuit efficiency; however, circuit outages for the period 1 January 1962 to 1 January 1963 are as follows:

| | McMurdo/Christchurch | Christchurch/McMurdo | Christchurch/ Honolulu | Honolulu/ Christchurch |
|---|---|---|---|---|
| Jan | 3.3% | 5.3% | 33.3% | 20.5% |
| Feb | 20.2% | 18.7% | 32.1% | 22.6% |
| Mar | 18.5% | 10.3% | 12.3% | 10.6% |
| Apr | 33.4% | 19.6% | 6.8% | 12.8% |
| May | 25.0% | 20.8% | 11.2% | 13.7% |
| Jun | 39.8% | 38.7% | 16.3% | 15.3% |
| Jul | 51.0% | 30.9% | 9.1% | 13.8% |
| Aug | 53.2% | 47.0% | 12.5% | 16.3% |
| Sep | 37.5% | 36.1% | 11.9% | 11.9% |
| Oct | 17.8% | 14.8% | 13.5% | 13.9% |
| Nov | 15.0% | 7.0% | 15.0% | 17.0% |
| Dec | 12.0% | 6.0% | 10.0% | 15.0% |

The McMurdo and Sydney, Australia circuit is on a scheduled basis (0205Z - 1000Z and 1905Z - 2100Z daily). Efficiency of this circuit is in excess of 90%.

Commencing this operating season, delivery of traffic from McMurdo to Byrd, Pole and Hallett stations was by means of radio teletype employing broadcast procedures. To date, the results of this circuit have been good with little outage reported by these outlying stations.

Delivery of traffic to and from Eights Station, Little Rockford and Beardmore and traffic from Byrd, Pole and Hallett station continues by CW with good results although the circuit (two frequences guarded continuously) tends to become overcrowded since it is also available to ships in the area for passing ship/shore traffic. One of the communication/Air Navigation Aids vans designed for Little Rockford and Beardmore was used for communications at Eights Station while the permanent station was being constructed. During this period it was necessary for Eights Station to pass traffic through Byrd or Pole. Radio teletype is available on call from Byrd, Pole and Hallett stations to McMurdo and is used for long messages or high volume traffic to McMurdo.

3. Air/Ground Communications.

Primary long range air/ground communications was by SSB/V with most Antarctic stations guarding one SSB/V and one HF AM Voice frequency for backup. Due to equipment and antenna limitations, McMurdo radio was able to guard only one SSB frequency but was able to listen on a second frequency. Christchurch guarded two SSB frequencies continuously during Christchurch/McMurdo air operations. Station personnel at Christchurch relocated the communications remote positions from the communications center to the air operations center during the winter period which improved operations considerably. Conditions in the McMurdo air operations center were also improved by station forces during the winter months.

4. Field Party Communications.

Field party communication was much improved over the previous years operation. However, this was in many instances still a matter of concern and in need of further improvement. KWM 2 A equipments were provided to most major and all distant field parties. These equipments could not be provided to all field parties due to equipment limitations. Additional equipments have been budgeted for and should be available during the DEEP FREEZE 64 operating season. Due to equipment and antenna limitations, McMurdo was able to guard only one frequency, but listened on a second frequency. Byrd, Pole and Hallett stations guarded one frequency and relayed field party traffic as necessary. The two field parties which were of most concern were the Shackleton Glacier party which USARP provided RCA SSB-1 equipment and the Ross Ice Shelf party with USARP Collier and Beale AM Voice equipment. Communications were never established with the Shackleton party and with the Ross Ice Shelf party only infrequently. Aircraft were frequently deviated or dispatched to sight these parties and on occasion were able to contact them on UHF Voice. As was the case last season, no difficulties were experienced with the military field party with a Navy RM in company and by the same token, several civilian field parties also experienced no communication difficulty. It is believed that communications can be improved materially with the additional equipment provided field party personnel are made sufficiently aware of the importance of scheduled contacts in the interest of field safety.

5. International Antarctic Communications.

The "mother-daughter" network continued as the means for the international exchange of weather and other scientific data between McMurdo and the Antarctic stations of other nationalities. During this operating season, McMurdo held regular daily schedules with the following stations:

| Station | Nationality | Mode | CKT Efficiency |
|---|---|---|---|
| Port Stanley, F.I. | U.K. | CW | 71.5% |
| Mirny | U.S.S.R. | RATT/CW/FAX | 96.5% |
| Wilkes | AUST. | RATT/CW | 93.9% |
| D'urville | FR. | CW | 90.5% |
| Ellsworth/Deception Is. | ARG. | CW | 66.6% |

Circuit efficiency was greater during this operating season based on the number of schedules successfully met. Ellsworth Station was worked until 29 December 1962 at which time it was decommissioned and this schedule shifted to Deception Island. Contacts with Deception have been sporadic to date.

In addition to the foregoing, CW and FAX weather broadcasts were conducted by McMurdo twice daily. The CW broadcast continues during the winter season. However, the FAX broadcast is conducted only during the operating season primarily for U.S. units.

6. Ship Communications.

Ship reports indicate that communications were considerably improved over the DEEP FREEZE 62 operating season. No difficulties were reported with ship/shore communications, with ships working both New Zealand and Australian stations with good results. When in the Ross Sea area, ships for the most part worked McMurdo Station.

Broadcast communications to commissioned ships was generally good when the VLF component was available. Otherwise frequent fading of the HF components was reported in the extreme southern latitudes between 16-2100Z. USNS CHATTAHOOCHEE reported difficulty in receiving the 2230 Honolulu Mercast schedule in Antarctic waters. Improvements to this siutation will be undertaken prior to next operating season. The McMurdo RATT broadcast to Pole, Byrd and Hallett stations was copied by RATT equipped ships in the Ross Sea area as an alternate method of receiving traffic originating in the Antarctic. Individual QSL for each message specifically addressed was required since this was the first season that this circuit was operated and reliability was unknown. It is planned that ships will be authorized to guard this circuit next season in the same manner as for a Fleet RATT Broadcast in addition to the regular Fleet Broadcast for more rapid delivery of traffic.

7. Air Navigation Aids and Approach Control.

U.S. Naval Support Force, Antarctica, Detachment FOUR, a special mission air navigational aids unit was established in March 1962 at Jacksonville, Florida and an intensive training program was started on 1 April. The Detachment has one officer and twenty-eight enlisted air traffic control and maintenance specialists assigned for duty.

a. The training program covered all phases of Antarctic Air Traffic Control and proved to be more than adequate to accomplish the assigned mission of safe and positive control of aircraft engaged in support of Operation DEEP FREEZE.

b. In June 1962 a conference was held in Wellington, New Zealand, with the New Zealand Civil Aviation Authority and representatives of the Chief of Naval Operations, U. S. Naval Support Force, Antarctica, Detachment FOUR, and the U.S. Air Force in attendance. As a result of this conference, the U.S. Navy was designated, through the New Zealand Home Office and the U.S. State Department, as an agent of the New Zealand Civil Aviation Authority for Oceanic Control of all aircraft transmitting the area South of New Zealand to the Antarctic continent.

c. The new flight following and Oceanic Control Center at Christchurch commenced operations on 20 August 1962 and the first flight, a C-130BL was controlled to McMurdo on 16 September 1962. The system functioned effectively throughout the season and positive control of all aircraft enroute to and from Antarctica was maintained.

d. Single side band communications proved to be most effective and on the one occasion of communications failure the emergency standby MHF communications network at Musick Point assumed control of the flight until single side band communications was re-established.

e. Due to the extreme temperatures experienced in mid-September, some maintenance troubles developed in the Ground Controlled Approach radar unit at McMurdo. This difficulty has been overcome by the design and procurement of fiberglass domes to cover the radar transmitter and antenna pedestals.

f. Ground Controlled Approach units were operated at Christchurch, Old Williams Field, New Williams Field and Byrd Station. Ground Controlled Approach approaches totalling 1,119 were controlled during the season, and of this total 157 were under actual instrument flight conditions.

g. New Ground Controlled Approach equipment designed for Antarctic operations is being procured and the first unit of three will be delivered in November for installation at Byrd Station. Two additional units will be delivered during DEEP FREEZE 65 and 66.

h. The design and procurement of this new equipment is in accordance with the policy to standardize radar, communications and power units utilized in the Antarctic.

i. A minor personnel problem developed due to the manner in which orders were written for personnel reporting to Commander, Antarctic Support Activities for duty.

j. Generators utilized for powering precision landing and navigational equipment were varied power and design which presented some maintenance and resupply difficulty.

k. The following additions and modifications were made to the air navigational aids system during DEEP FREEZE 63.

(1) NAF McMurdo

(a) Two AN/GRT-3 100 watt UHF homers installed at transmitter site.

(b) Deleted UHF homer on strip.

(c) One AN/TSN 1 GCA unit used at Old Williams Field for duration of season and backloaded at end of season and sent to Jax for training.

(2) South Pole Station

(a) One AN/GRT w 100 watt UHF homer installed at Pole.

(b) One AN/URN 5 400 watt LF homer delivered to Pole but not installed.

(3) Byrd Station

(a) One AN/GRT 3 100 watt UHF homer installed at Byrd.

(b) One AN/GPN6/FPN-6 GCA moved from Christchurch to Byrd and put into operation there this year.

(c) One AN/MRN 21 tacan unit shipped from McMurdo to Byrd and activated.

(4) Christchurch

(a) One AN/GPN-6/FPN-36 used at Christchurch in lieu of AN/TSN-1 which was moved to Old Williams Field and activated there.

(5) Eights Station

(a) A van of the type used at Little Rockford and Beardmore, with a AN/FRN-24 25 watt UHF homer, was used at the early part of the season, later an AN/FRT-24 was permanently installed.

8. Radio Wave and Propagation.

a. Conditions.

Geomagnetic disturbance continued to decrease and were less frequent and of less intensity than during DEEP FREEZE 62. No major problems were encountered on the Antarctic continent proper due to propagation conditions. Propagation prediction tables were recently provided for several DEEP FREEZE circuits. For the month of March 1963, the optimum frequency and least usable frequency were very close or coincided between 0200Z and 0400Z on the McMurdo to Christchurch path.

During March 1963, considerable difficulty was experienced on the Christchurch-received side of the Christchurch/McMurdo circuit.

b. Material.

It is considered that the situation regarding electronic material is improving because of better organization, training and electronics parts stowage. Commander, Antarctic Support Activities was provided with a permanent electronics officer. Some schooling in shore electronics equipments was accomplished prior to DEEP FREEZE 63. Improvement in the binning of electronics parts was accomplished during the 1962 winter over period and the DEEP FREEZE 63 operating season at all stations. At

the conclusion of DEEP FREEZE 63, the electronics parts storage at McMurdo was moved from temporary Jamesway Huts into a new permanent warehouse. Because of the excessive demands placed on the technical personnel during the past operating season, the accomplishment of other than corrective maintenance during the period was difficult. Some preventive maintenance is being carried out at this time. Standardization of equipment is a priority item for improved material standards.

9. Personnel and Training.

The training of radiomen remained good as in past seasons. The training of electronics personnel was considered much improved over previous years due to the success of the Antarctic Support Activities electronics officer in obtaining more adequate schooling in shore electronics equipments for the technical personnel.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations.

a. It was recommended that a new receiver facilities building be constructed at Christchurch. This recommendation is still outstanding.

b. It was recommended that the five transmit and receive Log Periodic antennas at Christchurch be repaired and modified. This was accomplished.

c. It was recommended that multi-channel teletypewriter terminal equipment be installed on the McMurdo/Christchurch circuit. AN/FGC-60 terminal equipment is on hand but not installed. Current transmitters (AN/FRT-39A) are not considered suitable for use with this equipment.

d. It was recommended that the necessary equipment and antennas be installed and a Christchurch/Australia circuit for weather traffic to the IAAC Melbourne be activated and the direct McMurdo/Sydney circuit be re-routed through Christchurch utilizing the multi-channel circuit in recommendation c. above. Action on this recommendation is still pending.

e. It was recommended that the message center at Christchurch be re-designed and rearranged to accommodate multi-channel terminal equipment, tape relay equipment, KW-26, and teletype repair shop. Action on this recommendation is still pending. The KW-26 requirement has been postponed.

f. It was recommended that weather office communications facilities at McMurdo be improved. Action on this recommendation is still pending.

g. It was recommended that increased receiving facilities at McMurdo be provided. Action on this recommendation is still pending.

h. It was recommended that the flight following centers at McMurdo and Christchurch be relocated and improved. The flight following center at Christchurch was relocated by station personnel. Some improvements to the center at McMurdo were accomplished by station forces during the winter-over period.

i. It was recommended that all aircraft, Navy and Air Force, R4D and larger, be equipped for SSB/Voice communications. All such aircraft were so equipped during DEEP FREEZE 63.

j. It was recommended that suitable antennas for trail and field party communications be designed and provided. Twenty-five of the requested antennas were provided and were successful.

k. It was recommended that portable lightweight power generators be provided for field party communications. Ten generators arrived at McMurdo at the close of the DEEP FREEZE 63 season. As yet they have not been evaluated.

l. It was recommended that all U.S. ships assigned to Antarctic operations be provided with SSB/Voice capability. All commissioned U.S. Navy ships were so equipped.

m. It was recommended that air transportable communication/Air Navigation Aid vans be designed and provided for Little Rockford and Beardmore stations. These vans were provided.

n. It was recommended that the LF Homer for Pole Station be replaced during DEEP FREEZE 63. The equipment was provided but not installed.

o. It was recommended that the long range replacement/overhaul schedule of AirNavAids and approach control equipment recommended in COMNAVSUPPFOR ANTARCTICA letter serial 238 of 20 April 1962 (subj: Replacement and/or overhaul of Air Navigation Aids and approach control equipment) be executed. This is a continuing recommendation and the schedule should be reviewed from time to time.

p. It was recommended that communication installations to meet requirements of Eights Station be designed and provided during DEEP FREEZE 63. This requirement was completed.

q. It was recommended that propagation charts for McMurdo/Christchurch, McMurdo/Washington, Christchurch/Honolulu and Christchurch/Washington paths be prepared and provided. Certain appropriate charts have been and others are in the process of being provided.

r. It was recommended that a teletype repair facility at Christchurch be established for overhaul and repair of teletype machines in use at Christchurch and on the Antarctic continent. This recommendation is still pending.

s. It was recommended that replacement teletype equipment be provided for rotation to the Antarctic during overhaul of teletype equipment at Christchurch. This recommendation is still pending.

t. It is recommended that replacement equipment be provided and the shipment of electronics test equipment from the Antarctic stations to an electronic repair facility be authorized. This recommendation is still pending.

u. It was recommended that over-age AN/FRT-15 transmitters at McMurdo be replaced with AN/FRT-39 transmitters. One AN/FRT-39A transmitter was provided this season. No provisions for the funding of installation has been made.

v. It was recommended that TACAN, GCA and general electronics technical representatives be provided annually for use at the Antarctic stations. TACAN and GCA technical representatives were provided during DEEP FREEZE 63.

w. It was recommended that factory schools for electronics personnel assigned to Antarctic stations be authorized and scheduled on an annual basis. A school at Technical Material Cooperation was scheduled and funded by Commander, Antarctic Support Activities during the summer of 1962.

x. It was recommended that the employment of civilian personnel at Christchurch for teletypewriter repair and message center operation be authorized and funded. One civilian teletypewriter repair man is currently employed in the Christchurch communication center.

2. DEEP FREEZE 63 Comments and Recommendations.

The outstanding comments and recommendations made in the DEEP FREEZE 62 report are still valid and should be considered as long range objectives for the improvement of Antarctic communications. In addition, the following comments and recommendations are made to be considered in the same manner.

a. ELECTRONICS EQUIPMENT AT ANTARCTIC STATIONS SHOULD BE STANDARDIZED FOR IMPROVED TRAINING, MAINTENANCE AND PARTS SUPPORT. FOR EXAMPLE, POLE, BYRD AND HALLETT STATIONS AT WHICH TWO ELECTRONIC TECHNICIANS ARE STATIONED DURING THE SUMMER OPERATING SEASON, AND ONE DURING THE WINTER PERIOD, HAVE TWO TYPES OF SSB TRANSMITTERS/TRANSCEIVERS (AN/URC-32 AND AN/URT-17).

b. COMMUNICATIONS/ELECTRONICS FACILITIES WITHIN THE ANTARCTIC CANNOT CONTINUE TO BE EXPANDED UNDER THE CURRENT PERSONNEL CEILING. EFFORTS SHOULD BE POINTED TOWARD THE IMPROVEMENT OF EXISTING FACILITIES THROUGH EQUIPMENT STANDARDIZATION AND REPLACEMENT, TRAINING AND MANAGEMENT.

c. IT IS CONSIDERED THAT THE MCMURDO/CHRISTCHURCH CIRCUIT IS UNDER-POWERED (5KW RATT). ALTHOUGH INCREASED POWER WILL NOT ENSURE COMMUNICATIONS WHEN THE PATH DOES NOT EXIST, IT SHOULD PROVIDE MORE RELIABILITY DURING MARGINAL CONDITIONS. ALSO IF MULTI-CHANNEL EQUIPMENT IS TO BE INSTALLED, INCREASED POWER REQUIREMENTS BECOME A CONSIDERATION AND THE CONVERSION OF EXISTING AN/FRT-39A TRANSMITTERS AT BOTH CHRISTCHURCH AND MCMURDO TO AN/FRT-39B TRANSMITTERS BECOMES NECESSARY.

d. IT IS RECOMMENDED THAT ENLISTED PERSONNEL OF DET FOUR BE ORDERED TO ANTARCTIC SUPPORT ACTIVITIES FOR DUTY WHEN THEY ARE SOUTH OF 60 DEGREES SOUTH.

e. IT IS RECOMMENDED THAT THERE BE NO PRECISION RADAR LOCATED AT OLD WILLIAMS FIELD. SURVEILLANCE RADAR APPROACHES ARE AVAILABLE AND ADEQUATE FOR CROSS WIND LANDINGS AT OLD WILLIAMS FIELD WHEN REQUIRED.

f. IT IS RECOMMENDED THAT SUITABLE COMPATIBLE GENERATORS BE PROCURED FOR EACH LANDING AIDS COMPLEX. THIS FEATURE IS INCORPORATED IN THE NEW EQUIPMENT BEING PROCURED.

# CHAPTER VII

## CONSTRUCTION

1. Advance Headquarters, Christchurch, New Zealand.

Detachment BRAVO of MCB-8 deployed to Christchurch in July 1962 and carried out the following construction projects at the Advance Headquarters prior to further deployment to Pole Station:

a. Rehabilitation of two 120-man capacity enlisted barracks buildings.

b. Construction of a new boiler house to serve the rehabilitated barracks.

c. Construction of a 40' X 100' Butler-type warehouse for use by the science program.

All work on the above projects was completed by Detachment BRAVO except the installation of the hot water heater in the boiler house and the removal of moss and repainting of the roof of one barracks. Material for the hot water heater was procured in CONUS and did not arrive in time for installation by the detachment. Moss removal and roof painting could not be accomplished during the period the detachment was in Christchurch due to inclement weather. Both of these items were completed later in the austral summer season by local contractors.

At the conclusion of the summer deployment at Pole Station, Detachment BRAVO returned to the Advance Headquarters and remained for approximately one month to complete deferred maintenance projects including exterior painting of over one-half of the buildings and rebuilding the porch of the headquarters building.

2. South Pole Station.

Construction undertaken at South Pole Station by MCB-8 during DEEP FREEZE 63 was not entirely completed. Completed major projects included:

a. Fuel cache area containing 3 each 25,000 gallon rubber bladders.

b. New barracks.

c. Rebuilt cache storage and buildings.

d. Seismic Vault

e. Remote VLF Building.

Projects substantially completed in DEEP FREEZE 63 but for which final completion is programmed in DEEP FREEZE 64:

a. Snow melter and exhaust in New Generator Building.

b. Electrical distribution system.

c. Incinerator Installation.

3. Hallett Station.

MCB-8 work at Hallett Station was completed except for erection of two walk-in reefers and improvements to the electrical distribution system. The completed work included:

a. Installation of two 1,000 gallon water tanks.

b. Repairing roofs of buildings.

c. Installation of a Seismic Vault.

d. Preparation of site for one 100,000 gallon POL tank.

e. Extension of Science Building.

4. Byrd Station.

Much of the MCB-8 DEEP FREEZE 63 construction effort was expended at Byrd Station following the first winters' occupancy. The work accomplished included:

a. Extensions to two buildings and joining of two others.

b. Ventilation of tunnels.

c. Access shaft.

d. Surface leveling.

e. POL Bladders.

f. VLF Building.

Some projects were deferred such as replacement of trusses and additional buildings. Unless an extensive change in the overall plans for Byrd Station occur, no major construction efforts will be expended there in the foreseeable future. Byrd Station is elaborate and more costly than earlier construction but should require considerably less replacement and maintenance over the next several years.

5. McMurdo Station.

Numerous construction projects at McMurdo Station were started in DEEP FREEZE 63. Several projects were substantially complete with refine-

ments and finish work being performed by Antarctic Support Activities personnel. Other projects were deferred to DEEP FREEZE 64. Major projects substantially completed include:

a. Preparation of sites for DEEP FREEZE 64.

b. Modifications to PM-3A Nuclear Power Plant.

c. Sno Pac Skiway.

d. POL Tanks.

e. Hut Point Wharf Investigation.

f. Condenser Building.

g. Erection of Senior Science Barracks.

h. 500 cubic yards of fill at Scott Base.

i. Permanent Rocket Facility.

j. PHS Laboratory.

k. Williams Field relocation (ANTARCTICSUPPACTY DEEP FREEZE 62).

Projects planned but either not started or incomplete and deferred to DEEP FREEZE 64 include:

a. Two supply warehouses (erected but not finished).

b. Roads and drainage.

c. Sewer line.

d. Fresh water distribution.

e. Salt water intake line.

f. Water distillation plant.

g. Septic tank-transmitters and PM-3A.

h. Storage Area.

6. Eights Station.

Phase II of Eights Station Erection Project was accomplished in DEEP FREEZE 63. This consisted of laying the foundations for the eight van complex and the three outlying vans, locating the vans and erection of all prefabricated electric, fuel, water, drainage line and fire alarm systems. The work was done during the period 5 to 27 January 1963.

7. Overall Program.

The DEEP FREEZE 63 construction program was a combined effort of Mobile Construction Battalion EIGHT for physical construction, Construction Battalion Center, Davisville for procurement of materials, and the Bureau of Yards and Docks for design and fiscal handling. Unfortunately, much of the programmed construction was not completed. Due to severe ice conditions, materials were delivered to the Antarctic too late in the season for construction to be accomplished; neither was equipment available to the degree required by MCB-8.

8. Fire Inspections.

Fire Inspections of facilities were conducted at Hallett, McMurdo, Byrd and Pole Station by both the FOURTEENTH Naval District and the Bureau of Yards and Docks during DEEP FREEZE 63. These inspections pointed out many deficiencies. Antarctic Support Activities personnel have proceeded to take corrective actions within their capabilities. The implementation of other recommended actions are being programmed for future construction, as funds will permit.

9. Equipment Overhaul.

A major advancement in equipment maintenance was initiated in DEEP FREEZE 63 by evacuating 29 pieces of major equipment for overhaul in New Zealand and CONUS during the austral winter.

## COMMENTS AND RECOMMENDATIONS

1. Status of DEEP FREEZE 62 Recommendations:

a. During DEEP FREEZE 63 those improvements at Advance Headquarters which appear in paragraph 1 of this report were accomplished. Additional repair and maintenance work is being accomplished during the 1963 austral winter including the movement of a barracks building. During the remainder of DEEP FREEZE 63, Fiscal Year 64 funds will be used to:

(1) Extend warehouse No. 1.

(2) Improve aircraft parking facilities.

(3) Move Air Force huts to a new location.

The photo lab extension is not yet funded, but is presently under study.

b. The rehabilitation of Pole Station was begun during DEEP FREEZE 63, and will continue during DEEP FREEZE 64.

c. Improvements at Hallett were made during DEEP FREEZE 63 and more will be accomplished during DEEP FREEZE 64.

d. This recommended course of action was followed during DEEP FREEZE 63.

e. The recommended course of action was followed during DEEP FREEZE 63. Specialized equipment was acquired and additional personnel were assigned to implement this action. However, equipment was received too late in the season to fully satisfy this recommendation. The program will be continued during DEEP FREEZE 64 at an accelerated rate.

2. DEEP FREEZE 63 Recommendations:

IT IS RECOMMENDED THAT:

a. REHABILITATION OF FACILITIES AT POLE STATION BE CONTINUED DURING DEEP FREEZE 64.

b. IMPROVEMENTS AND CONSTRUCTION NOT COMPLETED IN DEEP FREEZE 63 BE ACCOMPLISHED DURING DEEP FREEZE 64.

c. EFFORTS BE MADE TO POSITION CONSTRUCTION MATERIALS IN THE ANTARCTIC THE SEASON PRIOR TO PHYSICAL CONSTRUCTION. THIS WILL REQUIRE THE ACQUISITION OF ADDITIONAL FUNDS OR SPECIAL DISPENSATION TO PURCHASE MATERIALS PRIOR TO THE START OF A FISCAL YEAR.

d. OFF-ICE OVERHAUL OF EQUIPMENT BE CONTINUED. THIS WILL ELIMINATE A NEED FOR HIGH ECHELON MAINTENANCE CAPABILITIES BEING MAINTAINED AT MCMURDO STATION.