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U.S.S. EDISTO

gk

DEEP FREEZE '63

USS EDISTO (AGB-2)
Fleet Post Office
New York, New York

18 March 1963

From: Commanding Officer, USS EDISTO (AGB-2)
To: Commander Task Force FORTY-THREE
(COMNAVSUPPFOR ANTARCTICA)

Subj: USS EDISTO (AGB-2): Final Report of Operation DEEP FREEZE '63

Ref: (a) Commander Task Force FORTY-THREE (COMNAVSUPPFOR ANTARCTICA) Operation Order 1-62

Encl: (1) Subject Report

1. In accordance with reference (a), enclosure (1) is forwarded.

E. A. DAVIDSON

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CO, HMNZS ENDEAVOUR II (1)

USS EDISTO (AGB-2)

OPERATION
DEEP FREEZE 63

29 OCTOBER 1962
to
26 MARCH 1963

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ILLUSTRATIONS

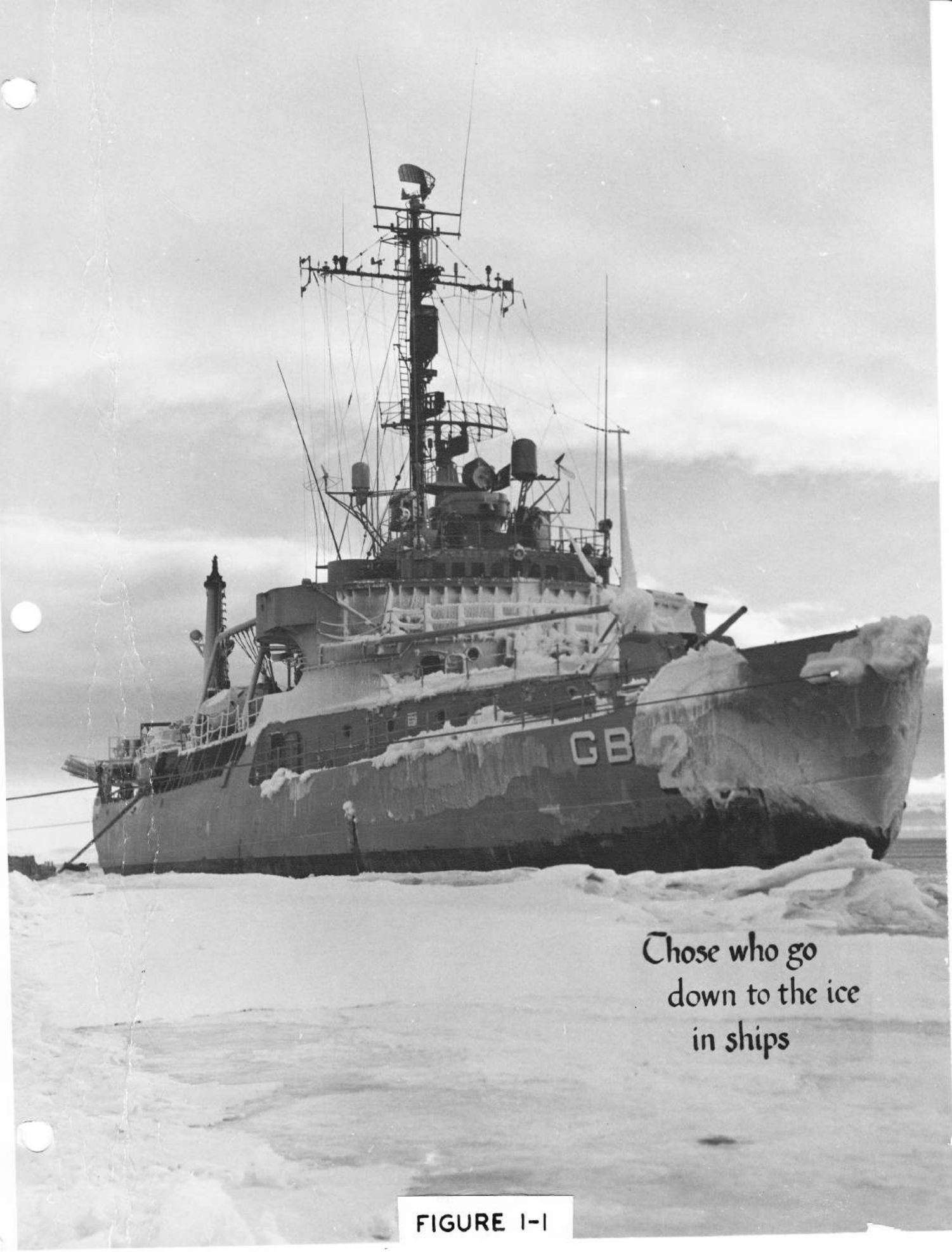


FIGURE 1-1

CHAPTER 1

NARRATIVE

After 7 weeks of in-port time following an Artic deployment, USS EDISTO (AGB-2) was nearly ready to depart on Operation DEEP FREEZE 1963. HUTRON 4 had supplied the services of one CH-19E and one TH-13M which had arrived the day before from Lakehurst. As is always the case when it is time to go, Boston was looking exceptionally fine in the early morning sun and it was with reluctance that the lines were cast off and the ship backed into the main stream away from the faithful few. Underway in accordance with COMSERVRON FOUR MovOrd 11-62, EDISTO proceeded South to Newport, R.I. for a last minute degaussing check and a stop at Norfolk for a pre-deployment Material Inspection.

After a fog bound transit of Hampton Roads EDISTO arrived at Berth 56, N.O.B. Norfolk, on 4 October 1962, receiving aboard 31 late arrivals to fill the ship's enlisted allowance. After a hectic day and a half undergoing the inspection by Commander Service Squadron FOUR, the ship was pronounced ready for deployment. With the departure of the inspection team, up came the brow, and EDISTO was underway for Panama.

With a watchful eye on hurricane Daisy the ship settled into a normal steaming routine, exercising at emergency drills and insuring that each crew member became part of the team. Arriving at LIMON during the morning of 11 October, the ship was quickly guided across the Isthmus and tied to a pier at the RODMAN Naval Station. Departure was taken the following afternoon, after a welcome liberty for all but watchstanders.

It wasn't long before the serenity and welcomed relief of the cooler air over the Humboldt Current was shattered by the precedented arrival of the Grand Rex's harbenger, Davey Jones; by the 15th there wasn't a pollywog to be found aboard EDISTO.

On 29 October, EDISTO chopped to Commander Naval Support Forces Antarctica and filed SITREP No. 1. Competitive Engineering and Abandon Ship exercises completed the month's activities.

One November was lost forever and through the following morning mist, New Zealand appeared and the ship arrived in Port Lyttelton, three days ahead of schedule. It took the word "mail call" to dislodge minds from the fact that the ship had finally stopped rolling. For the third time during

the cruise the crew enjoyed liberty, six full nights of it.

At 0900 Thursday, 8 November the ship having topped off with fuel and provisions took departure and headed South for the "Howling Sixties". All engines were put ahead full to catch CTG 43.1, GLACIER, STATEN ISLAND, EASTWIND, CHATTAHOOCHEE and MIRFAK, six days ahead. Clear skies and calm seas were short-lived with "All Hands Stay Clear Of Weather Decks"!, a familiar cry.

At 0537 on 13 November 1962 the first ice was sighted at position 64° 05' S, 178° 14' W, thereafter a commonplace sight, since there was some 800 miles of it to penetrate before arrival at McMurdo. To old hands it was a welcome sight because soon the ship would stop rolling and start ramming ice for a new change of motion. This was the first day for aerial ice reconnaisance an invaluable aid to efficient ice transit.

14 November started EDISTO's frustrating struggle through the Ross Sea ice packs. The Bell helo was employed on occasions around the clock with pilots and observers alternating to stay ahead of the ship's progress. On Sunday, 18 November the following message was sent to CTG 43.1 after EDISTO became beset in pressure ice:

"We're not worried nor concerned, tho tempers frayed and slightly burned.
We're rolling left, we're rolling right, we're backing down with all our might.
There are penguins here and penguins there, taking in the whole affair.
On our left is Erebus, there's no one here that's cheering us.
Our pilots want to fly away, and come again some other day.
We're not used to a waiting game, that will not add to EDISTO fame.
So listen hard, look thru your glass, there's going to be a mighty blast."

Early Monday morning, the 19th, all preparations were made to break EDISTO out. Ice anchors were rigged off the port bow and starboard quarter to effect a twisting motion on the ship, supplemented by heeling, trimming, and backing full on combination "Able". At 1317 dynamite was used off the starboard bow, however the tiny hole produced did little towards freeing the ship. At 1613, EDISTO finally backed clear, her freedom only attributable to a combination of all efforts rather than any one in particular.

During the late afternoon of November 20th, the ship excitedly "discovered" and entered "The Channel", a fifty yard swath cut through the fast pack of McMurdo Sound by GLACIER. EDISTO charged ahead through the frozen-over block and brash of the channel, proud of her solo transit of the Ross Sea. There followed days of channel upkeep in which the ship itself is used as a combination battering ram and ice grinder for straightening curves and carving out turning basins.

Turning basins were destined to become the most infernal source of confusion and second-guessing ever to plague the McMurdo operation. Each ship had its own numbering system, which attempted to identify only the major turning areas to the exclusion of "sub-basins", "turning points", "turn-arounds", or "notches". Each breaker held its own handi-work in greater esteem than anyone else's so what was one man's "notch" was another's "turning basin". The "alpha bravo" system helped somewhat until a master numbering and lettering system was finally promulgated some time in late December, just prior to the initial break-up. Meanwhile, "Meet me in Basin 4" could mean many things!

On 23 November EDISTO commenced her first of seventeen tows through the choked channel. These tasks in the months

to come provided an interesting and rewarding experience, moreso perhaps since each tow attempted was successful. While there has been much written on the subject of ice-towing, EDISTO modestly describes in chapter 3, for those interested, the procedures which held-up in '63. The fact that this maneuver had to be utilized to a far greater degree than in previous years (channel finally cut was about 60 miles in length) should add considerably to the validity of the comments offered.

By the end of November the channel was about fifty miles long and sectors of responsibility were alternated between the three "Windclass" breakers for the sake of variety. EDISTO's bridge watch always enjoyed the northern sector with the managerie of native wildlife and the tantalizing glimpse of blue water in the polyna that marked the beginning of "the channel". On a sunny Wednesday, 27 November, EDISTO spent two hours "bathing" in the polyna, exercising her boats and examining her now rusty and battered waterline and brightly polished screws.

December arrived with its balmy (between zero and freezing) weather. Beards lengthened, division officers plugged the cruise book and all hands were daily reminded of Yuletide obligations. "Reworking the channel" became a familiar POD

explanation for the ship's constant sandblasting of the hull. A personnel inspection reassured the crew that they were still in the Navy, beards notwithstanding.

On 4 December, EDISTO went alongside GLACIER for much needed marine diesel, prior to that ship's departure for Wellington. Additionally, avgas and explosives destined for McMurdo were received.

Throughout the first two weeks of December, EDISTO's routine was extremely routine. In GLACIER's absence she shared with her sister ships, STATEN ISLAND and EASTWIND, the chores of keeping the channel wide and loose, and of providing her share of helicopter reconnaissance over CHATTAHOOCHEE's pipe line to McMurdo. Thus far EDISTO's physical integrity had survived three weeks of continuous ice work apparently intact; however on 8 December, a slow leak in the forward peak tank, evidently through some small rupture in the "impregnable" stem, was reported. An examination by the ship's diver did not disclose any apparent damage, although rumors "flying" about the ship had quickly magnified the opening to the size of the Holland Tunnel.

Finally on 12 December, after several local attempts to "stem the tide" the ship went alongside the ice shelf to pick

up experts who would steel EDISTO's body and soul against the rigors of the Antarctic. The former task was the welding of a cofferdam in the forward peak tank by two steelworkers from MCB-8, the latter mission belonged to Chaplain Paul Antos. His was the first of many regular visits by McMurdo's two chaplains during the ship's stay in the area.

After 24 hours of work on the cofferdam and repairs on Numbers 2 and 6 Main Engines, EDISTO continued to prepare the channel for the evacuation of MIRFAK and CHATTAHOOCHEE and for arrival of the much larger USS ARNEB (AKA-56) around Christmas.

Capricious nature now took hold as a northeast wind squeezed the outer half of the channel to half its' former width. In less than one hour while still appearing to be wide enough for EDISTO, the original channel brash had been so compressed that it not only absorbed the ship's forward charges but often held it immobile until the heeling system could overcome the suction effect. A new start had to be attempted with the ship making better progress through the solid pack than through the tenderly maintained channel. Fortunately, the pressure lessened in 48 hours, however a stern warning had been issued that any mere man-made channel

was easy prey --- a lesson which was repeated on several later occasions.

At the same time an old EDISTO injury was causing new anxiety; the aviation gas tank had sprung a leak, creating an obvious fire hazard and threatening the smooth conduct of air operations. Pipe patching material, a rubber gasket, a 4 inch pipe and timbers shored over the affected area contained this leak thru the end of the cruise.

On 20 December, EDISTO scheduled for later repairs to stem and avgas tank in Wellington, was relieved of a scheduled committment involving an exploratory mission to Palmer Peninsula. STATEN ISLAND quickly off-loaded her excess fuel and avgas, departing for New Zealand, thence to the Peninsula.

Meanwhile, back in the channel, EDISTO rushed back and forth, in an attempt to keep it navigable while EASTWIND struggled to bring ARNEB through the outer belts of flow ice under heavy pressure. On Christmas Eve EDISTO was sent North to assist and for the next thirty hours the two breakers wrestled with the ice only a "Merry Christmas" apart. EDISTO's green X-mas tree mounted on her jackstaff seemed a Rockefeller Center Wonder as Christmas descended on frigid, gale-swept Ross Sea.

On Christmas Day as the two breakers reached the channel entrance with ARNEB, the winds increased to 70 knots out of the south, a "divine" wind to Antarctic mariners; now for the first time substantial parts of the pack began to move seaward. Hove to through the night of December 25th, the ships witnessed the vanishing of hundreds of square miles of ice; in all 13 miles of the channel were removed from the concern of the icebreakers.

Early on the 27th, EDISTO hooked up ARNEB and started the tow South. At 0730 the rig had to be disconnected while both breakers fought to widen the remaining few miles of channel, which had suddenly squeezed together.

At 1150 on the 29th ARNEB was finally moved into position against the ice shelf after a two week struggle. That evening EASTWIND left for Hallet and GLACIER arrived from New Zealand, with USNS MERRELL under her care. EDISTO went alongside ARNEB to receive fresh provisions and on the 31st assisted GLACIER in re-positioning ARNEB, to her final offloading location.

1963 - MERRELL was waiting in the channel still short of her offloading point. Two tankers were coming right on MERRELL's wake - the mid-season traffic jam was at hand!

After aiding GLACIER in breaking MERRELL out of the squeezed channel, the two breakers towed and nudged the fragile Victory ship alongside the shelf about a half mile astern of ARNEB.

To the North, New Zealand's pride, the pretty tanker ENDEAVOUR was by this time breaking her own way through the outer flow ice and EDISTO raced out to assist. The two ships came in sight at 0220, a credit to all night sunshine. ENDEAVOUR's icebreaking bow and her smart seamanship, less of a protege and more of a competitor; the twisting, bucking journey into the channel resembled a race at times. Finally the New Zealander submitted to being towed when the channel was eventually achieved that evening.

To complete the greatest Antarctic armada of the year, EASTWIND arrived from Hallett on the 6th with workhorse CHATTAHOOCHEE astern. The latter received a royal welcome in the channel: EDISTO towed, GLACIER led the way and EASTWIND took "back-up" position. Parking space was scarce that evening with four ships unloading simultaneously while three breakers were hovering for breath nearby.

On the 9th and 10th, EDISTO assisted GLACIER in turning

ARNEB, with the latter towing that ship to the mouth of the channel.

During the next two days, in what was by now strictly routine, EDISTO towed CHATTAHOOCHEE and ENDEAVOUR to the northern limit of the channel and then escorted through broken ice to clear water some forty miles further North. GLACIER, meanwhile, commenced extending the channel southward. In her wake (blocks nine feet thick and twenty wide) EDISTO started the standard "chopping" operation, reducing the residue to a point where the channel could be transitted without backing and ramming.

A tanker named USS TOMBIGBEE (AOG-11) entered the outer flow ice on Friday morning, 18 January. EDISTO once again played the McMurdo Sound Tug and greeting committee. Out in the penguin playground and the killer whale war zone, the two ships rendezvoused. EDISTO towed and later collected considerable "loot" in the form of supplies purchased by TOMBIGBEE in New Zealand.

At this point EDISTO's tentative availability in Wellington for stern and avgas tank repairs was cancelled in order that GLACIER could receive her second set of propellors.

The ship lost "Combination Able" on 26 January when the crankshaft in number one Main Engine broke. This marked the end of the McMurdo chapter of EDISTO 1963 operations. Although one last tow was made, ENDEAVOUR's second trip, oceanographic operations were shortly exchanged between EDISTO and EASTWIND. Instantly new faces appeared as the ship prepared to "go to sea" for the first time in months. Four cigar-puffing, wildly outfitted civilians arrived fresh from the Naval Oceanographic Office in Washington D.C..

Late afternoon on snowy 5 February, EDISTO went alongside the Great White Ghost (as EASTWIND is affectionately called) to receive all the oceanographic equipment that the Coast Guard ship had been toting since September. EDISTO's forecastle resembled the Grand Market of Baghdad as the oceanographers gleefully plunged into each crate as it came aboard.

Beginning timidly, EDISTO cleared the channel entrance at 0456, 6 February and proceeded to the tranquil water near

Beaufort Island to test equipment and conduct the first ocean stations. OOD's re-acclimated themselves to running a ship rather than a tugboat. The crew became accustomed to the bingo-like designation system of ocean stations with such terms as "salinity" and "core sample" quickly absorbed. All hands began to acquire a rough knowledge of the bottom configuration of the Ross Sea, but first they became aware of the surface configuration. After months of tranquility, securing for sea approached emergency proportions in some areas.

On 10 February, EDISTO proceeded to Cape Adare to recover two scientists who had been at that location for the previous seven days.

Another day on ocean stations and on 12 February EDISTO entered it's private realm, Edisto Inlet, the site of Hallet Station. Glorious sunshine and eye-popping mountain scenery brought far more than the usual number of camera fiends topside. After a probing to determine anchorage sites, EDISTO rendezvoused at 1500 with ARNEB and led the transport into a safe anchorage.

Three days later Hallet's private "fleet" headed seaward, ARNEB South to McMurdo and EDISTO North to more ocean stations.

An interruption occurred on 21 February when EDISTO was diverted back to Hallet to transfer her doctor to GLACIER. A northward dash through snowstorms and amongst great tabular bergs brought the ship once again to the shelter of Edisto Inlet. GLACIER, returning from Wellington was ordered to divert on a mercy mission off Wilkes Land and required a Medical Officer. With the transfer completed, ocean stations were resumed, with the ship now moving into the Ross Ice Shelf area.

The spectacle of this frigid cliff itself was further enhanced at 0700, 25 February by the chance sighting of a huge berg containing a large amount of civilized debris. Photographs taken of the site later revealed that this was the break-up of "Little America III", built in 1940-41 by Admiral Byrd.

A final burst of oceanography in the southeastern quadrant preceded EDISTO's final return to McMurdo on 4 March. With many Antarctic oceanographic records claimed by this time, EDISTO wearily entered the Sound, taking only perfuntory notice of the fact that the channel had now disappeared totally, leaving open water as far as the southernmost basin carved out by the icebreakers. Alongside the ice for the last time this season, the ship

lube oil and exchanged some minor luxuries with the returned GLACIER.

Sunsets and night had by now reached McMurdo, and temperatures well below zero were recorded. EDISTO took five ocean stations within the Sound itself traversing heretofor forbidden, ice bound territory. Then on 7 March out to sea once more to complete Phase II of the oceanography season. Finally, late on 12 March as time and adverse weather motivated against further productive work, EDISTO headed North, the last of the summer support to leave the area. Sharply falling temperatures and extensive pancake ice fields throughout the McMurdo Sound area, presaged another long struggle for surface support in '63-'64.

EDISTO arrived back in Port Lyttelton on 18 March, after an absence of 130 days. Scheduled arrival in the homeport, Boston, was 1 May 1963.

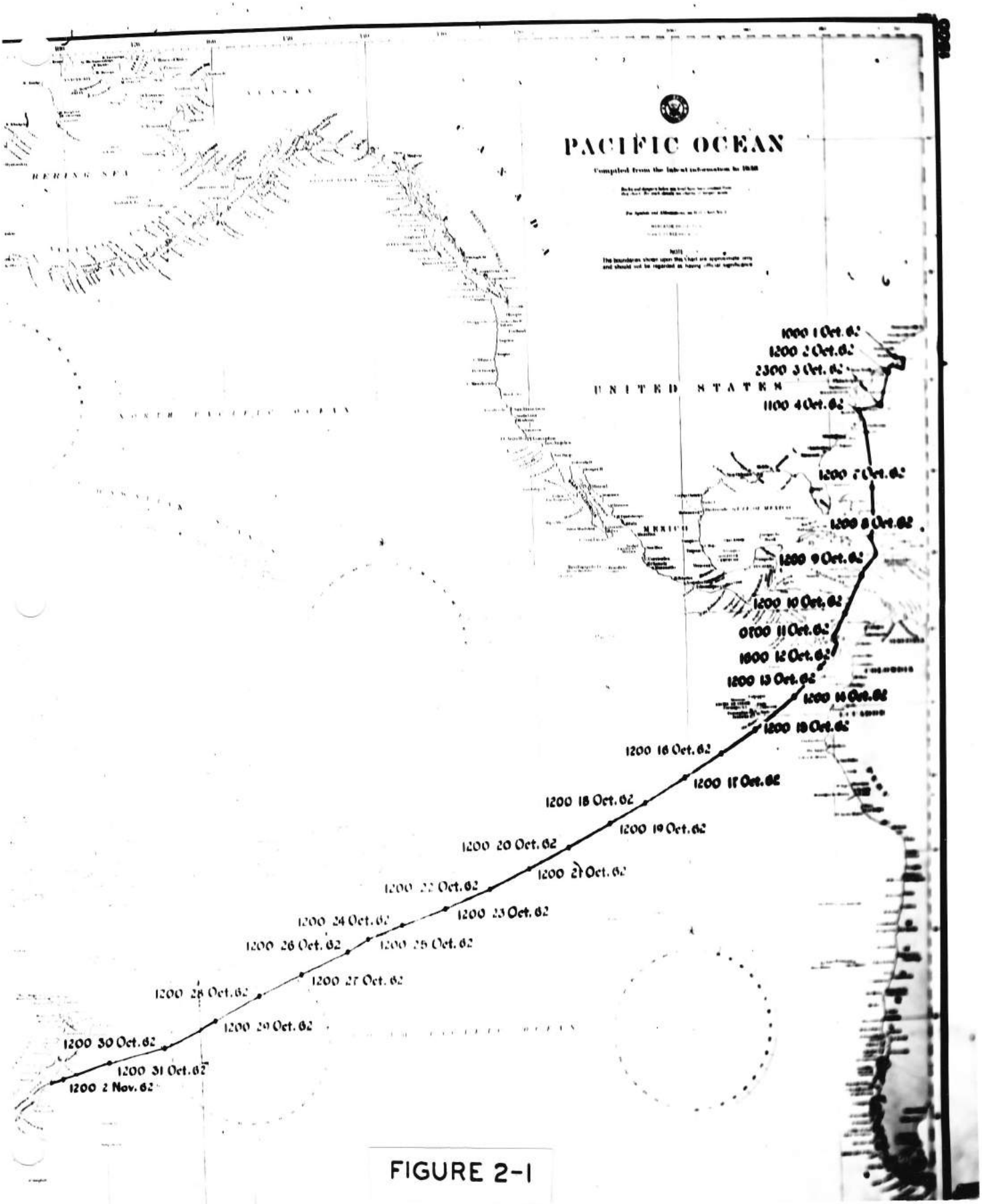
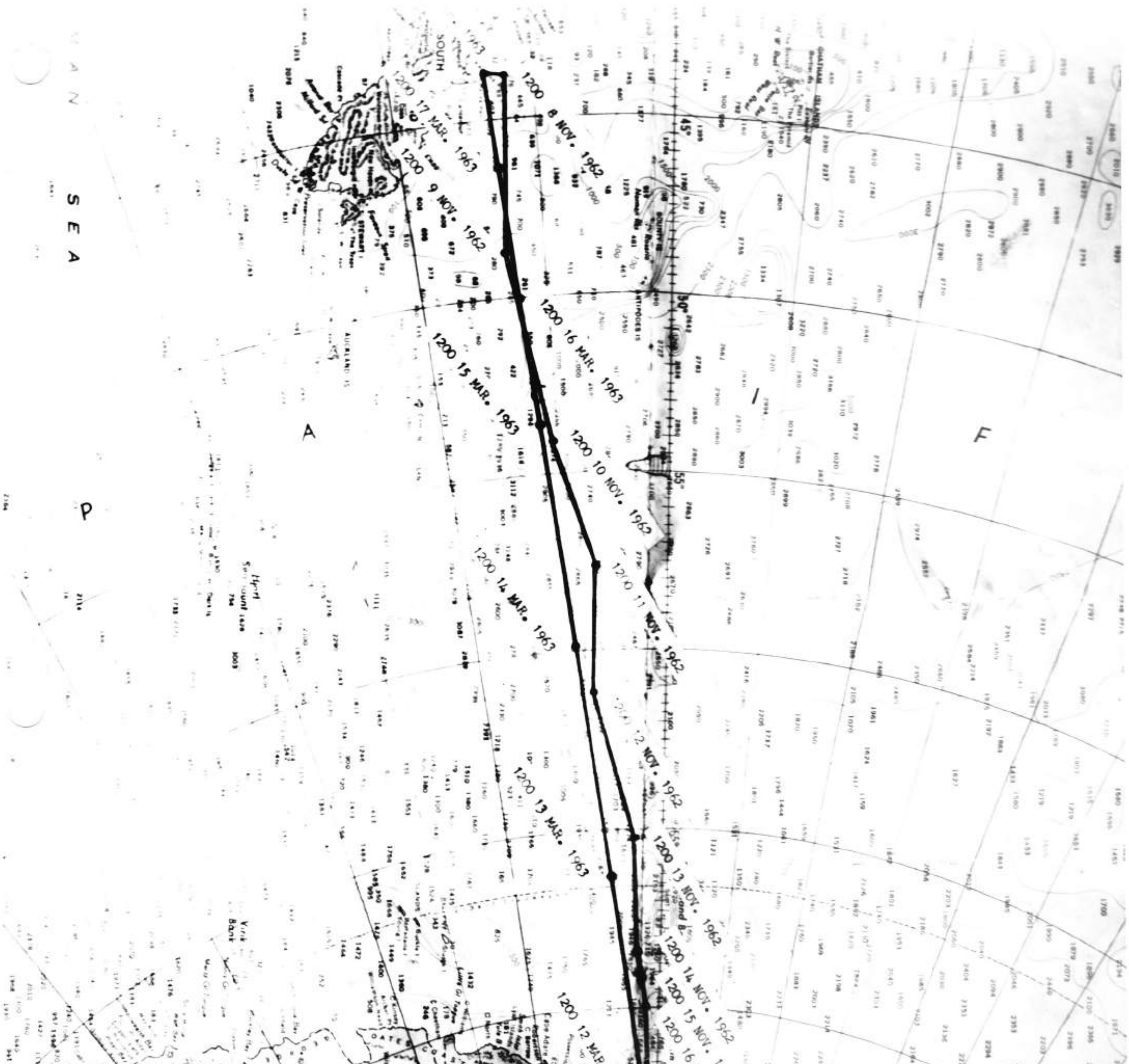

PACIFIC OCEAN
BERING SEA
UNITED STATES
1000 1 Oct. 62
1200 2 Oct. 62
2300 3 Oct. 62
1100 4 Oct. 62
1200 8 Oct. 62
1200 9 Oct. 62
1200 10 Oct. 62
0100 11 Oct. 62
1800 12 Oct. 62
1200 13 Oct. 62
1200 16 Oct. 62
1200 17 Oct. 62
1200 18 Oct. 62
1200 19 Oct. 62
1200 20 Oct. 62
1200 21 Oct. 62
1200 23 Oct. 62
1200 24 Oct. 62
1200 25 Oct. 62
1200 26 Oct. 62
1200 27 Oct. 62
1200 28 Oct. 62
1200 29 Oct. 62
1200 30 Oct. 62
1200 31 Oct. 62
1200 2 Nov. 62

FIGURE 2-1


1200 8 NOV. 1962
1200 9 NOV. 1962
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1200 13 NOV. 1962
1200 14 NOV. 1962
1200 15 NOV. 1962
1200 16 NOV. 1962
1200 17 NOV. 1962
1200 18 NOV.
1200 12 MAR. 1963
1200 13 MAR. 1963
1200 14 MAR. 1963
1200 15 MAR. 1963
1200 16 MAR. 1963
1200 17 MAR. 1963
TASMAN SEA
PACIFIC
WILKES
VICTORIA LAND
ROSS SEA
AUCKLAND IS
ANTIPODES IS
45°
50°
55°
75°

FIGURE 2-2

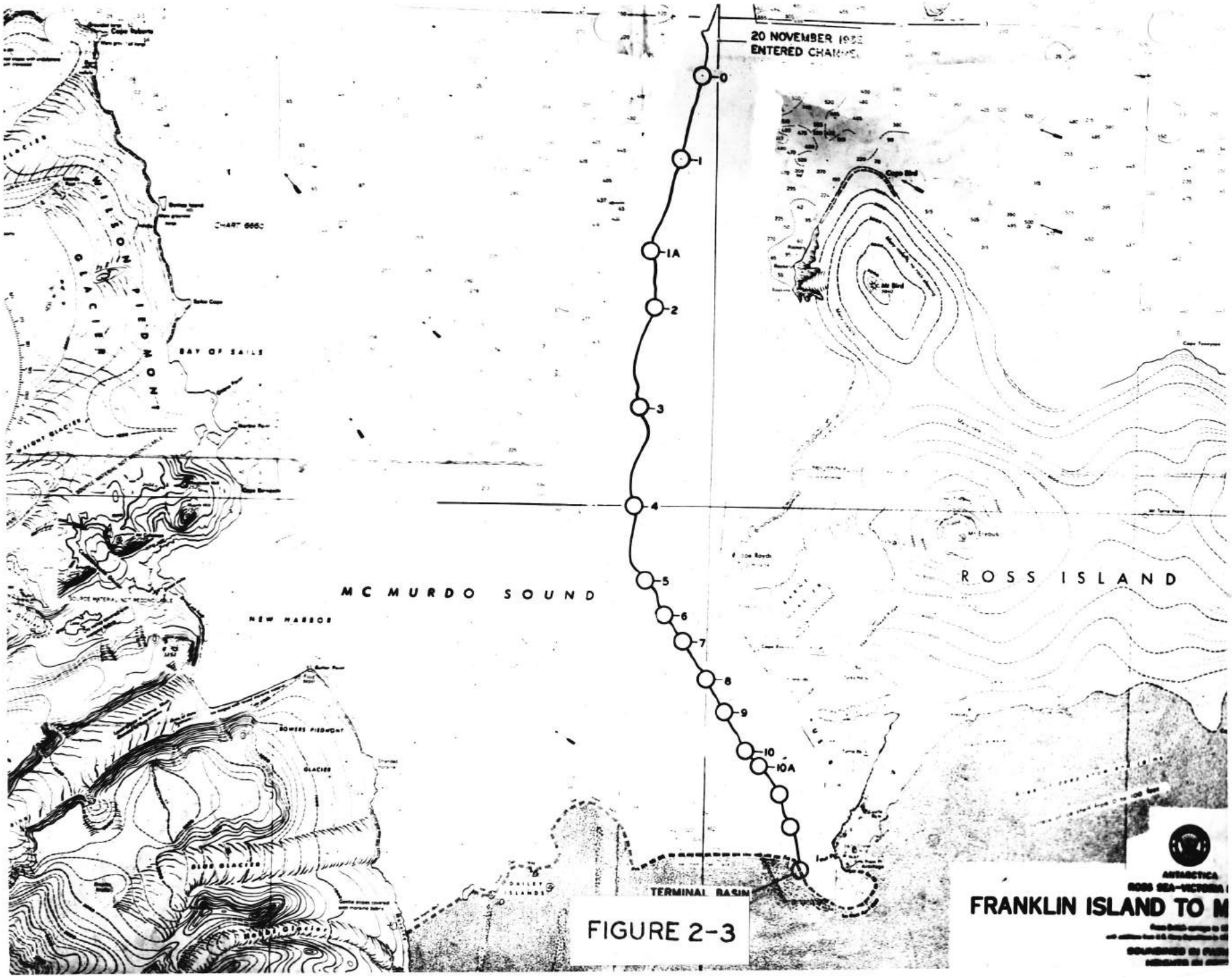

20 NOVEMBER 1902
ENTERED CHANNEL
0
1
1A
2
3
4
5
6
7
8
9
10
10A
MC MURDO SOUND
ROSS ISLAND
BAY OF SAILS
NEW HARBOR
TERMINAL BASIN
FRANKLIN ISLAND TO M

FIGURE 2-3

FIGURE 2-4

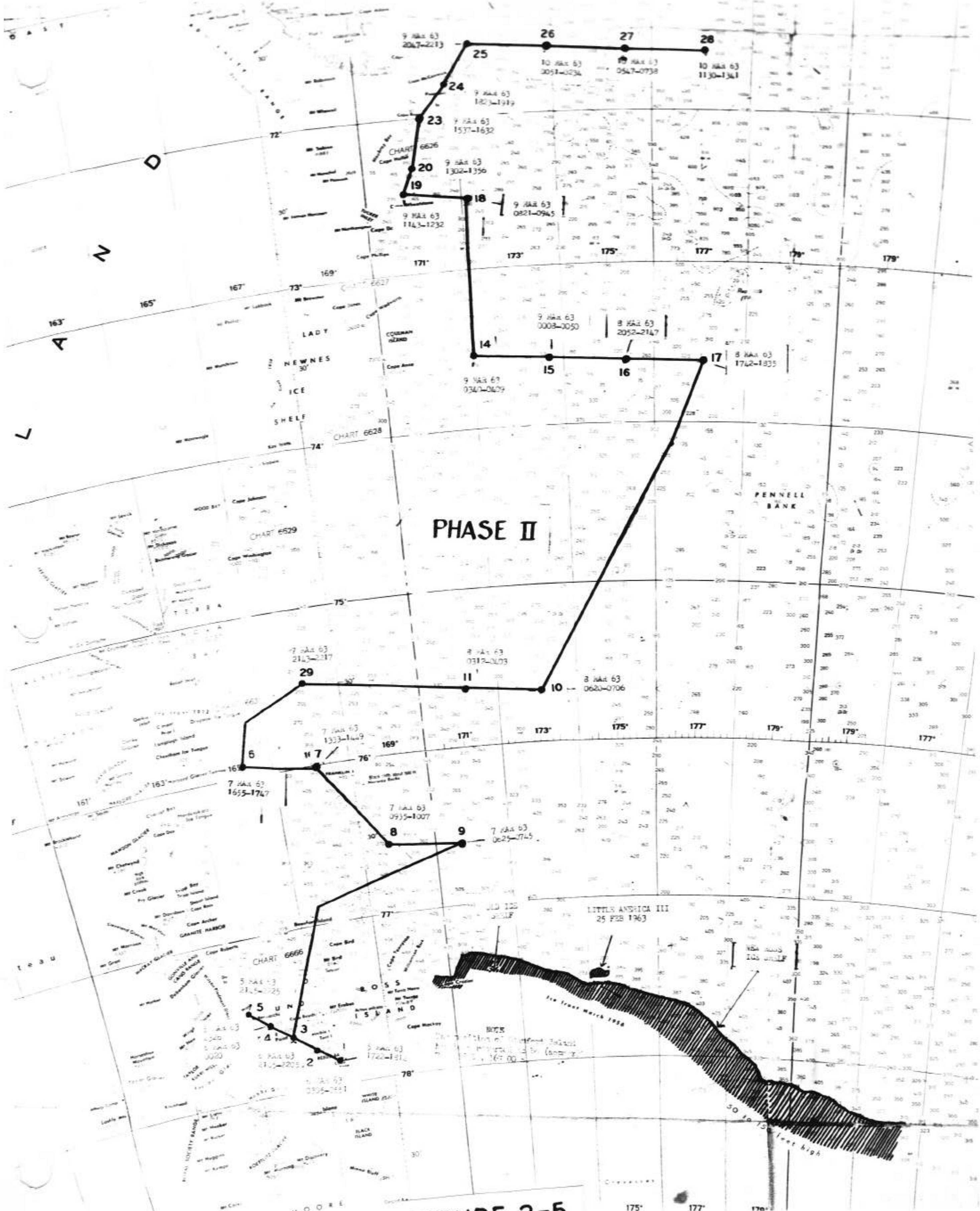

PHASE II
9 MAR 63
2047–2213
25
26
10 MAR 63
0051–0234
27
0547–0738
28
10 MAR 63
1130–1341
24
9 MAR 63
1823–1919
23
9 MAR 63
1537–1632
CHART 6626
20
9 MAR 63
1302–1356
19
9 MAR 63
1143–1232
18
9 MAR 63
0821–0945
CHART 6627
LADY
NEWNES
ICE
SHELF
CHART 6628
9 MAR 63
0008–0050
8 MAR 63
2052–2147
14
15
16
17
8 MAR 63
1742–1835
9 MAR 63
0340–0429
PENNELL
BANK
CHART 6629
TERRA
29
7 MAR 63
2143–2217
8 MAR 63
0312–0403
11
10
8 MAR 63
0620–0706
7 MAR 63
1333–1449
6
16
7
7 MAR 63
1655–1747
7 MAR 63
0935–1007
8
9
7 MAR 63
0625–0745
LITTLE AMERICA III
25 FEB 1963
CHART 6666
ROSS
ISLAND
5 MAR 63
5
4
3
2
1
WHITE
ISLAND
BLACK
ISLAND
Ice front March 1958
MOORE

FIGURE 2-5

FIGURE 3-1

GYRO GRAPH JANUARY 1963

MCMURDO SOUND, ANTARCTICA

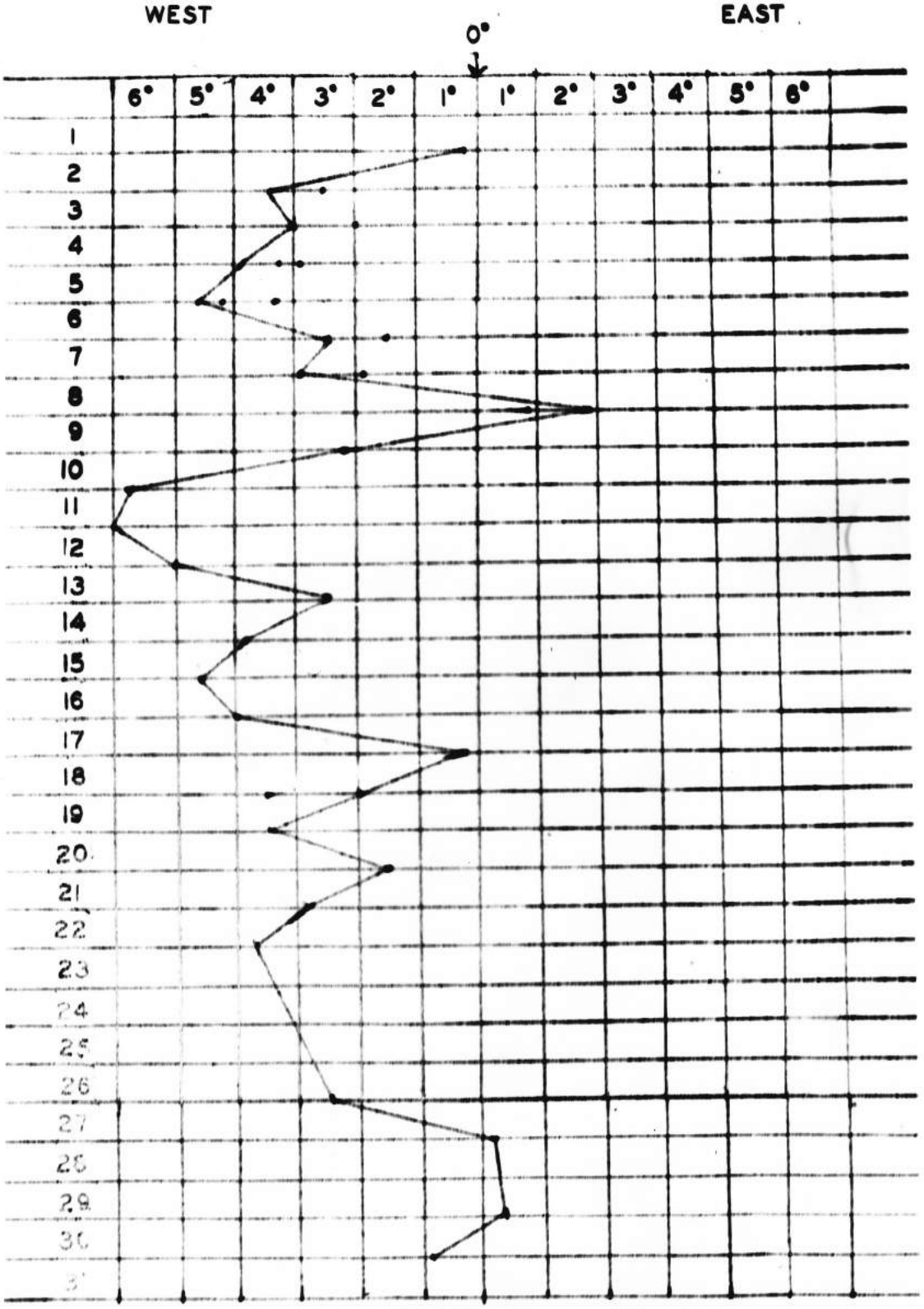


FIGURE 3-2

FIGURE 3-3

FIGURE 3-4

CHAPTER 3

SHIP NAVIGATION AND OPERATIONS

A. Navigation

1. Enroute

a. EDISTO's transit between Boston and Panama was routine with the exception of a fog-bound transit of Hampton Roads. Costal weather forecasting was requested for the entire passage and proved to be very accurate and useful, particularly while hurricane Daisy was southeast of Norfolk. An average SOA of 13.5 knots was made good during this transit.

b. Optimum track ship routing was requested from Fleet Weather Center Alameda prior to departure from Panama. The track recommended by ALAMEDA was almost identical to the Great Circle route and EDISTO desiring to make the best time in transit followed this track for the entire passage even though a re-routing message, because of a storm, was received a day and a half prior to arrival in Lyttelton. The expected storm did not materialize and by remaining on the original track one day in transit time was saved. EDISTO averaged 13.7 knots SOA for the transit of the Pacific.

c. After departure from Lyttelton on 8 November, EDISTO experienced bad weather and overcast skies. The first

ice was encountered 13 November at 64°05'S, 178°14'W. DR Navigation was required because of overcast skies until the ship sighted Beaufort Island. Maintaining an accurate DR position while breaking ice and taking advantage of leads and polynas is difficult, however this problem was overcome by having each Officer-of-the-Deck estimate the course and distance made good during his watch.

EDISTO arrived at "the channel" on 20 November, where navigation was limited to fixing the location of the channel and position of turning basin.

2. Charts

a. The list of DEEP FREEZE charts (Reference COMNAVSUPPFOR ltr Serial 564 of May 1962) forwarded to the ships slated to operate under CTF 43 was an excellent check and distribution system, and it is highly recommended that this procedure be continued.

b. EDISTO had excellent coverage for her originally scheduled Palmer Peninsula mission and, when STATEN ISLAND replaced her for this operation, the charts were passed.

3. Ross Ice Shelf

a. While on ocean stations in February, two hundred miles of the ice shelf was plotted. A 24 hour watch consisting of the Navigator, Chief Quartermaster, and a First Class

Quartermaster was set up to plot the shelf. Radar fixes were taken off Ross Island while it was in range thus establishing an accurate starting point. Future fixes were then taken from plotted prominent points along the shelf supplemented by sunlines.

b. Radarscope photography was taken in conjunction with radar navigation. EDISTO determined that between longitude 169° 30'E and 176° 20'W the ice shelf was extended further northward a distance of 2.5 to 16 miles than that shown on the current edition of Hydro Chart 6636. Special reports are being forwarded to the Oceanographic Office and Naval Photographic Center.

4. Ocean Stations

Ocean stations from a navigational viewpoint presented a continuing challenge. Although the area of interest was restricted to the Western Ross Sea (Figure 2-5), other operational committments, ice along the Victoria Land coast, adverse weather and the limitations of DR navigation, dictated careful planning and supervision. At the outset and prior all work-periods the Commanding Officer and Senior Oceanographer, in conference, determined sectors of stations to be pursued, utilizing all known planning factors. Although

an occasional sun line or radar fix was available, DR navigation, supplemented with bottom contour, had to be employed during most of the project. Nevertheless, the positions of stations obtained and reported are considered on the average, accurate to within 4000 yards.

5. Gyro Compass

The gyro compass error while working in McMurdo Sound was never constant. A graph of January error shown in Figure 3-2, indicates a predominantly westerly error although of a highly fluxuating nature.

6. Navigation Department Personnel

Navigation consisted of a junior officer as Navigator, Chief Quartermaster, one First, Second and Third Class Petty Officers plus two strikers. This group was considered adequate.

B. Ships Operations

1. "The Channel"

a. While each group (air, construction, research, etc) faced certain problems during this summer support season, perhaps the most unique was that confronting the surface unit upon its arrival at McMurdo Sound in early November. While "heavier than usual" ice had been reported, it was

hardly conceived that a tenuous thread-like channel, stretching South for some 56 miles, would ultimately be required. (Figure 2-3)

b. The "Channel", cut through the fast Sound ice, started at a point abeam of Beaufort Island (Latitude 76°57'S Longitude 165° 50', ran south to Latitude 77° 51.5'S Longitude 166°27.5'E, thence southeast to the ice shelf at Old Williams Field. Carved through ice up to nine and one half feet thick and varying in width from 75 to 125 feet, it never was navigable by cargo/tanker units without icebreaker assistance. With over a dozen turning basins and an equal number of turning points, to the writers knowledge, it represented the longest channel in Antarctic history. Its construction, maintenance and use is considered of prime importance, since assuredly there will be other McMurdo Channels.

c. In the prosecution of her true basic mission, GLACIER bulled and slashed the path south, variously employing a single, double and on occasion herring bone attack. Alternately, one of the three WIND Class followed in her wake further "chopping" up blocks and even small floes. To the uninitiated it is revealing to learn that the scope of this latter effort equals that required in the original pass.

Normally, the smaller breaker had to back and ram on at least it's first run, with over a dozen transits required before any towing operations could be attempted. Fortunately, the WIND Class is ideally suited to this role - - - it's power (torque) verses screw strength, is such that no damage is sustained during this "ice-chopping" maneuver. And .90 percent of the "boulders" left by GLACIER are reduced in size only by screw action. Once constructed the problem of ice-channel maintenance becomes paramount. Its navigability is threatened by freeze-over and "squeeze", caused by shifts of the surrounding ice. While these two effects vary considerably throughout the "life" of a channel, any relaxation over 48 hours places all previous effort in serious jeopardy. Again the WIND Class, as employed this year, proved an ideal vehicle to run and therefore, keep open the channel.

2. Towing

As noted in the previous paragraph, the "channel" never became navigable by cargo/tanker units alone; their movement always requiring icebreaker assistance. Since EDISTO attempted and towed successfully on seventeen occasions, a distance of 186.6 miles under light and extremely heavy ice conditions, the procedures employed are set forth in detail.

a. EDISTO's rig consisted of a two inch tow wire,

fitted with an open-ended poured fitting, led over the towing arbor and rail. Two wire straps, one and one eighth inch, secured to pad eyes in the location of the quarter chocks, restricted vertical and horizontal movement of the tow wire, thereby protecting the after end of the Flight Deck and support stanchions. (STATEN ISLAND's after Flight Deck is supported by a cantilever method permitting removal of support stanchions during towing operations. This is considered an ideal solution to the lateral tow wire movement problem. Correspondence has been promulgated for this installation in EDISTO). In all cases the winch was employed in Manual (Clutch Brake set-up tight) and the pawl disengaged. Although full engine power was occasionally used, with over 100,000 lbs. of tension applied, no slippage or breakage occurred.

b. Although various bridle rigs were used by cargo/tanker ships, the most effective was an anchor chain or two inch bridle, the legs of which were shackled to a stout flounder plate. On high-bowed ships such as ARNEB, the bridle legs should be fed through the hawse pipes or connected to towing pad-eyes, if available. It is imperative that the bridle legs be securely stopped-off on the tows forecastle.

c. Dependent upon the concentration of ice in the channel, the tow wire was veered to between 40 and 80 feet. The close-in position of the tow under the breakers stern is based on the requirement to maintain the tow's bows as free of ice as possible. If the tow in an ice restricted channel rides too far back, the ice will close in aft of the breakers wake, pile up around the former's bow, become choked against the sides of the channel and impede progress. Although all tows were started "dead", as "way" was made and danger of ice in the screw was minimized, the tow was asked to make turns for from three (3) to ten (10) knots.

d. Approximately 1000 yards before the mooring site, the tow was stopped and tow wire veered to 150-200 feet. This permitted the tow a certain amount of maneuverability as she was pulled up to the site. Although close teamwork between both bridges is required the tow can normally work it's bow up to the ice edge, scraping along it to provide a clean berth. The breaker should remain in position with screws stopped until lines are secured so as not to wash ice between the tow's side and the shelf.

e. Suggested additional thumb rules are:

(1) If the WIND Class breaker can "run" an ice channel on Combination "BAKER", towing operations will

normally be successful on "ABLE".

(2) Dependent upon speed and ice concentration, tows are stopped by having the towed ship stop or back it's screws and by slowly backing off the breakers throttles.

(3) Always use a split electrical plant set-up (two generators aft on vital board, one forward on non-vital board).

(4) Attempt to have about a two foot drag - - - the lower the screws the less likely a trip caused by ice.

(5) Try to maintain some power in reserve by having tow make turns or accepting slower speed.

(6) Insure bridle legs are even or tow will ride off to one side.

(7) Keep everything simple. While good voice communications are essential, only one whistle signal is recommended: "Three Short Blasts".

3. Recommendations

IT IS FELT THAT UNDER HEAVY ICE CONDITIONS THE FOLLOWING APPLY:

a. THAT GLACIER BE UTILIZED TO BREAK THE INITIAL CHANNEL AND MAKE ENLARGED AREAS FOR TURNING BASINS.

b. THAT WIND CLASS BREAKERS MAKE THE CHANNEL AND TURNING BASINS NAVIGABLE FOR TOWING OPERATIONS.

c. THAT GLACIER BE NOT REQUIRED TO TOW OR ASSIST WIND CLASS BREAKERS IN TOWING OPERATIONS UNTIL THE CHANNEL IS COMPLETED.

d. THAT, WHILE TOWING, A BREAKER PREFERABLY GLACIER, WHEN AVAILABLE, RUN AHEAD OF THE TOWING SHIP AND TOW AND ANOTHER FOLLOW.

e. THAT, SHIPS WITH HIGH BOWS RIG A WIRE OR CHAIN BRIDLE THROUGH THEIR HAWSE PIPES OR TOWING PAD EYES. FURTHER THAT TOWING RIGS BE READY FOR USE UPON ARRIVAL AT MCMURDO SOUND.

ANNEX I

Itinerary

1 October 1962	Sailed from Boston for Newport, R.I.
2 October 1962	Arrived Newport for degaussing
2 October 1962	Sailed from Newport for Norfolk
4 October 1962	Arrived Norfolk for pre-deployment material inspection
5 October 1962	Sailed from Norfolk for Colon, C.Z.
11 October 1962	Arrived Colon, C.Z. and Rodman, C.Z.
12 October 1962	Sailed from Rodman, C.Z. for Lyttelton, N.Z.
2 November 1962	Arrived Lyttelton, N.Z.
8 November 1962	Sailed from Lyttelton, N.Z. for McMurdo
20 November 1962	Arrived McMurdo "channel"
5 February 1963	Sailed from McMurdo for ocean stations
10 February 1963	Arrived Cape Adare to embark two scientists for transport to Hallett
12 February 1963	Arrived Hallett to ice escort USS ARNEB
15 February 1963	Sailed from Hallett for ocean stations
21 February 1963	Arrived Hallett for rendezvous with GLACIER to transfer EDISTO's Doctor
22 February 1963	Sailed from Hallett for ocean stations
25 February 1963	Sighted Little America III in berg
4 March 1963	Arrive McMurdo for final evacuation
7 March 1963	Sailed from McMurdo for ocean stations
12 March 1963	Sailed from ocean stations for Lyttelton, N.Z.
18 March 1963	Arrived Lyttelton, N.Z.

FIGURE 4-1

CHAPTER 4

AIR OPERATIONS

1. General

a. On 30 September, Detachment 36 of Helicopter Utility Squadron Four embarked aboard EDISTO for participation in Operation DEEP FREEZE '63. The detachment consisted of one CH-19E, one TH-13N, three pilots and eight crew members. The CH-19E was DEEP FREEZE configured and both aircraft had high visibility international-orange day glo-paint.

2. Operations

a. During the transit from Boston to the operating area only a minimal amount of flight operations were conducted. Most of the flights and time was spent familiarizing pilots, helicopter crew and flight quarters personnel with all phases and safety precautions of flight operations.

b. Once in the vicinity of Scott Island, 13 November 1962, the helicopter became an asset to the ship. Ice reconnaissance flights commenced immediately and continued for six hundred miles into McMurdo Sound. Although, both air-craft were utilized during this period it was found that the TH-13N was far more satisfactory for ice reconnaissance due to high visibility available to the observer.

c. At McMurdo, during the last week in November, operations increased. In addition to filling the ship's helicopter requirements, both aircraft were used extensively to augment AIRDEVRON SIX, in the transport of cargo and personnel.

d. A breakdown of flight hours for period 29 September through 20 March 1963 is as follows:

		CH-19E		TH-13N	
		FLTS	HRS	FLTS	HRS
A	Training	1	1.8	3	3.5
J	Ferry	2	5.2	2	4.9
L	Test	10	2.7	22	16.2
N	Ship Support	146	228.0	101	118.6
	Totals	159	238.7	128	143.2

		ARRESTED	FIELD
LANDINGS	CH-19E	443	631
	TH-13N	298	259
	Totals	741	890

Flight Hours by Months

	CH-19E	TH-13N
September	5.2	4.9
October	12.3	11.1

November	64.3	39.9
December	73.1	43.4
January	67.9	21.2
February	12.1	22.7
March (20th)	3.8	0.0
Totals	238.7	143.2

e. The CH-19E effectively transported 85,000 pounds of cargo, both internally and by external sling. Both aircraft combined effected the transfer of approximately 683 personnel.

3. Maintenance

a. Aircraft availability for the cruise was outstanding. There were no serious interruptions and all operational committments were met and sucessfully completed.

b. The weather and long transit from Boston to Antarctica provided ample opportunity for salt water corrosive properties to take its toll on the aircraft. The DEEP FREEZE cocoon covers for both aircraft proved satisfactory under moderate conditions; however, in bad weather salt spray went through the thin material. In high winds (30 knots and above) the CH-19E covers are very difficult to install. Corrosion preventative compound WX8030-244-1299, and Dowcorning R9150-

261-8327 G500 proved extremely effective in reducing the corrosive effects.

c. Routine maintenance was performed with little difficulty, with the exception adverse weather. Since the flight deck offered no protection, maintenance was at times performed under difficult conditions. In addition to normal 15 and 30 hour checks a calender intermediate and major was performed on each aircraft with a special high time intermediate on CH-19E. Fresh water washdowns were used whenever possible but air temperature and chill factor normally precluded the use of water. Hydraulic fluid was applied twice daily and proved to be satisfactory. The ground support preheater required extensive repairs including 3 complete overhauls. Replacements parts were obtained from McMurdo dump.

d. During the months of November, December and January both aircraft were flown almost daily. It is felt that the frequent utilization of the aircraft, and continual preventive maintenance helped maintain the high availability. The ship was assigned ocean stations, for long periods, during February and March and during this period most of the more serious maintenance problems occured, including an engine change. Sub zero temperatures, and heavy salt spray greatly hindered maintenance. The icy decks and heavy rolling of

the ship, at times, prevented helicopter crews from checking security of aircraft and support equipment.

e. Spare parts usage was considered average. The CH-19-E received two sets of high time servo rod end bearings, two mainfold pressure gages, UHF Radio ARC-27, HF ARC 5 receiver, 2 main rotor blades, fan belts and spark plugs. The TH-13N required an engine, main transmission, 2 batteries, three dampers, spark plugs and shrouds.

4. Supply

With the exception of the preheater, noted in paragraph 3.c., spare parts, both Part I (Squadron/Det furnished) and Part II (AMO, NORVA provided/Ship carried), were adequate. Although 91 percent of the TH-13N and 89 percent of CH-19E, Part II spares were on board, the combined availability among the three East Coast breakers was excellent. This system of providing support in the area of short-supply items is entirely workable and should be continued.

5. Aviation Fuel

While a serious casualty to the ship's aviation gasoline tank (EDISTO msg 180325Z Dec 62; discussed in Chapter X) occured, an additional problem arose regarding fuel, or more specifically, lack thereof. On two occasions, each of which

followed the receipt of fuel from other breakers, EDISTO's tank suddenly gave up a poor grade of saltwater. The installed flow meter system (Liquidometers are unreliable) had been operating perfectly with an accurate amount of fuel on board readily available. Following a discussion with personnel of one of the delivery breakers, in which the inability to correctly determine fuel flow, therefore quantity remaining, was mentioned, it could only be concluded that a certain amount of water was pumped to EDISTO. A one half inch sampling valve was finally installed in the piping system and quality of fuel carefully checked on the one subsequent receiving occasion. Only with the best equipment, properly maintained, will auxiliaries lose the reputation of questionable fuel operations.

6. Communications

a. Communications between the ship and helicopters was consistently outstanding. The CH-19E had high frequency equipment installed, however, it was rarely used due to heavy requirements upon the ship to guard many circuits with limited transmitters and receivers.

b. The installed TED/RED combination on the forward bulkhead of the Pilot House was perfect for the airborne ice reconnaissance/conning situation. The conning officer heard directly the recommendations passed from the aircraft and

was thereby able to take immediate action.

7. Recommendations

a. Any comment regarding helicopter hangars on Wind Class icebreakers would be redundant to say the least - - - it appears that action in the near future is contemplated. ComServLant letter serial 41/5950 dated 26 July 1962 indicates that EDISTO will receive the initial installation of a telescopic hangar during the next regular overhaul, December 1963-February 1964. SHIPALT AGB 231 (Retractable Helicopter Hangar) has been approved for this addition. CinCLant Flt ltr serial 285/313A dated 19 January 1963 (FIFTH endorsement on CO, HU-4 ltr ser 1587 of 14 Nov 1962) concurred with a recommendation, made originally by BURTON ISLAND, that a fixed hangar installation is preferred. This command prefers a fixed hangar over that provided for in SHIPALT 231, now in the planning and design stage, Boston Naval Shipyard. It is believed that, provided certain changes were incorporated in the Wind Class in the forward end of the Flight Deck area, adequate space could be realized for a fixed installation. EDISTO letter serial 55 dated 3 March 1963, a requested SHIPALT, provides, among other inovations, additional deck parking area, which may contribute to the fixed hangar proposal.

THAT, IF FEASIBLE, A FIXED HELICOPTER HANGAR BE INSTALLED ON WIND CLASS ICEBREAKERS.

b. The numbers of helicopter pads at McMurdo (Town) were insufficient to handle three HUS type, AirDevRon SIX and the ship-based aircraft. Since the latter were required to provide many hours of support to various activities at McMurdo, usage is high, with the one most available pad dangerously sloped and too near the hill.

THAT SAFE HELICOPTER LANDING AREAS BE PROVIDED AT MC MURDO FOR SIX AIRCRAFT.

c. THAT DETACHMENTS DEPLOYING ON DEEP FREEZE CRUISES BE PROVIDED TWO PREHEATERS WITH SUFFICIENT SPARE PARTS SUPPORT.

d. THAT AGB AVGAS SYSTEMS BE FITTED WITH THE BEST POSSIBLE FLOW AND QUANTITY METERS.

FIGURE 5-1

CHAPTER 5

METEOROLOGY

1. General

a. The weather unit's primary responsibility was the collection, evaluation and dissemination of weather information for ship and air operations plus the reporting of weather to other activities.

b. The group consisted of one AG1 and two AG3's, adequate for this type operation.

c. A statistical summary of weather is included in Annex I.

2. Weather Duties Accomplished

a. Observed and recorded hourly surface observations. When on ocean stations this was decreased to three and six hourly observations.

b. Recorded and transmitted three and six hourly synoptic observations, incorporating ice reports as required.

c. Made radiosonde observations at ØØØØZ and 12ØØZ when not in McMurdo Sound area. Only four radiosondes for training were taken enroute to operations so as to conserve helium. A total of 35 radiosondes were taken.

d. Maintained a climatological log while south of 50° South Latitude.

e. Plotted and analyzed two surface charts each day when facsimile charts were not available.

f. Supplied surface weather observations to Quartermasters and Oceanographic Unit, when required.

g. Provided daily weather forecasts and briefings.

h. Made special continuous ice observations for construction of ice charts. Ice observations were taken and encoded in H.O. Misc. 15584, Ship Ice Log and transmitted at the end of the synoptic transmissions. Observations were taken and recorded every three hours with special observations taken when warranted to produce a more accurately plotted ice chart being kept by the BT team. While in McMurdo channel, observations were taken every twelve hours, with continuous ice observations of the bay ice taken on the first transit of the McMurdo channel following any strong winds. These observations were not encoded but were plotted on a chart.

3. Weather Communications

a. No difficulty or unusual delay was experienced in

transmitting observations.

b. Facsimile

(1) The facsimile reception from McMurdo was good when within 50 miles of the station but between the Latitudes 73°S and 77°S very few maps were received. North of 73°S, reception was weak but readible. 11004 kcs was the only frequency on which the ship was able to copy McMurdo since the Soviet facsimile broadcast on 7750 kcs completely blocked out any other signal.

(2) Canberra, Australia was copied when McMurdo could not be received and when north of 70°S, with 13920 kcs the best frequency for this broadcast. Since Canberra's analysis only extends as far south as 70°S, no analysis of the Ross Sea was available on the Canberra Map, it was extended to adequately cover the Ross Sea area.

4. Evaluation of Facilities and Equipment

a. Facsimile - On several occasions electrical shorts developed requiring repair. At no time was the facsimile out of operation when required for copying charts.

b. Radiosonde Receptor, SMQ-1A

(1) Most of the soundings taken early in the deployment were terminated due to excessive drift of the temperature

and reference curves near the tropopause level. After experimenting, this was corrected by using one battery for the baseline check and a fresh one for the release. This resulted in all terminations being caused by fading signals or balloon bursts.

(2) A minor calibration problem was experienced following a "jury rig" repair, the result of canabalizing EDISTO's receiver for parts required aboard STATEN ISLAND.

5. Recommendations

THAT AT LEAST ONE OF THE ABROGRAPHERS ABOARD BE A GRADUATE OF THE RADIOSONDE OPERATORS CLASS "C" SCHOOL.

ANNEX I

MONTHLY CLIMATOLOGICAL SUMMARY

November 1962

Enroute from New Zealand to McMurdo the ship entered the ice on 12 November at 64° 05' S, 178° 14' W. After passing through heavy sea ice EDISTO arrived at the northern end of the channel, 64 miles from McMurdo, on 21 November. The remainder of November was spent in the channel at McMurdo Sound.

TEMPERATURES: When entering the ice on 12 November the temperature dropped below 32°F. The temperature did not go above freezing again until 12 March when the EDISTO was enroute to New Zealand.

Average 21.8° Maximum 45.0° Minimum 5.1°

PRESSURE: On the northern portion of the track the pressure was dominated by a deep low to the northwest and north of our position. After entering the ice our weather was influenced by migratory lows moving from the northwest to the semi-permenent low centered near "Little America".

Average 990.8mb Max. 1000.1mb Min. 973.0mb

SKY COVER: November had broken or overcast skies 67% of the time. There were 4 days that were completely overcast. All other days had broken or overcast skies for a portion of the day.

Clear 3% Scattered 30% Broken 33% Overcast 34%

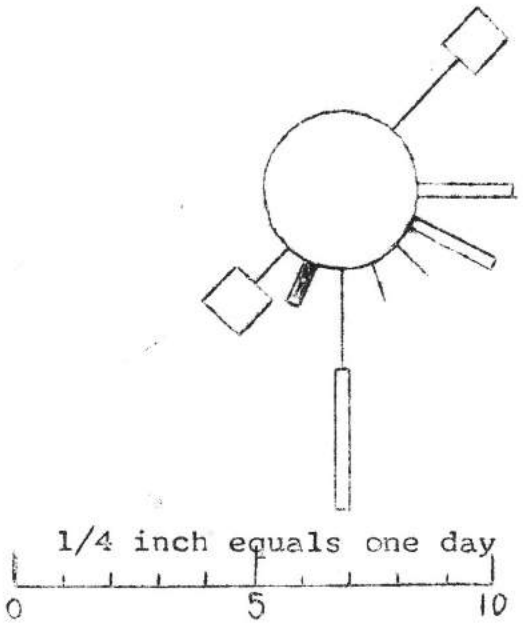
SEA WATER TEMPERATURES: Due to almost solid ice cover most of the period the sea water temperature did not vary.

Average 29° Maximum 33° Minimum 29°

WINDS: The majority of the daily peak gusts and prevailing winds were from east through south. The highest average wind for a day was 31 knots from a prevailing direction of southwest on 10 November. The peak gust for the month, south-southwest 41 knots, also occured on 10 November.

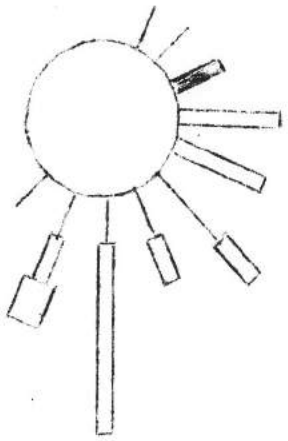
Prevailing wind direction and average wind speed per day. Four (4) days had an average wind speed of less than 3 knots.

Over 21 knots
17 to 21 knots
11 to 16 knots
3 to 10 knots



Direction and speed of the peak gust per day.

Over 40 knots
28 to 40 knots
17 to 27 knots
16 knots or less



MONTHLY CLIMATOLOGICAL SUMMARY

DECEMBER 1962

The entire month of December EDISTO was operating in McMurdo Sound. The weather was dominated by migratory lows moving from the northwest to the semi permanent low centered near "Little America" and by a ridge of high pressure that occasionally built out over Victoria Land and the Ross Sea.

TEMPERATURES: Due to the ship being in ice-covered waters the entire month the difference between the maximum and minimum temperatures for the month was only 17.5°.

AVERAGE 23.4° MAXIMUM 31.5° MINIMUM 14.0°

PRESSURE: Pressure variations depended on the semi permanent low centered over Little America and the Polar high. The lowest pressures occured after a migratory low from the northwest would join and deepen the low over "Little America." The highest pressures would occur when the Polar high developed a ridge over Victoria Land and the Ross Sea in the Cape Hallett area.

AVERAGE 98[illegible].2mb MAXIMUM 1000.2mb MINIMUM 977.1mb

SKY COVER: 80% of the time the skies were scattered or broken. There were no days when the sky was clear or overcast for the entire day.

CLEAR 4% SCATTERED 44% BROKEN 36% OVERCAST 16%

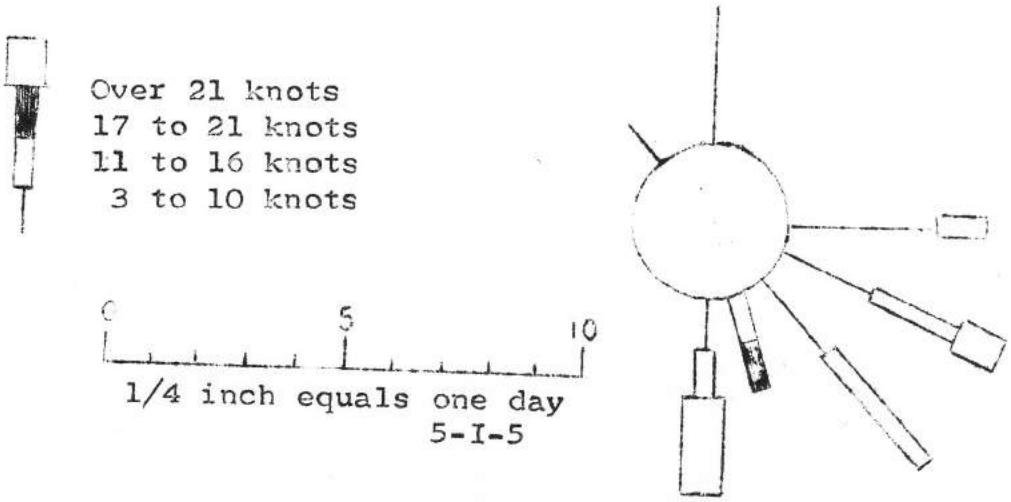
SEA WATER TEMPERATURES: Very little variation in the sea water temperatures was noted due to the ship operating in ice covered waters.

AVERAGE 30° MAXIMUM 32° MINIMUM 29°

WINDS: The majority of the time the winds were from the east through south. The strongest winds were from southeast through south. The topography surrounding McMurdo Sound and particularly Ross Island have a very definite effect on the winds. It was not uncommon to have a difference of 90° in the wind direction reported at the base and that experienced on the ship. The highest average wind for a day was 44 knots from a prevailing direction of south on 18 December. The peak gust for the month, south 67 knots, occured on 25 December.

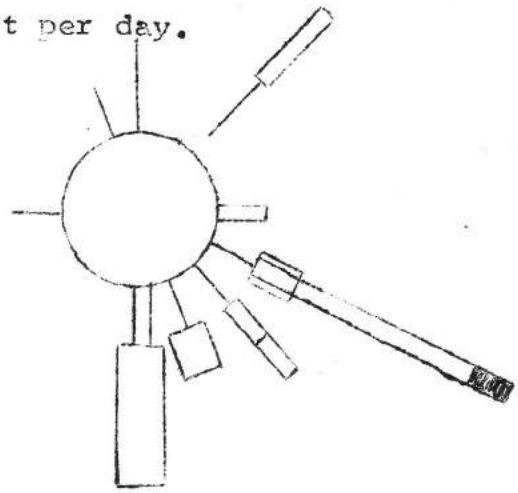
Prevailing wind direction and average wind speed per day.

Six (6) days had an average wind speed of less than 3 knots.



Direction and speed of the peak gust per day.

Over 40 knots
28 to 40 knots
17 to 27 knots
16 knots or less



MONTHLY CLIMATOLOGICAL SUMMARY

January 1963

The entire month of January the EDISTO was operating in McMurdo Sound. The comments stated for December apply to January as well.

TEMPERATURES: AVERAGE 24.7° MAXIMUM 31.9° MINIMUM 11.1°

PRESSURE: The maximum pressure observed by the EDISTO while south of the Antarctic Circle 1001.0mb occured on 4 January. An extremely low pressure of 966.5mb was recorded on 27 January.

AVERAGE 98[illegible].6mb MAXIMUM 1001.0mb MINIMUM 966.5mb

SKY COVER: 74% of the time the skies were scattered or broken. There were no days when the skies were clear or overcast for the entire day.

CLEAR 12% SCATTERED 44% BROKEN 30% OVERCAST 14%

SEA WATER TEMPERATURE: Somewhat warmer sea water temperatures

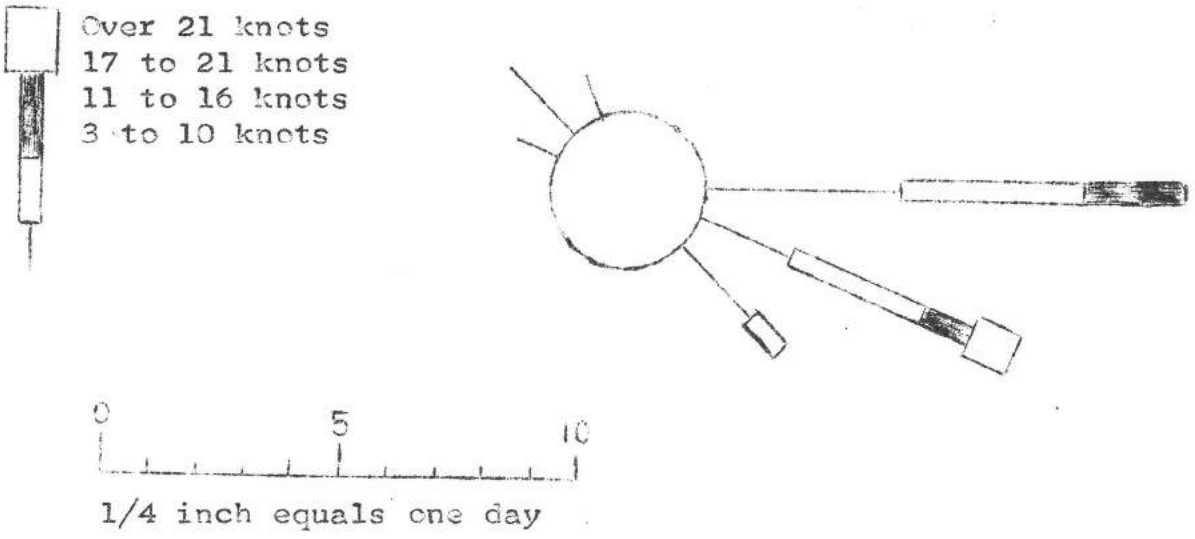
were observed due to diminishing sea ice.

AVERAGE 30° MAXIMUM 33° MINIMUM 29°

WINDS: It was noted that while easterly winds occurred in the southern portion of the channel they would be from the south or southeast in the northern portion of the channel. This was due to the topography and proximity of Ross Island. The highest average wind for a day was 26 knots from a prevailing direction of east-southeast on 7 January. The peak gust for the month, east-southeast 36 knots, also occurred on 7 January.

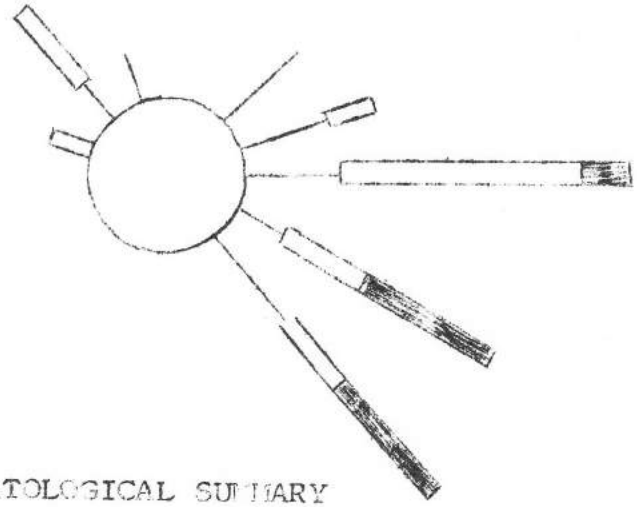
Prevailing wind direction and average wind speed per day.

Seven (7) days had an average wind speed of less than 3 knots.



Direction and speed of the peak gust per day.

Over 40 knots
28 to 40 knots
17 to 27 knots
16 knots or less



MONTHLY CLIMATOLOGICAL SUMMARY

FEBRUARY 1963

From the first to the fifth of February EDISTO was operating in McMurdo Sound. For the remainder of the month ocean stations were occupied in the western half of the Ross Sea.

TEMPERATURES: One day with below zero temperatures was experienced during February. This occurred while EDISTO was taking ocean stations close to the ice shelf east of Ross Island on 25 February. On this date the winds were from the south and a considerable amount of steam fog and new pancake ice was formed.

AVERAGE 22.6° MAXIMUM 31.2° MINIMUM -4.2

PRESSURE: The pressure during February was influenced by migratory lows moving east or southeast across the Ross Sea.

AVERAGE 987.4mb MAXIMUM 999.8mb MINIMUM 974.6mb

SKY COVER: 83% of the time the skies were broken or overcast. No clear skies occurred during February.

CLEAR 0% SCATTERED 17% BROKEN 43% OVERCAST 40%

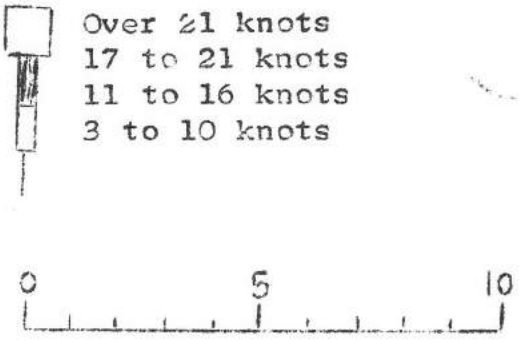
SEA WATER TEMPERATURE: A little more variation was noted in the sea water temperatures while taking ocean stations. During the later part of February new pancake ice was forming in McMurdo Sound and the Ross Sea adjacent to the ice shelf.

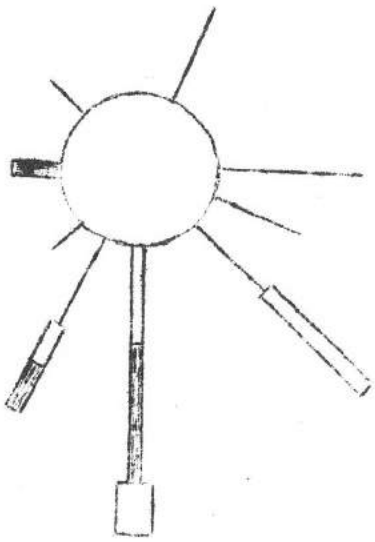
AVERAGE 31° MAXIMUM 33° MINIMUM 29°

WINDS: Most prevailing winds were from the east through south. The highest average wind for a day was 30 knots from a prevailing direction of south on 16 February. The strongest winds were from the southwest quadrant. The peak gust for the month, south-southwest 38 knots, occurred on 17 February.

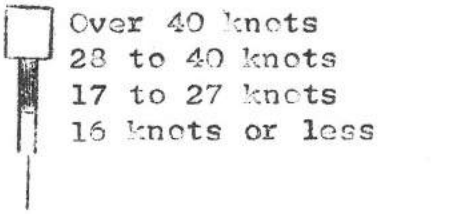
Prevailing wind direction and average wind speed per day.

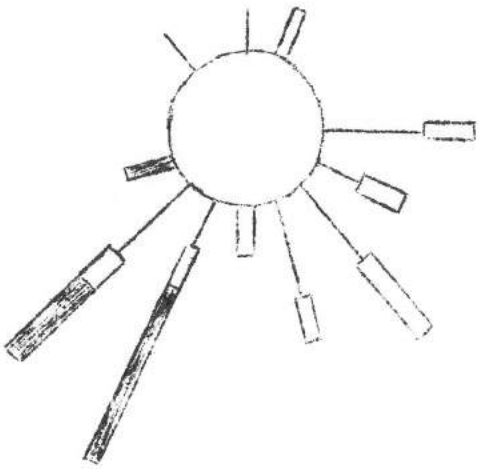
One (1) day had an average wind speed of less than 3 knots.





Direction and speed of the peak gust per day.





MONTHLY CLIMATOLOGICAL SUMMARY

MARCH 1963 (End 16 MARCH)

EDISTO was engaged in taking ocean stations in McMurdo Sound and the western portion of the Ross Sea until 11 March. On 12 March the ship proceeded to New Zealand, arriving 18 March.

TEMPERATURES: The lowest temperatures of the cruise occured in early March while in McMurdo Sound. Solid bay ice started forming in McMurdo Sound and new pancake ice was observed in the south-western corner of the Ross Sea.

AVERAGE 24.5° MAXIMUM 49.1° MINIMUM -11.1°

PRESSURE: The lowest pressure of the operation occured on 13 March in a deep low centered northeast of Cape Adare. Enroute to New Zealand the weather was dominated by a series of troughs.

AVERAGE 982.1mb MAXIMUM 1002.1mb MINIMUM 964.0mb

SKY COVER: 92% of the time the skies were broken or overcast. At no time during the month were clear skies observed. Two days were overcast for the entire day.

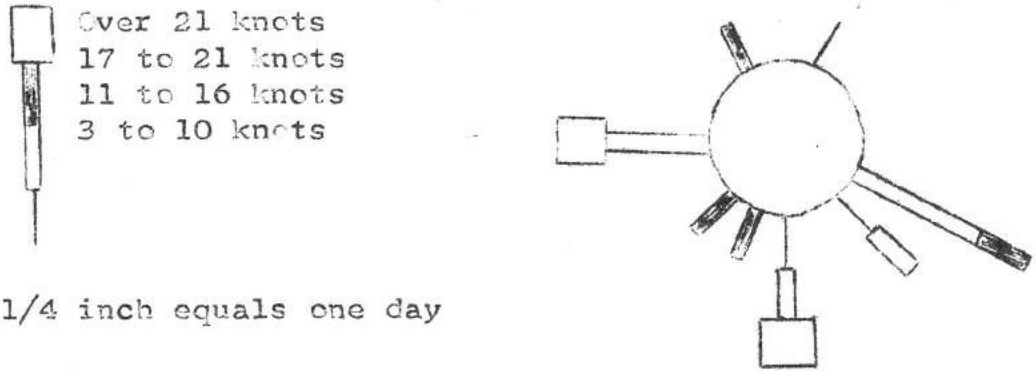
CLEAR 0% SCATTERED 8% BROKEN 40% OVERCAST 52%

SEA WATER TEMPERATURES: Sea water temperatures were uniformly low in McMurdo Sound and the Ross Sea and rising steadily enroute to New Zealand.

AVERAGE 31° MAXIMUM 50° MINIMUM 29°

WINDS: While in McMurdo Sound the predominant winds were from the east-southeast to south. Enroute to New Zealand the predominant directions were southwest to west. The strongest winds were from the southeast while in the Ross Sea and from the south, west and northwest enroute to New Zealand. The highest average wind for a day, 29 knots from a prevailing direction of west, occured on 16 March. The peak gust for the month, south 61 knots occurred on 2 March.

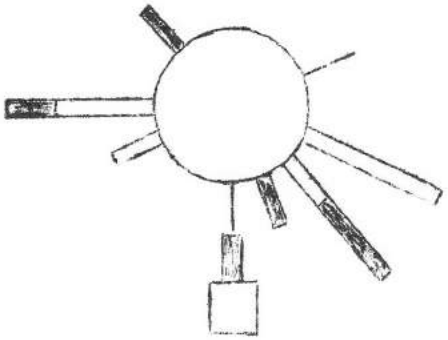
Predominate direction and average wind speed per day. There were no days with an average wind speed of less than three knots.



1/4 inch equals one day

Direction and speed of the peak gust per day.

Over 40 knots
28 to 40 knots
17 to 27 knots
16 knots of less



ANNEX II

INVENTORY OF METEOROLOGICAL CONSUMABLES

		1 Oct	Nov	Dec	Jan	Feb	15 Mar
RADIOSONDE TRANSMITTERS	AN/AMT 11A	18 ea	18	3	1	0	0
	AN/AMT 11B	144 ea	144	144	144	144	122
	AN/AMT 11C	16 ea	16	16	16	16	16
BALLOONS 600 GRAM		618 ea	618	615	370	368	348
100 GRAM WHITE		15 ea	15	15	15	15	15
100 GRAM BLACK		40 ea	40	40	40	40	40
100 GRAM RED		10 ea	10	10	10	10	10
30 GRAM WHITE		30 ea	30	30	30	30	30
30 GRAM RED		10 ea	10	10	10	10	10
10 GRAM		50 ea	50	50	50	50	50
INK: SMQ-1A RECORDER		3 bt	3	2	1	1	1
GAS: HELIUM		123 tks	123	110	108	107	93
FORMS AND CHARTS							
BAROGRAPH CHARTS		162	154	146	138	130	120
WBAN 11A		300	238	178	116	285	200
WBAN 11B		2200	2130	2055	1990	1900	1800
WBAN 31A		600	600	585	580	579	550
WBAN 31B		420	420	405	402	402	380
WBAN 31C		400	400	400	400	400	390
METEOROLOGICAL PERSONNEL SUMMARY		70	70	70	62	62	62

QUARTERLY AEROLOGICAL SUMMARY	30	30	30	25	25	25
METEOROLOGICAL RECORD REPORT	70	66	62	58	54	50
WBAN 21	600	600	600	600	600	600
WINDS ALOFT PLOT	48	48	48	48	48	48
AEROGRAM	200	200	200	200	200	200
HO 6810	220	214	214	214	214	214
HO 6821	132	128	128	128	128	128
HO 6828	20	6	6	6	6	6
HO 6831	69	69	69	69	69	69
HO 6832	196	196	196	180	172	150
HO 6835	90	90	90	90	90	90
HO 6836	238	238	208	208	208	200
HO 6843	128	128	128	128	128	128
HO 6844	180	180	180	180	180	180
THERMOMETERS STANDARD AIR	8 ea	8	8	5	3	3
PSYCHROMETER WICKS	40 ea	40	40	40	37	37
INK: INSTRUMENT	3 bt	3	3	3	3	3
FACSIMILE PAPER	6 rm	6	5	4	3	3
SMQ-1 RECORDING CHART	15 ea	15	14	14	14	12
REELS	450 ea	450	435	433	431	397
BATTERIES, BA-353/AM	473 ea	473	460	458	456	414
PARACHUTES	192 ea	192	192	192	192	192

FIGURE 6-1

CHAPTER 6

COMMUNICATIONS AND ELECTRONICS

A. COMMUNICATIONS

1. General

a. Communications on EDISTO throughout Operations DEEP FREEZE '63 were better than had been originally anticipated for a deployment of this nature.

b. The following paragraphs, based solely upon observations made by the ship during the deployment, are concerned with specific comments and recommendations for possible improvement of DEEP FREEZE shipboard communications.

2. Fleet Broadcast

a. During transit from CONUS to McMurdo Sound, EDISTO made only one CW broadcast shift, from Whiskey to Hotel. This shift was made approximately one and one-half days out of Panama. Broadcast reception in the Pacific was reliable, with an average of two percent return traffic due to interference. On 30 October NAVCOMSTA Honolulu secured the VLF component of Hotel broadcast to surface ships.

b. In New Zealand reception was still reliable, but below 60 degrees South, increased traffic load and the loss of the VLF component had increased the rerun traffic

average to five precent, and on a very few occasions, during a 24 hour period as high as fifty percent. In the Ross Sea area outages were experienced lasting from one and two hours to as long as seventeen hours, giving an over all average of 7 percent rerun traffic for the entire period spent below 60°S.

c. In the McMurdo Sound area repetitions of missing numbers were not readily available in that all ships present experienced loss of signal for the same periods of time, thus lessening the chances of units helping one another.

3. Recommendations for Fleet Broadcast

a. Whether caused by characteristics of EDISTO's equipment or not, the fact remains that EDISTO experienced far more reliable reception with the lower component than with the higher components of the Hotel Broadcast. It was noted that the VLF signal was readable during outage periods when MF&HF signals could not be received.

THAT THE VLF COMPONENT OF THE HOTEL BROADCAST BE AVAILABLE TO DEEP FREEZE SHIPS.

b. The outage periods in the McMurdo Sound area were observed to be fairly consistent and it is believed that definite patterns of good as well as poor reception may be

established and predictions with some degree of accuracy made and disseminated to activities and units concerned. It was EDISTO's experience that these outage times consistently fell between the hours of 1600 ZULU through 2300 ZULU.

THAT A PLAN BE ESTABLISHED WHEREBY DEEP FREEZE SHIPS CAN NOTIFY COMSTAS CONCERNED, OF THEIR OUTAGE PERIODS TO INSURE THAT RERUN TRAFFIC ISN'T SENT DURING THAT TIME.

c. THAT SERVICE MESSAGES COULD BE FURTHER REDUCED PROVIDED:

(1) NAVCOMSTA HONOLULU RECAPPED ALL MESSAGE HEADINGS FOR DEEP FREEZE SHIPS AT TWELVE HOUR INTERVALS.

(2) THAT A GUARDSHIP SYSTEM BE EMPLOYED AMONG SHIPS IN THE MC MURDO AREA TO CONSOLIDATE RE-RUN REQUESTS.

4. Ship/Shore

a. All ship/shore traffic was handled through U.S. Naval facilities prior to arrival in New Zealand. EDISTO was successful in clearing traffic through COMSTAS from ADAK to WASHINGTON, D.C., working no one station in particular. Between New Zealand and 66 degrees South, New Zealand ship/shore frequencies were used with good results. Below the Antarctic Circle EDISTO began working McMurdo ship/shore and delivered all traffic through NSD until departure from the

area in March.

5. Recommendation for Ship/Shore

THAT NAVCOMSTA SHOULD BE ADVISED THAT DEEP FREEZE UNITS IN TRANSIT ARE OFTEN UNABLE TO AUTHENTICATE TRANSMISSIONS AS A RESULT OF REDUCED RPS ALLOWANCE.

6. General Messages

a. Plain language general messages were received via fleet broadcast and McMurdo local teletype circuits. Previous arrangements were made through COMSERVRON FOUR to keep copies of all general messages for EDISTO, to be picked up upon arrival in Norfolk at the end of her deployment. Throughout the deployment COMSERVLANT sent copies of classified general messages via registered mail. Prior to 14 December many general messages had not been received; an unofficial letter was written to the COMM CENTER of COMNAVSUPPFOR ANTARCTICA in Christchurch regarding general messages in an attempt to bring up to date the 1962 files before going to the Palmer Peninsula where mail service would not be available. As of 16 January, determination of the closing numbers for 1962 were not received.

7. Recommendation for General Messages

a. THAT COMNAVSUPPFOR ANTARCTICA AID DEEP FREEZE UNITS TO RECEIVE CLASSIFIED TRAFFIC VIA REGISTERED MAIL.

b. THAT COMNAVSUPPFOR ANTARCTICA MAINTAIN A FILE OF EFFECTIVE ALCOMPAC'S FOR LANTFLT SHIPS DEPLOYING TO PAC FOR CONTINUITY OF OPERATIONS.

8. Equipment

EDISTO experienced few communications difficulties in this area outside of equipment limitations. The ship's only piece of single side band equipment, the AN/URT-17A, inoperative on SSB voice, remained unusable throughout the deployment. Repeated repair attempts were futile and had EDISTO deployed to the Palmer Peninsula area lack of SSB capabilities would have certainly proven deterimental to the ship's operational efficiency. As far as equipment limitations are concerned, it was found that the RB series receivers were not sensitive enough to obtain the best possible results for operating conditions, and other units equipped with R389 and R390 series receivers had greater success with fleet broadcast reception. Once in McMurdo the communication plan was such that 100 percent of the equipment had to be utilized at all times, allowing little time for maintenance. Icebreaker antenna arrays, necessarily close to each other and clustered about the superstructure frequently restrict communications. In this regard, splatter (splash-over) was particularly annoying in the employment of 2716, 2738(V) and 2830(CW).

9. Recommendations

a. THAT SHIPS DEPLOYED TO REMOTE AREAS AND IN AN INDEPENDENT STATUS BE EQUIPPED WITH MORE UP-TO-DATE EQUIPMENT.

b. THAT THE OTC EMPLOY A GUARDSHIP ASSIGNMENT FOR DISTRESS FREQUENCIES.

c. THAT INSOFAR AS PRACTICABLE FREQUENCIES EMPLOYED SHOULD BE SPREAD TO MINIMIZE SPLATTER.

10. Amateur Radio

a. Numerous conferences took place on the HAM equipment with moderate success. HAM circuits were also used successfully for handling personal traffic; naval circuits were at no time burdened with class EASY traffic (EDISTO handled less than an average of one class EASY message per month). Finally, amateur radio operations proved to be one of the ships most powerful morale factors.

11. Personnel

a. The communications division on-board count for this deployment was adequate (1 chief, 1 second class, 5 third class, 1 RMSN), however, the division being under allowance put considerable strain on communications personnel.

B. ELECTRONICS

1. General

Prior to departure from Boston a pre-deployment inspection was conducted by METU-8. All equipment was brought up to operating standards except the AN/URT-17A.

2. AN/URT-17A

EDISTO has not enjoyed voice communications on this equipment for the past year and one half, despite considerable time, money and effort expended. Attempts to make this unit operable include: work by a civilian contractor during the last regular overhaul, one component sent to the manufacturer for check and alignment, services of METU's 2 and 8 on four occasions, testing the equipment with a complete upper draw assembly, and assistance of an ETC and ET1 (McMurdo based) during DEEP FREEZE '63. The latter personnel determined that the standing wave ratio was affected by antennas in close proximity to the URT whip, although no new antennas have been added or antenna changes made since the original installation. A work request has been submitted for the scheduled restricted availability, May 1963, requesting accomplishment of SHIPALT AGB-214 (Single Sideband Radio equipment), however correspondence indicates that funds for new equipment will not be available until the next regular

overhaul, December 1963. In the interim an antenna design study has been requested. *(Work Request 4-63-O)

3. AN/UQN-1C and 1D

a. Prior to deployment both fathometer recorders were inspected and brought up to operating standards. During the transit between Boston and Panama it was found that the recorder would not record depths greater than 2500 fathoms when set on the 6000 fathom record level. The requirements for a continuous oceanographic track was in a minor way thwarted by the indicators not marking over 2500 fathoms. Considerable "noise" also appeared when the ships speed was greater than 10 knots. Indman 15 electronics technicians worked on both indicators during transit of the Panama Canal and found no apparent cause for their malfunction. The same problems occurred during transit between Panama and New Zealand. Ship's ET's made thorough checks of the indicators and transducers and found no electronic malfunctions in either. A work request *(Work Request 2-63-O) has been submitted for the forthcoming restricted availability to improve the sensitivity of both fathometer indicators and to recondition both transducers.

4. AN/SPS-6C and AN/SPS-10B

a. No serious problems occurred in the operation of either of these radar systems. Two magnetron failures in the SPS-10B were quickly rectified since spare units had been previously "baked in". The two systems were used alternately. A work request has been submitted for the forthcoming restricted availability to accomplish SHIPALT AGB-234 which will give the AN/SPA-4A and AN/SPA-8A, located in CIC, the input from either the SPS-6C or SPS-10B systems. *(Work Request 3-63-O)

5. Radio Receivers and Transmitters

a. A conscientious PMSEE program was conducted throughout the deployment and voice, AM and CW equipment functioned reliably.

b. Aerological work encountered no difficulties in the operation of radiosonde and facsimile equipment. In order that STATEN ISLAND would have radiosonde capability for her expeditionary work, a potentiometer was removed from EDISTO's OMQ-1A since no spare was available to either ship. This part was subsequently jury-rigged by ship's force to enable EDISTO to complete her upper air soundings.

6. Personnel

a. The small amount of equipment outage can be attributed to the ship having its full complement of electronics technicians.

7. Comments:

a. Prior to the next regular overhaul a work request will be submitted to accomplish SHIPALT AGB-188 (Antenna System Improvement) date 20 March 1958. This will be placed high on the ships integrated priority list.

NOTE: *Work Requests are submitted for May 1963 restricted availability.

FIGURE 7-1

CHAPTER 7

OCEANOGRAPHY

1. General

Oceanography was conducted throughout the entire deployment with the major emphasis placed on the Survey Specifications of U.S. Navy Oceanographic Office serial 3531 of 9 October 1962. Major areas accomplished in accordance with CTF 43 OPORD 1-62, were Bathythermograph observations, oceanographic stations, sonic soundings and ice observations.

2. Bathythermograph Observations

a. Bathythermograph casts employing a 900 foot BT were made hourly enroute from and to CONUS and in latitudes North of 50 degrees South. Casts were made half hourly South of 50 degrees South and when sea and ice conditions permitted. During the months of February and March while on oceanographic stations in the Ross Sea, observations were made on ocean stations and enroute between stations when sea and ice conditions permitted.

b. Problems encountered while operating in the Ross Sea during the month of February are as follows: Sub-zero air temperatures were encountered and after only a few lowerings the bathythermograph failed to operate satisfactory resulting in depth and temperature recordings being

in error. This instrument is designed for temperatures ranging from 28 degrees Farenheit to 105 degrees Farenheit. The malfunction of the instrument was attributed to the low air temperatures.

c. Bathythermograph Drops

Norfolk to Panama	110
Panama to New Zealand	426
New Zealand to McMurdo	78
Ross Sea (On & between Ocean Stations)	254
Antarctica to New Zealand	120
Total	998

d. Procurement of Bathythermographs

A shortage of instruments existed immediately prior to departure on DEEP FREEZE '63. Despite various attempts to obtain the fourteen required, EDISTO sailed with seven BT's with five additional to follow at an early date. The latter arrived at McMurdo sometime in early March and were picked up by the ship on 5 March.

3. Sonic Soundings

a. General

Depth soundings were recorded and plotted every 15 minutes along the ship's track while underway to and from operating area except for brief periods when fathometers were inoperative. Soundings were recorded and

plotted every three minutes upon entering and leaving Moubray Bay, Cape Hallett. Two fathometers were used, the AN/UQN 1c located on bridge and AN/UQN 1d located in CIC Plot. The fathometer located in CIC Plot was used under normal steaming conditions, with the fathometer on bridge held in reserve for entering and leaving port.

b. Difficulties

Fathometers will generally not record depths over 2500 fathoms and "noise" level is excessively high at speeds greater than 10 knots.

4. Oceanographic Stations

a. General

Four civilian oceanographers from the U.S. Naval Oceanographic Office, reported aboard at McMurdo on 31 January 1963. Their equipment, some hand-carried and the remainder transferred from EASTWIND, was adequate, with the exception of a few minor items. Although the ship's oceanographic winch wire was suspect, it had a known splice at 1800 meters, no problems were encountered. EASTWIND passed their wire to EDISTO as a back up. The winch itself performed satisfactorily, except for sluggishness caused, at times, by the extreme low temperatures.

A small electrical resistance-type heater was devised and maintained in the hydraulic fluid sump, negating this problem.

b. Procedure

A total of 122 oceanographic stations were completed during the period. Stations were located in a grid normal to the ice shelf and extending northward to about 71° 30'S, with a station interval of thirty miles. An oceanographic station consists of the measurements of temperature at various depths from the surface to the bottom and the simultaneous sampling of water for chemical analysis. During this operation the water samples were analyzed for salinity using a HI-TECH Salinometer, dissolved oxygen using a gas partitioner and dissolved inorganic phosphate using a Beckman Model DV Spectrophotometer. The number of temperature measurements and water samples per station varied from 12 to 24, depending upon the depth of the water and the complexity of the transition zones within the water mass.

Additional observations at selected stations included bottom samples, transparency readings, plankton tows and bottom dredges. Bottom sampling was carried out using a PVC corer and an orange peel bottom sampler. A total of 41 bottom samples were obtained. Transparency

readings were taken at all stations during daylight hours using a white 30 cm. Secchi disc.

Plankton tows were taken at selected ice free stations using a ½ meter 0 mesh net, with the samples preserved in formalin or alcohol. A total of 19 plankton samples were collected.

Bottom dredges were made at two stations along the southern edge of Pennell Bank. Samples consisted of small brittle stars, many types of worms, oil worm tubes and cobble stones covered with various biological growth. Samples were stored in plastic bags and frozen. A crab trap constructed on board was used while the ship was anchored off Hallett Station and several small star fish were collected.

A total of 43 water samples were collected in support of the Sea Water Sampling Program for DR. Telsuya Torii of the Science Council of Japan. One liter samples were taken at selected depths near shore, at a distance of 100 miles off shore and at a distance of 200 miles off shore. Samples were stored in polyethylene bottles after 1 ml of nitric acid had been added.

A total of 15 soil or dung samples were collected for the Boyce Thompson Institute for Plant Research, Inc. to be used in the study of thermophilis fungi. Samples

were collected in the McMurdo and Hallett areas.

c. Results

All data and samples are scheduled for delivery to the Oceanographic Office for processing and/or further distribution. Preliminary field analysis disclosed no unusual results of this oceanographic program.

4. Whale sightings

A total of 21 sightings were observed by the ship during DEEP FREEZE '63. A special report is being made to the Oceanographic Office.

FIGURE 8-1

CHAPTER 8

LOGISTICS, CARGO & SUPPLY

1. General Supplies and Repair Parts

a. Requisitions for required parts were normally filled within the NAVSTRIP time frame; however, items too large to mail were delayed in transit. Items shipped by air freight seemed to stop in Christchurch with no status or forwarding data being provided to the ship.

b. Sufficient information concerning cargo for ships use forwarded from New Zealand on other ships was not provided for the ship receiving the cargo. It was impossible at many times to ascertain from ships which had just arrived in the area what cargo, if any, was being carried for transfer to other ships. The cargo normally is of a low priority; however, the lack of accurate manifests increases the possibility of the cargo being delivered to the wrong activity at the expense of the correct ship's operating funds. Without a listing of items shipped, effective follow up action by interested ships is impossible.

c. A number of required repair parts were obtained from other ships in the area. This proved to be an efficient means of obtaining parts. It would have been improved if the format for requests and replies had been standardized.

2. Commissary

The lack of fresh milk, fruits and vegetables did detract from the menu; however, EDISTO was resupplied with fresh provisions on a space available basis by ships coming from New Zealand. The presence of fresh produce was a positive factor in the morale of the crew.

3. Ship's Store

a. Due to insufficient usage data, shortages did occur in some areas. A great many of the shortages were corrected by obtaining excess items from other ship's stores in the area.

b. EDISTO will compare Ship's Store usage with the USS GLACIER (AGB-4) at the completion of the cruise in an effort to establish a realistic load list for future DEEP FREEZE operations. This list will be made available to icebreakers participating in DEEP FREEZE '64.

4. Cargo

a. Due to severe ice conditions prevailing in the Ross Sea and McMurdo Sound area at the beginning of DEEP FREEZE '63, the icebreakers full cargo capability was not utilized. Although the existing conditions were unfavorable, it is the opinion that loading of icebreakers with small

volume, high density cargo of a priority nature would greatly enhance operations in the initial stage. Taking into consideration the limited hatch area (5'x5'), breakers could carry many urgent items necessary to commence summer support, such as high density essential construction materials.

b. The following cargo was transported by EDISTO.

(1) From Boston, Mass. to McMurdo Sound, Antarctica

(a) Aluminum condenser tubes. 7170 lbs. (Designated for deck stowage, however not packaged strong enough to contend with heavy seas and icing conditions normally encountered in Antarctic waters.)

(b) Insulation and cement. 786 lbs.

(c) Plywood for AEC at McMurdo. 510 lbs.

(2) From Port Lyttelton, N.Z., to McMurdo Sound.

(a) Four survival tents for USS GLACIER (AGB-4) 50 lbs.

(b) Two boxes of radiosonde equipment for USCGC EASTWIND. 279 lbs.

(c) 100 Cases of eggs for further transfer to McMurdo

(d) Cement. 8,000 lbs.

5. Recommendations

a. THAT ALL AIR FREIGHT CARGO FOR SHIP'S BE FORWARDED AS EXPEDITIOUSLY AS POSSIBLE WITH FORWARDING DATA BEING PROVIDED. THE ITEMS SHIPPED BY AIR FREIGHT ARE HIGH PRIORITY PARTS, REQUIRED TO INSURE THE MAXIMUM OPERATIONAL READINESS OF THE SHIP CONCERNED.

b. THAT ALL SHIPS LEAVING NEW ZEALAND HAVE A MANIFEST OF CARGO ON BOARD FOR TRANSFER TO OTHER SHIPS. ABSTRACTS SHOULD BE MADE FROM THIS MANIFEST, LISTING THE CARGO FOR EACH ACTIVITY. THESE ABSTRACTS SHOULD BE FORWARDED TO THE ACTIVITY CONCERNED.

c. THAT A STANDARDIZED SYSTEM BE SET FORTH FOR FUTURE DEEP FREEZE OPERATIONS SUCH THAT LOCAL UNITS BE CANVASED FOR REQUIRED REPAIR PARTS PRIOR TO UTILIZING MILSTRIP PROCEDURES.

d. THAT ITEMS DESIGNATED FOR DECK STOWAGE BE PACKAGED TO PROVIDE PROTECTION FROM WATER AND ICE DAMAGE.

e. THAT CARGO TO BE SHIPPED FROM CONUS ABOARD ICEBREAKERS BE RECEIVED AT LEAST ONE WEEK PRIOR TO DEPARTURE IN ORDER TO PROVIDE AMPLE TIME FOR PLANNING AND PROPER STOWAGE.

FIGURE 9-1

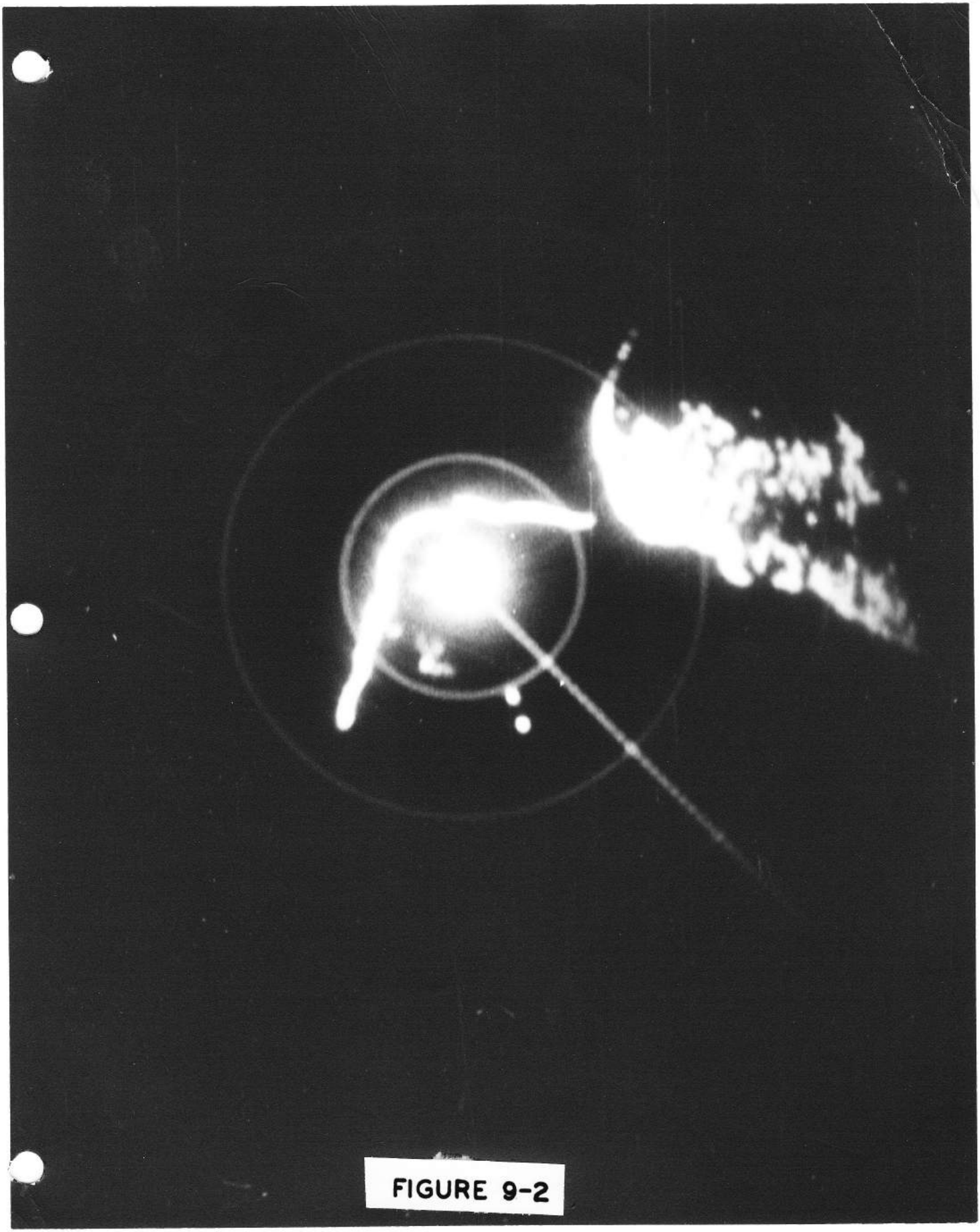


FIGURE 9-2

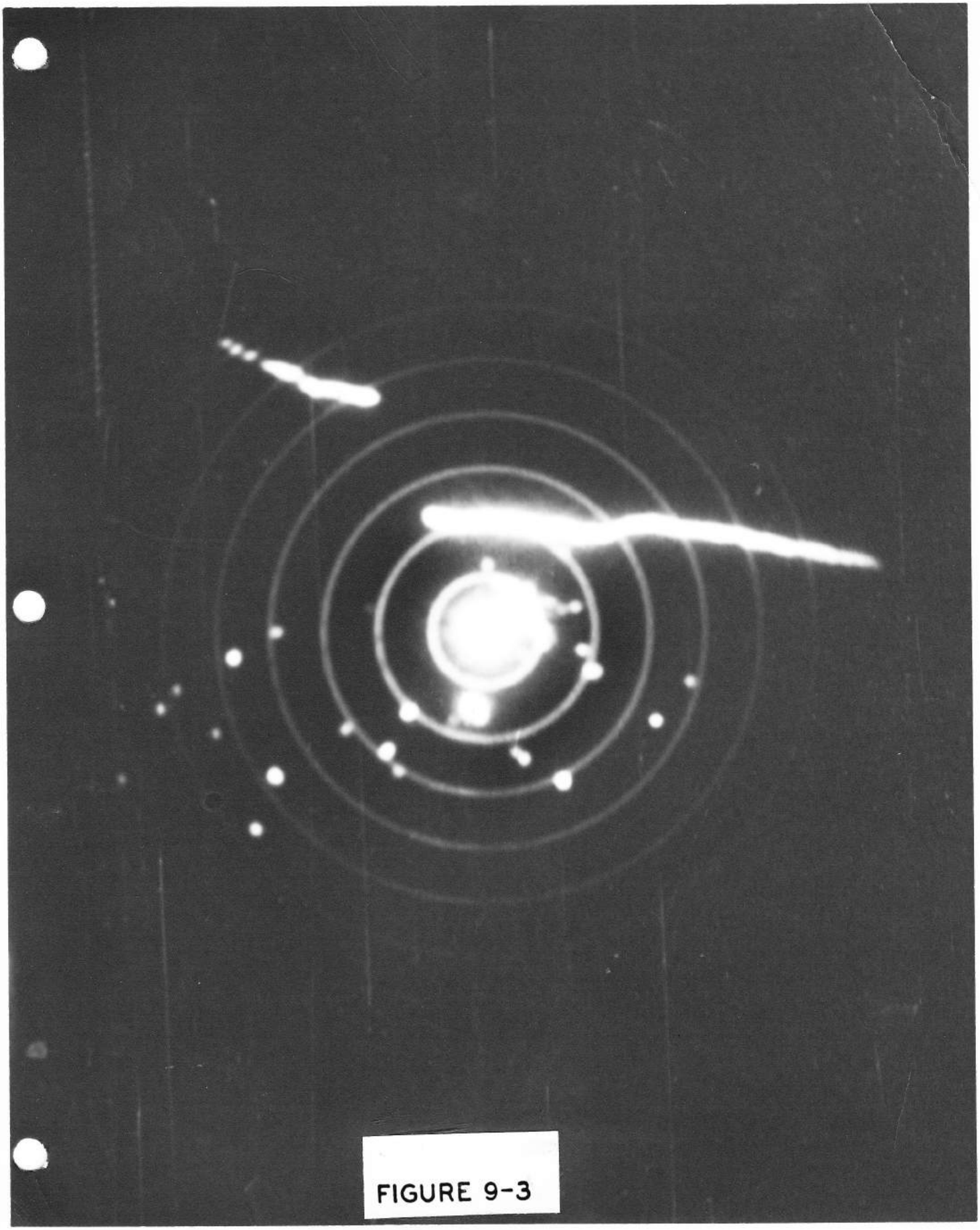


FIGURE 9-3

FIGURE 9-4

CHAPTER 9

PHOTOGRAPHY

1. General

EDISTO's Photographic section recorded on sheet and motion picture film the unique and outstanding events the ship and her personnel experienced during DEEP FREEZE '63.

2. Photographic Program

a. Shipboard operations made up the great bulk of EDISTO's photography. Two cameras were kept clicking away for some four months, recording a wide variety of her operations. Subjects included icebreaking on a major scale, ice escorting, some 16 separate tows in McMurdo's channel, cargo operations, flight operations and oceanographic survey work.

b. In addition, radarscope photography of coast lines was conducted whenever feasible. A joint effort between CIC and navigation was conducted to photograph and plot the Ross Ice Shelf east of Ross Island. The results of the radar photography of the ice shelf may well be important as the edge of this massive area of ice was found to have moved several miles further out to sea than now shown on current charts. (A special report on this subject will be forwarded to the Naval Photographic Center)

c. The photo lab supplied all pictures included in public information releases and also took many photographs for inclusion in EDISTO's cruise book.

3. Historical events

a. Of major interest in the field of historical photography, lies EDISTO's discovery of a part of Little America III imbedded in one of the countless tabular bergs encountered while on ocean stations in the southern section of the Ross Sea. Many black and white stills and color motion picture film were made of this from aboard ship and from the air and forwarded for verification to CNSFA.

4. Equipment

The equipment aboard EDISTO consists of one 4x5 speed graphic, a 120mm Omega Roll camera, two 16mm motion picture cameras. One of the ship's latter cameras had to be surveyed upon arrival at Christchurch from CONUS, however, a replacement was made available on a loan basis from the Staff Photo Lab, Christchurch.

5. Personnel

The Photographic section was composed of one officer (a collateral duty billet), one First Class Photographer's Mate and one Third Class Photographer's Mate.

Administratively, the enlisted personnel were incorporated within the Navigation Department while the Photo Officer maintained liaison with the various departments on requirements for photographic coverage.

6. Problems Encountered

Requisitions were submitted for photographic material at least two months prior to the ship's departure from CONUS, however, lead time was greater than that expected. This, combined with greater photographic requirements noted in CTF 43 OPORDER (received at Christchurch), resulted in a shortage of some supplies. Upon arrival in Christchurch from CONUS, additional requirements were added by a request from the STAFF PHOTOGRAPHIC OFFICER, dated 29 September 1962. This request had 8 enclosures of requirements which EDISTO attempted to fulfill. These requirements placed an even greater burden on the already understocked supply in EDISTO's photo lab.

7. Recommendations

THAT ICEBREAKERS DEPLOYED IN DEEP FREEZE '63 SUBMIT TO CNSFA A DETAILED USAGE DATA SHEET SUCH AS THAT WHICH EDISTO WILL TURN IN AT CHRISTCHURCH AND FURTHER THAT CNSFA USE THIS DATA TO COMPILE FUTURE SHIP REQUIREMENTS.

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CHAPTER 10

ENGINEERING AND DAMAGE CONTROL

A. ENGINEERING

1. General

a. During DEEP FREEZE '63 the engineering plant suffered five major casualties, four of which were correctable. These were, the scavenger blower of #6 Main Engine, ruptured furnace wall tubes #2 Auxiliary Boiler, crank case explosion #2 Main Engine, failure of lower crankshaft drive gear #1 Ship's Service Generator. The uncorrectable casualty was a broken crankshaft of #1 Main Engine, deferred for repair until return CONUS. Repairs required are discussed in paragraph 2.

b. Engineering personnel during the cruise were on the whole adequate, with the exception of enginemen and one interior communication (gyro electrician). The former, ocassioned by manning level as opposed to allowance, is particularly acute when one fully appreciates the workload evidenced by the repairs noted in paragraph 2. Additionally, EDISTO will have been underway, during DEEP FREEZE '63, seven (7) months without an upkeep period. Four and one half consecutive months were spent in Antarctic waters, for the most part in ice. It should be noted here that

WIND CLASS BREAKERS must maintain all (six) main engines operational if complete capability is to be realized. The point here is certainly not two additional engines or more upkeep time (operational requirements must be met), but an appeal for a complete understanding of the engineering problems in the WIND Class.

2. Repairs

Chronologically to 18 March, arrival back at Port Lyttelton.

10/16/62 #2 Auxiliary Boiler. After cleaning firesides a routine hydro indicated water wall tube leakage. Required tube rollers not on board and ordered on MILSTRIP. Ships force efforts to stop leak with home made expanders unsuccessful. Feed water loss negligible.

10/17/62 #2 Main Engine. Blew lower piston #1 cylinder. Renewed piston and placed in operation.

10/27/62 Port Welin Davit. Salt water shorted start-stop switch causing unattended unit to operate (ready life boat). Cable jammed between drive pinion and drum gear causing seizure of thrust spacer and burning of brake drum lining. Ships force renewed cable, repaired unit and installed brake after relining in Port Lyttelton.

10/29/62 #5 Main Engine. Conducted two cylinder PM in

conjunction with replacing #4 liner (water jacket crack).

11/3/62 #2 Boiler. Sinclair Melburne Co., Port Lyttelton, rolled water wall and 1/3 of generating tubes in effort to stop tube leakage. Hydro showed slight leakage. Not considered necessary to seek out and plug faulty tube. Charges made by this company considered very reasonable.

11/10/62 L.P. Distilling Plant. Brine pump motor grounded and burned windings. Installed sanitary pump motor on brine pump to keep distilling plant operating while ships force rewound damaged motor.

11/14/62 #2 Main Engine. Conducted four cylinder PM in conjunction with renewing #7 line (water jacket crack).

11/30/62 #2 Main Engine. Governor failure traced to bearing and bevel gear failure on lube oil pump drive bracket assembly. Renewed entire bracket assembly including lube oil pump drive shaft gear, governor drive bevel and pinion, and associated bearings. Reamed bracket assembly securing bolt holes and installed body bound bolts.

12/6/62 Trim Pump. The trim pump failed during routine shift of ballast. Although not disassembled for inspection or repair, casualty believed to be a defective or sheared propeller key. Trimming operations no longer required at this stage of deployment. Repairs will be made at first opportunity.

*(Work Request 3-63-M)

12/11/62 #2 Main Engine. Blew #7 lower piston. Crankcase explosion occured on shut down. Two men received 1st and 2nd degree burns but managed to extinguish resulting fire before fire party arrived on the scene. Renewed #7 upper and lower piston and rod assembly. Replaced #7 liner (scored and cracked) and #10 liner (cracked water jacket).

12/17/62 #6 Main Engine. Secured engine to investigate noise. Found broken rings on #2 & #9 units. Blower inspection revealed rubbing of lobes and metal deposits in numerous areas on two lobes. Renewed lower pistons and rings #2 & #9 cylinders. Scraped high areas of blower lobes and rolled engine with air. Noise very evident although clearances were within acceptable limits. Removed blower and shored blower casing between #5 & #6 engines to permit safe work. Completely disassembled unit. Ground smooth all lobes showing metal deposit built-up. Hand surfaced inner casing. Renewed thrust and line bearings. Renewed shim gaskets to establish proper clearance. Assembled unit, installed on engine and tested. All noise eliminated except for unnatural whine which decreased with use. Operating clearances were correct and no evidence of lobe contact. Unit operated satisfactory for remainder of deployment. Cause of casualty believed to be excess wear in upper lobe outboard bearing although bearing

race and rollers appeared normal. No heavy scores or gouges in lobe surface indicated no foreign object had entered blower. Intend to have unit checked and balanced by repair activity at first opportunity. *(Work Request 14-63-M)

1/6/63 #3 Ships Service Generator. Inspection revealed broken shims and bolts in vertical drive flexible coupling. Reamed flanges, coupling and new shims. Installed body bound bolts and assembled.

1/7/63 #2 Boiler. After cleaning fire and water sides, hyrdo indicated multi tube leakage in generating tubes not previously rolled. Tube rollers ordered early in deployment had been received, ships force rolled and belled as necessary to maintain a satisfactory hydro.

1/10/63 #3 Starting Air Compressor. Controller contacts stuck causing motor winding to burn. Motor rewound and installed. Faulty controller corrected.

1/14/63 #1 Ship's Service Generator. Failure of lower vertical drive bearing and damage to flexible coupling on vertical drive, permitted lower bevel pinion to drop down and strip teeth from crankshaft drive gear. Ships force disassembled engine, pulled generator and after welding additional padeyes on overhead beams lifted engine from bed plate. By

use of shoring, engine was placed on its outboard side. Removed lower crankshaft, drive gear, lower vertical pinion and all drive bearings. Unit assembled taking this opportunity to conduct complete overhaul. Generator tested and placed in service.

1/23/63 #5 Main Engine. Conducted two cylinder PM replacing scored liner, this being the first scheduled PM of this operation. Committments up to this point had permitted only PM's incidental to operational difficulties.

1/24/63 #2 Boiler. Ruptured one 1½ furnace wall tube. Inserted tube plugs, removed old tube. Hydro satisfactory. Removed tube at ruptured area showed wall thickness reduced from .120" to .065".*(Work Request 2-63-M)

1/26/63 #1 Main Engine. Broke crankshaft in two places at #8 unit and one place at #9 unit. #8 piston skirt broke and #8 liner cracked at lower end when journal section, connecting rod and piston assembly fell into crankcase. Inspection of main bearings, connecting rod and bearings, pistons and other components indicated no damage other than received as result of crankshaft failure. Reason unknown. Ship was steaming steady in ice channel under normal conditions. (EDISTO CASREP msg 281100Z)*(Work Request 1-63-M)

1/31/63 #3 Main Engine. Conducted three cylinder PM. Renewed one lower piston (normal wear).

2/2/63 #4 Main Engine. Replaced #3 liner (internal crack). No PM. Renewed timing chain.

2/6/63 #4 Ships Service Generator. Conducted complete overhaul.

2/7/63 #4 Main Engine. Conducted three cylinder PM.

2/15/63 #2 Boiler. Fuel pump and blower motor grounded and burnt out. Rewound and placed in operation.

2/27/63 #5 Main Engine. Conducted two cylinder PM. Renewed one piston (cracked).

3/11/63 #2 Ships Service Generator. Conducted three cylinder PM.

* Work requests noted are those submitted for a scheduled Restricted Availability in May 1963.

3. Major Repair Parts Consumed

A summary of the major repair parts, main engine and auxiliary diesel, consumed during the operation is as follows:

MAIN ENGINES

CYL Liners	9	Pistons	12
Main Bearing	6	Con Rod Bearing	10
Piston Pin & Bushing	6	L.O. Pump Bracket Assy	1
Rings	245	Fuel Header	5
Connecting Rods	2	Timing Chain	2
Blower Bearing Set	1	Needle Assy	10
Adapters	22	Generator Brushes	120
Main Motor Brushes	196		

S/S GENERATOR

CYL Liners	4	Main Bearings	2
Con Rod Bearings	11	Piston Rings	182
Piston Pin & Bushing	3	Vertical Drive Gear Pinion	1 Set
Timing Chain	1	Vertical Drive Bearings	1 Set
Thrust Bearings	4	Crankshaft Bevel Gear	1
Laminated Couplings	3	Generator Brushes	40

4. Operational Data

a. Fuel Oil 121% 644,781 gal. 1 Oct

RECEIPTS	DELIVERIES	FROM/TO	DATE
237,288	-	Mobil Oil, N.Z.	2 Nov 62
101,335	-	USS GLACIER(AGB-4)	4 Dec 62
65,000	-	USS STATEN ISLAND (AGB-5)	22 Dec 62
	117,478	USCGC EASTWIND	29 Dec 62

RECEIPTS	DELIVERIES	FROM/TO	DATE
253,143	-	USNS CHATTAHOOCHEE	9 Jan 63
276,026	-	USNS CHATTAHOOCHEE	5 Feb 63
300,000	-	Mobil Oil, N.Z.	20 Mar 63

Total Receipts 1,232,772 - Total Deliveries 117,478

Total Expenditure 1,249,495 -Total Engine Miles 32,206

Total Navigational Miles 28,841

b. Lube Oil 9250 95% 10,518 gal. 1 Oct

RECEIPTS	DELIVERIES	FROM/TO	DATE
2,400	-	Mobil Oil, N.Z.	5 Nov 62
	2,719	USCGC EASTWIND	29 Dec 62
2,500	-	Drums-McMurdo	31 Dec 62
4,400	-	Drums-McMurdo	2 Mar 63

Total Receipts 9,300 - Total Deliveries 2,719

Total Expenditure 10,867

c. Gasoline 93% 6,900 gal. 1 Oct

RECEIPTS	DELIVERIES	FROM/TO	DATE
4,003	-	USS GLACIER (AGB-4)	4 Dec 62
-	3,001	USS STATEN ISLAND (AGB-5)	20 Dec 62
2,006	-	USS GLACIER (AGB-4)	3 Jan 63
4,015	-	McMurdo (Portable Tanker)	19 Jan 63

Total Receipts 10,024 - Total Deliveries 3,001

Total Expenditures 11,123

d. Potable Water 95% 74,154 1 Oct 62

RECEIPTS	DISTILLED	EXPENDED	DISTILLER PRODUCTION PER DAY
76,944	1,522,623	1,590,000	10,560

e. Repair Costs

(1) Mechanical

PROPULSION	AUXILIARY	MISC	TOTAL
10,858.00	3,010.30	918.40	$14,786.70

(2) Electrical

PROPULSION	AUXILIARY	MISC	TOTAL
259.00	76.00	1,653.73	$1,988.73
		Grand Total	$16,775.43

NOTE

All statistics commenced on departure CONUS, 1 October 1962 and end with arrival back in Port Lyttelton 18 March 1963. Repair costs on No. 1 Main Engine (broken crankshaft) are not included.

5. Comments

a. During fueling of the USCGC EASTWIND an experiment was conducted using the fire pump in B-1 as an additional transfer pump. A fitting attached to the suction side of the pump and connected by 2" hard rubber hose to the fuel stripping line increased pumping capacity. Both B-1 and B-3 fire pumps could be rigged and capacity of the two 100 GPM trans-

fer pumps would be doubled or tripled. 100,000 gallon transfer with existing pumps requires from 12 to 14 hours.

b. Availability of spare parts during the operation was very good. The contributing factor probably being a good supply overhaul which was conducted during the previous yard period.

c. Performance of the distilling plant during the operation was highly satisfactory. Daily production in the 10,000 -12,000 gal. range permitted ample time to secure boilers and distilling plant for maintenance.

d. Amp-Meters installed in the pilot house and on the bridge wings is highly desirable. This command will initiate an AER for an installation similar to that noted on the USS STATEN ISLAND (AGB-5).

e. Relocation of the bridge wing pilot house speed-controllers to an outboard position which will enable the conning officer to have access to the speed controller and vision of the ships side during ice breaking conditions is highly desirable. A work request will be submitted at the next regular overhaul.

6. Recommendations

a. THAT THE FULL ALLOWANCE OF ENGINEMAN PERSONNEL BE MAINTAINED ON WIND CLASS ICEBREAKERS.

B. DAMAGE CONTROL

1. General

During DEEP FREEZE '63 two major casualties to the hull were experienced. A stem leak in the forward peak tank (A-1WF) and two leaks in the Gasoline Tank (C-6G), both of which were temporarily repaired by ship's force and fully discussed below.

2. Repairs

Chronologically to 18 March, arrival back at Port Lyttelton.

12/7/62 Fwd Peak Tank A-1WF. Leak discovered in fwd peak tank between stem and hull plating at weld located in vertical stem frame 13, 16 feet above the keel. Rate of leakage 60 GPH. (EDISTO msg 091030Z) Ships diver inspected stem and leak area with no visible signs of cracks or holes. (EDISTO msg 101000Z). Ships force caulked leak with concrete and reduced leakage to about 5 GPH. (EDISTO msg 101030Z)
* (Work Request 1-63-R)

12/13/62 Fwd Peak Tank A-1WF. MCB-8 welders from McMurdo assisted by ships force installed a cofferdam of 1" plate

around stem leak. Area was re-enforced and leakage reduced to 2 GPD. (EDISTO msg 161030Z).

12/18/62 Gasoline Tank - C-6G. Investigation of explosive mixture revealed leak in gasoline tank located at vertical stiffner 3 feet inboard of port side, 43" below tank top. Ships force made temporary repairs to effected area by application of plastic pipe patch material, backed by $\frac{1}{4}$" rubber mat held in place by shoring between tank and Cofferdam bulkhead. Additional patch was added at a later date to increase reliability. No further leakage in this area. (EDISTO CASREP msg 180325Z)

1/9/63 Gasoline Tank C-6G. Investigation of explosive vapors revealed a second leak in the gasoline tank. This one located in the fwd port section where fwd vertical bulkhead joins horizontal top. A crack several inches long had formed in a tee weld in the area of a vertical stiffener. Location made shoring impossible but several applications of pipe patching material was made and leak stopped. Remainder of fueling operations were at reduced pressure. *(Work Request 2-63-R)

3. Comments

a. A homemade peep box in the hands of a man

lowered to the water line in a boatswain's chair permitted frequent inspection of the ships propellers and fairwater cap. Damage was limited to loss of some fairing plate cover screws and one section of fairing plate.

b. Repairs of a permanent nature are being requested for both the fwd Peak Tank (A-1WF) and the gasoline tank (C-6G). The gasoline tank had previously been repaired by a private shipyard during overhaul in March 1962 and by Boston Naval Shipyard in August 1962.

c. Considerable damage was suffered by the interim washdown system piping as had occured on previous occasions when topside icing has been encountered. CSL AER-18 which modifies the installation fwd of frame 15 to the extent that pipe hangers be installed every 15" vice 30" and that the pipe run through bulwark stiffeners has not been accomplished; however, it is felt that this would have contributed little to the situation. It is estimated that 250 ships force man hours and $1,000 from the OPTAR will be expended to place this system in operation.

FIGURE II-1

CHAPTER 11

MEDICAL AND DENTAL

1. General

a. There were no occurrences of special medical interest nor no unusual methods of treatment employed.

b. The implementation of MILSTRIP was found very effective in ordering and receiving supplies on time prior to departure from Boston. By use of the Initial Outfitting List and past usage rates, supplies were brought up to an adequate level. The 9 months minimum dating on biologicals asked for was not adhered to, thus long range planning in keeping immunizations up to date was handicapped. Packaging of received materials was excellent.

c. A well-balanced and palatable diet was afforded the crew and officers throughout the cruise. Shipboard sanitation standards remained high throughout, with particular emphasis placed on berthing and messing spaces.

d. One man, a New Zealand scientist fell into the water from a small boat at Hallet Station. The individual was completely submerged for a total of about 15 seconds. Surface water temperature was 30°F., 21°F wet bulb was air temp; wind relative 2 knots. Patient felt "like falling into a pool of cold water" and after being retrieved, he noticed slight rapid heart rate but little

other adrenalin response; no muscle cramps, etc. Skin was reddened over anterior chest, anterior thighs, anterior abdomen, and face. Blood pressure was 130/90; Pulse was 76 and regular; Respiration was 18 and regular; Temperature was 98.4 degrees. Skin cool and red as above. Remainder of physical examination was negative. Patient dried and put to bed with adequate covering and given hot coffee as a stimulant. Patient was comfortable and recovered with no ill effects by three hours after immersion.

e. There were no cold weather injuries to members of the crew during the cruise.

2. Preparation for Cruise

a. Numerous medical provisions were ordered to bring the medical stores up to full allowance and to have on board the proper quantity of certain items as recommended in the Operation Order. These proved to be more than adequate, as did the medical equipment aboard, except for the lack of an inhalation anesthesia machine for general anesthesia and resuscitation.

b. Since the Dental Officer billet was removed from this ship just prior to this deployment there was no trained anesthetist available.

3. Health in Relation to Weather

a. During the ships passage through tropical areas, the inside spaces, especially berthing, were extremely hot. By permitting personnel to sleep topside, relief was obtained.

b. The general health of the crew during cold weather was good. No adverse effects from working topside nor on the ice were encountered.

4. Adequacy of Food and Clothing

a. Food allowance was based in $1.11 per day per man with a 25 percent increase to $1.3875 per day while the ship operated south of 50° South. Quantity and quality of food was excellent. Due to 130 consecutive days between visits to Port Lyttelton, some items became scarce. Ships departing New Zealand ports were requested and did deliver, fresh provisions.

b. Prior to DEEP FREEZE '63 and based on experience gained on an Arctic deployment in the spring of 1962, EDISTO proposed an increased special clothing allowance. By this writing increases have been approved to the point where an adequate allowance will shortly be reflected for AGB's. In the interim, through the in-excess requisition procedures, essentially the new allowance was procured

and on board for the Antarctic cruise just ending.

c. In accordance with COMNAVSUPPFOR ANTARCTIC INSTRUCTION 6810.1 of 18 May 1962, the special DEEP FREEZE sunglasses were ordered for eligible personnel prior to the 1 August 1962 deadline. However, there was no provision for officers and enlisted personnel who joined the ship after the deadline, including these who stood watches on the bridge or exposed areas of the ship. The inconvenient pool-system had to be established to provide for this deficiency. The special DEEP FREEZE sunglasses, as ordered, were received in Christchurch from a COMNAVSUPPFOR Antarctica representative. There were no problems encountered in this method of delivery.

5. Illnesses

a. South of Antarctic Circle:

(1) ULCER, Skin, n.e.c., Multiple, Dorsum of lt. foot, cause unknown (7151)	7 days
(2) DU(CALCULUS, Ureter, Rt.) (7955)	1 day
(3) APPENDICITIS, Acute (5501) (Later diagnosed ACUTE GASTROENTERITIS)	1 day
(4) BURNS, n.e.c., Both hands, face and neck, 1st and 2nd deg. (8403)	15 days
(5) BURNS, n.e.c., Right hand, forearm, face and neck 1st and 2nd deg. (8403)	15 days

b. Nine patients were admitted to sick list since

departure from Boston, four of whom were transferred during the deployment.

(1) Two patients were transferred in Panama to the Dispensary, U.S. Naval Station, Rodman. Both diagnosis were Chronic Motion Sickness, Severe.

(2) One patient (#2 above) was transferred to NAF McMurdo for air evacuation to COMNAVSUPPFOR ANTARCTICA for definitive diagnosis and treatment of a right ureteral calculus. The patient was later returned to the ship, with the diagnosis established as CALCULUS, Ureter, Rt.

(3) One patient (#1 above) was air evacuated via NAF McMurdo and COMNAVSUPPFOR ANTARCTICA to Tripler Army Hospital, Hawaii, for definitive diagnosis and treatment of mutiple chronic progressive ulcerations of the left foot.

c. Admissions during period from departing Boston, Mass. until return to New Zealand.

(1) 9 persons were admitted to sick-bay for a total of 47 sick days.

(2) 5 persons were admitted to sick-bay for a total of 39 sick days while south of the Antarctic Circle.

d. Outpatient visits during period from deploying Boston until return to New Zealand:

(1) A total of 2016 visits were made, 969 of

which were initial. (See Annex I)

(2) Upper respiratory infections and minor trauma were the most frequent maladies.

e. Outpatient visits while south of the Antarctic Circle.

(1) A total of 1663 visits were made, 745 of which were initial. (See Annex I)

(2) Upper respiratory infections and minor trauma were prominent, with some indication of psychosomatic complaints.

6. Accidents

There was one serious accident during the cruise, involving two enlisted men. A flash fire from a Main Engine produced first and second degree burns of the head, face, neck and portions of the upper extremities of both men. They were treated conservatively and responded rapidly and completely, leaving no residual deformity or disability.

7. Veneral Disease

There were no cases of veneral disease from departure Boston to return to New Zealand. There were three cases of non-specific urethritis, non-gonococcal.

8. Dental

The Dental Officer and technician billets were removed from the ship's allowance and the personnel transferred just prior to departure on DEEP FREEZE '63. While a sound dental program had been pursued, the ship received many new personnel during the two weeks before sailing whose dental needs were considerable. Further, the dental work required during the seven-month cruise necessitated requesting assistance whenever possible. While the facilities at Rodman and Christchurch were exploited, the generous assistance rendered by the EASTWIND Dental Officer in the operating area proved invaluable.

9. Recommendations

a. THAT ALL ICEBREAKERS BE OUTFITTED WITH AN INHALATION ANESTHESIA MACHINE AND THE NECESSARY ACCESSORIES. THIS MACHINE SHOULD BE CAPABLE OF SUPPORTING THE ADMINISTRATION OF OXYGEN, NITROUS OXIDE, AND ETHYL ETHER (CLOSED SYSTEM).

b. THAT THE DENTAL OFFICER AND TECHNICIAN BILLETS BE REINSTATED FOR AGB'S WITH THE PROVISION THAT THESE PERSONNEL BE GIVEN TAD ORDERS TO A DENTAL CLINIC ASHORE BETWEEN DEPLOYMENTS.

c. THAT COMNAVSUPPFOR ANTARCTICA INSTRUCTION 6310.1 BE REVISED AS FOLLOWS:

(1) THAT TYPE I SPECIAL DEEP FREEZE SUN GLASSES, WHETHER PLANO OR PRESCRIPTION, FOR ALL PERSONNEL, WHO HAVE PROLONGED WATCHES OR OTHER OFFICIAL DUTIES IN AREAS OF THE SHIP EXPOSED TO THE OUTSIDE ELEMENTS, BE PROVIDED.

(2) THAT AN ADDITIONAL AMOUNT OF PLANO TYPE I DEEP FREEZE SUN GLASSES REPRESENTING 20% OF THE TOTAL NUMBER OF PLANO ORDERS, BE PLACED IN THE CUSTODY OF THE SHIP'S MEDICAL DEPARTMENT, AS REPLACEMENTS FOR LOSS OR BREAKAGE, AND TO PROVIDE FOR LATE REPORTING PERSONNEL.

d. THAT THE ALLOWANCE OF HOSPITAL CORPSMEN ON ICEBREAKERS BE INCREASED TO INCLUDE 1 HMC, 1 HM2 AND 1 HM3/HN or 1 HMC AND 2 HM3's DUE TO THE VARIOUS LABRATORY, X-RAY, PROPERTY AND ACCOUNTING AND CLERICAL PROCEDURES NECESSARY.

NOTE: EDISTO LETTER SERIAL 91 DATED 14 MARCH 1963 REQUESTS THIS ACTION.

ANNEX I

SICK CALL VISITS SOUTH OF THE ANTARCTIC CIRCLE

	INITIAL	FOLLOW-UP
HEENT:		
HEADACHES, Etiology unknown	60	1
Foreign body, eye	15	2
Sinusitis subacute	5	
Upper respiratory Infections	64	108
Otitis media	6	8
Otitis externa	5	16
Pain, etiology unknown	14	8
Tonsilitis	2	13
Decrease of hearing	1	
Eye complaints, etiology unknown	4	
Herpes simplex	10	25
Sty	1	1
Epistaxis	1	2
Hearing complaints, etiology unknown	3	
CARDIO-RESPIRATORY		
Pain, chest, etiology unknown	15	25
Parxymal tachycardia	1	
GENITO-INTESTINAL		
Gastritis acute	12	17
Gastric hyperacidity	6	

Gastric complaints, (vague) etiology unknown	19	
Diarrhea, etiology unknown	3	
Constipation	15	1
Hemorrhoids, external	2	1
Nausea and vomiting, etiology unknown	9	7
Rectal bleeding	1	1
DU (Peptic ulcer)	1	4
GENITO-URINARY		
Urethritis, anterior	3	6
Prostatitis, nongonococcal	1	3
Irritation, penis	5	
V.D. Warts	1	
Dysuria, etiology unknown	3	1
Swollen testicle	2	
NEUROMUSCULAR		
Muscle strain	12	29
Sprain, ankle	4	12
Painful shoulder	18	32
Ganglion cyst	2	
Sprain, wrist, elbow, etc	9	23
Swollen knee, etiology unknown	1	11
Low back syndrome	7	17
Lack of sensation to fingers, etiology unknown	1	2

TRAUMA - ABRASION		
Contusions, minor	44	76
Lacerations, minor	68	58
Hematoma	1	
Abrasions, minor	13	7
Foreign bodies	5	2
Burns, thermal	12	17
Burns, chemical	3	9
Fractures	5	20
Dislocation, patella	1	5
Wound, puncture	2	1
Ingrown toenail	1	14
INFECTIONS		
Furuncle	6	14
Abscess	12	59
Lymphademopathy	4	3
Pilondal cyst	3	18
Vincents	2	4
Cellulitis	3	26
Minor infections	16	8
Ulcer, ankle	1	14
SKIN		
Sebaceous cyst, removal	6	14
Acne, vulgaris	2	3

Dermatitis, etiology unknown	14	2
Dermatitis contact	1	1
Planters warts	1	
Chapping	13	
Pediculosis pubis	2	
Warts, removal	8	
Fungus infections, etiology unknown	4	37
Corns	1	3
Growths, pigmented and nonpigmented	3	8
Atheletes foot	7	1
FUNCTIONAL PSYCHIATRIC		
Depression mild	1	1
Anxiety reaction	6	4
Insomnia	2	
Motion sickness	73	
Psychosomatic pains	1	
Obesity	5	
DENTAL	48	108

CHAPTER 12 - PUBLIC INFORMATION

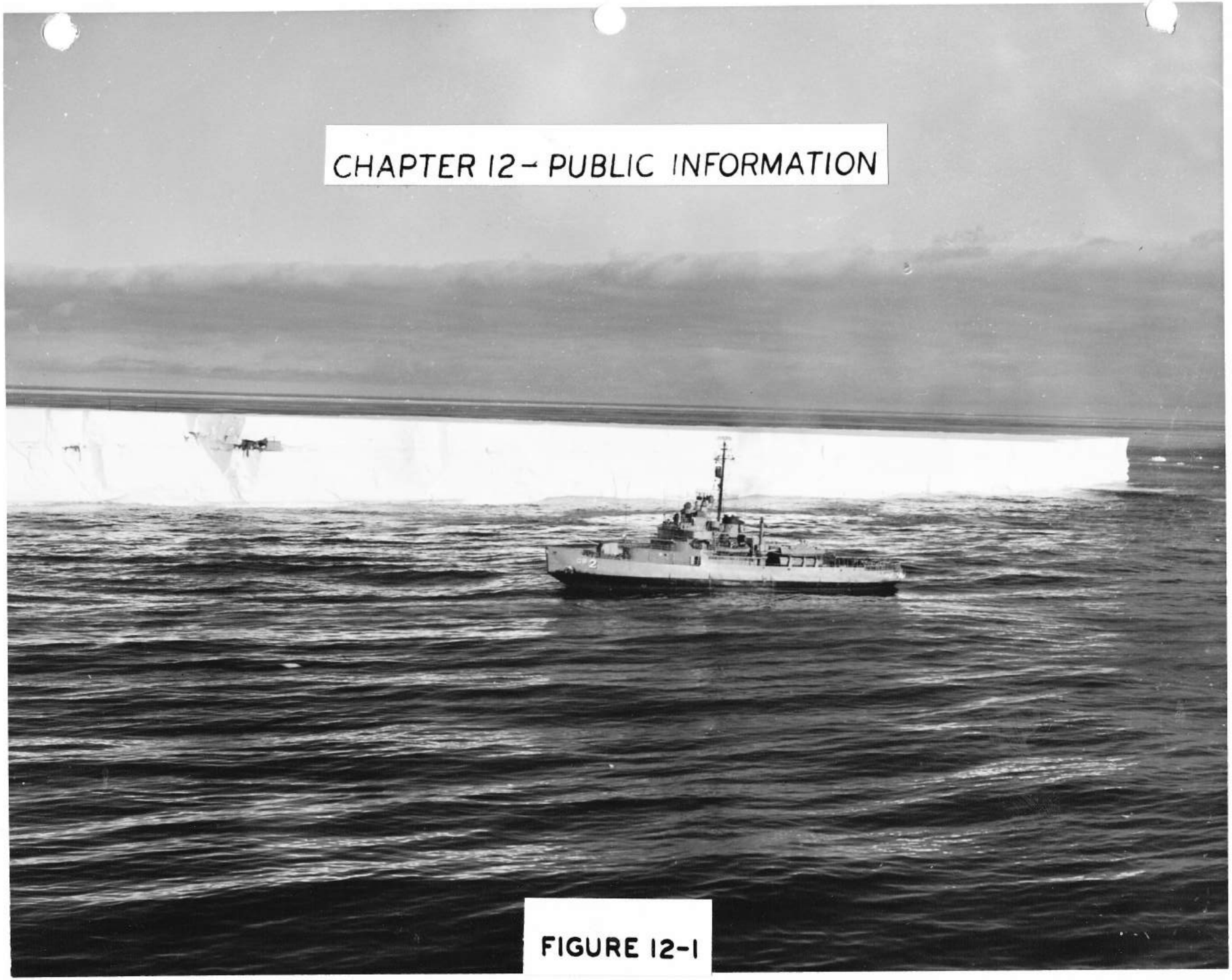

FIGURE 12-1

CHAPTER 12

PUBLIC INFORMATION

1. Reasons for Public Information

a. "Public Information is for all hands." This famous quote by the Chief of Naval Information, which means as much to the Public Information Officer as "Don't Give Up the Ship", was brought home to all hands aboard EDISTO during DEEP FREEZE '63. As much copy as possible was sent from the ship in the hope that those who were left behind could follow our exploits as EDISTO contributed to another chapter of Antarctic history.

b. The type of operation involved for any icebreaker in the Antarctic is necessarily arduous at best, although EDISTO's crew proved their mettle by holding up excellently throughout the entire operation. Still, like any other group, recognition of their efforts was and is essential to esprit and morale. Since the ship spent four and one half months on continuous duty in Antarctic Waters, a record unsurpassed by any other Naval ship, efforts were made to pass on to others the EDISTO story.

2. Feature Stories

The main "meat" of PIO in DEEP FREEZE '63 was the feature story of which 15 were forwarded for release. Of these stories, five were intended for coverage in the New Zealand

press, including operations with HMNZS [illegible] and visits by distinguished guests from this fine country. The remainder of the releases concerned ship operations and crew activities.

3. Message Releases

Three situations arose during the season wherin immediate reporting was indicated if full impact of the news item were to re realized. These concerned the Christmas Day storm, including the long-awaited initial break-up of the channel, the sighting of Little America III some 300 miles from it's original position and the 500th helicopter landing for the deployment.

4. Fleet Home Town News

The Fleet Home Town News Center received five items for release, the most ambitious of which contained individual pictures of the crew.

5. People-To-People Program

Within the general limitations imposed during the Cuban "Quarantine", public visiting during EDISTO's five day call at Port Lyttelton was encouraged. Escorts were provided individuals or groups, with peak numbers of visitors occurring during the Sunday afternoon in port.

Additionally, one group of boys, similar to our Cub Scouts, was given a tour concluded with refreshments and cartoons on the Mess Deck.

6. Personnel

Public information responsibility on EDISTO was assigned collaterally to a junior officer, who had as his assistant one third class journalist. Articles were also contributed by the Commanding, Executive and Athletic Officers.

7. Recommendations

a. Since public information material with the exception of FHTN releases, were forwarded to the Task Force Commander for release, EDISTO had no indication of the acceptability of her PIO effort.

IT IS SUGGESTED THAT THE STAFF INFORMATION OFFICER, THROUGH THE USE OF A SIMPLE FORM, APPRISE THE FORWARDING UNIT OF THE APPROVAL OR DISAPPROVAL OF EACH ARTICLE, IT'S RELEASE DATE AND NEWS MEDIA TO WHICH RELEASED.

b. To promote a better understanding and therefore degree of acceptance for Antarctic duty, a positive service information program should be included in the information effort. Primary emphasis should be placed on the challenge involved, with a strong appeal to the spirit of adventure (a rapidly disappearing trait among American youth).

IT IS PROPOSED THAT THE FOLLOWING OBJECTIVE BE INCLUDED WITH THOSE NOW SET FORTH FOR THE DEEP FREEZE INFORMATION PROGRAM: "PROMOTE AN AGGRESSIVE INTRA-SERVICE INFORMATION PROGRAM TO EDUCATE MILITARY PERSONNEL ON THE ROLE OF THE ARMED FORCES IN ANTARCTICA."

CHAPTER 13 - PERSONNEL - ADMIN - MORALE

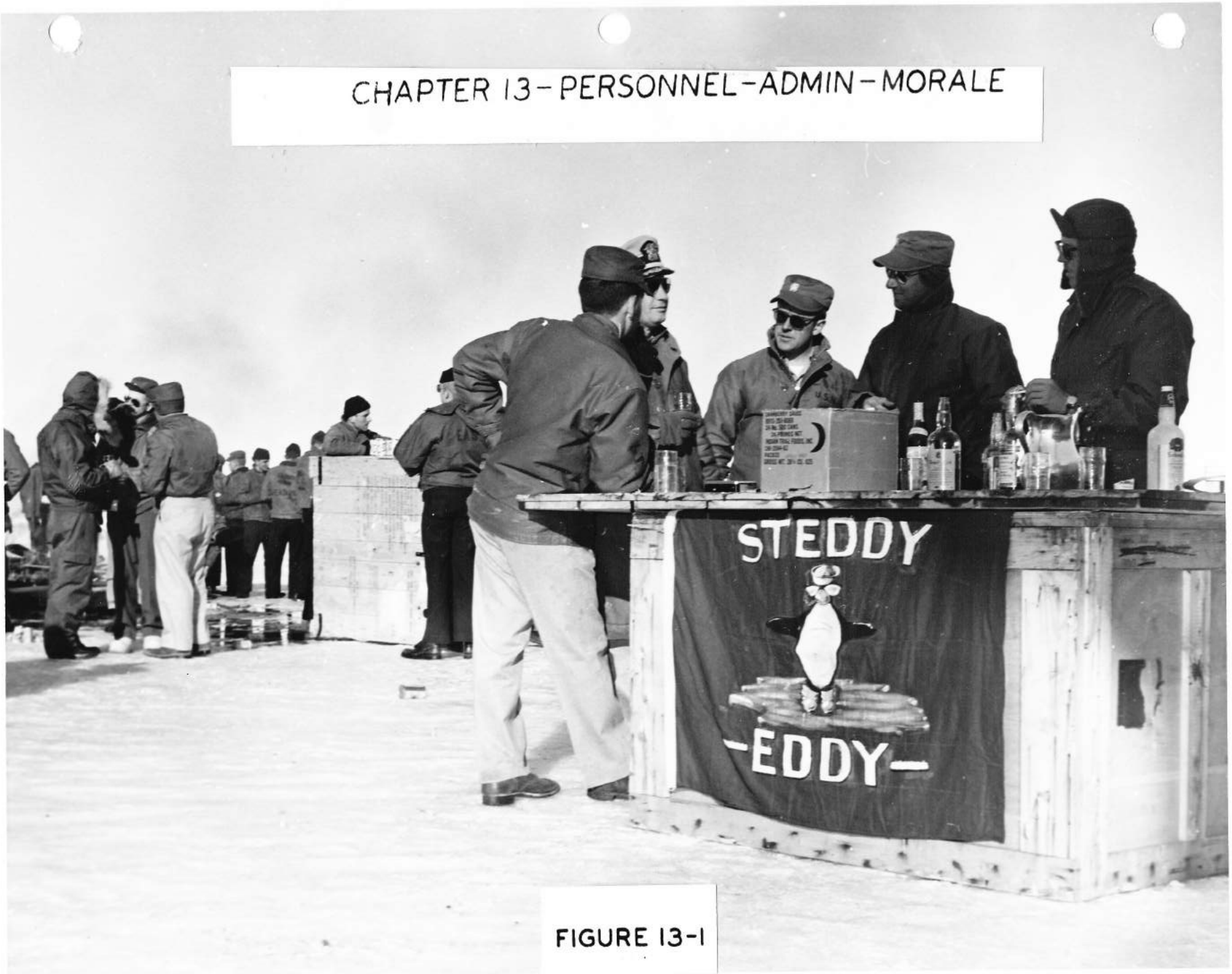

FIGURE 13-1

CHAPTER 13

PERSONNEL, ADMINISTRATION AND MORALE

A. PERSONNEL AND ADMINISTRATION

1. General

a. The peacetime icebreaker allowance is 198 enlisted personnel and 13 officers. EDISTO left Boston with 177 enlisted personnel and 17 officers. In Norfolk, just prior to leaving CONUS for DEEP FREEZE '63, the ship gratefully accepted 31 enlisted personnel.

While enroute to McMurdo Sound via Panama and Port Lyttelton, these personnel were indoctrinated and became part of the crew.

2. There were no unusual administrative or personnel problems encountered.

B. PERSONNEL

1. Ship's Company Officers

a. Officers aboard EDISTO at the commencement of the cruise and their primary assignments are listed below:

OFFICERS	ASSIGNMENTS
CDR B. A. DAVIDSON	Commanding Officer
LCDR A. R. SCHRODER	Executive Officer
LCDR W. H. GOFORTH	Operations Officer
LT J. J. FREY	Medical Officer

LT J. V. RAMSEY	Engineering Officer
LTJG L. J. REYNOLDS	Communications Officer
LTJG R. G. WHITELAW	Communications-in training
LTJG J. V. GRIESMER	Supply Officer & Disbursing
LTJG J. S. LACEY	First Lieutenant
LTJG R. J. CARTER	Damage Control Assistant
ENS R. H. PLATT	CIC And EMO
ENS D. R. COHEN	Navigator
ENS F. R. MYERS	Personnel & Administration
ENS W. P. FLAHERTY	Gunnery Officer
LTJG R. L. DEMING	Main Propulsion Assistant
CWO P. L. WELLS	Electrical Officer
CWO J. W. BROWN	Ships Boatswain

b. Upon the conclusion of the season, the officer structure, including most of the junior officer assignments changed. This was brought about by the rotation of primary duties and the reporting aboard of five new officers. Changes were:

OFFICERS	ASSIGNMENT
LTJG R. G. WHITELAW	Communications
LTJG W. P. FLAHERTY	Navigator
ENS R. H. PLATT	Gunnery
ENS R. E. SCHREIBER	Disbursing Officer

ENS D. R. COHEN	Prospective Damage Control Assistant
ENS F. R. MYERS	CIC & EMO
ENS J. H. KELLOGG	Electrical Officer
ENS L. H. SMITH, II	Watch & Division - PIO - Training Officer
ENS F. P. DONNELLY	Personnel & Administration
ENS W. W. McDANIEL	Prospective Main Propulsion Assistant

2. HU-4 DETACHMENT 86

a. Officers aboard were:

LTJG R. H. JESBERG - Officer in Charge

LTJG K. E. EDMONDSON

LTJG D. L. ALTRICH

LTJG EDMONDSON qualified in both type aircraft after reporting aboard, a note-worthy fete on a small rolling icebreaker platform.

b. Detachment 86 Enlisted included:

ASP, R.K. ADR2

BARNHARD, R.J. ADR3

BROCK, J.F. ADR2

BUFFINGTON, C.H. AN

DEMOR, W.H. ADR2

HAMMOND, J.H. AT2

PEHLMAN, E. ADR3

SCACCHI, D.E. AMS3

3. OCEANOGRAPHIC PERSONNEL

a. The oceanographic team of F.A. ANDERSON (Chief of Party), L.J. FRANCAVILLESE, W.A. BABIS, R.A. SCHAEFFER, reported aboard on 31 January 1963 at McMurdo. Together with the BT Personnel listed below and two ship's enlisted personnel (winch operators), the group obtained maximun oceanographic data, despite the most arduous weather conditions.

4. BATHYTHERMOGRAPH TEAM

DAVIS, R.J. QMC

GOING, D. Jr. SN

ALLS, E.E. SN

PRUITT, N.J. SN

REID, T.E. SN

5. SHIPS ENLISTED PERSONNEL

RATE	ON BOARD	RATE	ON BOARD
BM1	2	DC2	1
BM2	2	RMC	1
BM3	2	RM2	1
QMC	1	RM3	5
QM1	1	RDC	1
QM2	1	RD3	1
QM3	1	MM3	1
GM2	1	ENC	2
GM3	1	EN1	2

RATE	ON BOARD	RATE	ON BOARD
EN2	4	PC3	1
EN3	5	SKC	1
FT1	1	SK1	1
ET1	1	SK2	2
ET2	1	DK3	1
ET3	3	PH1	1
EMC	1	PH3	1
EM1	1	JO3	1
EM2	3	CS1	1
EM3	6	CS2	1
IC2	1	CS3	6
MR3	1	SH1	1
BT3	2	SH3	1
SF1	1	HMC	1
SFM2	1	HM3	1
SFM3	1	SDC	1
AG1	1	SD1	1
AG3	2	SD3	2
YN1	1	BMSN	2
YN3	1	RMSN	1
PN3	1	ENFN	4
RDSN	3	EMFN	1
MRFN	1	BTFN	1
ICFN	1	SHLSN	1
CSSN	1	SN	43
FN	31	HN	1
TN	6	SA	13
FA	2		

C. MORALE

1. General

Despite an extremely long and arduous deployment (EDISTO was in Antarctic waters continuously for over four and one half months) morale remained high. The various contributing factors, some of which are unorthodox, are discussed in detail in order that others, may possibly benefit.

2. Mail

No specific problems were encountered with the receipt and dispatch of First Class and Air Mail. It is interesting to note that over 12,000 separate pieces of philetalic mail were processed through the ship's post office.

3. Movies

The second most important diversion for any crew member is that two hour period commencing at movie call. Accordingly, and despite the costs involved, the quality and quantity of movies available to operating units should receive serious consideration. Although every opportunity to exchange movies was seized, it was obvious that there was much duplication among the surface units. Re-issued films and paired television programs now constitute the

main film fare available, with a lack of recent movies quite apparent.

4. Religion

Upon departure from Boston, lay leader services commenced and continued throughout the deployment. The cooperation of both the Protestant and Catholic Staff Chaplains on most "at McMurdo" Sundays was greatly appreciated. On one ocassion, when EDISTO and EASTWIND were alongside, joint services were held with excellent attendance.

5. Ship Information Program

a. Two basic methods were employed to keep the crew informed. The first was the establishment of station EDDY, "the littlest shipboard radio station in Antarctica." At noon and again at 1700, world and local news, sports, announcements and ship operations, were transmitted over the ship's entertainment system. Popular music on tape was played at other times between reveille and taps. Each Saturday after a week's preparation, a small mimeographed newspaper, the BREAKERS BEAT, went to press and was distributed during Sunday morning brunch. Again ship operations plus births, educational hints, divisional news, etc., was promulgated.

b. On the one occasion during which the personnel were available, a panel discussion was held in the Wardroom and on the Mess Deck. With the cooperation of LCDR S. V. WRIGHT, Staff, CNSFA, LCDR C.M.A. BRUMMER, Royal Netherlands Navy and Mr. Guy MANNERING and Mr. Graham BILLINGS, DSIR, various aspects of Antarctic operations were discussed, followed by a question and answer period. The reception these discussions received was most noteworthy; the officers and men benifiting greatly from their exposure to other than shipboard operations and problems.

6. Athletics

While many opportunities for athletics and games present themselves in Antarctica, the most successful from the standpoint of numbers participating, was EDISTO's ice touch football league. Although the "season" was cut short when the ocean station assignment was made, much excess energy was dissapated by the eight six-man teams in the league.

7. Ice Parties

a. The crew was given the opportunity to drink two cans of beer on the ice as frequently as the schedule permitted. On most occasions only two or three hours could be spared at any one time, however in several instances the ship

stopped at midnight. Since the Recreation Fund became rapidly depleted, beer was sold at a nominal charge.

b. On three occasions EDISTO officers set up a crude cocktail bar on the ice and entertained officers and civilians from McMurdo and EASTWIND. Each participant was declared "exposed" to elements, as was often the case in sub-freezing temperatures and blowing winds.

8. Training and Education

A great amount of emphasis was placed on a well-rounded training program during the cruise. While the usual Naval subjects such as; Know Your Ship, Leadership, Moral Guidance, Pratical Factors, General Quarters, Damage Control, etc, were covered, considerable time was spent assisting men to prepare for the February advancement in rate examinations. It is interesting to note that, while in Antarctica, the work-day was actually lengthened by 30 minutes, the time largely devoted to training.

9. Amatuer Radio

"Ham" radio operations, with phone patches directly into the serviceman's home, serve as a considerable morale booster. Unfortunately, EDISTO's results in this area were sporadic due largely to old equipment (second-hand when

purchased two years ago). Since good amateur radio equipment represents a large expenditure of money, a sum that would seriously tax the ship's Recreation Fund, efforts will be made separately to request assistance from the Type and Operational Commanders.

10. Miscellaneous

The usual diversions such as beard growing, equator crossing ceremony, cakes for several events, hobbycraft material and bingo were arranged. Perhaps the greatest contribution was the demand for smartness by the crew regardless of where the ship was operating. Daily inspections of messing and berthing spaces were held by officers, chief petty officers and first class petty officers on a rotational basis. Each Saturday, a Zone, Personnel or Messing and Berthing Inspection was conducted by the Commanding Officer. The officers completely reconstructed their wardroom and their apparent pride in this space became contagious as the entire interior of the ship took on a remarkable change in neatness.

11. Recommendations

a. THAT AN EXCHANGE OF 100 MOVIES BE MADE WITH CONUS ABOUT MID-POINT IN THE OPERATING SEASON.

b. THAT AT LEAST ONE LIBERTY PORT BE SCHEDULED DURING THE OPERATING SEASON.

c. THAT A BRIEFING ON ANTARCTIC OPERATIONS BE SCHEDULED FOR ALL UNITS AS THEY PASS THROUGH PORT LYTTELTON.

d. THAT AGB CREWS BE STABILIZED ONE MONTH PRIOR TO DEPLOYMENT TO PROVIDE FOR SHIP/JOB FAMILARIZATION PRIOR DEPARTURE.

e. THAT EFFORTS BE MADE IN THE NEAR FUTURE TO ADOPT AND MAKE AVAILABLE THE ANTARCTIC SERVICE MEDAL.

FIGURE 14-1

CHAPTER 14

SUMMARY OF MAJOR RECOMMENDATIONS

1. General

The recommendations proposed throughout this Final Report are based on two underlying concepts. First, where action is indicated by EDISTO, no recommendation has been made - - - in each case measures taken or planned to correct deficiencies have been noted. Second, those offered are done so with a genuine view towards enhancing Operation DEEP FREEZE.

2. Major Recommendations

a. IT IS FELT THAT UNDER HEAVY ICE CONDITIONS THE FOLLOWING APPLY:

(1) THAT GLACIER BE UTILIZED TO BREAK THE INITIAL CHANNEL AND MAKE ENLARGED AREAS FOR TURNING BASINS.

(2) THAT WIND CLASS BREAKERS MAKE THE CHANNEL AND TURNING BASINS NAVIGABLE FOR TOWING OPERATIONS.

(3) **THAT GLACIER BE NOT REQUIRED TO TOW** OR ASSIST WIND CLASS BREAKERS IN TOWING OPERATIONS UNTIL THE CHANNEL IS COMPLETED.

(4) THAT, WHILE TOWING, A BREAKER PREFERABLY GLACIER, WHEN AVAILABLE, RUN AHEAD OF THE TOWING SHIP AND TOW AND ANOTHER FOLLOW.

b. THAT, SHIPS WITH HIGH BOWS RIG A WIRE OR CHAIN BRIDLE THROUGH THEIR HAWSE PIPES OR TOWING PAD EYES. FURTHER THAT TOWING RIGS BE READY FOR USE UPON ARRIVAL AT MC MURDO SOUND.

c. THAT, IF FEASIBLE, A FIXED HELICOPTER HANGER BE INSTALLED ON WIND CLASS ICE BREAKERS.

d. THAT DETACHMENTS DEPLOYING ON DEEP FREEZE CRUISES BE PROVIDED TWO PREHEATERS WITH SUFFICIENT SPARE PARTS SUPPORT.

e. THAT SERVICE MESSAGES COULD BE FURTHER REDUCED PROVIDED:

(1) NAVCOMSTA HONOLULU RECAPPED ALL MESSAGE HEADINGS FOR DEEP FREEZE SHIPS AT TWELVE HOUR INTERVALS.

(2) THAT A GUARD SHIP SYSTEM BE EMPLOYED AMONG SHIPS IN THE MC MURDO AREA TO CONSOLIDATE RE-RUN REQUESTS.

f. THAT SHIPS DEPLOYED TO REMOTE AREAS AND IN AN INDEPENDENT STATUS BE EQUIPPED WITH MORE UP-TO-DATE EQUIPMENT (RADIO).

g. THAT THE OTC EMPLOY A GUARDSHIP ASSIGNMENT FOR DISTRESS FREQUENCIES.

h. THAT INSOFAR AS PRACTICABLE FREQUENCIES EMPLOYED SHOULD BE SPREAD TO MINIMIZE SPLATTER.

i. THAT ALL AIR FREIGHT CARGO FOR SHIP'S BE FORWARDED AS EXPEDITIOUSLY AS POSSIBLE WITH FORWARDING DATA BEING PROVIDED. THE ITEMS SHIPPED BY AIR FREIGHT ARE HIGH PRIORITY PARTS, REQUIRED TO ENSURE THE MAXIMUM OPERATIONAL READINESS OF THE SHIP CONCERNED.

j. THAT CARGO TO BE SHIPPED FROM CONUS ABOARD ICEBREAKERS BE RECEIVED AT LEAST ONE WEEK PRIOR TO DEPARTURE IN ORDER TO PROVIDE AMPLE TIME FOR PLANNING AND PROPER STOWAGE.

k. THAT THE FULL ALLOWANCE OF ENGINEMAN PERSONNEL BE MAINTAINED ON WIND CLASS ICEBREAKERS.

l. THAT ALL ICEBREAKERS BE OUTFITTED WITH AN INHALATION ANESTHESIA MACHINE AND THE NECESSARY ACCESSORIES. THIS MACHINE SHOULD BE CAPABLE OF SUPPORTING THE ADMINISTRATION OF OXYGEN, NITROUS OXIDE, AND ETHYL ETHER (CLOSED SYSTEM).

m. THAT THE DENTAL OFFICER AND TECHNICIAN BILLETS BE REINSTATED FOR AGB'S WITH THE PROVISION THAT THESE PERSONNEL BE GIVEN TAD ORDERS TO A DENTAL CLINIC ASHORE BETWEEN DEPLOYMENTS.

n. IT IS PROPOSED THAT THE FOLLOWING OBJECTIVES BE INCLUDED WITH THOSE NOW SET FORTH FOR THE DEEP FREEZE INFORMATION PROGRAM: " PROMOTE AN AGRESSIVE INTRA-SERVICE INFORMATION PROGRAM TO EDUCATE MILITARY PERSONNEL ON THE ROLE OF THE ARMED FORCES IN ANTARCTICA."

o. THAT AN EXCHANGE OF **100 MOVIES** BE MADE WITH CONUS ABOUT MID-POINT IN THE OPERATING SEASON.

p. THAT AT LEAST ONE LIBERTY PORT BE SCHEDULED DURING THE OPERATING SEASON.

q. THAT AGB CREWS BE STABILIZED ONE MONTH PRIOR TO DEPLOYMENT TO PROVIDE FOR SHIP/JOB FAMILIARIZATION PRIOR DEPARTURE.

r. THAT EFFORTS BE MADE IN THE NEAR FUTURE TO ADOPT AND MAKE AVAILABLE THE ANTARCTIC SERVICE MEDAL.