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A.C.B. 0233/43 (2)

SOUTH-WEST PACIFIC

ANTI-SUBMARINE REPORT

JULY, 1943

File reclassified as:

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A.C.B. 0233/43 (2)

SOUTH-WEST PACIFIC

ANTI-SUBMARINE REPORT

JULY, 1943

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ANTI-SUBMARINE
WARFARE DIVISION,
NAVY OFFICE,
MELBOURNE,

SECRET

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A.C.B. 0233/43 (2)

SOUTH-WEST PACIFIC

ANTI-SUBMARINE REPORT

JULY, 1943

ANTI-SUBMARINE
WARFARE DIVISION,
NAVY OFFICE,
MELBOURNE,

C O N T E N T S

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1. REVIEW FOR JUNE

Japanese submarine activity during the month was limited. "Southern Cross" Type of G.S.R. Page.. 36
Aerial

In only the first of these areas did counter-attacks develop, but there was one isolated attack by aircraft 20 miles north of Sabaul.

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of the month in the area north of Mussau (where the U.S. "hunter-killer" group had some success during the last week of May) and U.S. Destroyer "TAYLOR" reports sinking a submarine of the "I"-Class 90 miles north of the island on June 10th. There were also two attacks by aircraft in this area, but no results were observed.

There were no attacks on shipping in the South West Pacific area and the scale of the activity in general is shown by the fact that no D/F bearings of submarines were obtained throughout the whole month.

2. REVIEW AGAINST "UNATS"

A recent report by C-in-C, Eastern Fleet that "Unats" (Acoustic Homing Torpedoes) are now being used by German U-boats in the Indian Ocean emphasizes the need for all A/S escorts to be on their guard against possible use of this weapon by the Japanese.

Arrangements have been made for A/S escorts in the New Guinea area to be equipped with F.I.R. gear in accordance with the allocation shown in O.C.S.O. 130.

An anti-submarine confidential instruction on the use of F.I.R. is in the course of printing and will shortly be distributed to all A/S escort vessels. This A.C.B.I. also gives

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The South West Pacific Anti-Submarine Report is produced by the Division of Anti-Submarine Warfare, which comprises representatives of the R.A.N., U.S.N., and R.A.A.F. It is hoped to include in subsequent issues more technical and other information and personnel of both Navies are invited to submit items of interest through the appropriate channels. U.S. and R.A.N. A/S Officers are specially urged to use this Report to promulgate any information they may have.

SECTION I.

C O U N T E R M E A S U R E S

REVIEW FOR JUNE.

The "Group" system proved to be effective on our coastal convoys and, for the first time, an enemy submarine was detected, attacked and damaged when it attacked a convoy. Aircraft, too, were more successful, and made three attacks on surfaced U-boats. Only one ship was sunk in convoy during the month. A U.S. Landing Ship (Tank) was damaged by torpedo.

1. EVASION BY CONVOY.

The following are extracts from a recent Admiralty Anti-submarine report and from "Instructions for Commodores of Convoys". They are quoted because they apply to situations that have arisen off the Australian Coast.

It is considered better for a convoy to hold its course immediately after an attack. Any emergency alteration must of necessity be too late; a steady course has following advantages:-

- (a) Escorts know exactly what the convoy is doing.
- (b) In most cases it will clear the hunting area for the escorts as quickly as possible.
- (c) It takes the convoy towards home.

The emergency turn should not normally be used to avoid a U-boat which is at close quarters nor after attack as it will then hamper effective counter measures by escorts and is unlikely to achieve evasion.

2. R.A.A.F. CONVOY ESCORT.

A new form of air search, known as the "W" patrol, was introduced by R.A.A.F. Command during June. In executing this patrol the aircraft fly on a track in the form of a "W" ahead of the convoy, occasionally passing astern to search the area from which the convoy has come. It is considered that this patrol is an improvement on former convoy searches.

To be effective, an aircraft must prevent a submarine getting into position for an attack, although no aircraft can prevent a determined submarine Commander who is in position, from firing at the convoy. The aircraft can, however, detect the

submarine if it is surfaced or if it shows itself while manoeuvring to attack. In some circumstances the aircraft can attack with depth charges or bombs, but the chances of "killing" the submarine are not great.

The aircraft's main function, therefore, is to detect, rather than sink the submarine, and to warn the convoy and escorts. It can force the U-boat to submerge and can mark its position to guide escorts counter attacks. Success of these attacks will depend to a great extent on co-operation between ship and aircraft, a good example of which is given in Section III.

3. HEDGEHOGS.

Hedgehog trials in H.M.A.S. "STUART" have been delayed due to the late arrival of projectiles.

4. RADAR.

Fitting of Radar Type A272 (U.S. Type S.G.) and Type 286P in H.M.A.S. "BROOME" has been completed. General fitting of A.M.S. will begin after trials with these sets in "BROOME".

5. SCHERMULY ROCKETS AND SNOWFLAKES.

Merchant ships sailing in coastal convoys are being supplied with one Schermuly pistol and six rockets as a temporary substitute for Snowflakes.

Rocket trials were recently carried out at Jervis Bay. The rockets rose to a height of between 600 and 700 feet and gave good illumination over a circle of 2,000 yards diameter for twenty seconds. Further tests are being carried out by the Gunnery Instructional Centre, Woolloomooloo.

A consignment of Snowflakes has arrived from Great Britain and will be distributed for operational use shortly.

6. TRAINING.

H.M.A. Submarine K.9 commissioned on June 22. After trials she will be available for A/S training off Sydney.

A U.S. Anti-submarine attack teacher is located at Headquarters Commander Task Force 78, at the C.S.R. Dock, Brisbane. Arrangements for its use can be made by application at the above Headquarters, or by Telephone (B.8462). Another U.S. attack teacher is available at Fremantle.

7. COMMUNICATIONS.

R/T communication between Aircraft and ships is not yet practicable as the necessary equipment is not available. Aircraft have been instructed however, to address alarm reports to the convoy Recco Guard who in turn retransmits this on Convoy R/T.

Advance copies of Section VI of A.C.D.653 - "South West Pacific W/T Organization" have been distributed. This section and "Sea Frontier Communication Instructions - Lettered Series" (which is common to Air and Navy) are designed to keep all concerned informed of organizations established for inter-service use.

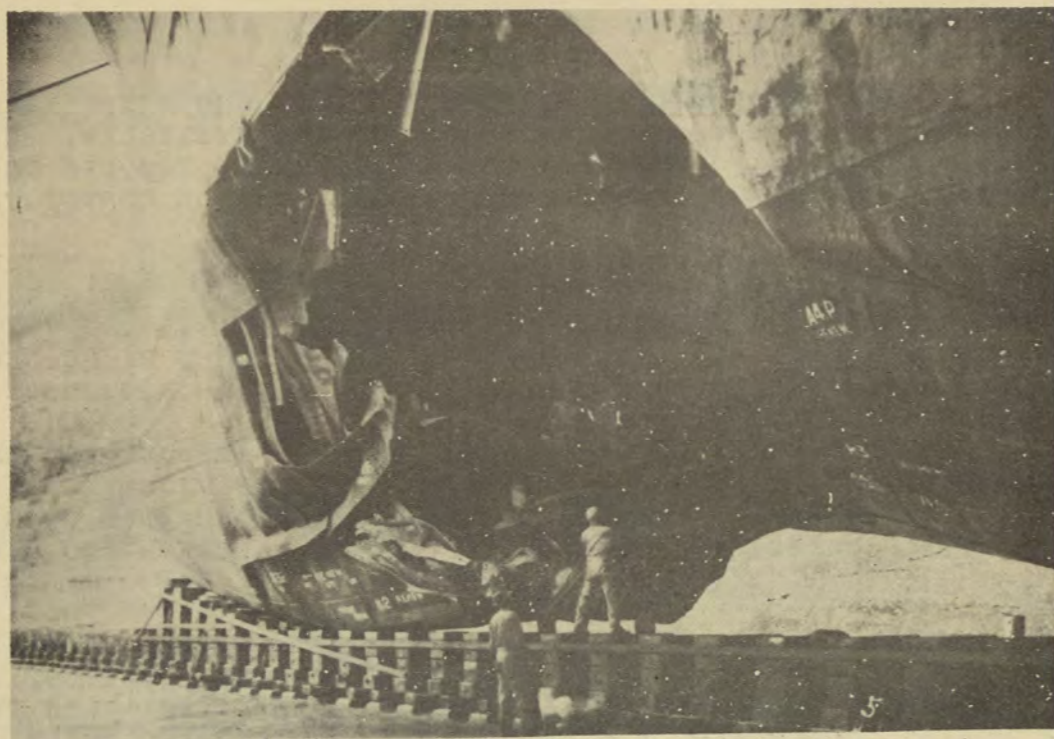
During June there was considerable improvement in R/T. communication on the convoy R/T.wave. It is evident that the policy of relaxing R/T silence to promote training has been justified. This policy may be extended to the convoy Recco Wave shortly.

A new type of hand signalling lamp - the Cowell lamp - has completed trials and will be available in September or October. Although this lamp has a power comparable to a ten inch S/P it is easier to operate, and is lighter than the Admiralty Pattern 6 inch Hand Signalling Lantern. It should greatly facilitate V/S signalling between convoy escorts.

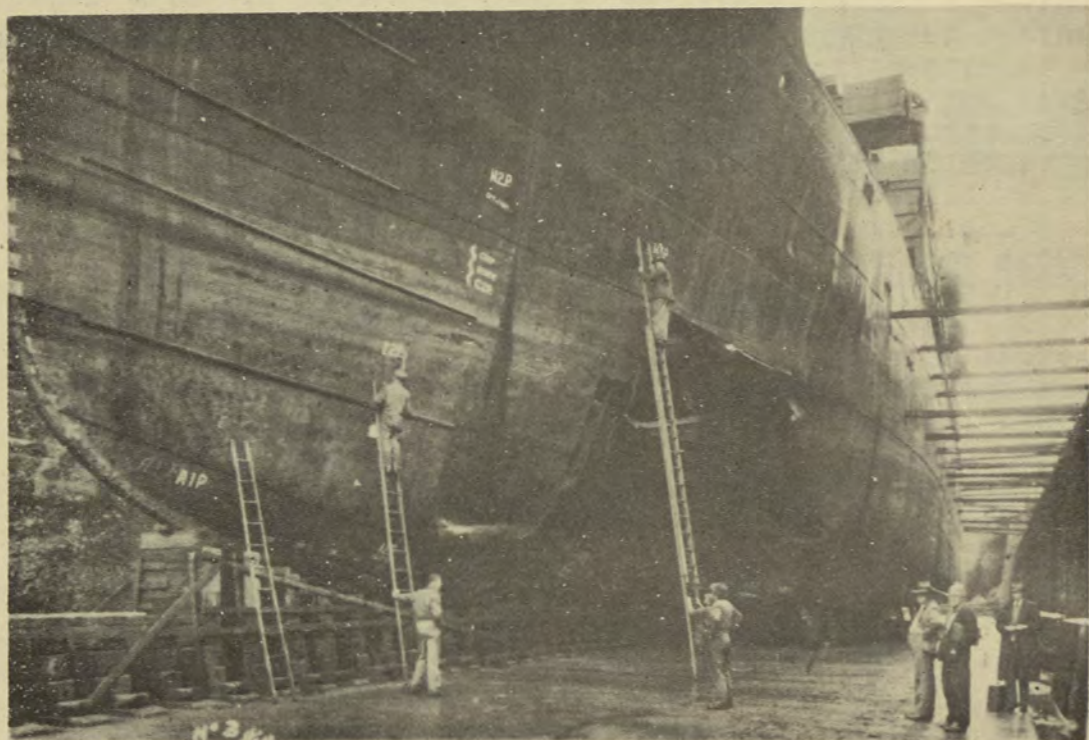
Tuning of W/T Receivers:- Commanding Officers are to ensure that W/T Operators know that reasonably accurate tuning adjustments can be obtained on their receivers as follows:-

- (a) Select the BELLS frequency closest to that on which tuning adjustment is required.
- (b) Find out the "Index Error" of the receiver on this frequency. This should be noted in the form "Receiver reads 50 kc/s high on 4050 kc/s".
- (c) If it is required to set the receiver to 3385 kc/s, the "index error" found as in (b), should be applied and the receiver set to 3385 + 50 kc/s, i.e. on 3435 kc/s.

R.A.A.F. W/T Stations which keep watch on Convoy Reconnaissance frequencies will make their call signs for 30 seconds on setting watch and also three times every half hour. This procedure should be of assistance to Naval Operators in keeping them "on the spot". However, it is still necessary to swing slightly "round the spot" to cater for the aircraft whose transmitting adjustment is not quite correct.



These photographs, taken in dock, show the damage done by a torpedo which struck S.S. "ORMISTON" off Coff's Harbour on May 12. In spite of the explosion and the fact that one compartment was flooded, adjoining bulkheads held and "ORMISTON" returned to Sydney.



SECTION II.

ENEMY ACTIVITY

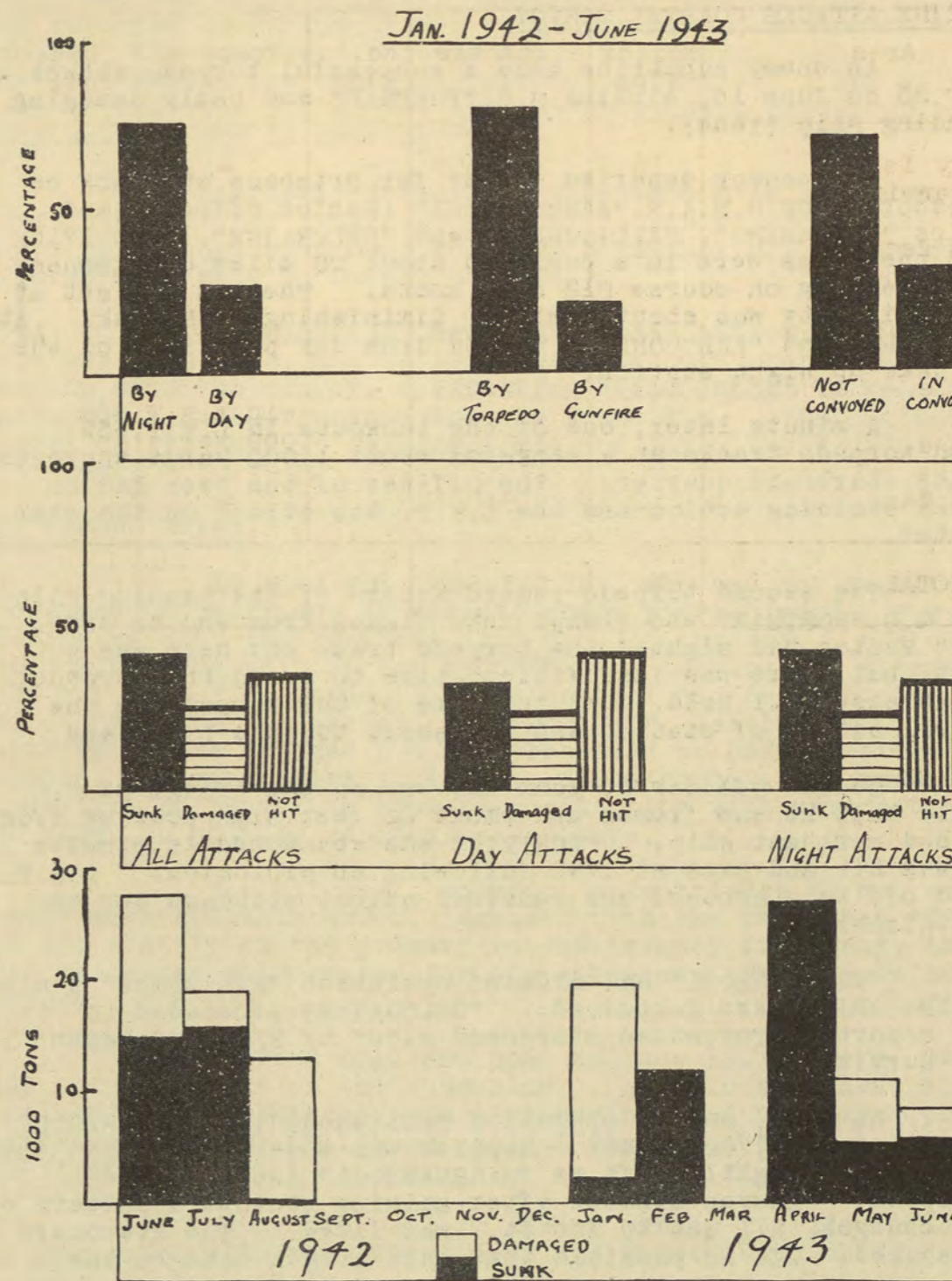
1. JAPANESE SUBMARINE ACTIVITY - Map for June. (See Appendix 1.)
2. ANALYSIS OF ENEMY SUBMARINE ATTACKS.

MONTH	No. of Attacks	No. of Ships Sunk.	Tonnage.	No. of Ships Damaged.	Tonnage.
JANUARY	4	1	2,047	2	17,398
FEBRUARY	2	2	11,988	-	-
MARCH	1	-	-	-	-
APRIL	6	5	24,996	-	-
MAY	8	2	5,359	1	5,832
JUNE	4	1	5,551	1	3,000
<u>TOTAL</u>	25	11	49,941	4	26,230

3. ANALYSIS OF CONVOYS - June

Area	No. of Ships	Tonnage	No. Sunk	Tonnage	Percentage of Total Tonnage
Thursday Is. - Darwin	16	47,558	-	-	
Barrier Reef - Brisbane	91	442,568	-	-	
Brisbane - Sydney	72	281,358	1	5,551	1.9
Newcastle - Melbourne	148	556,525	-	-	
Coral Sea	113	643,621	-	-	
Arafura Sea	12	39,438	-	-	
TOTAL	452	2,011,068	1	5,551	.28

ANALYSIS OF ATTACKS IN S.W.P.A.



SECTION III.

NARRATIVES.

1. SUBMARINE ATTACKS COASTAL CONVOY.

An enemy submarine made a successful torpedo attack on Convoy G.P.55 on June 16, sinking S.S. "PORTMAR" and badly damaging a U.S. Landing Ship (Tank).

The convoy departed Sydney for Brisbane at 0845K on June 14, escorted by H.M.A.S. "WARRNAMBOOL" (Senior Officer) and H.M.A. Ships "BUNDABERG", "KALGOORLIE" and "DELORAINIE". At 1715K on June 16 the ships were in a position about 50 miles off Kempsey, and were proceeding on course 013 at 7 knots. The sun had set at 1700, and visibility was about 5 miles, diminishing with dusk. At 1717 "BUNDABERG" and "KALGOORLIE" turned from day positions on the screen to take up night station.

A minute later, one of the lookouts in L.S.T.469 sighted two torpedo tracks at a range of about 1,000 yards approaching from the starboard quarter. The Officer of the Deck had no time to take avoiding action and the L.S.T. was struck on the starboard quarter.

The second torpedo passed astern of the Landing Ship and struck S.S. "PORTMAR" who "leapt into flames from end to end". "PORTMAR'S" Master had sighted the torpedo track and helm was put hard a-port, but there was insufficient time to avoid the torpedo, which hit abreast No.1 hold. At the time of the torpedoing the ship was well astern of station and was about to pass L.S.T.469.

Second officer W. Mann who was on the bridge of S.S. "CYCLE" said that he saw flames and smoke 80 feet high pouring from the torpedoed merchant ship. "PORTMAR" was abandoned 14 minutes after she was hit and sank at 1743 following an explosion. L.S.T. 469 sheered off to starboard and remained afloat although her engines were disabled.

"WARRNAMBOOL" had ordered operation "Artichoke" a minute after the ships were torpedoed. "DELORAINIE" proceeded to L.S.T.469, reported "Torpedoed starboard side" by R/T, and began to pick up survivors.

At 1745, during operation "Artichoke", "WARRNAMBOOL" obtained contact at 2,700 yards. Doppler was moderate low and the target was moving slightly left as "WARRNAMBOOL" increased to attacking speed. Eleven minutes after gaining contact a pattern of four depth charges, all set to 150 ft., was fired. The starboard thrower misfired. It is possible that this attack damaged the submarine.

Contact was lost, and when at 1800 it had not been regained, "WARRNAMBOOL" carried out an all round search. Contact

was not regained.

"KALGOORLIE" made an attack on a possible contact at 1808, and two minutes later "WARRNAMBOOL" had an echo on the bearing reported by "KALGOORLIE", range 700 yards. Four charges were dropped, the starboard thrower again misfiring. The concussion of the last charge put the Asdic set out of action. One valve had been jarred from its socket and the heterodyne condenser had moved from setting "E" to setting "B".

At 1821, following "WARRNAMBOOL"'s second attack, the Commanding Officer, Engineer Officer and Chief Stoker smelt oil which they considered more volatile than fuel oil, and unsuccessful efforts were made to obtain samples.

"KALGOORLIE" made her second attack at 1848, but contact was then lost, and at 1851 "WARRNAMBOOL" proceeded to resume station with the convoy, instructing "KALGOORLIE" to remain and carry out a further search for the submarine. "DELORAINIE" had picked up "PORTMAR'S" survivors and had taken the wounded from L.S.T.469.

THE SECOND PHASE.

At midnight "KALGOORLIE", who had not regained contact, proceeded to carry out an endless-chain patrol round L.S.T.469 in accordance with instructions from N.O.I.C. Sydney. "DELORAINIE" had the Landing Ship in tow by 0345 next morning and attempted to take her to Coff's Harbour. The weather had deteriorated, however, and at 0945 the tow parted. "DELORAINIE", leaving "KALGOORLIE" standing by the damaged L.S.T., proceeded to Coff's Harbour to land wounded, arriving there at 1530. There "DELORAINIE" received instructions to patrol an area in conjunction with aircraft and to set watch on primary reconnaissance wave.

The aircraft, however, were briefed to set watch on convoy wave and this error, together with the fact that "DELORAINIE" was not exactly on the primary reconnaissance frequency, is considered to be the main reason for the subsequent failure in communications.

Between 0011 and 0050 on June 18, R.A.A.F. Beauforts made three attacks on the submarine. At 0010 the first aircraft obtained A.S.V. contacts, one a submarine, and the other probably "DELORAINIE". The following account was given by the navigator of the first Beaufort.

"I made a shallow diving attack for identification purposes, with bomb doors open and three depth charges selected. When approximately a quarter of a mile away I noticed it was particularly slim and long compared with surface vessels. The moon was directly overhead. The submarine was approaching us. It had a pointed bow and stern; a fairly high superstructure,

was prominent and slightly narrower than the width of the deck. No masts were visible.

"The three depth charges selected were in a stick set at 30 feet apart, depth setting 50 ft. I did not hear any explosions but observed a large pear-shaped mark about 100 yards across, right behind the submarine. The submarine was partly submerged, the bow completely under water and approximately half the conning tower showing. I could see the stern.

"I made a beam attack and released a single depth charge. It hit directly ahead of where I presumed the bow would be. The first result was a welling up of the water and then a mushroom following.

"After the second attack the submarine submerged until the conning tower was awash. It then came up altogether and blew its blister tanks. There was froth all around it. There was an oil slick gradually increasing in size."

The second Beaufort made a depth charge attack, but the "stick" of four charges overshot. The aircraft then made two gunnery attacks on the submarine which returned the fire from the conning tower. When last seen the enemy was proceeding at about 8 knots and appeared to be circling slowly to port.

The second aircraft attempted to call "DELORAINÉ" by Aldis but was unsuccessful, although the A.M.S. had sighted the flares and a "flickering" light which was probably the machine gun duel. The aircraft's Aldis message could not be read by "DELORAINÉ" who considered that the Beaufort was merely trying to identify itself.

The A.M.S. altered course towards the "flickering" light on the surface, and some 17 minutes later sighted the tug "RESERVE" who had arrived from Brisbane to tow L.S.T.469. Thinking that "RESERVE" was responsible for the light, "DELORAINÉ" accompanied her out of the area to look for the damaged Landing Ship. Had the A.M.S. continued on her course she would possibly have sighted the submarine which was in the immediate vicinity.

Although nothing more was seen of the submarine it is considered that she was damaged and that she may have got into difficulties in the subsequent heavy weather. The search was continued by ships and aircraft until June 20 without results.

COMMENT.

A valuable opportunity has been lost of destroying an enemy submarine but if we can learn a lesson from it the experience will prove to have been worth while.

It will be apparent that the principal cause of the

failure to destroy this submarine was a breakdown of communications. The subject of communication always occupies an important part in Convoy Conferences held at Sydney Headquarters. There is still a lack of the standardised procedure which must be so well known and understood that it becomes automatic - the precept and the practice of "Common Doctrine" for ships and aircraft.

On the whole Operation "Artichoke" was well carried out. It is satisfactory that the escort vessels on this occasion at last obtained a definite contact and carried out the attack procedure. It is unfortunate that "WARRNAMBOOL" should have formed such an optimistic view of his attack as a further hunt by "WARRNAMBOOL" and "KALGOORLIE" might have produced a happier result. "KALGOORLIE" showed commendable persistence and covered a lot of ground in her searches up to about 0030/17.

"DELORAINÉ" seems to have missed an opportunity though not very much blame can be attributed to him. Through other people's failures he was not fully in the picture, but he did know, from his telephone conversations with C.S.O. Sydney, that there was a submarine in the area, possibly damaged, and that aircraft had been sent out to search for and attack it. He saw flares, or at least his Bridge personnel did, and informed him about it and he made efforts to close the position. But he was easily discouraged.

He knew there were aircraft in the vicinity and that they were attempting to communicate with him, but because their signalling was indifferent and their attempts to communicate seemed half-hearted, he did not realise what an opportunity was almost within his grasp. It would seem that at one moment he was within two miles of the damaged submarine on the surface, with aircraft trying to guide him to the spot, and yet he never realised it.

R/T communication between the escorts was, in fact, the only communication that was effective. This emphasises the value that has been obtained from practice, simplification and the sacrifice of security for reliability.

The course of escape of the submarine was apparently on the reciprocal course of the convoy at fairly high speed (4 to 6 knots) submerged.

The submarine, when attacked, was probably well below 150 feet, although this must be largely surmised. The torpedo was air-driven and set to a depth of under 12 feet.

This is a further case of submarines attacking from the beam of a convoy or abaft it. These tactics make it more difficult for escorts to obtain information by hydrophone effect of the firing of torpedoes.

It is recommended that escorts altering station to

take up night positions should do so by dropping back and, if possible, without turning, thereby keeping as large an area swept as possible.

Communications instructions are being prepared to cover organised co-operative hunts such as this one was, and these instructions, when introduced, should be practised as often as possible.

CONVOY G.P.55 - TRACK CHART. (See Appendix 2).

2. UNSUCCESSFUL TORPEDO ATTACK.

An enemy submarine fired two torpedoes at S.S. "JOHN BARTRAM" in a position about 70 miles from Sydney at 0610K on June 7.

"JOHN BARTRAM" sailed from San Francisco on May 11 with 6,000 tons of service cargo. At 0610 on June 7, when the ship was proceeding independently and zigzagging at 11½ knots lookouts forward reported two torpedo tracks crossing the bows 600 feet ahead. The Master ordered an alteration to starboard parallel to the tracks. About two minutes later a heavy underwater explosion occurred, apparently under a section abaft the engine room. "JOHN BARTRAM" was shaken violently and listed to starboard but righted itself immediately. No submarine was seen.

3. BEAUFIGHTERS ATTACK JAP. SUBMARINE.

On May 15, 8 Beaufighters flying in pairs in line astern and spread about 3 miles, sighted an enemy submarine about three miles distant on their starboard beam.

The leading Beaufighter, who was the first to detect the submarine, called up the remainder of the formation, informed them of the sighting, and peeled off to attack. At 1,000 feet he opened fire and held it except for two short breaks until he pulled out over the conning tower. He saw H.E. bursting at the waterline on the starboard side below the conning tower. When only 50 yards away, he saw 2 men running toward a machine gun mounted near the stern. These men fell as though hit by bullets. At the same time, four shots were fired from the heavy gun forward.

The pilot then flew over the conning tower in a wide turn to the left and prepared to make an attack from the stern. When half way into this attack, he saw the nose starting to submerge. He immediately opened fire at 200 yards. The cannon were not firing but this stoppage cleared at 100 yards. Only the deck was showing and this was strafed from stern to bow.

The crash dive was accompanied by a great splash and the submarine could be seen turning southeast under the water. At this stage 2 other aircraft of the formation reached the scene.

The submarine appeared to be about 256 feet long, and was painted grey. It was so large that some crews mistook it for a

destroyer. Only the pilot and observer of the leading Beaufighter closely observed the submarine, however, and they consider it to be similar to the "I-22". It had a gun forward of the conning tower and a machine gun near the stern. The conning tower was located mid-way along the length of the vessel. A large flag on which the rising sun emblem was clearly visible was located near the stern.

About 8 minutes elapsed from the first sighting until the submarine crash-dived. The dive was completed within 2 minutes of the first attack. It is possible that the submarine at first mistook the Beaufighters, above the clouds, for friendly aircraft.

4. GUNFIRE ATTACK ON TRANSPORT.

The U.S. Army Transport "EDWARD CHAMBERS" (4203 tons), taking supplies and munitions to Brisbane, was attacked with gunfire by a submarine off Coolangatta at 1050K on June 4.

The submarine was sighted as it surfaced 30 degrees off the port quarter, distant 3 to 4 miles, and fire was opened immediately. "EDWARD CHAMBERS" has a 3" gun aft, and this had been kept loaded. Twelve rounds were fired at the U-boat, but there were no direct hits although the last four shells appeared to be close.

The enemy fired 9 rounds without scoring a hit. Two shells fell close, one striking the water 25 yards from the port quarter and the other 30 ft. from the starboard wing of the bridge. There were no casualties.

The submarine crash-dived at 1055K. No periscope had been observed by the Navy lookout before the submarine surfaced.

Although the enemy was too far away for "EDWARD CHAMBERS" crew to observe details, the Captain stated that the U-boat was at least 300 feet long and appeared to be painted black. The conning tower was stepped aft, and the gun was mounted forward.

5. SUCCESSFUL AIR-SEA CO-OPERATION.

A U.S. Catalina aircraft and a Canadian Corvette recently sank a German submarine off Haiti. Efforts are being made in the South West Pacific Area to secure greater co-operation between ships and aircraft, and the following account shows that speedy attacks by both air and sea efforts can be very successful.

The Catalina was searching astern of the main convoy at night when a submarine was sighted on the surface three miles away. The aircraft attacked immediately and dropped four depth charges, all set to 50 ft..

The submarine was submerging, but the conning tower was

still awash when the charges exploded. The U-boat's stern was blown out of the water and the diving planes were shattered, forcing the submarine to remain on the surface. At this stage the U-boat's speed had been reduced to 11 knots.

The Catalina pilot sighted the Canadian corvette "OAKVILLE" about a mile from the attack, flashed "SSS" by Aldis and dropped a flare over the position of the attack. "OAKVILLE" who had heard the depth charges explode and had seen the Aldis and flare, increased speed and dropped five charges. No Asdic contact had been obtained, the pattern being dropped at the position of the flare.

Almost immediately "OAKVILLE" gained Asdic contact at 600 yards range. Course was altered towards the target, whose bearing was moving rapidly left, and the submarine's bow was sighted 200 yards on the starboard bow. Course was altered to ram, the submarine passing just under the bow. The stern of the corvette was thrown against the U-boat by putting "OAKVILLE"'s wheel hard a-starboard.

The bow of the submarine was raked with machine-gun fire as "OAKVILLE" opened the range to bring the 4-inch gun to bear. At 200 yards one round was fired, and course was again altered to ram. Two more rounds of 4 in. were fired at the conning tower and one was observed to hit, the Oerlikon and machine gun fire being maintained to prevent the enemy manning his guns.

The U-boat increased speed, still attempting to escape on the surface. The corvette's fourth shell carried away the U-boat's 88 mm. deck gun just before "OAKVILLE" rammed again, this time striking the starboard side. The U-boat slithered down the corvette's port side and depth charges were dropped, one of which exploded directly beneath the submarine. The enemy's speed was reduced and "OAKVILLE" rammed again, damaging the U-boat just abaft the conning tower.

The corvette's Asdic dome and oscillator were smashed and the Asdic compartment was flooded. The U-boat stopped, and "OAKVILLE" went alongside and sent a boarding party away. The submarine's control room was a shambles, and she was filling rapidly. She sank within a few minutes.

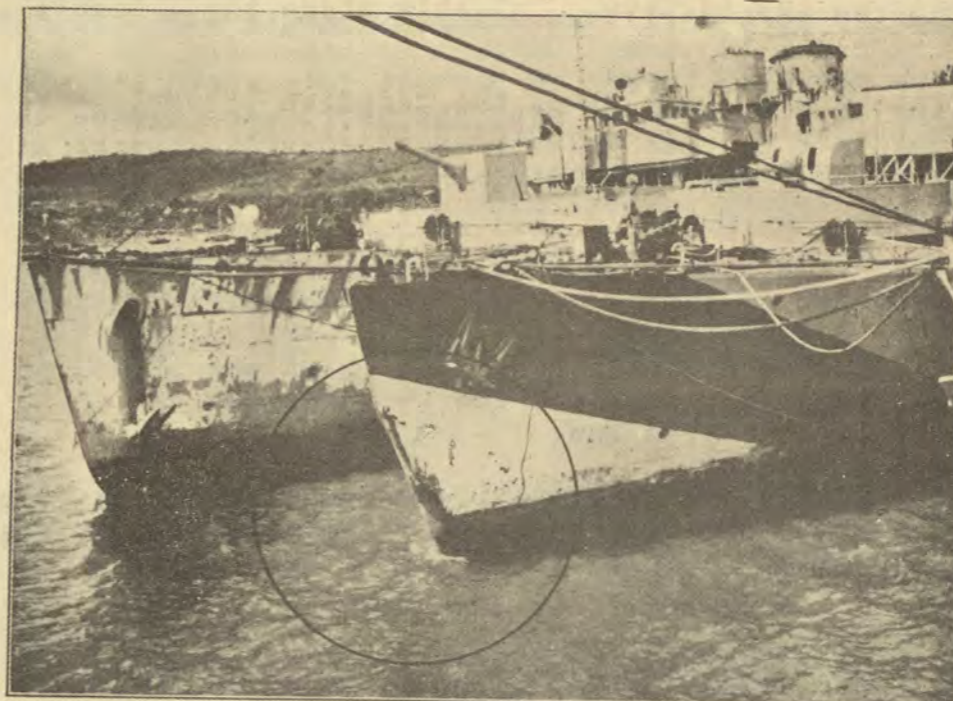
"OAKVILLE" though damaged, arrived at Guantanamo 12 hours after the submarine sank.

6. A SUCCESSFUL RAMMING.

A "Flower" Class Corvette, H.M.S. "CROCUS", recently twice rammed a U-boat off Freetown, sinking it with very little damage to herself.

"CROCUS" caught the enemy submarine on the starboard side between the stern and conning tower. The U-boat hung on the

H.M.S. "Crocus" after ramming a U-Boat.



Close-up view of stem.

corvette's bows for about two minutes and then, as "CROCUS" went hard a-starboard broke away to port and passed down the side under continuous fire from the port Oerlikon. Depth charges were also dropped.

The corvette turned to port at full speed and chased the U-boat, hitting it continuously with her Oerlikons. Then the 4 in. gun could be brought to bear and hits were scored at point blank range. The damaged conning tower by this time looked like "a piece of well-nibbled cheese".

The U-boat apparently tried to dive at this stage, but immediately returned to surface trim. By this time "CROCUS" had overhauled the enemy and, with her wheel hard a-port, rammed her on the starboard quarter very close to the stern which was slewed around. Both starboard throwers were fired and two charges, set to 50 ft., exploded close to the U-boat's bow.

The photograph opposite indicates that very little damage was done to the British corvette (which is slightly bigger than an A.M.S.) in spite of a double ramming.

7. SUBMARINE'S UNDERWATER ENDURANCE.

Considerable emphasis is being laid on "hunts to exhaustion" and the following account of a British submarine's endurance under attack is therefore most interesting.

The submarine "UNITED" was on patrol in the Sicilian Channel early this year. She dived at 0600, and at 1705, after an uneventful day, heard fast diesel hydrophone effect. Coming to periscope depth she sighted a fully laden 7000 ton merchant ship escorted by two destroyers. "UNITED" fired a salvo of four torpedoes right under the nose of one of the escorts, and heard an explosion about a minute later. All hydrophone effect from the target ceased and breaking up noises were reported.

At 1733 the counter attack began. During the next half hour the destroyers dropped 30 depth charges but none was particularly close. At 1844 another hunt began, and this lasted for just over an hour. Depth charges were again dropped harmlessly, but to keep stern on "UNITED" was forced to return to the scene of her attack.

At 2224, after being submerged for 16 hours, "UNITED" surfaced, only to sight an E-boat less than a mile away. The E-boat was apparently suspicious and began transmitting, but did not sight "UNITED" who had surfaced for less than a minute.

Half an hour later two destroyers and another E-boat joined the hunt. This lasted for four hours, but no ship was in contact with "UNITED" and at 0300 the noise of the hunt died away.

The Commanding Officer was given no time to surface, for

hydrophone effect was soon heard again and the fourth hunt, this time by four E-boats, began. At 0515 a destroyer joined, and the hunt lasted until well after dawn. This made it necessary for "UNITED" to spend another day submerged as a large number of A/S ships were still in the vicinity.

At 1826 that evening, after remaining deep all day, "UNITED" surfaced. She had been submerged for 36 hours, and had been under almost constant attack for more than 12 hours.

The Commanding Officer reported that his "mental powers were noticeably reduced" and that he "was feeling far from aggressive and spent the first few minutes on the bridge being extremely ill".

SECTION IV.I N T E L L I G E N C E .1. JAPANESE EXPLOSIVE PARAVANE.

Captured Japanese documents indicate that the enemy has developed a light explosive anti-submarine paravane.

The paravane, which the Japanese call a "side type depth charge", weighs about 154 lb. of which 55 lb. is explosive. It can be towed at speeds from 6 to 24 knots, but depth of tow is affected more by length of tow rope than by towing speed.

The captured document said: "Screening vessels for the capital ships of the fleet, escort vessels for transports, and all sorts of harbour defence patrol craft, tow it from the stern. It is a weapon of attack which, when it strikes a submarine, explodes.

2. GERMAN BUBBLE TARGET.

This device, variously known as the "pill-thrower" (pillenwerfer) "the second U-boat" (das zweite U-boot) and the "Asdic Obliterator" (S-gerat Vertilger), creates effects misleading to hunting craft.

There are three variations of the device. The first consists of six or twelve pills which are grey in colour, about 9 in. by 6 in. in size and probably composed of some carbide compound. They are intended to produce an Asdic target similar to a U-boat by reaction with sea water. They create a large area of disturbed water and their action lasts for about six minutes.

The second variation is a cylindrical "Noise charge", which is capable of moving at speed for a few hundred yards while humming like the electric motors of a U-boat.

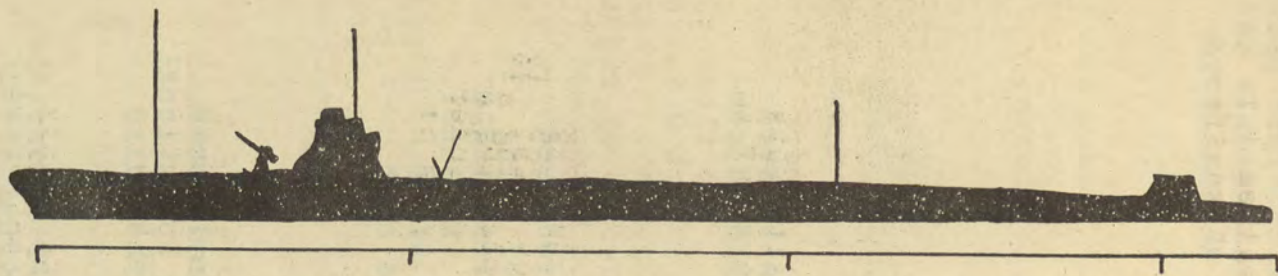
Thirdly there is a charge which produces oil spots and is designed to deceive aircraft. Sometimes old cap-bands and gym shoes are contained in this type.

A fourth type, which makes a noise like escaping air, is said to be used, but none of these charges have yet been examined.

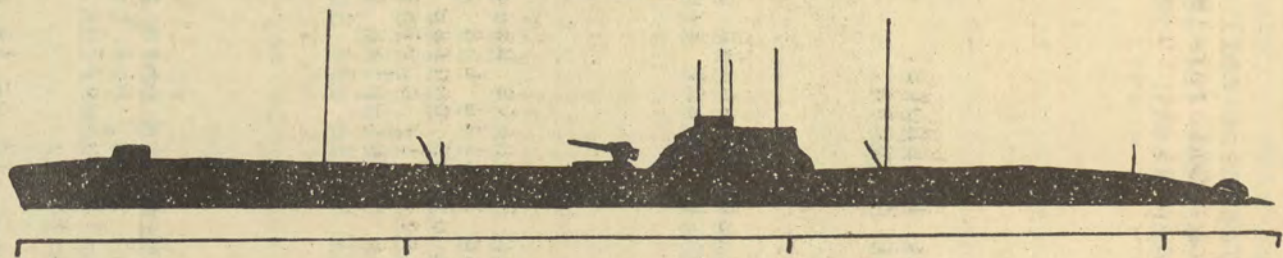
3. DEPTH SETTINGS FOR JAP. TORPEDOES.

There is evidence that Japanese air-propelled torpedoes attain a speed of 45 knots. Depth settings are approximately 20 feet for capital ships, 10 feet for cruisers and merchant ships and 6 feet for smaller vessels.

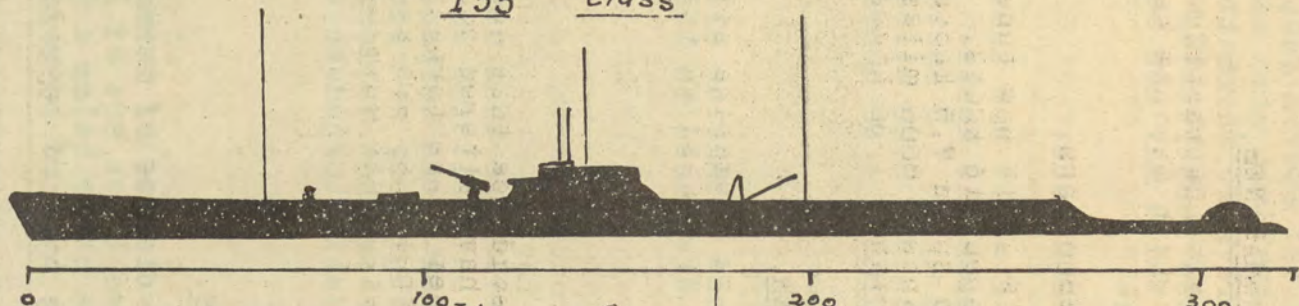
Bubbles would show 250-300 yards astern (for 20 ft.



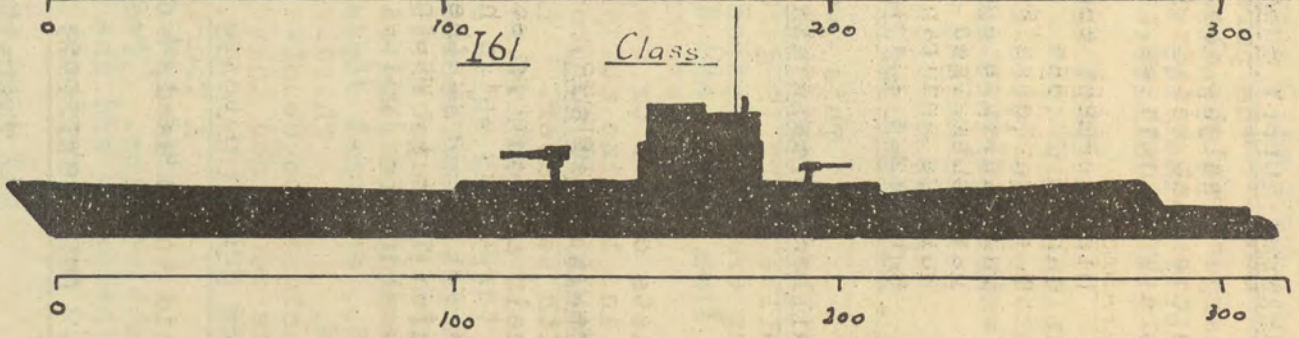
I68 Class



I53 Class



I61 Class



I-5 Class

setting) 125-150 yards astern (10 ft. setting) and 75-100 yards astern (6 ft. setting).

It is believed that when two torpedoes are fired (as has generally been the case in the S.W.P.A.) a spread of 3° is used. This means that the torpedoes are 50 yards apart at 1000 yards.

4. JAPANESE SUPPLY SUBMARINES.

The Japanese construction programme for 1941 called for two supply submarines which may now be completed. Their characteristics are as follows:-

Displacement 2800 tons.
Guns 2 - .98"
Torpedo Tubes 2 - 21" bow tubes.
Max. surface speed 16 knots.
Max. submerged speed 7.5 knots.
Surface endurance - 8000 miles at 16 knots.
Submerged endurance - 60 hours at 3 knots.

5. JAPANESE SUBMARINES.

The Japanese submarine silhouettes shown opposite were taken from models and are based on the most recent available information.

6. GERMAN TORPEDOES.

There is evidence that German U-boats have fired long range torpedoes which have altered course inside the convoy area. It is not yet known whether these torpedoes alter course on reaching a definite range or whether they are acoustically operated. Prisoner of war evidence indicates that Germany is developing both types of torpedo, and that acoustic torpedoes will be in use in the near future.

7. NEW GERMAN U-BOATS.

Three new classes of German U-boats have recently been put into service. Two types are of 1600 tons, one being operational and minelaying and the other being a supply submarine. The third type is an operational boat of 1000-1200 tons.

Six 1600 ton operational boats, 13 or 14 of the supply boats and about 20 of the 1000-1200 ton boats have been constructed. The latter are intended to operate at great distances from their base

and have an exceptionally large fuel capacity.

8. MINES.

An American report states that a destroyer making an attack on a Japanese submarine found that the U-boat launched mines, apparently as a counter measure, just before the second and fourth depth charge attacks. This is the only incident of its type reported, and the use of mines by submarines in this way is not believed to be a common practice. Only a few Japanese submarines are known to carry mines.

SECTION V.

M I S C E L L A N E O U S.
-----1. GERMAN APOLOGY FOR U-BOAT FAILURE.

Although Nazi communiques continue to boast tremendous U-boat successes, a note of caution has recently crept into official announcements on the war at sea. The following extract from a recent "apology" for lack of sinkings indicates that there is no little dissatisfaction in Germany with the U-boat campaign.

"The U-boats are not there to satisfy the impatience of those who - spoiled by daily victory bulletins in the first years of the war - cannot stand any pauses and are of the opinion that the U-boats must fill the gap by regular presentation of special announcements. As if the U-boats could provide them at their pleasure!

"And if occasionally there is an interval many people are inclined to blame the U-boats. This is faulty thinking.

"On the ocean there is no fixed road system where one knows that the enemy must pass at a certain spot and nowhere else. So infinitely vast is the sea. Nevertheless, our U-boats find the enemy.

"U-boat warfare is no shooting party where the ships are simply knocked off as they come. But this does not deter our U-boats, the less so as the enemy possesses no means of defence which could drive our U-boats into the defensive.

"Sometimes only one thing is missing: the luck which the soldier needs. How small may be the cause and yet how big may be the effect!"

2. SMALL ALLIED LOSS FOR JUNE.

A Berlin broadcast on June 30 admitted that sinkings of Allied vessels was the lowest yet recorded. Goering's newspaper, the Essen National Zeitung, on the same day said that the Allies have a new "counter measure" against U-boats. It claimed, however, that sinkings would increase after a period in which German submarines were withdrawn for "technical revision and tactical training of crews".

3. RADAR DETECTION OF U-BOATS.

The following extracts from an Admiralty Radar Bulletin indicate that Type 271 (corresponding to Australian type A272 and U.S. Type S.G.) has been responsible for the detection and eventual

destruction of a number of U-boats in the Atlantic and Mediterranean.

It has been found, however, that the efficiency of Type 271 is reduced in rough weather due to the fact that the submarine is "obscured" by the swell for an appreciable part of the time. To make sure of detection under these conditions the rate of sweeping must be reduced, but this, of course, still further reduces the chance of early detection.

Extracts from the Admiralty Bulletin are as follows:-

"1. Convoy O.G.82:- "Vetch" detected by Radar (Type 271) a U-boat on the port bow of the convoy. This was chased by "Vetch" and "Stork" and destroyed. "Vetch's" Radar obtained contact at 7,500 yards and held the target throughout a gunnery action until the U-boat submerged."

"2. Convoy S.L.115:- H.M.S. "Lulworth" had just engaged and rammed an Italian submarine.

They now surrendered and ... I sent my boarding party away. We ... lay off, threatening them with our guns while the boarding party got aboard.

I received a Radar report of the approach of the second U-boat but was very reluctant to abandon my boarding party until I was satisfied they were in complete control of the Italian. As the new enemy was beyond the hull of the first, (which I was keeping illuminated by my forward and after searchlights) I felt I was safe from his torpedoes and justified in "playing possum" with a view to giving him the impression he was undetected and luring him into a perfect position for a counter attack. He obliged, and ... I raised the beam of my forward searchlight right on him and opened fire at 1,000 yards with my 0.5" machine guns, going full speed ahead at the same time. I could see my tracer hitting his conning tower."

"3. Convoy O.S.34:- Radar Type 271 has once again proved its ability to co-operate with the Asdic Set in preventing attacks on convoys. "Gorleston" obtained a Radar contact at 3,200 yards which led to the chase of a U-boat. Contact was held during the chase and finally the U-boat dived at a range of 2,400 yards. The diving was correctly recorded on the Radar screen.

Subsequently "Folkestone" obtained a Radar contact at 5,000 yards, and, on illuminating, observed a U-boat diving. Asdic contact and hydrophone effect were obtained immediately."

"4. Convoy O.S.33:- Type 271 fitted in "Spey" picked up a submarine at 6,200 yards. Then, without being able to sight the U-boat, "Spey" held contact down to 900 yards although the enemy



Fin whale with blowhole about to submerge.



Fin whale.



Fin whale immediately after blowing.



Fin whale.



A school of Fin whales and slick.

WHALES AT SEA



Fin whale in blowing position.

was taking avoiding action. The submarine then dived and an Asdic hunt began."

"5. H.M.S. "Wolverine" - Ramming of U-boat:- On port leg of zigzag Radar contact was obtained at 5,000 yards. At about 600 yards I identified contact as submarine, increased to full speed ... and altered course to ram. The submarine was rammed amidships abreast the after end of the conning tower at an inclination of 90 degrees. My speed was 20 knots.

The submarine rolled over and sank immediately. The Radar set was in full working order after the ramming, the shock of which was considerable".

4. U-BOAT OR WHALE?

Cases have occurred recently of sightings of "U-boats" which later proved to be whales, and the number of these cases is likely to increase as more whales come north.

It is known that whales, particularly the Fin and large Humpback species, have two concentration points, one off Jervis Bay and the other off Point Cloates W.A.. Between June and October whales are to be found in large numbers off these points, and, in smaller numbers, as far north as Townsville.

Since they are warm-blooded mammals and breath air, whales cannot leave the surface for long periods. They break surface to breathe, expelling air and so causing the characteristic "spout" or "blow". During this period the back is usually exposed, and it is then that the resemblance between whale and U-boat is greatest. In Fin whales the exposure period is only about 3 to 6 seconds, usually repeated five or six times at intervals averaging 25 seconds.

A whale produces very little foam except when travelling at speed although the tail flukes often leave a series of swirls at the surface.

Most of the oil in a whale is contained in the blubber and bones, but it is very unlikely that this would be sufficient to cause any extensive film of oil on the water, even if the whale had been badly lacerated by depth charges. In no circumstances does any living whale exude oil or leave a film of oil on the water.

5. U-BOAT OFFENSIVE ON WANE.

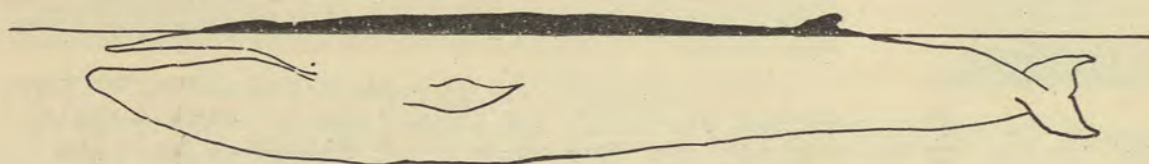
Most significant of all recent statements on the U-boat offensive is that made by the Admiralty Division of A/S Warfare. Always cautious in its claims and never giving way to unjustified optimism, the Division made the following statement in a recent



HUMBACK ABOUT TO DIVE



43 FT. HUMBACK NEAR SURFACE



75 FT. FIN WHALE NEAR SURFACE



SPERM WHALE BLOWING



"BASKING" SHARK



HUMBACK WAVING FLIPPER



HUMBACK'S TAIL FLUKES

- WHALES -

report:

"Historians of this war are likely to single out the months of April and May 1943 as the critical period during which strength began to ebb away from the German U-boat offensive; not because of the low figure of shipping sunk, which, for the whole world area, did not much exceed a quarter of a million tons; not because of the satisfactorily high number of U-boats sunk, which was again well above the average of the last 12 months; but because, for the first time, U-boats failed to press home attacks on convoys when favourably situated to do so.

"There is ground for a confident estimate that the enemy's peak effort is passed. Morale and efficiency are delicate and may wither rapidly if no longer nourished by rich success.

"The number of U-boats operating was as great towards the end of the month as it has ever been ... The U-boat fleet continues to grow in numbers, though more slowly than before. Yet its effective strength appears on recent experience to be waning".

6. WORLD-WIDE U-BOAT SINKINGS.

From the beginning of the war to April 30, 1943, 280 German, Italian and Japanese submarines have been sunk. During the same period 2,323 merchant ships were sunk - a ratio of 8.3 ships for each U-boat destroyed.

In the first six months of 1942, 30 German and Italian submarines were destroyed. In the second half of 1942, 76 U-boats were sunk.

Between November 8 and 30, during operation "Torch" (the North African landing) 10 merchant ships were torpedoed while 12 U-boats, 11 of them German, were destroyed.

SECTION VI.M A T E R I E L.1. MODIFICATION TO RECORDERS.

Firing cams and pointers for Recorders A/S 3 have been sent to bases for fitting. Full supplies of these items cannot yet be distributed and spare recorders should not be modified until increased stocks are available. C.A.F.O's. 2021/42 and 127/43 refer.

Certain U.S. ships have been fitted with A/S 3 Recorders. These ships should draw cams and pointers from the Port A/S Officer at the nearest base.

2. ELECTRICAL TRAINING.

Policy now is to hasten conversions of A.M.S. as much as possible and more stores are coming to hand. Ships should raise an Alteration and Addition Item but stores should not be drawn if there is little or no possibility of the work being undertaken at an early date by a competent dockyard.

A/S C.O's. are advised to consult Port A/S Officers at bases where conversion can be carried out as present stocks of stores for electrical training are being allotted to ships on a priority basis. C.A.F.O. 425/42 refers.

3. S/R. KEYS.

Base A/S Staffs report that S/R Keys continue to be a source of trouble. Stocks are limited and replacements cannot be effected as quickly as was hoped. A/S C.O's. should ensure that proper routines are carried out and that S/R Keys are lined up correctly. C.A.F.O. 1660/42 refers.

4. MAINTENANCE.

Attention is drawn to A.F.O. 5445/42 as to warning to Masters by ships entering dock with domes fully or partially lowered.

Dockyard has been flooded with defective A/S components for survey and repair. Efforts are being made to have certain repair work carried out by private contractors, but it is strongly urged that ships returning defective items should attach a label giving a brief diagnosis of the defect. This will assist Dockyard surveyors especially in cases where the defect may not be apparent on normal routine survey.

5. DAMAGE TO DOMES.

In investigations into damage to underwater fittings have revealed that in most instances performance of the set had fallen off to such an extent that its operation was ineffective but that the dome was not housed.

P.C's., S.C's., and A.M.S. are lively even in moderate seas, and combined pitch and roll in their case may cause a stress which the dome is not designed to carry. Tactical considerations will necessarily have to be taken into account before ceasing to operate Asdics. If, however, heavy and continuous quenching is being experienced, no good purpose can be served by continuing to operate and the dome should be housed.

The following points should be borne in mind:-

- (i) Where weather is so bad as to preclude efficient operating, the dome should be housed and brought hard against the top cover by hand.
- (ii) Where weather is bad but operating may still be carried out, the dome should be resting hard on the stops, being wound there by hand after the motor cuts out. This routine should be carried out irrespective of how close the limiting switch contacts are adjusted.

6. HALF YEARLY REPORTS

Half yearly reports from ships fitted with British Asdic equipment, if not already forwarded, should be rendered immediately to H.M.A.S. "RUSHCUTTER", copy to Naval Board.

7. C.A.F.O'S ON ANTI-SUBMARINE SUBJECTS, 1943.

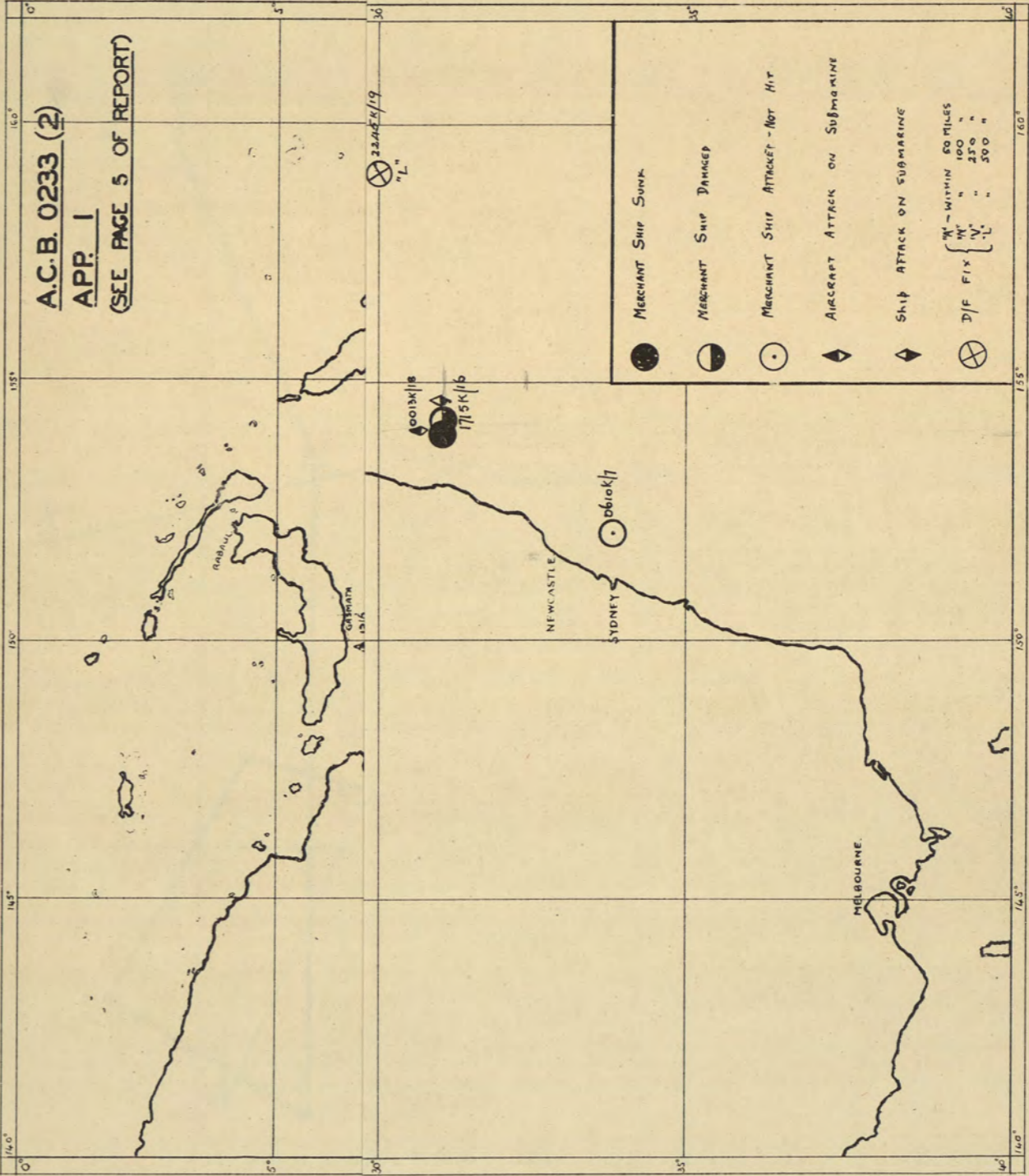
C.A.F.O.	SUBJECT	BRIEF DESCRIPTION	WORK BY
399 444 445 & 610	Panel, Transmitting Type 132 Type 134A	Clamp for toroidal Coil New Bridge instruments Oscillator Units - Breakdown of	S.S.(B) A. & A. B.S.
541 611	Depth Charges Type 134A	Preparation for service Base accessories	S.S. B.S.

S.S. - Ship's Staff; S.S.(B) - Ship Assisted by Base; B.S. - Base Staff.

In addition, the following C.A.F.O's should be noted where they apply:-

446, 483, 484, 542, 550, 608, 609.

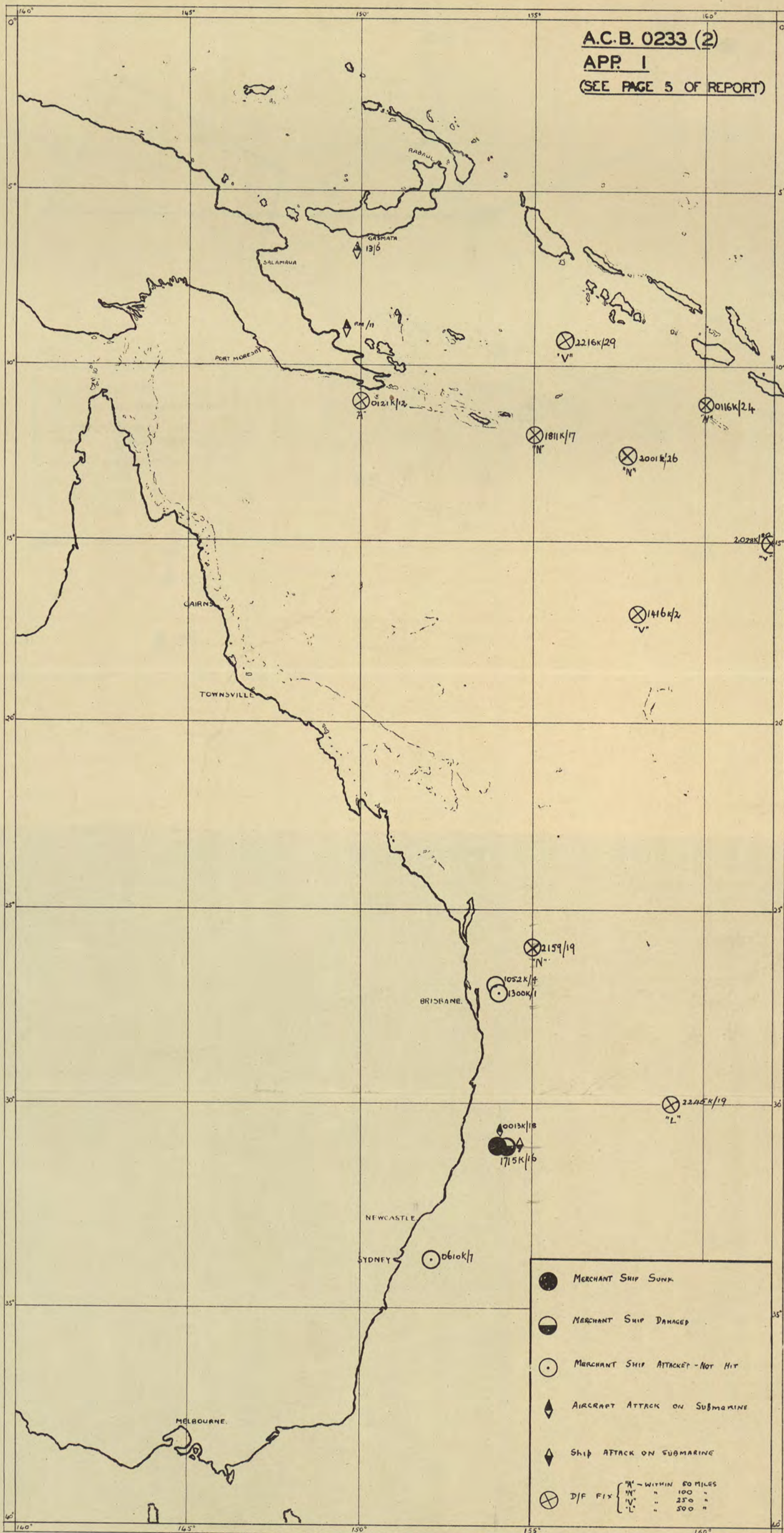
A.C.B. 0233 (2)
 APP. I
 (SEE PAGE 5 OF REPORT)



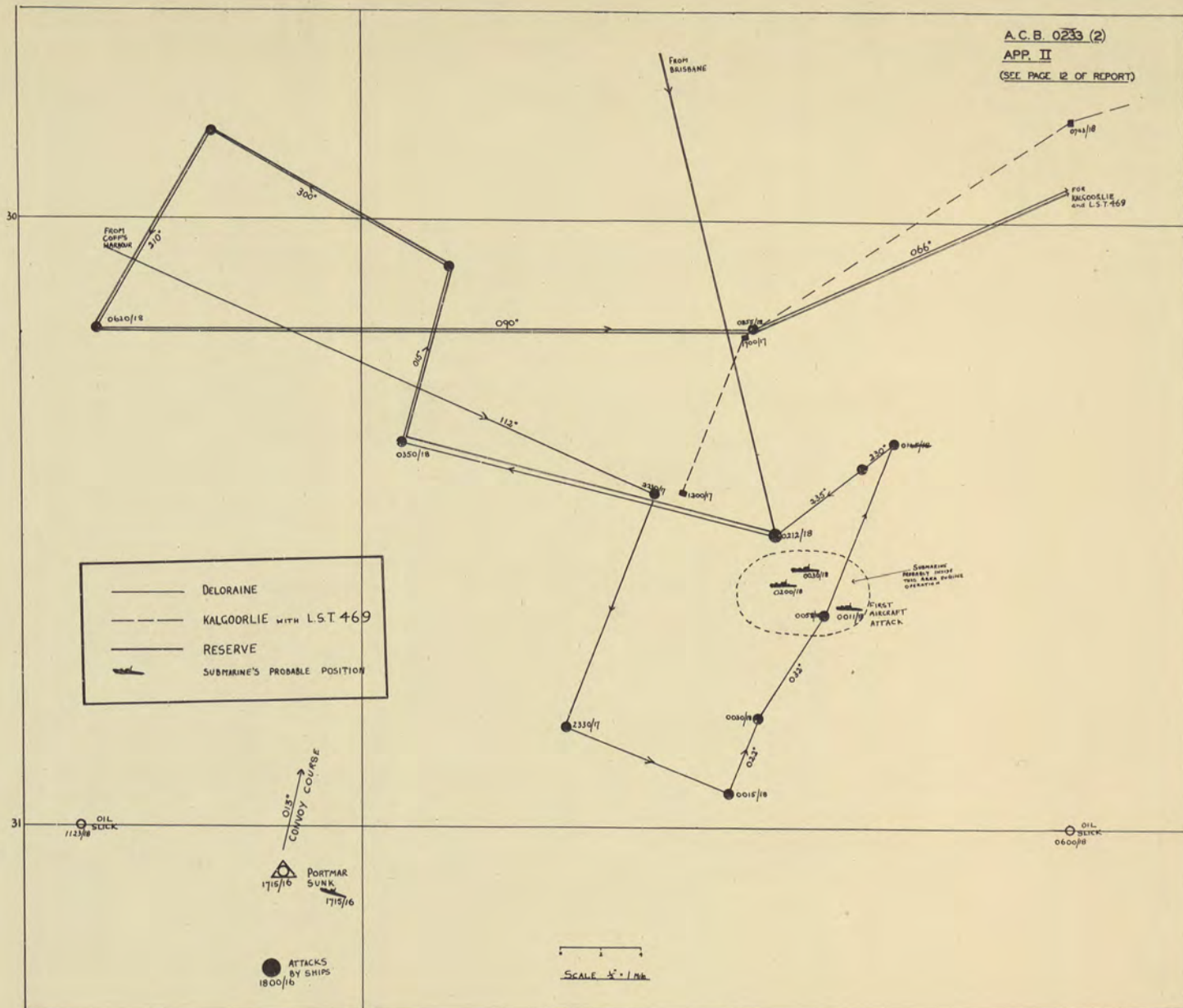
	MERCHANT SHIP SUNK
	MERCHANT SHIP DAMAGED
	MERCHANT SHIP ATTACK - NOT HIT
	AIRCRAFT ATTACK ON SUBMARINE
	SHIP ATTACK ON SUBMARINE
	D/F FIX

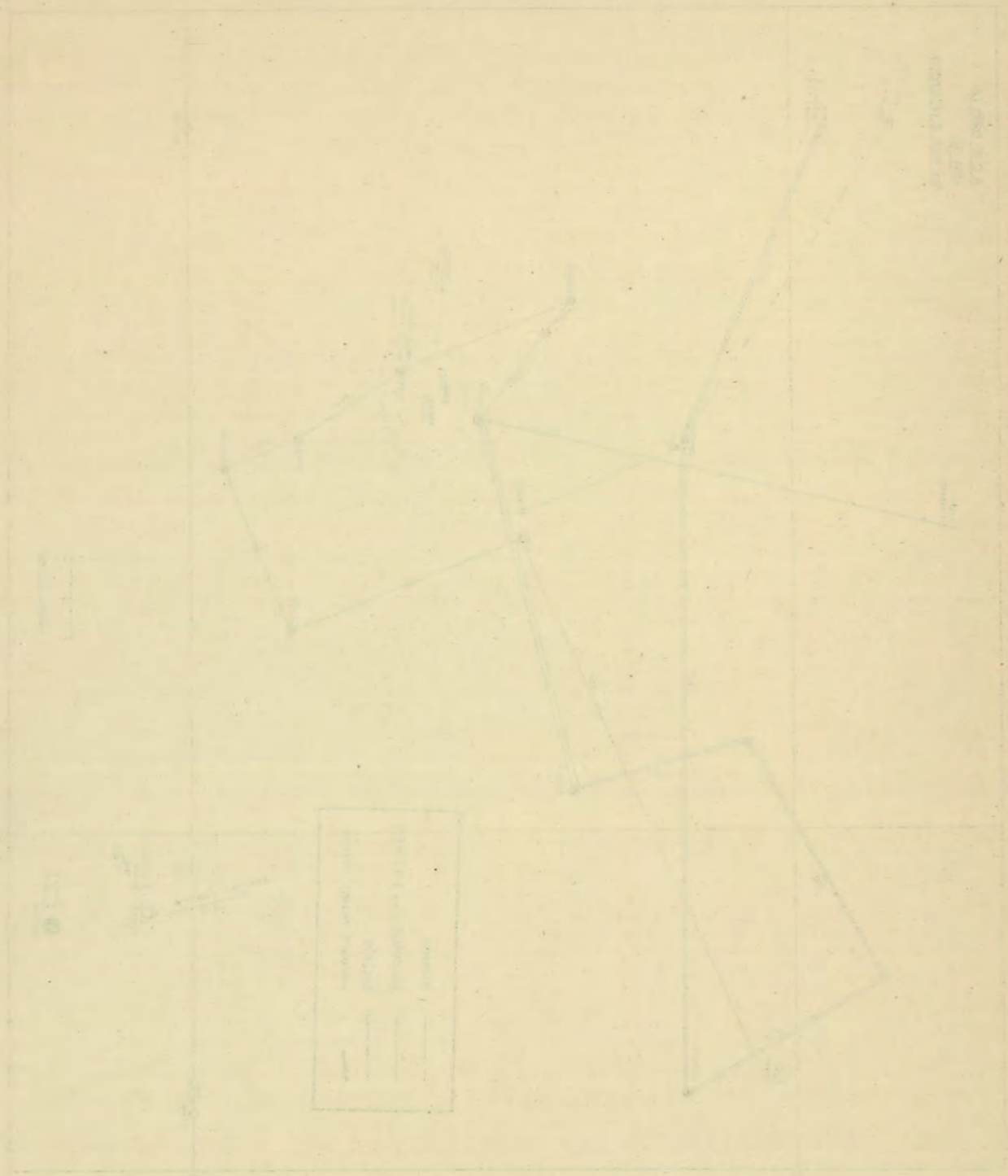
0 MILES
 100 MILES
 250 MILES
 500 MILES

A.C.B. 0233 (2)
APP. I
(SEE PAGE 5 OF REPORT)



- MERCHANT SHIP SUNK
- ◐ MERCHANT SHIP DAMAGED
- MERCHANT SHIP ATTACKED - NOT HIT
- ◈ AIRCRAFT ATTACK ON SUBMARINE
- ◈ SHIP ATTACK ON SUBMARINE
- ⊗ D/F FIX {
 - "N" - WITHIN 50 MILES
 - "W" " 100 "
 - "V" " 250 "
 - "L" " 500 "





PLAN OF THE
BUILDING

