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A.C.B. 0254/45 (3)

ROYAL AUSTRALIAN NAVY

MONTHLY NAVAL WARFARE REVIEW

MARCH, 1945

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ROYAL AUSTRALIAN NAVY

MONTHLY NAVAL WARFARE REVIEW

MARCH, 1945

TRAINING AND REQUIREMENTS DIVISION,
NAVY OFFICE,
MELBOURNE.

C.3032.

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ROYAL AUSTRALIAN NAVY

MONTHLY NAVAL WARFARE REVIEW

MARCH, 1945

TRAINING AND STAFF
REQUIREMENTS DIVISION,
NAVY OFFICE,
MELBOURNE.

C.3032.

C O N T E N T S

ILLUSTRATIONS

CONTRIBUTORS' SECTION

It is hoped to introduce a section under this heading. Officers are invited to submit matter for publication, including items of general interest, eye-witness accounts etc., accompanied by clear photographs or negatives, if available.

Likewise, in order that this Review may be of maximum service, comment on articles which have appeared, and suggestions for improvement, or for subjects of future articles, are also desired.

Such matter should be sent, through the Commanding Officer, to

Director of Training and Staff Requirements,

Navy Office,

MELBOURNE.

SECTION I

CURRENT EVENTS IN SOUTH WEST PACIFIC

1. AUSTRALIAN SHIPS HARASS ENEMY SHORE POSITIONS

Reports are to hand of three operations by H.M.A.Ships against enemy land forces in the New Guinea Area.

(i) H.M.A.Ships "SWAN", "COWRA", "KAPUNDA".

On 9th/10th January these ships, in conjunction with a large force of R.A.A.F. aircraft, including 60 Kittyhawks, two Beauforts, 12 Beaufighters and four Spitfires, bombarded enemy positions in Galela Bay, in the Halmaheras.

Enemy opposition was negligible, being confined to some desultory 20 mm. fire. Reports of observers in the spotting aircraft showed that the ships' firings were well concentrated in the target areas.

(ii) H.M.A.S. "VENDETTA"

In support of the 6th Australian Division A.I.F., "VENDETTA' engaged three targtes in the Dammap River area, near Aitape, Northern New Guinea on 9th January.

An Army Bombardment Liaison Staff on board, communicating direct with the spotting aircraft, which used smoke bombs to indicate the targets, contributed largely to the success of the operation.

Later in the month a signal received from 6th Australian Division read as follows:

"Comd. 6th Aust. Div. desires express appreciation Naval assistance 9th Jan. Target area well covered. Comm. worked perfectly. Please convey thanks C.O. "VENDETTA"."

(iii) H.M.A.S. "SWAN"

Again in support of operations by the 6th Australian Division, "SWAN" carried out a series of bombardments between 25th and 28th February.

(a) Anum River area - Day bombardment Sowam and Kauk villages; targets one mile ahead of advanced Army patrols, who, following up, captured fifteen 75 mm. guns and 400 rounds ammunition.

(b) But River area - Night bombardment

(c) Kairiru Island, Cape Onamu - Night bombardment.

No further details are available as yet.

2. THE LANDING AT LINGAYEN GULF

This report was given by the R.A.N. Liaison Officer with the U.S. 7th Amphibious Force.

"Weather conditions for the landing were excellent; there being little wind and practically no swell.

All boats were lowered and combat troops embarked without mishap, and as the boats moved inshore practically the entire countryside in the vicinity of the beach was shrouded in smoke from the exploding shells of the Naval Bombardment.

I took the opportunity to land with the first Assault Wave of Infantry and my chief impression as we approached the Beach was the seemingly ever-increasing thunder of the Rocket Bombardment.

All waves of landing craft approached the beach with admirable station-keeping and as we neared the shore of Crimson Beach there was no opposition fire whatsoever.

Unfortunately our boats grounded on a sand bank some sixty yards from the shore, and after discharging the combat troops, some of us had to wade through water that was well above our waists.

I decided to move inland with Major Fite's Battalion (37th Infantry Division) and I was impressed by the way his soldiers moved forward with extreme rapidity, taking advantage of every piece of natural cover.

As we advanced, the devastation caused by the Rockets and Naval Bombardment was almost indescribable. Huge craters pitted the ground and most of the trees were either shorn off or riddled with shrapnel.

The village of Binmaley presented a dismal sight; nearly every hut had been wrecked and it was obvious that the place would have to be completely rebuilt before it would become habitable.

Whilst passing through the village, I observed a hand rising from the wreckage of a hut. My first impression was that it was a Japanese about to throw a grenade, but closer inspection revealed that it was a badly wounded Filipino.

Calling on some nearby G.I's to assist me, we proceeded to extricate the wounded man from the wreckage, and whilst removing parts of the building that had collapsed on him, discovered another male (dead) and an unconscious woman who had a small child hugged to her breast.

The wounded Filipino was beyond first aid, but I managed to dress his wounds as well as possible under the circumstances with two Sulfa dressings which were in my pack. I despatched one G.I. for a Medical Officer and managed to revive the unconscious woman by forcing neat Rum down her throat. She seemed to appreciate this extremely potent spirit, but to judge from the amount she imbibed, it is doubtful whether her infant will reach a state of complete wakefulness for at least a week.

There was no enemy opposition in Binmaley, and it was obvious that the Naval Bombardment had driven the enemy well inland.

On my way back to the beach to witness the unloading of stores and equipment, I came across a mixed party of approximately sixty Filipinos who, despite the destruction of their homes, seemed genuinely overjoyed to welcome their American liberators.

I, personally, was dressed as a G.I. and this may account for the fact that the Filipinos gathered in a circle round me and commenced a recognisable rendering of "God Bless America".

After the third repetition, this vocal tribute threatened to develop into a singing "Marathon", and not wishing to hurt their feelings by informing them that they had been serenading a "Furriner from down under", I endeavoured to thank them with a pseudo "Southern Accent" by saying "I'm sho' glad to see yo' all" - It appeared to satisfy them.

Upon returning to the Beach, I observed that unloading operations were well under way. There appeared to be adequate tractors and tracked vehicles to cope with the few wheeled vehicles which became bogged, and, by stationing a man on the sand bank to direct incoming traffic through the few existing channels, very few craft had to be assisted by the Salvage Boats.

Shore parties detailed to unload cargo worked speedily and efficiently and it was noticeable that in this operation there were singularly few "Beach Sitters" who appeared to have nothing to do.

I was deeply impressed by the smoothly efficient working arrangements on all beaches I visited, a state of affairs which I consider was achieved by sound teamwork, and a complete absence of any enemy opposition from land or air.

It was noticeable that when wandering bands of Filipinos neared the beach, work slowed down to an amazing degree because so many of the hands detailed to unload boats showed a marked desire to "chat" with the natives.

It was also noticeable that amongst the female population, the vast majority of them, other than children, were pregnant. I was informed that in this matter, the "Sons of Heaven" who had occupied this area so recently, were imbued with singularly "worldly" ideas.

Whilst I was ashore, several enemy air attacks were launched against our anchored ships, but results could not be observed from the beach.

I rejoined "MANOORA" P.M., having been deeply impressed by the speedy discharge of personnel and cargo, and by the admirable co-operation of all Forces concerned.

As an air attack appeared imminent at dusk, all ships in the Transport area made smoke. The ships sailed after dark having accomplished an outstandingly successful Operation."

3. H.M.A.S. "RESERVE" HITS BACK.

Leaving Kossol Roads for Leyte on 30th November last, with one dry dock and two barges in tow, "RESERVE" was met twelve hours from her destination by a DE for escort. Six hours later a single enemy aircraft attacked, firing a torpedo at the DE without result, and then disappeared to the westward, apparently undamaged by the ships' gunfire.

After five days in Leyte, "RESERVE" departed again in a tug convoy on 12th December for Mindoro Island, with one large gasoline barge in tow.

Extract from Commanding Officer's Report follows:-

13th December -

Convoy was attacked by two twin-engined bombers. One bomb dropped 100 yards off our starboard bow but failed to explode. No damage. One AC hit by AA.

14th December -

Again attacked by two twin-engined bombers. No damage. One bomber shot down by destroyer.

15th December -

Attacked by one twin-engined bomber. Bomb dropped 200 yards on port beam. No damage. Aircraft was shot down.

16th December -

Attacked by single-engined aircraft which was shot down by "RESERVE'S" port oerlikon, and crashed into small U.S. Army vessel astern.

Arrived Mangarin Bay Mindoro P.M. 16th December, and departed a.m. 17th for Leyte.

The return journey was uneventful.

4. U-BOAT OPERATIONS IN SOUTH-WEST PACIFIC AREA - FEBRUARY, 1945

As was to be expected, main submarine activity was concentrated in the Philippines area, where contacts and sightings were numerous, and three Allied warships were torpedoed during the month. Counter-measures were vigourously pursued, however, by air and surface forces, and five probable sinkings of enemy U-boats are claimed. In addition to these, an Allied submarine has claimed to have sunk three enemy U-boats north of Luzon between 10th and 13th February; it is thought that these enemy craft were engaged on evacuation missions.

H.M.A.S. "GASCOYNE", later joined by U.S.S. "HOWARD", on 7th February carried out 18 attacks on a submarine contact 150 miles North of Biak. A periscope was sighted twice and fired at once. The only result, however, was a large air bubble and a small quantity of oil. Contact was lost 5½ hours after the first attack. Several

other sightings were reported from this area during the month.

It is thought that supply and evacuation trips are still being made by enemy U-boats to Rabaul, Wewak and Bougainville areas. A submarine was reported in the Solomons area early in the month; on 24th January, H.M.A.S. "FALIE" reported sighting a large submarine (probably I-7 class) off the Schouten Islands.

On 24th February, at 1950K, S.S. "THOMAS S. COOLEY" when 300 miles east of Mackay (Queensland), reported two torpedo tracks across her port bow and one across the port quarter at intervals of five minutes, and that a submarine was following. The ship was not molested further. Port Director Milne Bay, after interrogating the Master, graded the report B2. There were no other contacts off the Australian Coast during the month.

The finding, on 17th January, of a four-gallon petrol tin with German markings, little rusted and with no sea growth on it, on a beach five miles east of Port McDonald (South Australia) is further evidence to suggest that the U-boat which attacked S.S. "ILISSOS" on 9th December last (See A.C.B. 0245/45(1), Section I), was German and not Japanese.

SECTION II

OPERATIONAL AND TRAINING

1. "TROPICAL EAR" DISEASE

Heat and humidity combined cause the human body to sweat profusely and most of the skin surface to remain in an almost perpetual state of dampness. The human ear is a particular sufferer in this respect and the nature of its construction - delicate mechanisms situated at the inner end of a deep tube - renders it less able to be ventilated than almost any other part of the body. As a result the skin lining the canal of the ear becomes soft and soggy and an easy prey to infection if it is damaged in any way.

In ratings whose duty involves the wearing of headphones this is particularly the case, as the headphones diminish the amount of air which can reach the ear and, if the headphones themselves are dirty, they may introduce infection into the ear. Should someone who has already got an infected ear wear headphones, it is extremely likely that this infection will be transmitted to the next person who wears those headphones.

The ear disease known as "Tropical Ear" is a very common condition in the tropics, but it is not always realised what a debilitating condition it may be, how high is its infectivity, and how serious and prolonged may be its results. It is often thought that "Tropical Ear" arises as a result of bathing in the sea or in swimming baths, either ashore or of the canvas type on board ship. There is a good deal of evidence to show that many cases have started in this way, due to a particular organism which flourishes in sea water in the tropics, but this is by no means the only way in which "Tropical Ear" disease can be contracted. The germs which cause the disease are of several different types, and quite a large variety of different germs can be isolated from the ear which is so infected. Consequently, there are several different precautions which must be carried out conscientiously in the tropics if this disease is to be avoided and the ears are to retain their full efficiency. The particular points to remember are:-

Any irritation or pain in the ears, or discharge from the ears, should be reported at once to a Medical Officer, and the man so affected should cease wearing headphones until his ears have been examined.

On no account should fingers be inserted into the ears, nor should any attempt ever be made to remove wax or discharge from the ear by the insertion of matchsticks, pieces of wood, or wire.

After washing or after bathing, the ears should never be dried out by towels or handkerchiefs. The correct way is to tilt the head first to one side and then to the other, to allow the water to run out of each ear in turn.

Every effort should be made to prevent water entering the ears when washing and, when bathing, diving should not be indulged in, as sea water is then forced into the canal of the ear as a result of the extra pressure. It is not recommended that vaseline and cotton-wool plugs be worn when bathing, unless these are put in by Sick Bay personnel, and their cleanliness can be guaranteed.

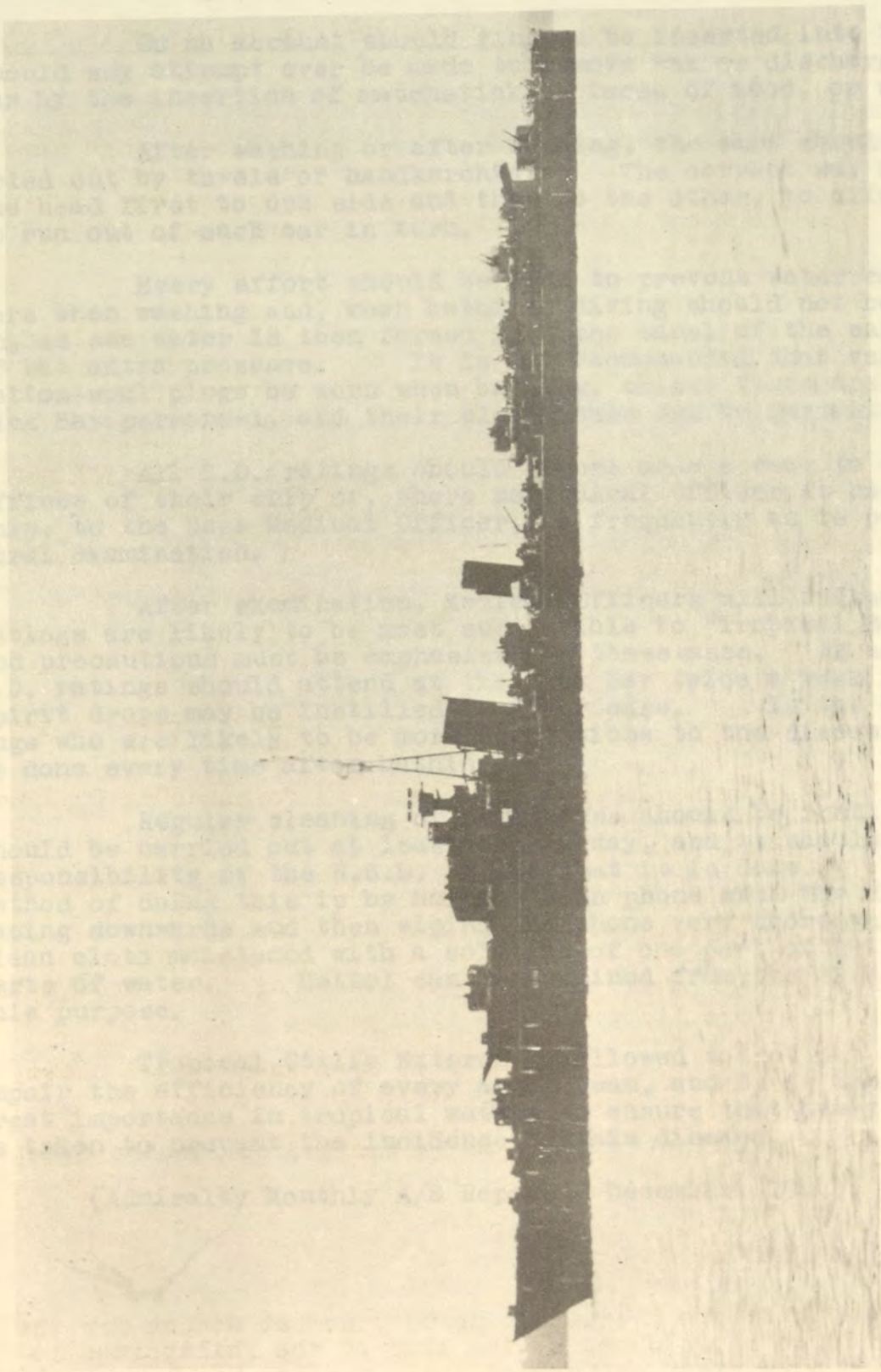
All S.D. ratings should report once a week to the Medical Officer of their ship or, where no Medical Officer is carried in the ship, to the Base Medical Officer, as frequently as is possible, for aural examination.

After examination, Medical Officers will indicate which ratings are likely to be most susceptible to "Tropical Ear" disease, and precautions must be emphasized in these cases. In addition, all S.D. ratings should attend at the Sick Bay twice a week in order that spirit drops may be instilled in their ears. In the case of ratings who are likely to be more susceptible to the disease, this should be done every time after bathing.

Regular cleaning of headphones should be instituted; this should be carried out at least once a day, and it should be made the responsibility of the H.S.D. to see that it is done. The best method of doing this is by holding each phone with the diaphragm facing downwards and then wiping the phone very thoroughly with a clean cloth moistened with a solution of one part of Dettol to four parts of water. Dettol can be obtained from the Sick Bay for this purpose.

Tropical Otilis Externa if allowed to get out of hand, may impair the efficiency of every asdic team, and it is therefore of great importance in tropical waters to ensure that every precaution is taken to prevent the incidence of this disease.

(Admiralty Monthly A/S Report - December, 1944).



H.M.A.S. "WARRAMUNGA" - after recent alterations

2. IMPROVED ANTI-AIRCRAFT ARMAMENT FOR AUTRALIAN TRIBAL CLASS DESTROYERS

Changes which were made recently in the close range armament of H.M.A.S. "WARRAMUNGA", as a result of experience gained at Leyte in October last, soon proved their value in the operations at Lingayen Gulf, where this ship formed part of the Minesweeping Support Unit (T.U. 77.2.9).

Between 29th November and 8th December, when successful gun trials at sea were carried out, "WARRAMUNGA'S" four remaining 20 mm. Oerlikon guns (two 40 mm. Bofors had already been mounted on the lower bridge) were replaced by four 40 mm. Bofors of Australian manufacture, together with the necessary ready-use stowages and handling equipment. The work was done at the U.S. Repair Base, Lombrum Point, assisted by ship's staff and H.M.A.S. "SHROPSHIRE", alongside whom "WARRAMUNGA" was berthed.

Other alterations completed between 9th and 18th December included:

(i) Removal of existing After Steering Position, After Control and Gallows Mainmast.

(ii) Siting of After Steering Wheel, Telegraphs, Compass, Voicepipes, Telephone and Telemotor System amidships on "X" deck.

(iii) Fitting of a small tripod Mainmast on foreside of Pom-Pom platform, and main aerial arrays to this new Mast.

(iv) Fitting of Gaff-type Ensign Staff on the after Funnel.

(v) Removal of two drinking water Gravity Tanks.

These alterations have given the Pom-Pom an arc of fire through the stern.

It is believed that "WARRAMUNGA" now has a better close range armament than any other British destroyer.

Similar modifications are to be carried out in the other Australian Tribals.

3. NOTES ON SUICIDE ATTACKS

The suicide crash became a primary combat weapon for the Japanese Air Force in October, at the time of the Philippines invasion. No consistent pattern of enemy tactics has been evolved, but these remarks are quoted verbatim from Commanding Officers reports.

Commander Task Group 38.4

As to defence, following measures are suggested:-

(a) A thorough short range radar search inside a general melee.

(b) Increasing alertness of visual lookouts and insuring prompt transmission of their sighting information to the batteries.

(c) Increasing the alertness of the gun and director crews.

(d) All of the above measures have the end in view of taking the diver under fire at the earliest possible time.

(e) Increasing CAP and station additional divisions out a short distance from the task group, where they may themselves act as lookouts to catch the attacker in his glide and at the same time be clear of our anti-aircraft fire.

(f) The manoeuvre of placing the single diver abeam appears best for two reasons:

(i) It presents a narrow target in range

(ii) It affords the best bearing for volume of anti-aircraft fire.

(g) Finally every opportunity for exercising at repelling this type of attack should be taken by conducting drills with our own planes.

C.O. U.S.S."WICHITA"

As one of our Stewards' Mates said "We don't mind them planes which drops things but we don't like them kind what lights on you!"

Commander Task Group 77.4

A tip for the officer at the conn of vessels subjected to this form of attack is that Japanese aircraft in general become extremely stiff on the controls at high speed. Any manoeuvre which will require the pilot to attempt to increase the angle of his dive will improve the chances of a miss.

C.O. U.S.S. "PETROF BAY"

It appeared that when a Jap. plane went into a dive and headed for a specific target, that if the intended target put up

enough fire the plane would often shift to another target of lesser fire.

It appeared that in one or two instances manoeuvring of the ship prevented a suicide diver from hitting this ship. It appeared that if the ship commenced swinging soon after the plane went into the dive that it confused the pilot.

Men on this ship have been indoctrinated on this subject along the following lines:

It is a stupid way to attack because it has less chance of getting home than other types of bombing.

The reason it has less chance is that the plane should be shot down between 2,000 and 500 feet where theplane is quite large in the sights and the density of shot required to bring it down decreases with nearness.

Keep firing at it until it breaks up, blows up or crashes. The best chance of stopping it is when it looks like a freight car in your sights.

It actually does less damage as a rule than a regularly dropped bomb that reaches the vitals of the ship. It is more spectacular but has less penetrative qualities.

It is like the 'bayonet charge' of infantry and like enemy infantry it is most surely stopped at close quarters, so keep shooting.

C.O. U.S.S. "McCORD"

Once the suicide dive bomber has slipped inside the combat air patrol, it becomes a very definite threat to our forces. It is not sufficient to set the enemy plane on fire since the pilot, already committed to die will do everything within his power to crash into a ship in the formation. Obviously against this type of target it is necessary either to destroy the plane so thoroughly that it is incapable of being controlled or else kill the pilot. The present difficulty is that in spite of the tremendous volume of anti-aircraft fire .... quite frequently an enemy plane which can no longer be controlled in level flight can be sufficiently controlled in descending flight to crash into one of our ships.

C.O. H.M.A.S. "SHROPSHIRE" - 3rd - 11th January, 1945.

Sighted approximately 50 aircraft, of which at least 23 were engaged by "SHROPSHIRE'S" gunfire.

Two suicide divers plunged into the water almost against "SHROPSHIRE'S" side and one fell out of control fifty yards away; another was shot down two cables from the ship; two others were forced to come out of their dive at "SHROPSHIRE" at the last minute and others crashed near or into other ships after apparently being turned away from "SHROPSHIRE" by her A.A. fire. It is naturally impossible to say this definitely as so many ships were firing at the same time.

Considering the intensity of A.A. gunfire put up by ships in the formations the combined results obtained against suicide bombers were very unsatisfactory. In 90% of suicide attacks, enemy aircraft, though obviously hit and in flames, managed to reach their objectives or crash on to an adjacent ship. Apart from casualties sustained, these attacks did not greatly affect ship's fighting efficiency.

During the first two days general approach was at heights of about 1500-2100 feet, decreasing to about 100-500 feet on attacking run. Latter days aircraft were approaching formation at greater heights and diving at steeper angles.

Aircraft never attacked in tight formations. Nearest approach to an organised attack was firstly on the evening of the 5th January when six Kates and Zekes attacked simultaneously the southern force, secondly when three Zekes dived on "SHROPSHIRE" on 6th January.

Aircraft which were on their attacking suicide run did not take any avoiding action but kept doggedly on an almost straight course to their target until they were shot down or reached their objective. It was noticed however that A.A. fire certainly caused errors in the pilots' judgment as many missed their targets. This margin of error was never very great.

Avoiding action in the form of jinking was taken by aircraft on their run in prior to actually selecting a target. Also by those who appeared to misjudge their attack and were making their getaway.

The angle at which suicide planes dived if they attacked from any height was generally between 30 - 45 degrees.

Although the weather afforded ideal conditions for attacks from the sun sector little advantage was taken of this. Also the weather has afforded ideal conditions for torpedo bombing; practically no use was made of this type of attack in Lingayen Gulf.

Aircraft did not appear to increase speed on attacking run

whether low level suicide or shallow dive.

Major selection for suicide bombers appeared to be the heavy ships. If turned away from those by gunfire they then placed their attention on destroyers or smaller craft.

Suicide planes when met with an early heavy concentration of A/A fire from their target, invariably changed their ideas and altered to some other ship whose fire was not so intense.

We are thankful that "SHROPSHIRE" has not more than three funnels.

4. A STATEMENT ON SUICIDE TECHNIQUE

Several interesting remarks concerning Japanese crash-dive missions are reported from a P.O.W., interrogated by ATIS:

The suicidal nature of the mission, he said, was made known to an assembled group, followed by a call for volunteers. Thirty men stepped forth on the occasion known to the P.O.W.; but twenty-seven were rejected.

The three who were selected were all with little or no experience and not too much training. P.O.W's explanation for this was that the authorities felt that the selected men would probably have been shot down in combat rather quickly anyway.

The selectee is given an ordinary combat plane, it being felt -- according to the P.O.W. -- that the target easily justified the sacrifice of a first-line craft. Bombs are attached to the plane in such a manner that they cannot be released. This would seem to eliminate any tendency the pilot might feel that he had a last minute chance to achieve his mission and live.

The suicide plane takes off in formation, but the function of accompanying planes is restricted to protecting him until he had crashed.

A study of crash-dive attacks against our surface forces, from the Leyte landing (20th October) to 1st December reveals that, although a number of ships have been hit, sinkings have been relatively rare -- one CVE being the heaviest vessel sunk. Carriers have been given first priority, with little discrimination evident in other

choices; at any rate no secondary pattern of priority can be worked out from the smallness of the total number of dive-attempts, except that warships are preferred to other types. Attacks on the former have ranged from LCIs. to battleships. The great majority of attackers were unidentified, but in all cases where identification was given, the planes were Vals or Zekes.

(Headquarters Allied Air Forces S.W.P.A. Intelligence Summary - Serial No. 253)

5. GUNS VERSUS SUICIDE BOMBERS

The following is a summary of an account written by an Officer of H.M.A.S. "AUSTRALIA". The complete account which represents the experience of one ship using her guns against suicide bombers, was written for inclusion in the Admiralty Gunnery Bulletin and contains certain technical information which has been omitted intentionally from this summary.

The opinions expressed in this article are not necessarily those held by higher authorities, but it is considered that they will prove of interest and value.

"Although we had the sorrowful record of no less than six hits on board, the ideas are necessarily based on our own observations and endeavour has been made to keep the published and spoken opinions of other ships out of the general conclusions.

"The first hit happened on October 21st, 1944, at Leyte, and almost marks the beginning of the Japanese suicide campaign. At that time there were still people who charitably believed that the aircraft crashed on to us by mistake, but amongst those of us who saw the incident, there was no doubt as to the pilot's suicidal intentions.

"The 'plane, a Val, was one of a small group which had appeared out of the dark of a western land horizon in the first light of dawn, all of which were engaged briefly as they flew overhead, and were lost in the half light. Our Val was next seen diving at an angle of 10° - 15° from almost directly astern and at a visibility range of perhaps 2,000 yards. Because of the stern approach, the 8-barrelled Pom-Poms would not bear, although one of them managed to jump the safety training stops and get away a few rounds at an angle

of sight of about 45° or above. Apart from this fire, two single 40 mm. using eyeshooting, and two single 20's with Mark XIV sights, engaged the aircraft with no appreciable result, although the pilot's aim was slightly upset, so that he hit the foremast with his wing root and went on over the side, instead of falling on board and adding to the fires.

"The resulting fierce petrol fires in the Air Defence position and Directors, and the small explosions on the Compass Platform, probably caused by cannon shell from the aircraft, seriously damaged Gunnery and Radar equipment in the vicinity and killed or injured the majority of the bridge and control personnel. The loss of so many skilled personnel made the ship virtually useless as a fighting unit, and, whilst repairs were being effected, new crews had to be trained.

"There seems little evidence that this 'plane carried a bomb, although it may have been dropped on another target before we were attacked.

"The next two hits will have to grouped together for the damage and casualties, but the two attacks were quite distinct to form. They occurred, as did the final three, during the opening phases of the Lingayen operation.

"The first attack was by a group of seven or eight Zekes, which had eluded our combat air patrol, and came in from the direction of the sun, flying very low. The group were engaged in turn as they came in with 4", 8", one multiple Pom-Pom, seven single 40's and five single 20's on the port side, as well as the fire of numerous other vessels. At least two definite kills, one of which belongs to our 8" were observed, and, of four aircraft which passed ahead of this ship, only two are known to have obtained hits on other ships.

"Our Zeke, the last of the four across our bows, climbed steeply to perhaps 200 feet as she crossed, at the same time banking very steeply to the right while engaged by the starboard 4" and close range guns. These guns had little or no effect, and the steep bank turned into a dive, which looked as though it would miss us. However, when just short of the ship, the aircraft made a quarter roll on its back and dived almost vertically to strike the top of No. 2 funnel, then bounced from the crane and deck over the side.

"This aircraft carried some form of bomb, which burst on the crane causing casualties as far as 150 feet away both fore and aft.

"The second attack occurred about the same time next day, after a day of numerous attacks on other ships. The aircraft, a

Val with one wheel shot away, or a Kate with one wheel shot down, was one of several in the raid, and is believed to have been turned away by our gunfire several minutes previously when making its first attack. In the actual suicide run, the aircraft came in from a land background at about 300 feet and was engaged by 8", 4" and close range. Due to the weaving of the aircraft and its high speed, the 8" did not hit; both high angle tables were out of action at the time of the attack owing to continuous running for long periods, so that the 4" armament was firing local barrage. Close range fire, which seemed accurate, had little effect, except perhaps to force the aircraft to hit short of the bridge structure, which appeared to be his objective.

"In the event, the aircraft struck the shield of S.2 4" and then hit the deck between the 4" mountings, where the bomb exploded and the usual fierce fire resulted. Portion of the nose of this "bomb" which was recovered showed that it was almost certainly a large calibre shell.

"Gunnery damage from these two attacks was one 4" mounting completely out of action for three days, with damaged recoil gear, and then only capable of locally controlled fire; one 4" mounting out for 24 hours, and minor damage to various close range weapons and both heightfinders.

"Although material Gunnery damage was slight, the casualty replacement caused difficulties, as practically all the 4" guns crews, upper deck supply parties, and about a third of the A.A. ratings in the ship had been killed or wounded.

"The next two attacks, by Dinahs, occurred within a few minutes of each other in a dawn attack, during which we were singled out by reason of our position on the port wing of the formation. Both aircraft came in very low, and the first one, engaged by port close range weapons and by two very brave Wildcats, was forced down short of the ship, the only damage being to the ship's side, port side aft, by flying fragments. No warning was received of this attack and the first sighting was by 40 mm. gun's crew, who opened fire and thus gave the alarm.

"The second aircraft, which came in very soon after, directly from the port beam, appeared to be making for the bridge structure but was forced down short by 4" and close range fire. The aircraft skidded along the water into the ship's side and its bomb pierced the side plating and exploded. Numerous large fragments caused small holes and minor damage.

"Gunnery damage was nil, though a temporary 5° list to port

made things uncomfortable and the large hole in the ship's side, which opened the T.S. bulkhead to the sea, made it necessary to restrict the firing of "A" and "B" turrets to starboard side only, except in air attack and surface action.

"The fifth hit of the Lingayen party came as a complete surprise, as had hits three and four, although this final one took place about noon some three hours after the assault troops had landed. Surprise was due partly to our land-locked position, partly to aircraft flying over the beaches without IFF - these are believed to have been Piper Cubs - and partly to the dust and smoke of bombard-ment, which still effected visibility. Two aircraft are known to have participated - the first one flew past us and crashed on to another ship without being fired at; the second, which was first sighted at about 800 feet, made a shallow dive from fine on the port bow and, due to the fire of two 20 mm. and one 40 mm.-the only guns which would bear - was pushed up and out so that he just grazed the 273 hut behind the bridge, left part of his wing on the foremast, doubled No. 1 funnel into a "U" and bounced over the side.

"On this experience it seems fair to make the following observations, that:

(a) THE ONLY SURE WAY OF STOPPING SUICIDE AIRCRAFT IS TO BURST A HEAVY A.A. SHELL CLOSE TO THEM.

(b) It is POSSIBLE to stop low level suiciders by CLOSE RANGE FIRE, but close range fire at diving targets seems ineffective, though it is possible that EFFECTIVELY AIMED FIRE MAY FORCE AN AIRCRAFT TO MISS.

(c) 20 mm., although they perhaps saved the bridge personnel in the final attack, are virtually useless in CRUISERS AND ABOVE FACING SUICIDE BOMBING, and the only use for these weapons in these ships appears to be as a last card against dive bombers

(d) It is essential to keep EVERY GUN FIRING AT THE AIRCRAFT TO THE LAST MINUTE. This seems very obvious and elementary, but the attacks are very terrifying - each man feels that each aircraft is personnally aimed at him - BUT IF THE AIRCRAFT ARE NOT FIRED AT THEY CANNOT MISS.

(e) ALL POSSIBLE PERSONNEL SHOULD BE KEPT OFF THE UPPER DECK.

(f) FINALLY, AT THE END OF FIVE SUICIDE HITS WE WERE STILL ABLE TO FIGHT. True, our speed was limited to a safe 17 knots, and we were short of hands, but the guns and engines were all working and WE WERE ABLE TO CARRY OUT OUR BOMBARDMENT MISSIONS. I DOUBT WHETHER FIVE HITS BY ANY OTHER WEAPON COULD HAVE CAUSED SUCH MINIMUM DAMAGE."

SECTION III

NARRATIVES

1. REVIEW OF ANTI-U-BOAT WARFARE FOR THE YEAR 1944.

"The defeat of the U-boat" said the Prime Minister in the House of Commons on the 11th February, 1943, "is the prelude to all effective aggressive operations." When he spoke the Battle of the Atlantic was moving to its crisis, and nearly sixteen months were to elapse before the greatest of aggressive operations - the landing of the liberating armies on the beaches of Normandy in the early hours of the 6th June, 1944 - was to be accomplished.

After the 20th March, 1943, the strength of the U-boat offensive began to fail and thereafter disaster fell heavily upon the enemy. Throughout the summer of 1943, while our great air/sea offensive swept over the North Atlantic, men and supplies poured unhindered into the United Kingdom, the Allies' advanced base for the assembling armies. In September, 1943, the enemy made an effort to restore the situation. He achieved only a momentary success, but knowing well what the defeat of the U-boat entailed, maintained the campaign until the middle of March, 1944. When it ended the U-boats were defeated and our forces stood victorious at the zenith of their skill.

It would detract from our achievements if some tribute were not paid to our enemies. For the U-boat captains 1943, a year of high promise, had turned into disaster; their confidence was undermined, not only by crushing losses of comrades, but also by the well-founded belief that their misfortunes were largely due to the superiority of our equipment. In September, 1943, they had been given a new weapon, the "Gnat" torpedo. Much was hoped of it and a good deal was achieved but they found that it availed them little against Coastal Command which broke up the assembling packs long before they could get within range of the convoys. The immobility which Coastal Command swiftly imposed upon them in the autumn of 1943 must have soon convinced them that their offensive was a failure, and it was not surprising that they became extremely cautious.

The Hard but Successful Fight in the North Atlantic in the First Quarter of the Year.

In January, 1944, the U-boat captains still maintained their patrol lines across the North Atlantic. Foul weather and maximum submergence kept them fairly safe from Coastal Command - which seldom failed to take advantage of an over-bold captain - but when the Escort Groups ranged over the North Atlantic in search of them, they found that mere submergence could not save them. Some of the captains showed a stubborn skill of the highest order, keeping the ablest of our Group leaders at bay for many hours. One of our enemies has a double claim to be remembered - he endured the longest hunt on record and, when the end came, took one of his conquerors to the bottom with him.

Our Anti-U-boat forces had, therefore, foemen worthy of them. It had taken us a long time to perfect the art of destroying U-boats in ocean waters. Our forces were at last adequate in numbers, possessed superiority in equipment, had learned how to combine sea and air power into one force, and had three years of fluctuating fortune and one of resounding success behind them.

By severely limiting the enemy's mobility, Coastal Command made its contribution to the successes which the Escort Groups achiev -ed in the area south-westward of Iceland (r). In the middle of February the Second and Tenth Groups were outstanding, their triumph being completed by the passage without loss of two convoys through a concentration of U-boats. Towards the end of the month the First Escort Group took up the running with the destruction of two U-boats, one of them after a record hunt lasting 38 hours, a time which Group C.2 came near to equalling a few days later when it gave a fine display of teamwork to sink "U-744". The phase ended with the destruct -ion of "U-575" on the 13th March, achieved by co-operation between British and United States aircraft and Canadian and United States surface forces.

Further south the United States task groups composed of an escort carrier and destroyers continued to sink U-boats. The Azores area, where in 1942 and early 1943 the U-boats had refuelled in peace, became so dangerous that they sought refuge in the Cape Verde Islands area, but the task groups followed them and added to their long list of successes.

Operations in other areas favourable except in the Indian Ocean

The enemy's efforts to reinforce his Mediterranean force grew more and more expensive after M.A.D. fitted aircraft had been sent to Gibraltar, and those that passed the Straits found that, in the Mediterranean, air/sea co-operation was extremely effective. On the North Russian route, where asdic conditions are almost always

bad, the enemy generally sent out at least a dozen U-boats every time that a convoy ran, and something like an old-fashioned convoy battle would take place. In February an escort carrier was sailed with J.W. 57. It was an experiment that led to success. After a long period of disappointment Fleet Air Arm pilots, flying aircraft which were never intended for arctic operations, and overcoming the disadvantages of foul weather and, in winter, of long hours of darkness, achieved a wonderful record of kills. As the year went on, the defence of these convoys came to depend more and more on them. Only in the Indian Ocean could the enemy congratulate himself on a favourable rate of exchange, but sinking of two supply ships did much to disorganize his campaign.

Activity then died down until the summer, but the enemy's operations received a check in August when a skilfully-handled force of escort carriers, frigates and sloops, hunted to destruction one of the four U-Kreuzers on patrol.

Both sides prepare for the summer operations.

In March the enemy withdrew defeated. The prelude was over and both sides now prepared themselves for their part in the aggressive operations that were to take place in the summer. Both had much to learn and to unlearn. The U-boat captains had to get over their preference for ocean operations and prepare to enter waters over which Coastal Command held absolute sway. Our groups had been highly trained in the tactics of U-boat warfare in the open ocean. There, information from Radar, D/F and aircraft, both shore-based and carrier-borne, was, with the aid of intelligent anticipation from plotting, co-ordinated by the escort commanders for the effective disposition of their forces. In the event, all these sources of information were to be reduced to a minimum; detection was to rely almost entirely on asdics, and that in waters where conditions were seldom good.

The opening of the campaign

Our first blows in the new campaign were struck in May. In Norwegian waters Coastal Command operated brilliantly, sinking U-boats which the enemy is thought to have intended to use in the English Channel. Simultaneously the U-boat force in the Mediterranean was virtually annihilated. On the 6th June news of the landings sent the U-boats hurrying out of Brest. For ten days Coastal Command struck hard and successfully - one night two U-boats were sunk in 20 minutes - and then there was an abrupt reversal of fortune as regards the English Channel, though the operations in Norwegian waters went on through the summer and were distinguished by the award of two V.C's.

The introduction of the Schnorkel

The Schnorkel completely altered the U-boat war. Largely neutralizing our air power, it greatly weakened one of the pillars on which our superiority over the U-boat had been built. Without it the enemy could hardly have hoped to maintain a force of U-boats in the English Channel during operation "NEPTUNE"; even with it he achieved little, far less than we anticipated. His targets were easy to find, for they went in large numbers, at fairly regular intervals along easily ascertainable routes; all that we could do was to guard the routes and make the approaches to them as hazardous as possible. We did not keep the U-boat captains away from the traffic lanes, but when they reached them they seemed to show an extraordinary lack of enterprise - at least until the third month of "NEPTUNE". It was then too late to do much to affect the issue, for the Allies had swept across France and the Biscay ports were invested.

After "NEPTUNE"

We had been disappointed of a holocaust when the U-boats failed to storm up the English Channel in the first week of June, and we were again disappointed when they were flushed out of their French bases. A few were caught by groups operating close inshore in areas no longer defended by the Luftwaffe, but most of them got away to Norwegian harbours, giving the United Kingdom a wide berth on their way. One or two entered the approaches to the North Channel and gave us a reminder that the U-boat arm still had some life left in it by torpedoing several valuable ships in convoy; during the summer convoys had grown larger and escorts fewer -- H.X.300 of 167 ships was escorted by a frigate and six corvettes. The loss to our resources was small but the skill with which the U-boats attacked and escaped unscathed was disquieting.

The opening rounds of the new struggle

This phase of activity did not last long. By the middle of September the adversaries had settled down to the preliminaries of another round. We patrolled focal areas, bombed the German and Norwegian bases and shipyards and made working-up operations in the Baltic as hazardous as possible by sea-mining. The liberation of France enabled us to reorganize our shipping arrangements and avoid the routeing of all traffic through the North-Western Approaches, which had been in force since 1940. The enemy sent U-boats to the focal areas but he achieved little success except in so far as he caused us to disperse our forces; in October the only merchantman lost was sunk by a Japanese U-boat in the Pacific. Certainly the German effort was widespread. U-boats operated in United Kingdom inshore waters, from the Moray Firth to St.Catherines and in the

approaches to Halifax. Two German U-boats were sunk in the Java Sea and, in December, a merchantman sunk off Sydney, New South Wales, was probably the victim of a German captain.

The battle flares up.

After three months of inconclusive sparring the battle flared up and two enterprising U-boat captains sank eight ships in the English Channel between the 18th and 28th December. Even more serious was the fact that they escaped to tell of their success. It was an unsatisfactory ending to a successful year.

The future

The fruits of our victory in the First Battle of the Atlantic were gathered when the Allied armies landed in France and drove the enemy back to his own country. It is possible that the Second Battle is about to begin.

There is, therefore, little that one can say of the future-except of warning. Using his Type XXI boats, the enemy may yet attempt a resumption of pack tactics in ocean waters, while keeping up his operations in inshore areas. Much, if not all, depends on the confidence which propagandaor successful operations can instil in the crews, and this, in turn, depends on how many captains return to tell of their exploits.

(Admiralty Monthly A/S Report--December, 1944)

(For tables showing "Rate of Exchange" and merchant ship losses to December, 1944, See Section VII).

2. U.S. SUBMARINE MAKES DARING ESCAPE FROM FOUR JAPANESE A/S SHIPS

Again a U.S. submarine was saved by lack of Jap. tenacity and courage when U.S.S. "SALMON" (SS-182) successfully escaped from four Japanese anti-submarine patrol craft within a hundred miles of the Japanese mainland. In this instance, the methods which brought "SALMON" back to Saipan safely were not any secret weapons or radical tactics - but outstanding courage, judgment and aggressive spirit.

Just after sundown on 30th October, "SALMON" was tracked and forced deep by anti-submarine activity from four Japanese frigates, after she had hit and damaged a tanker which the frigates had been screening.

While evading at 300 feet, "SALMON" heard the detonation of a series of small sono-bombs which sounded like a string of Chinese firecrackers. (It is believed that the Japanese escorts attempted to determine the submarine's range by this method.)

Then four depth charge patterns were dropped close aboard. The charges, about 30 in all, exploded above the submarine, forcing her to a depth of 587 feet. Auxiliary power was lost; hull fittings began leaking badly in the engine rooms. The combination of damage done by the severe depth charging and the excessive depth disabled practically all vital machinery. For 17 minutes the officers and men of "SALMON" fought to repair the battle damage and the severe leakage. Conning tower bilges were filling up and steering and stern planes were out. "SALMON" managed to come up to 150 feet, but dropped again like a rock when an attempt was made to level off and reduce speed. Steering by hand was possible after about five minutes, but the stern planes were stuck on hard dive.

The Commanding Officer, seeing that it was impossible to keep the submarine from going deeper and thus lose his boat, surfaced at 2030I and manned all guns, determined to fight it out with the four escorts topside.

Upon surfacing,"SALMON" was in a dangerous position. One escort could be seen down moon at about 7,000 yards range. "SALMON" had a 15 degree list to starboard and practically all vital machinery was out of commission.

Fortunately the Japanese escort made no determined effort to close "SALMON". He presented alternately large port and starboard angles on the bow. His lack of aggressiveness gave "SALMON" some much needed time.

The action that followed is quoted in part from "SALMON's" report:-

2100I -

The escort illuminated us with his searchlight at a range of about 5,000 yards, and fired a few wild salvoes in our general direction with a large gun (three-inch or larger) mounted aft and some rapid fire guns (probably 37 mm.) mounted amidships and forward.

2115I -

We had No. 2 main engine on the line and were able to save the last of our depleted battery for auxiliary purposes. Power steering was back in commission, the stern planes were fixed sufficiently to get them on zero, the auxiliary gyro compass was running, and bilges were pumped. We had about 1,200 lbs. of air in one bank and both air compressors were out with flooded motors. Radio,

VHF, and APR antennas were knocked off, but we were able to rig an emergency wing antenna for transmitting. SJ radar was flooded out by the water spout which rose from the conning tower bilges through the conning tower hatches when the upper hatch was opened on surfacing.

2130I -

Radio transmitted a message in code giving our position, and stating that we are unable to dive, and engaging escorts with gunfire.

2140I -

Other escorts about five miles distant to the southward commenced firing in the direction of the first escort and considerable confusion seemed to reign in enemy ranks for the next few minutes This group consisted of three P.C's.

Anticipate that first escort will probably try to herd us into the others. Plan to use ammunition sparingly and hope for a break. Our four-inch gunsight telescopes are out of commission leaving the open sights. Don't think we'll be able to hit anything except in very close.

2115I to 2400I -

The first escort kept us running in circles. Our best speed was about sixteen knots, and he had enough speed on us to enable him to choose his own tactics. He would run up on our port quarter, sheer out bringing his after gun to bear, fire a few rounds with everything, then repeat the same procedure over again. We held fire until he would sheer out, then opened up for about five rounds with the four-inch. We tried our automatic weapons once but the range was too great for them to be effective. We got no four-inch hits during this phase, but registered several close splashes. Our evasion tactics consisted in very slow turns using five to ten degrees of rudder when the enemy was seen to sheer out preparatory to opening fire. Time after time, his shells would burst close aboard, often splashing water on the bridge and decks, but luckily we were not hit.

His tactics were forcing us around in a big circle.

At about 2400I three escorts were in a line to the southward of us, distant 4,000 to 8,000 yards, and the first escort was to the northwestward of us. A rain squall could be seen to the southward.

First escort apparently impatient with lack of results so far, made his first determined effort to get close. He passed down

our port beam at a range of about 2,000 yards. We registered a few close splashes and a few small calibre hits. As he passed abeam of us we headed for the rain squall. His next move was to head across our course, converging on our port bow. This looked like our best chance. All guns were trained to starboard, rudder put hard left, and we passed him at about fifty yards on opposite courses. Our rapid fire weapons raked him from end to end, and one four-inch hit registered in his bridge structure, which did not explode. Two more hits or very near misses were seen as the target drew aft. He fired at us with all weapons for the first few seconds while we were close, but was silenced very shortly.

First escort drew aft, crossed astern of us to stop, although no fires were seen on him. The nearest of the other three escorts opened fire on us and commenced closing after the first one had dropped aft.

Several small calibre hits and a few close ones with the four-inch discouraged him, and he crossed ahead of us about 2,000 yards into the rain squall.

31st October - 0015I -

We were in the edge of the quall, three escorts were dropping astern, and one had disappeared ahead of us into the squall.

At 0045I we lost sight of the enemy. Came to course 130° (T) and hoped for the best.

Our opposition appeared to be confused throughout. The near proximity of several other U.S. submarines was, without a doubt, a very large factor in our getting clear. It is a fine feeling to know that friends are around.

(U.S. Fleet A/S Bulletin - January, 1945)

SECTION IV

INTELLIGENCE

1. GERMAN SUBMARINES IN SOUTH WEST PACIFIC AREA

"U-168"

On 6th October, 1944, between Soerabaja and Batavia, the Dutch submarine "ZWAARDVISCH" attacked and sank a German submarine of the 740 ton Seekuhe class. Six torpedoes were fired at the U-boat, which sank leaving only five survivors who were picked up by the Dutch submarine. Subsequent interrogation by A.T.I.S. revealed that the U-boat was probably "U-168" and that she had left Batavia on 5th October. The Ps.O.W. were the captain, three other officers and a Petty Officer.

German-Japanese Relations

The German submarine headquarters for the Indian and Pacific Ocean areas were originally established at Penang, but it is reported that since the British Eastern Fleet commenced operations against this area, a move has been made probably to Batavia or Soerabaja. All orders, however, come direct from the German Admiralty in Berlin and the German submarines operating in Japanese controlled waters have been at no time subject to Japanese control, with the sole exception of the pilot's orders while entering or leaving port. Special hunting grounds are designated from Berlin to all German U-boats and one of the prisoners stated that his U-boat had never encountered Japanese submarines while on patrol.

Interrogation reports indicate that there is very little liaison between German and Japanese submarine personnel serving in South West Pacific Area. It would appear that all effective liaison work and overall operational planning are carried out in Berlin or Tokio. The operating units know very little about each other and volunteer nothing.

No Japanese officer is ever allowed to board a German submarine at any time. If he desires to visit a German submarine, he has to obtain permission from German base headquarters. The Commander of "U-168" gave a strict order that no Japanese would ever be allowed aboard unless with special permission from the base. The

chief Japanese liaison officer at Penang is reported to be a Japanese Rear Admiral who speaks fluent German and who is very familiar with all matters German. All interpreting is done by German speaking Japanese officers.

Equipment

Schnorkel (extensible diesel air intake and exhaust) was never used by "U-168" and no Helicopter Kite was carried. The U-boat was not camouflaged; it was painted the ordinary standard grey. No yellow or white stripes and neither Japanese nor German flages were painted on the hull for purposes of identification.

No number was painted on the conning tower. It would appear that all German submarines are known by the names of their commanders, their numbers being kept secret. "U-168" was known as U-Pich, the commanding officer being Lieutenant Pich.

The U-boat was fitted with S.B.T. (Submarine Bubble Target) but this was apparently kept most secret, as the engineer officer, when questioned, knew nothing of its operation and was not even aware of its name. The crew did not know of its existence and even the mentioning of the device was taboo. It was apparently operated by the captain. The engineer officer stated that even in the building yard during the construction period when this device is fitted in, it is never mentioned by name.

As German U-boats in the tropics are not specially air conditioned, the humidity is very high inside while operating under tropical conditions. This humidity is the worst enemy of electrical precision instruments such as radar search receiver, etc., which must be checked and rechecked carefully at much more frequent intervals than would otherwise be the case. However, if very careful maintenance is kept up, no break down of any part of the electrical equipment need be feared. One of the Ps. O.W. admired the air conditioning system fitted into the Dutch submarine by which he was picked up.

Fuel Oil

The engineer officer of "U-168" stated that considerable trouble was caused to the U-boat's engines by the poor quality oil supplied by the Japanese at Penang and Batavia. He stated that it often took weeks or even months to condition the U-boat's Diesels to the fuel oils furnished by the Japanese. He knew that German U-boats made excessive smoke when using Japanese diesel oil and he stated that this could not be prevented. The oil was described as

being very dark; much darker than German diesel oil, almost black. Its smell was unpleasant. It reminded the engineer of some sort of stove oil, smelling somewhat of tar.

Operational Procedure

German submarines operating in Far Eastern waters receive their orders as to where to operate, and at what times, directly from Berlin. If the boat was, for instance, at Penang, the command -ing officer of the U-boat would receive orders to go to Batavia at a certain date by wireless from Berlin. The German commander of the base at Penang would receive the same orders, and the Japanese commander of the base at Penang would receive the same orders via Tokio.

The German and Japanese naval shore commanders would then work out a schedule for the U-boat and tell her commanding officer to report at a given time at a given position off the port of Batavia. It was the responsibility of the Japanese Navy commander at Penang to see that all Japanese shipping and aeroplanes, in the area where the German submarine was to travel, were notified of its presence.

It was assumed by the U-boat commander that all shipping as well as aeroplanes encountered would know of the presence of his submarine. No recognition signals were exchanged between other craft while en route. In the event of the U-boat being attacked by Japanese craft, a special signal would be given by the U-boat to identify itself. German submarines never receive air cover while travelling in Japanese controlled waters.

Morale

One of the captured officers stated that he was well aware that this was a war of the Japanese against the whole white race. The simple soldier could not understand why there are still white men in the Dutch Indies in positions of command, such as German Naval officers.

He got the impression that it was only a very few special Japanese naval officers, who had to deal directly with the German submarine activity, who could be considered helpful towards the Germans. As with so many Germans, he also put forward the theory that it was sheer madness that the white race should wage war against its own members instead of uniting. He thought it possible that eventually, if Japan should win this war, which he doubted, the whole white race would fight against the yellow race.

(R.A.A.F. Command Intelligence Summary - No. 2
- 10th February, 1945)

2. RABAUL

(i) Japanese Self-Sufficiency

These extracts from a recent Japanese Domei Newsagency broadcast, and therefore probably highly coloured, do at the same time, give some indication of the manner in which the enemy is able to "live off the land."

"While the battle is raging in increasing tempo in the Philippines, our troops on Rabaul are still holding their island fortress intact, preparing themselves for the day when the tide of war will turn in our favour. Although far removed from main Japanese supply bases, these hardy defenders of Rabaul are making the most of their talents, giving full play to their ingenuity to to manufacture cooking utensils, clothes and other daily needs, even mines, at their remote outpost. A number of military weapons which have been forged at this frontline base has proved their true mettle against the enemy. Nowhere has the saying "Necessity is the mother of invention" been exploited to the last letter as it has been done here in Rabaul. For instance, between intervals spent in warding off enemy aerial or land assaults, our boys are busily engaged in manufacturing sulphuric acid necessary for servicing of batteries of motorcars, overhauling automobiles into charcoal burning vehicles and forging plows and spades out of empty oil drums."

. . . . . .

"When the Japanese took over Rabaul it was nothing but wild jungle aside from the clearing which formed the enemy military base. Since then our boys have done wonders to a plantation, because of its magnitude in the midst of jungleland. Thanks to the characteristic tropical climate potato patches, tapioca stretches and truck gardens always appear alive with ripened crop. It staggers the imagination to think these troops who came with the prime object of fighting, have cleared the tangle of jungle and plowed a veritable plantation almost equal in acreage to Tokio metropolis with their home made shovels and plows for equipment and their brawny hands as the sole source of energy."

. . . . . .

"One's astonishment is increased with the thought that this largescale agricultural project has been achieved between harrowing enemy raids which come without regard to night or day. If that were not enough they had to fight against head hunters, prolific diseases and hordes of insects.

. . . . . .

"One of the happiest accomplishments here was the successful harvest of dryland rice, which is now the staple food of our garrison forces. At first various Japanese seeds seemed to be unsuitable for the tropics, but a little research and experimentation has broken down the climatic barrier. Strolling along the spacious plantation I found other vegetables besides those previously mentioned, including egg plants, cucumbers and stringbeans. Aside from these I found native plants which have been proved noninjurious also included in the army diet.

"Of course all the men must have their due share of drinks, sweets and smokes, and, believe it or not, there is a planned self-sufficiency of those things there too. In abundance an excellent frontline brew is concocted from coconuts, tapioca and potatoes. Cigarettes and cut tobacco ration varies with the season but production is sufficient to meet daily requirements of our boys.

"In speaking of Rabaul as a fortress it is best to describe it as an underground citadel. Soldiers' quarters and supply depots are all beneath the ground as part of an airraid shelter. Total length of the underground fortress which has been dug is longer than 400 kilometers. Its length can simply be spoken of in a breath, but practically speaking it is almost equal to the distance from Tokio to Nagoya. One's head simply falls with reverent respect for the diligence of our forces when it is considered that this engineering feat was achieved solely with their hands and the sweat of their brows. The combined patience and pluck required for this tremendous task speaks well for the tenacity of Japanese forces to hold on to Rabaul despite General Macarthur's air armadas and numerically superior land forces. The labyrinths of Rabaul's huge tunnels, weaving in and out of the tricky geographical features of this island makes them vastly superior to the caves of Corregidor whose pride is only in their depth of 100 meters."

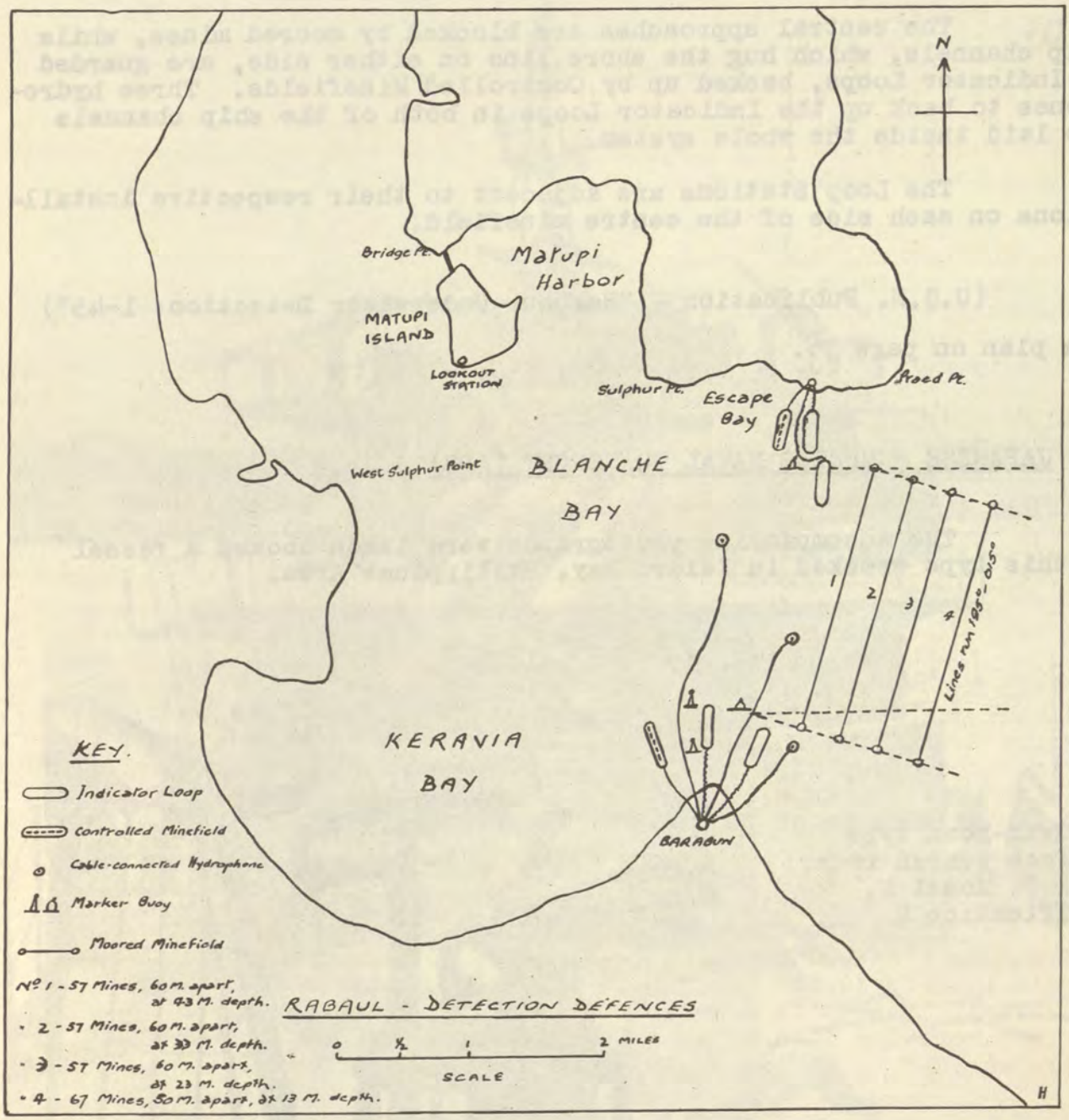
. . . . . .

"Aside from various official quarters the underground bastion has a newspaper plant which issuing a daily for the benefit of news thirsty soldiers. Next to letters from home most pleasure is probably derived from Rabaul Daily which brings to our doughty garrison here the latest happenings in Japan and the battle fronts of the world."

. . . . . .

(ii) Japanese Underwater A/S Defences

Captured Japanese plans for the defence of Rabaul show



RABAUL - Plan of Underwater A/S Defences

that the enemy has installed a very complete system of underwater defences.

The central approaches are blocked by moored mines, while ship channels, which hug the shore line on either side, are guarded by Indicator Loops, backed up by Controlled Minefields. Three hydrophones to back up the Indicator Loops in both of the ship channels are laid inside the whole system.

The Loop Stations are adjacent to their respective installations on each side of the centre minefield.

(U.S.N. Publication - "Harbour Underwater Detection: 1-45")

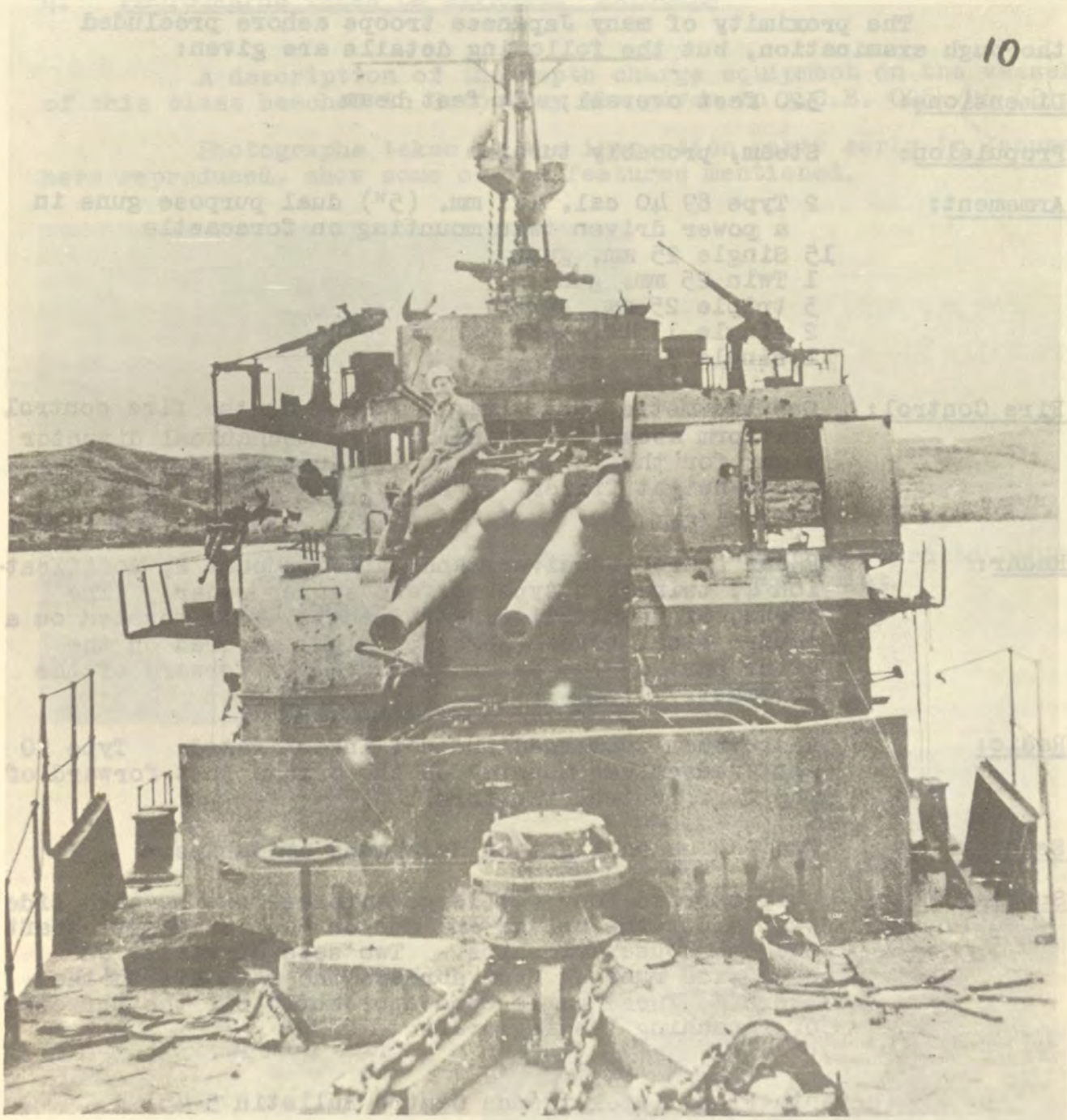
See plan on page 36.

3. JAPANESE NUMBERED NAVAL TRANSPORT (APD)

The accompanying photographs were taken aboard a vessel of this type wrecked in Isidro Bay, Philippines Area.

Twin-horn type surface search radar: Mark 2, Model 2, Modification 4.

10



View from forecastle looking aft

The proximity of many Japanese troops ashore precluded thorough examination, but the following details are given:

Dimensions: 320 feet overall; 34 feet beam

Propulsion: Steam, probably turbine

Armament:
2 Type 89 40 cal. 127 mm. (5") dual purpose guns in a power driven twin mounting on forecastle
15 Single 25 mm. guns
1 Twin 25 mm. gun
3 triple 25 mm. guns
2 single 13 mm. guns
1 single 7 mm. gun

Fire Control: One two-metre range-height finder on the fire control platform above the bridge. One mechanical director sight for the 127 mm. mounting just forward of the range-height finder. (No evidence of radar fire control).

Radar: Radar search receivers and Mark 2, Model 2, Modification 4, twin-horn type surface search radar. The horns, of identical size and shape, were mounted on a square steel tower (about 6' high) secured on the after part of the bridge immediately forward of the foremast.

Radio: Radio room submerged and not investigated. Type 90 R/T Transceiver mounted on the bridge just forward of the fire control platform.

Searchlights: One 24" searchlight on deckhouse amidships.

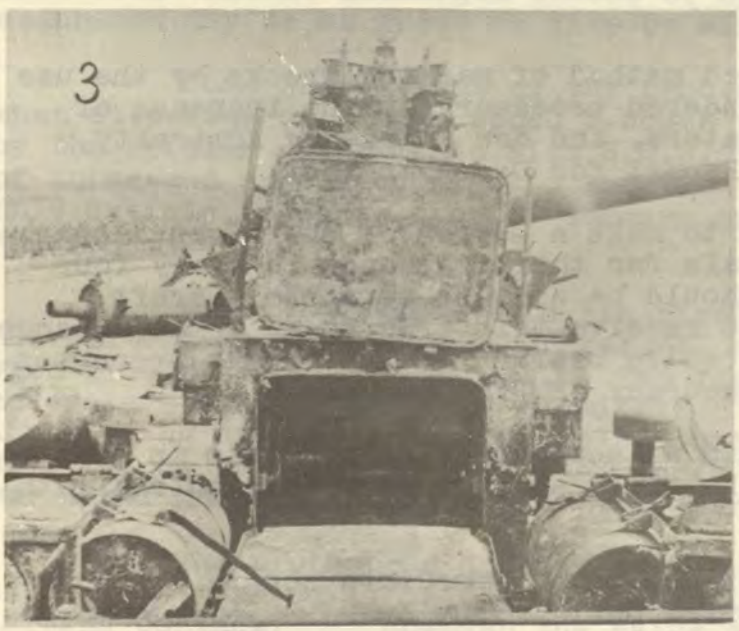
Special Equipment: Ship carried four (4) large winches, one on each side just abaft the bridge and one on each side just abaft the deckhouse amidships. Two sets of rails, on each side running from abreast the stack aft to the stern. These rails were apparently for the purpose of launching landing craft.

(Seventh Fleet Intelligence Centre Bulletin 5-45)

4. PHOTOGRAPHS TAKEN ON JAPANESE "KAIBOKAN"

A description of the depth charge equipment on the vessel of this class beached in Ormoc Bay was given in A.C.B. 0254/45 (2).

Photographs taken by the inspection party early in January, here reproduced, show some of the features mentioned.



Looking forward to Depth Charge hoist.

Looking aft, showing centre rails and several of the Depth Charge throwers on each side.

SECTION V

MISCELLANEOUS

1. WRECK-MARKERS - "WINNER"

Details of an improved method of marking wrecks by the use of special submerged buoys, rendered necessary by the increase of U-boat operations in inshore waters, and now in use by Admiralty, were given in the Monthly A/S Report for December last.

The buoy is designed to make a series of short sound transmissions at half-second intervals for thirty seconds in every four minutes on frequency "E" and should be audible on surface craft asdics, with amplifier tuned to receive this frequency, up to a range of two to three miles. The centre bearing of the buoy's transmissions can be obtained with an accuracy of five degrees.

The buoys will be laid as accurately as possible in position 1,000 yards due North of the wreck and not more than thirty fathoms below the surface.

Unless circumstances demand an immediate counter-attack, the following procedure is carried out:

After a contact in the vicinity of a marked wreck has been classified as bottomed, A/S vessels in contact are to tune amplifiers to receive "E" frequency and listen for transmissions. If these are heard, the position of the buoy is then to be fixed as accurately as possible relative to the contact. If the contact is then found to be within two cables of the reported position of the wreck relative to the buoy, it may be assumed that the contact is, in fact, the wreck. Otherwise, or if no transmissions are heard, the contact must be dealt with in the ordinary way.

In areas where two or more wrecks exist within three miles of each other the position of the marker will be given relative to one of them only. It will then be possible to plot the position of the wreck marker relative to the other wrecks.

The position of these wreck markers will be promulgated by Local Orders and Temporary Fleet Notices to Mariners.

2. TACTICAL TESTS AGAINST HIGH SPEED SUBMARINE

With the advent of the German Type XXI U-boat (See A.C.B. 0254/45 (1) - Page 32) anti-submarine personnel may be confronted by an enemy submarine having considerably increased submerged speed and endurance. The 1,600-ton streamlined Type XXI has been reported to have a maximum submerged speed of 15 knots for an hour, the endurance at two to four knots being 75 hours. There are some indications that at submerged speeds of approximately 10 knots the endurance may be as great as five or six hours.

Some indications of the problems which may be encountered when attacking such high speed U-boats recently have been obtained by the British experiments with H.M.S. "SERAPH, a submarine capable of submerged speeds of nine to thirteen knots for a limited time. This article presents a brief summary of the results obtained with "SERAPH".

As was expected with its streamlined silhouette, "SERAPH" proved to be a very poor sonar target, even at slow speed, except when presenting a beam aspect. The Type XXI U-boat also has been severely streamlined by the elimination of the superstructure and the placing of guns in retractable mounts. Consequently it likewise may be expected to be a poor sonar target and anti-submarine personnel must be constantly on the alert to detect faint echoes.

The pronounced doppler effect of a high speed target such as "SERAPH" proved to be of some value in detecting echoes and maintaining contact. However the value of the doppler effect in this respect was not as great as might be anticipated.

The very marked hydrophone effect produced at speedsin the neighbourhood of ten knots or more is both an advantage and a disadvantage to the anti-submarine ship. The obvious advantage is in detecting the presence of the U-boat and regaining contact with it after an attack by searching the bearings on which marked hydrophone effect has been obtained. On the other hand with "SERAPH" the hydrophone effect frequently was so great that the traces on the range recorder were not clearly distinguished until near the last stage of the attack. The poor quality of the recorder traces in the initial stage of the attack made the lining up of the range recorder difficult and contact frequently was lost as "SERAPH" increased speed.

During the early trials when "SERAPH" was at high speed but restricted as to course, it seemed possible to make a successful attack by developing only the leading cut-on, and successful attacks resulted fromthis technique. When, however, "SERAPH" was unrestrict-ed in course as well as speed, the fallacy of obtaining only the

leading cut-on became at once apparent. Change in doppler and bearing gave insufficient warning to prevent operators losing the target and conning officers mistaking its movements. Hence with fast submarines it seems mandatory to continue some sweeping of the target.

With a very fast submarine the plot appears to be of less value than with slower targets. The first reaction on losing contact should be to carry out a listening sweep for H.E. in the most likely sector, followed at once, if this is unsuccessful, by an all-round H.E. sweep. If these two sweeps do not result in regaining contact, it may be assumed that the submarine is no longer at high speed and the plot may then suggest the best position and arc in which to carry out an echo ranging search.

Loss of contact during the attack was almost entirely responsible for rendering abortive many otherwise successful attacks against "SERAPH". It is considered that loss of contact was caused by the small errors in ship handling and operating. This confirmed the opinion that the difficulty in attacking high speed targets is primarily due not to the unsuitability of the ships or gear to compete with the rapid movements, but to the very reduced margin of error which the high speeds leave available to the attacking anti-submarine ships.

The employment of two anti-submarine ships in co-ordinated attacks against very high speed submarines seems to be indicated. By using an assisting ship, many excellent H.E. fixes were obtained on "SERAPH", and, whereas a single ship was frequently unable to regain contact, two ships had much greater success. It appears that prolonged training is essential in order to obtain a high percentage of successful attacks against very fast submarines. The importance of such training cannot be over-emphasized.

(U.S. Fleet A/S Bulletin - January, 1945)

3. MINELAYING BY R.A.A.F. CATALINAS

One of the oldest types of Naval warfare, mining has received new impetus with the advent of the aerial mine. Formerly relegated to a defensive role, minelayers now range hundreds of miles over enemy territory and plant mines in harbours, channels and atoll entrances. Millions of tons of shipping have been sunk by aircraft-laid mines in the European theatre, and already the Japanese have learned to fear our mine-laying aircraft in the Pacific.

Aerial minelaying has one fundamental advantage over other methods - mines can be planted in enemy waters which are inaccessible to surface ships and submarines, and fields can be reinforced without laying craft being endangered by our own mines.

The use of mines against shipping has several advantages over the use of bombs -

(i) Bombs must be used against ships present, while mines may be effective over all the ship traffic through an area for a period of time.

(ii) Minelaying can be carried out under less favourable conditions.

(iii) The mine may be more effective than the bomb against shipping by causing greater underwater damage.

(iv) A bomb is less likely to find and sink a ship in a channel, causing it to be blocked.

Thus ten minelaying aircraft operating against ports used to supply an enemy base may cause more loss and confusion than 200 aircraft dropping bombs.

The first employment of mines by the R.A.A.F. was on 22nd April, 1943 when eight Catalinas of Nos. 11 and 20 Squadrons mined the approaches to Kavieng Harbour in New Ireland. From this modest beginning R.A.A.F. Catalinas expanded their minelaying operations to cover most of the principal Japanese harbours in the South West Pacific Area and to the end of 1944 had laid nearly 1500 mines, flying for a distance of more than 1,500,000 miles.

This work entails close liaison between the Navy and the R.A.A.F. Allied Naval Headquarters issues the broad directive as to the effort to be undertaken. All minelaying operations are planned by the staff of R.A.A.F. Command assisted by a Mine Warfare Officer of the Allied Naval Forces. Detailed plans are then passed to the Area and Squadrons concerned and briefing of aircrews is carried out by an Officer specially trained in Mine Warfare.

The Catalina aircraft has proved itself to be highly suited to mine-laying operations. The long distances involved (up to 1000 miles from base to target), and heavy loads carried, have precluded the use of more modern and faster aircraft. In spite of the vulnerability of the Catalina and opposition often encountered, losses incurred have compared most favourably with other types of offensive aerial warfare.

Aerial minelaying is a very specialised type of operation demanding a high standard of efficiency on the part of crews. It involves long and arduous flights to which are attached little or none of the glamour surrounding more publicised types of air operations.

Yet, against an enemy so dependent on sea communications, mine warfare is a vitally important feature of Allied activities.

4. GERMAN AND JAPANESE U-BOAT OPERATIONS

Provisional estimates for February show that 19 merchant ships totalling 77,500 tons were lost by enemy action; 13 by U-boat three mined, two by surface craft and one by aircraft. This figure compares with the revised total of 75,000 tons for January.

U-boat losses for February, based on preliminary claims, are 13 known sunk or probably sunk- five in the Atlantic area and eight in the Pacific.

Final figures for December confirm that four U-boats were sunk or probably sunk by Allied forces - all in the Atlantic area. Final merchant ship losses for December are given as 120,000 tons, comprising 26 ships - eight were lost by U-boat action, four by aircraft, six by enemy mine, one by other enemy action and seven by marine casualty.

SECTION VI

MATERIEL

1. C.A.F.O's AND A.F.O's ON ANTI-SUBMARINE SUBJECTS

C.A.F.O. 1944	Subject	Brief Description
2809	Bearing Recorder Patt. A2247	Modification to Stylus Circuit
2810	Captains Bearing Instrument A.2030	Visibility of Oscillator Pointer
1945		
31	Box Relay Patt. A.3000 (Types 144/5)	Spares
32	Telephone Gear (types 144/5 and 147B)	Allowances
34	Depth Charge Patterns for use with Depth Charge Pistols Marks XXII and XXIII.	(for use with Mark VII* light and Mark VII* heavy Depth Charges respectively)
58	Degrees of Readiness and Action Drills for Depth Charges	(for all types of A/S Escort Vessels)
59	Hedgehog Fall of Shot Trials	Provision of Clips
69	Asdic Sets types 132 and 149	Performance of-False Reports
70	Bearing Recorder Patt. A2247	Introduction of New Scales
171	Echo Sounding Sets Types 758 N/P, 761/P and 764/A in Surface Vessels.	Conversion to Type 765 Series - A's and A's.

C.A.F.O'S Contd.

C.A.F.O. 1945	Subject	Brief Description
173	Types 127/A/B/C and 128/A/B/C Asdic Sets	Forced Ventilation to Bridge Hut.
174	Depth Recorder Patt. A.2296/B and A.2297/B	Introduction of Cords, Driving Patt. A.2060 as spares.
A.F.O. 1944		
6560	Depth Charge Throwers Mark IV and IV*	Modification to Tumbler Hook
6561	Depth Charge Throwers Mark IV Series	Introduction of Carrier Safety Shear Pin.

Attention is also drawn to C.A.F.O's 2808/44, 30/45, 33, 71, 72, 107 and 120.

SECTION VII

STATISTICAL SECTION

1. CONVOYS - DECEMBER 1944 - JANUARY, 1945

During January, 1945 17 merchant ships, totalling 101,097 tons, sailed in convoy in forward areas of South West Pacific Area, a decrease from December 1944 figures, which were 23 ships totalling 134,912 tons. There was no damage to ships in convoy by enemy action.

2. SINGLE ESCORTED SHIPS - DECEMBER 1944 - JANUARY, 1945

AREA	No. of Ships		Tonnage	
	December 1944.	January 1945	December 1944	January 1945
West of Humboldt	6	6	41,490	27,258
East of Humboldt	2	7	14,392	47,387
TOTAL	8	13	55,882	74,645

3. INDEPENDENT VESSELS - DECEMBER, 1944, JANUARY, 1945

AREA	No. of Ships		Tonnage	
	December 1944	January 1945	December 1944	January 1945
Eastern States - Western States	37	40	247,516	232,156
Melbourne - South Australia	103	95	452,650	421,554
Newcastle - Melbourne	188	190	791,691	796,242
Brisbane - Sydney	117	98	526,514	361,882
Barrier Reef - Brisbane	90	65	352,343	231,479
West of Humboldt	225	112*	1,435,081	647,410
East of Humboldt (including Coral Sea)	605	403*	3,624,810	2,269,775
Arafura Sea	18	15	78,205	63,164
Total	1,383	1,018	7,508,810	5,023,662

* Marked decrease due to the fact that Merchant Ships carrying less than 500 passengers and tankers eastbound from Northern New Guinea ports for United States west coast ports and Balboa are now being sailed to Manus for onward routeing instead of south of the Solomon Islands, thus effecting considerable saving in steaming distance.

4. MONTHLY OUTWARD GROSS TONNAGE - DECEMBER, 1944 - JANUARY, 1945.

* This figure includes all sailings, for ports both outside and within South West Pacific Area.

PORT	No. of Ships		Tonnage	
	December 1944	January 1945	December 1944	January 1945
Humboldt Bay	377	529*	2,388,263	3,025,798
Langemak	260	149	1,593,162	796,283
Sydney	281	272	863,368	755,652
Melbourne	134	149	525,725	621,639
Newcastle	181	168	444,666	376,223
Biak	83	68	408,435	333,084
Fremantle	45	51	303,720	318,311
Brisbane	76	63	348,461	252,503
Milne Bay	84	58	378,165	250,948
Oro Bay	49	52	262,548	233,207
Townsville	56	49	210,318	176,223
Adelaide	33	33	143,940	165,293
Port Kembla	36	41	109,945	151,032
Whyalla	23	26	106,355	116,414
Lae	62	32	184,120	79,679
Cairns	58	55	137,884	71,822
Hobart	18	15	87,924	67,819
Port Moresby	7	14	48,949	24,366
Thursday Island	14	13	44,670	11,448

5. RATE OF EXCHANGE: MERCHANT SHIPS SUNK AGAINST U-BOATS DESTROYED

Year	U-boats destroyed, A. and B. Assessments				Average interval between destructions (days)				Merchant Ships Sunk		Average interval between sinkings (days)		Rate of exchange Merchant ships lost for each U-boat destroyed	
	German	Italian	Japanese	Total	German	Italian	Japanese	All U-boats	All areas except Indian and Pacific Oceans	Total Losses	All areas except Indian and Pacific Oceans	All areas	Losses in all areas except Indian & Pacific Oceanse, against German and Italian U-boats	Losses in all areas against all U-boats
1939	9	-	-	9	13.3	-	-	13.3	103	103	1.1	1.1	11.4	11.4
1940	27	22	-	49	13.5	9.3	-	7.5	434	435	0.84	0.84	8.9	8.9
1941	37	19	2	58	9.9	19.2	-	6.3	413	422	0.88	0.86	7.4	7.3
1942	81	25	19	125	4.5	14.6	19.2	2.9	1065	1156	0.34	0.32	10	9.3
1943	211	16	22	249	1.7	15	16.6	1.5	392	463	0.93	0.79	1.7	1.8
1944	153	-	29	182	2.4	-	12.6	2.0	78	129	4.7	2.8	0.5	0.7

Ex C.B. 04050/44 (12)

6. LOSSES OF MERCHANT SHIPS - Of all tonnages by enemy action for the period 3rd September, 1939 - 31st December, 1939, and the calendar years 1940-1944 according to areas.

Thousand Gross Tons

Year	North Atlantic		South Atlantic		Mediterranean		Indian Ocean		Pacific Ocean		U.K. Coastal Waters, North Sea & Baltic		Total	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
Sept.-Dec. 1939	56	272	8	49	-	-	1	1	-	-	150	424	215	746
1940	375	1822	9	64	14	67	23	169	14	89	547	1666 *	982	3877
1941	510	2447	19	136	107	454	14	76	152	357	313	674	1115	4144
1942	1017	5523	104	630	72	397	124	530	180	496	74	141	1571	7717
1943	285	1664	67	398	135	625	57	338	25	121	23	37	592	3183
1944	31	177	9	53	28	145	50	323	5	36	63	246	186	980
Totals	2274	11905	216	1330	356	1688	269	1437	376	1099	1170	3188	4661	20647

* This figure includes ships lost in French, Dutch and Belgian ports during 1940.

Ex C.B. 04050/44 (12)

7. SHIPPING SUNK BY SUBMARINES OFF AUSTRALIAN COAST

In the table published in A.C.B. 0254/45 (1) the time and date of the sinking of M/V "MAMUTU" (Br.) should have been given as 0010K 8/8/1942 instead of 7/8/1942.