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A.C.B. 0233/43 (3)

SOUTH-WEST PACIFIC

ANTI-SUBMARINE REPORT

AUGUST, 1943

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ARCHIVE 57

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ANTI-SUBMARINE
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SOUTH-WEST PACIFIC

ANTI-SUBMARINE REPORT

AUGUST, 1943

ANTI-SUBMARINE
WARFARE DIVISION,
NAVY OFFICE,
MELBOURNE,

CONTENTS

ILLUSTRATIONS

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

COUNTER MEASURES

1. REVIEW FOR JULY.

Submarine activity during July was confined to the Solomons Area, and Commander 7th Fleet estimated that as many as 10 submarines were operating in the area. A number of attacks were made by aircraft and surface forces. Two enemy submarines were reported sunk, but details of the attacks are not yet available.

There were no indications at the end of the month that Japanese submarines are moving south and the decline in the number of submarines operating in the Solomons in the last week of July was attributed to the fact that submarines were returning to their bases to refuel.

2. COMMUNICATIONS.

Instructions on the following points have been promulgated or are the subject of discussion with R.A.A.F. Command.

(a) Hunting Reconnaissance procedure has been adopted for use when an organised hunt is instituted.

(b) To ensure that messages are correctly received by ships, R.A.A.F. W/T Stations and aircraft will use direct method with Escort Vessels.

(c) By transmitting their call signs at frequent intervals, R.A.A.F. W/T Stations will assist ships to obtain accurate receiving adjustments. Message 011033 from C.S.W.P.S.F.

(d) Exercises between ships and aircraft are to be arranged by Naval Officers in Charge in collaboration with appropriate R.A.A.F. Authorities. Message 090146.

(e) By relaxing W/T silence on Convoy frequencies south of 25° S escorting aircraft will establish contact with escort vessels and thus ships and aircraft will be able to exercise communications. C.S.W.P.S.F. message 100345.

(f) Standard convoy call signs have been introduced.

(g) It is intended to provide an additional H/F receiver in all A.M.S. Vessels. This will enable Escort Vessels to man two lines under exceptional circumstances; e.g. BELLS and Convoy Reconnaissance frequencies could be guarded.

(h) The importance of good V/S communication between ship and aircraft has been stressed by C.S.W.P.S.F. message 061131 and the use by aircraft of their downward identification lights for night signalling has been arranged.

(i) To assist ships in knowing what action may be expected of an aircraft which sights an enemy submarine, R.A.A.F. Command has prepared a summary of reporting procedure. This procedure appears in this issue and has also been included in "South West Pacific Convoy Instructions" which is being prepared by the Division of A/S Warfare.

(j) A common signalling code has been prepared to bring about closer co-operation between all Allied Warships when hunting and attacking submarines in the South West Pacific Area. The appropriate signals will be promulgated in the form of a signal card.

3. SUBMARINE SIGHTING PROCEDURE.

Instructions have been promulgated by R.A.A.F. Command regarding action to be taken by R.A.A.F. aircraft on sighting an enemy submarine. Officers should study these instructions so that they will readily appreciate actions of escorting aircraft.

Action to be taken by aircraft by day are:-

(i) Attack the submarine.

(ii) Drop smoke floats or sea markers to mark the last known position of the submarine.

(iii) If near the convoy (i.e. within 12 miles) send an alarm report until answered. See Naval Aircraft Code Table IV.

(iv) Make an enemy first sighting report by W/T and repeat until 'R' is received. When aircraft are employed on convoy protection patrol, the ground station is to pass this message to the Senior Officer of Escort if latter does not answer the aircraft. When aircraft are employed on offensive operations the ground station is to pass this message to the area Air Operations Room by quickest

possible means.

(v) If surface craft are in sight their attention is to be drawn to the submarine by any or all of the following means:-

(a) Diving on the submarine.

(b) Firing white Verey's light (repeated as necessary).

(c) Making "S's" by Aldis Lamp amplified as necessary by plain language.

Any or all of these actions are to be repeated until it is certain that the surface craft has understood the message.

(vi) Remain in vicinity until relieved and assist the surface craft to hunt the submarine.

Action to be taken by aircraft by night:-

(i) Attack the submarine,

(ii) Drop flame floats or sea markers.

(iii) If near the convoy (i.e. within 12 miles) send an alarm report until answered. See Naval Aircraft Code Table IV.

(iv) Make enemy report by W/T and repeat it until 'R' is received. Remaining instructions as in (iv) by day.

(v) Fire white Verey's light (repeated as necessary.)

(vi) If surface craft are in sight their attention is to be drawn to the submarine by any or all of the following means.

(a) Fire Verey's Light (repeated as necessary).

(b) Make "S's" on downward recognition lamp amplified by plain language as necessary.

(c) Drop flares to illuminate submarine or oil patch.

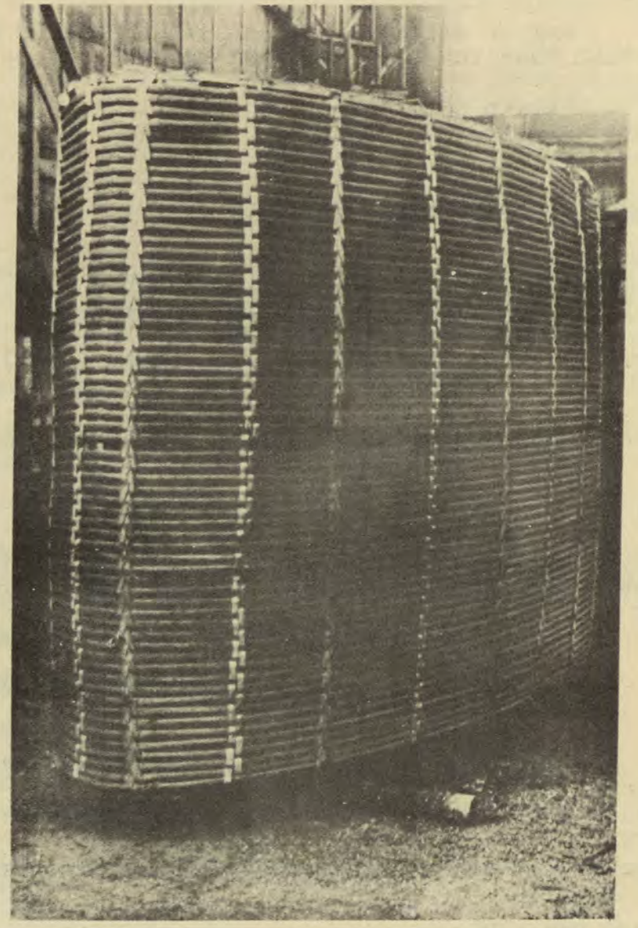
(vii) Remain in the vicinity until relieved and assist the surface craft to hunt the submarine.

N.B. Yellow Verey's lights may be used instead of white.

4. PORT A/S OFFICERS.

R.A.N. Base A/S Staffs are established at Sydney, Brisbane, Townsville, Cairns, Darwin, Port Moresby, Fremantle and Melbourne. The P.A/S.O. Port Moresby can also be made available to ships at Milne Bay in cases of emergency.

TOWED ELLIPTICAL TARGET



At Brisbane, Townsville and Fremantle an additional officer is borne to act as operational and tactical A/S advisor to the N.O.I.C.

The services of Base A/S Staffs are available to all Allied Ships. Efforts are being made to obtain handbooks of U.S. Asdic sets for issue to Port A/S Officers to assist them in carrying out repairs to U.S. ships when necessary. It is also hoped that the services of a Soundman 1st Class will be made available to P.A/S.O's staffs in the north-eastern area.

5. TRAINING.

The first towed elliptical targets have been completed and will be available for training in the near future. They consist of a composite framework of steel and wood round which is wound a continuous length of single ply rubber hose. To give negative buoyancy the framework contains about 6 cwt. ballast.

A sketch of the methods of suspension and tow is given in Appendix II. The bridle wire keeps the float vertically above the target, thus providing accurate "marking". About 150 to 200 fathoms of tow wire is normally used. During Admiralty trials, echo contact with the target beam on was obtained at ranges up to 1800 yards, contact being held down to 200 yards.

Trials recently carried out in H.M.A.S. "RUSHCUTTER" were successful and arrangements have been made to send one target to Brisbane and another to Cairns, the third being held for training at Sydney. Details of the targets and of their operation and use have been sent to N.O.I.C's Brisbane and Cairns.

H.M.A. Submarine "K 9" is undergoing trials and may be available for training off Sydney next month. Efforts are being made to have a U.S.N. submarine permanently allocated to the South West Pacific Area for training.

6. SNOWFLAKES.

Five snowflake rockets and percussion cartridges are now being supplied to destroyers, A.M.S., P.C's, and auxiliary A/S vessels and to Allied merchant ships operating in Australian waters when they sail in convoy. A pool of 50 snowflakes and cartridges has been established at Melbourne, Brisbane, Darwin, Adelaide and Fremantle, further supplies being held at Sydney.

Escorts may use Snowflakes in Operation "ZOMBIE".

P.A.C. projectors, when loaded with snowflakes, should be kept uncocked, for reports show that on several occasions the position of an Atlantic Convoy has been given away by snowflakes being fired accidentally. A rocket may be visible for as much as 50 miles.

Snowflake rockets may explode prematurely if they are exposed to the weather for any considerable time.

The executive signal to open fire with Snowflakes is the firing of not less than two white rockets. Fire is to be opened immediately on sighting a U-boat, and during the period of illumination lookouts should make full use of the flares put up by other ships.

7. R.A.A.F. CONVOY ESCORTS.

Arrangements have been made by N.O.I.C. Sydney for Commanding Officers and other officers of escorts to embark in aircraft employed as convoy escorts. This has been made possible by 107 Squadron Rathmines, some of whose officers may take passage in A.M.S. when off duty.

It is hoped that personnel of both services will, in this way, learn and appreciate each other's difficulties and that more effective teamwork between ships and aircraft will result.

8. HUNTS TO EXHAUSTION.

The following is an extract from a U.S.N. publication:-

"A U-boat forced to submerge with batteries not fully charged will endeavour to surface and complete the charge as soon as it is considered safe to do so. In view of this, it is emphasised that aircraft and surface craft should press home and continue attacks and remain in vicinity of a diving U-boat as long as possible. Be ready to ram or sink with gunfire if the U-boat is forced to surface."

The Atlantic A/S Warfare Unit, commenting recently on an escort's action after an attack on the convoy stated:-

"Abandonment of search and attack on a known submarine 18 minutes after the third attack, with 33 depth charges remaining on board, is not understood. The report states that search was abandoned

because "Darkness was closing in rapidly and, as convoy was now almost an hour's run away at full speed, it was believed that instructions, directing that convoy should not be left to make attacks unless contact close at hand, should be followed." The origin of this doctrine was not stated in this report. The soundness of any doctrine which requires abandonment of continued offensive action against a submarine whether close at hand or otherwise is seriously questioned. Cases of depletion of escorts of convoys of 60 ships with valuable cargoes for the purpose of vigorous anti-submarine offensive action have been commended in the past.

"It is further noted that though darkness had almost set in, it was still not too dark to observe and recover a sample of oil. The time spent in recovery might better have been occupied in further search for an attack on the source of the oil. When the apex of a slick can be sighted, valuable information can be obtained as to target movement and position when combined with sound contact ranges and bearings."

SECTION II

ENEMY ACTIVITY

1. JAPANESE SUBMARINE ACTIVITY - MAP FOR JULY.

See Appendix I at back of this report.

2. ANALYSIS OF ENEMY SUBMARINE ATTACKS, 1943.

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
JULY	None Reported	-	-	-	-

SECTION III

NARRATIVES

1. AIRCRAFT ATTACK ON A.S.V. CONTACT.

An R.A.A.F. bomber attacked a surfaced Japanese submarine 54 miles south west of Cape Orford on July 25.

The bomber made A.S.V. contact at 0314K, and two minutes later passed directly over a large submarine at 800 ft. The aircraft did a port circuit while losing height and dropped a flare. Two depth charges were dropped, and one was seen to fall close against the starboard side of the conning tower.

The submarine then partly submerged. The pilot and observer saw the "shimmer" prior to the actual depth charge explosion encompass the submarine and then the enemy was completely covered by spray from the explosion.

The area was searched for half an hour, but the submarine was not seen again.

2. ESCORT-CARRIER'S SUCCESS.

The success of Naval Aircraft in attacking U-boats is strikingly illustrated by this Admiralty and Air Ministry communique. The use of escort-carriers, whose aircraft provide cover over the "mid-Atlantic gap", has already proved most effective.

"Complete shore to shore air cover was provided by carrier borne aircraft of the Fleet Air Arm working in co-operation with land-based aircraft a few weeks ago, assuring the passage of another valuable convoy across the Atlantic without interference from powerful forces of U-boats. The convoy was also protected by surface escorts.

Close air cover was provided during the initial stage of the passage by Hudson, Ventura, Liberator and Catalina aircraft of the Royal Canadian Air Force, Eastern Air Command, and, during the final stage, by Liberator, Sunderland and Halifax aircraft of the Royal Air Force Coastal Command.

The mid-Atlantic air "gap" between the extreme escorting

ranges of these shore based aircraft was bridged by Swordfish and Martlet aircraft from the escort-carrier "ARCHER". In a series of attacks which extended over two days, one U-boat was destroyed, another probably destroyed and others may have been damaged.

Actions began when a U-boat moving in the direction of the convoy was sighted on the surface by naval aircraft. Aircraft attacked with depth charges and forced the submarine to dive. Next morning a U-boat proceeding at periscope depth many miles from the convoy was attacked by another aircraft of the Fleet Air Arm. Depth charges straddled the submarine abreast the conning tower. After explosions no further trace of the U-boat could be observed and it is considered that this submarine was probably destroyed.

About this time Liberator aircraft of a Coastal Command Squadron which has made many successful attacks on U-boats, sighted a submarine to the eastward of the convoy and attacked it. The result of this action is not known. During the course of further patrol, two naval aircraft engaged a U-boat on the surface, forced it to turn sharply away and dive. One of the aircraft scored many hits with gun-fire on the conning tower as the U-boat sank beneath the surface. A second aircraft flew over the swirl dropping a pattern of depth charges. The result of this attack is not known.

Other aircraft on patrol from "ARCHER" sighted a U-boat on the surface 200 miles from the convoy. Aircraft, taking advantage of cloud cover, carried out attacks on the U-boat which was severely damaged. The submarine made repeated and unsuccessful attempts to dive. It was left on the surface turning in slow circles with oil pouring from its tanks. Several of the members of the U-boat's crew manned the forward gun, but machine gun fire from aircraft forced them back under cover. Later the enemy abandoned ship and shortly afterwards, listing to port, the U-boat slewed over and sank. A number of survivors were picked up by the destroyer H.M.S. "ESCAPADE" and were made prisoners of war."

3. A "KILL" UNDER DIFFICULT CONDITIONS.

The following story of a successful U-boat hunt during an Eastbound Atlantic convoy was prepared by the U.S. Atlantic Fleet A/S Warfare Unit.

"The convoy was steaming at 9 knots when an HF/DF bearing of an enemy unit transmitting a sighting report was obtained by Escort A at 1410. The enemy unit was estimated to be within 20 miles and Escort B, who was on the starboard quarter of the convoy, was ordered to investigate. At 1426 Escort B reported U-boat in sight bearing 250°,

distant 10 miles. Eight minutes later the U-boat submerged and by 1500 Escort B had reached the estimated diving position and had begun an Asdic search.

Escort A was steaming in to assist at 23 knots. The proceedings were somewhat dampened by large volumes of water arriving on the bridge due to the high speed on a course into the Atlantic swell, and also by gloomy quotations from the "book of words" as to the number of ships required to give a good chance of detecting a U-boat known to have submerged at such a distance.

However by 1531 Escort A was in a position 2,000 yards on B's beam, and was organising a search when a periscope was seen about 200 yards on A's beam. The U-boat was preparing to fire torpedoes at Escort B, and it seems certain that the enemy had no idea that a second destroyer had joined the hunt. The explosion of a pattern of 14 charges set shallow must have been particularly startling to the U-boat's Captain. It was later learnt from a survivor that one torpedo had actually been fired at B.

Escort B fired a pattern by eye at 1540 and Escort A was unable to obtain contact after her initial attack. Escort B, however, carried out 2 more attacks, but when Escort A was unable to confirm the contacts a rectangular search was organised. At 1715, Escort A gained contact at 1900 yards and attacked with a 14 charge pattern; contact was lost at 500 yards, indicating that the U-boat was deep. Contact was not regained astern until 1754, but a number of non-sub contacts were investigated, and it is possible that the U-boat had discharged S.B.T. (Submarine Bubble Target).

Then a firm contact was obtained at 600 yards, and Escort A turned away to open the range. Another attack was made with 14 charges set deep, contact again being lost at 450 yards. Two more attacks were carried out each with 14 charges. During this time Escort B had kept clear, presumably to avoid laying wakes across the target, but Escort A's supply of depth charges was rather depleted and Escort B was ordered to close and join the attacks. She made her first attack at 1858 and 10 minutes later while running in for another attack sighted the U-boat on the surface.

A gun action took place followed by an attempt at ramming by Escort B. Escort B's attack had caused a few of the U-boat's crew to abandon ship, but the U-boat again set off at high speed. Escort A kept both 10" signalling projectors on the U-boat and the glare no doubt upset the U-boat Captain's appreciation of the situation so that finally a perfect ramming position was obtained. At 1940 the submarine was rammed abreast the conning tower at right angles and sank at once.

Escort A's Commanding Officer, commenting on this last stage of the attack, said "it is possible that the use of dazzle effect of searchlights trained on a U-boat's conning tower is not sufficiently

appreciated and it was certainly not in the front of my mind until the blatant mistake by the U-boat's Captain in the last stage of the chase led me to search for the reason for it. One hears of snowflake rockets being used under similar circumstances but these give an equal advantage to pursuer and pursued, and I feel that wherever possible a searchlight should be used in preference."

4. JAP U-BOAT OFFICERS QUESTION SURVIVORS.

A Japanese submarine which torpedoed S.S. "HENRY KNOX" on June 19 later signalled the survivors to come alongside her in their boat and two Japanese Officers interrogated them.

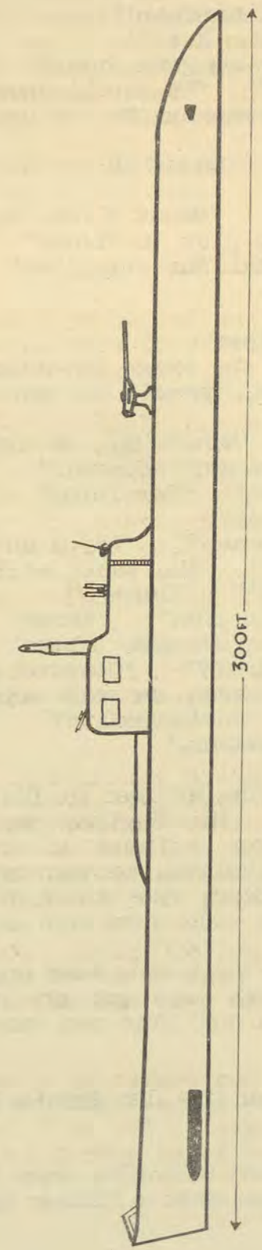
Carrying a general war cargo, "HENRY KNOX", a U.S. ship of 7,000 tons sailed from Fremantle on June 5 and at 1850 on June 19 was torpedoed on the port side abreast No. 3 hold. The torpedo exploded after it entered the hull and blew the cargo, some of which was on deck, over a wide area. The sharper explosion of the torpedo was followed by concussion and a duller rushing sound - some of the crew believed that two torpedoes had struck the ship, but others stated that the second explosion was the smokeless powder cargo blowing up.

The explosion showered the vessel with burning powder and other debris, setting the deck cargo on fire. This made it impossible to prepare fire fighting equipment, and the crew could not get to their boat stations.

The attack took place during the "alert" period when the gun crew and extra lookouts were at their stations. The Master, Captain E.M. Olsen said that the entire for'ard deck was in flames, and that the fire could not be fought. Three boats were dropped into the water and some of the crew including the Captain, Chief Officer, and Assistant Engineer escaped from the burning ship.

All the boats rested about 500 yards from the ship, and at about 1930 the 1st Mate in No. 2 boat observed a submarine 70 yards away. The submarine passed 20 yards away and signalled the boat alongside with a flashlight.

As the boat approached the submarine a Japanese Officer in broken English said: "You must tell the truth or we can kill you. Understand?" The hail was answered with "We will tell the truth." Members of the ship's crew were then asked questions which were substantially as follows:-



Diagrammatic Design of Japanese Submarine which Torpedoed S.S. "Henry Knox"

"What is the name of the ship?" "HENRY KNOX"
"What is the nationality?" "American"
"Where was it bound?" "Persian Gulf"
"Is the Captain or 1st Officer in your boat?" "No."
"What boat is the Captain in?" "We don't know"
"Where is the Captain?" "He was on the bridge, we think he was killed"
"How many persons on board?" "About 46 or 47."
"Any Navy personnel?" "No."
"What is the ship's tonnage?" "About 7,000 tons"
"What was the speed?" "About 9 or 10 knots"
"What was her cargo?" "General war supplies"
"Any airplanes?" "Yes"
"How many?" "Maybe fifteen"
"Any powder, ammunition?" "Yes"
"What else was carried; list the cargo in detail"
"Airplanes, trucks, ammunition, tyres. It was marked general cargo"
"Again, how many airplanes?" "About 50; we don't know as the ship was loaded before we went aboard."
"What was the ship's home port?" "New York"
"When did she leave?" "March 22"
"Were there any battleships there?" "We didn't see any"
"Did you stop at any islands?" "No, only at Perth"
"When did you leave Australia?" "June 5"
"How many ships left Perth with you?" "None"
"Weren't you in convoy?" "No, we came alone"
"Was there much shipping in Perth?" "Several ships were there"
"About how many?" "We don't know, we were only there three days"
"What cargo did you discharge in Australia?" "None, we only stopped to take oil and water."

During the questioning the Officer in Charge remained on the top deck of the conning tower. His English was at times unintelligible, and some of the questions and most of the answers were relayed by a junior officer whose English, though not fluent, was easily understood. The junior officer, who stood on the main deck outboard of the conning tower, wore side arms and carried binoculars.

About the same time the Captain's boat approached the submarine on the other side to rescue some men who had been clinging to floating debris. Three officers and four men were picked up from a raft.

A spotlight was played on the 1st Mate's boat and some of the questions were repeated.

A sail and some charts and biscuits were taken by the junior Japanese officer. A type of camera with a filter lens was being used on the submarine's deck.

The Japanese crew who were dressed in clean khaki shorts, short sleeved "V" neck blouses and sandals, appeared well fed and quite elated at their success. About 30 of them crowded the deck and conning tower smoking cigarettes.

The submarine then steamed off and the three boats set off on a north-easterly course, the men landing 8 days later on Mamigili Island, where they were given food. Next day the survivors sailed for Male and thence to Colombo.

SECTION IV.

INTELLIGENCE

1. JAPANESE SUBMARINE CONSTRUCTION.

Although the construction of submarines in Japanese shipbuilding yards has been speeded up under war conditions, it is interesting to note the length of time taken to build U-boats in the last 10 years.

Of six "I-100" Class submarines called for under the 1931 programme, one was completed in three years, four in four years and one in six years. The 1934 programme provided for the construction of only four boats - "I-7", "I-8", "I-174" and "I-175". Of these "I-7" was built in three years and the others in four years.

The 1937 programme showed an increase in the number of boats ordered, and of the 13 "I" Class submarines called for, one was completed in two years, 10 were built in 3 years and two in four years. The average time from the adoption of the programme was decreased from about 4 years in 1931 to about 3 years in 1937.

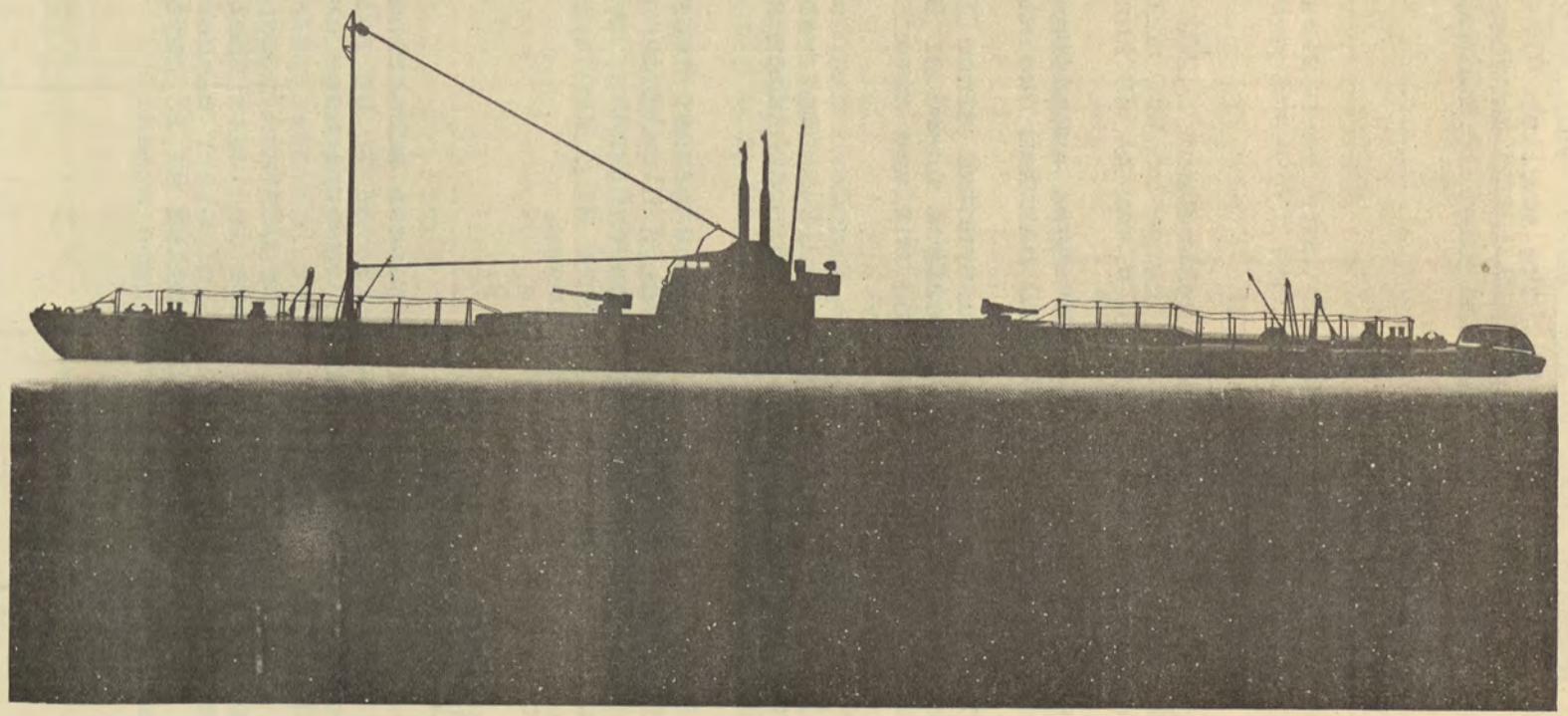
It is possible that about 40 boats will be built in 1943, against about 28 in 1942, but it is expected that more of the smaller types are called for in 1943.

The following figures, extracted from a document taken from "I-1" were compiled in October, 1941.

Construction Yards.	U-boat building capacity, 1939.		U-boat building capacity October, 1941	
	Medium	Large	Medium	Large
Kure	3	2	6	3
Yokosuka	2	1.5	6	3
Sasebo	1.5	1	6	3
Kobe	2.5	2	6	3
Mitsubishi	2.5	2	4	2
Tama	1	1	2	1
Maizuru	Nil	Nil	1	.5
Total	12.5	9.5	31	15.5

SILHOUETTE OF "I" CLASS SUBMARINE

This silhouette was made from a model of a Japanese "I" Class submarine built from plans captured in "I-1".



It appears that by the end of 1941 large "I" Class boats were completed in about 20 months, the smaller "I" Class boats in 14 to 16 months, and the "RO" class in 8 to 12 months. Building time has probably been reduced during the last 18 months.

2. NEW SUBMARINE TYPES.

Several new designations have been given to Japanese Submarines which have been built since 1939 and are under construction under current programmes.

"A" type - Standard displacement 2,200 tons, surface speed 22 knots, submerged speed 8 knots, range 16,000 miles at 16 knots. Submerged endurance of this type is given as 60 hours at 3 knots.

"B" type - The first "B" type submarines (of which there are about 15) were similar to "I-15" and carried one aircraft.

The "B" type boats constructed since 1941 have a standard displacement of 2,100 tons and a surface speed of 22 knots. "I-15" has a displacement of 2,190 tons and surface speed of 23.6 knots.

"Navy Ministry" type - Standard displacement 1,610, surface speed 23.5 knots, submerged speed 8 knots, range of 8,000 miles at 16 knots. This class has 6 bow torpedo tubes and four 23 mm machine guns.

"Medium" type - These may either be improved "RO" Class boats or modified "I" Class. Standard displacement is 950 tons, surface speed 20 knots, submerged speed 8 knots, range 5,000 miles at 16 knots, endurance submerged 60 hours at 3 knots. This type carries 10 torpedoes and has four torpedo tubes.

3. SURFACE CRUISING RANGES.

Cruising ranges of Japanese submarines vary considerably. The following figures, which are believed to be reliable, were taken from documents recently captured in the Solomons area.

Performance figures for certain types are not available but the designed range of these boats indicate that their surface cruising range greatly exceeds that of other classes. "I-9" and "I-10" were designed to travel for 16,000 miles at 16 knots, and the "I-15" Class to steam 14,000 miles at the same speed.

Surface Cruising Ranges

Type	Knots	Miles	Type	Knots	Miles
I-1,2,3,4	14	12,400	I-153 Class	14	6,970
I-5	14	12,700	I-161 "	14	7,350
I-6	14	11,150	I-165 "	14	7,960
I-7,8	14	15,130	I-168 "	14	10,500
I-121,122,123	10	12,010	RO-33,34	10	11,000

4. U-BOAT RADAR DECOYS.

The Admiralty has received reports which indicate that U-boats may be releasing a Radar decoy which consists of balloons about two feet in diameter with wire, 4 to 6 feet long, attached.

It is not yet clear whether the balloons are free, or whether they have a sea anchor. These decoys could be used effectively at night or in low visibility and would be analogous to the use of S.B.T. against Asdic.

5. DEEP U-BOATS.

Admiralty reports show that considerable progress has been made with depth predicting sets and some ships have been fitted. Attachments for keeping contact with deep U-boats are being fitted to a number of escorts.

6. JAPANESE SUBMARINE PLAN.

A plan of an "I" class enemy submarine will be found in Appendix III. Drawn from captured Japanese documents, the plan shows

the submarine's compartments and the location of Captain's and Officers' cabins, radio room, and the more important electrical installations.

SECTION V

MISCELLANEOUS

1. U-BOAT LOSSES.

First German technical "explanation" for the recent heavy U-boat losses is that the "British have a new anti-submarine mine which, dropped from aircraft or destroyers, finds its mark even at great depths."

The French newspaper "Petit Parisien", which is now Nazi-controlled, said: "The mine is so efficacious that it necessitated the recall of almost the entire German underwater fleet for fitting of new protective devices."

2. SHIP-AIRCRAFT COMMUNICATION.

The following extracts from comments made recently by the U.S. Atlantic A/S Warfare Unit are included because they apply to problems which have arisen in the South West Pacific Area.

"The failure to establish communications with aircraft is noted again. The importance of instant and efficient communications between surface ships and aircraft participating jointly in escort of convoy operations cannot be overestimated. It is recommended that in all commands efforts be redoubled to bring this particular phase of communications to the highest standard possible".

. . . . . .

"Communications, particularly between surface vessels and aircraft, have left much to be desired in the past. Radio communication with aircraft has been practically non-existent.

The statement that difficulty in visual communication is caused by "lack of ability of the plane signalmen" is considered to be an unwarranted assumption. The human tendency to assume that the other fellow is always wrong is common. It must be realized that signalmen in aircraft have certainly as much difficulty to overcome as those on surface ships and probably a great deal more since they have a number of simultaneous functions to perform while the signalmen on a surface ship has only one. The problem is analogous to signalling through the ports of a slowly revolving deck house and requires patience and intelligence on the part of both parties."

3. ANTI-U-BOAT SUCCESSES.

The sharp increase in U-boat sinkings in the Atlantic during 1943 has been due to several main factors, not the least of which has been the improved efficiency and team-work of convoy escorts.

Shore-based aircraft have been used extensively from England, Iceland, Canada and the United States. The "mid-Atlantic gap" has largely been covered by aircraft from Escort Carriers, and a good account of recent carrier aircraft activity is given in Section III.

Support groups, which are destroyer hunting units, have been successful. In addition to acting as an effective Anti-Submarine Striking Force they have reinforced convoy escorts in dangerous areas.

U-boats have been heavily attacked and there are indications that they are losing their punch. They have not shown the skill and tenacity that made them so formidable earlier in the war. Recent reports show, for instance, that they have retired on the surface at high speed when illuminated even though they had not been attacked.

A Lesson for Us

We must improve our ship efficiency by more thorough training. Remember that synthetic training is better than none at all and that if one ship is inefficient the Group cannot function as it should.

We must improve our Group efficiency by exercising communication as a team. Simplicity in communication can only result from close teamwork. Only a group co-operating as a team will score points and register wins.

4. ADMIRAL LUTZOW SPEAKS.

Admiral Lutzow recently gave a talk in German over Berlin Radio on "The Battle of the U-boats". He said:

"When this war began the English thought that, despite the U-boats, they could continue with their old methods of warfare. So in 1939 Britain again tried to institute a blockade. An American officer, Lieutenant Herman, has written a book in which he says that if Britain were justified in relying on defence, she would already have won the war. It would not have been necessary, after

the Balkans adventure, for a British Prime Minister to consider it a matter of congratulation that 40,000 Allied troops had been able to save themselves. The German Army would have been encircled in Europe.

When the strength of our U-boats became apparent, the enemy sought to overcome them by increased use of aircraft, and by overpowering neutral countries such as Iceland for use as bases. The reply of our U-boats was to hunt in packs instead of singly.

But it must be remembered that our U-boats are working under great difficulties and that from the time they leave port to the time they return they are facing an uninterrupted hard struggle. They are subject to attack while searching for a convoy, and while returning from an attack. Nevertheless they have been able to sink 31,000,000 tons of enemy shipping. The enemy is being continually warned by its leaders not to underestimate the U-boats. And this warning is justified."

Admiral Lutzow finished with a quotation from a German poet, the moral of which was that difficulties and hardship would bring out the best in the German people in their epic struggle.

Meanwhile shipping losses in the Atlantic had dropped to such a low figure, and sinkings of U-boats had risen so sharply, that German naval commentators in Press and Radio were making regular apologies for the U-boats' failure.

5. U.S. DESTROYER ESCORTS.

The U.S. Navy has evolved a new type of warship specially designed for anti-submarine warfare and convoy protection. Described as a cross between a corvette and a destroyer, the new craft is known as a "DE" or destroyer escort. More powerful and effective than the corvette, the "DE" lacks some of the destroyer's power, speed and armament.

It has a displacement of 1,300 tons, a speed of probably 25 knots, a waterline length of about 300 feet and a beam of 35 or 36 feet. Its armament includes light deck guns, but emphasis is on depth charges and anti-aircraft guns. Torpedo-tubes are included for use against surface raiders.

Designed as submarine killers by Rear-Admiral E.L. COCHRANE, Chief of U.S. Navy's Bureau of Ships, each ship requires about four month's for construction - less than half the time necessary to build a destroyer. "DE's" carry a large number of Depth

Charges in addition to the Hedgehog.

6. U.S. ATTACK ANALYSES.

A statistical survey of 866 analyses of action reports by surface ships has been made by the U.S. Atlantic Fleet A/S Warfare Unit. Results of this survey are as follow:-

(1) Of the 866 attacks only 3 resulted in sure sinkings, with bodies or survivors picked up.

(2) Only 5 attacks were classified as resulting in probable sinkings. Two of these are classed as probable only in view of doubt as to the target being a submarine or a wreck.

(3) Of attacks not classified as resulting in a sinking, 265 were classed as definitely submarine contacts. Classification by the Unit based upon the analyses was as follows:-

Damage	- 25
Probable Damage	- 23
Possible Damage	- 46
No damage	-171

Eighty were classed as "Probable Submarine", 371 were classed as "Possible Submarine", and 142 were classed as non submarine targets.

7. JAPANESE SHIPBUILDING.

Macassar Radio, on July 7, broadcast the following announcement:-

"Heavily laden with cargo and passengers, the first vessel completed by Nippon shipbuilders in the south arrived here following her maiden voyage from Borneo. With the exception of its masts and engine, the ship was built with excellent materials produced in Borneo and is capable of keeping up a good speed."

The "ship" is believed to be of the small wooden island type.

SECTION VI

MATERIEL

1. MOUSETRAP PROJECTILES.

The following are extracts from Cominch's Confidential letter dated 17th June, 1943, Serial 01991.

> "An explosion, fatal to six men, occurred recently on board an S.C. engaged in overhauling Mark 131 fuzes for Mark 20 Mousetrap projectors."
>
> "The fuze required a special spanner wrench to make fuzing and defuzing safe for personnel. This was noted in Bureau of Ordnance Pamphlet OP-953, but the pamphlet does not state that its use is mandatory. However, unless the special spanner wrench is used, it is possible to unscrew the plug of the fuze from the body by the application of force. This has the effect of arming the fuze, in spite of all the designed safety measures - the safety pin, the set back collar, the shearing wire and the arming vane in the unarmed condition. While the fuze has been issued to the service, the special spanner wrench has not, since only now is it in the process of manufacture. The first 500 will be shipped in lots of 50 directly to 10 ammunition depots on June 2, 1943. The date of final shipment of the 4,000 wrenches should be June 10, 1943."

The attention of Commanding Officers of U.S. ships fitted with Mousetrap is directed to Ordnance Pamphlet 953.

2. DEPTH CHARGES.

There has been some confusion in R.A.N. ships as to the method of firing depth charges with the modified firing cam fitted to A/S 3 Recorders.

Where this cam has been fitted, the first charges should be fired as before, the only difference being that the Recorder should remain in "Scale 25". Subsequent charges are fired by moving the cam to "centre" and "last".

Where the modified cam is not fitted, Recorders should be used in "Scale 25", the first charges being fired as previously. With a standard five-charge pattern the centre charge is to be fired 8 seconds after the first, and the last charge after a further 8 seconds. A ship will steam 60 yards in 8 seconds at approximately 14 knots. C.A.F.O. 127/43 and Admiralty General Message 041328B refer.

U.S. Ships fitted with A/S 3 Recorders should draw the modified cams and pointers from the Port A/S Officer at their nearest base.

3. CALCIUM FLARES.

There have been reports lately of calcium flares failing to ignite or burn when dropped to mark the position of a depth charge attack.

The attention of Commanding Officers is drawn to the fact that calcium flares will not float and should be attached to a piece of wood large enough to give positive buoyancy. The best method is to nail or bind two pieces of light wood into a cross, attaching the calcium flare to the centre.

If the cap on the flare is broken and the flare immersed in water for a few seconds prior to releasing, correct functioning will be ensured.

Commanding Officers should make certain that four or five calcium flares are attached to pieces of wood and stowed aft in a dry place. One flare should be dropped over the side when the centre charge of the pattern is fired.

4. A/S DIRECTING GEARS : REFIT, INSPECTION AND SURVEY.

The handbook for British Asdic Set Type 128 (C.B. 1970(39) R, para. 81) provides that every two years, on occasion of annual refit, the trunk should be lifted clear of the seating for the purposes specified.

In view of the continuous service to which directing gears are now subjected, it is considered important that this routine be carried out and a full survey effected. Observing that extra time in dock (up to a day under normal circumstances) will be required, this information is given in advance so that the necessary arrangements can be made in appropriate cases.

Appropriate years and ships concerned (for 1943 and 1944) are as follows:-

1943: Refit - BALLARAT, BENDIGO, DELORAINE, KATOOMBA, LITHGOW, MILDURA, TOWNSVILLE and WARRNAMBOOL.

1944: Refit - ARUNTA, BOWEN, BROOME, BUNDABERG, BUNGAREE, COLAC, CASTLEMAINE, DUBBO, ECHUCA, GEELONG, GLENELG, GYMPIE, HORSHAM, LATROBE, PIRIE, ROCKHAMPTON, WAGGA, WARRAMUNGA and WHYALLA.

Ships concerned should insert an item in the appropriate defect list to cover this survey.

5. C.A.F.O.'s ON A/S SUBJECTS - 1943.

C.A.F.O.	Subject	Brief Description	Work By
641	U.S.Submarines	Change in appearance	-
717	Depth Charges	Maximum speeds for dropping	-
719	Hedgehog	Recommendations	-
725	Asdic Sets	Fitting of Suppressor Units	S.S.(B)
727	Bearing Plotters	Difficulty in Lining Up	S.S. B.S
728	Recorder A/S 3	Conversion	B.S.
729	Recorder A/S 3 and A/S 59	Modification to firing scale	B.S.
785	Type 132	Warning re H.F.M.A. output	S.S.
786	Type 132	Voltage control of rotary converter	S.S.
848	Housing Dome Sets	Damage to D.G. - Precautions	-
849	Depth Charges	Patterns for M.L's	-
892	Asdic Sets	Report	S.S.
893	A.V.C. Receivers	Valve allowance	-

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

The following should also be noted where they apply:

C.A.F.O's:- 654, 658, 669, 716, 726, 754, 858, 879, 880, 891, 894.

6. HYDROPHONE SETS.

The provision of hydrophone sets, Admiralty type 712, for certain patrol craft which are unsuitable for fitting with Asdic equipment is under consideration.

It is considered that this type of hydrophone, which is simple to operate, would be of value in craft which may be employed frequently on stationary and other patrols in the approaches to ports for the detection of enemy submarines.

The set is easily and quickly transferable from one craft to another, the only permanent fixtures in each craft being two small deck-plates recessed into a wooden deck pad and stowage stocks for the portable outboard portion. Many vessels may be fitted "for" type 712, but only sets sufficient to provide for each duty craft suitably employed at any one time are required at each port.

7. U.S. DEPTH CHARGE PROJECTORS.

The following report of failure of U.S. depth charge projectors was rendered to the U.S. Atlantic Fleet A/S Warfare Unit.

"There was one casualty during the depth charging; the firing key contacts on projectors 3 and 5 stuck after being closed to fire the first pattern. On loading projectors 3 and 5 preparatory to the scond run, the projectors fired on closing the plug after insert -ing the impulse charges. As a result of this the second pattern contained only 7 charges instead of 9."

The cause of the firing key sticking was believed to have been corrosion on the outside of the firing button casing. This caused the firing button to stick when pushed in as the spring was not strong enough to return it to the open position. This corrosion was not visible from the outside of the unit as the brass shield, used to prevent accidental firing, breaks the view of the firing button.

8. MAGNETIC SUBMARINE DETECTOR.

Trials of the U.S. Shipborne Magnetic Submarine Detector were recently carried out, an Echo Sounder (fathometer) being used at the same time.

The two instruments gave equally good classification of targets at ranges up to 150 feet (25 fathoms) but, owing to the greater directional properties of the Echo Sounder, there were cases when the submarine was detected by SMSD but not by E/S. SMSD, however, does not indicate the depth of the target.

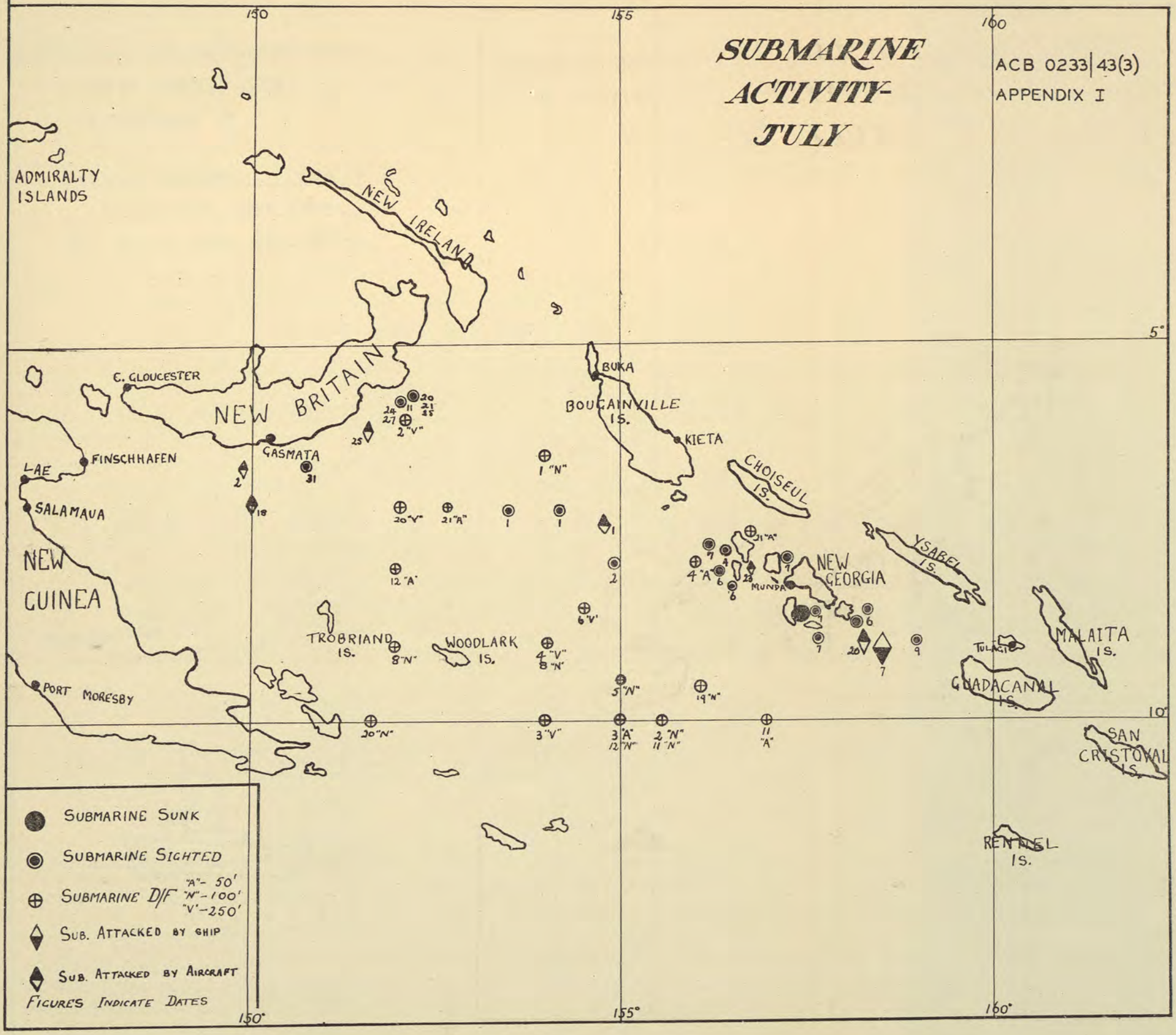
The normal maximum working range of the magnetic detector was found to be 200 feet for an 1800-ton demagnetised submarine.

By Authority: H. E. Daw, Government Printer, Melbourne.


180
ADMIRALTY ISLANDS
C. GLOUCESTER
NEW B
GASMAT
LAE
FINSCHHAFEN
SALAMAUA
NEW GUINEA
PORT MORESBY
SUBMARINE SUNK
SUBMARINE SIGHTED
SUBMARINE D/F
"A"- 50'
"N"- 100'
"V"- 250'
SUB. ATTACKED BY SHIP
SUB. ATTACKED BY AIRCRAFT
FIGURES INDICATE DATES
150°

SUBMARINE ACTIVITY- JULY

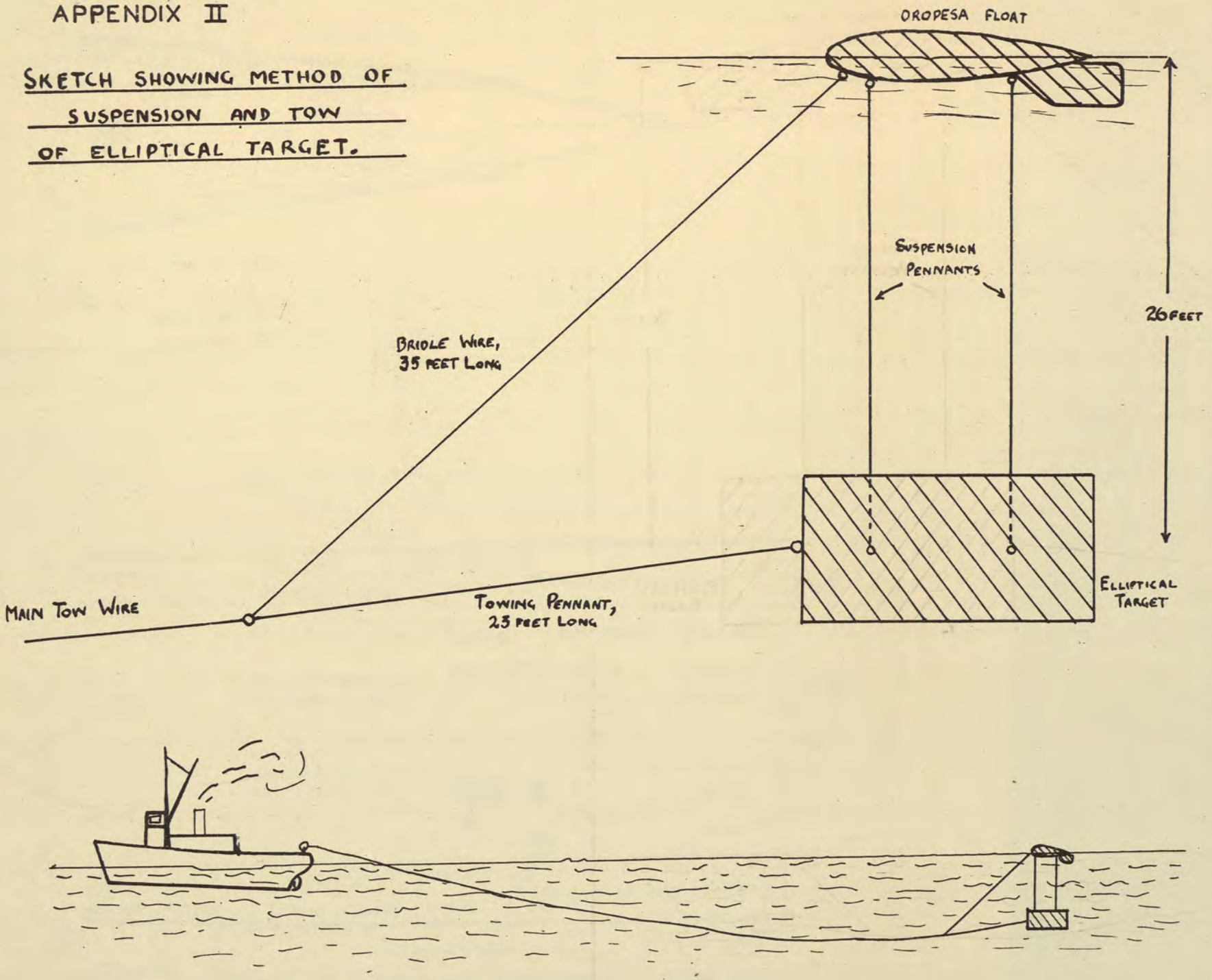
ACB 0233|43(3)
APPENDIX I



ACB 0233/43(3)

APPENDIX II

SKETCH SHOWING METHOD OF SUSPENSION AND TOW OF ELLIPTICAL TARGET.



ACB 0233|43(3)
APPENDIX III.