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A.C.B. 0233/44 (6)

**SOUTH-WEST PACIFIC**

**ANTI-SUBMARINE REPORT**

JUNE, 1944

*File reclassified as:*

**OPEN**

2/3/05

S E C R E T

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SOUTH-WEST PACIFIC  
**OPEN**  
 ANTI-SUBMARINE REPORT  
 JUNE, 1944

ANTI-SUBMARINE  
 WARFARE DIVISION,  
 NAVY OFFICE,  
 MELBOURNE.

C.7040

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5

ARCHIVE 66

CONTENTS

Section I.

S E C R E T

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Section II.

GERMANS

1. Analysis of Convoys - April, May
2. Single
3. Inter-

A.C.B. 0233/44 (6)

SOUTH-WEST PACIFIC

Section III.

ANTI-SUBMARINE REPORT

1. German U-boat sunk in Indian Ocean
2. U.S. Submarine sinks "I-43"
3. Second Support Group's Record "Yag"
4. Task Group's Submarine Sweep
5. Jap. U-boat destroyed
6. U-boat scuttled in Mediterranean

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C.7040

CONTENTS

Section I.

COUNTER MEASURES

1. Review for May
2. Depth Charge Drill
3. Depth Charge Settings for Attacks on Jap. Submarines

Section II.

CONVOYS

1. Analysis of Convoys - April, May
2. Single Escorted Vessels
3. Independent Vessels, Australia and New Guinea

Section III.

NARRATIVES

1. German U-boat sunk in Indian Ocean
2. U.S. Submarine sinks "I-43"
3. Second Support Group's Record "Bag"
4. Task Group makes Anti-Submarine Sweep
5. Jap. U-boat probably destroyed
6. U-boat Scuttled in Mediterranean

Section IV.

INTELLIGENCE

1. Japanese Torpedoes
2. Underwater Internal Combustion Propulsion in U-boats
3. Japanese Submarine Aircraft
4. Helicopters on U-boat
5. U-boat A.A. armament
6. German Radar Decoy Buoy
7. Details of "I-35"

Section V.

MISCELLANEOUS

1. Japanese Submarine Operations
2. German and Japanese Submarine Losses
3. Carrier Borne Aircraft
4. Enemy Use of Radar Decoys
5. The "Silent" Service
6. Japanese Anti-Submarine Measures

Section VI.

MATERIEL

1. C.A.F.O's on Anti-Submarine Subjects

Section VII.

INDEX TO PREVIOUS REPORTS

1. Index to previous issues of South-West Pacific Anti-Submarine Report

ILLUSTRATIONS

H.M.S. "STARLING", Second Support . . . Page .. 8  
Group

H.M.S. "CHANTICLEER" . . . . . Page .. 15

Attacks by U.S. Aircraft . . . . . Page .. 22

SECTION I

COUNTER MEASURES

1. REVIEW FOR MAY

Japanese submarine activity was again on a limited scale during May, although a number of attacks were made by Allied ships and aircraft.

A series of attacks were made by a U.S. "hunter killer" group north of New Guinea during the last few days of the month, a full account of these operations being included elsewhere in this Report.

With Japanese occupation of the New Guinea area virtually ended, fewer "supply" submarines were observed, though a few may still be operating in the South West Pacific Area. Rabaul seems to have been abandoned as a submarine base, and most enemy U-boats are now sailing direct from Truk.

2. DEPTH CHARGE DRILL

The following is an extract from a recent Admiralty Report.

"The importance of depth charge drill and good care and maintenance if good results are to be obtained has been repeatedly emphasised. This has been well illustrated recently by the Second Support Group. In the course of the Group's last operation, 608 depth charges and some Hedgehogs were expended, six U-boats being sunk or probably sunk, and no jams or any other kind of material failure occurred."

The necessity in the South West Pacific Area for good depth charge communications and improved depth charge maintenance and drill is again stressed.

3. DEPTH CHARGE SETTINGS FOR ATTACKS ON JAP. SUBMARINES

Evidence suggests that Japanese submarines rarely dive

below 300 feet, and the maximum safe depth of submergence is given as 350 feet.

In a number of cases when Japanese submarines have been attacked in the South West Pacific Area attacking ships have fired patterns which included charges set to 500 feet. In the absence of definite evidence that a submarine has gone deep this setting should not be used against Japanese submarines.

SECTION IICONVOYS1. ANALYSIS OF CONVOYS - APRIL, MAY

AREA	No. of Ships		Tonnage	
	April	May	April	May
Thursday Island - Darwin	20	22	97,988	82,842
New Guinea Area	242	81	1,529,647	588,619
<b>Total</b>	<b>262</b>	<b>103</b>	<b>1,627,635</b>	<b>670,461</b>

2. SINGLE ESCORTED VESSELS

AREA	No. of Ships		Tonnage	
	April	May	April	May
New Guinea Area	32	97	167,958	639,495
Australia-New Guinea	5	-	34,081	-
Arafura Sea	10	8	30,110	18,831
<b>Total</b>	<b>47</b>	<b>105</b>	<b>232,149</b>	<b>658,326</b>

3. INDEPENDENT VESSELS, AUSTRALIA AND NEW GUINEA

AREA	No. of Ships		Tonnage	
	April	May	April	May
Eastern States - Western States	44	37	294,032	223,423
Melbourne - Adelaide	74	80	309,044	347,158
Newcastle - Melbourne	161	183	718,320	749,232
Brisbane - Sydney	122	124	589,823	658,324
Barrier Reef - Bris- bane	127	75	577,393	312,734
Coral Sea and New Guinea	283	536	1,627,612	3,314,210
Arafura Sea	1	2	1,364	2,728
Total	812	1,037	4,117,588	5,607,809

SECTION IIINARRATIVES1. GERMAN U-BOAT SUNK IN INDIAN OCEAN

"U-533" was the first U-boat sunk in the Indian Ocean from which a prisoner was taken. The sole survivor was a torpedo rating who was able to give an account of the U-boat's last cruise.

"U-533" sailed from Lorient on July 6, 1943, but as so often happens nowadays she had been sabotaged. This time, instead of putting sugar in the diesel fuel or rats in the fresh water tanks, the saboteurs put splintered glass in the grease cap of the periscope mountings. Forced back to port to repair the damage the U-boat sailed a few days later and, on her way down the coast of Africa, she unsuccessfully attempted to torpedo a 12,000 ton ship proceeding independently.

She had better luck later when she chanced upon two small sailing vessels each of about 150 tons. These were said to be carrying petroleum and "U-533" sank them with gunfire, 47 rounds being expended before the two ships were sunk. The crews swam to within a few feet of the U-boat, but no attempt was made to help them.

Apparently all the saboteurs' work had not been discovered, for the crank-shaft bearings had continually been giving trouble and when "U-533" met a 1200 ton U-boat which was homeward bound she took the opportunity of changing them, using one spare bearing which she carried and one which she obtained from the other U-boat.

The U-boat gave the Cape of Good Hope a wide berth, going so far south that she found herself among icebergs. Another U-boat proceeding to the Indian Ocean at this time collided with one and had to return to base. About 300 miles south of Cape Town "U-533" fell in with two more boats on their way to the Far East and obtained fuel from a supply U-boat.

About a fortnight later there was another gathering of U-boats, this time to the east or south east of Madagascar. There were five German U-boats including "U-533" and there should



have been another, an Italian. The German tanker "BRAKE" which had sailed from Penang, supplied them with fuel, drinking water and provisions, but the oil was a Japanese product and could only be used when out of sight of shipping as it gave off a very dirty exhaust.

For three days the U-boats lay alongside the tanker, but still the Italian U-boat did not appear. Then came the news of the surrender of Italy and the Captain of "BRAKE", fearing that the rendezvous would be compromised, hurriedly left the U-boats (one with provisions still stacked on her deck) and set course for Penang.

"U-533" proceeded to the Gulf of Aden, her captain being disappointed at finding convoys where he expected to find independent sailings. "U-533" attacked a small convoy and claimed sinking one large ship, but ensuing counter attacks so damaged her torpedo tubes that she could not make any more attacks.

Looking for targets she then cruised along the coast of Arabia, but all she sighted were dhows and she avoided them for fear they would report her presence. Once however, the U-boat followed the alleged practice of the Japanese and, going close inshore, sent off a few men in a dinghy to get provisions from a fishing village.

She was then ordered to patrol in the entrance of the Persian Gulf, hoping to intercept tankers coming down from Abadan. She reached the Gulf of Oman about October 6 and spent 10 days without claiming any sinkings. The use of G.S.R. was forbidden in this area and so there was no warning of the attack which was made by a British aircraft on October 16. The aircraft was only sighted at the last moment, and though the U-boat crash-dived, a depth charge exploded very close to it when at 80 feet,

The sole survivor, who had been keeping watch as an extra lookout heard the Engineer Officer report that the hydroplanes were out of action and give the order to start the bilge pumps. At the time the U-boat was still going down. Then another depth charge exploded close to the pressure hull and the torpedo-man heard the Captain order the tanks to be blown. The next thing he remembered was that water came flooding up from below until it was up to his neck. The First Lieutenant managed to open the hatch and both men were blown unconscious to the surface. The rating came to his senses first, and managed to hold up the First Lieutenant for about an hour, but then he had to let him go.

After stripping off his clothes, the torpedoman began to swim towards the coast, the distance being about that of a cross-Channel swim. The water was warm, and the thought of

sharks spurred him on. He could see land ahead in the moonlight, and after swimming all night and all day he walked ashore at Khor-Fakkan. He had been in the water for 29 hours.

The Italian U-boat which failed to make the rendezvous, though apparently she was not far from the position, was the "AMMIRAGLIO CAGNI". She put into Durban on September 20, 1943.

## 2. U.S. SUBMARINE SINKS "I-43"

U.S.S. "ASPRO", one of the United States Fleet's most modern submarines made an Asdic contact with a Japanese submarine on February 15, 1944 in the western Pacific and coming to periscope depth she sighted a large Japanese submarine at a range of about 5,000 yards.

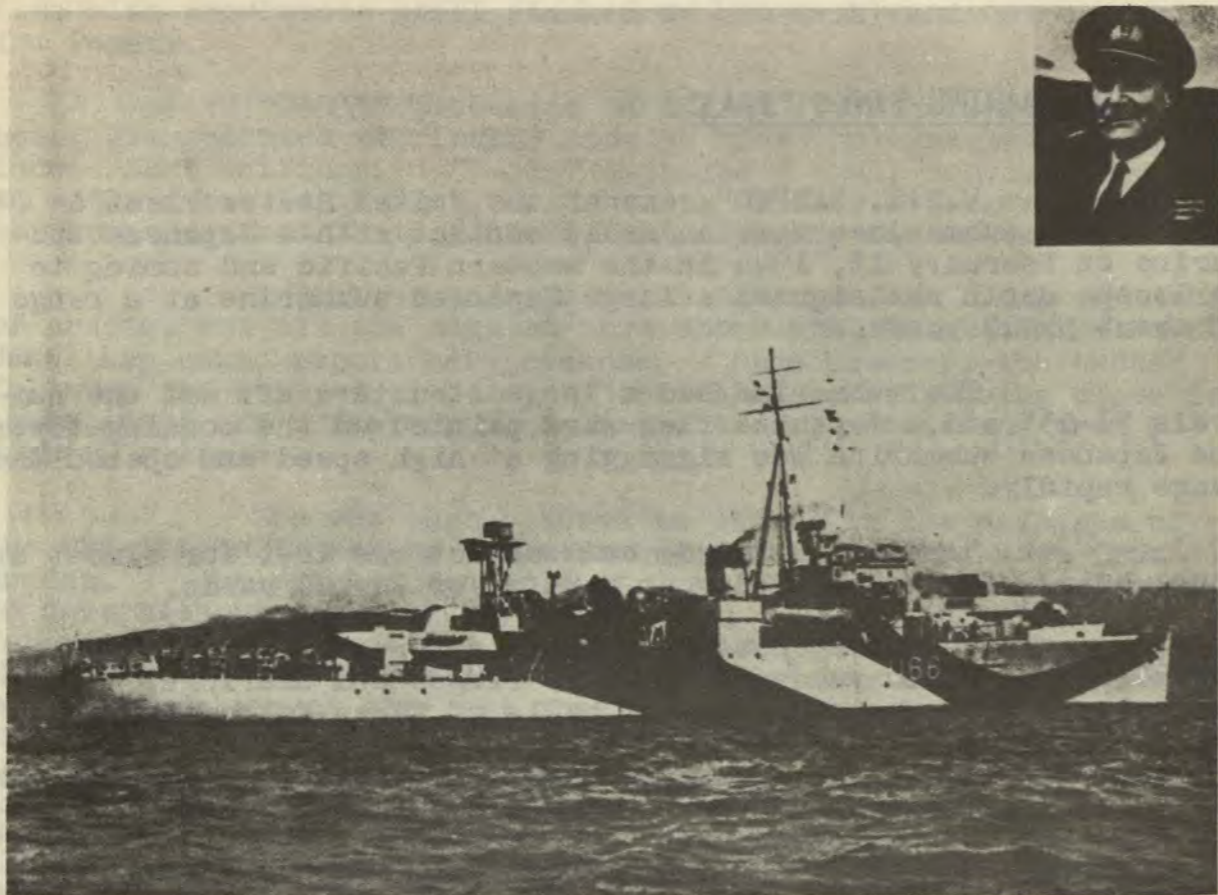
The submarine had a large structure aft and the numerals "I-43" and a Japanese flag were painted on the conning-tower. The Japanese submarine was zigzagging at high speed and opened the range rapidly.

"ASPRO" surfaced, but contact was lost for almost an hour, being regained on Radar at a range of 18,000 yards.

Four torpedoes were fired after the U.S. submarine had closed to 2,100 yards using Radar ranges and bearings. Two explosions, accompanied by orange balls of fire, followed and in the dim glow of the explosions the bow of the Japanese U-boat appeared to rise as the submarine sank stern first. Heavy black smoke covered the area of the sinking and during the next few minutes a number of explosions were heard.

## 3. SECOND SUPPORT GROUP'S RECORD "BAG"

The following account of the operations of the Second Support Group between January 29 and February 24 tells the story of what has proved to be the most outstanding success of the Anti-Submarine war since September, 1939. In the course of the 27 day patrol the Group sank six U-boats, three in less than 17 hours, saving two convoys from almost certain attack. Every



H.M.S. "STARLING", Group Leader of the  
Second Support Group

U-boat contacted was hunted to destruction.

The Second Support Group consisted of H.M. Ships "STARLING", "WILD GOOSE", "WOODPECKER", "MAGPIE" and "WREN". When they sailed the ships formed an A/S screen for two British Escort Carriers, "NAIRANA" and "ACTIVITY". The following has been condensed from an Admiralty Report.

"Although the aircraft were much hampered by bad weather, patrols were carried out from both carriers on all but one day from the 31st until they joined Convoy S.L. 147/M.K.S.38 seven days later. No U-boats were contacted during this period. Night flying was possible only on the 4th in bright moonlight.

"In the early forenoon of January 31 the Group was in line abreast, ships one mile apart, in the following order from port to starboard - "WILD GOOSE", "MAGPIE", "STARLING", "WREN" and "WOODPECKER". The two carriers were zigzagging in line abreast  $7\frac{1}{2}$  cable apart and two miles astern of the screen on a mean course of  $223^{\circ}$  at 12 knots. H.M.S. "KITE" was coming up astern to join. At 1015 "NAIRANA" operating aircraft, was heading out towards "WILD GOOSE" when the latter obtained an Asdic contact between herself and "MAGPIE". She immediately turned towards, reducing to 7 knots. Realising that the U-boat would soon be in an excellent position to attack "NAIRANA", she warned the carrier by R/T and increased speed to drop a ten-charge pattern at 1021. This had the desired effect of dissuading the U-boat from firing torpedoes at "NAIRANA".

"Six minutes later "MAGPIE", who had been ordered to join, gained contact and carried out a Hedgehog attack. "MAGPIE" and "KITE" were then ordered to screen the carriers, which had altered to starboard, while "STARLING" closed "WILD GOOSE" who was still in contact.

"At 1040 "STARLING" obtained contact and manoeuvred to get astern of the U-boat. Losing it on the main oscillator at 700 yards, she switched to "Q" and a strong echo was heard and held without difficulty until the range was about 150 yards. "WILD GOOSE", who was in contact throughout, dipped Flag "J" and "STARLING" commenced firing her creeping pattern at 1130.

"Just before the fourteenth charge was fired a remarkably heavy explosion occurred about 10 yards on "STARLING'S" starboard quarter. It shook the ship considerably, threw up a column of water to masthead height and, 'worst of all, shattered the contents of the Wardroom wine-store'. The plot indicated that the ship was almost over the U-boat at this time.

"STARLING" completed her creeper pattern at 1133 and three minutes later another heavy underwater explosion was heard just before "WILD GOOSE" began her follow-up attack with twentytwo depth-charges.

#### THE FIRST KILL

"During the next few minutes underwater explosions of considerable force were felt and much oil and wreckage was observed rising to the surface. Some of the latter was recovered by "WILD GOOSE" and gave ample evidence of destruction. During this hunt a Swordfish from "NAIRANA" patrolled round the sloops.

"At 1218 both ships left the area and about four hours later rejoined the carriers.

"During daylight on the 8th the Group closed in to two miles from the Convoy (which the carriers had joined) to give A.A. protection against expected air attack but at 1830 normal covering sectors were resumed. The convoy course at this time was 035° at 7½ knots.

"It was not long before the enemy put in an appearance in the shape of a black object sighted at 2230 by "WILD GOOSE" who was then 8 miles from the centre of the convoy. She reduced to 7 knots but the target disappeared before Radar contact could be obtained. Asdic contact was reported immediately and held while "WILD GOOSE" waited for "STARLING" and "WOODPECKER" to close.

"At 2303 "WILD GOOSE" realized that she was too close for contact-keeping and had just started to open the range when the U-boat popped up its periscope 20 yards to port of the sloop's bridge. Fire was opened and several hits were observed before the periscope withdrew. Speed was increased in order to carry out an attack but the ship could not get clear in time and so was compelled to resume contact-keeping.

#### U-BOAT "B" DESTROYED

"By 2317 "WOODPECKER" had arrived and was in contact. After losing it for a short period she ran in to drop twentytwo depth-charges at 2345. This barrage attack was all that was necessary to destroy the U-boat. Several underwater explosions followed and when "STARLING" arrived shortly after midnight she was just in time to see oil and wreckage from the U-boat strewn over the water.

"After collecting souvenirs the three ships left at 0034/9 to rejoin the convoy.

"During the middle watch an enemy aircraft arrived and flew round the convoy for about an hour. Its efforts at homing only succeeded in bringing two more U-boats into the clutches of the Second Support Group.

"The first of these was D/F'd ahead of the convoy at 0555 and "KITE" and "MAGPIE" were sent off to deal with it.

#### U-BOAT "D" DESTROYED

"The second was detected by "WILD GOOSE" at 0615 9½ miles on the port beam of the convoy. She turned towards, reducing speed to 7 knots, but the Radar echo disappeared before the target could be illuminated. Asdic contact was obtained as the U-boat dived, but it could only be held intermittently, being confused with S.B.T's. At 0634 there was an explosion, probably of a "Gnat", and half a minute later contact with the U-boat was firmly established. "WILD GOOSE" then ran in to drop ten depth-charges, after which contact was regained and held until "STARLING" arrived at 0817. The Senior Officer took over as directing ship and preparations were made to carry out a creeping attack.

"Four minutes later "STARLING" was in contact and the usual combination of creeping and follow-up attacks was carried out. This was followed by several explosions, bubbling noises and a certain amount of oil but Asdic contact was regained at 0908, showing that the U-boat was still on its feet but probably groggy! The enemy made a last desperate effort to extricate himself by firing two "Gnats" which failed to harm his pursuers. He was unable to avoid a second "creeper-barrage" which, starting at 0940, was enough to finish him off completely. The now familiar evidence of a kill was then seen rising to the surface.

"After recovering some specimens, the two ships set course at 17 knots to join "KITE" and "MAGPIE" in their battle with U-boat "C".

"When about 9 miles on the convoy's starboard bow, "KITE" had obtained Radar contact with the U-boat at 0644 and simultaneously had sighted the enemy coming out of a patch of mist about 800 yards away. She immediately reduced speed to 7 knots and dropped a single charge set to 50 ft. as an "anti-gnat" measure. A second or two later another explosion threw up a column of water 20 yards on "KITE'S" port bow - probably caused by the "gnat" being countermined. The sloop then increased speed for an attack.

"She carried out five depth-charge attacks in all and then, on the arrival of "MAGPIE" at 0858, proceeded to direct her in a creeper, following up herself with a twenty-six charge pattern.

"By the time "STARLING" and "WILD GOOSE" arrived on the scene at 1145, one Hedgehog and two more depth-charge attacks had been made. Contact was then lost for a short while but, at 1202, "KITE" was able to hand over a good contact to the Senior Officer, who then directed her in two creeping attacks with the customary accompanying barrage.

"By now "KITE" was low in depth-charges and she was sent to join "WILD GOOSE" in the outfield, "MAGPIE" being brought in to take her place.

#### THE DESTRUCTION OF U-BOAT "C"

"At 1452 "MAGPIE" was set off on a creeping attack under "STARLING'S" direction. She was ordered to fire her Hedgehog as a foretaste to the creeper, the time to fire being obtained by matching the range of her bridge as given by the rangefinder with Asdic range less static Hedgehog range. This Hedgehog attack resulted in two heavy and almost simultaneous explosions 21 seconds after the projectiles hit the water. The creeping attack was carried out at 1502, with a "follow-up" by "STARLING" four minutes later. Under this combination of Hedgehog, creeper and barrage the U-boat disintegrated and oil, wreckage and human remains appeared on the surface.

"During this hunt, which lasted for a little more than eight hours, several underwater explosions, thought to have been from "gnats," were heard.

"The Group then left for their patrol area - 50° N to 51° N and 16° 30' W to 19° W. During the forenoon "STARLING" handed over to "WOODPECKER" and detached herself to H.X. 277 in search of depth-charges.

"On reaching the patrol area the sloops commenced a line abreast A/S sweep 1½ miles apart. At 0104/11 the search was being altered from 180° to 090°. "WILD GOOSE" had not yet altered course when she obtained an asdic contact 1,000 yards on her starboard bow. She immediately reduced to 6 knots and turned towards, informing the Senior Officer in "WOODPECKER" by R/T.

"WILD GOOSE" found herself too close to carry out an attack and ran over the target, losing contact at 200 yards. Regaining it astern she ran in but was forced to slow down to avoid "WOODPECKER" and consequently started her attack with practically no way on from a range of 400 yards, dropping ten depth-charges at 0123. Luckily no harm was done to the ship except for the temporary jamming of the starboard engine telegraph but unfortunately the same was true of the U-boat, which was probably below the depth-charge pattern.

#### THE FIFTH KILL

"From now onwards contact could only be held intermittently, with the enemy probably making use of S.B.T's. By 0132 "WOODPECKER" was in contact and ten minutes later carried out a barrage attack with twenty-two charges set to 500 and 550 feet. "WILD GOOSE" finally re-established contact at 0228 and, after the echo had faded out at 650 yards, she delivered the 'coup de grace' with a ten-charge pattern. She was immediately rewarded by thirteen explosions, two of which were particularly violent. These were followed by hammering, breaking up noises and two more explosions, accompanied by the expected assortment of wreckage.

"At 0350 the patrol was resumed but when the scene was revisited some 3½ hours later, oil was still rising to the surface amidst the scattered remains of "U-BOAT E".

"The Group, now joined by "STARLING", continued their patrol, returning to the spot at 1700 to find that the patch of oil now covered over six miles of the ocean.

"At first light the Second Support Group set off to sweep back over the Convoy's course to try and find the two U-boats which had attempted to attack. They had just altered course to rejoin, on orders from C.-in-C., W.A., when they were again in contact with the enemy.

#### THE FINAL HUNT

"At 1007 "WOODPECKER" obtained an Asdic contact and dropped a flare on the position. The Senior Officer ordered her not to attack for 15 minutes and to look out for "gnats". "STARLING" then closed and took charge of the hunt, gaining contact at 1016. The other three ships were instructed to carry out "OBSERVANT" round them.

"STARLING" dropped a ten-charge pattern at 1035, regained contact and, ignoring S.B.T's directed "WOODPECKER" in to drop her twenty-six charges fifty minutes later. After the usual "follow-up", "STARLING" regained contact but could only hold it intermittently in the bad Asdic conditions prevailing. By 1223, however, both ships were in contact, "WOODPECKER" using her "Q" attachment and being directed for range by "STARLING". The latter lost contact just as "WOODPECKER" fired her creeping pattern and did not carry out the follow-up attack as she had only sixteen charges left.

"After sweeping back towards the position of this attack and then to windward the U-boat was again located but again could

only be held with difficulty. "WOODPECKER", however, managed to get in an attack with a deep ten-charge pattern at 1359. This was followed ten minutes later by a large underwater explosion.

"For the next two hours conditions were extremely difficult but eventually, at 1616, "WOODPECKER" made her third creeping attack, followed by "STARLING" with all her remaining depth-charges.

"After this, contact was lost altogether and the sloops were settling down for a long test of endurance when, at 1659, the U-boat unexpectedly surfaced about 1,700 yards on "STARLING'S" port quarter. This gave the guns' crews some compensation for many tiresome hours of waiting for U-boats that never surfaced.

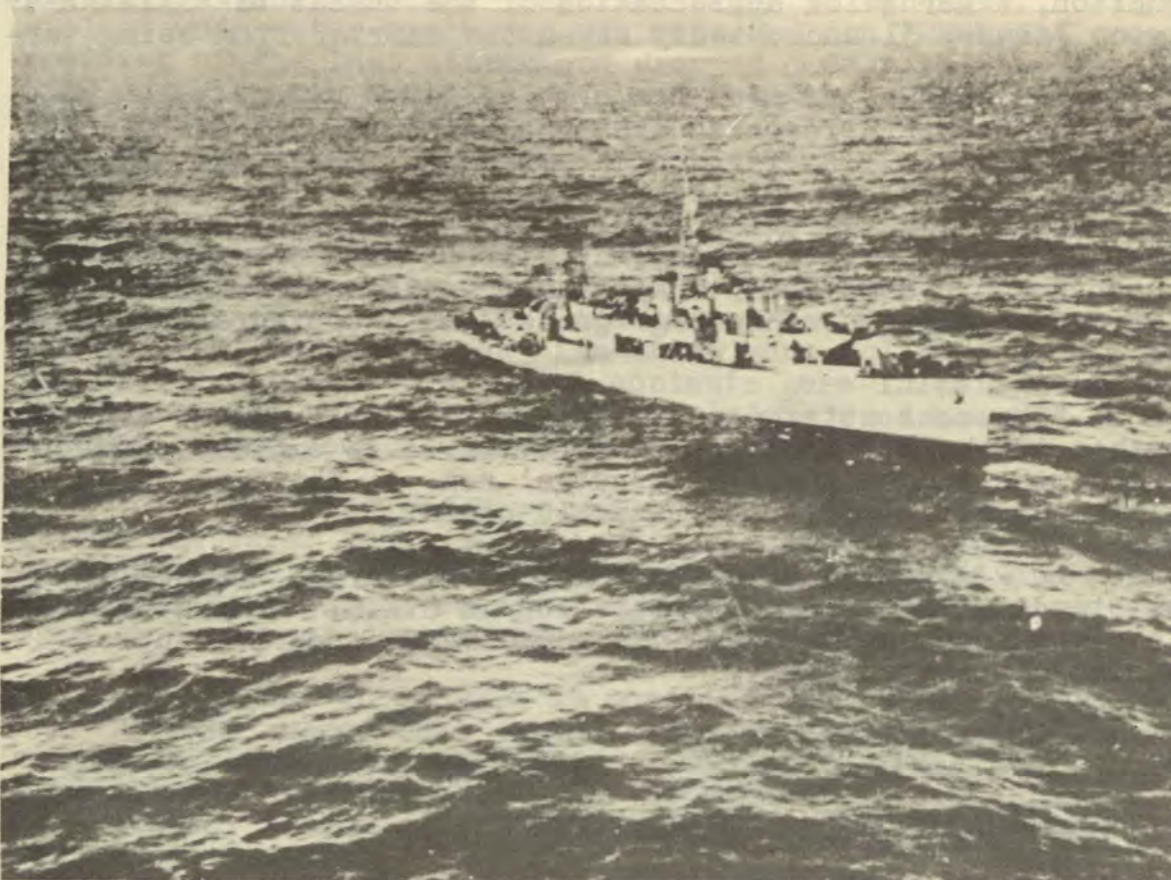
"The enemy made no attempt to answer and rapidly abandoned ship. "U-264" began to sink stern first and finally disappeared from view at 1710 to the accompaniment of exploding scuttling charges. This time the evidence of destruction took the form of 51 prisoners - an unusual experience for the ships of the Group. It appears that "U-264" was the U-boat detected and chased through Convoy O.N. 224 by "FORESTER" earlier the same day.

"The Group then proceeded to patrol across the area 48° 30' N to 49° 30' N and 21° 30' W to 23° 01' W as ordered by C.-in-C. W.A. At 2155 a U-boat transmission was D/F'd about 15 miles away and the Group went off in pursuit.

"Twenty-one minutes later "WOODPECKER", two miles on "STARLING'S" port beam, was torpedoed by a "gnat" and had her stern blown off. She had obtained an echo 600 yards on her starboard quarter about 10 seconds earlier but had not had time to alter course. When the Senior Officer became aware of the situation, he reduced the speed of the Group to 7 knots and closed the damaged sloop, ordering the other three to carry out a square patrol round the position. It was evident from the position that the U-boat which struck this blow could not have been the one previously D/F'd. Unfortunately both escaped without detection.

"WOODPECKER" had lost all her motive power and steering and was flooded up to her engine room bulkhead but otherwise seemed in good trim. Attempts by "STARLING" to take her in tow had to be abandoned until the morning. By 1045 she was in tow, escorted by the rest of the Group. Only 1½ knots could be maintained owing to "WOODPECKER'S" tendency at a higher speed to sail up into the strong south-easterly wind.

"Unhappily the damaged ship, after being in tow for nearly seven days, had just reached a position close to the Scilly Isles when, at 0706 on the 27th, she capsized and sank. There was no loss of life.



H.M.S. "CHANTICLEER" after being torpedoed  
by a "Gnat".

"These six U-boats took an average of four hours and 106 depth-charges to kill, combined creeping and follow-up attacks being responsible for the destruction of four of them. Asdic conditions were mainly good, except in the final hunt when they were described as "variable and for the most part difficult".

"On all but two occasions the U-boats were initially detected by "WILD GOOSE", who also played a major part in their destruction. Her quick appreciation of the threat to "NAIRANA'S" safety on January 31 undoubtedly saved the carrier from being torpedoed.

"In their efforts to escape the inevitable, the U-boat commanders used S.B.T's, large alterations of course and acoustic torpedoes. The Senior Officer estimated that on 8th/9th February at least 12 "gnats" were fired, one of which was probably counter-mined by a 50 ft. depth-charge from "KITE". Various explosions occurred in every hunt and it was sometimes difficult to distinguish between exploding "gnats" and disintegrating U-boats.

"The ones attributed to "gnats" are of interest and strengthen the belief that "gnats" are liable to explode when sinking at the end of their 15 minutes' run. This may be an unintentional effect of their magnetic pistol."

An R.A.N.V.R. Lieutenant has been awarded the D.S.C. "for outstanding skill and determination in H.M.S. "WILD GOOSE" when six enemy submarines were destroyed by an escort group of which his ship formed part".

#### 4. TASK GROUP MAKES ANTI-SUBMARINE SWEEP

The following is an account of Anti-Submarine operations by Task Group 30.4, operating north of Emirau at the end of May.

At 0345 on May 22 in position 01° 41' N 150° 27' E Radar contact was made on a surfaced submarine at 17,000 yards. The submarine dived at 3,500 yards and the destroyer escorts (D.E's) made three Hedgehog attacks. At 0445 "ENGLAND" obtained three hits and at 0451 a violent underwater explosion was felt. Good submarine traces on the recorder widened materially during the explosions and then dissipated, and though all the D.E's searched through the area in succession they were able to make no contact other than with a large mushy underwater disturbance. A slight oil slick was visible, but there was no debris. The following day aircraft sighted a fresh oil slick, apparently bubbling oil at

the north eastern end in a position a few miles from the attack.

At 0600 on May 23 "RABY" obtained Radar contact on a surfaced submarine in position 01° 27' N 149° 33' E. Contact was held from 11,000 yards to 6,000 yards when the submarine submerged, and the destroyer escorts made five Hedgehog attacks without success. Contact was later regained by "GEORGE" about two miles from the first attack and the ships made six more Hedgehog attacks. On the last attack "ENGLAND" reported eight to ten hits. At 0836 a violent underwater explosion was reported and "ENGLAND" crossed the position of the last attack and dropped a deep 13 charge pattern. Only mushy echoes could be obtained from the submarine's last position, there was some debris on the surface, and an oil slick formed four miles long and one to two miles wide.

At 0122 the following day "GEORGE" made Radar contact with a surfaced submarine at 17,000 yards in position 00° 44' N 149° 22' E. The submarine again submerged before being sighted, but "ENGLAND" obtained Asdic contact and made three Hedgehog attacks, claiming one and possible three hits which were followed by a rumbling noise. Intermittent doubtful contacts were investigated during the next hour and oil and debris including wood bearing Japanese characters and deck planking were found.

The following day, while conducting a retiring search to the westward, "ENGLAND" gained Asdic contact, possibly with the same submarine. "ENGLAND" and "GEORGE" conducted a creeping 32 charge attack without success, although the submarine was considered to have been damaged by previous attacks.

On May 26 at 2304 in position 00° 36' S 148° 24' E "RABY" and "ENGLAND" made Radar contact on a surfaced submarine which submerged as the D.E's approached. "ENGLAND" gained Asdic contact and at 2323 registered hits with her Hedgehog on a submarine at 250 ft. Much debris, including cork and wood bearing Japanese characters was observed at dawn.

The operations continued, and on May 30 at 0038 another Radar contact was gained. Attacks followed and Hedgehog hits were obtained. Then the submarine surfaced for several minutes, but the D.E's were in their own line of fire and could not shoot. However, Asdic contact was regained immediately after the submarine submerged and more Hedgehog hits were obtained. These were again followed by much wreckage.

It is thought that all attacks may have been made on the same submarine which was damaged in the earlier attacks and finally sunk, although it is possible that more than one submarine was present. No explanation can be advanced for the explosions which followed the attacks, although these have been noted in previous attacks on Japanese submarines.

## 5. JAP U-BOAT PROBABLY DESTROYED

At 2137 on May 16 the U.S. destroyer "HAGGARD" gained Asdic contact with the enemy submarine which was suspected to be in the area 100 miles northeast of Bukaseen earlier in the day.

Five depth charge attacks were carried out, the last at 2230, and next morning large oil patches were seen coming to the surface.

Thereafter, for at least 19 hours, oil identified as diesel and lubricating oil bubbled to the surface in a slick 7.3 miles long and 1.5 miles wide. The oil was definitely established to come from a fixed point where the water was only 10 fathoms deep. Small pieces of wood, cork and paper rose to the surface with the oil, and the submarine was claimed at 1540 on May 17 as probably sunk.

## 6. U-BOAT SCUTTLED IN MEDITERRANEAN

The decline in morale of German U-boat officers and crews was never more vividly demonstrated during the war than in the case of the destruction of "U-340". Her captain, Joachim Klaus, had brought her safely from St. Nazaire to the African coast, he had successfully passed through the Strait of Gibraltar, and then, his boat seaworthy but his morale shattered, he scuttled her.

The following account of the destruction of "U-340" has been taken from a recent Admiralty Monthly Anti-Submarine Report.

"U-340" had entered the Atlantic in time to take part in the last convoy battle before the U-boats were withdrawn in the spring of 1943, but all she saw of Convoy S.C. 130 was the mast-head of one merchantman. She was then attacked by the escort and so damaged that she had to make for Bordeaux.

On this first patrol, which lasted 36 days, she had sunk nothing. On her second, which began about July 10 and ended in the first week of September, she did sink one vessel, admittedly a very small one, but still a vessel. After she had been at sea for about three weeks and had sighted nothing except a Swiss merchantman, she received a signal informing her that the supply boat on which she had been relying would not be available and that she was to return to base.

Her patrol had taken her down the west coast of Africa nearly as far as the Equator and supplies were low, except for macaroni, of which she had more than a sufficiency.

"We had nothing but macaroni, all the way from Freetown to St. Nazaire," said one man; "Macaroni with noodles, and noodles with macaroni, macaroni with dried fruit, and dried fruit with macaroni, and then, by way of a change, macaroni with ham, and ham with macaroni".

The fuel position was nearly as bad. "U-340" closed another U-boat; she, too, had been disappointed and could give no help but, by careful economy, "U-340" managed to get home.

On the evening of September 1, when she was within 200 miles of Cape Finisterre, a look-out sighted ahead a series of white, green and red Verey's lights. The captain decided to close and though the Engineer Officer thought that it was a ruse and tried to dissuade him, approached cautiously. After carefully circling the position, he found a rubber dinghy. It contained five German airmen, survivors from an aircraft sent out from Bordeaux on a meteorological flight. They were taken aboard and the dinghy was sent to the bottom with machine-gun fire. Such was the sinking of the only vessel which "U-340" ever destroyed.

The next night, as she was making Cape Finisterre to enter the Bay of Biscay, she was attacked by a searchlight-fitted aircraft. The gun crews had been drafted from "ADMIRAL SCHEER", and began by jamming the 20 mm. gun on the upper bandstand, so that they had to rely on the bridge machine-guns.

While these were being fired, a Leading Seaman worked at the 20 mm. gun and got it going again. He opened fire but, too anxious to distinguish himself, he was careless in his aim and hit the bridge. A shower of metal splinters flew in all directions. The Captain, the First Lieutenant and three ratings were wounded and the whole bridge was spattered with blood. The only way to straighten out the resulting confusion was to bundle the wounded men down the conning-tower and crash dive.

The wounding of the Captain in this manner caused more joy than sorrow. Oberleutnant-zur-See Joachim Klaus was a martinet and was cordially disliked. His boat was the most unpopular in whole of St. Nazaire and he was so detested that just before "U-340" was due to start on her third patrol, 15 men thought it worth while to drink polluted water and so contract jaundice rather than sail with him again.

At the beginning of October, Grand-Admiral Donitz decided to increase the force of U-boats stationed at Toulon and selected five U-boats from the Biscay ports for this purpose. As is well

known, U-boat captains exceedingly dislike operating in the confined waters of the Mediterranean, where convoys always keep well within the range of land-based aircraft, and to reach the Mediterranean they have to brave the perils of the Bay of Biscay, creep down the Iberian coast and then force the Strait of Gibraltar. From the start the Captain of "U-340" was oppressed by the burden.

There was the usual ominous putting back -- this time not to repair sabotage but only to land a number of dockyard workers. They were carried to take part in the practice dives, but owing to the rough sea, they could not be transferred to the escort vessels as had been intended.

Klaus was so determined to avoid action, that he cut down the time on the surface to the least possible, coming up each night for only two periods of about two hours each. The reception of a G.S.R. reading was the signal for an instant crash-dive, and it did not increase the Captain's peace of mind when both his "Naxos" type aeriels were broken, and he had to rely on the old-fashioned "Wanz."

Making two or three knots, he eventually reached the latitude of Madeira and then, turning to the north-east, crept up towards the entrance to the Strait of Gibraltar. More cautious than ever, Klaus reduced his time on the surface to three hours a night and took four days over the passage, but this did not save him from twice being attacked by aircraft.

On the first occasion the U-boat was detected by Radar by a searchlight-fitted aircraft of 179 Squadron when off Spanish Morocco. The depth-charges fell astern and the U-boat crash-dived in time to escape damage. This was during the night of 30th.31st October. The following evening a signal was intercepted from another of the party which was attempting to force the Strait. The U-boat reported that she was being attacked by aircraft; it was forthwith assumed that she would be sunk.

About the same time the Coxswain suggested to the Captain that they should retire from the Strait and give the batteries a really good charge. Thanks to Klaus's unremitting caution they were getting dangerously low, but he would not hear of it. The strain on his morale must already have begun to show itself, for the Chief E.R.A. muttered that to him it looked as though Klaus intended to scuttle the boat sooner or later.

On the night of 31st October/1st November, the U-boat was again attacked, this time somewhere off Tangier. She was prudently taking her mouthful of night air in company with some fishing trawlers but Wellington R/179 found her out. Six depth charges dispersed the fishing fleet and sent the U-boat diving to the bottom

with her starboard motor out of action. Having struck the bottom at about 280 ft., Klaus decided to stay there and drift along with the easterly setting current. The starboard motor did not take long to repair, the damage being less than had been thought at first.

"U-340" then seems to have come up to about 250 ft. and to have increased her speed to about five knots. She was proceeding at this depth when, early on 1st November, patrolling surface craft made contact with her, but she was able to shake them off by using her S.B.T. and continued on her way until about 1800 that evening when she came to periscope depth.

The Coxswain said that they must by then be clear of the Strait but the Captain, who was rather hazy as to his exact position, was not certain. His anxieties heavy upon him, he spent two and a half hours carefully reconnoitring, and then at last, at about 2030, he surfaced. The passage had been made.

The batteries were by now very low indeed and Klaus decided to charge them by proceeding at full speed on the surface in a southerly direction.

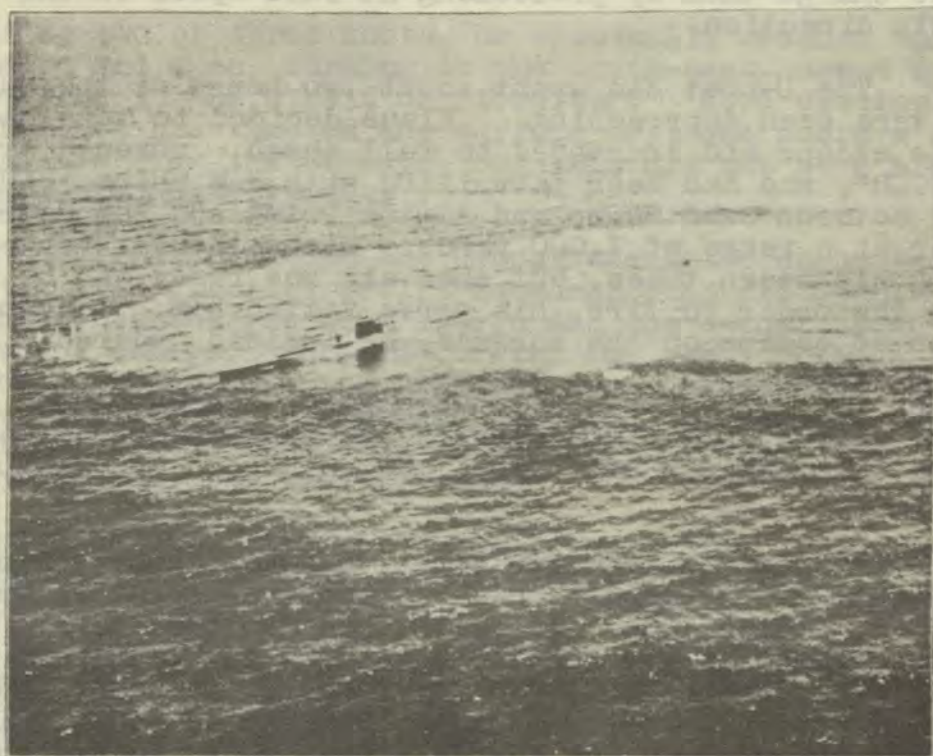
The U-boat had spent about two hours on the surface when ships were seen approaching. Klaus decided to make use of his speed to escape and increased to full ahead, pursued by H.M.S. "FLEETWOOD", who had been patrolling with H.M. Ships "BLUEBELL" and "POPPY" between Cabo Negro and Almina Point and had detected "U-340" by Radar at a range of 7,000 yards. Klaus thought to keep her off by using his stern tubes, but when all was ready and he had only to give the order to fire, his nerve failed him. Abandoning his decision to escape on the surface, he instead ordered a crash-dive.

"FLEETWOOD" was then about 2,000 yards astern. She soon obtained Asdic contact and carried out depth-charge attacks, but the luck which always attended Klaus held good and he suffered no damage.

By now his luck could not, however, soothe his agitation. It grew upon him during the night, which was spent in lying on the bottom, and at about 0400 he called his men together. He told them that the air supply was reduced to a very low level and that it was impossible to remain submerged any longer; moreover, daybreak was not far off and after it was light it would be equally impossible to proceed on the surface and charge batteries. He had therefore decided to surface at once and scuttle the boat, giving the crew a good chance of swimming ashore. After all, if they got to Spanish territory they were almost certain to be repatriated.

Many of the crew were astonished at this decision. The batteries were certainly low, but the boat was perfectly seaworthy





Photographs taken during attacks by United States aircraft in the Atlantic.

and the air was by no means foul. The Chief E.R.A. and the Coxswain were furious. To the former it was confirmation of all his suspicions from the time that the Captain had refused to withdraw to the westward to charge batteries. His opposition was vehement to the point of mutiny, but he got no support from the First and Second Lieutenants - the former was described as a "Nazi boor" and the latter had been an art student. Their morale had reached a point where they had no views either way. There was no doubt as to the Captain's moral collapse.

At about 0430 the tanks were blown for the last time. The U-boat behaved almost as though she were aware of her approaching suicide. At first she did not move, and then, as if it were unwillingly giving way, shot to the surface with a violent rocking motion which sent her crew flying.

There was nothing in sight and she was abandoned at leisure. The men were marshalled on deck and the 30 one-man dinghies, the two four-man dinghies and one eight-man dinghy were got out. The fuzes were set to the scuttling charges and on the order being given the men took to the water.

The end of the boat having been witnessed, the flotilla of dinghies got under way. After about three hours paddling the Germans fell in with four Spanish fishing vessels which took them and their dinghies aboard. The Spaniards had their daily bread to earn and did not put back to land the Germans but continued with their fishing.

It would perhaps have been better for the Germans if they had left their dinghies behind them. "FLEETWOOD", sweeping back towards Almina Point after her apparently unsuccessful night, sighted the fishing vessels and was surprised to see on board a large number of men who had Mae Wests and yellow rubber dinghies with them.

She came closer, so close indeed that she could clearly see that they were shipwrecked mariners. Closing still further she saw that many of them were in a state of exhaustion - the art student Lieutenant had, in fact, collapsed already. To the Captain of the "FLEETWOOD" the dictates of humanity were clear and strong. The Medical Officer, who was called into conference, felt exactly the same - it was his duty to take off the exhausted men and give them all the care and attention which his ship could provide.

The Germans did not see things in the same light, but there was no resisting "FLEETWOOD'S" humanitarian principles when they really got going!

SECTION IVINTELLIGENCE1. JAPANESE TORPEDOES

The following information has been taken from a South West Pacific Force Intelligence Bulletin.

It is known that many Japanese destroyers are equipped to carry 24" torpedoes. This was determined by measuring the torpedo tubes on the Japanese destroyer "KIKUTSUKI", which was sunk off Tulagi in May, 1942, and the destroyer "YAYOI" of the "MUTSUKI" class sunk in September of the same year.

A 24" Japanese torpedo recovered off Pt. Santa Cruz measured 29 ft. 6 in. over all. This and other dimensions indicate that this torpedo is probably the Type 93, the largest and most powerful known to be used by the Japanese.

On the night of November 5th, 1943 a Japanese pilot off Cape Torokina, Bougainville, mistook an L.C.I. for bigger game and fired a torpedo which penetrated the craft's side, but failed to explode. This aircraft torpedo was 18" in diameter.

The Type 93 torpedo has pure oxygen instead of compressed air in the forward chamber, the oxygen being charged to a pressure of about 3180 pounds to the square inch. The torpedo is armed after travelling about 220 yards, the arming being done by an impeller wheel turned by water friction. The pistol is of contact type.

The Japanese are now believed to be using a warhead filler consisting of 40% Hexanite and 60% T.N.T. The explosive power of 100 lbs. of this mixture equals that of about 97 lbs. of T.N.T. The explosive charge in the Type 93 torpedo weighs about 1,200 lbs.

All Japanese cruisers carry torpedoes and it is probable that all the heavy cruisers and many of the light cruisers carry Type 93 torpedoes. Most first line Japanese destroyers are also probably using this type.

With the exception of the old RO 51-56 class submarines and the midget types, all Japanese submarines and torpedo boats

are believed to use 21" torpedoes weighing between 3,200 and 3,600 lbs. with lengths arranging from 20 ft. to 23 ft. The latest model is the Type 94 which is reported to use pure oxygen in the air chamber and which has an estimated top speed of 44 knots. Japanese submarine torpedoes are said to be capable of travelling 6,000 yards at the maximum speed and up to 14,000 yards at 25 knots.

The large "I" class submarines are believed to have a carrying capacity of 12 to 22 torpedoes. The maximum number of torpedo tubes reported is eight, with six forward and two aft or all forward. The smaller RO type submarine may carry from eight to 12 torpedoes with four or six tubes.

A survivor from "I-35", sunk off Tarawa in November 1943, stated that depth settings used aboard his boat ranged from 16 ft. to 39 ft. In the torpedo room torpedoes were said to be handled by chain and tackle swung from overhead rails. Usually five or more men were used to handle the torpedoes. With seven men it took 30 minutes to reload two tubes.

The RO 51-56 class submarine and the midget class submarines are equipped to carry 18" torpedoes. The midget submarine torpedoes are said to carry an explosive charge of 200 lbs. A torpedo found on a midget Japanese submarine, destroyed in Sydney Harbour on May 31 1943, weighed 1925 lbs.

2. UNDERWATER INTERNAL COMBUSTION PROPULSION IN U-BOATS

A number of reports have been received from different sources indicating that German experiments in underwater internal combustion propulsion may now have passed the stage of full scale trials. The experiments have developed in two directions.

(a) The use of closed circuit internal combustion engines in an attempt to obtain submarine speeds approximating to present surface speeds; and

(b) The use of extensible air-intakes and exhaust pipes enabling U-boats to charge their batteries or to "stooge along" at periscope depth.

Closed Circuit Type

Submerged speeds of up to 20 knots are anticipated from

submarines propelled by closed circuit type internal combustion engines. This type of U-boat is probably in the advanced trial stage and some may be working up prior to becoming operational. The range at high submerged speeds is not known, but increased ranges (both surfaced and submerged) can be expected as fuel oil and air bottles presumably replace the heavy batteries and electric motors.

#### Extensible Trunking Type

There have been reports from Kiel, Toulon, and St. Nazaire of U-boats equipped with extensible trunking. This equipment consists of about 26 feet of hydraulically erected trunking containing the air-intake and diesel exhaust pipes, both of which are about 6" bore. The surface ends of the pipe face aft and are cowled to prevent ingress of sea water. Union of the trunking and the pressure hull occurs just forward of the conning-tower on the port side and the trunking stows flat when not in use. A series of water-tight unions, self-sealing valves, and drain valves prevent flooding when the diesel is started.

This is essentially a fair-weather device and can only be used in seas of state 4 and under. It has been reported that despite careful watch on the air-intake pressure gauges, discomfort is often experienced due to sudden pressure drop, due, no doubt, to the inadequate bore of the air-intake pipe. The low maximum submerged speed of three knots is probably due to the same cause. There have been reports, too, of a more efficient design of trunking resulting in higher submerged speeds, but the tactical advantage of a submarine so equipped would be limited by the conspicuous feather and strong hydrophone effect.

As only structural modifications are required, extensible trunking can be fitted to existing submarines and this appears to be its only advantage over the closed circuit type.

Sighting reports of the extensible trunking ("SCHNORKEL") indicate that the tube is normally indistinguishable until very close. Exhaust may bubble up from under water and produce a brown cloud of oily smoke estimated to be visible at five miles.

One report stated that no H.E. was heard at two miles.

Aircraft have obtained Radar contact at 5,000 yards from 1,000 feet.

### 3. JAPANESE SUBMARINE AIRCRAFT

A number of Japanese submarines of the "I" Class carry

float-planes stowed either in hull compartments or in a conning-tower hangar. The older "I" types were designed with two large cylindrical compartments, one on each side just abaft the conning-tower, and other types have hangars just forward of the conning-tower (see sketches in A.C.B. 0233/44 (5) page 5). The planes are either launched from a catapult ramp or floated off by submerging the submarine.

Japanese submarine aircraft are painted blue, green or silver with orange circular markings and are equipped with radio and camera. They are not heavily armed, being used principally for reconnaissance.

### 4. HELICOPTERS ON U-BOATS

The following details of German U-boat Helicopters are supplementary to those given in a previous Report.

The Helicopters have been carried by 1200-ton U-boats in an attempt to enlarge the submarines' area of search. They have no motive power of their own, and depend upon the speed of the U-boat to provide motion against the wind to move the rotar blades.

The Helicopters are believed to operate best at a height of about 500 feet, from which altitude the pilot would have a 25 mile range of visibility. Small and light, the Helicopters are simply launched and can be operated if the wind velocity is adequate (between 18 and 30 knots.) Ear-phones and microphone allow the pilot to remain in constant communication with the U-boat, the telephone cable running through the core of the towing cable.

The time required to handle the Helicopter would prove a disadvantage in areas where our aircraft are operating, though both Helicopter and pilot are considered expendable, and in an emergency the towing cable is released, and the U-boat crash dives.

### 5. U-BOAT A. A. ARMAMENT

The following notes on U-boat A.A. armament have been compiled from various sources.

German operational submarines have, during the last few months, been completing their third change in A.A. armament during the war. At the outbreak of war a single 20 mm. cannon was considered sufficient, but this proved inadequate, and more guns were mounted and the standard two step conning-tower was adopted.

This led to an armament of up to eight 20 mm. guns, and the policy was adopted of fighting it out on the surface. U-boat commanders soon found however, that this doctrine was most unprofitable, for 20 mm. guns had been mounted in twin and quadruple mounts and frequently became defective. Stories of U-boat survivors almost invariably described how their A.A. armament had jammed in action.

Recently there has been information that the Germans are equipping their U-boats with a new type automatic 37 mm single mount gun, and it has been suggested that this may even replace the larger calibre deck guns. The new gun has an automatic electrically operated feed and can be made ready for firing within three minutes after surfacing. The gun may be raised to maximum elevation in three-quarters of a minute.

There have also been reports of a rocket projectile which requires a special shielding device to protect crews from the blast. This weapon has never actually been seen on a U-boat.

## 6. GERMAN RADAR DECOY BUOY

German U-boats now use a Radar decoy buoy (R.D.S.) similar in appearance to a Dan Buoy, designed to give false Radar echo. Fifteen to 30 have been carried.

The buoys are constructed in the following sections to facilitate stowage:

- (a) A wooden spar about 12 feet high above water to which is attached four or five clusters of four or five stiff metal strips.
- (b) A float for buoyancy about two feet six inches in diameter and one foot in depth. Greyish yellow in color.
- (c) Below the float a hollow metal tube about 6 feet long and 5 feet 6 inches in diameter for stability.

Some reports suggest that the buoys are laid at night on

the surface, usually singly, but sometimes two or more may be laid at a time. The buoys may sink after between 18 to 72 hours.

Reports suggest that they are not intended for protection of individual U-boats. It is planned to sow a great number of them in the Bay of Biscay to produce a multiplicity of echoes. For this purpose each U-boat entering or leaving the Bay area is to lay as many as possible.

This implies that operational U-boats may carry a stock of spar buoys which may therefore intimate sowing in other areas.

There has been no report of a Radar echo from a Radar Decoy Spar. It is expected to be much less efficient than the Radar Decoy Balloon and to be less effective against airborne than landborne Radar.

There is no evidence that it incorporates an explosive device. The automatic meteorological transmitter is somewhat similar in appearance to the Radar Decoy Spar and has a self destructive charge.

## 7. DETAILS OF "I-35"

Information received concerning the Japanese submarine "I-35" destroyed off Tarawa, November 23, 1943, has added much to our knowledge of the new "I-26" class submarines. The "I-35" is reported to have one 12 cm (4.7 in.) gun aft of the conning-tower (there is some indication that this may be a 14 cm gun), for which 100 rounds of ammunition were stored beneath the outer decking. Three minutes are required to get the gun into action.

A 20 mm. A.A. twin-mount was on the after part of the bridge and 2,000 rounds of ammunition (one-third tracers) were carried. Six torpedo tubes are carried, all forward, the number of torpedoes carried being either 12, 14 or 18. Although plane-carrying equipment is installed, "I-35" rarely took a plane on patrol.

The submarine was also equipped with listening and echo-ranging gear and a Radar device mounted on the after part of the bridge, the Radar screen being made of solid metal the colour of brass and about two feet in length. (There is some indication that the Radar screen was a round wired grid measuring three feet across). It is indicated that this Radar device could not detect the approach of planes.

A depth of 30 metres (98 ft.) was the normal cruising depth. The "I-35" submerged during the day, coming up three or four times in an hour to raise its periscope from a depth of 18 metres (59 ft.) Surface speed averaged 12 knots, submerged speed two to three knots. Upon sighting enemy planes, no more than three minutes were required to submerge the conning-tower and four to five minutes to reach a depth of 50 metres (164 ft.)

The "I-35" evidently approached to within 75 miles of Hawaii but there is no indication of any contacts having been made with the shore. This class of submarine commences patrols with 2½ months' supplies aboard, including a supply of sake and beer for all hands. Refueling at sea from sampans or supply ships is unknown. Crew morale is reported to be very high.

SECTION VMISCELLANEOUS1. JAPANESE SUBMARINE OPERATIONS

The following review of recent trends in Japanese submarine operations has been taken from a recent United States Fleet Anti-Submarine Bulletin.

"As defensive tactics enter into Japanese methods of Naval Warfare, it is anticipated that submarines will be used to a greater extent on both defensive and offensive patrol. The third major use of their available undersea craft will be supply and evacuation of isolated outlying bases closed off to surface traffic.

"Defensive patrol lines are indicated as having been formed recently both south and to the northeast of Truk. Similar lines probably exist south of Palau and east of Ponape. These picket lines are for the purpose of intercepting Allied surface forces which may attack or attempt landings on Carolines bases. Further extended into the Admiralty Islands on the south and the Marshalls to the east are several submarines on offensive patrol. Contrary to the situation existing earlier in the war, it is now possible for Japanese submarines to operate offensively over a considerable period of time because of the proximity of Allied lines to Japanese bases.

"A few Japanese submarines in Empire waters and others in N.E.I. areas are believed to be engaged in anti-submarine activities by operating in areas where U.S. submarines have been habitually active. Another activity not to be overlooked is the planting of mines in areas known to the Japanese and newly occupied by Allied Forces.

"There has been a definite trend in the last month or two to move out of Japanese waters many Japanese submarine units which can be more effectively used on guard and patrol duties in forward areas. The apparent success of the Japanese submarine construction programme also contributes to the appearance of more units being actively employed."

## 2. GERMAN AND JAPANESE SUBMARINE LOSSES

Preliminary reports indicate that during April, 12 submarines (11 German and one Japanese) were sunk or probably sunk. During the month the ratio of submarines sunk or probably sunk to each merchant vessel lost by U-boat action was 1.5 to 1.

Of the 12 submarines sunk or probably sunk during the month surface vessels were responsible for five, aircraft three, submarines two and co-ordinated action of aircraft and surface craft two. The reports for May indicate that 21 submarines may have been sunk, 11 by shore-based aircraft, five by carrier-borne aircraft and five by warships.

## 3. CARRIER BORNE AIRCRAFT

During March, 11 British escort carriers and 17 M.A.C. ships were operating. During the passage of convoy R.A. 57 three U-boats were sunk by Swordfish from H.M.S. "CHASER", although the intense cold imposed a very heavy strain on the crews flying in open cockpits. The inevitable result, an all-round drop in efficiency, made the achievements of the squadron all the greater. The kills were all made with rocket projectiles.

"CHASER" carried 11 Swordfish and 11 Wildcats, and after 170 hours flying by the former and 47½ hours by the latter, returned to Scapa with seven Swordfish and nine Wildcats still serviceable. This, in view of the appalling conditions in which they worked, was a triumph for the maintenance parties.

It was found that the small flight deck and the intensity of the A/S operations, combined with the cold and the state of training of the flight deck party, made it impossible for anti-submarine patrols and strikes to be carried out concurrently with fighter sorties against shadowing aircraft. All the anti-submarine operations were within Radar cover and the movements of the aircraft were controlled completely from the ship.

## 4. ENEMY USE OF RADAR DECOYS

A striking example of the effective use of Radar Decoy

Balloons by German submarines against Allied surface forces is provided by this extract from a CinCPac Summary of "Counter Measures and Deception".

The action report of the torpedoing of U.S.S. "LEARY" in the European theatre indicates that Radar deception was employed, using a decoy balloon. "LEARY" picked up Radar contact at 0158 on December 24, 1943, and while tracking this contact she momentarily gained Asdic contact at close range. However, she was torpedoed before being able to attack with depth charges.

"LEARY" had been ordered to join U.S.S. "SCHENCK" in hunting known submarines in the approximate position 45° 15' N 21° 40' W. Course was altered to about 010° and "LEARY" commenced her search. F.X.R. gear was streamed and all hands went to general quarters.

At 0158 "LEARY" picked up a Radar contact bearing Green 60, range 6,500 yards. She altered course 15° to starboard and increased speed to 20 knots, Radar contact being maintained through-out. The target was tracked and appeared to be on course 315°, speed about 12 knots. "LEARY" opened fire with starshells, range contact being given as 5,400 yards bearing Green 45. The starshell failed to reveal any submarine on the surface and course was altered 30° to starboard, putting the Radar contact about 15° on the starboard bow.

Two or three minutes passed before an Asdic contact was made bearing Green 75, range 750 yards. Speed was reduced to 15 knots, but by this time the target was drawing right and the range had been reduced to 500 yards. At this time "LEARY" was torpedoed aft on the starboard side, and less than five seconds later another torpedo struck the same side.

U.S.S. "SCHENCK" made the following report after the action. Wind was from southeast, force 6, and the Radar contact was moving north west at a speed exceeding 20 knots. While searching the area in which "LEARY" was sunk, SC.Radar made contact on a target at 2,100 yards. This target also moved north west at a speed in excess of 20 knots.

The following comments were made by CinCPac.

The foregoing account is an illustration of the use of electronic devices in naval warfare. It is a natural outgrowth of old "hit while their attention is elsewhere" idea. While tracking down what appears to be a bona-fide Radar contact, it is imperative that an all-around search with all available equipment be maintained to insure against just such deception, which if perfected, presents many possibilities.

To date this has been exclusively German tactics, but the appearance of a similar procedure in the Pacific can be expected since much operational and technical information may be given to the Japanese by the Germans. There are also other possibilities in the use of such deception such as co-ordination between aircraft and submarines (Japanese are already proficient in such co-ordination) against our Task Forces, with the use of balloon-borne reflectors or "Windows" to draw attention from the true direction or type of attack.

There are two possible counter-measures for such deception:

(a) Careful analysis of each Radar echo. It is often possible to distinguish between an actual and a simulated target by the more rapid "beating" of the latter.

(b) Careful tracking of each Radar contact. If the plotted course and speed agree closely with that of the surface wind direction and velocity, the possibility of the contact being a balloon-borne reflector is highly probable."

## 5. THE "SILENT" SERVICE

Tokio Radio broadcast the following "message" to Australia on June 1.

"We have conscientiously heralded the past 39th Navy Day. We expect great things of our Navy and its traditions and invincibility. Our Navy is awaiting the best time and place to attack the enemy. Our silent navy, that can destroy the enemy once it makes a stand, is keeping the enemy back. The superiority of Japanese strategy, which keeps the enemy from advancing any further, is due to the strength of our navy.

The change from island hopping to leap-frogging, as demonstrated by the enemy in New Guinea, has been due to the many ships and aircraft carriers at his disposal. The enemy is depending upon mass production of aircraft, since the Great East Asia war will be decided by air warfare. The enemy is repeating its air war in Europe, overlooking the great losses in men and material. He is saying that there are hardly any of our planes left, and that there is little need to worry about our production.

Is our air force so weak? Our aircraft production is following its course, showing great increases, due to the concerted efforts of the entire nation. People of various trades and

ages are mobilized in great numbers. There are boys of 17 or 18, old men, students, volunteers and women in one factory, showing in miniature what is going on in the whole nation. Women are proving skilful in simple tasks that need a quick hand, and their interest is keen. They asked to stay after being tried out last spring, since they felt that they were needed for increasing production. I also want to inform you overseas that various industries are mobilized to help the aircraft industry. The combination of these allied interests forms one huge aircraft industry."

## 6. JAPANESE ANTI-SUBMARINE MEASURES

The following is an extract from a captured enemy publication "INSTRUCTIONS ON ANTI-SUBMARINE PROCEDURE FOR TRANSPORT VESSELS."

"The Greater East Asia war is a new step in the plan of Imperial Japan's great victories.

"The chief opposition measures by Anglo-America against Japan are based upon submarine warfare. The main threat is from the sea. Since May, enemy submarines have become increasingly active.

"Our transport crews, for the fructification of the Greater East Asia war, navigate dangerous waters with vigorous spirits. Their willingness to go forth on dangerous missions is indeed gratifying. The untiring efforts of commanders and crews have won our respect and gratitude.

"However, it is regrettable that heretofore, crews lacked details of technique in combating submarines."

## SECTION VI

MATERIEL1. C.A.F.O.'s. ON A/S SUBJECTS

C.A.F.O. 1943	Reference	Brief Description
2159	124, 128 Series 144 Series	Improved method of mounting H.T. Connectors.
2160	127/A/C 128/A/B/C/D	Modification of wiring to Box Junction and Switch 5804B/C
2161	127, 128 Series 144 XA	Key, Signalling - Modification to wiring
2162	All Sets	H.F.M.A. Alternators - Adjustment
2163	All sets	Fairing of plating
2164	All sets	Error in Recorder Time Scales
2231	128, 144 Series	Spare pillars and rafts
2232	All sets except 124	S/R Key - Adjustor
2233	134/A	Oscillators
2294	All Sets	Depth Charge Patterns
2338	134/A	Oscillators
2339	Recorders A/S 3	Control of Transmission Interval
2389	134/A	Bags containing screws and washers
2393	All sets	Depth Charge Patterns

C.A.F.O. 1943	Reference	Brief Description
2449	123, 127	Dome Inhaul Wire
2450	Hedgehog	Introduction of Helmsman's Indicator
2620	A.V.C.	Introduction of Suppressor Units
2670	144, 145	Interim sets
2671	All sets	Fairing of Plating
2781	134/A	Oscillator Units
2836	128, 144 Series	H.T. Connectors
2837	127, 128 Series	Signalling Key Wiring

Attention is also drawn to the following orders:

2165, 2166, 2167, 2293, 2295, 2340, 2390, 2391, 2392, 2499  
 2500, 2546, 2547, 2548, 2549, 2550, 2619, 2672, 2673, 2674  
 2729, 2730, 2775, 2776, 2777, 2778, 2779, 2780.



## SECTION VII

INDEX

The following is an index to counter measures, weapons and intelligence subjects published in previous issues of the South West Pacific Monthly Report.

Communications . . . . .	43 (1) p.4, 43 (2) p.3, 43(3) p.1, 43 (5) p.5.
Convoy Escort Game . . . . .	43 (4) p.5.
Convoy Escort Organisation . . . . .	43 (5) p.6.
Counter Attacks . . . . .	44 (1) p.3.
Depth Charges . . . . .	43 (1) p.8.
Escort Groups . . . . .	43 (1) p.3, 43 (5) p.6.
Escort Policy . . . . .	44 (5) p.1.
Evasion by Convoys . . . . .	43 (2) p.1.
Flare - 2 inch Rocket . . . . .	43 (6) p.4.
FXR Gear . . . . .	43 (6) p.2.
Gunfire - Effect on U-boats . . . . .	43 (6) p.5.
Hedgehog and Mousetraps Hunts to exhaustion . . . . .	43 (1) p.6, 43 (3) p.25, 43 (4) p.34.
Hydrophone Systems - Japanese . . . . .	43 (3) p.6. 43 (4) p.23.
<b>JAPAN</b>	
Anti-Submarine Measures . . . . .	43 (5) p.24, 44 (3 & 4) p.22, 44 (5) p.18.
D/F Equipment . . . . .	44 (2) p.28.
Explosive Paravane . . . . .	43 (2) p.18.
Submarine in Indian Ocean . . . . .	44 (1) p.20.
Submarines at Rabaul . . . . .	43 (6) p.28.
Submarine Operations . . . . .	44 (5) p.18.

Mines . . . . . 43 (1) p.11, 43 (2) p.21.

Operations Raspberry etc. 43 (1) p.4, 43 (4) p.2.

**R.A.A.F.**

Convoy Patrols . . . . .	43 (1) p.6, 43 (2) p.1, 43 (3) p.6.
Co-operation . . . . .	43 (4) p.3, 43 (5) p.7.
Marine Markers . . . . .	44 (2) p.1.
Submarine Sighting Procedure . . . . .	43 (3) p.2.
Use of Illuminants . . . . .	43 (4) p.5.
Radar . . . . .	43 (1) p.4, 44 (2) p.2.
Roman Candles . . . . .	44 (2) p.3.

Schermuly Rockets and Snowflakes 43 (2) p.2, 43 (3) p.6, 43 (4) p.2.

"Squid" . . . . . 43 (5) p.38.

**SUBMARINES**German

Deep U-boats . . . . .	43 (3) p.19.
Helicopters on U-boats . . . . .	44 (3 & 4) p.30.
In Indian Ocean . . . . .	43 (5) p.20.
New U-boats . . . . .	43 (2) p.20, 43 (5) p.21, 44 (2) p.28.
Radar Decoys . . . . .	43 (3) p.19, 43 (6) p.26.
Small U-boats . . . . .	44 (2) p.34.
Statistics . . . . .	43 (6) p.31.
Submarine Bubble Target . . . . .	43 (2) p.18.
Torpedoes . . . . .	43 (2) p.20, 43 (5) p.23, 44 (1) p.21.
U-boat Construction . . . . .	44 (2) p.28. 44 (5) p.20.
"U-Kreuzer" . . . . .	43 (4) p.23.

Italian

In Far East . . . . . 44 (2) p.30.

SUBMARINES Contd.

Japanese

Anti-Aircraft Arma- 44 (3 & 4) p.33.  
 ment  
 Asdic . . . . . 43 (1) p.22, 43 (4) p.22, 43 (6) p.27,  
 44 (1) p.29, 44 (3 & 4) p.32  
 Cruising Range . . . 43 (3) p.18.  
 General Information 43 (1) p.23, 43 (4) 21, 44 (2) p.22.  
 44 (5) p.15, 44 (5) p.16.  
 Hydrophones . . . . . 43 (1) p.21, 44 (3 & 4) p.32.  
 "I" Class - Plan . . 43 (3) p.20.  
 Losses and Construct-43 (1) p.23, 43 (3) p.16, 44 (1) p.28.  
 ion  
 Mines . . . . . 43 (2) p.21  
 Midgets . . . . . 43 (5) p.21, 44 (1) p.21  
 New Types . . . . . 43 (3) p.18, 43 (6) p.29, 44 (5) p.23.  
 Periscopes . . . . . 43 (1) p.22.  
 Personnel . . . . . 44 (2) p.19.  
 Performance when 43 (1) p.22, 44 (5) p.16.  
 diving  
 Radar . . . . . 43 (1) p.22, 43 (6) p.27, 44 (1) p.29,  
 44 (2) p.26, 44 (3 & 4) p. 33, 44 (5) p.14  
 Specially fitted 44 (1) p.29.  
 submarines  
 Supply submarines 43 (1) p.20, 44 (3 & 4) p.29  
 Tactics . . . . . 43 (1) p.21, 44 (2) p.19 44 (2) p.25,  
 44 (5) p.25, 44 (3 & 4) p.31.  
 Torpedoes . . . . . 43 (1) p.22, 43 (2) p.18, 43 (6) p.26  
 44 (3 & 4) p.33.  
 Wireless . . . . . 43 (1) p.22, 43 (4) p.22, 44 (3 & 4) p.33.

Training and Exercises 43 (1) p. 6, 43 (2) p.2, 43 (3) p.5,  
 43 (5) p. 6, 43 (6) p.5, 44 (2) p.1,  
 44 (3 & 4) p. 1,3.

INDEX

Anti-Submarine War- 44 (5) p.24, 44 (3 & 4) p.22, 44 (5) p.18.  
 V/T Equipment . . . . 44 (2) p.29  
 Explosive Paravane . . 43 (2) p.10, 44 (1) p.1  
 Practice in India . . . 44 (2) p.20.  
 Down  
 Submarine at Beirut . . 43 (6) p.28.  
 Submarine Operations . 44 (5) p.18.

## SUBMARINE CODE.

## Japanese

Anti-Aircraft Armament	44 (3 & 4) p. 33.
Asdic . . . . .	43 (1) p. 22, 43 (6) p. 27, 43 (6) p. 27.
	44 (1) p. 29, 44 (3 & 4) p. 32.
Cruising Range . . . . .	43 (3) p. 18.
General Information	43 (1) p. 25, 43 (4) p. 21, 44 (6) p. 22.
	44 (5) p. 15, 44 (5) p. 16.
Hydrophones . . . . .	43 (1) p. 21, 44 (3 & 4) p. 32.
"I" Class - Plan . . . . .	43 (3) p. 23.
Losses and Construction	43 (1) p. 23, 43 (3) p. 18, 44 (1) p. 28.
Mines . . . . .	43 (2) p. 21.
Midgets . . . . .	43 (5) p. 21, 44 (1) p. 21.
New Types . . . . .	43 (3) p. 18, 43 (6) p. 29, 44 (5) p. 23.
Periscopes . . . . .	43 (1) p. 22.
Personnel . . . . .	44 (2) p. 19.
Performance when diving	43 (1) p. 22, 44 (5) p. 16.
Radar . . . . .	43 (1) p. 22, 43 (6) p. 27, 44 (1) p. 29,
	44 (2) p. 26, 44 (3 & 4) p. 33, 44 (5) p. 24.
Specially fitted submarines	44 (1) p. 29.
Supply submarines	43 (1) p. 20, 44 (3 & 4) p. 29.
Tactics . . . . .	43 (1) p. 21, 44 (2) p. 19, 44 (2) p. 25,
	44 (5) p. 25, 44 (3 & 4) p. 32.
Torpedoes . . . . .	43 (1) p. 22, 43 (2) p. 18, 43 (6) p. 26,
	44 (3 & 4) p. 33.
Wireless . . . . .	43 (1) p. 22, 43 (4) p. 22, 44 (3 & 4) p. 33.
Training and Exercises	43 (1) p. 6, 43 (2) p. 2, 43 (3) p. 5,
	43 (5) p. 6, 43 (6) p. 5, 44 (2) p. 1,
	44 (3 & 4) p. 2, 3.

