

CHAPTER 22

MINELAYING BY THE CATALINAS

IN January 1943, at the Casablanca conference, President Roosevelt had observed that submarines in the first year of the Pacific war had sunk 1,000,000 tons of Japanese merchant marine and that "attrition of Japanese shipping was one of the best means of victory".¹ The enemy had lost severely and each additional ship sunk would now do him proportionately more injury than earlier when he had ample shipping for his needs. Furthermore, Japanese shipyards could not hope to replace ships at the rate they were being sunk. Also enemy anti-submarine measures were not of high standard.

The effect of shipping losses on the Japanese war economy would be great because of Japan's dependence on imported raw materials such as iron ore, coal, aluminium and oil.

American submarines, in addition to attacking enemy ships with torpedoes and shell fire, had been laying minefields in enemy waters. Task Force 71, commanded by Rear-Admiral Charles A. Lockwood, had sent submarines out on patrols from Fremantle in Western Australia for this purpose. Between October 1942 and April 1943 they laid 207 mines in the South China Sea, about the Philippines and along the Borneo coast. However, minelaying operations were unpopular with the submarine crews because they involved going into shoal waters where the submarines would be almost helpless if seen and attacked.² In the summer of 1942-43, however, there had been a critical shortage of torpedoes and Admiral Lockwood had been forced to substitute mines when a full allowance of torpedoes could not be made.

Aircraft were next pressed into service to lay mines. American marine and naval aircraft were used in March 1943 to lay mines in the Buin-Tonolei area in southern Bougainville, while Flying Fortresses and Liberators carried out diversionary bombing on Kahili airfield.

Evidently requests were made to General MacArthur that he should allot some of his air effort to minelaying operations. However, he had then informed Admiral Nimitz that he could not spare bombers for minelaying when "more direct action promised greater returns".³ Australian Catalinas were then offered for this work. Although slow, the range over which they could operate (up to 2,000 miles) and the load which they could carry at this range, made the Catalina ideally suited for minelaying. In addition, the aircraft were fitted with torpedo racks which could carry both American and British mines.⁴

¹ After the war it was discovered that, in fact, up to the end of 1942, some 600,000 tons of Japanese shipping had been sunk by submarines, while air attack, mines and other agents brought the total to more than 1,000,000 tons.

² S. E. Morison, *History of United States Naval Operations in World War II*, Vol VI, p. 76.

³ Memo, MacArthur to C-in-C US Pacific Fleet, Honolulu, 1 Jan 1943.

⁴ Reference to minelaying by these aircraft has been made in earlier chapters.

There were in the R.A.A.F. a number of officers who had served in Coastal Command of the Royal Air Force in Britain and had been impressed by the results of mining campaigns against shipping about the coasts of France and Norway. Minelaying had proved to be a most profitable and economical form of attack against sea communications. The actual sinking and damaging of ships is only part of the strain which is imposed. The laying of mines results in the closing of harbours, dislocating sea communications and forcing the diversion of forces to minesweeping and other counter-measures. The closing of harbours is equivalent to an over-all reduction of the merchant shipping tonnage available to the enemy. There were, in the islands north of Australia, a number of harbours in the hands of the enemy which might be blockaded by mining.

On 29th March 1943 Air Vice-Marshal Bostock proposed to General Kenney that his Australian Catalinas should be used first of all to mine Wewak Harbour. Performance trials, however, showed that the Catalinas, loaded with mines, would not be able to cross the mountains of New Guinea to reach Wewak, and he therefore suggested, a few days later, that a more suitable harbour for the first mine-dropping operation would be Silver Sound, near Kavieng in New Ireland. Kavieng was an important intermediate anchorage between the Japanese Combined Fleet base at Truk and the major base of Rabaul. Bostock said in his letter that the United States naval authorities believed the anchorage was about to be developed by the enemy and suggested that it would be wise to have it mined before defences were built up. The enemy defences there were limited and it would therefore not be necessary to call on the Fifth Air Force to provide diversionary bombing attacks.

On 9th April, General MacArthur's headquarters approved the R.A.A.F. plan for planting eighteen mines in Silver Sound on the night of 22nd-23rd April and sixteen mines in the Ysabel Passage, on the night of 24th-25th April. R.A.A.F. Command then ordered North-Eastern Area to carry out the operation, defining its objects as:

1. To sink and damage enemy ships entering Silver Sound.
2. To deny the enemy the use of Silver Sound as a fleet anchorage or base, thus forcing him to use unprotected anchorages exposed to submarine attack, or alternatively to hinder the enemy's effort by making him divert men, equipment and ships from other employment to special minesweeping operations.

Four mine-warfare specialists were sent to Cairns, Queensland, the base of Nos. 11 and 20 Squadrons, to supervise the loading of mines and the briefing of crews according to the laying plan prepared by R.A.A.F. Command. They were: Lieut-Commander Carr,⁵ R.A.N., Squadron Leader Engel,⁶ Lieutenant C. E. McCalip of the United States Navy and Flying Officer Smooker.⁷ No difficulties were experienced in loading. One load

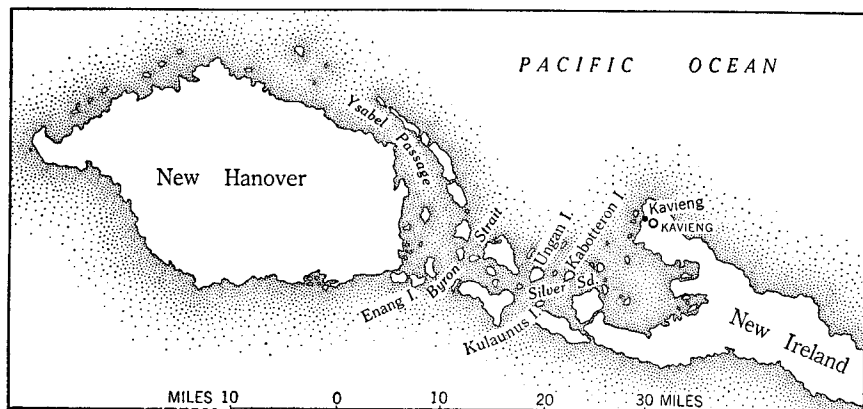
⁵ Lt-Cdr P. E. Carr, DFC; RAN. HMAS *Perth* 1939-40; HMS *Hermes* (814 Sqn) 1941, 1942; HMAS *Australia* 1942. Of Toorak, Vic; b. Toorak, 25 Feb 1908.

⁶ W Cdr N. P. Engel, 405. Stn Armament Offr, RAAF HQ Port Moresby 1941-42; Comd Armament Offr RAAF Command 1942-44. Regular air force offr; of Raymond Terrace, NSW; b. Raymond Terrace, 19 Jul 1920.

⁷ W Cdr L. B. Smooker, 4843. Stn Armament Offr HQ Port Moresby 1942; Armament duties 9 Ops Gp 1942-43; LO USAAF Fwd Ech 1943. Regular airman; of Orbost, Vic; b. Orbost, 5 Feb 1914.

of two mines was taken by each of the two bomb scows⁸ and eight aircraft were loaded.

It was thought best to carry out the operation in full moonlight and, to avoid collision in the laying area, aircraft having adjacent tracks were given widely spaced take-off times. Four of the Catalinas were directed to refuel at Milne Bay and four at Port Moresby on the return trip. The journey from Cairns to Milne Bay and thence to Silver Sound meant about ten hours flying, much of it at night over enemy territory.



Squadron Leader Vernon of No. 11 Squadron took off first on 22nd April at 11.10 p.m., and was followed by Wing Commander Green, Squadron Leader Stokes, Pilot Officer Blackley,⁹ Flight Lieutenant Tamblyn,¹ Squadron Leader Stilling and Flight Lieutenants W. J. Clark and White.² On the way to Silver Sound the Catalinas had to fly through the dense rain clouds of two tropical storms, and at the target they were silhouetted in the light of the full moon.

Blackley was first to reach the area. He made one run and dropped both mines successfully from 300 feet. After leaving his datum point and before dropping the mines he touched the water but with no ill effects. The enemy was not alert to the presence of Allied aircraft and Blackley therefore met no opposition. A ship just east of Kulaunus Island signalled him with a green Aldis-type lamp.

Green dropped his mines two minutes after Blackley, from 900 feet. Anti-aircraft fire from Ungan Island burst closely behind him during his run. The third to drop mines was Vernon, who made his run in the

⁸ A shallow draught tender used at seaplane bases between the shore and the aircraft at their moorings.

⁹ F-Lt T. Blackley, 404901; 20 Sqn. Bank clerk; of Innisfail, Qld; b. Atherton, Qld, 4 Mar 1917.

¹ Sqn Ldr H. Tamblyn, DFC, 85697, RAF. 202 and 205 Sqn RAF; 20 Sqn. Clerk; of Five Dock, NSW; b. Concord, NSW, 12 Mar 1916.

² F-Lt W. G. S. White, DFC, 404192. 201 and 11 Sqn, and 113 ASR Flight. Newsagent; of Mackay, Qld; b. Mackay, 10 Feb 1913.

same area as Blackley. Both mines released correctly and Vernon continued his run over the ship which had signalled Blackley fifteen minutes earlier. This ship opened fire with medium and light anti-aircraft guns. Vernon's Catalina was holed five times by shrapnel in the port float, and enemy fire also blew four large holes in his port wing. He turned west and encountered more anti-aircraft fire from a ship to the west of Kulaunus Island. By the time White, in the last Catalina to lay mines, came over the target area the defences had a very good idea of the height and speed of the raiding aircraft. White encountered very accurate medium anti-aircraft fire from Ugan and Kabotteron Islands and was forced to turn to port to avoid it. He dropped his mines about 1,000 yards north of the planned position, but in good water.

Two nights later the second raid took place. Another approach to Silver Sound, through Byron Strait and Ysabel Passage, was mined. This time the weather was milder, only one front being passed. Only one of the Catalinas (captained by Flying Officer Marsh³) was fired on and then only after the Catalina had itself fired on a light anti-aircraft position on Enang Island. On 27th April, Flying Officers Shields⁴ and Marsh flew again to Silver Sound to reinforce the minefield. However, the weather en route was very bad and in the dropping area heavy rain and low cloud prevented the aircraft from finding their datum point. Both returned to Cairns with their mines. The weather continued poor until the night of 3rd May when three Catalinas (Stokes, Marsh and Flying Officer Dowsley⁵) set off and had little trouble in laying six mines from 900 feet. There was no moon during this mission, yet the captains had no difficulty in finding their datum points. It was therefore concluded that it would be better to drop mines without the aid of the moon, because fighter interception would be less likely and with no moon a Catalina is difficult to see below 500 feet. There was a greater risk of collision because the aircraft could not see each other, but the risk could be avoided by sending fewer aircraft per night.

Some time elapsed before results could be assessed for this first Australian aerial minelaying mission, but, a few weeks later, the Seventh Fleet Intelligence officer received a reliable report that the Japanese were sweeping the minefield in the Kavieng area, but no casualties to enemy ships had been observed.

At the end of May, sixteen Catalina sorties were flown on a minelaying operation to the Admiralty Islands. The Catalinas laid their mines in Seadler Harbour and the adjacent Lorengau anchorage. The Admiralties would provide the only suitable deep water anchorages for the Japanese fleet south of Truk, if Rabaul and Silver Sound could be effectively neutralised by bombing and mining. The operation was spread over

³ F-Lt P. L. B. Marsh, 408191. 9, 20 and 11 Sqns. Assistant manager; of Launceston, Tas; b. Wyong, NSW, 21 Sep 1916. Killed in aircraft accident 4 Feb 1944.

⁴ F-Lt J. P. R. Shields, 402065. 210 Sqn RAF, 20 Sqn. Accountant; of Coogee, NSW; b. Richmond, NSW, 26 Sep 1918.

⁵ F-Lt W. A. Dowsley, 408997. 9, 20 and 43 Sqns. Sales representative; of Toorak, Vic; b. Melbourne, 12 Jan 1917.

several nights and a total of thirty-five mines were laid. The pilots had to fly around for considerable periods searching for their starting points, but they were not fired on. In these circumstances, it was considered unnecessary for diversionary bombing raids to be made, since all they would do would be to stir up enemy opposition.

On 4th June 1943 an American submarine from Fremantle added twenty-four mines to the minefield at Kavieng and on 15th June Liberators of the Fifth Air Force joined the minelaying campaign and dropped twenty-four mines off the mouth of the Sepik River, for the purpose of hindering Japanese activities at Wewak and Aitape. On the nights of 10th-11th, 11th-12th and 14th-15th July, Australian Catalinas flew from Darwin to Babo on Maccluer Gulf to drop eleven mines. Rabaul's supply line was now affected from two directions. Ships from Truk would hazard themselves at Kavieng, while the other minefields would interfere with surface supply of the air route bases from the Netherlands East Indies through Kendari, Ceram, Babo and Wewak to Rabaul.

Minelaying continued to be only a minor activity of the Catalina squadrons. Both Nos. 11 and 20 Squadrons had heavy commitments in anti-submarine work, supply of coastwatchers, and bombing. In addition, during July and August an unfortunate series of mishaps to aircraft on the water reduced considerably the number of aircraft available for the work.

On 29th July mines were laid in the channel between Ceram and Ceram Laut at Geser, and in early August the port of Macassar in Celebes was mined. Darwin was used by the Catalinas only as a refuelling and overnight resting place. It was still too much under threat of enemy air attack for permanent use. The Catalinas engaged on the Macassar operations took their mines aboard at Cairns and flew to Darwin on 3rd August. After refuelling, the aircraft took their mines to Macassar and returned to Darwin early on the 5th. On the 6th more fuel and fresh mines were placed on board and again the planes set off for Macassar. A total of sixteen mines were left in the approaches and harbour of Macassar.

Surabaya was the next target chosen. The harbour at Surabaya is covered by the island of Madura, a big protective wall lying along the north coast of Java. At Surabaya there were large naval dockyards and a highly-developed commercial port which handled a huge peacetime traffic in merchandise and raw materials. Mining the entrance roads might close the harbour and bottle up many ships using the port. The Japanese had been using Surabaya as the main supply and convoy assembly point for troopships moving to the military garrisons in islands closer to Australia. It also had a heavy concentration of anti-aircraft weapons.

Four Catalinas drawn from both Nos. 11 and 20 Squadrons took part, captained by Green, Flight Lieutenants Bolitho, Miles⁶ and Marsh. They left Cairns on 25th August and mined Surabaya on the night of 26th-27th August. No anti-aircraft fire was experienced. The four aircraft then

⁶ F-Lt C. J. Miles, 405317. 11 and 20 Sqns. Public servant; of Brisbane; b. Stanthorpe, Qld, 19 Jan 1913. Killed in aircraft accident 7 Sep 1943.

returned to the U.S.S. *Preston* at Heron Haven, refuelled, and then continued to Darwin where they took on more mines and proceeded again to Surabaya. Again there was no anti-aircraft fire, although occasionally the crews could see searchlights flickering on and off. The track of the Catalinas lay over Madura Island and evidently crossed an encampment of enemy soldiery, for the aircraft were attacked at 3,000 feet with considerable small-arms fire from the ground. Miles' aircraft received seven bullet holes and a gunner one .30-calibre bullet in each leg.

On the night of 2nd September 1943 the R.A.A.F. lost its first Catalina on a mining mission. The aircraft, captained by Flying Officer Oliver,⁷ vanished without trace after it took off to complete a minefield at Sorong in Dutch New Guinea. The most likely explanation was that the aircraft crashed on land, either in the mountains north-west of Fakfak or in the mountains of Nuhu Tjut Island. When this loss occurred the Catalinas had the laying of 235 mines to their credit.

On 26th September and again on 28th September three Catalinas mined Batu Kilat harbour and Pomelaa harbour and its approaches. The raid on Pomelaa revealed the presence there of an 8,000-ton vessel with an efficient anti-aircraft armament. The gunners opened up on Flight Lieutenant Lawrence's aircraft, scoring many hits, but it returned safely to base.

Two nights later a Catalina of No. 20 Squadron, captained by Stilling and carrying Lieut-Commander Carr as a passenger, set out from Darwin for the purpose of attacking this vessel with torpedoes. Stilling made the attack but was shot down over the target area. This was announced over the Japanese radio on 8th October. At 3 p.m. on 2nd October the call signals of the missing aircraft were heard at Perth for twelve minutes, but it was believed that these were broadcast by the enemy as a ruse to encourage Allied searching efforts. On the night of 3rd October Bolitho dropped eight 250-lb bombs on Pomelaa and searched the entire area and all escape points between Celebes and Darwin for the missing aircraft, but without result. A dozen or more aircraft searched the west and north coasts of Australia.

This misadventure dealt a severe blow to the progress of the mining campaign, because Carr, in close cooperation with the staff of the Seventh Fleet, had guided the aircraft mining campaign in the Netherlands East Indies from the beginning. He had a wide knowledge of the Netherlands East Indies and of minelaying problems and had worked hard and enthusiastically on the campaign. Carr survived the crash and was taken prisoner by the Japanese.

In November 1943 the Catalinas mined or reinforced existing minefields at Kendari, Ceram, Waingapu and Kavieng. In December the Catalinas were to mine Kau Bay, Halmahera Island. Seven Catalinas flew from Cairns to Darwin on 18th December, loaded with mines, but soon

⁷ F-O J. P. Oliver, 401660. 9, 20 and 11 Sqns. Clerk; of "Paika" Stn, Balranald, NSW; b. Melbourne. 25 Aug 1915. Killed in action 2 Sep 1943.

after arrival there, a signal was received ordering them all to return to Cairns to take part in a ten-day bombing strike at Kavieng. This bombing would take place while ground forces of the South-West Pacific Area were on the way to and carrying out their assault at Cape Gloucester. It was not until 14th January 1944 that six Catalinas left Darwin for Kau Bay.

Kau Bay was undergoing rapid development by the Japanese. Earlier they had had few airfields there, but in January 1944 they were pushing ahead with the building of a powerful base. At Lolobata, within Kau Bay, reconnaissance showed thirteen ships, including two large destroyers. The original plan was to mine Kau Bay entrance first and thus trap all shipping in Kau Bay and then mine the anchorages. However, it was decided to attack the heavy concentration at Lolobata first, as an element of safety, for the crews.

To reach Kau Bay the Catalinas would have to spend at least five daylight hours flying over enemy-held islands. A proposal to fly the aircraft to the target area in formation was considered but rejected because of the strain on pilots and the extra fuel that would be consumed. Instead the aircraft were to follow their normal course of flying alone, but they would skim the sea for the entire daylight voyage, to avoid the enemy radar devices on Ambon Island.

Only five of the Catalinas reached Kau Bay on 14th January, and severe anti-aircraft fire was experienced by one of the Catalinas as it passed over the shipping in Lolobata Bay. One of the Catalinas returned from Kau Bay with its radar equipment out of order and in consequence had to fly at 8,000 feet altitude. A night fighter attempted an interception near Ambon. The fighter was seen by the Catalina crew, but apparently the enemy fighter pilot failed to see the Catalina. The Catalina pilot dived to 300 feet, avoided the fighter and then dropped a flare to take a wind-drift observation. The fighter again tried to intercept but failed to see the Catalina. On 16th January another four sorties were flown. On this mission the mines were laid in the east entrance to Kau Bay and off Cape Biang. Again the enemy ships in Kau Bay fired on the Catalinas, but failed to hit any of them.

The next target was to be the vital oil port of Balikpapan. Balikpapan was at extreme range and it was necessary that an advanced staging base should be established for the Catalinas on the north-western coast of Australia. On 23rd January a Catalina pilot of No. 20 Squadron flew a party of mine-warfare officers from R.A.A.F. Command and the Seventh Fleet to Cygnet Bay, near Derby in Western Australia, to determine the suitability of this harbour as an anchorage for Catalinas and a seaplane tender. Cygnet Bay was suitable since it was protected from surprise air attack by the R.A.A.F. radar station at Cape Leveque, and fighter cover could be provided from the airstrip at Derby some sixty miles away.

On 14th February, a detachment of Boomerangs of No. 85 Squadron arrived at Derby and commenced patrols over Cygnet Bay on 19th Feb-

ruary, on which day the U.S.S. *Preston* arrived and began setting up moorings for the Catalinas. The Catalinas arrived on 21st February and the crews were briefed on 22nd February. Six of them laid mines in Balikpapan harbour and the channel approach. Some eighteen searchlights were operating at Balikpapan, but none of them gave any trouble, presumably because all aircraft flew at between 200 and 300 feet. One Catalina made two circuits of the town at 200 feet without meeting hostile fire.

On the return flight, two Rufes intercepted one of the Catalinas (captained by Bolitho). One Rufe made one pass and then climbed, while the other made seven passes. The enemy aircraft scored fourteen holes in the wings, petrol tanks and oil tank. Fortunately the bullets were not incendiary and those which entered the fuel tanks remained there. The enemy pilots were evidently novices, and were content with diving attacks on the low-flying Catalina. A coordinated low-level attack would undoubtedly have brought about the destruction of the aircraft. Instead, the Catalina took part in the second operation against Balikpapan. To counter enemy fighter opposition, Beaufighters of No. 31 Squadron were sent from Darwin to cover the Catalinas in daylight hours on their return flight.

On 25th February five Catalinas laid mines outside the harbour at Balikpapan without opposition and a sixth, unable to reach Balikpapan, laid its mines at Macassar. The operation against Balikpapan was now completed, and the Catalinas, after refuelling at Cygnet Bay, returned to Darwin.

During their operations against Balikpapan the Catalinas carried out eleven sorties with a 2,000-lb mine-load over 945 sea miles to the target. This was a noteworthy accomplishment and demonstrated the reliable performance of these aircraft, when handled by experienced aircrews. On the second mission to Balikpapan head winds were encountered and all aircraft returned with less than 100 gallons of fuel. It was not thought, however, that this narrow margin of fuel amounted to an undue hazard. The captains were experienced and knew exactly what their engines could do. The only danger would arise from an unfavourable change in the wind during the runs to and from the target.

In March Manokwari and Sorong in Dutch New Guinea were mined and in April the minelaying operations were reinforced by the arrival in Darwin from Karumba of No. 43 Squadron, which was assigned exclusively to minelaying. From April onwards the minelaying operations of Nos. 11 and 20 Squadrons were to be limited to points east of the 130th meridian, while No. 43 Squadron was to mine west of that meridian. The captains of No. 43 Squadron had not hitherto conducted mining missions, but a number of them had served as second pilots with Nos. 11 and 20. Minelaying in April was mainly in indirect support of the assault landings at Hollandia and Aitape and have therefore been described in the chapter dealing with that operation.

A year had now passed since the R.A.A.F. minelaying operations had begun and it appeared that the campaign was having a considerable effect

on the Japanese war economy. This belief was confirmed after the war by the evidence of Rear-Admiral Matsuzaki, chief of staff of the *Second Expeditionary Force* at Surabaya which was responsible for mine counter-measures in the Borneo, Celebes and Java areas.⁸ Matsuzaki said that by the end of 1943 mines had become a serious matter. A radar-warning net was established as well as a system of watchers. Night fighters were used but proved to be ineffective. From the beginning of 1944 mining had a considerable effect on the exploitation of the resources of the Netherlands East Indies. Not only did the mines destroy ships and cargoes but convoys were delayed and unloading areas were jammed at Surabaya and Balikpapan pending sweeping operations. The destruction of tankers and the delay in oil shipments was particularly serious.

At Kavieng, the first port mined by the Australians, the enemy lost three vessels to mines. They were the 2,663-ton *Seikai Maru* on 16th September 1943; the 2,455-ton *Ryuosan Maru* on 2nd November 1943 and the 2,000-ton special survey vessel *Tsukushi* on 4th November. In addition, the mining of Silver Sound compelled the closing of the harbour on 16th September and again for 10 days in November. Captain Ohmae, a staff officer of the *South-East Area Fleet*, said after the war:

The only place where mines interfered with military operations or plans was at Kavieng, beginning in August 1943. At that time Kavieng was very important because it was used as a supply base; and after mine attacks it was necessary to take supply ships directly from Truk to Rabaul where they were then subjected to air attack.⁹

Not only were the Japanese affected by losses of shipping and dislocation of their communications, but they were compelled to divert considerable efforts to countering the mine attacks. In the Netherlands East Indies, mining counter-measures involved the use of 1,500 men and thirty ships. Even with the counter-measures adopted, the enemy lost heavily. Matsuzaki estimated that about 40 per cent of all vessels over 1,000 tons which sailed into the Balikpapan-Surabaya area were sunk or damaged by mines. In many cases, ships were salvaged only to be sunk again. In addition to Kavieng, Catalina-laid mines forced the closing (for various periods) of Surabaya, Kau Bay, Balikpapan, Kaimana, Babo (where a 3,000-ton merchant ship was sunk by a mine on 4th July 1943), Kendari, Pomelaa and Macassar.¹

The achievements of the Australian Catalinas were particularly notable because only a part of the effort of the three squadrons (Nos. 11, 20 and 43) engaged had been devoted to minelaying in the twelve months April 1943-April 1944. Minelaying effort equalled the full-time employ-

⁸ US Strategic Bombing Survey, *Interrogations of Japanese Officials*, Vol I, p. 245.

⁹ US Bombing Survey, *Interrogations*, Vol II, p. 410.

¹ A report by the Operational Research Section at RAAF Command claimed that to 5th May 1944 a total of eight ships had been sunk and twelve damaged by the mines. The report assumed a total shipping loss for the first year of mining of at least 20,000 tons. These figures are not borne out by the United States Joint Army-Navy Assessment Committee, which credits the RAAF with sinking about 10,000 tons of shipping by mines in this period. However, this assessment does not include vessels of less than 500 tons, and it is feasible to assume that some of the discrepancy is accounted for by this fact. Moreover, the actual sinking of vessels was only incidental to the general objective of dislocating shipping.

ment of only about one-half of a squadron. To achieve the same results by bombardment on land would have required the effort of several squadrons of bombers. An over-enthusiastic contemporary report went as far as claiming that the effects of the minelaying were "in the order of 100 times as effective as attacks on land targets".

For May 1944 Balikpapan and Surabaya were the targets for the minelaying Catalinas. This mining was timed to aid the amphibious operations against Wakde and has been dealt with in the chapter dealing with that operation.

In July No. 43 Squadron mined Bima Bay (Sumbawa), Buton Strait and Surabaya. No. 20 Squadron mined Kau Bay and Palau. The operations against Surabaya were again conducted from Yampi Sound, where the facilities had been augmented by a light-weight air-warning radar set, which was mounted under canvas at the top of the highest point on Cockatoo Island. A single Beaufighter covered Yampi from dawn to dusk. No opposition whatever was encountered when the Catalinas mined the east and west channels at Surabaya on 17th July. However, on the 21st, when four aircraft set out again for Surabaya, a faint S.O.S. was received two hours later from a Catalina captained by Pilot Officer Atkinson,² stating that he was about to alight. A second signal an hour later stated that the aircraft was down in the sea and under attack by enemy fighters. It was considered that the remaining Catalinas might encounter determined night-fighter opposition over the target and accordingly at 6.16 p.m. a signal was sent to the captains, directing them to jettison their mines and return to Darwin immediately. However, this message was not received until the aircraft had reached the target and laid their mines.

Meanwhile, an air-sea rescue Catalina was called and requests were made for Beaufighters to rendezvous at the position given in the signal at first light next morning and for an American submarine of Task Force 71 to proceed to the area. Early next morning an aircraft, pursuing a zigzag course towards Yampi, was recorded on the radar screen. A red alarm was sounded and the staff moved away from the petrol dump. Shortly afterwards Atkinson's aircraft arrived and reported its mines laid according to plan and without opposition. Atkinson was questioned and it appeared that his wireless operator had undertaken a private rehearsal of his role in the event of an encounter with enemy fighters and did not realise that his chosen adjustment of the wireless transmitter would permit the messages to be broadcast.

The operations in July against Kau Bay and Palau were normal replenishments of fields already laid and were carried out by No. 20 Squadron, based on the seaplane tender U.S.S. *Wright* at Wundi Island. The aircraft staged to Wundi through Milne Bay and Port Moresby.

In August Pomelaa was mined with magnetic-acoustic mines. One Catalina was holed by 20-mm gun fire from a merchant vessel lying in the emergency anchorage and two captains, who failed to find the target area

² F-O A. N. L. Atkinson, DFC, 410827; 43 Sqn. Student; of East Malvern, Vic; b. Melbourne, 30 Sep 1922.

because of the bad weather, were forced to jettison their mines. Pomelaa was always an important strategic target both for long-range bombers and minelayers. It was the main enemy source of nickel. It was estimated that at Pomelaa in 1944 the enemy could produce 300,000 tons of nickel ore, which would yield 4,000 tons of nickel yearly, representing 67 per cent of his total needs. This nickel source was first worked in 1937. Until the war began the entire output of the treatment plant had been shipped to Krupps in Germany. Later, the Japanese became the sole customers of the company which worked the concessions.

It was clear during 1944 that the minelaying campaign was achieving results. There had been twenty-five ships credited as sunk or damaged by aerial mines in the Netherlands East Indies up to September 1944 and although the actual sinkings and damage inflicted were not as high as this claim, good results were being obtained. Australian losses had been six Catalinas, of which two of the crews had been saved. The losses were one aircraft for every 95 sorties.

The good results obtained by the Catalinas justified the assignment of more aircraft entirely to mining duties. In September 1944, therefore, Air Vice-Marshal Bostock assigned Nos. 20, 42 and 43 Squadrons solely to this work. He also directed No. 76 Wing Headquarters, then at Cairns, to move to Darwin and take over control of these three squadrons. The Wing headquarters arrived at Darwin in September and by October was firmly established at Doctor's Gully under the command of Wing Commander Burrage.³ Each of the three squadrons was capable of 830 hours operational flying a month, and as each minelaying sortie, including operational travel time, involved an average of less than twenty-four hours flying, the three squadrons would be capable of carrying out 100 sorties a month compared with 20 a month in the first six months of operations.

No. 42 Squadron, commanded by Wing Commander Costello,⁴ had been assembling at Darwin during August 1944, awaiting transfer to a new Catalina base on Melville Bay. No. 20 Squadron transferred from Cairns to this new base. It arrived in September in time to accept a share in the month's mining program. The squadron had to face many difficulties in settling in at the new camp site, and at the same time carrying out operations. The ship transporting the squadron to Darwin arrived two days ahead of its expected time, with the result that final arrangements for unloading, transport, rations and bedding had to be made and put into effect within a few hours.

R.A.A.F. Command had withdrawn No. 11 Squadron from minelaying operations and directed it to move south from Cairns to Rathmines in New South Wales, where it took part in anti-submarine patrols and served as a reservoir for trained Catalina crews.

In the period 13th September to 5th October the Catalinas flew ninety-eight sorties, laying 196 mines of various types. They visited Bangka Strait

³ Gp Capt R. B. Burrage, OBE, DFC, 212. 10 Sqn; comd 461 Sqn 1942; 202 Sqn RAF, 11 Sqn; comd 76 Wing 1944-45. Regular air force offr; of Melbourne; b. Auburn, Vic, 13 Sep 1917.

⁴ W Cdr J. P. Costello, 404. 10 and 20 Sqn; comd 42 Sqn 1944-45. Regular air force offr; of Elsternwick, Vic; b. Heidelberg, Vic, 17 May 1917. Killed in aircraft accident 9 Apr 1955.

(Celebes) and the Pasuruan, Probolinggo and Panarukan roads in Java. The east and west channels at Surabaya were mined by Catalinas operating from Yampi Sound on the nights of 11th-12th and 15th-16th October.

No. 42 Squadron suffered losses from anti-aircraft fire at Macassar between 11th and 23rd October. As the aircraft had usually succeeded in laying mines with little opposition on the first night against a new target, all runs close to the known anti-aircraft positions were planned for the first night. However, Macassar had just been severely bombed by Liberators, which meant that anti-aircraft batteries ashore and on vessels in the harbour would be alert. There was also a large amount of shipping in the harbour, providing opposition that could not have been predicted.

On 11th October there was no opposition to the first sortie, and though the second Catalina was fired on by a destroyer it suffered no damage. The third plane saw the anti-aircraft fire from the destroyer and moved away to do an alternative run away from the shipping. It too drew anti-aircraft fire from ships, but went unscathed.

The next night the Catalinas of No. 42 were under orders to complete those runs at Macassar which were reasonably far from the fixed defences and shipping. The first run was completed without opposition. The second drew anti-aircraft fire from the shore while withdrawing. The third aircraft completed its run too close to the shore and was holed in three places by 20-mm fire, while a Bofors gun aboard the destroyer shot away most of the tail plane of a fourth Catalina.

On 14th-15th October, two more Catalinas of No. 42 Squadron (captained by Squadron Leader Grant⁵ and Flight Lieutenant Williams⁶) were ordered to continue the mining of Macassar. Grant completed his run without experiencing anti-aircraft fire. While withdrawing, however, his crew saw a Bofors gun open fire. The shots appeared to stop at 500 feet. About fifteen seconds later the crew saw a blazing object on the water. Williams' aircraft failed to return and it was assumed that he had been shot down into the water between the breakwater and the town. Williams knew of the danger from anti-aircraft fire and had been warned to stay well clear of the dock area and the breakwaters. However, there was a strong wind and it looked as though his aircraft may have drifted more than he realised. This was the first aircraft crew to be lost since 20th May 1944 and the fifth crew in 1,000 sorties.

Four more Catalinas were sent to Macassar on the night of 23rd-24th October. They were captained by Costello, Grant, Flying Officer Lee⁷ and Pilot Officer Hull.⁸ Hull was the first over the target and had no sooner begun his minelaying run than his Catalina was hit by anti-aircraft fire from a destroyer. His starboard engine failed but he carried on and

⁵ Sqn Ldr K. W. Grant, 260288. 11 and 20 Sqns; comd 42 Sqn 1945. Clerk; of Strathfield, NSW; b. Strathfield, 12 Jan 1914.

⁶ F-Lt C. A. Williams, 16322. 20, 11, 43 and 42 Sqns. Physical culture instructor; of Nedlands, WA; b. Subiaco, WA, 5 Jul 1913. Killed in action 14 Oct 1944.

⁷ F-Lt H. R. Lee, 417088. 20 and 42 Sqns, and 113 ASR Flight. Bank clerk; of North Unley, SA; b. Kadina, SA, 8 Nov 1923.

⁸ F-O C. D. Hull, 401846. 7, 14, 32, 6, 67, 11 and 42 Sqns. Student; of Hawthorn, Vic; b. Prahran, Vic, 27 Jan 1921.

completed the minelaying as ordered. Grant and Lee laid their mines without opposition, but Costello failed to find the target and finally jettisoned his mines. He then began an extensive search for Hull's aircraft. He failed to find it because of the haze, and shortage of fuel forced him to land at Bathurst Island to refuel. The other two aircraft, although they picked up radio messages from Hull's aircraft, also could not find it and were forced to abandon the search. However, next morning a Catalina of No. 43 Squadron, captained by Flying Officer Etienne,⁹ arrived and picked up the entire crew. After setting fire to the disabled Catalina with machine-guns, the rescue Catalina took off and returned safely to Darwin. The rescue operation was covered by a Liberator which had found the Catalina and led the rescue plane to the scene. The rescue was effected close to four Japanese operational airfields in southern Celebes.

Morotai, which had been seized by Allied forces on 15th September 1944, provided a new forward base for the minelaying operations against the Netherlands East Indies and the Philippines. In October, U.S.S. *Tangier*, a seaplane tender, arrived off Morotai and provided tender facilities for the R.A.A.F. Catalinas. The Catalinas flew from Darwin with their mine loads, refuelled from the *Tangier* at Morotai, and for several nights mined Balikpapan and a new target, Tarakan, an oil port previously beyond the range of the Catalinas. The Thirteenth Air Force, which heavily attacked Balikpapan in daylight in this period, reported five barrage balloons at the target. However, the tracks of the minelaying planes carried them well clear of these obstacles and they did not meet any other form of opposition. The mining of Balikpapan at this time met with successes. Two Japanese merchant vessels were sunk: the 2,219-ton *Seito Maru* on 26th October, and the 2,863-ton *Kokko Maru* on 29th October.

At the end of November and in early December, the Catalinas flew twenty sorties in an attempt to block Balabac Strait. Other Catalinas mined Manila Bay. Both of these missions were part of the widespread interdiction operations in support of the Allied landing on Mindoro, one of the Philippine Islands. Both the minelaying mission and the landing at Mindoro are described elsewhere in this volume.

In spite of constant mining at Surabaya, this port was still active. It was considered that the sweeping of mines by the Japanese would be ineffective because of the crude methods in use. Yet, after sweeping, the port was opened and considerable numbers of merchant ships were clearing it. A Japanese lieutenant-commander who was captured after the sinking of the destroyer *Michishio* on 25th October 1944, said that in October 1944 a signal was received aboard the *Michishio* advising that the harbours of Balikpapan and Surabaya were mined by Allied magnetic mines. However, the prisoner heard that sweeping executed at both places was successful; therefore there was no need to re-equip vessels with degaussing equipment. The prisoner said that generally, although some ships were

⁹ F-Lt A. A. Etienne, DFC, 415632, 107, 11 and 43 Sqns. Agriculturalist; of West Perth, WA; b. Odessa, Russia, 15 Sep 1918.

lost to magnetic mines, the results of sweepers were usually very good and losses not severe. Sweeping was done by a small wooden minesweeper which towed minesweeping gear astern. It would be necessary to continue to replenish the minefields at Surabaya on each dark of the moon period for as long as shipping continued to use the port.

In January 1945 the Darwin area was enduring the wet monsoonal season. Successful sorties by the minelaying Catalinas dropped as flying conditions became worse. In all, eleven crews were forced to return. Jettisoning of mines increased to fifteen for the month. Weather-bound planes lay at West Bay, Truscott, for days waiting for the weather to clear.

The plan for the continued mining of Surabaya was changed at the last moment in January 1945 on the strength of information from a prisoner of war. The prisoner had visited the port shortly before capture and said that a new buoyed channel was being used along the western part of the northern entrance. The approximate positions of the buoys were obtained and the mining plans revised to block this passage.

On the night of 9th January, twenty mines were laid by ten Catalinas which experienced rifle fire from Madura Island and east of Cape Modung. On subsequent nights fierce rain, heavy cloud and strong winds interfered with mining, and several captains were forced to dump their mines in a shipping area near Madura. Head winds up to forty knots were reported by returning crews and three of the Catalinas returned to base from Surabaya, one with only 30 gallons of fuel remaining, a second with 40, and the third with 50.

On the night of 14th January, during a mission to Surabaya, a plane from No. 42 Squadron, captained by Flight Lieutenant Harrigan,¹ experienced trouble with its port engine and immediately began to lose altitude. At the time Harrigan was flying at 300 feet below heavy cloud off Sumba Island. He jettisoned his mines, but the plane continued to lose altitude and he was forced to alight on the open sea. The hull of the Catalina was damaged and began to leak. However, the water was kept down by baling. Using the radio-telephone, the crew was able to make its position known to returning minelayers. All night they worked on the faulty engine, but without success. However, in the morning, a Catalina of No. 43 Squadron, captained by Flight Lieutenant Ortlepp,² landed in the heavy swell, covered by a Liberator, and took off Harrigan's crew. Ortlepp then destroyed the disabled Catalina with machine-gun fire and returned safely to base.

In spite of the constant mining, the Japanese were determined to keep Surabaya clear for shipping movements. Crew reports for February gave evidence of more vigorous counter-measures than had been noticed for some time. Searchlights probing about the north entrance were keen and light machine-gun fire came from most of the likely starting places for

¹ F-Lt R. J. Harrigan, 406489. 20, 43 and 42 Sqns, and 113 ASR Flight. Clerk; of Mt Lawley, WA; b. Geraldton, WA, 27 Sep 1918.

² F-Lt B. Ortlepp, DFC, 407683. 20 and 43 Sqns. Clerk; of North Norwood, SA; b. North Norwood, 8 Feb 1922.

mining runs. In the channels, small boats, sent out to mark the mine landing points, opened up on the low-flying aircraft with .5-calibre machine-gun fire, holing one of them. One aircraft reported radar jamming and, on 13th February, two crew members of Flying Officer Bergmann's³ Catalina saw white flashes on the water just below their Catalina. Loud explosions shook the aircraft immediately afterwards. For want of any evidence to the contrary, it seemed that the Catalina had been attacked with anti-aircraft bombs dropped from an enemy night fighter.

In January, as well as mining Surabaya, the Catalinas mined Laut Strait and Macassar. Operating from Darwin and refuelling at West Bay, aircraft of Nos. 20, 42 and 43 Squadrons flew a total of eighteen sorties, laying mines in the northern and southern entrances to the strait. A few rifle shots was the only opposition. On the night of 27th-28th January, an aircraft of No. 20 Squadron captained by Flight Lieutenant Seage failed to return. Other Catalinas out on this mission encountered a cyclone over the Timor Sea, together with lightning and turbulence. It was considered that Seage and the members of his crew got into difficulties in this area.

Between 5th and 28th February the Catalinas completed a total of sixty-seven successful sorties against targets at Surabaya, Pasuruan Road, Laut Strait, Cape Selatan and Malasoro Bay, Celebes. Some encouragement came from the Cape Selatan mining. On 8th April a submarine sank one coastal vessel and its escort, forty miles off Cape Selatan; and on 29th April a large loaded German tanker six miles south of Laut Strait. The near-by minefield appeared to have forced these vessels into deep water where they became a prey to the submarines.

Japanese merchant shipping losses in 1944 had reached nearly 4,000,000 tons. From September 1943 until the end of 1944 Allied submarines alone sank 3,000,000 tons of shipping. The Allied submarine force had so greatly expanded that no sea route was safe from its attack. The Japanese had shown they were astonishingly unprepared to convoy and protect their merchant ships either from air or sea attack. Few vessels were available for convoy service. Nevertheless, ships were sent out unprotected in groups and losses were heavy as a result. By the middle of 1944 Japanese ships were hugging coastlines wherever possible to stay in shallow waters beyond reach of submarines. Belatedly the enemy introduced a convoy system, but its effectiveness was low. The network of convoy routes reached its maximum in mid-1944 but in the next twelve months was progressively abandoned.

Early in 1945 only a trickle of ships was moving from Formosa along the South China and French Indo-China coasts to Malaya and the Netherlands East Indies. The Americans were firmly established in the Philippine Islands and their aircraft were reaching out across the South China Sea to attack the Japanese merchantmen which were sailing in daylight to avoid massacre by the submarines. In mid-January Admiral Halsey's

³ F-O J. C. Bergmann, 416531. 71, 107, 43 and 11 Sqns and 111 ASR Flight. Shop assistant-farmer; of Ceduna, SA; b. Denial Bay, SA, 11 Jun 1921.

greatly reinforced carrier fleets swept down into the South China Sea and in the waters around Formosa, Hong Kong and French Indo-China, and carrier planes sank about 280,000 tons of Japanese shipping, more than 10 per cent of the existing merchant-marine fleet, and of the naval vessels that convoyed and protected it. In spite of this blow, the Japanese, desperately needing the products of Malaya, Borneo and the Indies, continued to route ships through the South China Sea.

At this stage the Australian Catalinas were called on to lay mines to reinforce the minefields in Formosan waters, the Pescadores, Hainan Strait, Hong Kong, Amoy and other ports in south China. To carry out these operations, a detachment of eight Catalinas was to be maintained at Jinamoc, in the Philippine Islands. Burrage directed that No. 43 Squadron would provide four aircraft and No. 20 the remaining four. They were to carry out twenty sorties within ten days and then return to Darwin. Another eight aircraft would then replace them at Jinamoc to repeat the program. The advanced party, headed by Burrage, left for Jinamoc on the 24th February, and set up an advanced headquarters, operations and maintenance sections staffed by 130 men. The American seaplane base at Jinamoc, which is at the head of Leyte Gulf, housed the shore working and living quarters.

The plan of operations called for mid-morning take-off from Jinamoc and refuelling during the afternoon from a seaplane tender, *Orca*, at Lingayen Gulf, Luzon, which was almost a third of the way to the targets. The Catalinas were then to take off late in the evening and make for the China coast. Return trips were to be direct to Jinamoc unless fuel shortage forced a visit to Mindoro or Lingayen Gulf.

Operations began on the 3rd March. Wing Commanders McMahon⁴ and Wearne⁵ and Flying Officer Atkinson mined Yulinkan Bay, Hainan Island. Visibility was poor due to cloud and because of confusion about a datum point two of the mines were planted in the same position. Two other Catalinas (Flight Lieutenant Corrie⁶ and Warrant Officer Brown⁷) mined Hainan Strait on the same night. Neither mission experienced enemy opposition. The Catalinas had an immediate success, the 4,000-ton auxiliary vessel *Hario* being sunk by one of their mines.

Further missions to Hainan and also to Hong Kong, Takao, Macao, Swatow and Amoy followed in March, during which 169 mines were dropped, and April when 193 were dropped. During the entire period of the China coast mining only one aircraft was lost. This occurred on the night of the 7th-8th March when a Catalina of No. 20 Squadron,

⁴ W Cdr P. J. McMahon, DFC, 459. Pilot of amphibian in HMAS *Manoora* 1940-42; comd 9 Sqn 1942-43, 43 Sqn 1944-45. Regular air force offr; of Port Pirie, SA; b. Port Pirie, 29 Dec 1917.

⁵ W Cdr A. G. H. Wearne, DSO, DFC, 464. 10 and 11 Sqn; comd 20 Sqn 1944-45. Regular air force offr; of Midland Junction, WA; b. Midland Junction, 28 Oct 1916.

⁶ F-Lt R. M. Corrie, DFC, 404170. 228 and 202 Sqn RAF; comd 112 ASR Flight 1945. Clerk; of Clayfield, Qld; b. Sydney, 2 Sep 1920.

⁷ F-O A. J. Brown, 413819. 71, 107, 11 and 20 Sqn, and 112 ASR Flight. Clerk; of Leichhardt, NSW; b. Merewether, NSW, 3 Nov 1919.



(R.A.A.F.)

F-O C. A. Crombie, an Australian serving in No. 176 Squadron R.A.F., who was awarded the DSO for having shot down two, and probably three, Japanese bombers, south of Calcutta on 19th January 1943. W Cdr J. A. O'Neill is on the left.



(R.A.A.F.)

The central railway station at Rangoon after it had been abandoned by the Japanese in April 1945. It was the main port in Burma for traffic from the Japanese homeland, and an important marshalling and distribution point, and during the campaign was subjected to constant air bombardment in which many Australians distributed among R.A.F. squadrons took part.



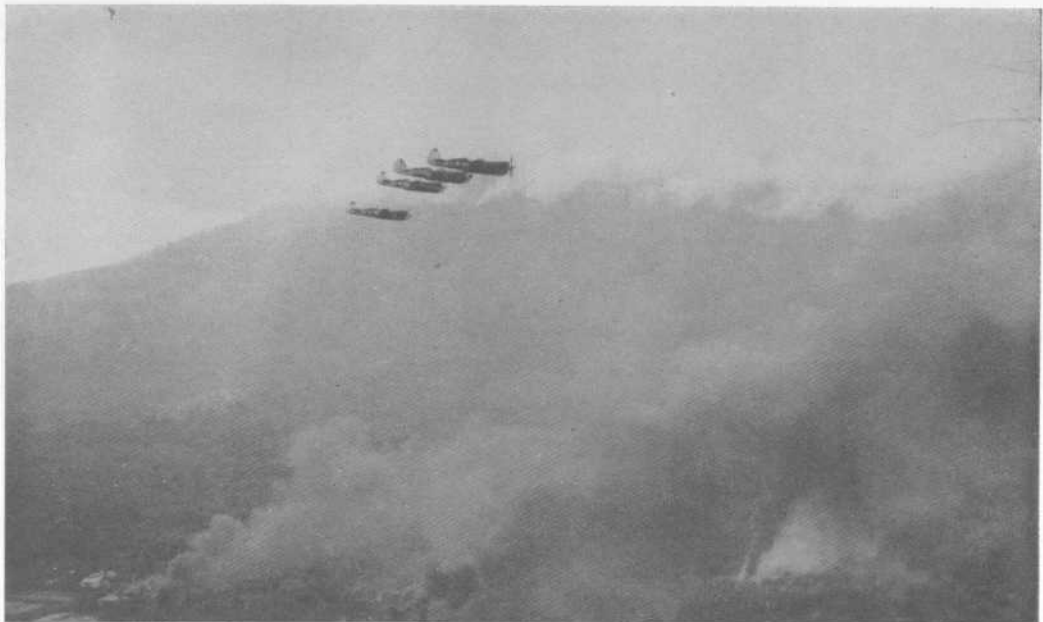
(R.A.A.F.)

Air force leaders at Morotai in April 1945. Left to right: Air Vice-Marshal W. D. Bostock, air officer commanding R.A.A.F. Command; General George C. Kenney, commander, Allied Air Forces, S.W.P.A.; and Air Vice-Marshal G. Jones, Chief of the Air Staff.



(R.A.A.F.)

Part of the airfield at Morotai in April 1945, showing the fighter strip and some of the dispersal areas on which are parked Dakota transports, Mitchells, Black Widows and Lockheed Lightnings.



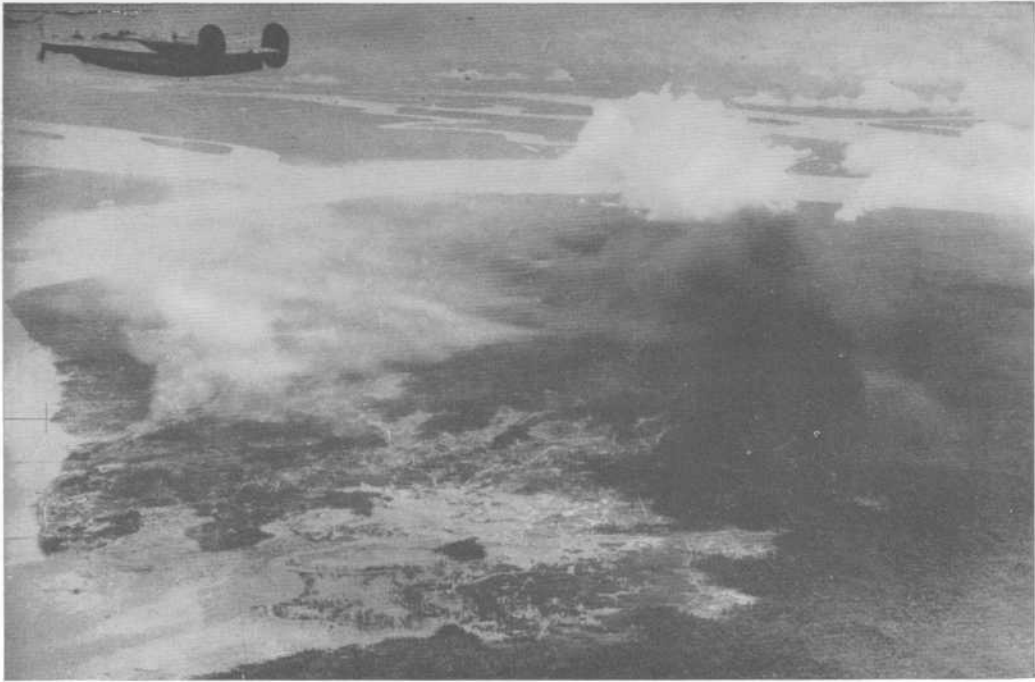
(R.A.A.F.)

Four Kittyhawks of the First T.A.F. returning to base after bombing and setting on fire Japanese buildings and supply dumps on Ternate Island, on 11th April 1945. They are still over the target area, and below can be seen the smoke and flames from the fires.



(R.A.A.F.)

A Japanese six-gun 75-mm anti-aircraft battery at Wasile Bay, Halmahera Island, being attacked with para-frag bombs. Fused to explode above the ground the para-frag bomb was particularly effective against this type of target and against dispersed aircraft.



(R.A.A.F.)

For weeks previous to the landing at Tarakan, First Tactical Air Force and the Thirteenth Air Force carried out saturation bombing in the area where the landing was to be made, and afterwards bombed selected enemy positions. Here a Liberator returns from such a mission in early May 1945.



(R.A.A.F.)

Tarakan airstrip before the invasion. Engineers of Nos. 1 and 8 Airfield Construction Squadrons had the task of restoring this airstrip.

captained by Pilot Officer Schulz,⁸ was one of three ordered to the Pescadores Islands, between Formosa and the mainland of China. In spite of difficult weather and poor visibility two of the planes successfully laid mines. Schulz's aircraft, however, failed to return to base and it was considered that the unfavourable weather, rather than the enemy, had caused the Catalina to crash. Searches were made for the aircraft and crew next day but were negative. On 16th March two more Catalinas set off from Jinamoc to mine the Pescadores again. One only got through the foul weather, and when it did found the target enshrouded in fog.

By mid-March the Japanese, now aware of the imminent invasion by the Americans of either Formosa or Okinawa Island, discontinued further attempts to route convoys from Japan through the South China Sea to Singapore. On 19th March, therefore, the mining of Takao and the Pescadores was abandoned on the advice of the Seventh Fleet. Hardly any shipping was left in the area.

In April Catalinas of No. 76 Wing, now commanded by Group Captain Campbell,⁹ mined the approaches to the ports of Hong Kong, Amoy, Swatow, and mined other waterways, including the approaches to Surabaya Strait, where strong anti-aircraft fire was encountered on this and other visits. On 8th April, for example, three Catalinas of No. 20 Squadron flew to Hong Kong. There was a thick haze over the port and although two aircraft laid their mines in the approaches to the harbour, the third could not find the target, despite having spent half an hour in the area. These sorties took from fifteen and a quarter to sixteen hours.

In May the Australian Catalinas continued to operate on the China coast, where the city of Wenchow was added to the list of targets. The Wenchow operation was the most northerly penetration of any Australian aircraft in the Pacific War. Four aircraft of No. 20 Squadron, piloted by Flight Lieutenants Titshall, Whitworth,¹ Granger² and Clarke,³ mined the approaches to this harbour on 26th May. The crews observed many junks in the target area and two lighthouses were operating in the approaches.

At Amoy, mining of the most frequently-used channel brought a reaction from the enemy, on the 10th May. A night fighter attacked one Catalina fifteen minutes after leaving the target. The fighter made two passes, firing short bursts each time, but caused no damage. During May extensive mining was carried out at Hong Kong to close the two main shipping channels.

On the 13th May a conference was held at Manila to fix operational areas for the air forces in the South-West Pacific Area and, at this meeting,

⁸ P-O R. W. Schulz, 417318; 20 Sqn. Clerk; of Willunga, SA; b. Hahndorf, SA, 11 Jun 1923. Killed in action 8 Mar 1945.

⁹ Gp Capt S. A. C. Campbell, 66. Comd 24 Sqn 1940-41, 7 SFTS 1941-42, 42 Sqn 1944-45, 76 Wing 1945-46. Engineer; of Darling Point, NSW; b. Sydney, 27 Mar 1903.

¹ Sqn Ldr G. M. Whitworth, 3614. 20 and 11 Sqns. Regular airman; of Pascoe Vale, Vic; b. Elsternwick, Vic, 17 Apr 1914.

² F-Lt J. H. Granger, 411313. 11 and 20 Sqns. Factory manager; of Parramatta, NSW; b. Parramatta, 25 Jun 1916.

³ F-Lt I. A. F. Clarke, 401346. 228 Sqn RAF, 461, 460, 11 and 20 Sqns. Clerk; of Footscray, Vic; b. Footscray, 9 Nov 1921.

it was decided to confine R.A.A.F. mining activities to areas below 18 degrees north latitude. Instructions were therefore issued to the R.A.A.F. to complete the China theatre program by 1st June.

The number of targets worth mining below latitude 18 degrees north were very few. However, in June, 58 mining sorties were carried out by No. 76 Wing, and 132 mines were laid. Of these sorties, seventeen were carried out from Labuan Island. The aircraft took on their mines at Jinamoc, refuelled at Labuan, and then flew south-west to mine Banka Strait. The flying-boats were operating from Labuan only six days after the landing by the 9th Division. Considerable difficulty had to be overcome. The operations were important because many enemy ships continued to sail between Singapore and Batavia, and it was designed to force this shipping into the open water.

The first operation against Banka Strait took place on 20th June. Five crews were briefed for this mission and eleven mines were laid. The Catalinas saw many small craft in the strait. They strafed a camouflaged barge without seeing any results. More mine plantings took place without opposition on the 23rd, 25th, 26th and 29th June. In July, the operation against Banka Strait continued. It was the last area the R.A.A.F. Catalinas mined in the Pacific War. The Commander, Allied Air Forces, had signalled early in July ordering suspension of all mining from the 10th of that month. This field was the only exception. Its closeness to Brunei Bay meant that full loads could be carried. By the end of July 117 mines had been planted there. A subsidiary task of No. 76 Wing throughout this period was the dropping of propaganda leaflets. In June, for example, 1,256,000 were distributed over places in the East Indies and the China Sea.

The Joint Army-Navy Assessment Committee, after examining all claims of Japanese shipping sunk in the Pacific War, came to the conclusion that mines laid by the Australian Catalinas sank nine vessels totalling 21,033 tonnage. The tonnage damaged is not shown, nor are the sinking of merchant vessels of less than 500 tons. R.A.A.F. claims at the end of the war were 23 ships sunk and 27 damaged by the Australian-laid mines. The main discrepancy between the two sets of figures is due to the fact that ten vessels were claimed as having been sunk by the R.A.A.F. at Surabaya, whereas the Joint Army-Navy Assessment Committee does not allow any mine sinkings at that port.

Allowing that the R.A.A.F. minelaying Catalinas did sink more tonnage than is admitted by the committee, and this seems likely, it will be seen that the results in terms of the total Japanese shipping losses were relatively small. The total number of Japanese vessels sunk during the war was 3,032 with a tonnage of 10,583,755. Of this total, American submarines sank 1,314 vessels totalling 5,320,094 tons. The R.A.A.F., however, laid mines on only a small scale and, when measured against the effort made, the results were satisfactory, and in addition, the laying of mines was often an important factor in impeding local operations.

It was not until Superfortresses from the Marianas joined in minelaying operations late in March 1945, that large numbers of enemy ships were sunk by this means. The laying of mines by the Superfortresses in Shimonoseki Strait made this important shipping crossroads virtually impassable and the administration of Japanese shipping was thrown into chaos. Of a total of 266 Japanese ships sunk by mines during the Pacific War, the majority were accounted for by mines laid by the Superfortresses in the closing months of the war. The United States Strategic Bombing Survey, after examining these results, concluded:

It is believed that this campaign, begun earlier and laid on with greater weight, would have reduced effective shipping nearly to the vanishing point. It would thus have produced a condition of crisis in Japan sooner than actually occurred.⁴

⁴ US Strategic Bombing Survey, *The War Against Japanese Transportation, 1941-1945*, p. 8.