

MAJOR CONVOY OPERATION TO MALTA, 10–15 AUGUST 1942 (OPERATION PEDESTAL)

Milan Vego

The resupply convoy to Malta in August 1942 (Operation PEDESTAL) was in operational terms a major defensive naval and joint operation. It was also the largest of the many Allied efforts to ensure the survival of Malta against relentless Axis air attacks. Italian accounts referred to the Axis attempt to destroy the convoy as operation “Mid-August” (Mezzo Agosto). The Allies were well aware of the enormous risks in making a decision to mount an all-out effort to

bring badly needed supplies to the besieged island. Yet the consequences of failing to do that would have been even more disastrous for the Allied campaign in North Africa and possibly the entire Mediterranean theater. The execution of Operation PEDESTAL resulted in horrendous losses for the Allies. However, the ships that reached Malta brought sufficient quantities of fuel and food to keep the island alive until the great Allied victory at El Alamein in November 1942, which turned the tide of the war in North Africa. Despite the passage of time, the planning, preparation, and execution of this major naval operation by both sides offer many lessons on how to employ one’s naval forces in the littorals that remain valid even today.

OPERATIONAL SITUATION

The fifteen-mile-long island of Malta played a vital role in British strategy for the Mediterranean since its

Dr. Milan Vego has been a professor in the Joint Military Operations Department at the U.S. Naval War College, Newport, Rhode Island, since August 1991. A native of Bosnia and Herzegovina, he obtained political asylum in the United States in 1976. Dr. Vego has been an adjunct professor at the Defense Intelligence College (1984–91) and a senior fellow at the Center for Naval Analyses in Alexandria, Virginia (1985–87), and at the former Soviet Army Studies Office, Fort Leavenworth, Kansas (1987–89). He earned a BA (1970) and an MA in modern history (1973) at the University of Belgrade and his PhD in European history from the George Washington University (1981). He holds a master mariner license. Dr. Vego has published eight books, including the textbooks Operational Warfare (2001) and Joint Operational Warfare: Theory and Practice (2008; reprint 2009), and The Battle for Leyte, 1944: Allied and Japanese Plans, Preparations, and Execution, plus numerous articles in various professional journals. He published his most recent book, Operational Warfare at Sea: Theory and Practice, in December 2008.

Report Documentation Page			Form Approved OMB No. 0704-0188		
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2010	2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010		
4. TITLE AND SUBTITLE Major Convoy Operation to Malta, 10-15 August 1942 (Operation Pedestal)			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval War College, 686 Cushing Road, Newport, RI, 02841-1207			8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 47	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

capture in September 1800. Its great military strategic importance was due largely to its commanding position in the approaches to the western and eastern Mediterranean. Malta lies near the midpoint of the Mediterranean, about 715 nautical miles from Alexandria and 860 nautical miles from Gibraltar. Only fifty nautical miles separate Malta from Sicily. The distance between Malta and the Libyan coast and Cape Bon (Tunisia) are 190 and 175 nautical miles, respectively. Malta's importance was most dramatic in World War II, when it served as an air and naval base from which the British could attack Axis convoys to Libya. For the Allies, resupplying Malta with fuel, ammunition, and foodstuffs was a major problem because of intensive efforts by the Axis land-based aircraft on Sicily and in North Africa, in combination with heavy surface forces, submarines, and mines, to cut off the island from its links with the outside world.

In the late spring of 1942, the situation in the central Mediterranean was extremely unfavorable for the Allies. The British Eighth Army in North Africa was on the defensive, and Malta was under almost constant attack by Axis aircraft based in Sicily and North Africa. By April 1942, the chances of Malta's survival were low. Reserves of wheat and flour, fodder, benzyl, and kerosene fuel would not last after mid-to-late June, while stocks of white oil and aviation fuel were sufficient only until about mid-August. Only about 920 tons of diesel fuel and two thousand tons of furnace oil for refueling warships were then available. Stocks of anti-aircraft (AA) ammunition were sufficient for only about six weeks of fighting.¹ For these reasons, the Allies attempted a dual resupply convoy operation in mid-June 1942, one from the west (Operation HARPOON) and another from the east (Operation VIGOROUS). The Allies suffered significant losses in both operations. In Operation HARPOON, of a convoy composed of six merchant ships with forty-three thousand tons, only two merchant vessels carrying a total of eighteen thousand tons of supplies reached Malta.² In Operation VIGOROUS, out of eleven ships carrying 81,500 tons only two ships with a total of fifteen thousand tons of supplies reached the island. The Germans and Italians sank two merchant ships in the convoy while seven ships received orders to return to Alexandria or were detached to Tobruk. In addition, damage occurred to three cruisers, one special service ship, one corvette, and two merchant ships.³ The governor of Malta, Field Marshal Lord Gort, reported to London on 20 June that the unloading of the ships that reached the island was almost completed and that he was actively examining how best to husband the existing supplies until late September.⁴

The Allied situation in North Africa greatly deteriorated in late June 1942. The Allied forces abandoned defensive positions in Gazala and Tobruk fell on 21 June. Seven days later the Axis forces were at Matruh and in possession of the airfields some 160 miles from Alexandria. Faced with the possibility of Axis air

attacks on Alexandria, the British dispersed merchant vessels and warships from the Suez Canal area to the ports of Haifa, Port Said, and Beirut. They also prepared to block Alexandria's harbor and port facilities. Vice Admiral (acting Admiral) Henry H. Harwood, commander in chief (CINC) of the British Mediterranean Fleet (April 1942–February 1943), moved his headquarters to Haifa on 2 July.⁵ The retreat on land and the move of the fleet from Alexandria greatly increased the distance that the Royal Air Force (RAF) and the Royal Navy had to cover in order to conduct effective attacks against the Axis convoys in the central Mediterranean.

By early July 1942, the German Afrika Korps was forced to stop its offensive in the inconclusive first battle of El Alamein. However, the Germans intensified their efforts to renew the advance in the fall of 1942 by mounting a large effort to send additional supplies by sea to North Africa. The Allies were also preparing to go on the offensive in the fall of 1942. Among the most important tasks was restoring Malta's use as a base for attacks on the Axis convoys to Libya. This was contingent on having sufficient reserves of fuel, food, and other supplies on Malta. Otherwise, these shortages would have forced the Allied submarines and bombers that returned to Malta in mid-July 1942 to leave the island again. In addition, the shortage of food supplies threatened the civilian populace with starvation.⁶ Despite the mounting losses incurred in resupplying Malta, British resolve remained unbroken.⁷

PLANNING AND PREPARATIONS: THE ALLIES

In the aftermath of the failed dual convoy operation in June 1942, the need to mount another effort to resupply the besieged island of Malta was obvious. First Sea Lord Admiral Dudley Pound (1877–1943) agreed with Prime Minister Winston S. Churchill (1874–1965) that the loss of Malta would be a disaster of the first magnitude to the British Empire, and probably would be fatal in the long run to the defenses of the Nile Valley.⁸ The Allies were willing to accept the high risks in mounting another convoy operation to resupply Malta. This decision became easier due to the suspension of the Arctic convoys after the disaster of convoy PQ-17 to Soviet Russia in early July 1942. At the same time, the easing of the situation in the Indian Ocean freed enough forces to mount a convoy operation to relieve the siege of Malta.⁹ The failed dual convoy operation in mid-June 1942 demonstrated the inability of Allied naval and air forces to ensure full protection to the Malta convoys in the face of Axis air strength in the central Mediterranean. Hence, the decision was made that the next major convoy operation to Malta would be mounted from the west only.¹⁰

One of the worst problems for the Allies was a highly fragmented command organization in the Mediterranean. Even two years after the outbreak of

hostilities in the Mediterranean, the Allied command organization lacked a single theater commander responsible for the planning and execution of operations by all three services. In June 1939, the British established the Middle East Command with the responsibility for all operations there and in the Western Desert. During the war, its responsibility extended to include Greece, East Africa, Aden, the Persian Gulf, and Libya. However, the three services were individually responsible for defense of the eastern Mediterranean and the Middle East. CINC of the Middle East had control over only ground forces. Directly subordinate to him were the British Troops in Egypt; the British 8th, 9th, and 10th armies; Persia and Iraq Command; and forces in Sudan. The other two service chiefs were Air Officer, CINC Royal Air Force Middle East Command and CINC, Mediterranean. The former had under his command air units based in the Western Desert and Malta. The principal British naval commanders in the Mediterranean in the summer 1942 were Flag Officer, Force H (Vice Admiral Edward N. Syfret), Rear Admiral 15th Cruiser Squadron (Philip L. Vian), Vice Admiral in Charge, Malta (Ralph Leatham), and Rear Admiral, Alexandria (G. A. Creswell).¹¹

What the Allies Knew

One of the key prerequisites for sound planning is accurate, timely, reliable, and perhaps most important, relevant information on the situation. In that respect, the Allies had fair knowledge of Italian and German naval dispositions and deployments of their land-based aircraft in the central Mediterranean prior to execution of the resupply operation to Malta. The most important sources of intelligence were the Allied interception and decoding of most of the German Enigma messages. They not only had solid knowledge of German naval and air dispositions, content of the Luftwaffe's operation orders, air reconnaissance reports, and U-boat observations but also the appreciation of the situation by Field Marshal Albert Kesselring, CINC South (Oberbefehlshaber Sued) and his subordinate commanders. Intelligence obtained by reading German radio traffic was distributed to major Allied commanders in the form of special intelligence summaries by the Admiralty's Operations Intelligence Centre in London.

Based on analysis of the Enigma messages, the Allies assessed that on 22 July 1942 the Italians had deployed at Tarent (Taranto) four battleships (1 *Littorio*, 3 *Cavour*); three six-inch cruisers (*Abruzzi*, *Garibaldi*, and *Aosta*) at Navarino (Pylos today), Greece; two eight-inch cruisers at Messina, Sicily; five destroyers, two torpedo boats, two submarines, and eighteen motor torpedo boats (MTBs) at various bases in Sicily; four MTBs at Pantelleria; and two six-inch cruisers, six submarines, and three destroyers at Cagliari, Sardinia.

Allied intelligence also estimated that at Naples were one Italian six-inch cruiser in dock (and not serviceable), three destroyers, and eight submarines. They noted that the number of destroyers at Tarent varied between ten and twenty according to convoy requirements from Italy to Greece, Crete, and North Africa. Allied intelligence believed that if Axis leaders suspected them of launching convoys to Malta, the Italians would most likely establish a patrol line of three or four submarines between Sardinia and the French North Africa's coast, and four submarines would probably be on patrol in the triangle of Cartagena–Ibiza–Algiers. They (incorrectly) estimated that the German U-boats did not appear “to have maintained patrols in the western Mediterranean.” In their view, the German U-boats encountered in that area “so far were apparently on transit.” Allied intelligence also provided detailed analysis of the deployment of the French Navy and French shipping routes across the western Mediterranean.¹²

As to enemy air strength, the Allies estimated that on 23 July, the Luftwaffe had 315 aircraft, including one hundred long-range and torpedo bombers on Sicily and fifty on Sardinia. In their view, the increase in the number of long-range bombers was through the movement of two air groups (each consisting of sixty-five to seventy aircraft) from Crete, due supposedly not to any operational needs but to the lack of fuel on Crete.¹³ The Allies assessed that the Luftwaffe had on Sardinia twenty Ju-88 bombers, while the Italian Air Force (IAF) had fifteen long-range bombers, thirty single-engined fighter aircraft, thirty-five torpedo bombers, twenty reconnaissance aircraft, and thirty coastal seaplanes. On Sicily, the Luftwaffe had 120 long-range bombers, twelve reconnaissance bombers, and thirty-six single- and twenty-seven twin-engined fighters. The IAF had about eighty long-range bombers, 120 single-engine fighters, twenty torpedo bombers, fifteen dive-bombers, ten reconnaissance aircraft, and fifty coastal seaplanes.¹⁴

Allied intelligence revised its estimates of enemy air dispositions on 9 August 1942. It erroneously concluded that there were no German aircraft based on Sardinia, while the IAF had fifteen to twenty long-range bombers, fifteen to twenty fighter-bombers, thirty-five to forty torpedo bombers, twenty reconnaissance aircraft, and thirty coastal seaplanes. The Luftwaffe's strength then consisted of 144 long-range bombers, twenty-seven reconnaissance bombers, and sixty-six single-engined fighters. The IAF had deployed seventy long-range bombers, thirty-five to forty torpedo bombers, fifteen to twenty dive-bombers, forty reconnaissance aircraft, fifty coastal seaplanes, fifteen to twenty fighter-bombers, and ninety-five single-engined fighters. Serviceability of the aircraft was about 55 percent of the above strength figures.¹⁵

On 5 August 1942, the Allies learned from Enigma intercepts that the Germans interpreted the reduction in RAF activity over Malta and Egypt as an indication that the enemy planned to mount a large-scale operation to supply Malta. The Germans also believed that the Allies would launch diversionary attacks on the Panzerarmee (Panzer Army) Afrika and a combined operation against Mersa Matruh. The Germans planned to counter the enemy's possible moves by redeploying Luftwaffe aircraft from Greece to Sicily and increasing combat readiness of air units in both areas. They also planned to discuss with the commander of the Italian air forces on Sicily joint bombing and torpedo attacks and training exercises.¹⁶

The Allies learned from Enigma messages that on 6 August the Germans alerted their agents at Algeciras about the possibility that a Malta-bound convoy was preparing to sail and that all reporting stations should increase vigilance. German agents reported the arrivals and departures of Allied warships from Gibraltar during the night of 8–9 August. Rome passed that information to Cagliari in its daily bulletin on 9 August. The Allies also read the Enigma report that at 0925 on 10 August Tangier informed Madrid that based on personal observation a convoy of thirty-seven ships, including two large transports, were outside the entrance to the Strait of Gibraltar sailing on an easterly course. The station in Ceuta also reported the movement of various enemy ships eastward.¹⁷

Plans

The Allies considered four variants of the plan to resupply Malta from the west, designated plans A, B, C, and D, respectively. Most of these plans revolved around the availability of the 17,580-ton (full load) U.S. aircraft carrier *Ranger* (CV 4) for the operation. The Admiralty was in favor of plan A, if *Ranger* and its five destroyers were available at Scapa Flow. Under plan A two battleships (*Nelson* and *Rodney*), deployed with the Eastern Fleet in the Indian Ocean, would also take part in the operation. In the Admiralty's view, training of the Eastern Fleet would be completed earlier if the Malta convoy were run in July instead of August and there would be no need to remove the carrier *Indomitable* from the Eastern Fleet. The Admiralty received information from Malta that the island could survive until September. Hence, there was no great urgency to run a resupply convoy in July. This, in turn, would affect the degree to which the British government would press the Americans to allow *Ranger* to be employed in the Mediterranean as envisaged under plan A.¹⁸

Plan B would also require the movement of *Ranger* to Scapa Flow. The Admiralty favored plan A and was concerned if both plans were presented to the Americans they might opt for plan B. In the Admiralty's view, if plan B were carried out in July it would not have allowed adequate time for preparations. If the

Americans rejected plan A, then the Admiralty favored a modified plan B to be executed in the August new moon period in order to allow more time for the carrier *Victorious* to become familiar with the U.S. fighter squadrons. To execute the modified plan B, it would require that *Ranger* arrive at Scapa Flow and transfer twenty-four folding-wing Martlet fighters (U.S. Wildcats) with their crews to *Victorious*; *Ranger* would operate with the Home Fleet to relieve *Victorious* during its absence from the fleet. *Ranger* would need to retain at least twelve Martlets. The modified plan B would not interfere with the schedule for PQ convoys bound for Russia. However, the execution of plan B depended on whether *Ranger* would be available for service with the Home Fleet until the end of August. Plan C was not acceptable because protection of both the convoy and the battleships by obsolete Fulmar fighters carried by *Victorious* was inadequate in the area south of Sardinia. This assessment was based on the heavy losses suffered from enemy land-based aircraft during Operation HARPOON.¹⁹

Plan D contemplated the convoy operation be executed in August using British forces exclusively. Among advantages of this plan were that it would not require American help and more time would be available for training and for the buildup of a heavy bomber force in the Middle East in support of the operation. Another advantage was that there would be one more hour of darkness in August than in July. A major disadvantage of plan D was that it would also delay relief to Malta by one month. It would delay the assembly and training of the Eastern Fleet by two and one-half months, because its sole carrier *Indomitable* and two battleships (*Nelson* and *Rodney*) would be detached for the operation in the Mediterranean. It would also entail holding up the merchant ships destined for the convoy for another month.²⁰

The Admiralty was in favor of plan A if *Ranger* could reach Scapa by 30 July. Failing plan A, it favored the modified plan B to be carried out in August and not requiring the withdrawal of the carrier *Indomitable* from the Eastern Fleet. The risks entailed in plan C were simply unacceptable. Hence, failing plan A or the modified plan B, the Admiralty had no alternative but to adopt plan D.²¹

The Admiralty assumed that it would be possible to run a PQ convoy toward the end of June and another in late July. The August PQ convoy would be delayed until the first week of September. In the Admiralty's view it would be possible to maintain a schedule of three PQ convoys every two months. Adopting plan D made it unnecessary to send *Ranger* to the United Kingdom. However, because of the severe shortage of cruisers and destroyers, British deputy prime minister Clement Attlee and the chief of the British staff, General Alan Brooke (1883–1963), suggested that the government request from the United States the loan to the Royal Navy of two heavy cruisers (*Tuscaloosa*, *Wichita*) and four destroyers until the end of August.²²

The Admiralty in London conducted the planning for the new resupply convoy to Malta, dubbed Operation PEDESTAL. This allowed it to make decisions without the extensive use of communications, enhancing operations security. In addition, the planners could easily obtain general views on policy, and the advice and help of the Naval Staff were always at hand.²³ The plan for Operation PEDESTAL was similar to the plan for the convoy from Gibraltar in mid-June 1942.²⁴ The planners assumed that surprise would be difficult to achieve because the Axis had excellent intelligence in the Gibraltar area.²⁵

In its broad outlines, the plan for Operation PEDESTAL visualized the assembly of sufficient forces to counter diverse threats posed by the Axis air and naval forces based in Sardinia, Sicily, southern Italy, and Tripolitania.²⁶ Operation VIGOROUS failed due to the inability of Allied airpower to damage enemy battleships sufficiently to force them to withdraw from the convoy. An acute shortage of AA ammunition and fuel was part of the reason that the convoy was dispatched to Malta after dark on 15 June. Because it was impossible to increase the strength of the land-based aircraft, the only solution to strengthen defenses of the next convoy for Malta was to assign much stronger naval forces to its defense.²⁷ Therefore, the plan required a sufficient number of fighter aircraft to match the enemy fighters and to deal with the enemy heavy bombers and torpedo bombers threatening the convoy.²⁸ The Admiralty made the decision that in the course of the operation damaged merchant vessels should be scuttled while all efforts would be made to preserve warships. The intent was not to lose both escorts and convoy.²⁹

The lessons of the Arctic convoys and those to Malta showed the need for tankers to accompany the convoy and escorts. However, the British merchant marine did not have fast (sixteen-knot) tankers in service. The U.S. Maritime Administration operated two such tankers (*Kentucky* and *Ohio*). After some difficult negotiations, the British government was able to lease these two tankers. One of them (*Kentucky*) was sunk during the failed dual convoy operation in June 1942 so that only one tanker, the 14,150-deadweight-ton (DWT) *Ohio* (carrying 11,500 tons of black and white oil) was assigned to the convoy.³⁰

In planning Operation PEDESTAL, the Allies correctly assumed that the enemy would concentrate its heavy surface forces in the area south of Sardinia and then either attack the convoy or draw off Allied escorting forces, leaving the convoy open to attack by its light forces. They also expected synchronized attacks by enemy high-level bombers, torpedo bombers, and dive-bombers on the third and fourth days, and high-level bombing and torpedo bomber attacks on the second and fifth days of the operation.³¹ To minimize losses from enemy aircraft, the convoy would transit the Sicilian Narrows at night.³²

The planners also made major changes in the strength of the convoy screen based on the lessons learned in the aftermath of the failed dual convoy operation in June 1942. One of the main requirements was that the convoy escorts be powerful enough to prevent a successful attack by Italian heavy surface forces.³³ The Admiralty considered employment of battleships in the Sicilian Narrows, so close to the enemy airfields in North Africa and Sicily, too risky. Hence, it deployed two battleships for a purely defensive role. The carrier-based aircraft would play the key role of inflicting damage and slowing down the Italian battle fleet.³⁴

The planners assigned all three available large aircraft carriers in support of the operation. Sea Hurricanes and Martlets replaced all obsolete Fulmar fighters. The carriers would be positioned inside the destroyer screen and in the convoy's rear; the carrier aircraft would be employed for attacking the Italian heavy surface ships based at Messina, Tarent, and Naples in case they posed a threat to the convoy.³⁵

Task Organization

The entire resupply operation to Malta was under the command of Acting Vice Admiral Syfret (1889–1972).³⁶ He was in command of Force F, composed of the convoy and naval forces of direct screen and distant cover and support. Naval forces assigned to the operation were a collection of ships belonging to the Home Fleet and Eastern Fleet. Submarines deployed in the eastern Mediterranean were subordinate to CINC of the Mediterranean Fleet in Haifa. Most of the land-based aircraft were controlled by the RAF's Mediterranean Command.

The planners had considerable difficulty in assembling a sufficient number of merchant ships for the new resupply effort due to the heavy losses inflicted by the German U-boats in the northern Atlantic in the midsummer of 1942. Based on the request by Malta's governor to the Admiralty on 3 July, the planners envisaged a convoy composed of ten merchant ships with a loading capacity of 75,000 DWT.³⁷ However, they made the decision in mid-July to run a convoy of thirteen freighters and one tanker with tonnage of about 123,000 tons.³⁸ These ships would carry mainly flour and ammunition. They allocated each ship a proportion of the total cargo so that a percentage of every commodity was certain to get through despite expected high losses.³⁹ Planners based the selection of the merchant ships on the assumption that the enemy would mount heavy attacks against the convoy. To enhance the convoy's chances of survival, the average speed of its advance had to be at least fifteen knots. Based on the lessons from Operation HARPOON, the planners assigned an ocean tug to accompany the convoy.⁴⁰ The intent was that the convoy would leave the United Kingdom about 2 August and arrive at Malta on 13 August. In an attempt to confuse German intelligence, the convoy's designation, WS.5.21.S (WS for "Winston Specials"), was

the same as for the convoys from the United Kingdom to Suez and rounding the Cape of Good Hope.⁴¹

Supporting naval forces were divided into four force elements designated Forces Z, X, Y, and R. Force Z, led by Syfret himself, consisted of two battleships (*Nelson* and *Rodney*) and three large aircraft carriers (*Eagle*, *Indomitable*, and *Victorious*) with seventy-two fighters and thirty-eight torpedo-bombers, three cruisers (*Sirius*, *Phoebe*, and *Charybdis*), and the 19th Destroyer Flotilla with fifteen destroyers. Force X, under command of Rear Admiral H. M. Burrough, was composed of three light cruisers (*Nigeria*, *Kenya*, and *Manchester*), one AA ship (*Cairo*) of the 10th Cruiser Flotilla, eleven destroyers of the 6th Destroyer Flotilla, and one ocean tug.⁴² Two of these cruisers (*Nigeria* and *Cairo*) were fitted for fighter-direction duties.⁴³ An additional five destroyers were assigned to provide antisubmarine (A/S) escort for the convoy during its transit from the United Kingdom to the Strait of Gibraltar.⁴⁴ Force Y at Malta consisted of two freighters (*Troilus* and *Orari*) and two destroyers. Force R(efueling) was composed of three fleet oilers and one ocean tug plus four corvettes for escort.⁴⁵ Malta Escort Force (17th Minesweeping Flotilla) consisted of four minesweepers and seven motor launches. In addition, the Admiralty assigned eight destroyers as reserve escorts for the operation. They were intended to provide escort for Force R and a screen for the carrier *Furious*.⁴⁶

Timing

Operation PEDESTAL depended primarily on the Allied ability to assemble a powerful force and on the timing to outwit the Italians and the Germans. To enhance the chances of success, the Allies had to choose a time during a moonless night. Hence, they considered the time between 10 and 16 August as optimal to run the convoy operation to Malta from the west. They selected 10 August as the first day of the operation, D.1 (D + 0 in U.S. terms), for the day when the convoy with accompanying escorts would enter the Mediterranean.

Other Operations

Under the cover of the convoy operation, the Admiralty also planned two other minor efforts. During the planning, the British Chief of the Air Staff, Sir Charles Portal, raised the issue of increasing the number of fighter aircraft on Malta. By the end of July, only about eighty fighters were still in service on the island; however, that number would decline rapidly because the Allies lost about seventeen aircraft per week. Hence, the planners decided to reinforce Malta's air defenses by bringing in some forty Spitfire fighters, ferried by an aircraft carrier prior to the arrival of the convoy to Malta.⁴⁷ This would also enhance the chances of success of Operation PEDESTAL. The carrier *Furious* was selected for the operation (code-named BELLOWS) because the other available carrier, *Argus*, would require

a wind speed of at least fifteen knots, which was unlikely in August in the western Mediterranean.⁴⁸ The carrier *Furious* (with four Albacores and forty Spitfires) would sail from Gibraltar and after reaching a point south of Sardinia, approximately 550 miles from Malta, would launch its Spitfires. The Admiralty directed Syfret that Operation BELLOWS should interfere as little as possible with Operation PEDESTAL. *Furious* should not stop at Gibraltar on the way out but should enter the Mediterranean with the convoy. It planned that five destroyers should escort *Furious* back to Gibraltar and the United Kingdom immediately after fly-off. Force F would provide fighter protection until *Furious* was well west of Force F. The fly-off could take place on D.2 or D.3 at Syfret's discretion and could be at any time during daylight. This would allow the Spitfires to land at dusk. *Furious* must be on a radius 296 nautical miles from position 37° 12' N and 9° 00' E at the time of fly-off.⁴⁹ A complicating factor was that the planners for Operation BELLOWS had to use signals versus radio.⁵⁰

Another element of the plan was to take two merchant ships (*Troilus* and *Orari*) that had survived the June debacle with a screen of two destroyers (Force Y) out of Malta and bring them to Gibraltar (Operation ASCENDANT). The intent was to mount this effort after dark on D.1.⁵¹ Force Y would be suitably painted and have Italian deck markings. The plan was to sortie from Malta to a position some thirty nautical miles south of Lampedusa, pass Kelibia (Kélibia), hug the Tunisian coast to Galita Channel, and then proceed to Gibraltar.⁵²

Support from Other Forces

In support of Operation PEDESTAL were employed Allied submarines and fighter aircraft based on Malta, patrol aircraft based in Gibraltar, and long-range bombers of the Middle East Command. The planners prepared an elaborate scheme for the employment of Allied submarines in support of Operation PEDESTAL. The initial plan drafted on 20 July contemplated deployment of seven Allied submarines in the vicinity of Sicily to prevent the Italian surface forces based in the Tyrrhenian Sea from attacking the convoy during its last leg of transit to Malta. Specifically, three submarines would take positions between Cape Galle and Trapani (patrols A, B, and C), three submarines between Cavallo and Marettimo (patrol areas D, E, F, and G), and one submarine between Volcano and Cape Milazzo (patrol area H). All patrolling areas would be established by D.1.⁵³ By late July, the plan for the employment of the Allied submarines was changed. One submarine would deploy off Milazzo (Sicily's northwestern coast) and one off Palermo, while six other submarines would be deployed between Malta and Pantelleria.⁵⁴ All submarines would reach their assigned positions by dawn on D.4 (13 August).⁵⁵ They would have complete freedom of action in attacking enemy ships, with Italian battleships and cruisers as their primary

targets. After the convoy passed their patrol line, the submarines would sail on the surface, on a parallel course with the convoy, and act as its screen. They would also report on the presence of enemy aircraft in the convoy's proximity.⁵⁶

The outcome of Operation PEDESTAL was also contingent on close cooperation with RAF units based on Malta and elsewhere in the Mediterranean. The Allied air strength in Malta on 3 August was 155 serviceable aircraft, including ninety to ninety-five Spitfire fighters and about fifty-five bombers. This total decreased by 10 August to 151 aircraft, including eighty Spitfires. The expected reinforcements prior to 13 August were seventy-four aircraft, including thirty-eight Spitfires from the carrier *Furious*. On D.3, estimated air strength would be 202 aircraft, including 113 Spitfires.⁵⁷ On 11 August, the Allies had about 140 aircraft organized in nine fighter squadrons, three torpedo squadrons, four bomber squadrons, and two reconnaissance aircraft squadrons.⁵⁸ On 13 August, the Allied air strength on Malta comprised 230 aircraft, of which 155 were operational. This number included ninety fighters, all Spitfires, and fifty-six long-range bombers (eighteen Beaufighters-coastal, four Beaufighters-night, four Wellington VIIs, twenty-four Beauforts, and six Baltimores).⁵⁹

The planners intended that the Allied aircraft based on Malta would conduct reconnaissance day and night along the probable routes of enemy naval forces; attack the Italian and German bases on Sicily, Sardinia, and Pantelleria; protect the convoy after entering the effective range from Malta; and attack with torpedoes Italian naval forces entering Tarent.⁶⁰

The Allied aircraft based in the Western Desert were tasked with the following:

- Locate, shadow, and report all enemy surface forces.
- Protect the convoy from air attack when within their effective range.
- Destroy enemy surface forces.
- Dislocate enemy air forces on the ground by means of low-flying attacks by Beaufighters, night bombing of Sardinian bases by Liberators, and large-scale night bombing by Liberators from the Middle East Command.⁶¹

On 3 August, Vice Admiral, Malta requested from the Middle East Command four Liberators for bombing enemy airfields on Sardinia and Sicily during the nights of D.3–D.4 and D.4–D.5. He also suggested using an additional six Bostons or similar aircraft suitable for carrying out high-speed daylight bombing of enemy airfields.⁶² The RAF would provide long-range escort aircraft from Gibraltar and Malta to the limit of their effective range. He specifically requested air reconnaissance between Sardinia and North Africa from D.2 to D.5; between Cavallo Island Lighthouse and Marettimo (Aegadian Islands) during daylight hours on D.3 and D.5; and reconnaissance of naval bases Tarent, Messina,

Palermo, Naples, and Cagliari from D.1 to D.5 to keep track of the enemy surface vessels. Allies would conduct daylight air patrols between Cavallo and Marettimo on D.3 to D.5 and dawn patrols between Sardinia and North Africa from D.2 to D.5.⁶³ Beaufighters would protect Force X from 1930 to dark on D.3 and from daylight on D.4 until Spitfires could take over protection of the convoy. The torpedo bomber striking force would maintain readiness to attack enemy surface forces and provide cover for the westward passage of Force X to Gibraltar on D.4.⁶⁴ RAF aircraft based at Gibraltar would conduct an antisubmarine patrol east of the Strait of Gibraltar.⁶⁵

OPERATIONAL DESIGN

The Allied commanders and planners had to fully evaluate all the aspects of the operational situation in the Mediterranean prior to and during the planning of Operation PEDESTAL. In modern terms, this process is called “operational design.” In generic terms, the principal elements of design for a major naval operation are ultimate/intermediate objectives, force requirements, balancing of operational factors against the ultimate objective, identification of enemy and friendly operational centers of gravity, initial lines of operations, direction (axis), the operational idea (scheme), and operational sustainment.

The first and the most important step in designing a major naval operation is to properly determine and articulate its ultimate and intermediate objectives. The objective of Operation PEDESTAL as stated in the plan was “to pass a convoy of 14 M.T. [motor tanker] ships through the western Mediterranean to Malta and to cover the passage of two merchant ships and two destroyers from Malta to Gibraltar.”⁶⁶ Expressed differently, the main and ultimate objective of Operation PEDESTAL was to deliver a sufficient amount of fuel, ammunition, and food supplies to allow Malta to operate as a major naval/air base beyond September 1942. That objective was operational in its scale.

After the ultimate objective is determined, the next step is to derive a number of major or minor tactical objectives that would lead collectively to the accomplishment of the ultimate objective of the operation. Major tactical objectives in Operation PEDESTAL were defense and protection of the convoy, neutralization of the enemy airfields on Sardinia and Sicily, and diversion of enemy forces from the western to eastern Mediterranean. Under cover of the convoy operation, the Allies also planned to accomplish a separate major tactical objective—reinforcement of Malta’s air defenses by ferrying some forty Spitfires to the island. Another separate but minor tactical objective was to bring to safety two merchant ships that had survived the HARPOON convoy operation.

An important element of operational design is determining the overall force’s size/mix for the entire operation. The principal factors in this process are the

type of operation, the combat potential of friendly and enemy forces, the number and scale of intermediate objectives and their sequencing, the distances between the base of operations and the prospective operating area, and weather and climatological conditions. In addition, intelligence and logistics play a significant role in determining the size and composition of one's forces in a major naval operation. The operational commander's judgment and experience are often the decisive factors in determining the size and composition of the forces that take part in a major naval operation. The Allies assigned the maximum available force of aircraft carriers, cruisers, and destroyers to Operation PEDESTAL. They assigned three fast carriers to a force of distant cover and support. However, it would probably have been wiser not to conduct the ferrying operation simultaneously with the resupply effort but instead to assign more destroyers for the carrier *Furious* to Force Z or Force X, thereby strengthening the convoy's air and antisubmarine warfare defenses. The Allies failed to employ a sufficient number of serviceable long-range bombers of the Middle East Command in support of Operation PEDESTAL.

The operational commander and planners must first properly harmonize the factors of space, time, and force against the ultimate objective of the operation. This means that advantages in one operational factor must offset the deficiencies in other factors. Ideally, the operational commander should assess friendly factors of space, time, and forces individually and then balance them in combination against the respective ultimate objective. A serious disconnect or mismatch between the ultimate objective and the corresponding space-time-force factors might greatly complicate and possibly endanger the success of the entire operation. If the imbalance cannot be satisfactorily resolved, then the objective must be changed or scaled down and brought roughly into harmony with the operational factors.

Operation PEDESTAL was conducted over very long distances. About 1,370 nautical miles separates Glasgow from the Strait of Gibraltar via Bishop Rock. The distance from the Strait of Gibraltar to port La Valletta, Malta, is just over a thousand nautical miles. A convoy from Gibraltar to Malta had to sail the distance of four hundred miles (or twenty-six hours at fifteen knots) within 150 miles from the enemy airfields on Sardinia and Sicily.⁶⁷ The Allied naval base at La Valletta, Malta, was favorably located to control the central part of the Mediterranean. It lies only about eighty nautical miles from Licata, Sicily, and 360 nautical miles from Benghazi. The distances in nautical miles between Malta and the Italian naval bases at Cagliari, Sardinia; Naples; and Tarent are 330, 322, and 337, respectively. The hundred-mile-wide Sicilian Narrows posed a particular hazard for Allied ships because of numerous mines laid by the Italians and the short distances to the Axis airfields on Sicily.⁶⁸ Lack of sea room and presence

of the enemy mines made it next to impossible to use battleships and carriers beyond the Skerki Bank. Hence, for the last 250 miles of the voyage to Malta, the convoy would have to rely on protection of cruisers and destroyers.⁶⁹ The Sicilian Narrows were also a suitable area for the employment of the Italian and German torpedo craft and cruisers/destroyers. In the early days of the war, the Allies had easily swept the mines, but this became more difficult and dangerous at the later stage, when the Italians laid new and more advanced German mines.

After determining the ultimate objective of a major naval operation, the operational commander and his planners must determine corresponding enemy and friendly operational centers of gravity—a source of massed strength, physical or moral, or a source of leverage whose serious degradation, dislocation, neutralization, or destruction would have the *most decisive impact* on the enemy's or one's own ability to accomplish a given military objective. The principal utility of the concept of center of gravity is in significantly enhancing the chance that one's sources of power are used in the quickest and most effective way for accomplishing a given military objective.

For the Allies the enemy's operational center of gravity in the second phase of the operation was clearly German heavy bombers and dive-bombers based on Sicily and Sardinia. However, in the third phase, the enemy operational center of gravity shifted to the Italian heavy surface forces in case they sortied out from their bases. The Allied operational center of gravity was three large aircraft carriers with their fighter aircraft on board. After the passage of the Sicilian Narrows, the Allied operational center of gravity changed to Force X. Afterward, the operational center of gravity shifted to the Allied fighter aircraft based on Malta.

OPERATIONAL IDEA

The operational idea (or scheme) is the very heart of a design for a major naval operation. In essence, it is identical to what strategists commonly call “concept of operations” (CONOPS) (or sometimes “scheme of maneuver”). Ideally, it should be bold and provide for speedy execution. The simpler the operational idea, the higher are its chances of successful execution. The operational idea should be also sufficiently broad to accommodate changes in the situation in the course of its execution. It should be novel and avoid stereotyped patterns. The operational idea should ensure the decisive employment of one's forces. It should present the enemy with multidimensional threats that he has little or no chance of countering successfully. It should also surprise and deceive the enemy.

The idea for Operation PEDESTAL was traditional (see map 1). The unfavorable initial geographic position was a major reason why Operation PEDESTAL was bold but not novel. The Italians and Germans were neither surprised nor deceived; the objective of the operation was all too transparent. The Allies were

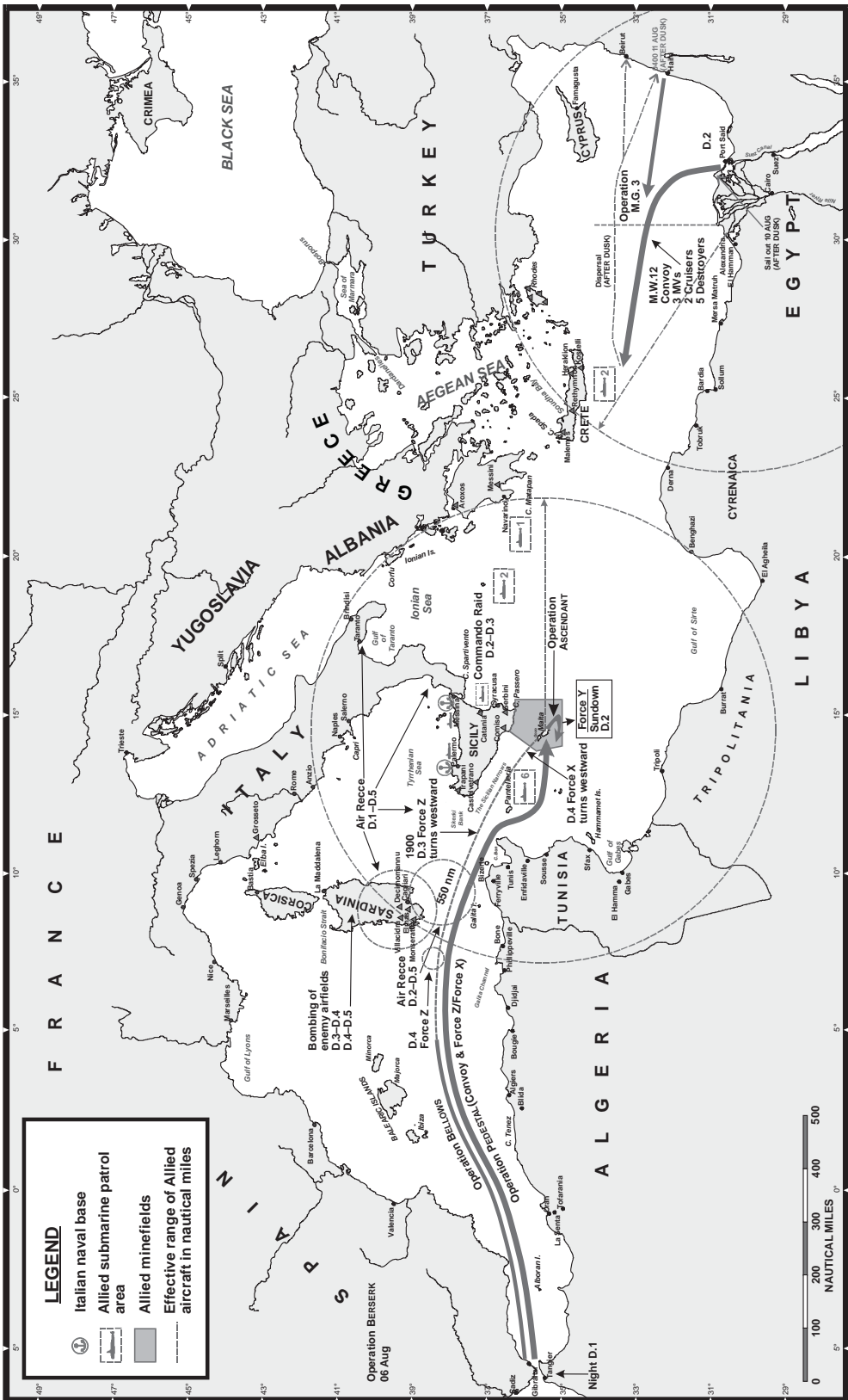
unable to achieve surprise, because the Axis had a large number of agents in the Gibraltar area.⁷⁰ The geography of the area restricted considerably the choice of lines of operation for each element of Force F. It allowed for little or no flexibility in the employment of the Allied forces. The speed of execution was limited to the fifteen-knot speed of the convoy.

The Allied operational idea envisaged both simultaneous and successive movements of several force elements in the western and eastern Mediterranean. Force F would pass through the Strait of Gibraltar on the night of D.1. Upon reaching the entrance of the Skerki Bank (an area of relatively shallow water in the Sicilian Narrows) at about 1900 on D.3, Force Z would turn westward.⁷¹ Upon arriving at the entrance to the Skerki Bank in the afternoon on D.3, Force X and convoy WS.5.21.S would proceed to Malta. Force X would proceed until the point at the approaches to Malta in the afternoon on D.4, from where the Malta Escort Force would take over escort of the convoy.⁷² Force Z, after parting company from Force X at the entrance to the Skerki Bank in the afternoon of D.3, would remain in that vicinity until the Beaufighters from Malta took over protection of the convoy and Force X. On D.4, Force Z would operate to the west of Sardinia to distract attention from Force Y. After its support was no longer necessary, Force Z would return to Gibraltar. Force X would return to Gibraltar as soon as Vice Admiral, Malta could release it from protecting the convoy.⁷³ Minesweepers would clear the channels, thereby avoiding the loss of merchant vessels as in the convoy operation in June.⁷⁴ Two merchant ships that had survived the June debacle, with a screen of two destroyers, would sail out from Malta to Gibraltar after sundown on D.1, pass through the Sicilian Narrows on the night of D.2–D.3, and thence sail directly to Gibraltar. A submarine screen of six British boats would deploy south of Pantelleria and north of the projected convoy route to intercept Italian naval forces. Two additional submarines would deploy off Milazzo, Palermo, and the Strait of Messina.⁷⁵ Under the cover of the main operation, Operation BELLOWS would be carried out to reinforce Malta's air defenses.

The Allied planners properly applied the principles of objective, mass, security, and economy of effort in Operation PEDESTAL. However, they violated the principle of simplicity by adding Operations BELLOWS and ASCENDANT.

In general, planners should assign a highly capable but not overly strong force to protecting the friendly center of gravity; otherwise, the operation would be open to a devastating enemy attack. The Allied initial operational center of gravity—the carrier forces—were well protected by the fighter aircraft and AA defenses of each carrier's screen. However, Force X—the second operational center of gravity—had to rely only on its own AA defenses.

[Deduced from Documents]



THE ALLIED FORCES

OPERATION PEDESTAL

FORCE F

Convoy *WS.5.215*

13 freighters (*Empire Hope, Dorset, Wairangi, Rochester Castle, Waimarana, Brisbane Star, Port Chalmers, Almeria Lykes, Santa Elisa, Clan Ferguson, Glenorchy, Melbourne Star, Deucalion*)

1 oiler (*Ohio*)

Additional escorts from Britain to Gibraltar: 5 destroyers (*Keppel, Malcom, Amazon, Venomous, Wolverine*)

FORCE Z

2 battleships (*Nelson, Rodney*)

3 aircraft carriers (*Victorious, Eagle, Indomitable*)

72 fighters, 38 torpedo bombers

3 light cruisers (*Charybdis, Phoebe, Sirius*)

15 destroyers (19th Destroyer Flotilla) (*Laforey, Lightning, Lookout, Quentin, Eskimo, Tartar, Wilton, Westcott, Wrestler, Somali, Wishart, Zetland, Ithuriel, Antelope, Vansittart*)

FORCE X

4 light cruisers (10th Cruiser Flotilla) (*Nigeria, Kenya, Manchester, Cairo*)

11 destroyers (6th Destroyer Flotilla) (*Ashanti, Intrepid, Icarus, Foresight, Fury, Derwent, Bramham, Bicester, Ledbury, Pathfinder, Penn*)

1 ocean tug (*Jaunty*)

FORCE Y

2 freighters (*Troilus, Orari*)

2 destroyers (*Matchless, Badsworth*)

FORCE R

3 fleet oil tankers (*Brown, Ranger, Dingledale*)

4 corvettes (*Jonquil, Spirea, Geranium, Coltsfoot*)

1 tug (*Salvonia*)

Malta Escort Force (17th Minesweeping Flotilla)

4 minesweepers (*Speedy, Hythe, Hebe, Rye*)

7 motor launches (*121, 126, 134, 135, 168, 459, 469*)

Submarine Group (10th Submarine Flotilla)

2 submarines off Milazzo and Palermo (*P.211, P.42*)

6 submarines between Malta and Tunisia (*P.44, P.222, P.31, P.34, P.46, Utmost*)

OPERATION BELLOWS

1 aircraft carrier (*Furious*)

RESERVE ESCORT GROUP

8 destroyers (*Keppel, Westcott, Venomous, Malcolm, Wolverine, Amazon, Wrestler, Vidette*)

OPERATION M.G. 3

Port Said

Convoy M.W.12 (3 merchant vessels)

Escort (2 cruisers, 10 destroyers)

Haifa

1 merchant vessel

2 cruisers

3 destroyers

SERVICEABLE LAND-BASED AIRCRAFT ON MALTA

9 fighter squadrons

3 torpedo-bomber squadrons

4 bomber squadrons

2 air recce squadrons

38 Spitfire fighters from *Furious*

THE AXIS FORCES

ITALIAN MAJOR SURFACE FORCES

3rd Naval Division (Messina)

3 heavy cruisers (*Gorizia, Bolzano, Trieste*)

7 destroyers (*Aviere, Geniere, Camicia Nera, Legionario, Ascari, Corsaro, Grecale*)

7th Naval Division (Cagliari)

3 light cruisers (*Eugenio di Savoia, Raimondo Montecuccoli, Muzio Attendolo*)

4 destroyers (*Maestrale, Gioberti, Oriani, Fuciliere*)

1 destroyer for mining the Sicilian Narrows (*Malocello*)

8th Naval Division (Navarino)

3 light cruisers (*Duca degli Abruzzi, Giuseppe Garibaldi, Emanuele Filiberto Duca d'Aosta*)

5 destroyers

SUBMARINES

18 Italian submarines (*Bronzo, Ascianghi, Alagi, Dessié, Avorio, Dandolo, Emo, Cobalto, Otaria, Axum, Asteria, Brin, Wolframio, Granito, Dagabur, Giada, Uarsciek, Vellela*)

2 German U-boats (*U-73, U-333*)

LIGHT FORCES

2nd MS Squadron (*MS 16, 22, 23, 25, 26, 31*)

15th MAS Squadron (*MAS 549, 543, 548, 563*)

18th MAS Squadron (*MAS 556, 553, 533, 562, 560*)

20th MAS Squadron (*MAS 557, 554, 564, 552*)

German S-boats (*S30, S59, S58, S36*)

Total: 9 cruisers, 17 destroyers, 20 submarines, 10 MS, 13 MAS

LAND-BASED AIRCRAFT (SICILY/SARDINIA)

Italian 287th, 146th, 170th, 144th, 197th air squadrons

328 aircraft (90 torpedo bombers, 62 bombers, 25 dive-bombers, 151 fighters)

German II Air Corps

456 aircraft (328 dive bombers, 32 bombers, 96 fighters)

Total: 784 aircraft (328 Italian, 456 German)

Sources: Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 410–13; *Royal Navy and the Mediterranean Convoys*, pp. 129–31; “Operation Pedestal,” *Supplement to the London Gazette*, p. 4506.

Continued from page 122

The Allied sector of the main effort in Operation PEDESTAL was the western Mediterranean, while the eastern Mediterranean was the sector of secondary effort. This decision was predetermined because the convoy started its voyage in Gibraltar and headed toward Malta. The sectors of effort dictate where the principal forces and their supporting forces should be concentrated or employed in a major naval operation. In a defensive major naval operation as was Operation PEDESTAL, the main Allied forces were those that defended the convoy, Force X. Force Z, submarines, and land-based aircraft were supporting forces.

The operational idea for a major naval operation should include a plausible plan for operational deception. In general, deception is intended to mislead the enemy about intentions, future decisions, and friendly courses of action. It aims to confuse and disorient the enemy about the time and place of an attack, thereby achieving surprise. An important task for the planners of Operation PEDESTAL was to develop a plausible deception plan. Geography alone severely limited their options. The deception target, the Axis high commanders, would know that any large convoy with heavy escort starting from either Gibraltar or Alexandria was bound to the island of Malta. In other words, the ultimate objective of Operation PEDESTAL was too transparent to the enemy. The Allied planners envisaged a feint in the eastern Mediterranean (Operation M.G. 3) aimed at preventing the Axis commanders from committing all of their available forces against the Allied forces in the western Mediterranean. They contemplated a convoy (M.W.12) composed of three merchant ships under cover of a task force of two cruisers and five destroyers to sail from Port Said to a position about 100 miles west-southwest of Crete.⁷⁶ They would sail out on D.2 as soon as possible after receiving information that the WS.5.21.S convoy had passed through the Strait of Gibraltar, or on D.3 if they did not receive that report.⁷⁷ The intent was to lure the Italian 8th (Naval) Division at Navarino, and to keep down the Luftwaffe's aircraft based on Crete. One Allied submarine would be deployed off Navarino, while two other boats would be positioned further westward to intercept any Italian ship sailing from the naval base at Tarent. To divert the Italians' attention from the events in the western Mediterranean, one Allied submarine would debark commandos off Catania to conduct a raid against a nearby airfield.⁷⁸ Admiral Syfret expected the British army to help the operation by staging an attack in Egypt; however, he was disappointed at the army's refusal.⁷⁹ The British army never seemed to understand the importance of Malta for the ultimate Allied victory in the Mediterranean.

Naval forces attain the ultimate objective of a major operation by dividing it into several phases related in time and space. In general, a phase is the time between the accomplishment of two successive intermediate objectives. Depending on the success of the intermediate objectives, strategists plan phases to take place simultaneously or sequentially. The main purpose of phasing is to stagger a major naval operation into several parts to avoid overshooting the point of culmination before achieving the next intermediate objective. The operational commander should not arbitrarily break down a major naval operation into phases, unnecessarily slowing down the operational tempo. Operation PEDESTAL consisted of four related phases: assembly of the convoy at Clyde River estuary, Scotland, and its transit to Gibraltar; transit from Gibraltar to the

Sicilian Narrows; transit from the Sicilian Narrows to La Valletta, Malta; and return of forces of distant cover and support/direct screen to Gibraltar.

A major naval operation cannot be successful unless it is adequately, reliably, and logistically supported and sustained. In general, sustainment is the extension of logistical support from the start of combat actions until the ultimate objective is accomplished. Operational sustainment is required to support combat forces throughout all phases of a major operation. Because of the long distances involved, the short-legged destroyers needed refueling during the convoy's transit. Malta was not in a position to provide fuel. The lessons of the Arctic and Malta convoys showed the need to have tankers to accompany the convoy and escorts. Force R would perform this critically important task. The plan envisaged that Force R enter the Mediterranean via the Strait of Gibraltar together with the main force, and then wait near the convoy route to refuel the destroyers as needed.⁸⁰

Preparations

The Allies envisaged conducting a three-day exercise west of the Strait of Gibraltar prior to the passage of the convoy through the strait (called Operation BERSERK). The main purpose of the exercise was to rehearse fighter direction and cooperation among the three carriers.⁸¹ Forces deployed to take part in the exercise were as follows: Force M from the United Kingdom (*Victorious*, the cruiser *Sirius*, and three destroyers), Force K from Freetown (*Indomitable*, the cruiser *Phoebe*, and three destroyers), Force J from Gibraltar (*Eagle*, the cruiser *Charybdis*, and three destroyers), and Force W from Freetown (one fleet oiler and two corvettes).⁸² The exercise was to start on D-5 (6 August).⁸³

PLANS AND PREPARATIONS: THE AXIS

The Axis command structure in the Mediterranean was highly centralized at the national-strategic level and highly fragmented at the operational level. The Italian dictator Benito Mussolini concentrated all authority over Italian armed forces in his own hands. He was simultaneously Minister of War, Minister of the Navy, and Minister of the Air Force from late 1933 until the end of his regime in July 1943. He appointed undersecretaries who served as chiefs of staff of the respective services. Chief of the Staff of the Supreme General Staff (Capo di Stato Maggiore Generale) was nothing but a technical adviser without any command responsibility. Field Marshal Albert Kesselring of the Luftwaffe was in control of the German ground forces in the theater. Yet he did not have any control over the German-Italian campaign in North Africa or over the organization of convoys to Libya. Responsibility for convoying service remained in the hands of the German liaison officer to the Italian Supreme Command (Commando Supremo).

The two German air corps (Fliegerkorps), II and X Air Corps, deployed in the Mediterranean, were subordinate to the normal chain of command of the Luftwaffe. Kesselring had some responsibilities for the conduct of the German naval operations in the Mediterranean because he was nominally in control of the new Naval Command Italy (Marinekommando Italien) created in November 1941. However, that command was at the same time subordinate to the Kriegsmarine's regular chain of command. The German command structure in Italy was highly fragmented and service rivalries considerably hampered their full cooperation in the conduct of operations. To make the situation worse, there was little unity of effort in the employment of the German and the Italian forces in the Mediterranean theater. Neither the Germans nor the Italians fully trusted their nominal partners. Kesselring had the authority only to coordinate but not to prepare plans for the joint employment of the German and Italian forces. He had some influence on the employment of the Italian air squadrons for the protection of convoys to North Africa. The Italian Navy resisted all German attempts to influence its operations. Another problem with the Italian Navy was that ships from different squadrons never trained together. The Italian Navy's high command also constantly interfered with the responsibilities of its tactical commanders.⁸⁴

What the Axis Knew

In contrast to the Allies, the Italians and Germans lacked information about the Allied plans and intentions. However, they had a reasonably accurate knowledge of the enemy order of battle and movement of his forces once they entered the Mediterranean. The main sources of information for the German and the Italian commanders were reports by the Abwehr agents in the Gibraltar area and Ceuta, and reports from reconnaissance aircraft and submarines. Unbeknownst to the Germans, the Allies intercepted and read all their Enigma coded messages.

Reliable reports from the Abwehr agents concerning the activity of enemy air and naval forces in the western Mediterranean convinced Kesselring on 5 August that the Allies were preparing a large-scale operation to supply Malta from the west.⁸⁵ The Germans believed that in conjunction with this operation, the enemy would try to pin down the Axis forces by launching a simultaneous attack with limited objectives against Panzerarmee Afrika. Specifically, they assumed that the Allies would mount a combined attack from the sea, the ground, and the air to capture Mersa Matruh. The activity of the enemy air forces in Egypt and on Malta was remarkably light in view of their known strength. They took this as a sign of preparations for a large-scale operation. The enemy was holding in reserve forces on Malta to support, by bombing attacks on Italian naval forces and by fighter protection, the transit of an enemy convoy through the Sicilian

Narrows.⁸⁶ At the same time, the Germans considered the possibility of a threat to Crete by the Allied forces in the eastern Mediterranean coinciding with the passage of the convoy to Malta from the west. Hence, Kesselring ordered increased readiness of the Luftwaffe units in both Sicily and Crete. He also directed redeployment of aircraft from Crete to Sardinia and Sicily on 5 August.⁸⁷ The II Air Corps increased the combat readiness of its bombers and fighters and planned to employ its aircraft sparingly. Kesselring also ordered the II Air Corps to prepare to accommodate reinforcements from X Air Corps that would be transferred for short-term employment and would, in cooperation with the IAF, strengthen the ground organization at Elmas, Sardinia. He also directed as a preparatory measure opening discussions with the IAF about joint employment of the German and Italian forces in the pending operation.⁸⁸

The Allies learned through Enigma that the Luftwaffe had difficulty with supplies in Sardinia, which prevented the movement there of long-range bomber forces and fighter operations to the full extent intended. They also had information that the Germans transferred from the eastern to western Mediterranean forty to forty-five long-range bombers and six twin-engined fighters. This, in turn, complicated the German situation in North Africa. Air Commander (Fliegerfuehrer) Afrika was forced to shift operations on the front to provide convoy escorts in the Tobruk area. If Field Marshal Erwin Rommel, Commander of the Panzer Army Afrika (formerly Panzer Group Afrika) had been heavily engaged at the time, it seems doubtful whether even these limited reinforcements could have been spared.⁸⁹

On the morning of 8 August, a German report indicated (erroneously) that one *Argus*-class carrier and four destroyers had sailed into Gibraltar. The Abwehr reported intensive shipping traffic in the Strait of Gibraltar on the night of 8–9 August.⁹⁰

Plans

The Germans and Italians prepared their plans separately. They decided to cooperate but to employ their forces independently in the forthcoming operation. Specifically, the Luftwaffe's II Air Corps in Sicily coordinated the planning of the attacks with the sector command of the Italian Air Force in Sicily. However, they conducted the attacks independently.⁹¹

Supermarina (Italian naval headquarters) considered four possible courses of action for the enemy in the pending operation. The first course of action was to use superior naval strength for the protection of the convoy. The second course of action open to the enemy was a sortie by the main battle force to provoke the Italians to react in force. The third course of action was to use a strong covering force for the convoy to force a passage to the north of Pantelleria instead of turning

westward at the entrance to Skerki Bank. The fourth course of action open to the enemy was to carry out attacks by carrier-based aircraft on Sardinia aimed at destroying the Italian airfields there and thereby facilitating the convoy passage.⁹²

Forces Available

The Germans and Italians possessed substantial and diverse forces in the theater to inflict large losses on the Allied convoy and its covering forces. The Italians had available for the operation 328 aircraft (ninety torpedo-bombers, sixty-two bombers, twenty-five dive-bombers, and 151 fighters), while the Germans had 456 aircraft (328 dive-bombers, thirty-two high-level bombers, and ninety-six fighters).⁹³ The German II Air Corps mainly supported the Afrika Korps. The major part of the newly trained torpedo-bombers moved from the Mediterranean to Norway in June 1942 and did not return in time for the operation. About twenty Ju-88s from two air groups of the X Air Corps on Crete moved to Sicily on 11 August and were ready for the action the next morning. An additional eight Ju-88s from Crete flew to Sicily on 12 August after completing convoy escort duties in the Aegean.⁹⁴

The Italian Navy theoretically had available for the operation four battleships, three heavy and ten light cruisers, twenty-one destroyers, twenty-eight torpedo boats, and sixty-four submarines. However, the Italians were unable to deploy most of their heavy ships because of the lack of fuel and adequate air cover. The Italian Navy received only twelve thousand tons of fuel in June 1942, enough to cover about one-fifth of that consumed by convoys (fuel reserves then amounted to about 121,000 tons). The Italian battleships were directed to empty their fuel for escorts. Because of this severe shortage of fuel, Mussolini suggested to Hitler that further enemy attempts to supply Malta could be opposed only by submarines and land-based aircraft.⁹⁵ Supermarina was able to deploy for the pending operation the 3rd (Naval) Division with three eight-inch cruisers (*Gorizia*, *Bolzano*, and *Trieste*) and seven destroyers and the 7th (Naval) Division with three six-inch cruisers (*Eugenio di Savoia*, *Raimondo Montecuccoli*, and *Muzio Attendolo*) and five destroyers plus eighteen submarines, and nineteen torpedo boats (six MS [Motoscafo Siluranti] and thirteen MAS [Motoscafo Armato Siluranti]). The Germans could deploy two U-boats and four S-boats (torpedo boats).⁹⁶

The Italian and German air forces did not have a sufficient number of fighters to escort surface ships, bombers, and torpedo bombers. Mussolini favored the use of fighters to escort bombers instead, providing cover for surface forces to attack the convoy.⁹⁷ Kesselring did not approve the Italian request to provide air cover for the Italian fleet. He believed that the Luftwaffe lacked a sufficient number of fighters to provide escort for both his bombers and the Italian fleet.⁹⁸ Reportedly,

Kesselring was convinced that, based on the experience of the Second Battle of Syrte (22 March 1942) and the encounter off Pantelleria (15 June 1942), the Italian heavy cruisers would not be successful even if they had air cover.⁹⁹ The Germans used the pretext of the lack of fuel to refuse to provide air cover for the Italian heavy surface forces.¹⁰⁰ However, the German naval attaché in Rome, Admiral Eberhard Weichhold, argued that the Luftwaffe should provide air cover for the Italian ships.¹⁰¹ The Italian Chief of the General Staff, Marshal Ugo Cavallero, thought that the Italian surface forces should be employed in the forthcoming operation. However, the Supermarina did not want to take the responsibility of using its heavy surface forces without air cover.¹⁰²

Operational Idea

The Axis operational idea was relatively simple compared to the one applied by the Allies (see map 2). The Germans and Italians essentially followed almost the same script as in their plan against the enemy major convoy in September 1941 (Operation HALBERD). Their plan envisaged a joint special air reconnaissance of the western Mediterranean by the Italian and Luftwaffe aircraft on 11 and 12 August.¹⁰³ The Italian and German aircraft based on Sicily and Sardinia, the Italian submarines and German U-boats, the Italian and German torpedo boats, and minefields would be employed in the forms of successive barriers. These four barriers were intended to cause the dispersal of the convoy and thereby allow successful attack by a powerful cruiser-destroyer force.¹⁰⁴

The intent of the Germans and the Italians was to employ a force of twenty-two torpedo-bombers heavily escorted by fighters, about 125 dive-bombers also with fighter escorts, and forty high-level bombers in a tightly synchronized attack. The IAF would conduct the main attack. The Luftwaffe's air attacks would be conducted in two waves and be coordinated in terms of time.¹⁰⁵ The principal aim would be to destroy the enemy aircraft carriers first so that they would be unable to intervene when the Italian heavy surface forces closed in on the remnants of the convoy.¹⁰⁶ The Italians planned to deploy seventeen submarines in the western Mediterranean while the Germans had only two U-boats available.¹⁰⁷ Seven Italian and two German U-boats would be deployed north of Algeria between longitudes 01° 40' E and 02° 40' E.¹⁰⁸ The Italians would deploy ten submarines between Fratelli Rocks and the northern entrance to the Skerki Bank.¹⁰⁹ Some of these submarines would be positioned northwest of Cape Bon to operate in cooperation with aircraft.¹¹⁰ In addition, an Italian submarine would be deployed west of Malta, another off Navarino, and three boats about a hundred miles west-southwest of Crete.¹¹¹

During the war, the Italians laid a large number of mines in the Sicilian Narrows between June 1940 and April 1942. About 2,320 mines were laid between

Cape Granitola (at the southwestern tip of Sicily) and Pantelleria; 1,020 mines between Pantelleria and Ras el Mustafa, Tunisia; 6,880 mines between the Aegadian Islands (west of Trapani, Sicily) and Cape Bon; and 1,040 mines between Bizerte and Keith Rock.¹¹² The Italians planned to lay down a temporary minefield off Cape Bon by an Italian destroyer in the night of 12 August, or one day before the enemy convoy was expected to transit the area.¹¹³ In the night of 12–13 August, the Italians planned to deploy nineteen Italian torpedo boats (thirteen MAS, six MS) and four German S-boats south of Marettime and off Cape Bon and eventually off Pantelleria.¹¹⁴

The Italian plan contemplated that the 3rd (Naval) Division and the 7th (Naval) Division would join about a hundred miles north of Pantelleria in the afternoon of 12 August and then sail on the intercept course south of Pantelleria All'alba through the night of 12–13 August.¹¹⁵ They would attack the remnants of the convoy and its direct screen (Force X) south of Pantelleria at first light.¹¹⁶ They based this timing on the possibility that Axis aircraft could provide effective cover with fighters because of the larger number of enemy aircraft based on Malta. Any Allied convoy from Egypt would be dealt with by the 8th (Naval) Division based at Navarino.¹¹⁷ However, the Italians changed this plan on 12 August because of its inadequate state of combat readiness. Instead, they directed this division to move into the Ionian Sea to provide indirect support to the employment of the 3rd Naval Division. Eventually, they directed the 7th Naval Division to return to its base.¹¹⁸

THE EXECUTION

Operation PEDESTAL began with the sortie of the *Victorious* group from Scapa Flow on 31 July. On 5 August, this group started to exercise with the *Indomitable* group and Force W from Freetown.¹¹⁹ A day later and for the next two days, all three large aircraft carriers with their escorts less *Furious* took part in Operation BERSERK between the Azores and Gibraltar as envisaged in the original plan.

The convoy, escorted by cruisers *Nigeria* and *Kenya* and destroyers, sailed from the Clyde during the night of 2–3 August and joined the main body the next morning. Prior to the sortie Admiral Burrough held a meeting on board his flagship with the masters of all the merchant ships and explained the plan in detail. Shortly before Admiral Syfret left Scapa Flow, the Admiralty decided to execute Operation BELLOWS concurrently with Operation PEDESTAL.¹²⁰ On 9 August, Force R left Gibraltar and sailed to a position south of Majorca.

The entire Force F passed through the Strait of Gibraltar on 10 August (D.1 Day) in a dense fog (see map 3).¹²¹ Transit was uneventful. Syfret mistakenly believed that because of the poor visibility and moonless night it was unlikely that enemy agents observed the Allied convoy. However, he subsequently

acknowledged that later reports showed that the enemy was “fully cognizant of our passage of the strait.”¹²²

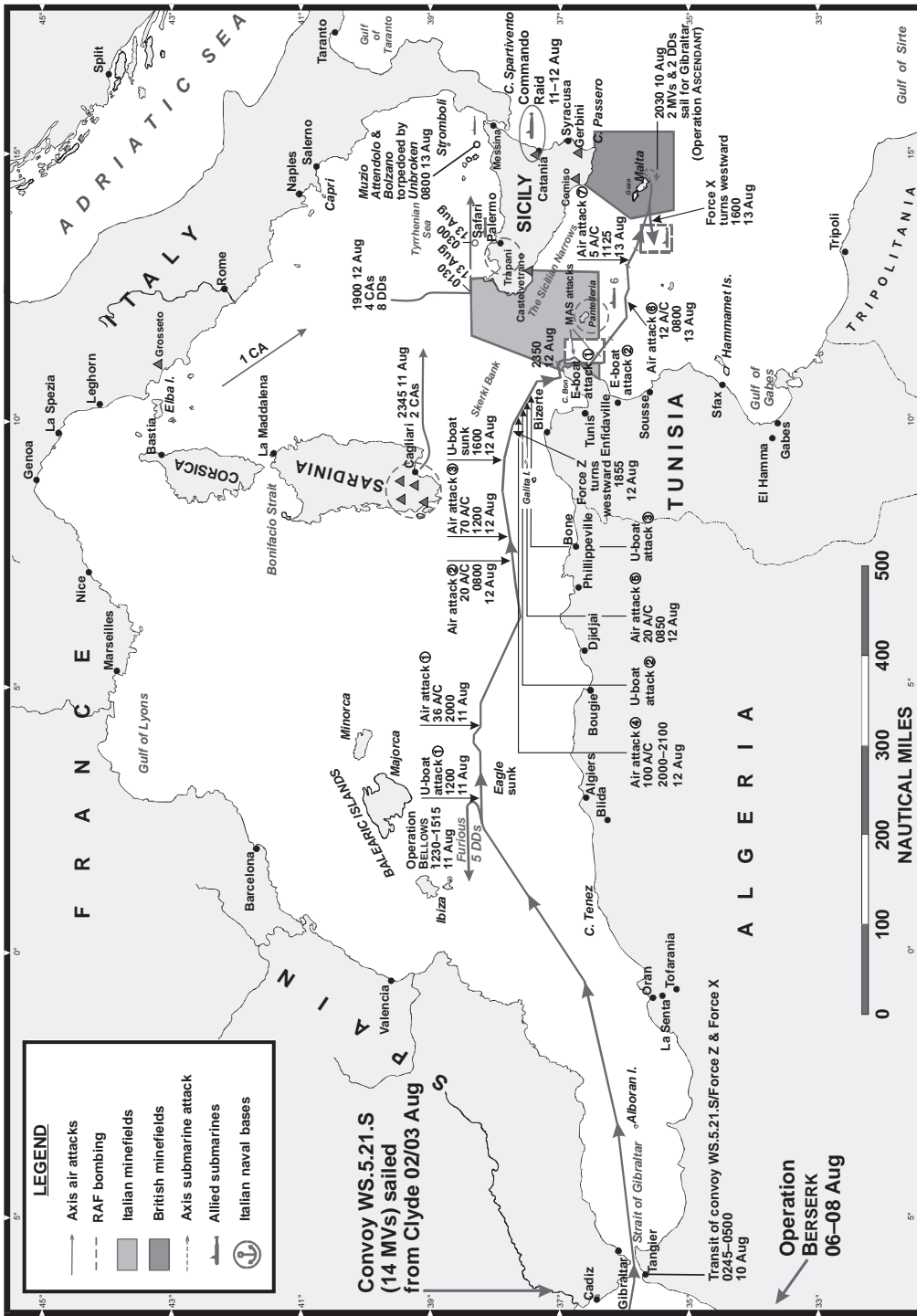
German Reports on the Convoy

The Germans had an approximately accurate picture of the movement of the enemy convoy and accompanying naval forces from their passage through the Strait of Gibraltar during the night of 9–10 August until the end of the operation. Agents in the Gibraltar area and Ceuta made the initial sightings. Afterward the Germans and Italians received a steady stream of reports from their reconnaissance aircraft and submarines. By intercepting and decoding Enigma messages, the Allies for their part had almost perfect and timely information on what the Germans knew and their planned reaction to the Allied movements and actions.

At about 0800 on 10 August, German aircraft detected the enemy convoy sailing in three groups on an easterly course. At 1130, Tetuan was directed to pass sighting reports from Alboran (Island) to Madrid.¹²³ At 1245, the Germans reported that the enemy convoy was about seventy nautical miles north of Algiers. The main group was composed of three battleships, probably *Nelson* class. The convoy was accompanied by three carriers, including what the German erroneously believed was the USS *Wasp*, plus twenty to twenty-five cruisers and destroyers and twenty large steamers westward of the van. A southern group of six destroyers was reported to be some seventy-five nautical miles northwest of Algiers.¹²⁴ Melilla reported that by 1800 there were no enemy ships in sight. Madrid directed both Tangier and Ceuta to increase a state of alertness. At 1700 on 10 August, a French aircraft reported two aircraft carriers, two battleships, two cruisers, fourteen destroyers, and twelve merchant vessels some fifty miles north of Oran. This was the first sighting of the convoy passed by the French to the Germans.¹²⁵

On the afternoon of 10 August, Kesselring learned, based on visual observation from Tarifa and Ceuta, that a large enemy convoy, appearing to be composed of forty to fifty units, including possibly two carriers and nineteen freighters, had entered the Mediterranean. The Germans mistakenly assessed that the carrier *Argus* was in Gibraltar. The enemy convoy was on an easterly course at a speed of thirteen to fourteen knots. The Germans estimated that the convoy would be south of Majorca by 0600 on 11 August and south of Sardinia by the approximately same time the next day.¹²⁶ The Luftwaffe’s reconnaissance aircraft observed at about 1900 on 10 August some fifty-five nautical miles north-northeast of Oran the enemy force composed of two battleships, two carriers, two cruisers, fourteen destroyers, and twelve steamships on an easterly course. The Germans falsely believed that the enemy ships carried about

MAP 3



twenty-five thousand men. This information was based on the Abwehr's erroneous report that thirty-seven enemy ships, including one aircraft carrier, three cruisers, ten destroyers, three gunboats, and nineteen freighters had entered Gibraltar on 25 July.¹²⁷

Around noon on 10 August, Supermarina received information that about fifty-seven British ships transited the Strait of Gibraltar on an easterly course.¹²⁸ One hour later the Italians comprehended that a large number of enemy warships and merchant vessels, including six large warships, had passed into the Mediterranean during the night of 9–10 August. At 1800 the same day, the Italians believed that an enemy force comprising one battleship, two aircraft carriers, four cruisers, twenty-three torpedo craft, and nineteen merchantmen were present in the western Mediterranean.¹²⁹ The Italians assumed that the British carrier-based aircraft would attack the Italian air bases on Sardinia. Supermarina estimated that the enemy convoy would transit longitude 10° E at noon on 11 August and would reach Cape Bon around noon on 12 August. In the following night, the convoy would pass through the Sicilian Narrows in the area of Pantelleria.¹³⁰

Based on air reconnaissance reports, Kesselring directed Luftwaffe's II Air Corps to put its long-range bombers in the highest state of combat readiness. He also ordered preparations for the transfer of aircraft from Sicily to Sardinia, including fighters. Kesselring transferred the Ju-88 torpedo-bomber squadron based at Grosseto, Tuscany, to Catania, Sicily. However, because of the shortage of fuel on Crete, it was not possible to use German transport aircraft to carry personnel and torpedoes on 11 August. The Italian fighter aircraft would be transferred from Sicily to Sardinia. It was also planned that the Italian fleet would operate against the convoy as it had against the enemy convoy from the west (Operation HARPOON) in mid-June 1942.¹³¹

The Situation in the Eastern Mediterranean

The Germans and Italians had accurate knowledge of the operational situation in the eastern Mediterranean. Based on British radio traffic, the Germans noted considerable presence of British forces in the eastern Mediterranean operating in conjunction with enemy forces in the western Mediterranean. Therefore, X Air Corps ordered a comprehensive reconnaissance of the eastern Mediterranean east of 25° E on the morning of 11 August. The Axis convoys in the central Mediterranean would continue to run for the time being according to plan.¹³² On 10 August, German intelligence reported intensive enemy activity in the eastern Mediterranean. The German aircraft detected a force of four enemy cruisers and ten destroyers about 150 nautical miles off Port Said on a westerly course. In Alexandria, the Germans observed one enemy destroyer, six smaller naval vessels, and thirteen

steamers.¹³³ The German reconnaissance aircraft reported the presence at the Suez anchorage of five enemy destroyers, one repair ship, and one *Southampton*-class cruiser.¹³⁴ The Abwehr had unconfirmed information that several loaded freighters were at Alexandria and ready to sail for Malta on 12 August. This information, coupled with several sightings of enemy submarines off Italian and Greek ports, led the Italians to believe that the enemy movement in the western Mediterranean meant more than just a relief convoy to Malta.¹³⁵

Events on 11 August

By the morning of 11 August, the Allied convoy was south of the Balearics and headed toward Cape Bon.¹³⁶ At about 0620, a U-boat sighted the enemy convoy and its screen. A German aircraft reported at 0815 the enemy convoy approximately ninety-five miles northwest of Algiers.¹³⁷ Shadowing by the Ju-88 flying between twenty and twenty-four thousand feet started at about 0830 and continued throughout the day. Despite the presence of the enemy submarines, Force R refueled all three cruisers and twenty-six destroyers.¹³⁸

At about noon, the convoy was about seventy-five miles south of Majorca and sailing straight east on a zigzag course. Operation BELLOWS was executed between 1230 and 1515 from a position of approximately 585 miles from Malta. Out of thirty-eight Spitfires that flew-off from *Furious*, all but one machine reached Malta safely.¹³⁹ The Allies suffered a major loss when *U-73* penetrated the screen and sank with four torpedoes the 27,230-ton (full load) carrier *Eagle* about eighty miles north of Algiers.¹⁴⁰ The carrier sank in only eight minutes; 260 men and all aircraft were lost. The Allied ships suffered attacks from six groups of six to twelve Ju-88s at dusk on 11 August; however, they reported no damage.

The Allies learned from Enigma that at 1155 on 11 August, the Italian six-inch cruisers *Eugenio di Savoia* and *Raimondo Montecuccoli* (7th Division) based at Cagliari were directed by Supermarina to be at two hours' notice from 1800 on 11 August. These cruisers, together with eight-inch cruisers *Bolzano* and *Gorizia* at Messina, were informed at 1300 that the Italian submarines were operating in an area sixty miles long and forty miles wide north of Bizerte. Three enemy submarines were observed leaving Cagliari at 2045 on 11 August. At 1800 on 11 August, the six-inch cruisers *Raimondo Montecuccoli* and *Eugenio di Savoia* and two destroyers sailed from Cagliari on an easterly course.¹⁴¹

Allied intelligence learned on 11 August that the Panzerarmee Afrika believed that the enemy convoy in the western Mediterranean posed a direct threat to Tobruk. Hence, the Germans issued orders for the highest degree of alert for their forces and took a series of defensive measures. Kesselring believed that the enemy might try to land on the North African coast. The next day, he issued the

order of the day, in which he suggested that such landings would influence operations in Africa, something the Axis must not allow to happen. On the same day, the Luftwaffe's air district (Luftgau) Afrika apparently believed that the landing might take place at Tripoli on 13 or 14 August.¹⁴²

Situation and Actions on 12 August

At 0020 on 12 August, the Allies learned that Italian intelligence had sighted four enemy cruisers and ten destroyers; part of the convoy from Gibraltar, the Italians thought, might be proceeding to the eastern Mediterranean.¹⁴³ They also intercepted and decoded operation orders issued by the II Air Corps for 12 August to the 77th fighter wing based at Elmas, Sardinia, to expect an enemy formation approaching the Sicilian Narrows in the early morning of 12 August. The II Air Corps would cooperate with the IAF in Sicily and Sardinia from the early morning of 12 August onward to attack and destroy enemy merchant vessels before they could reach Malta. They would operate in waves with fighter escorts.¹⁴⁴

Allied intelligence concluded that the movement of a large convoy with strong naval forces from Gibraltar, in conjunction with diversionary naval operation in the eastern Mediterranean, had a major effect on the Germans and the Italians. It induced a sense of great uncertainty and apprehension along the entire North African coast and in Crete lest a landing take place. The Allied movements also forced the Germans to take several precautionary measures. The Germans recognized by 11 August that if a threat to Crete existed it would materialize before 14 August. The Allies had little further indication that the Germans were much concerned at this possibility.¹⁴⁵ On 12 August, the Germans initiated defensive measures in the Benghazi-Tripoli area. One single-engine fighter squadron and the available long-range bombers based at Derna were prepared to move to Benghazi or Tripoli as necessary. The Ju-52s essential for the transport of ground personnel, equipment, and ammunition were put in readiness. Panzerarmee Afrika held motorized detachments ready to repel landings. It moved some forces to the Sollum–Mersa Matruh area to defend the coast east of Tobruk with three large motorized groups of artillery. At 0700 on 12 August, all the shipping from North Africa to Italy and the Aegean was suspended.¹⁴⁶ In the late afternoon on 12 August, the Luftwaffe believed that the British might attempt a landing at Tripoli on 13 or 14 August. Hence, they sent fighters and dive-bombers there from Sicily with supplies of ammunition and fuel. The Germans also took precautions in case the Allies threatened Benghazi.¹⁴⁷

On 12 August, the Allies intercepted a message from the CINC Luftwaffe Reichsmarschall Hermann Goering stating that the Luftwaffe units under CINC South (Kesselring) “will operate with no other thought in mind than the destruction of the British convoy.” He ordered the first operations directed against

enemy aircraft carriers and transports. “The destruction of this convoy is of decisive importance.”¹⁴⁸

By reading Enigma messages the Allies learned that at 1830 on 12 August the Luftwaffe was informed that an S-boat flotilla of five (actually four) boats was due to sail from Porto Empedocle, Sicily, at 1600 on 12 August on a westerly course for Cape Bon. After completing their mission, the enemy torpedo boats would leave Cape Bon at about 0430 on 13 August sailing on a northerly course as far as 39° N and then turn south toward Marettimo and then hug the coast to Augusta.¹⁴⁹ The Allies also received the information that at 2145 on 12 August, the II Air Corps assessed that the enemy forces in the western Mediterranean consisted of fifty-one ships including two carriers, two battleships, seven cruisers, and twenty destroyers. The Germans erroneously believed in the presence of one U.S. *Yorktown*-class aircraft carrier but correctly identified the presence of the battleships *Rodney* and *Nelson*. They also estimated that the convoy consisted of thirteen freighters totaling some 105,000 tons. Defense of the enemy convoy consisted of ten to sixteen fighters and strong AA fire of all calibers.¹⁵⁰

The enemy aircraft started to shadow Force F at 0500 on 12 August; throughout the day, the Allied forces were under continuous observation by the German and Italian bombers. The enemy bombers were progressively more strongly protected by the fighters. Throughout the day, there were numerous attacks on the Allied ships by the Italian high-level bombers and the German dive-bombers. In their efforts to sink as many enemy ships as possible, the German and Italian aircraft used every type of attack, including laying mines ahead of the Allied ships.¹⁵¹

On the afternoon of 12 August, the German aircraft received orders that under no circumstances were they to attack damaged ships or those left behind.¹⁵² The enemy aircraft were present in large numbers from 1600 to 2000. Between 1800 and 1850 there was a very heavy attack by about forty Ju-88s and Ju-87s coordinated with about twenty Italian Cant 1007 torpedo-bombers. Three bombs struck the carrier *Indomitable*, with two or three near misses. *Indomitable* was unable to operate aircraft but was capable of steaming at twenty-eight and a half knots.¹⁵³ An aerial torpedo hit the destroyer *Foresight* and friendly forces subsequently sank it. In the attacks during the day, the Germans believed that they damaged one enemy aircraft carrier, cruiser, and destroyer each plus one twenty-thousand-ton merchant ship.¹⁵⁴

Originally Syfret intended that Force Z would turn westward upon reaching the Skerki Bank at 1915 and he informed the fleet accordingly. However, because of the twenty-minute delay in reaching the position due to the enemy air attacks, he made a decision to turn Force Z westward at 1855, while Force X would proceed to Malta. The enemy apparently did not notice the withdrawal of Force Z until 2030. In view of the magnitude of enemy air attacks from 1830 to 1850,

Syfret believed that it was unlikely that the enemy would carry out any further major attack before dark. He also hoped, as it turned out quite mistakenly, that reaching Skerki Bank would eliminate the danger from enemy submarines. In his view, the greatest dangers to Force X were enemy torpedo boats during the night and aircraft by day. However, it was exactly after Force Z reversed its course westward that the Ju-87 attacked Force X and the convoy between 2000 and 2100. Around 2000, the Italian submarines torpedoed cruisers *Nigeria* and *Cairo* and the tanker *Ohio*. *Nigeria* was damaged but was able to return to Gibraltar, while *Ohio* was towed to Malta. *Cairo* was abandoned and eventually sank. At 2112, the cruiser *Kenya* was also torpedoed and damaged by an Italian submarine, while one freighter (*Deucalion*) was torpedoed and sunk at 2212 near the Cani Rocks in the Sicilian Narrows.¹⁵⁵

The Allies obtained information from Enigma that the eight-inch cruiser *Trieste* sailed to the southward from a northern Tyrrhenian port during the night of 11–12 August. Between 0840 and 1000 on 12 August eight-inch cruisers *Bolzano* and *Gorizia* with four destroyers sailed from Messina northward and at 0930, the six-inch cruiser *Muzio Attendolo* with two destroyers sailed from Naples.¹⁵⁶ The Enigma intercepts indicated that an unknown Italian naval force received orders at 1835 on 12 August to proceed south at twenty knots and join with other forces some ninety miles north of Trapani. These were probably cruisers from Messina and Cagliari. At 1945, Rome directed these forces to be ten miles east of Pantelleria at 0530 the next morning. Rome also informed the cruiser force that all Italian torpedo boats would patrol the area west of 11° 40' E with orders to leave their patrol at dawn on 13 August and proceed toward Pantelleria. At 2200, the cruiser force was directed to reduce speed to arrive off San Vito, northeast of Trapani, not before midnight on 12–13 August. However, at 2345 on 12 August they abruptly abandoned this operation. Cruisers *Eugenio di Savoia* and *Raimondo Montecuccoli* with three destroyers received orders to proceed to Naples, while cruisers *Gorizia*, *Bolzano*, *Trieste*, and *Muzio Attendolo* and the remaining destroyers would proceed to Messina.¹⁵⁷ The reason for this decision was probably the RAF's demonstration to convince the enemy that a much larger striking force was on the way to attack the Italian surface force.¹⁵⁸

Actions on 12–13 August

At about midnight on 12–13 August the Allied convoy passed through the enemy mine fields in the Sicilian Narrows. The attenuated line of merchant ships and the reduced number of escort ships provided many opportunities for attacks by enemy torpedo boats lying in ambushing position off Kelibia, near Cape Bon. In the subsequent attacks by the enemy torpedo boats, they torpedoed and sank the cruiser *Manchester* and three merchant ships. In the morning, another

merchant vessel was lost from either a torpedo fired by an enemy boat or a mine. These night attacks added to the convoy's disorganization. At daylight the scattered ships were comparatively easy prey for enemy aircraft. By 0700 Force X and the convoy were about 120 miles west of Malta. In the attacks by the enemy aircraft, three more merchant ships were sunk. At about 1600, the Malta Escort Force took over the protection of the convoy and Force X turned westward.¹⁵⁹ In the early morning of 13 August, a British submarine (*Unbroken*) fired four torpedoes from its ambushing position some twelve miles south of Stromboli Island, hitting and damaging heavy cruiser *Bolzano* and light cruiser *Muzio Attendolo*.¹⁶⁰

OPERATION M.G. 3 FAILS

As planned, the Allies carried out Operation M.G. 3, a feint to distract enemy attention in the eastern Mediterranean. The convoy, M.W.12, composed of three merchant ships, sailed out of Port Said after dusk on 10 August, accompanied by two cruisers, ten destroyers, and two escorts, while one merchant ship escorted by two cruisers and three destroyers left Haifa at 0300 on 11 August. These two forces were concentrated in the early morning of 11 August and sailed westward to the longitude of Alexandria; afterward they turned back and dispersed. The intention was to lure the Italian 8th (Naval) Division at Navarino and to keep down the Luftwaffe's aircraft on Crete.¹⁶¹ The German aircraft observed these movements. In the early morning of 12 August, Kesselring informed X Air Corps of the position (33° 40' N and 28° 34' E) of four enemy merchant vessels, six cruisers, and an unknown number of destroyers sailing on a northeasterly course at a speed of twelve knots. He believed that this convoy was possibly an English wireless-telegraphy spoof. However, Kesselring did not exclude the possibility of a simultaneous supply operation from the eastern Mediterranean. He ordered the X Air Corps to arrange exhaustive reconnaissance of the entire eastern Mediterranean area on the morning of 12 August.¹⁶²

In the night of 12–13 August the Allied cruisers and destroyers shelled the port of Rhodes, while the RAF aircraft attacked airfield Maritsa (on the northern tip of Rhodes) during the day. A British submarine debarked commandos at Simeto, near Catania, to put explosives to the pylons. However, the Italians were apparently not surprised by the Allied actions. Their 8th (Naval) Division remained at port. The Germans detached one of their destroyers from escort duty and sent it to reinforce the Italian forces. The Italians held up local traffic along the North African coast and stopped the shipping traffic between Italy and Greece. Operation M.G. 3 failed to deceive the Axis and reduce the intensity of its attacks on the main convoy in the western Mediterranean.¹⁶³

FINAL MOVEMENTS

The Allies also executed Operation ASCENDANT as originally planned. Force Y left Malta about 2030 on 10 August. It reached the area of Cape Bon the next day and arrived at Gibraltar at about 1000 on 14 August. The carrier *Furious* and accompanying five destroyers arrived at Gibraltar at 1900 on 12 August. Force R cruised in the western basin until it was certain that it would not be required; then it received orders to return to Gibraltar, arriving in the morning of 16 August.¹⁶⁴

Despite the enemy's all-out effort to destroy the remnants of the Allied convoy, five ships eventually reached Malta. Two of these ships had sustained so much damage that they almost sank.¹⁶⁵ The tanker *Ohio* survived but never sailed again. The Allies lost one carrier (*Eagle*), two cruisers (*Manchester* and *Cairo*), and one destroyer (*Foresight*), while another carrier (*Indomitable*), two cruisers (*Nigeria* and *Kenya*), and three destroyers were put out of commission for a considerable time. Some 350 men lost their lives. The Fleet Air Arm lost thirteen aircraft in combat and sixteen Sea Hurricanes (sunk with *Eagle*).¹⁶⁶ The Allies were unable to risk such losses again soon after the completion of Operation PEDESTAL. They would not attempt another large convoy operation to resupply Malta until November 1942.¹⁶⁷

The Axis forces did not accomplish their stated operational objective, although they achieved a great tactical victory. Especially noteworthy were the successes achieved by the Italian MS/MAS. The German U-boat sank one aircraft carrier while the Italian submarines sank one cruiser (*Cairo*) and two merchant ships. The Italian and German torpedo boats sank one cruiser (*Manchester*) and three merchant ships.¹⁶⁸ The Axis aircraft damaged one carrier (*Indomitable*) and three merchant vessels. An Italian submarine damaged one enemy cruiser (*Nigeria*), and an Italian submarine damaged another cruiser (*Kenya*). Italian and German torpedo boats crippled two merchant vessels. An Italian submarine and the German bombers heavily damaged the tanker *Ohio*.¹⁶⁹ Allied submarines damaged two Italian cruisers (*Bolzano* and *Muzio Attendolo*), and neither again put to sea. The Axis lost forty-two aircraft.¹⁷⁰ Allied destroyers sank two Italian submarines (*Cobalto* and *Dagabur*), while the Allied aircraft damaged one Italian submarine (*Giada*).¹⁷¹

Despite heavy losses, Operation PEDESTAL was in retrospect a clear operational success for the Allies. About thirty-two thousand tons of supplies arrived safely, allowing Malta to survive for another ten weeks. By 22 August, all cargo was unloaded from the five surviving ships as well as fifteen thousand tons of fuel carried by *Ohio*. The enemy did not attempt to interfere with the unloading of cargo.¹⁷² While Operation PEDESTAL was in progress, three Allied submarines

carried ammunition, torpedoes, and aviation fuel from the east to Malta. The supply trips with Allied submarines continued in September and October 1942.¹⁷³ These supplies allowed the Allied submarines and aircraft to intensify their attacks on the Axis supplies to North Africa during the most decisive phase of the campaign. The Allies were able to obtain air superiority over Malta and thereby dramatically change the situation in the central Mediterranean to their favor.¹⁷⁴ During September 1942, the Allies sank more than 100,000 tons of enemy supplies destined for North Africa. By mid-October, the Afrika Korps had only three days' supply in reserve instead of the minimum fifteen days' to start an offensive. In November 1942, the Axis lost the Battle of El Alamein and the tide of war in North Africa turned in the Allied favor.¹⁷⁵

CONCLUSION

Operation PEDESTAL took place at a time when the Allied fortunes in the Mediterranean were at their nadir. The island of Malta was close to being unable to serve as the air and submarine base for the Allied efforts against the Axis forces in North Africa. The Axis forces on the ground were forced to stop their advance after the inconclusive first battle of El Alamein. However, the German and Italian forces were still within striking distance of the Nile Valley. They were preparing to resume their advance and seize Egypt as soon as they had sufficient reserve of fuel, ammunition, and other supplies. For the Allies, it was vital that Malta remained in their hands; otherwise, the Axis would be able to resume its advance and by seizing Egypt radically improve its position in the Middle East. The operational decision to run a major resupply operation to Malta was made by the strategic leadership in London, not by the Admiralty or the fleet commanders in the theater.

In the summer of 1942, the Allied command organization in the Mediterranean was highly fragmented. No single commander had the authority and responsibility for the planning and employment of all three services. The basic plan for the operation was prepared in London. Plans in support of the operation were prepared by the respective service component commanders in the Mediterranean. These headquarters were separated by long distances. The mission's success depended almost entirely on cooperation among the services. However, strong parochialism among services made that task very difficult. The British army was unwilling to support the operation by conducting a diversionary attack although the survival of Malta was vital for the Allied campaign in North Africa.

The Allies' single greatest advantage was their ability to timely intercept and decode the German Enigma messages. This, in turn, allowed Allied commanders to obtain generally accurate and detailed knowledge of the enemy's plans,

actions, and pending reactions. The Allies possessed excellent knowledge of the strength and the planned movements of the Luftwaffe's units in the Mediterranean. They also had reliable knowledge of the strength and movement of Italian submarines and surface forces. Their assessment of the U-boats' strength was faulty.

Planning for Operation PEDESTAL was soundly based and very thorough. A major problem was to assign a sufficient number of freighters for the new resupply effort, because of the Allied commitments to supply Soviet Russia. Another problem was to assemble a powerful force for providing distant cover and support and direct screen of the convoy, because the Allies' naval commitments in the British home waters and in the Indian Ocean were stretched to the limit. The Allies learned proper lessons from the failure of the dual convoy operation in June 1942 and applied them for the planning of Operation PEDESTAL. The geography of the western and central Mediterranean was a major and negative planning factor in Operation PEDESTAL. The long distances from Gibraltar to Malta, combined with the proximity of the Axis airfields, dictated the type and number of forces for support and the method of their combat employment.

Lack of adequate air strength on Malta greatly complicated the Allied problem of ensuring the success of the operation. The Allies lacked a sufficient number of heavy bombers on Malta to inflict substantial damage to the enemy air bases on Sicily and Sardinia. They also lacked fighters to provide for the safety of the convoy once it came within their striking range.

The Allied feint in the eastern Mediterranean was poorly conceived, because the objectives in the pending operation were so obvious to the enemy. Also, forces assigned to the feint were insufficient to compel the Germans and Italians to weaken their forces in the western and central Mediterranean. Only a viable threat of the Allied invasion of Crete or mainland Greece would have forced the enemy to react operationally or even strategically. It was also quite possible that a sizable diversionary attack by the British army in the Libyan Desert might have forced the Germans and the Italians to divert some of their land-based aircraft from attacking Force F.

The Axis command organization in the Mediterranean lacked not only unity of command but also unity of effort. Both the Germans and the Italians had a separate command structure. Each coalition partner prepared plans separately. The German theater structure was also highly fragmented. Although Kesselring was nominally in command of the entire southern theater, he was not in control of the Axis campaign in North Africa, nor did he have de facto control over the employment of the German naval forces. The Italian command organization was chaotic because there were overlapping responsibilities and authority over

various service forces. The higher naval authorities also constantly interfered with the decisions and actions of subordinate tactical commanders.

The Axis powers had limited capability to intercept and decode the enemy radio messages. They relied mostly on air reconnaissance and submarine reports for acquiring information on the locations, compositions, and movements of the enemy forces. Yet they had a solid network of agents on both sides of the Strait of Gibraltar. They also apparently had some agents in the Suez Canal zone.

Because of the lack of good intelligence prior to the movement of the enemy forces, the Axis leaders made plans for the operation in mid-August largely as a reaction to enemy actions. Nevertheless, the German and the Italian plans for the employment of their forces were solidly based. They commanded an extremely favorable geographic position for the operations of their forces. A large number of the Italian airfields and naval bases flanked the route of the enemy convoys in the western and central Mediterranean. The Axis aircraft and surface forces based on Sardinia and Sicily operated from exterior positions but along the short lines of operations. The single major error on the German side was Kesselring's decision not to provide strong air cover for the Italian heavy surface forces.

The Germans and Italians had a large number of land-based aircraft available for attack on the enemy convoy and supporting forces in the western and central Mediterranean. The Germans were also able to redeploy some of their aircraft from Crete to Sicily. Despite the large number of aircraft, the Axis lacked a sufficient number of fighters to provide escort to bombers and cover to surface ships. The lack of fuel essentially immobilized the Italian battleships. The Italians were able to assemble relatively large number of submarines in the western part of the Mediterranean, while the Germans had only two U-boats available.

The Axis commanders had a reasonably accurate picture of the situation in the western Mediterranean once the enemy convoy transited the Strait of Gibraltar. Most of their intelligence came from reports from the reconnaissance aircraft. The Germans and the Italians exaggerated the true capabilities of the Allied force that entered into the Mediterranean. The probable reason for that was the sheer size of the Allied surface forces assigned in support of the convoy. Both the German and Italian pilots showed a great deal of determination, skill, and courage in their repeated attacks against the convoy and its supporting forces. The Italian submarines and the U-boats achieved great success in their attacks against both surface ships and merchant vessels. Most surprising were the successes of the Italian and German torpedo boats against the scattered convoy on the night of 12–13 August. Yet the Germans and the Italians made a major mistake in their decision to focus their attacks on the enemy's undamaged ships. This was most likely the reason that the oiler *Ohio* survived and safely reached

Malta. The Italian decision to cancel the planned attack on the remnants of the convoy by heavy surface forces was a great mistake and probably cost the Axis not only tactical but also operational success.

The Allies had an almost uninterrupted stream of decoded Enigma messages, giving them unprecedented knowledge and understanding of the enemy situation, plans, and pending actions. The Allied commanders knew the German orders of the day and their intentions. Despite great odds, the Allied airmen and sailors displayed a superb fighting spirit. This was especially true of the merchant mariners. One of the major errors on the Allied side was the decision, based on false assumptions, to turn Force Z westward. That decision resulted in heavy Allied losses. The Allied operation M.G. 3 failed to make any impression on the Axis commanders. This was not a surprise, because the Allies had based the entire effort on a faulty assumption. It represented a waste of time and sorely needed resources.

OPERATIONAL LESSONS LEARNED

One should try to identify possible lessons for the future by in-depth study of a major operation or campaign; otherwise, there is little value in studying a naval history for future commanders and planners. In general, the lessons learned should be based on one's conclusion pertaining to a certain combat action. These lessons can be tactical or operational in terms of their scope. They should be derived from the study of actions by both friendly and enemy forces. The operational lessons learned are generally more important than tactical lessons. Their value does not become obsolete with the passage of time, because they are focused on the human element, not materiel. The study of a single major operation or campaign can provide only tentative lessons learned. However, the more historical case studies are used, the more valuable operational lessons are. One can derive the following operational lessons from the study of Operation PEDESTAL of mid-August:

- A strategic leadership should not normally make decisions that rightfully belong to the operational or tactical commanders. An exception is when the strategic situation is so serious and the lack of decisive action might have a major impact on the course or even outcome of war in a certain theater. Then only strategic leadership can ensure that adequate forces are available or become available to accomplish the ultimate objective of a major operation or campaign.
- In making a decision, the operational commander should always carefully weigh the potential risks versus the benefits of not only the pending major

operation but also the effect on the campaign as a whole. In some situations, the potential losses in the pending operation might be prohibitively high. Yet taking such a high but prudent risk can be justified if the outcome of the operation would result in gaining valuable time for a campaign as a whole.

- The closest degree of cooperation among services during planning and execution of a major operation or campaign should not be left at the discretion of individual commanders but should be based on appointing a single commander, thereby ensuring unity of effort through unity of command. The lines of authority and responsibilities should be simple and clear at all levels of command, but especially at the operational and theater-strategic levels. A single commander and staff should optimally conduct planning for major operations. The commanders who planned the operations should also execute it.
- The excessive parochialism of services is one of the major factors for the lack of necessary cooperation in drafting plans for a major operation or campaign. It is also one of the major causes of duplication of effort, thereby resulting in the waste of sorely needed resources and time.
- The ability to obtain accurate, reliable, timely, and relevant information on the enemy order of battle, plans, intentions, and movements is of inestimable value during the planning and execution of a major operation or campaign. However, the importance of good intelligence should not be overestimated. Having what is today called “information dominance” is only one, and often not even the most important, among many factors in making a sound decision. Much more important is the commander’s experience, character traits, and sound judgment. An operational commander might also make a sound decision but still suffer a setback or even defeat from a weaker opponent who acts faster without waiting to have a perfect knowledge of the situation. In some situations, the weaker side can be more successful without having the knowledge of the stronger side’s plans and intentions but occupying a much more favorable geographic position, having numerical or qualitative superiority, and acting with greater speed and determination.
- In planning a major operation, the commander should avoid adding tasks unrelated to the accomplishment of the ultimate operational objective. Additional tasks not only unnecessarily complicate the basic plan but also reduce available forces for the accomplishment of the main objective. Additional tasks also usually require more time for their accomplishment

and thereby might considerably complicate or even endanger the outcome of a major operation.

- A major operation is likely to be more successful if the planners also prepare a plausible operational deception plan. Hence, various feints, demonstrations, or ruses should not be conducted in isolation but should be invariably integral to such a plan. A feint or operational deception is unlikely to be successful if the objective is too transparent to the enemy. Forces assigned to operational deception should pose such a threat as to lead the enemy to react operationally or even strategically, not tactically.
- Warfare in a typical narrow sea (enclosed or semi-enclosed sea) differs considerably from warfare on the open ocean or littorals bordering the open ocean. The successful employment of one's forces operating in a narrow sea cannot be ensured without having an adequate degree of air superiority in a given area of operations. Land-based aircraft are a formidable threat to one's surface ships operating in a narrow sea. This threat can be neutralized effectively only by having one's own superior airpower.
- Narrow seas also allow a weaker side at sea to inflict substantial losses on its stronger opponent by skillful use of favorable geographic position, submarines, small surface combatants, and mines.

NOTES

1. Peter C. Smith, *Pedestal: The Malta Convoy of August 1942* (London: William Kimber, 1970), p. 21.
2. *The Royal Navy and the Mediterranean Convoys: A Naval Staff History*, with a preface by Malcolm Llewellyn-Jones (London/New York: Whitehall History, in association with Routledge, Taylor, and Francis, 2007), pp. 67, 126. Other sources claim that two ships carrying about 15,000 tons of supplies reached the besieged island, and at the then rate of consumption, these supplies would last until early September 1942; Smith, *Pedestal*, pp. 32–33.
3. *Royal Navy and the Mediterranean Convoys*, pp. 78, 128.
4. *Ibid.*, p. 81.
5. I. S. O. Playfair, et al. *The Mediterranean and Middle East*, vol. 3, *September 1941 to September 1942: British Fortunes Reach Their Lowest Ebb* (London: H.M. Stationery Off., 1960), p. 31.
6. J. Caruana, "Ohio Must Get Through," *Warship International*, no. 4 (1992), pp. 334–35.
7. Playfair et al., *Mediterranean and Middle East*, vol. 3, pp. 401–408.
8. Stephen W. Roskill, *The War at Sea, 1939–1945*, vol. 2, *The Period of Balance* (London: H.M. Stationery Off., 1956), pp. 301–302.
9. *Ibid.*, p. 302; Smith, *Pedestal*, p. 33.
10. Playfair et al., *Mediterranean and Middle East*, vol. 3, pp. 323–25.
11. Caruana, "Ohio Must Get Through," p. 335.
12. Mediterranean Dispositions 22 July 1942, ADM 223/341, Public Records Office (London), p. 1.
13. A.C.A.S., 23 July, AIR 2/7755, Public Records Office (London).

14. Mediterranean Dispositions 22 July 1942, ADM 223/341, Public Records Office (London), p. 2.
15. Ibid.
16. Operation "Pedestal," Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 1.
17. Ibid.
18. CINC Mediterranean to Admiralty and V.A. Malta, 21 June 1942, ADM 223/340, Public Records Office (London), p. 1.
19. Ibid., pp. 1–2.
20. Ibid., p. 2.
21. Ibid.
22. From deputy PM and Chief of staff to PM, Air Ministry to Admiralty, 23 June 1942, ADM 223/340, Public Records Office (London), p. 1.
23. Report on Operation Pedestal, 25 August 1942 Flag Officer Commanding Force F HMS Nelson, ADM 199/1242, Public Records Office (London), p. 2.
24. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 302.
25. Appendix M, Report on Operation Pedestal, 25 August 1942 Flag Officer Commanding Force F HMS Nelson, ADM 199/1242, Public Records Office (London), p. 2.
26. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 302.
27. CINC Mediterranean to Admiralty and V.A. Malta, 17 June 1942, ADM 223/340, Public Records Office (London), p. 1.
28. Playfair et al., *Mediterranean and Middle East*, vol. 3, pp. 323–25.
29. CINC Mediterranean to Admiralty and V.A. Malta, 17 June 1942, ADM 223/340, Public Records Office (London), p. 1.
30. Smith, *Pedestal*, p. 41; Roskill, *War at Sea, 1939–1945*, vol. 2, p. 303; Caruana, "Ohio Must Get Through," p. 335.
31. Operation "Pedestal" (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1.
32. CINC Mediterranean to Admiralty, 17 June 1942, ADM 223/340, Public Records Office (London).
33. Playfair et al., *Mediterranean and Middle East*, vol. 3, p. 323.
34. Smith, *Pedestal*, p. 36.
35. Ibid., pp. 50, 36; *Royal Navy and the Mediterranean Convoys*, pp. 81–82.
36. Admiralty to CINC Home Fleet, CINC Mediterranean, 15 July 1942, ADM 223/340, Public Records Office (London).
37. Specifically, the governor requested the following requirements: 21,000 tons of flour, 6,000 tons of coal, 10,000 tons of army ammunition, 2,700 tons of white oil, 5,800 tons of kerosene, 7,500 tons of aviation spirit, 1,500 tons of fodder, 7,900 tons of other stuffs, 2,500 tons of cement, 1,000 tons of timber, and 9,100 of government and commercial stores. From Governor Malta to Admiralty and CINC Mediterranean, 3 July 1942, ADM 223/340, Public Records Office (London), p. 1.
38. *Royal Navy and the Mediterranean Convoys*, p. 131. Some other sources claim 140,013 GRT. James J. Sadkovich, *The Italian Navy in World War II* (Westport, Conn.: Greenwood, 1994), p. 289; Caruana, "Ohio Must Get Through," p. 335.
39. Smith, *Pedestal*, pp. 41–42.
40. *Royal Navy and the Mediterranean Convoys*, p. 82.
41. Caruana, "Ohio Must Get Through," p. 335.
42. *Royal Navy and the Mediterranean Convoys*, pp. 81, 129–30; "Operation Pedestal," *Supplement to the London Gazette*, 11 August 1948, p. 4506.
43. Smith, *Pedestal*, p. 36.
44. Operation "Pedestal" (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1; "Operation Pedestal," *Supplement to the London Gazette*, p. 4506.
45. Admiralty to all subordinate commanders, 17 July 1942, AIR 8/892, Public Records Office (London).
46. *Royal Navy and the Mediterranean Convoys*, pp. 130–31, 82.
47. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 302.
48. Admiralty to CINC Home Fleet, 29 July 1942, AIR 8/892, Public Records Office (London).

49. Admiralty to F.O. Force F, 29 July 1942, AIR 8/892, Public Records Office (London).
50. Report on Planning of Operation Pedestal, 13 May 1943, ADM 199/1242, Public Records Office (London), p. 3.
51. Admiralty to CINC Home Fleet, CINC Mediterranean, 15 July 1942, ADM 223/340, Public Records Office (London), p. 1; Roskill, *War at Sea, 1939–1945*, vol. 2, p. 302; Giuseppe Fioravanzo, comp., *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, *Le Azioni Navali In Mediterraneo. Dal 1 Aprile 1941 All' 8 Settembre 1943*, 2nd ed. (Rome: Ufficio Storico Della Marina Militare, 1970), pp. 356, 403; *Royal Navy and the Mediterranean Convoys*, p. 82.
52. Doc(ument) Pedestal, ADM 223/340, Public Records Office (London).
53. S.O. (F) in Admiralty to CINC Mediterranean, F.O. C.N.A. V.A. Malta, 20 July 1942, ADM 223/340, Public Records Office (London).
54. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 357, 404; Roskill, *War at Sea, 1939–1945*, vol. 2, p. 303; *Royal Navy and the Mediterranean Convoys*, p. 82.
55. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 404.
56. *Royal Navy and the Mediterranean Convoys*, p. 82.
57. Statement of Aircraft Position at Malta for Operation 'Pedestal,' 10 August 1942, AIR 8/892, Public Records Office (London), p. 1.
58. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 411.
59. V.A. Malta to Admiralty, 3 August 1942, ADM 223/341, Public Records Office (London).
60. *Royal Navy and the Mediterranean Convoys*, p. 82; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 404.
61. Smith, *Pedestal*, p. 39; *Royal Navy and the Mediterranean Convoys*, p. 83.
62. V.A. Malta to Admiralty, 3 August 1942, ADM 223/341, Public Records Office (London).
63. Doc Pedestal, ADM 223/340, Public Records Office (London).
64. Operation "Pedestal" (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1.
65. Doc Pedestal, ADM 223/340, Public Records Office (London).
66. Operation "Pedestal" (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1.
67. *Royal Navy and the Mediterranean Convoys*, p. 98.
68. Also called in the English the Sicilian Channel, Sicilian Strait, and Pantelleria Channel. In Italian it is known as Canale di Sicilia or Stretto di Sicilia, while in French it is referred to as Cape Bon Channel or Kélibia Channel.
69. *Royal Navy and the Mediterranean Convoys*, p. 98.
70. Report on Operation Pedestal, 25 August 1942 Flag Officer Commanding Force F HMS Nelson, ADM 199/1242, Public Records Office (London), p. 2.
71. Operation "Pedestal" (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1.
72. *Royal Navy and the Mediterranean Convoys*, p. 75; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 355–56.
73. Operation "Pedestal" (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1.
74. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 303.
75. Ibid.; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 356–57.
76. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 403.
77. Doc Pedestal, ADM 223/340, Public Records Office (London).
78. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 356, 404; *Royal Navy and the Mediterranean Convoys*, p. 83.
79. Appendix M, Report on Operation Pedestal, 25 August 1942 Flag Officer Commanding Force F HMS Nelson, ADM 199/1242, Public Records Office (London), p. 2.

80. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 303; *Royal Navy and the Mediterranean Convoys*, p. 82; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 410.
81. Report on Operation Pedestal, 25 August 1942 Flag Officer Commanding Force F HMS Nelson, ADM 199/1242, Public Records Office (London).
82. Doc Pedestal, ADM 223/340, Public Records Office (London).
83. Operation “Pedestal” (Main Convoy), W.H. Case 8269, Part I and II, 2–16 Aug 1942, ADM 199/1243, Public Records Office (London), p. 1.
84. Andreas Krug, *Coordination and Command Relationships between Axis Powers in the Naval War in the Mediterranean 1940–1943* (Toronto: Canadian Forces College, CSC 31/CCEM 31, 2005), pp. 67, 77–79, 70.
85. Karl Gundelach, *Die deutsche Luftwaffe im Mittelmeer 1940–1945* (Frankfurt a.M.: Peter D. Lang, 1981), vol. 1, p. 406.
86. Admiralty to CX/MSS/1266/T6, ADM 223/559, Public Records Office (London).
87. The Malta Convoy, August 1942: German Reactions, AIR 40/2038, Public Records Office (London), p. 1.
88. Admiralty to CX/MSS/1266/T6, ADM 223/559, Public Records Office (London).
89. The Malta Convoy, August 1942: German Reactions, AIR 40/2038, Public Records Office (London), p. 2.
90. *Kriegstagebuch der Seekriegsleitung 1939–1945*, Teil A, Band 36, August 1942 (Herford/Bonn: Verlag E. S. Mittler & Sohn, 1992), pp. 97, 84.
91. Krug, *Coordination and Command Relationships*, p. 42.
92. Smith, *Pedestal*, pp. 57–58; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 358.
93. Sadkovich, *Italian Navy in World War II*, p. 289; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 412.
94. Smith, *Pedestal*, p. 59.
95. Playfair et al., *Mediterranean and Middle East*, vol. 3, p. 323.
96. Sadkovich, *Italian Navy in World War II*, p. 289; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 412.
97. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 360.
98. Cited in Krug, *Coordination and Command Relationships*, p. 66.
99. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 360–61.
100. Krug, *Coordination and Command Relationships*, p. 42.
101. Smith, *Pedestal*, p. 149.
102. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 361.
103. *Royal Navy and the Mediterranean Convoys*, pp. 86–87.
104. Marc’Antonio Bragadin, *The Italian Navy in World War II* (Annapolis, Md.: Naval Institute Press, 1957), p. 207.
105. Smith, *Pedestal*, p. 97.
106. *Royal Navy and the Mediterranean Convoys*, p. 87.
107. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 412.
108. *Ibid.*, p. 410.
109. *Ibid.*
110. Bragadin, *Italian Navy in World War II*, p. 207.
111. Smith, *Pedestal*, p. 59.
112. Pierro Filippo Lupinacci, comp., *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 18, *La Guerra Di Mine* (Rome: Ufficio Storico Della Marina Militare, 1966), pp. 75, 81–83, map on p. 131.
113. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 359.
114. *Ibid.*, p. 410.
115. Bragadin, *Italian Navy in World War II*, p. 207.
116. Smith, *Pedestal*, p. 79.
117. *Royal Navy and the Mediterranean Convoys*, p. 87.
118. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 359.
119. Smith, *Pedestal*, p. 50.

120. Admiral Syfret to Admiralty, Report on Operation Pedestal, 25 August 1942, AIR 2/9871, Public Records Office (London), p. 2.
121. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 303.
122. Admiral Syfret to Admiralty, Report on Operation Pedestal, 25 August 1942, AIR 2/9871, Public Records Office (London), p. 4.
123. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 1.
124. *Kriegstagebuch der Seekriegsleitung 1939–1945*, p. 108.
125. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), pp. 1–2.
126. Admiralty to CX/MSS/1282/T24, ADM 223/559, Public Records Office (London).
127. *Kriegstagebuch der Seekriegsleitung 1939–1945*, p. 97.
128. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 358; *Kriegstagebuch der Seekriegsleitung 1939–1945*, p. 85.
129. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 2.
130. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 358.
131. Ibid.
132. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 2.
133. *Kriegstagebuch der Seekriegsleitung 1939–1945*, p. 109.
134. Ibid., p. 85.
135. Smith, *Pedestal*, p. 76.
136. Bragadin, *Italian Navy in World War II*, p. 205.
137. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 2.
138. Admiral Syfret to Admiralty, Report on Operation Pedestal, 25 August 1942, AIR 2/9871, Public Records Office (London), p. 5.
139. *Royal Navy and the Mediterranean Convoys*, p. 85.
140. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 3.
141. Ibid., pp. 2–3.
142. The Malta Convoy, August 1942: German Reactions, AIR 40/2038, Public Records Office (London), p. 1.
143. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 4.
144. Admiralty to CX/MSS/1284/T13 Mediterranean Air Operations, ADM 223/559, Public Records Office (London).
145. The Malta Convoy, August 1942: German Reactions, AIR 40/2038, Public Records Office (London), p. 1.
146. Ibid.
147. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 6.
148. Admiralty to CX/MSS/1286/T27, ADM 223/559, Public Records Office (London).
149. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 6.
150. Admiralty to CX/MSS/1287/T19, ADM 223/559, Public Records Office (London).
151. “Operation Pedestal,” *Supplement to the London Gazette*, p. 4503.
152. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 3.
153. “Operation Pedestal,” *Supplement to the London Gazette*, p. 4503.
154. Operation “Pedestal,” Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 3.

155. "Operation Pedestal," *Supplement to the London Gazette*, p. 4503.
156. Operation "Pedestal," Operations Intelligence Centre, Special Intelligence Summary, 14 August 1942, ADM 223/559, Public Records Office (London), p. 5.
157. *Ibid.*, pp. 5–6.
158. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 307.
159. "Operation Pedestal," *Supplement to the London Gazette*, pp. 4503–04.
160. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 450; Roskill, *War at Sea, 1939–1945*, vol. 2, p. 307; Jack Greene and Alessandro Massignani, *The Naval War in the Mediterranean 1940–1943* (London: Sarpedon, Chatham, 1998), p. 257.
161. Smith, *Pedestal*, pp. 75–76; Roskill, *War at Sea, 1939–1945*, vol. 2, p. 303.
162. Admiralty to CX/MSS/1285/T14, ADM 223/559, Public Records Office (London).
163. Smith, *Pedestal*, p. 109.
164. "Operation Pedestal," *Supplement to the London Gazette*, p. 4504.
165. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 307.
166. Smith, *Pedestal*, p. 180; Roskill, *War at Sea, 1939–1945*, vol. 2, p. 307.
167. Bragadin, *Italian Navy in World War II*, p. 214.
168. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, pp. 454–55.
169. Giuseppe Santoro, *L'Aeronautica Italiana Nella Seconda Guerra Mondiale*, vol. 2 (Rome/Milan: Edizione Esse, 1959), p. 416; Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, p. 455.
170. Caruana, "Ohio Must Get Through," p. 346.
171. Fioravanzo, *La Marina Italiana Nella Seconda Guerra Mondiale*, vol. 5, 455.
172. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 308; *Royal Navy and the Mediterranean Convoys*, p. 97.
173. Roskill, *War at Sea, 1939–1945*, vol. 2, p. 308.
174. Gundelach, *Die deutsche Luftwaffe im Mittelmeer 1940–1945*, vol. 1, p. 407.
175. Caruana, "Ohio Must Get Through," p. 346.