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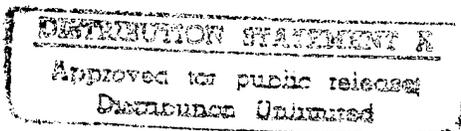
**ITALY'S FROGMEN OF WORLD WAR II:
SEIZING THE OPPORTUNITY, LOSING THE FIGHT**

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.



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**ITALY'S FROGMEN IN WORLD WAR II:
SEIZING THE OPPORTUNITY, LOSING THE FIGHT**

From the summer of 1940 when Italy entered World War II (WW II), to the Italian armistice in the fall of 1943, a handful of brave and tenacious Italian patriots, carried out a naval guerrilla war against Allied ships in the British controlled harbors of the Mediterranean Sea. In those short three years, the men of the Tenth Light Flotilla sank or significantly damaged two battleships, one heavy cruiser, one destroyer and 27 merchant ships for an aggregate tonnage of 265,352 tons.¹ Relatively low cost in terms of lost lives and material, their handiwork provided some of the greatest tactical success stories of the war. The celebrations of their heroics were short lived, however, because their missions were conducted outside any unifying operational plan or strategy. Unsupported and unsupporting, these attacks were characterized by two recurring flaws in operational design. The first of these was weak strategic reassessment biased by fatal optimism and false bravado. Invariably the assault teams were hopeful that their mission would have strategic impact, such as a decisive blow, but in reality they were overly sanguine in expectations. The second flaw was the lack of unity in Italy's command structure. Interservice and intraservice cooperation were poor. The operational fires provided by the assault teams were neither coordinated nor synchronized with other forces or follow-on missions. As a direct result of these weaknesses in operational design, Italy failed to capitalize on the victories of the assault teams to achieve grander objectives.

¹ J. Valerio Borghese, Sea Devils (London: Anchor Press Limited 1952), 263

THE TENTH LIGHT FLOTILLA

Ten days before Germany agreed to the armistice that ended WWI, the Austrian battleship Viribus Unitus went to the bottom in the Pola Harbor in a violent explosion. Two daring and innovative Italian Naval Engineers emplaced a mine on the hull of the unfortunate ship after maneuvering into the harbor on a 'Mignatta,' an assault craft of their own design. The armistice not only ended the war, but it indefinitely ended the work of the assault teams. From 1935 to early 1936, when war with Great Britain loomed closer as a result of Italy's invasion of Ethiopia, work was begun anew on improving the assault craft by a new group of determined and enterprising young men. In 1939, at the outbreak of WWII, these men were again brought back to the La Spezia Naval Base to resurrect the program a second time. Their undertakings eventually gave birth to the Tenth Light Flotilla whose most successful weaponry were human-torpedoes, explosive motor boats and direct assault frogmen.

The SLC Human Torpedoes or 'Pigs.' Two submarine engineer officers, Lieutenants Tesio Tesei and Elios Toschi shared a mutual interest in the aforementioned exploits of their countrymen and indulged themselves on a secretive project in designing a better assault craft. After developing the plans for a two-man human-torpedo, they obtained permission from the Naval Ministry to build two prototypes for testing. In January 1936, in the cold waters of the La Spezia Naval Base in Northern Italy, the two demonstrated their wares to the awe of several senior naval officers. Admiral Falagnola from the Supermarina in Rome noted,

This new Mignatta could cruise for 12 hours at close to three miles per hour, with its crew either wholly submerged or with only their heads showing above the surface. It could descend to a depth of 120 feet, gaining ample clearance to pass under harbor obstructions or under the keel of any ship afloat. Its forward warhead was detachable and carried a payload of 600 pounds of TNT, easily removable underwater for affixing to a ship's hull. Its two operators, riding astride with their feet in stirrups, were equipped with all necessary gear

from hermetic rubber suits and sabotage tools to underwater respirators cleverly designed to prevent air bubbles from surfacing.²

The new Mignatta's nickname was probably an outgrowth of the affectionate term coined by its originators. As Tesei quipped, "between ourselves we call it a human-torpedo.

Sometimes when it gets stubborn, we call it a pig."³

The MTM Explosive Boats or 'E-Boats'. The explosive motor boat was conceived as a natural wartime offspring of the popular sport of speed boating. The E-boats had flat bottoms and were lightweight to drive over torpedo nets. Constructed of wood and canvas and powered by an Alfa-Romeo 2500 engine, the boats could travel for five hours at their maximum speed of 30 knots. The pilot would lock the rudder and jump off a few seconds before the 600 lbs warhead in the bow impacted its target.

Assault Swimmers with 'Leeches' or 'Bugs' and 'Limpet' Mines. Leeches or bugs were explosive charges of about 4-1/2 lbs designed to be clamped on a ship's bilge keel or propeller and detonate after a pre-set time. Limpets were similar but were additionally equipped with a speed sensor requiring the ship to exceed 5 knots before the timer started. The limpet was designed to sink the ship while it was in the middle of a channel or in open ocean. The aim was to either block a channel or to ensure the ship was far from the protection of the anchorage, making salvage difficult.

The men of the Tenth Light were chosen from a select group who volunteered from throughout the services for diving duty. Quite like the U.S. Navy SEALs, the men were required to be excellent swimmers and tolerant of the cold. After initial screenings and

² William Schofield and P.J. Carisella, Frogmen: First Battles (Boston: Branden Publishing Company 1987), 22

³ Ibid, 22

interviews with the Commander, they were then rigorously tested against the highest physical and moral standards. Drop out rates were high. Since the nature of the Tenth Light's missions was highly classified and secret, only those who succeeded the training phase were introduced to the program. Those that failed were returned to the fleet as 'certified expert breathing-gear divers.'

Those remaining were then admitted to the secret weapons division, but on a probationary basis only. At this point, their lives and backgrounds were probed and dissected with minute care. Their family antecedents were investigated. Their love affairs studied. Their financial debts were scrutinized. Such characteristics as a quick temper, or impulsive over-betting on a hand of cards, in some cases would be considered reason enough from elimination from the program.⁴

STRATEGIC BACKDROP

In 1939, at the outbreak of World War II, no single country could dominate the Mediterranean Sea. The bulk of the naval strength lay with the Navies of Great Britain, France and Italy. The state-of-the-art aircraft were limited in attack radius and their utility in a naval role was hotly contested.

Great Britain. During the interwar period following World War I, Great Britain had concentrated in building its naval strength in the near east to protect the Suez canal and sea lines to the Middle and Far Eastern natural resources. At the outbreak of the war, Great Britain could boast a two-to-one numerical superiority over the German and Italian Navies combined, but the forces were stretched out between the British Isles, the Northern Atlantic, the Far East and the Mediterranean.⁵ After the surrender of France, the entire length of the

⁴ Schofield and Carisella, 30

⁵ Raymond De Belot, The Struggle for the Mediterranean 1939-1945 (Princeton University: Princeton University Press 1951), 56

Allied Mediterranean lifeline became a British responsibility. Within the Mediterranean, the British Navy was divided between Gibraltar and Alexandria. Malta served as an important air base in the central Mediterranean.

British air power in the Mediterranean was poor. The Royal Air Force concentrated on the defense of the homeland and only a token force was present in the Mediterranean theater. The naval air arm amounted to a few dozen older Swordfish biplanes and two aircraft carriers--one in Gibraltar and the other in Alexandria.

Germany. Hitler considered the Mediterranean a lesser theater for Italy to handle. With improvement of the U-boat and the airplane, Hitler believed that surface Mahanian navies were a relic of the past.⁶ In North Africa and in the Near East, his perceptions proved to be fatally incorrect.

ITALY'S STRATEGIC SETTING

In June 1940, when Italy entered the war, the country was ill prepared. Materially, Italy suffered from shortages of resources and limits in industrial capacity. In signing its Pact of Steel with Germany in May 1939, Italy had affirmed that it could not be ready for a war until at least 1942.⁷ Industrial output was of good quality but low in capacity. Oil, coal, iron and rubber had to be imported and reserves were low. Militarily, the Army was inadequately trained, equipped and clothed. Serious technical deficiencies existed throughout the armed services, not the least of which were the lack of radar, asdic (acoustic submarine detection devices) and aircraft carriers.⁸

⁶ Anthony E. Sokol, "Seapower in the Mediterranean 1940 to 1943," Military Review, August 1956, 12-27.

⁷ De Belot, 3

⁸ Whereas radar and asdic were in varying stages of technical development, the lack of aircraft carriers was one of policy. Italy's independent Air Force successfully argued its case that land based aircraft in the Mediterranean were advanced to the stage to make aircraft carriers vulnerable and obsolete. The Air Force also

Italy's naval and air arms were in better condition. In the central Mediterranean, the Navy held local superiority in terms of tonnage and naval fire power. Italy could boast of over 100 submarines, of which 12 were of sufficient size and condition for open ocean. On the air side, the Air Force had overwhelming numerical superiority and had the newest, most capable aircraft. These numerical advantages of the Navy and Air Force made for a formidable presence.

Italy's strategy at the onset and throughout the conflict relied on optimistic projections of quick, decisive blows by its own forces and retreats by a demoralized enemy. Initially, Italy entered what it thought would be a quick war on the continent.⁹ The Navy and Air Force's main objectives were to keep supplies moving to Libya and to attack British shipping in the Mediterranean. In the other theaters of interest--Albania and the Aegean Sea--the military was to maintain a defensive posture.

THE MISSION OF THE ASSAULT TEAMS

Lieutenant Commander Tesei, one of the pioneers of the Tenth Light, considered the primary role of the assault team was to knock out the British Navy in a massive surprise attack as the Japanese had done to the Russians in Port Arthur in 1904. Many of the officers cleared with the knowledge of the secretive Tenth Light, shared Tesei's vision.¹⁰ Throughout

asserted over the Navy's objection that they were equipped to dominate the sea from the air. The interservice rivalry between the Air Force and Navy combined with the General Duohey's force of argument resulted in two significant fissures in Italy's maritime power: (1) Mussolini decided against building aircraft carriers; (2) The Air Force refused to use the Navy's air dropped torpedoes and dive bombs. As a result of these decisions, Italy's air power was rendered impotent in Maritime interdiction.

⁹ When France was seen to be falling, Italy jumped into the war so that Mussolini could share in the Axis victory. Among other things, the haste left Italy's military in poor readiness and left one-third of its merchant marine in enemy controlled ports.

¹⁰ Aldo Cocchia, Submarines Attacking, Adventures of Italian Naval Forces, (London: William Kimber and Co. Limited, 1956), 179

the conflict, this sanguine strategic concept prevailed, although in practice the assault teams would never be of the strength to conduct such a large attack.

EARLY SETBACK

At the start of the war, the training and construction level of the assault teams were still in the incipient stages, so the assault teams rushed to complete construction of the torpedoes and resolve their tactical issues. By end of summer, they were able to field eight assault teams and two submarines. In September 1940, six assault teams were assembled and deployed aboard two specially configured submarines, Scire' and Gondar. The Scire' was sent to Gibraltar and the Gondar was sent to Alexandria to strike a simultaneous, demoralizing blow, perhaps a decisive blow to the British Navy in their strongholds. But because the British Fleet had departed both ports just as both submarines prepared for their harbor penetration, the Italian headquarters Supermarina, ordered their recall. On the return transit, Gondar was discovered and sunk by a group of British destroyers. The crew and their six frogmen were captured. The decisive blow strategy suffered its first major setback.

NEAR-HIT; STRATEGIC ERRORS

In October, after waiting for four weeks, when the next new moon provided favorable darkness, the Scire' alone with three pigs on her back made her return trip to Gibraltar. Fighting swirling currents and avoiding British patrol craft, Scire' under the command of Prince Valerio Borghese made an unprecedented submerged entry into the narrow Bay of Algeciras, home of the British bases of Gibraltar and Algeciras.¹¹ Surfacing at the far inland end of the bay in the cover of darkness, Scire' sent off the three pairs of frogmen with their

¹¹ For a detailed description of this extraordinary piece of submarine seamanship see Borghese, Sea Devils, 56-63.

pigs. This was the first of Borghese's three successful submarine harbor penetrations which led to his eventual command of the Tenth Light Flotilla.

Unfortunately for the frogmen, each of the teams experienced some type of material failure, either with their torpedo or with their breathing apparatus. Two of the teams failed to reach the inner harbor. They scuttled their pigs and proceeded to the predetermined rendezvous point with an Italian agent who smuggled them back to Italy. The third team suffered a dual casualty 60 meters from the battleship HMS Barham. After an exhausting effort to drag the sinking pig up toward its prey, they were eventually forced to abandon their pig on the bottom. In an act of misplaced defiance, the team set the warhead timer to 'leave a calling card.'¹² The warhead harmlessly exploded two hours later, but it served as a red flag. The Italian assault program suffered for this blunder, for now the British harbor defenses throughout the Mediterranean were raised.

A second misstep made by one of the first two teams was more significant. Upon abandonment, the team failed to adequately ballast their pig. Two days later, the pig washed ashore and was turned over to the British. In the Spanish and British newspapers, the story of the Italian attack was publicly announced. Not only were the Allies now aware of the specific source and method of the explosion but they were able to exploit the pig's engineering to start their own human-torpedo program.¹³

With their best kept secret discovered, the Tenth Light remained optimistic about this first mission and even deemed their mission as a success. Tactically and operationally, the lessons they learned were invaluable: Gibraltar was proven penetrable, their material

¹² Schofield and Carisella, 69.

¹³ Charles E. Warren, The Midget Raiders, (London: William Sloane Associates, 1954), 15-16.

problems were identified and required minor re-engineering, and their Spanish based underground for moving men and material proved reliable and efficient. The strategic lessons learned, however, were incorrect. Britain's harbor defenses were now alerted, but the Italians believed that the value of the attack was the demonstration of Italian audacity. As Commander Borghese commented,

... a feeling of insecurity was arising among the crews of enemy ships, even when moored in the interior of the harbors; this fact constituted in itself a success, as did also the expenditure of energy and ingenuity forced upon the enemy by his need to counteract this hidden threat...¹⁴

The importance that members of the Tenth Light attached to traits of impetuosity, audacity, bravery and patriotism was not insignificant and affected their strategic assessments. Often advocating the extreme position, Lieutenant Commander Tesei was an influential member of the Tenth Light and he underscored the psychological impact of the assault team attacks. "Whether we sink any ships there or not does not matter. What does matter is that we prove able and willing to be blown up with our craft, under the very nose of the enemy. We will then have shown our sons and future generations of Italians at what sacrifice we follow our ideals, and at what price we reach for success!"¹⁵

The bravado clouded their judgment and ability to rationally assess the impact of their mission. In reality, the British on their guard proved to be a tremendously tougher opponent which greatly reduced sting of the Tenth Light's future strikes.

¹⁴ Borghese, 71-72.

¹⁵ Schofield and Carisella, 86.

THE E-BOATS: GLORY FIRST, THEN DISASTER

When Italy invaded Greece in October 1940, the island of Crete and the Aegean became a major focal point in the battle for the Mediterranean. Suda Bay in Crete grew to a flurry of British activity with warships and merchant ships regularly at anchor. The Tenth Light under command of Commander Moccagatta prepared the surface branch of the flotilla for operation. In March 1941, the weather, moon phase and warship density all finally coincided in conditions favorable for an attack. The heavy cruiser HMS York, was reported in port along with two destroyers, two tankers and several cargo ships.

Two destroyers dropped off six E-boats 10 miles from the harbor entrance. Over the course of the next four hours, they quietly cruised to the mouth of the bay and crept past the multiple harbor barriers toward the anchorage at the most inland part of the long finger-like bay. Just at morning twilight, they attacked at full throttle. Two attacked and hit York. One hit the military tanker Pericles and another sunk a smaller cargo ship. A fifth E-boat failed to explode and was recovered by the British. The sixth E-boat attacked but missed the cruiser Conventry (mistakenly identified as a destroyer) emerging from the haze. As expected, the British captured all six E-boat pilots and imprisoned them.

The news of the Suda Bay victory was received with great jubilation. The gain versus cost calculation was simple: one heavy cruiser, one tanker and one cargo ship at the cost of six prisoners of war. The blow to the British was sharp; Suda Bay was the lifeline in Crete.¹⁶ The confusion and fire the attack caused in the bay were tremendous, but since the attack was an independent action with no coordination of forces and no operational scheme or

¹⁶ Christopher Buckley, Greece and Crete 1941, (London: Her Majesty's Stationary Office, 1952) 167-168

follow-up, the British were able to fully recover the use of the port before the Germans began their strategic air attacks two weeks later.

The victory at Suda Bay generated a tremendous bubble of optimism. Malta, which had been previously discounted as a target for the Tenth Light was given renewed interest. Because of Malta's significant defenses, its lack of meaningful targets and its proximity to Sicily, Malta was considered an air force mission rather than an assault craft mission. But energized by victory fever, Malta, the strategic pillar in the heart of the Mediterranean, had now been 'rediscovered.' Commander Moccagatta focused the Tenth Light's attention on Malta, over the objections of several senior team members, in what seemed to be an effort to achieve a great moral victory against the British--a position strongly advocated by Tesei. Persistently pushing for a coordinated human-torpedo, E-boat and air attack, Moccagatta eventually persuaded his superiors at Supermarina to authorize the attack. Poor weather during the new moon in May and material failures in June aborted the first two attempts. In July 1941, conditions were favorable and the Tenth Light proceeded with the operation. One destroyer and two large motor torpedo boats launched two pigs and nine E-boats. The mission soon ran into disaster.

The British, too, learned the lessons from Suda Bay. They tracked the assault mission the entire way on a newly installed radar network. At about the time one pig and one E-boat team detonated their warheads on a bridge emplacement that held the anti-submarine nets, the British defenses came alive with machine gun fire and air attacks. The ambush completely destroyed the vulnerable assault teams and escorting motor torpedo boats. In all, 18 prisoners of war were taken, and Commander Moccagatta and Lieutenant Commander Tesei were

among the 15 who died.¹⁷ For reasons unknown, the Italian air attack that was planned to coincide with the assault craft attacks did not occur. Recognizing the heavy interservice friction at the time, it was not surprising. The E-boat was never to be of later significance in the war.

THE FIRST BLOOD OF THE PIG BOATS

In September 1941, Commander Borghese and the Scire' with its three human-torpedoes returned to Algeciras Bay for another attack at the warships in Gibraltar. The Italians had fixed their equipment problems and were better prepared. But as mentioned before, the British had also improved their harbor defenses. As the three pigs approached the inner harbor submarine nets, they found that the continuous patrol craft and random depth charging prevented them from maneuvering past the net. So with time running out, all three teams turned to attack the targets of opportunity--the merchants in the roadstead.

In the early hours of the morning, the ammunition ship Durham, the tanker Denby Dale and the tanker Fiona Shell exploded and sank. While the tonnage contributed to the overall anti-shipping campaign, it did little to advance the decisive blow strategy. To the contrary, the attack served as proof to the British that their new defenses were effective.

AT LAST, A STRATEGIC PUNCH!

In December 1941, Commander Borghese and the Scire' negotiated through minefields and treacherous currents and delivered three human-torpedoes to a different target--Alexandria harbor. This marked the first assault team attack since the fateful sinking of the Gondar in September 1940. In the early hours of the morning, the teams struck gold.

¹⁷ Borghese, 111

The two battleships, HMS Queen Elizabeth and HMS Valiant were stricken along with a large tanker.

The strategic possibilities of this fortuitous attack were momentous. In November, the aircraft carrier HMS Ark Royal was sunk by a German submarine as was the battleship Barham. The carrier HMS Eagle had been sent to the far east via the Suez canal. The attack by the Tenth Light left the British with nothing larger than a cruiser in the Eastern Mediterranean. With these two remaining battleships heavily damaged and with the absence of seaborne air power, the British position was extremely precarious.

Meanwhile the way was wide open for an Axis assault against Malta. ... With this done, the path would be cleared for pouring supplies and troops into North Africa, overrunning the Allies in Egypt, and grabbing the valuable resources in the Middle East. ... Churchill recognized the danger, and warned his countrymen. Admiral Weichold, German liaison officer with Supermarina, recognized the opportunity and criticized the German High Command for its 'underestimation of sea power and the importance of the Mediterranean.' And Borghese fretted helplessly, blaming both the German High Command and the Italian General Staff for failure to act.¹⁸

Devoid of a clear Mediterranean campaign plan and lacking the unity to fuse together an opportunistic follow-through operation, the Axis powers failed miserably.

THE FINAL CHAPTERS

For the remaining year and a half that the Italians were in the war, the surface branch of the Tenth Light, with torpedo boats and E-boats, was sent into the Caspian and Black Seas where they worked in subordination to the German land war with Russia.

The underwater component, with the human-torpedoes, continued attacking the ships in the vicinity of Gibraltar with the same dash and daring as their predecessors. There they

¹⁸ Schofield and Carisella, 136

ingeniously came up with other inventive methods of launching their attacks. In one such case, they constructed a secret workshop in the bowels of the Oltterra, an old Italian merchant ship. Oltterra was located in Spain at the beginning of the war and scuttled by her master to prevent capture by the Allies. Oltterra was then moved to Algeciras harbor for 'repairs.' In the meantime, the Italian underground network smuggled torpedo and diving equipment to the ship and the frogmen cut a hole below the waterline as a means of a clandestine access to and from the ship. Oltterra served as the base for one of the final pig attacks of the war.

Clearly the role of the Tenth Light had significantly changed. As an operational fire, they joined the submarine force in the war against shipping. This war of attrition needed no synchronization and no coordination. The secretive and independent nature of the Tenth Light's operations fit well in this war. In the end, the strategy finally suited the operations they employed.

CONCLUSION

The lessons learned from the Tenth Light Flotilla are not unique nor new, but they are as relevant now as they were in WW II. First, the consistently over-optimistic assessments of their own capabilities and underestimation of that of the British were the trappings of false bravado. Hoping for success was not enough. Once their secret weapons became known to the enemy, the Tenth Light consistently discounted the ability of the British to respond defensively. Indeed, they expected the unnerving effect of their strikes to have a greater consequence. They were wrong and the results were disastrous. The British defensive measures after the first E-boat attack and after the first pig was captured dramatically

mitigated the effects of any further attacks. The first E-boat attack was also its last success. The only successful human-torpedo attacks in Gibraltar occurred in the roadstead, outside of the warship inner harbor sanctuaries. The Italians failed to rationally assess the resiliency of their enemy.

Second, the lack of unity of command was devastating. The interservice rift between the Navy and Air Force was particularly poisonous and prevented coordination and synchronization of the Italian strategy against the British. The operational fires and tactical assaults provided by the Tenth Light were conducted in a vacuum--out of step and out of touch with the rest of the Italian forces. The great lengths in operational security that the Tenth Light took to ensure its shroud of secrecy played a major role in maintaining the vacuum. The significance of this disconnect was exemplified in the lack of follow-up to the Tenth Light's spectacular sinking of the Queen Elizabeth and Valiant. A coherent, synchronized plan in the Mediterranean may have capitalized on the strategic opening and changed the course of the war, but since all the axis elements were working independent of each other, the British were able to rebuild their strength.

The failure of the Italian war effort from achieving its aims following the tactical successes of the Tenth Light Flotilla is symptomatic of their near complete failure in the Military Science known as Operational Art. These hand-selected men created opportunities and carried out improbable and daring attacks against tremendous odds. But because their efforts were disjointed and were not incorporated into any unifying strategy, their heroics provide little more than a lesson in frogman history.

Appendix 1

CHRONOLOGY OF SIGNIFICANT EVENTS

1940

- 10 June Italy enters the war.
- 18 June France surrenders.
- 21 August Submarine Iride with three pigs on first training mission sunk by British airplanes on a chance encounter.
- 29 September Aborted simultaneous attack on Gibraltar and Alexandria. Attack aborted because British fleet departed leaving no meaningful targets. On return to port, submarine Gondar attacked and sunk by British destroyers. Crew and six frogmen captured.
- 28 October Italy attacks Greece.
- 29 October Submarine Scire' enters Gibraltar harbor, bottoms and awaits darkness to launch the pigs. First successful enemy harbor penetration by the Tenth Light.
- 30 October Three pigs launched by Scire'. No teams successful due to various equipment failures on the pigs. Two pairs escaped capture and were returned to Italy via a secret underground network in Spain. One pair captured. One pig washes ashore and is turned over to the British for study. The secret is out.
- 11 November Italy suffers staggering naval losses in British air attack in the Naval Base in Taranto, Italy.

1941

- 10 January German Stuka dive bombers damage British aircraft carrier Illustrious.
- 25 March Six E-boats launched from two destroyers conduct the Tenth Light's first successful harbor attack. Heavy cruiser York, tanker Pericles, a second tanker and a cargo ship were heavily damaged. The British thought the attack came from the air.
- 28 March Italy suffers major defeat in a fleet-on-fleet engagement with a smaller British fleet at Matapan (Crete).
- 5 April Italy defeated in Ethiopia.
- 20-27 May Germans and Italians drive British from Crete.
- 26 July Tenth Light disaster in Malta. In a failed, coordinated attack with two pigs and nine E-boats, 15 died, 18 captured. British radar foiled the attack.

1941 cont.

- 18 September Three pigs depart from Scire' and attack merchants in the roadstead. British security and defensive measures made it impossible to get to the warships in the harbor. Ammo ship Durham, tanker Denby Dale, and tanker Fiona Shell were sunk.
- 12 November British carrier Ark Royal sunk by German submarine
- 25 November British battleship Barham sunk by German submarine
- 19 December British battleships Queen Elizabeth and Valiant were sunk by Tenth Light human-torpedoes. No British battleships left in the East Mediterranean.

1942

- April Malta survives Axis attacks.
- 14 July Frogmen attack four steamers in the Bay of Algeciras. The swimmers left from a secret staging area in a beach villa overlooking Gibraltar and Algeciras.
- 8 December Failed attack by two pigs on Gibraltar. The pigs were launched from the secret staging area on the merchant ship Olterra.
- 12 December Swimmers launched in the Bay of Algiers from the submarine Ambra. Four steamers sunk.

1943

- 13 May Axis North African campaign ends in surrender in Tunisia.

BIBLIOGRAPHY

- Borghese, J. Valerio. Sea Devils. London: The Anchor Press Limited, 1952
- Bragadin, Marc Antonio. The Italian Navy in World War II. Annapolis: United States Naval Institute, 1957.
- Buckley, Christopher. Greece and Crete 1941. London: Her Majesty's Stationary Office, 1952
- Cocchia, Aldo. Submarines Attacking. Adventures of Italian Naval Forces. London: William Kimber and Co. Limited, 1956
- DeBelot, Raymond. The Struggle for the Mediterranean 1939-1945. Princeton University: Princeton University Press, 1951.
- Fioravanzo, Giuseppe. "Italian Strategy in the Mediterranean, 1940-43." U.S. Naval Institute Proceedings, September 1958, 64-72.
- Roskill, S.W. The War at Sea 1939-1945. London: Her Majesty's Stationary Office, 1954
- Sokol, Anthony E. "Sea Power in the Mediterranean 1940 to 1943." Military Review, August 1956, 12-27.
- Schofield, William and P.J. Carisella. Frogmen: First Battles. Boston: Branden Publishing Company, 1987.
- Warren, Charles E. The Midget Raiders. n.p.: William Sloane Associates, 1954.