



Official Newsletter of the Michigan Company of Military Historians & Collectors  
**May 15, 2015**

*“Don’t knock the war that feeds you.”* **Sign on the wall of a Lockheed plant in California in the late 1960’s.**

*“A wise man in time of peace prepares for war.”* **Horace, Satires**

*“...beware the military-industrial-congressional complex for its total economic, political and spiritual influence at every level of government.”* **Dwight D. Eisenhower**, Farewell Address 1961. This was the original address, on delivery the reference to Congress disappeared. Ike later replied that: *“It was more than enough to take on the military and private industry. I couldn’t take on the congress as well.”*

*“In war, the moral is to the material as three is to one.”* **Napoleon** John Boyd’s favorite Napoleonic quote.

Our May speaker will be Mr Fay Johnson, a WWII Navy vet who served on a destroyer and was torpedoed twice! I'm sure he has some good sub chasing stories as well as being on the receiving end of the two way firing range at sea.

**MEETINGS** take place the second Monday of every month at the **Riverfront Hotel Grand Rapids** 270 Ann St NW, Grand Rapids, MI 49504 (616) 363-9001. Socializing begins at 6:00 (1800), dinner at 7:00 (1900), business meeting 7:15 (1915), and program at 8:00 (2000).

GENERAL STAFF  
OFFICERS OF THE COMPANY

- Commandant - Gary Brown
- Executive Officer - Bruce Whitman
- Adjutant - Jason Porter
- Judge Advocate - Jay Stone
- Mess Officer - Mike Krushinsky
- Sgt-at-Arms - Richard Foster
- Editor Cannon Report - Kingman Davis
- Editor Emeritus - Jose Amoros
- Open Mess Chairman - Jay Stone
- Membership - Kingman Davis
- Archivist - Richard O’Beshaw

Website: <[thecannonreport.org](http://thecannonreport.org)>

Facebook:

Michigan Company of Military  
 Historians and Collectors

**Company Notes**

- ◆ The USAF is still proceeding to pour funds down the F-35 black hole while denying other services the means to employ the Warthog.
- ◆ The last page of the Cannon Report contains a survey to determine priorities for our Meeting Venues. Any feedback would be appreciated as some members have determined that there are other viable alternatives. Please take note and ready any remarks for Mondays meeting.

The editorial opinions and articles in **The Cannon Report** do not represent any official position of the Michigan Company of Military Historians and Collectors (MCMH&C) only the opinions of the editor. The MCMH&C is a non-partisan, non-ideological association. All members are welcome to submit material, letters, “For the good of the Company items”, etc. Direct inquiries or comments to [kuziaks@me.com](mailto:kuziaks@me.com)

# Sea Dogs

Sir Francis Drake--El Drago (1545?-96), Martin Frobisher (1535?-94), Sir John Hawkins (1532-95), and Sir Walter Raleigh (1552-1618) were four English sea captains, allowed by Queen Elizabeth I to attack Spain. England was not powerful enough to directly wage war against King Philip on land, so Elizabeth choose to hurt them where it counted the most, by attacking the Spanish treasure ships sailing from the New World that carried gold and silver. Between 1572 and 1577 these Englishmen, collectively known as Elizabeth's Sea Dogs, made a total of eleven major expeditions. They attacked Spanish ports on the continent, her overseas possessions and any of her ships encountered on the open sea. Catholic Spain, under Philip had recently concluded several successful confrontations against the Ottomans; the Battle of Vienna (1529), defense of Malta (1565) and the Battle of Lepanto (1571). The Mediterranean was now relatively safe although not quite a Spanish lake. Although the Ottoman threat had receded, Spain remained embroiled in France's civil war as well as her own incessant quarrels within her Italian possessions. A huge part of the Spanish military was still involved in a multigenerational war with the Dutch in the Netherlands. All these conflicts were a constant drain on Philip's treasury, rarely on a sound footing in the best of times. Spain's expenses always outran her revenues, and her tax structure almost killed off any private industry within her possessions. Except for the Americas, administering her vast holdings cost more than the revenues collected in taxes.

Annually, at least 350 tons of silver and several tons of gold made its way across the Atlantic to the treasury in Madrid. Most was already pledged to the king's creditors before arrival. In fact, the king was only entitled to about 20% of the wealth derived from America. Of that amount very little remained to finance the affairs of state after passing through several layers of corrupt middleman. The audacity and innovations demonstrated by these sea captains laid the groundwork for the future Royal Navy and eventually England's total command of the seas. The swashbuckling English sea pirates of the Elizabethan era were a breed apart. Adventurers who combined considerable maritime and military skill allowing them to successfully seize Spanish treasure arriving from the New World. The Sea Dogs, and other lesser known names fought a private war with Spain, the great naval power of the day. Queen Elizabeth was a secret partner, but well known to King Philip. The Queen loaned ships and took her share of the loot from privateering expeditions aimed at Spanish or French shipping.

The long conflict with Spain was rooted in English hunger not only for Spanish treasure but also the desire to trade with her far flung empire heretofore allowed only to Spanish ships. A practice England would later employ when she started to developed her own overseas colonies. The Sea Dogs bedeviled the Spanish treasure fleet and gained for England a share of the American bullion flowing into Europe. The English then formed overseas trading companies and began a very modest colonization attempt in the Caribbean and North America. These maritime excursions allowed the English to train a generation of sailors whose sailing skills would prove invaluable when they went on to defeat the Spanish Armada in 1588.

Admiral Sir John Hawkins was an English naval commander and administrator, merchant, navigator, shipbuilder, privateer and slave trader. He is considered to be the first English trader to profit from the Triangle Trade, based on selling slaves to Spanish colonies, and taking their products to England. As treasurer and controller of the Royal Navy, Hawkins rebuilt older ships and helped design the faster ships that would later rule the oceans. One of the foremost seamen of 16th-century England, Hawkins was the chief architect of the Elizabethan navy. Along with his cousin, Sir Francis Drake, many lucrative expeditions were launched.

At age 23, Drake made his first voyage to the Americas, sailing with Sir John Hawkins. Little is known of that expedition's result. In 1568 Drake sailed again with the Hawkins fleet when it was trapped by the Spaniards in the Mexican port of San Juan de Ulúa. He escaped along with Hawkins. Following the defeat at San Juan de Ulúa, Drake vowed revenge. He made two voyages to the West Indies, in 1570 and 1571, of which little is known. In 1572, he embarked on his first major independent enterprise. He planned an attack on the Isthmus of Panama, known to the Spanish as Tierra Firme and the English as the Spanish Main. This was the point at which the silver and gold treasure of Peru had to be landed and sent overland to the Caribbean Sea, where galleons from Spain would pick it up at the town of Nombre de Dios. Drake left Plymouth on May 24, 1572, with a crew of 73 men in two small vessels, the *Pascha* (70 tons) and the *Swan* (25 tons), to capture Nombre de Dios.

His first raid was late in July 1572. Drake and his men captured the town and its treasure. When his men noticed that Drake was bleeding profusely from a wound, they insisted on withdrawing to save his life and left the treasure. Drake stayed in the area for almost a year, raiding Spanish shipping and attempting to capture a treasure shipment. In 1573, he joined Guillaume Le Testu, a French buccaneer, in an attack on a richly laden mule train. Drake and his party found that they had captured around 20 tons of silver and gold. They buried much of the treasure, as it was too much for their party to carry. (An account of this may have given rise to subsequent stories of pirates and buried treasure.) Wounded, Le Testu was captured and later beheaded. The small band of adventurers dragged as much gold and silver as they could carry back across some 18 miles of jungle-covered mountains to where they had left the raiding boats. When they got to the coast, the boats were gone. Drake and his men, downhearted, exhausted and hungry, had nowhere to go and the Spanish were not far behind.

At this point Drake rallied his men, buried the treasure on the beach, and built a raft to sail with two volunteers ten miles along the surf-lashed coast to where they had left the flagship. When Drake finally reached its deck, his men were alarmed at his bedraggled appearance. Fearing the worst, they asked him how the raid had gone. Drake could not resist a joke and teased them by looking downhearted. Then he laughed, pulled a necklace of Spanish gold from around his neck and said "Our voyage is made, lads!" By August 9, 1573, he had returned to Plymouth. With the success of the Panama isthmus raid, Elizabeth I of England sent Drake to start an expedition against the Spanish along the Pacific coast of the Americas in 1577. He set sail again on December 13, aboard *Pelican*, with four other ships and 164 men. He soon added a sixth ship, *Mary* (formerly *Santa Maria*), a Portuguese merchant ship that had been captured off the coast of Africa near the Cape Verde Islands. He also added its captain, Nuno da Silva, a man with considerable experience navigating in South American waters.

Drake's fleet suffered great attrition in the stormy crossing; he scuttled one ship and the flyboat *Swan* due to loss of men on the Atlantic. He made landfall at the gloomy bay of San Julian, in what is now Argentina. Ferdinand Magellan had called here half a century earlier, where he put to death some mutineers. Drake's men saw weathered and bleached skeletons on the grim Spanish gibbets. They discovered that *Mary* had rotting timbers, so they burned the ship. Following Magellan's example, Drake tried and executed his own 'mutineer' Thomas Doughty. Drake decided to remain the winter in San Julian before attempting the Strait of Magellan.

The three remaining ships of his convoy departed for the Magellan Strait at the southern tip of South America. A few weeks later (September 1578) Drake made it to the Pacific, but violent storms destroyed one of the three ships, the *Marigold* in the strait and caused another, the *Elizabeth*, to return to England, leaving only the *Pelican*. He pushed onwards in his lone flagship, now renamed the *Golden Hind* in honor of Sir Christopher Hatton (after his coat of arms). The *Golden Hind* sailed north

along the Pacific coast of South America, attacking Spanish ports and pillaging towns. Some Spanish ships were captured, and Drake used their more accurate charts. Before reaching the coast of Peru, Drake visited Mocha Island, where he was seriously injured by hostile Mapuche. Later he sacked the port of Valparaíso further north in Chile where he also captured a ship full of Chilean wine. Near Lima, Drake captured a Spanish ship laden with 25,000 pesos of Peruvian gold, amounting in value to 37,000 ducats of Spanish money (about \$11 million by modern standards). Drake also discovered news of another ship, *Nuestra Señora de la Concepción*, which was sailing west towards Manila. It would later be renamed the *Cacafuego*. Drake gave chase and eventually captured the treasure ship, which proved his most profitable capture.

Aboard *Nuestra Señora de la Concepción*, Drake found 80 pounds of gold, a golden crucifix, jewels, 13 chests full of royals plate and 26 tons of silver. Drake was naturally pleased at his good luck in capturing the galleon and he showed it by dining with the captured ship's officers and gentleman passengers. He offloaded his captives a short time later, and gave each one gifts appropriate to their rank, as well as a letter of safe conduct. After looting the *Cacafuego*, Drake turned north, hoping to meet another Spanish treasure ship coming south on its return from Manila to Acapulco. Although he failed to find a treasure ship, Drake reputedly sailed as far north as the 38th parallel, landing on the coast of California on June 17, 1579. He found a good port, landed, repaired and restocked his vessels, then stayed for a time, keeping friendly relations with the Coast Miwok natives. He claimed the land in the name of the Holy Trinity for the English Crown, called Nova Albion—Latin for "New Britain". Assertions that he left some of his men behind as an embryo "colony" are founded on the reduced number who were with him in the Moluccas.

The precise location of the port was carefully guarded to keep it secret from the Spaniards, and several of Drake's maps may have been altered to this end. All first-hand records from the voyage, including logs, paintings and charts, were lost when Whitehall Palace burned in 1698. A bronze plaque inscribed with Drake's claim to the new lands – Drake's Plate of Brass – fitting the description in his account, was discovered in Marin County, California but was later declared a hoax. Now a National Historic Landmark, the officially recognized location of Drake's New Albion is Drakes Bay, California.

Drake left the Pacific coast, heading southwest to catch the winds that would carry his ship across the Pacific, and a few months later reached the Moluccas, a group of islands in the south west Pacific, in eastern modern-day Indonesia. While there, *Golden Hind* became caught on a reef and was almost lost. After the sailors waited three days for expedient tides and dumped cargo, they freed the barque. Befriending a sultan king of the Moluccas, Drake and his men became involved in some intrigues with the Portuguese there. He made multiple stops on his way toward the tip of Africa, eventually rounded the Cape of Good Hope, and reached Sierra Leone by 22 July 1580.

On September 26, *Golden Hind* sailed into Plymouth with Drake and 59 remaining crew aboard, along with a rich cargo of spices and captured Spanish treasures. The Queen's half-share of the cargo surpassed the rest of the crown's income for that entire year. Drake was hailed as the first Englishman to circumnavigate the Earth. The Queen declared that all written accounts of Drake's voyages were to become the Queen's secrets of the Realm, and Drake and the other participants of his voyages on the pain of death sworn to their secrecy; she intended to keep Drake's activities away from the eyes of rival Spain. Drake presented the Queen with a jewel token commemorating the circumnavigation. Taken as a prize off the Pacific coast of Mexico, it was made of enameled gold and bore an African diamond and a ship with an ebony hull. For her part, the Queen gave Drake a jewel with her portrait, an unusual gift to bestow upon a commoner, and one that Drake sported proudly in his 1591 portrait by Marcus Gheeraerts now at the National Maritime Museum, Greenwich. On one side is a state portrait of Elizabeth by the miniaturist Nicholas Hilliard, on the other a sardonyx cameo

of double portrait busts, a regal woman and an African male. The "Drake Jewel", as it is known today, is a rare documented survivor among sixteenth-century jewels; it is conserved at the Victoria and Albert Museum, London.

Queen Elizabeth awarded Drake a knighthood aboard *Golden Hind* in Deptford on April 4, 1581; the dubbing being performed by a French diplomat, Monsieur de Marchaumont, who was negotiating for Elizabeth to marry the King of France's brother, Francis, Duke of Anjou. By getting the French diplomat involved in the knighting, Elizabeth was gaining the implicit political support of the French for Drake's actions. During the Victorian era, in a spirit of nationalism, the story was promoted that Elizabeth I had done the knighting. In September 1581, Drake became the Mayor of Plymouth, and was a member of parliament in 1581, for an unknown constituency (possibly Camelford), and again in 1584 for Bossiney and Plymouth in 1593.

Sir Walter Raleigh, the last of the named Sea Dogs was more of a colonizer than a privateer. His story deserves closer examination at a later date. Suffice it to say that when Raleigh was beheaded in the Old Palace Yard at the Palace of Westminster on October 29, 1618, the Irish, if they were aware of his final day would have celebrated it as a great Day of Jubilation.

## CAMP X

On December 6, 1941 in the small Canadian town of Whitby, Ontario, between Toronto and Oshawa on the north shore of Lake Ontario, the British and Canadian governments opened up the first facility to train men and women of the Americas in the arts of espionage. Both Churchill and Roosevelt knew that the United States would soon be involved in the European conflict. Sir William, Stephenson was the chief of British Security Coordination (BSC), headquartered in New York City an officially known as the British Passport Control Office. In actuality the BSC was a covert organization set up in New York City by the British Secret Intelligence Service (MI6) in May 1940 upon the authorization of Prime Minister Winston Churchill.

Its purpose was to investigate enemy activities, prevent sabotage against British interests in the Americas, and mobilize pro-British opinion in the Americas. As a huge secret agency of nationwide news manipulation and black propaganda, the BSC influenced news coverage in the *Herald Tribune*, the *New York Post*, *The Baltimore Sun*, and Radio New York Worldwide. The fictional stories disseminated from Rockefeller Center would then be legitimately picked up by other radio stations and newspapers, then relayed to the American public. These anti-German stories were placed in major American media outlets to turn public opinion against Germany.

The BSC benefitted from the support given by the chief of the US Office of Strategic Services, William J. Donovan (whose organization was modeled on British activities), and US President Franklin D. Roosevelt who was staunchly anti-Nazi.

The office, which was established for intelligence and propaganda purposes was headed by Canadian industrialist William Stephenson. Its first tasks were to promote British interests in the United States, counter Nazi propaganda, and protect the Atlantic convoys from enemy sabotage. The BSC was registered by the State Department as a foreign entity. It operated out of offices on the 33rd and 34th floors of Rockefeller Center. The BSC acted as administrative headquarters more than operational one for the British Secret Intelligence Service and the Special Operations Executive (SOE)

and it was more of a channel for communications and liaison between US and British security and organizations. The BSC used a number of legitimate outlets for its work.

In 1940, a German agent – Weldrick – was cultivating support and possible sabotage among American oil companies, He was effectively exposed through news articles placed in the *New York Herald*. A wave of public outrage was followed by Weldrick's expulsion from the US and the forced resignation of the head of Texaco. Through third parties, the BSC developed an independent and non-profit WRUL shortwave radio station with foreign-language broadcast capability which fed stories to disseminate worldwide. The WRUL had a large number of listeners who corresponded with the station and made it possible for reactions to the broadcasts to be directly monitored. For a short period the station was unwittingly, the agent of BSC; after the US entered the war, the WRUL operation was turned over to US control.

It was through the BSC, that the British acquired the powerful "Aspidistra" transmitter that was used for propaganda by the Political Warfare Executive (PWE), BBC overseas broadcasts and the RAF in the war against Germany. BSC also sourced a transmitter for it to communicate with the UK which was operated under the code name "Hydra" at BSC's training school at Camp X. Although the British and Americans were co-operating at the Prime Minister-President level at the time, the arrival of "British spies" in the United States infuriated J. Edgar Hoover, the director of the Federal Bureau of Investigation (FBI), and displeased the US Department of State. Despite the fact that Stephenson and Hoover did not see eye to eye, they had cooperated in a number of operations against espionage activities by Nazi Germany in the US. They also agreed that the British would not hire Americans, the BSC did the contrary. The Americans who were recruited in the BSC were given British identification numbers beginning with the digits 4 and 8, apparently representing the 48 states. The British novelist William Boyd, in a 2006 article for *The Guardian*, stated that although the total number of BSC agents operating in the USA is unknown, he estimated the number to be at least "many hundreds" and had seen "the figure of up to 3,000 mentioned".

The actor Noël Coward saw Stephenson, colloquially known as "Little Bill", at the end of July 1940 when on a world entertainment and propaganda tour. He wrote that the "suite in the Hampshire House with the outsize chintz flowers crawling over the walls became pleasantly familiar to me..." and that Stephenson "had a considerable influence on the next few years of my life". Stephenson offered him a job, but this was vetoed by London.

South America was an important neutral source of trade for the Axis forces; its importance would increase after the US entered the war. The Italian airline LATI operated a transatlantic service between Rome and Rio de Janeiro (Brazil) which was a conduit for high value goods (platinum, mica, diamonds etc.), agents and diplomatic bags. London instructed BSC to do something about that situation. The Brazilian government had connections to the airline through the President's son-in-law and it was supplied – despite the US State Department protests – by Standard Oil in the US making official channels ineffective. To curtail its activities, BSC decided that it had to be closed down by the Brazilians themselves; sabotage would be only a temporary inconvenience. To this end BSC constructed a forged letter of such accuracy that its authenticity could not be questioned even under forensic examination. The letter purported to come from LATI's head office to an executive of the company stationed in Brazil. The contents included disparaging references to the Brazilian president and the US and implied connections with an anti-government fascist party. A "burglary" of the executive's house was followed by a photostat of the letter being placed with an American Associated Press reporter who immediately took it to the American Embassy. The Embassy then showed the letter to President Vargas and as a result LATI's operations in Brazil were confiscated, and its personnel interned. Subsequently Brazil broke off relations with the Axis to join the Allies.

To counter the carrying of high value contraband goods to and from the Americas, BSC set up a network of observers on merchant ships. These agents were recruited from the crews and with pro-British masters of the vessel they would report their observations, cargo manifests and passenger lists, to agents in port when they arrived. Together, with eyes watching docks at either end, intelligence was gathered and ships or enemy agents could be intercepted while questionable crew would be blacklisted from employment by US and British lines. From autumn 1941, the BSC handed over control of observers on American vessels and ports to the US while retaining control of the remainder and maintaining a close liaison with the new US handlers.

Camp X was originally designed to link Britain and the US at a time when the US was forbidden by the Neutrality Act to be directly involved in World War II. After the attack on Pearl Harbor and America's entry into the war, Camp X trained Allied agents from the Special Operations Executive, Federal Bureau of Investigation, and the American Office of Strategic Services (OSS). Some of the graduates were to be dropped behind enemy lines as saboteurs and spies. However, even before the United States entered the war on December 7, 1941, agents from America's intelligence services expressed an interest in sending personnel for training at the soon to be opened Camp X. Agents from the FBI and the Office of Strategic Services (forerunner of the CIA) secretly attended Camp X. Most notable was Colonel William "Wild Bill" Donovan, war-time head of the OSS, who credited Sir William Stephenson with teaching Americans about foreign intelligence gathering. The CIA even named their recruit training facility "The Farm", a nod to the original farm that existed at the Camp X site.

Camp X trained over five hundred Allied units, of which 273 graduated and moved on to London for further training. The Camp X pupils were schooled in a wide variety of special techniques including silent killing, sabotage, partisan support and recruitment methods for resistance movements, demolition, map reading, use of various weapons, and Morse code. It was at Camp X that the OSS operated an "assassination and elimination" training program that was dubbed "the school of mayhem and murder" by George Hunter White, who trained at the facility in the 1950s.

The facility had a harbor, generating station, and communication equipment used for training scenarios in preparing budding agents. Nothing significant remains of Camp X today, as all the remaining buildings were bulldozed into Lake Ontario in 1969 when the camp was decommissioned; although several craters from explosives training are still visible. The site, located on Boundary Road in Whitby, Ontario, is now a passive park named "Intrepid Park". A monument was erected in 1984 to honor the men and women of Camp X, who many in the intelligence world consider to be the finest espionage training camp of the Second World War. The monument is surrounded by four flags: the Bermuda flag (where Stephenson died), the flag of the United States, the British Union Flag, and the current flag of Canada. Today it is the site of annual Remembrance Day ceremonies hosted by 2 Intelligence Company, a military intelligence unit based in Toronto, Ontario.

Many resources are available for the interested reader. [A Man Called INTREPID](#) by William Stevenson chronicles the life of Sir William Stephenson. Two books on Camp X are excellent sources: David Stafford's, [Camp X](#) (1986) and Lynn Philip Hodgson's, [Inside Camp X](#) (1999). The web site [camp-x.com](http://camp-x.com) offers many insights into the training and techniques used at Camp X. There is also an excellent museum available, free of charge, in Whitby and well worth the visit.

Not often mentioned but noteworthy nonetheless, almost all the graduates dropped behind enemy lines into occupied France failed to survive or make a success from their training. The Germans seem to anticipate the Allied attempts and either turned or executed any captured agents. A sober reminder of the dangers faced by brave men and women who regardless of their training did not persevere.



# Colonel John Boyd USAF

There are periods in our country's history when we are truly blessed with men and women, who despite institutional reticence or even sabotage, have beliefs so strongly held that they continue to press on despite ridicule, censure and even professional suicide. Billy Mitchell, Hyman Rickover, John Paul Vann and a few others, who despite any personal flaws, nevertheless truly believed that not to pursue their respective beliefs would eventually lead to grievous harm to our nation. John Richard Boyd, aka Forty Second Boyd, Genghis John, The Mad Major, The Ghetto Colonel was one such individual.

Boyd was born on January 23, 1927 in Erie, Pennsylvania. He graduated from the University of Iowa with a Bachelor's degree in economics and later earned an additional Bachelor's degree in industrial engineering from Georgia Tech. Boyd enlisted in the Army Air Corps on October 30, 1944, while still a junior in high school. He served in the Army Air Forces from 1945 to 1947, assigned as a swimming instructor in occupied Japan. After graduating from Iowa (1951), he served as a U.S. Air Force officer from July 8, 1951, until his retirement on August 31, 1975. On March 27, 1953 Boyd arrived in Korea as an F-86 pilot.

Boyd flew a short tour (22 missions instead of 100) in F-86 Sabres during the Korean War, where he served as a wingman and never fired his guns or claimed an aerial kill. Although Boyd was never credited with any kills, after his service in Korea he was invited to attend the most prestigious school a fighter pilot could attend, the Fighter Weapons School (FWS). Boyd attended the school and not only performed well, but rose to the top of his class. Upon graduation he was invited to stay at the FWS as an instructor. In Boyd's time, being an instructor for the FWS was the most prized position any fighter pilot could hold. Soon he became head of the Academic Section and wrote the tactics manual for the school. It was here that Boyd would revolutionize aerial tactics and develop his concept of the OODA (observe, orient, decide, and act) Loop.

He was dubbed "Forty Second Boyd" for his standing bet of \$40 in less than forty seconds he could defeat any pilot in a mock dogfight from a position of disadvantage. He never lost a bet. Boyd was brought to the Pentagon by Major General Arthur C. Agan, Jr. to do mathematical analysis that would support the McDonnell Douglas F-15 Eagle program in order to pass the Office of the Secretary of Defense's Systems Analysis process. According to his biographer, Robert Coram, (Boyd: The Fighter Pilot Who Changed the Art of War, 2002) Boyd was also known at different points of his career as "The Mad Major" for the intensity of his passions, as "Genghis John" for his confrontational style of interpersonal discussion, and as the "Ghetto Colonel" for his spartan lifestyle. He was not only fearless and skillful as a fighter pilot but also tenacious in bureaucratic combat. He suffered no inhibitions about speaking truth to power. His superiors would often use him as the point man in cutting through technological pretensions foisted on the Air Force by civilian overseers in the Pentagon and their defense industry lobbyists.

Boyd took the lessons he learned from the OODA Loop and applied it to conflicts in general. In air combat, for example, pilots see an enemy, orient themselves (meaning they subconsciously process their observation based on prior combat experience, intelligence, training, etc.) decide what to do, act on that decision, observe the results of that action, and continue retracing the loop. Evidence has shown that those who adapt to changing circumstances—by continually moving through this cycle faster than their adversaries will prevail. He discerned that the F-86 fighter in the Korean War outfought the Soviet MiGs because its bubble canopy allowed the pilot a more complete view, while the plane could also transition from one maneuver to another faster than the MiG (partly because its



power-assisted controls were easier to shift more quickly than the muscle-powered controls on the MiG).

In applying his ideas to organizations Boyd found the same principles applied. The overarching need for rapid adaptability to changing circumstances had to be based on a system of command and control that was as simple and harmonious as possible. It was extremely dangerous for the higher commander to try to get involved in the rapid paced details of a firefight thereby losing his focus and grasp of the overall battle (Vietnam and the micro-managing colonel flying overhead in a helicopter). Boyd stressed the importance of the human, as opposed to the technological factor in warfare. Within the last 25 years the US military has come to believe very strongly in material, the more complex and technically ambitious the better. Thus Boyd's ideas as well as his emphasis on personal integrity were not in harmony with the prevailing military ideology.

Though highly unpopular in the commanding heights of the defense establishment, Boyd's ideas had attracted a growing following in the military, especially among junior officers, as well as in the press and in Congress, giving rise in the late 1970's to what became known as the "military reform movement." This alliance mounted serial campaigns against costly weapons programs of dubious utility, and the customs and practices of the weapons-buying culture that produced and nurtured them. Exposure involved revelations from whistle-blowers prepared, in many cases, to risk or sacrifice their careers for the greater good. For the most part these efforts were eventually defeated by the entrenched interests in the military-industrial-congressional complex (using Eisenhower's original thought), but did succeed in creating the post of Director, Office of Operational Test and Evaluation. Mandated by law to test new weapons systems as a corrective to the services' sorry record of buying systems that worked badly or not at all when deployed. The office was not popular with the military or with defense contractors, mainly because it regularly disproved claims by contractors and their service sponsors regarding the efficacy of lavishly funded systems.

Overinflated claims of superior effectiveness have always been a part of the military. During WWII the Norden Bomb Sight was heralded as an instrument that would ensure 50% of its bombs would fall within 75 feet of their target. That boast went unfulfilled yet never refuted. A good example is the Second Schweinfurt Raid, October, 1943, against German ball-bearing factories. Of the 291 B-17 Flying Fortresses sent on the mission, 60 were lost outright, another 17 damaged so heavily that they had to be scrapped, and another 121 had varying degrees of battle damage. Outright losses represented over 26% of the attacking force. Losses in aircrew were equally heavy, with 650 men lost out of 2,900, 22% of the bomber crews. The American Official History of the Army Air Forces in the Second World War acknowledged losses had been so heavy that the USAAF would not return to the target for four months. Only one in ten of Norden-aimed bombs fell within 500 feet of the target. This lack of adequate testing continued into the Vietnam War era with another component added to the matrix—the ensuing result of hitting the intended target.

One such target was a bridge over the Song Ma river about 100 miles south of Hanoi near a town called Thanh Hoa. This bridge was believed to be critical to the enemy supply effort. Nobody asked or sought justification for such a supposition. Repeated efforts were made to hit this "critical" target. The air force and navy bombed it obsessively with guided and unguided bombs between 1965 and 1972 to zero effect. They were missing the bridge by hundreds of yards. The Vietnamese, realizing the perceived importance of the bridge, had set up an impressive air defense network, stationing five air defense regiments in the area. They used the bridge as the center of what Pentagon wags termed a "flourishing anti-aircraft school." Meanwhile, the Vietnamese had stopped using the bridge years before, traffic now flowed across an undetected ford five miles upstream. We lost dozens of pilots over seven years to an undiscovered ruse by the enemy.

During the early 1960s, Boyd, together with Thomas Christie, a civilian mathematician, created the Energy-Maneuverability theory, or E-M theory of aerial combat. A legendary maverick by reputation, Boyd was said to have stolen the computer time to do the millions of calculations necessary to prove the theory, though a later audit found that all computer time at the facility was properly billed to recognized projects and that no irregularity could be prosecuted. E-M theory became the world standard for the design of fighter aircraft. At a time when the Air Force's FX project (subsequently the F-15) was floundering, Boyd's deployment orders to Vietnam were canceled and he was brought to the Pentagon to re-do the trade-off studies according to E-M. His work helped save the project from being a costly dud, even though its final product was larger and heavier than he desired. However, cancellation of that tour in Vietnam meant that Boyd would be one of the most important air-to-air combat strategists with no combat kills. He had only flown a few missions in the last months of the Korean War (1950–1953), and all of them as a wingman.

Boyd formed a small advocacy group within Headquarters USAF that dubbed itself the "Fighter Mafia". Where for years he dogged air force to not only justify developing weapon systems but provide the rationale for such an expenditure. After his retirement from the Air Force in 1975, Boyd continued to work at the Pentagon as a consultant in the Tactical Air office of the Office of the Assistant Secretary of Defense for Program Analysis and Evaluation.

Boyd is credited for largely developing the strategy for the invasion of Iraq in the Gulf War of 1991. In 1981, Boyd had presented his briefing, *Patterns of Conflict*, to Dick Cheney, then a member of the United States House of Representatives. By 1990, Boyd had moved to Florida because of declining health, but Cheney (then the Secretary of Defense in the George H. W. Bush administration) called him back to work on the plans for Operation Desert Storm. Boyd had substantial influence on the ultimate "left hook" design of the plan.

In a letter to the editor of *Inside the Pentagon*, former Commandant of the Marine Corps General Charles C. Krulak is quoted as saying "The Iraqi army collapsed morally and intellectually under the onslaught of American and Coalition forces. John Boyd was an architect of that victory as surely as if he'd commanded a fighter wing or a maneuver division in the desert.

Later, Tom Christie, a fervent disciple of Boyd's, became Director of the Operational Evaluation Division where he was unsparing in the critical evaluation of various test reports. Not only of the weapon but also the need for such an item. Working with Boyd their comments would provoke choleric reactions by various generals. Especially in their dogged pursuit of the V-22 Osprey, an aircraft under development by the Marines that could tilt its rotors to fly like either a helicopter or a conventional airplane. Early on they concluded that the V-22 was dangerously unstable in certain conditions, telling a marine general that the true measure of its performance would be the number of "dead marines per flight hour." As of 2014, thirty-six people have died in multiple Osprey crashes.

The worth of a man can be judged by what remains after his passing. Boyd's key concept, the decision cycle or OODA loop, the process by which an entity (either an individual or an organization) reacts to an event lives on today. According to his idea, the key to victory is to be able to create situations wherein one can make appropriate decisions more quickly than one's opponent. The construct was originally a theory of achieving success in air-to-air combat, developed out of his Energy-Maneuverability theory and his observations on air combat between MiG-15s and North American F-86 Sabres in Korea. Harry Hillaker (chief designer of the F-16) said of the OODA theory, "Time is the dominant parameter. The pilot who goes through the OODA cycle in the shortest time prevails because his opponent is caught responding to situations that have already changed."