

**On The Making of History:
John Boyd and American Security**

**The Harmon Memorial Lecture, 2012
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Grant T. Hammond

“We don’t see things as they are, we see things as we are.”
Anais Nin

Introduction (1)

It is a pleasure to give this prestigious lecture at the US Air Force Academy and to address Air Force Col John Boyd and his ideas some 15 years after his death and more than a decade after the publication of the first book about Boyd and his ideas, my *Mind of War: John Boyd and American Security*. To be honest, Boyd had little use for the Air Force Academy and he said so with some frequency. He thought cadets here were pampered, told too often how great they were, and falsely assured that any graduate could become Chief of Staff. It is somewhat ironic after all these years that Boyd has finally achieved a level of respectability. The fact that his ideas are to be addressed at the Academy is a vindication of Boyd and his work. Were he alive, he would be honored by the attention to his life and work—but he would not admit it.

Given that the Harmon Memorial Lecture at the Academy is sponsored by the History Department, I am both personally motivated and professionally obligated to put my remarks in some relation to the study of history. The epigraph to this lecture is a quotation from Anais Nin, a French-Cuban writer of short stories and companion to numerous literary luminaries. The quotation is “We don’t see things as they are, we see things as we are.” It points out simply that the enduring effects of unique people or events lie as much in how they are viewed, remembered, and assessed as in what may have been said or done. And, that view, memory, or assessment may change over time. So it is with John Boyd and his ideas. Just who was John Boyd and what did he do that deserves your attention in this forum?

John Boyd was a maverick fighter pilot—an oxymoron—who did not endear himself to the US Air Force or its senior leadership because he challenged orthodoxy. In the hierarchy of the military, doing it once and getting away with it is possible, though risky. Doing so two or more times, is not conducive to career advancement. Doing so routinely courts dismissal. John Boyd challenged Air Force orthodoxy continuously and did so at the heart of the service's very identity. He challenged fighter tactics in his Aerial Attack Study, redesigned fighter aircraft in Energy Maneuverability Theory and developed the aircraft themselves in his design work on the F-15 and F-16. And he challenged the theory of how wars were to be fought and won in his 15-hour briefing, a "Discourse on Winning and Losing."

If he had been less pugnacious, if he had not been so cock sure of himself, if he had not end-run the system constantly, if he had played by the rules, he might not have had the difficulties he had. But then, he wouldn't have been successful either. Revolutions are neither begun nor won by moderates. They require zealots committed to the cause. Boyd was passionately committed to being the best at his craft. He was devoted to the Air Force and its mission—air superiority through designing the best aircraft, training the best pilots and developing the best military strategy—in order to fly, fight and win. He just happened to be convinced that the Air Force had it all wrong. And, understandably, the Air Force didn't appreciate being told that such was the case.

To accept Boyd's ideas was an indictment of the service, its leadership, its Tactics, Technique and Procedures (TTP) and its doctrine. That is not easy for an institution to admit, or even suspect. And Boyd's era was a rough time for the Air Force. Coping with the disaster of Vietnam was difficult. Though air support was a major

contribution on the ground, the Air Force did not distinguish itself in the air. Half our F-105s were lost, the 10 to 1 kill ratio against MIGs in Korea came closer to 1 to 1 in Vietnam, the PK ratio for missiles was not nearly as good as claimed, and SAMs took a heavy toll.¹ This experience meant tactical air operations had to be greatly improved if the Air Force was to be successful in the future. But from 1965 until 1982, the Air Force Chiefs of Staff and most of their senior general officers were all bomber generals from SAC who had risen under the tutelage of General Curtis LeMay. Reinventing tactical aviation was a difficult task, particularly in that environment, and John Boyd was at the heart of it.

The impact of John Boyd and his thinking—on the Air Force, the Marine Corps and national security—has changed considerably over time. There are various histories of this. And there are histories of those of us who wrote about Boyd in the manner and at the time we did. All of this has colored the history of Boyd and his ideas. How then should we think about making history—those who make it and those who chronicle it? I'd like to examine that question using Boyd, his ideas and his chroniclers as a case study of “making history.” In doing so, I hope to keep faith with the Harmon Memorial Lectures on history, and the story of John Boyd and his ideas.

Boyd's Career

The basics are easily told. Boyd joined the Air Force in 1951 and retired in 1975 as a Colonel. He died in 1997. He flew briefly in Korea at the very end of the war and became fascinated with air-to-air tactics. He went to the fighter weapons school and taught and studied aerial tactics for six years, flying the F-100 Super Sabre like no one

else. He had a standing \$40 bet with all comers at Nellis AFB that he could put them on his six and outmaneuver them for a kill in less than 40 seconds. He never lost the bet. A demanding instructor in the air and the classroom, he questioned the tactics of the day. At night and on his own initiative, he wrote the “Aerial Attack Study,” the first manual on jet air-to air combat. Rejected at first, it was distributed surreptitiously, pilot to pilot, squadron to squadron until the Air Force decided to adopt it. He left Nellis AFB and was assigned to Systems Command at Eglin AFB where with civilian mathematician, later Defense Acquisition Chief, Tom Christie, he developed the Energy Maneuverability Theory. Using stolen computer time in dummy accounts, Boyd diverted several hundred thousand dollars of computer time to studying the comparative flight performance envelopes at different speeds, altitudes and G-forces for every American fighter and plotted them against every Soviet fighter. He discovered that every Soviet fighter had greater maneuverability when compared to its American counterpart. He was nearly court martialed for theft before being presented two Air Force awards for his work.

Sent to the Pentagon to assist in the development of the next Air Force fighter, which became the F-15, Boyd was given the materials submitted to date and told to review them and report back in a couple of weeks. When asked for his opinion, he replied: “I could screw-up and do better than this.”² Thus began his work on the F-15, and his change of the original design of an 80,000 pound swing wing F-111 based “fighter” to the smaller, twin tailed, twin-engine F-15 we know today. Along the way, he thought the F-15 was too big, too costly and that too few would be built to allow for inevitable losses in Europe against the Warsaw Pact ground and air defenses. So he quietly, without approval, began to design the Light Weight Fighter that became the F-16.

It nearly cost him his career and promotion to Colonel for the F-15 was the “Holy Grail” of the Air Force. Opposing the plane, the size of the buy, or proposing an alternative to it were simply unacceptable positions and treasonous in the eyes of most of his superiors. But the F-16 was adopted, over the objections of the Air Force leadership. The Secretary of Defense made the decision. It is the only fighter in Air Force history which cost less than its predecessor. It has been sold to over 20 countries and nearly 5,000 have been built. That’s quite an accomplishment for a plane the Air Force didn’t need and didn’t want.

Important though all of these accomplishments may have been, Boyd’s real impact began after he retired from the service and began work on a series of briefings which eventually became known as “The Discourse on Winning and Losing.” It began as an hour and a half briefing entitled “Patterns of Conflict” and grew to a monster that took 15 hours over two days to deliver. In it, Boyd addressed the course of military history and what it could teach us. He introduced the theory of maneuver warfare, and included briefings entitled “The Conceptual Spiral,” “The Strategic Game of ? and ?,” and “An Organic Design for Command and Control.” He also explained and expanded his famous concept of the “O-O-D-A Loop.” Combined into the “Discourse,” this is the main body of Boyd’s thinking.

Boyd had his admirers and his detractors. He caused a strong reaction in all. They occupy opposite ends of the spectrum of assessment. To one senior Air Force four star, he was “a 24 karat pain in the ass.” To a Marine four-star he was “the quintessential soldier-scholar.” While one fellow student called him “the ‘cussingest’ man I ever met,” another four-star called him “Christ-like.” To those whose ire he garnered in the

Pentagon he was variously “that f----- Boyd,” and known by various names including “the Mad-Major,” “the Ghetto Colonel,” and” Genghis John.”³ To those who believed in him and his causes, he was more than a hero, he was a virtual saint and they would have followed him anywhere and taken on any foe, regardless of the odds.

How did one man inspire such radically different opinions? Boyd was both brilliant and a misfit who was his own worst enemy. He did not do things by the book or play by the rules. He did not care much for shined shoes, immaculate uniforms, or protocol niceties. On a visit to the Academy driving with his host, he noticed the Superintendent in the car behind him on base. Boyd rolled down the window in the cold and snow and started pumping his middle finger in the air at the car behind, in front of several dozen cadets. His host, appalled by the action, tried to stop him but Boyd said “Aw hell, we were in pilot training together and this is just a fighter pilot greeting.” Thereafter, the Superintendent decided to approve all visitors to the Academy in advance.⁴

Boyd was both vilified and respected by those who knew him. To many, he was not very likeable. He smoked smelly cigars, talked loudly and got right in your face, when he argued with you, spittle flying. He was pushy, arrogant and profane in the extreme and would frequently end run his boss, or his boss’s boss, up to and including the Secretary of the Air Force and the Secretary of Defense. His courage to state his views—and defend them regardless of consequence—his integrity and willingness to challenge and persevere were what were admired and respected by supporters. He was totally incorruptible, had little use for money and refused to cash dozens of TDY reimbursement checks for speaking engagements after he retired. He inspired intellectual respect and

virtual awe, intense loyalty, and unbounded compassion for those who became “the acolytes,” Boyd’s small but intense following on his various crusades.

O-O-D-A Loops

The essence of all John Boyd learned came from being a fighter pilot. It taught him how to think, to define and refine concepts and ideas and to combine them into patterns from which he could learn still more. At the heart of his thinking was the O-O-D-A Loop. It is popularly displayed in many writings as the circular diagram you see on the slide. (2) This is a very simplistic and shallow representation of an important and richer set of ideas. Boyd’s O-O-D-A Loop looks like this (3) and is much more complex and insightful. It is both a representation of how our mind works, how we think, and a complex strategic theory reduced to a rather simplified form. Colin Gray, a British scholar and the second most widely quoted author on strategy next to Clausewitz, has referred to Boyd and the O-O-D-A Loop as follows:

“The OODA Loop may appear too humble to merit categorization as grand theory, but that is what it is. It has an elegant simplicity, an extensive domain of applicability, and contains a high quality of insight about strategic essentials, such that its author well merits honourable mention as an outstanding general theorist of strategy.”⁵

Alas, Boyd never knew of the accolade Gray bestowed on him for it occurred two and a half years after he died. His now world-wide fame would astound him.

Just what is the O-O-D-A Loop and why is it important? It is the basis for everything in Boyd’s thinking and a metaphor for life itself. It is an extended biological metaphor for stimulus and response and a diagram for the way the mind works. It is an organic model, not a mechanistic one. Observation is really “sensing” but the acronym

thus produced—SODA—didn't pass the giggle test so Boyd used observation instead. And, for fighter pilots in early air-to-air engagements, "first sight wins the fight" was gospel. But successful use of the O-O-D-A Loop is a complex process. Observation entails the sensing of external information and the unfolding of circumstances. It is an assessment of our environment, our place in it, and the interaction of the two. It begins a process of scanning for danger, an adversary, and threats to us. It provides a base from which to proceed and feeds forward into the second part of the process, orientation.

Orientation, what Boyd called "the big "O," is the central part of the process. It is an amalgam of our genetic heritage, culture, education, experiences, and our analysis and synthesis—literally how and why we think as we do. This informs our action, which is a test of our hypothesis (decision). It may be correct or it may fail. But because of the series of forward and backward feedback loops, and the implicit guidance and control we can exert, we are able to revise and repeat the process continuously. Our insights condition our actions or reactions to the environment and events in it. These also are critical to understanding an opponent. It is a complex set of filters and inputs that leads us toward decisions. Orientation involves trade-off thinking to make selective judgments and projection into some future state of affairs and its consequences.

Based on this, we make a decision—a choice about how best to proceed to interact effectively with our environment. This choice, our decision, is the hypothesis to be tested. The test is the action we have selected and its implementation. We constantly monitor the success or failure of the action taken in an effort to comprehend, shape, adapt to and in turn, be shaped by the environment. As Boyd described it, it is a circular process with constant feedback and feed-forward channels and implicit guidance and

control to help us cope with a constantly evolving, open-ended, far from equilibrium process of self-organization, emergence and natural selection.

The O-O-D-A Loop is thus an analytical and synthetic tool to deal with our environment and a strategic theory of how to do so. It is simple, elegant and comprehensive, able to describe, explain and predict. It is in essence, a depiction of life itself. Regrettably, its reduction and misunderstanding by many have demeaned the significance and utility of the concept. Now that you understand, perhaps future versions of the O-O-D-A Loop chart, and the way it is spelled, will emphasize its original insights.

Military History and Patterns of Conflict

Boyd built on and used the O-O-D-A Loop to advantage in making additional contributions to national security beyond his contributions to airpower theory, aerial combat and fighter aircraft design. He began to read, to study history, philosophy, the history of science, and was concerned with what came to be known as chaos theory and complexity before those terms became popular. Of particular interest is his study of military history. Under the tutelage of Pierre Sprey, a Pentagon analyst and friend, Boyd began to read military history in the Pentagon library. He began to learn about using aircraft to kill tanks and so read Von Mellenthin, von Mannstein, Hans Rudel and books about WW II. Then he went back to study the 1930s, the theories of Liddell-Hart, Guderian, and how German ideas had developed about blitzkrieg and infiltration tactics in WW I. He kept going—all the way back to Sun Tzu.

Doing it backward emphasized continuity, not change. He pondered what the essence of success was for those who won battles and wars across different times and

continents. He began to focus on maneuverability, quickness, attacks in flank or rear, and rapid adaptation to tactical developments. These were the constants and winning was often about getting inside the adversary's decision cycle, controlling the tempo of battle, being unpredictable, about causing friction for the adversary and taking advantage of the element of surprise. These became themes that became the "Patterns of Conflict" briefing which grew from 90 minutes to over four hours and was given frequently both inside and outside the Pentagon, on the Hill, to academic groups and interested others.

Along the way, he became concerned about better understanding the orientation of the adversary. This was critical to success in war. What does he value? What does he fear? How has he acted in the past? What does he seek to do? For Boyd, cultural anthropology and ethnography became more important than military intelligence. The latter developed a physical order of battle. Boyd wanted to develop a psychological order of battle. He wanted to know intentions as well as capabilities so he could devise a strategy that would allow him the moral and psychological leverage, as well as the physical capability, to defeat an opponent.

Central to Boyd's view of conflict is the fact that all organisms and organizations seek to survive and prosper. Doing so generally depends on maximizing freedom of action, or by making common cause with those who seek the same goals. Boyd understood and emphasized that war is a human endeavor begun and ended for moral purpose. It involves mobilizing people to fight and sacrifice for a cause. You need to understand why and how they fight if you seek to defeat opponents. This simply cannot be ignored. Along the way, Boyd developed one of his many trinities: People first, Ideas second, and Things third. That is the priority for developing successful strategies and for

leading a successful life. Most militaries, however, do it in reverse. People must be interchangeable parts to avoid single point failure in combat. But Boyd wanted to emphasize the human dimension of conflict.

The essence of Boyd's strategy for accomplishing goals can be summarized by the combination of variety, rapidity, harmony and initiative. Variety entails denying pattern recognition and predictability to an adversary, adopting multiple, simultaneous actions to confuse and confound an opponent, and being able to transition from one initiative to another sequentially or concurrently. Rapidity means the ability to not only act quickly but to modulate the tempo of action, to know when to speed up or slow down. Harmony refers to the ability to blend one's actions to fit time and circumstance, to co-evolve with the strategic landscape and the tactical realities. It is achieving the "fit" of what Boyd called the mind-time-space arena where thought and action converge appropriately. Initiative is the willingness to lead, to take action, to identify and act upon the mismatches, and to do so at the right time. One achieves advantage by causing friction for the adversary, by oscillating between interaction and isolation over time, and by modulating time to one's advantage. For Boyd, time and timing were weapons that did not have to be logistically supported. They were free and bestowed advantage upon those who understood how to use them well.

Taken together, these were the keys to a successful strategy. Boyd tested these concepts against blitzkrieg and defense against it—"counter-blitz," and guerilla warfare and counterinsurgency. He was fascinated with them and sought to understand how to prosecute and defeat each. That said, like the Chinese Colonels who wrote *Unrestricted Warfare* in 1999,⁶ Boyd was concerned about the wider arena of competition and

conflict. At base in his view was the constant reminder that war is a human activity begun and ended ultimately for what is seen as moral purpose. Ultimately, one's target was always the same: the perception of the adversary leadership. If you could change their minds, you could change their behavior. If you could change their behavior, you might not need to defeat their fielded forces, or occupy their capital. The enemy always has a vote and must decide to end the conflict in order for you to win. Boyd was always reminding others that "Terrain doesn't fight wars. Machines don't fight war. People fight wars. It's in the minds of men that war must be fought."⁷

His study of military history and the synthesis he made using the insights of Sun Tzu, Liddell Hart, Musashi, Clausewitz and others led Boyd to believe that the Germans had gotten it right. Commander's intent was the key. To have a force so well schooled and trained in doctrine, so well rehearsed or experienced, as to perfectly understand the commander's intent and implement it through *auftragstaktik*—mission type orders—was essential. Such a force must be grounded in the empowerment of subordinates to do what the situation requires and to trust in their ability to make the right decisions. *Auftragstaktik* enables variety, rapidity, harmony and initiative. Everything begins with increased situational awareness and the O-O-D-A process. It was an expansion of his experience of air-to-air combat in Korea: Commander's intent, good TTP, understanding where and when advantage could be had led to achieving a successful kill. One should seek out the disposition of the enemy, much as Napoleon's skirmishers had done, infiltrate, penetrate as the Germans had learned in WWI and WW II to exploit the surfaces and gaps, the strong and weak points of opposing forces. Maneuver warfare was the way to do so and learning how to do it quickly and well was the key to victory.

Boyd, Science and Synthesis

Along the way, as Frans Osinga so thoroughly details in his book, *Science, Strategy and War*, Boyd read widely in science and philosophy. Boyd retired in 1975, (4) but he read voraciously all the major books and articles on science that appeared in the last 20 years of his life. He engaged in numerous studies and discussions ranging from mathematics to psychology, physics to biology, computing and cosmology. He would call distinguished scientists to ask a question, stating he “was just a retired fighter pilot who reads a lot.”⁸ He addressed a collection of Nobel Prize winners at the Santa Fe Institute and the Institute for Advanced Studies at Princeton. Unable to buy all the books in which he was interested, he hung out in book stores and read whole volumes transfixed in the subject matter and unperturbed by the entreaties of store owners to simply purchase the book and leave. He was interested in neuroscience and how the brain worked, how scientific progress had been made, and fields as disparate as epistemology and relativity. He explored a variety of concepts and tried to integrate them into his understanding of how the world, and conflict in it, worked. These included trying to understand the essence of such things as numerical imprecision, quantum uncertainty, entropy, the causes of irregular or erratic behavior, Heisenberg’s uncertainty principle, incomprehensibility, mutations and how and why they occur, the nature of ambiguity and its effects, and the origins of novelty.

In doing so he created what he came to call the “conceptual spiral” in which he tried to explain how we learn and why constant learning and refinement of the process are so important. One began with a question and set about to find answers. It was a spiral process which included a series of processes as follows:

Exploration
Thinking
Learning
Comprehending
Insight

Discovery
Doing
Unlearning
Shaping
Imagination

Innovation
Achieving
Relearning
Adapting
Innovation⁹

For Boyd, these insights were critical in explaining how he had come to fashion the ideas he had and to better understand how people learn. More important was to learn how to learn.

Boyd wrote little. Most important is a short 15 page essay on “Destruction and Creation,” which several notable physicists have thought a brilliant work. That, a few articles and a handbook on aerial combat are the only things he penned other than the 327 slide *magnum opus* briefing, “A Discourse on Winning and Losing.”¹⁰ He couldn’t bring himself to publish anything because it was never complete. Coming from an essentially oral culture of briefings in the military, Boyd put carefully chosen words on vu-graphs, but never in print. The “Discourse” was an unfinished conversation with each audience, part of a continuous learning experience that was unending. He learned from discussion with the audience each time and this necessitated some change in the next iteration. It was a succession of unfinished O-O-D-A Loops.

Boyd’s counsel for how to win is based first on understanding the strategic context in which the contest will take place. You could have a perfectly well defined objective, all the resources and capabilities required, and an excellent detailed plan to accomplish your mission. But if you did not understand the tactical, operational and strategic environment in which these would occur, you would not contend successfully. If you understood the context, the setting in which the contest would occur, you could use that knowledge to shape the battle-space and manage the opponent’s cycle time. Look

for mismatches, where things don't fit. Exploit the mismatches and take advantage of them. Use mission type orders and *auftragstaktik*. Maneuver your adversary into a position where he decides he cannot win.

The Legacy

Boyd led the Defense Reform Movement behind the scenes from 1975-1985, by orchestrating staffers, Congressmen and Senators on the Hill, journalists, and those in other services. Among them were Congressman Norman Dicks, Dick Cheney (future Secretary of Defense), Newt Gingrich (future Speaker of the House), and some 130 members of the House of Representatives in the Military Reform Caucus, along with Senators Gary Hart (future Presidential candidate), Charles Grassley, William Cohen (future Secretary of Defense), Sam Nunn, and others. He developed a national network of defense correspondents and influential writers—George Wilson of the *Washington Post*, James Fallows of *The Atlantic*, and reformers inside and outside the military. Along the way, he was largely responsible along with Gen Al Gray and Col Mike Wyly for the adoption of Maneuver Warfare Doctrine of the U. S. Marine Corps, and had frequent talks with Gen Don Starry and BG Huba Was de Cega of the U. S. Army regarding Air-Land Battle. Jim Fallows, wrote a number of articles in *Atlantic* for which Boyd was largely the source and an award winning book, *National Defense*, that chronicled the views of the Defense Reformers and raised their views and charges to national attention.¹¹

Boyd railed against gold-plated weapons systems with 20 plus year acquisition cycles and no fly-offs or testing in the selection processes. He worried about the Army

trying to fit synchronization in to its doctrine. For five years, a retired Air Force Colonel taught every Marine officer that went through the Basic Course at Quantico about maneuver warfare. And he kept in touch with those concerned about these and other issues, visiting then Secretary of Defense Dick Cheney with some frequency before the first Gulf War. And Boyd was pleased when military commanders and news anchors explained the U. S. victory as being attributable to “getting inside the enemy’s decision cycle,” a phrase from his strategic insight and briefings. Some of the ideas seemed to have hit home, others fell on deaf ears. John Boyd died wondering if he had made a difference. His legacy was largely unknown.

My book about Boyd was published four years after his death. It was to introduce the man and his ideas to people, in the Air Force and beyond, most of whom didn’t know him or his accomplishments. (5) I had known Boyd, worked with him on the book for nearly six years, and came to admire him, his intellect and his character. But it flew against a headwind of those who had known Boyd, disliked him and were still in senior Air Force positions. One CSAF admired Boyd. Another preferred that I not teach at the Air War College for having written a book about Boyd. Robert Coram’s book “*Boyd: The Fighter Pilot Who Changed the Art of War,*” cast him as a somewhat larger than life heroic figure. Coram, having a hefty advance and well funded book tours, helped make Boyd a more widely known figure but his book dealt less on his ideas and intellectual achievements than on his personal life. Frans Osinga, a Dutch F-16 pilot, now a General, and my former student at the Air War College, wrote his Ph. D. dissertation on Boyd’s ideas at the University of Leiden. It is a first class intellectual assessment of Boyd and

his work. His *Science, Strategy and War: The Strategic Theory of John Boyd* is the gold standard for analyzing Boyd's ideas and their origins.

Now, fifteen years after his death, after my frequent lectures abroad and multiple books and articles about him, Boyd and his ideas are known world-wide. From a Danish business school to military academies and war colleges from Australia to Norway, John Boyd is a familiar name. He is perhaps better known in foreign Air Forces than our own. His insights are valued in military, academic, and business circles. But acceptance as part of a curriculum within the U. S. Air Force is still largely non-existent. He is discussed, though not formally studied, by small groups of faculty and students at Squadron Officers College, Air Command and Staff College and the Air War College. But there are no routine lectures or elective courses on Boyd or his ideas except for a few that I have taught in the late '90s and early 2000s.

Remember that it is not just seeing or believing "things as they are" but seeing and believing "things as we are." Boyd's ideas will not change. But the Air Force's ideas about him are changing. My appearance here is proof of that. Perhaps his ideas are more acceptable in part because he is dead, as are many of those who had little use for him and his ideas. One hopes that the value of his ideas is at last appreciated. Learning how to think and act in a complex, uncertain, ever-changing world of ambiguity is a necessary skill with which Boyd can help. Understanding his concepts could be advantageous, if not necessary. Some of his ideas have become lessons learned, but many have not. Which ones will become important and remain so in the future is yet to be determined.

The point is this—you will be a large part of the making of Air Force history. The example I have given you is merely about Boyd and his ideas. Even more sobering

is the realization that you will be responsible for making the future—that becomes the history—of the U. S. Air Force. What you know, what you believe, the questions you ask, the mismatches you discover, how you assess new ideas and accept or reject them, the mavericks you protect because we need to think about the questions they raise, your ability to adapt to an increasingly complex, ever changing and largely unknown world in which you will have responsibility for the shape of things to come is how future history will be made.

Being a maverick, challenging orthodoxy, becoming a loyal heretic, is dangerous. You invest your personal faith at your personal risk. As Boyd counseled others in his famous “To Be or To Do” speech,¹² there will come a time when you have to decide whether to go along, or do what’s right. The impact you have may be greater than the rank you attain. But choosing to do this in a hierarchical structure means you must have the courage and confidence to act alone. Not everyone can or should be a maverick but we need a few from time to time to change the status quo—and make history. Billy Mitchell helped create the idea of an independent Air Force. Claire Chennault championed fighter aviation. Jimmy Doolittle used B-25’s to attack Japan from a carrier deck. Bernard Schriever gave the Air Force missiles when it didn’t really want them. John Warden finally convinced the Air Force that strategic did not equal nuclear and that tactical targets and weapons could be used to achieve strategic effects in the first Gulf War. And John Boyd taught us how to think about how best to fly, fight and win. How others see your actions will be determined as much by how they see things as what you did—perhaps posthumously.

Making history is a synonym for leadership. It is not just your life, but the lives of those around you, the way in which you and your ideas affect the world that you inhabit and the legacy that you leave. It is at once an awesome responsibility, and simply the way life is lived. The future, as you will be told many times, is in your hands. That future will largely be determined by your use and abuse of the past and how you undertake to “make history.” Here’s hoping that your O-O-D-A Loops and conceptual spirals will be the best they can be.

I would like to end this lecture the way I ended *The Mind of War*— as a salute to John Boyd and a charge to all of you. “[T]he integrity of the man and his ideas should be celebrated. We would all do well to emulate Boyd’s dictum: ‘Ask for my loyalty, I’ll give you my honesty. Ask for my honesty, you’ll have my loyalty.’ Rest in peace, John. The *Discourse on Winning and Losing* continues. *Semper Fi!*”¹³

NOTES

1. See http://en.wikipedia.org/wiki/Aircraft_losses_of_the_Vietnam_War, Robert D. Goartz, “An Analysis of Air-to-Air Missile Capability in Southeast Asia,” Maxwell, AFB, AL, June 1968, pp. 1-2, and Christopher Hobson, *Vietnam Air Losses: USAF, Navy, and Marine Corps Fixed-Wing Aircraft Losses in SE Asia 1961-1973*, North Branch, MN: Specialty Press, 2002.
2. Grant T. Hammond, *The Mind of War, John Boyd and American Security*, (Washington, DC: Smithsonian Books, 2001), pp. 77.
3. *Ibid.*, pp. 2-4.
4. Robert Coram, *Boyd: The Fighter Pilot Who Changed the Art of War* (Boston: Little, Brown and Company, 2002, pp. 342-343.
5. Colin S. Gray, *Modern Strategy*, (Oxford: Oxford university Press, 1999), p. 91
6. Qiao Liang and Wang Xangsui, *Unrestricted Warfare*, (Beijing: People’s Liberation Army, 1999).

7. John Boyd quoted by Henry Eason, "New Theory Shoots Down Old War ideas," *Atlanta Journal Constitution*, 22 March, 1981.
8. See Hammond, *op. cit.*, Ch 11, pp. 171-192.
9. "A Discourse on Winning and Losing," Slide 40, available at (accessed on 12/18/11) http://fasttransients.files.wordpress.com/2011/02/conceptual_spiral.pdf
10. The best site for Boyd's briefings and related materials is to be found at <http://dnipogo.org/strategy-and-force-employment/boyd-and-military-strategy/>
11. James Fallows, *National Defense*, (New York,: Vintage Books, 1982).
12. Hammond, *op.cit*, p. 10
13. *Ibid.*, p. 211.

SLIDES

- (1) Picture of Boyd in Uniform**
- (2) Simplified OODA Loop**
- (3) The O-O-D-A Loop**
- (4) Picture of Boyd in Retirement**
- (5) Four Books on Boyd**