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THE CREATION OF A BRANCH OF SERVICE
TO BRIDGE THE AIR AND LAND DOMAINS

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OF THE REQUIREMENTS FOR THE DEGREE OF
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Executive Summary

Title: United States Aerial Corps: The Creation of a Branch of Service to Bridge the Air and Land Domains

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Thesis: The United States Military, with the authorization of Congress and the president, should form a new branch of service, an Aerial Corps, designed to bridge the land and air domains in order to execute more efficiently the intermediary missions of close air support, airborne operations, and air assault under a single department dedicated to winning the battle between the air and land domains.

Discussion: The United States Air Force prefers to provide close air support to ground forces with multirole aircraft, because doing so allows it to use the same aircraft to perform its strategic mission of gaining and maintaining aerial supremacy in a combat theater. Similarly, the United States Army prefers heavy operations over airborne and air assault operations as a means to achieving its strategic objectives in the land domain. Yet in a changing combat environment, mission parameters often require a shift of military power between the air and land mediums. As the United States Military is currently structured, two strategic services perform this intermediary mission, and the mission is not adequately supported by either of them.

Conclusion: This research concludes that the U.S. Military's intermediary capability is deficient. The military can address this shortfall by organizing a branch of service dedicated to the fight that occurs between the air and land domains, just as the United States Marine Corps dedicates itself to the amphibious fight between land and sea.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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Preface

As an Artillery Officer in the United States Marine Corps, my primary duty is to provide fire support to the ground commander. I have served in the Marine Corps during a time of rapid expansion of the service during the wars in the Middle East and during a time of contraction in the twilight of those wars. I have heard many calls for cost-saving measures, and invariably those calls almost always seem to be directed primarily at personnel costs followed closely by fire support systems. We are no longer preparing to fight columns of Russians in the Cold War; why do we need the artillery? The answer might be, "Ask an infantryman."

Early in my career, similar calls for the scrapping of the A-10 resonated with me. Arguments that these aircraft were obsolete sounded identical to those that suggested the artillery was no longer necessary on the battlefield. Both arguments seemed to contradict my own anecdotal conversations with many combat veterans whose lives had been saved by these fire support systems. If the A-10 was so obsolete, or if the field artillery is a relic of a bygone Cold War era, then why do combat veterans speak so glowingly about them? Why was the field artillery the primary conventional force in our recent war against ISIS in Syria?

I read voraciously about the A-10 and the Pentagon Wars that spawned its existence. I learned about the U.S. Army's attempt to field the Cheyenne Helicopter in an effort to provide itself its own air support. I read multiple military professionals calling for the demise of our best close-air-support aircraft, and I watched congressional testimony debating the effects of military downsizing. I reached the sober conclusion that there is a fundamental misunderstanding of how our military structures itself to fight, and this misunderstanding is the genesis for why so many competent professionals disagree on the value of fire support systems. The military does not fight wars with interoperable forces that can perform any mission; the military fights wars with

specialized forces in each of the domains, and, in particular, the military is poorly organized to transfer combat power between the air and land domains.

This led me to the analogy of my own branch of service. The Marine Corps has been a successful institution capable of transferring combat power from sea to shore since at least the early 1900s at Vera Cruz and Santo Domingo, with a lineage that traces back even earlier to Presley O'Bannon and Tripoli in the 1800s. The Marine Corps has existed as long as there has been a Navy. Yet there is no equivalent service that performs a similar function between the air and land domains. This is why the Air Force favors multirole aircraft over the A-10 and the Army is eliminating jump slots. Neither service wants to fight in the other's domain any more than the Navy wants to fight battles on land. An intermediary branch of the military would solve this problem.

I began to think about this problem academically. It would not be easy to convince anyone to believe another branch of service is necessary. After all, the United States already has five of them, counting the Coast Guard, and we will have six if and when the Space Force formally comes online. Added bureaucracy, to be sure, will not assist the joint fight. But a measure of bureaucracy and its effects is not the sole method to measure effectiveness in a military. We must look at task organization and critically question whether we are prepared to meet our assigned mission with the appropriate tools to complete the job. I have concluded that a small, dedicated force can solve the intermediary air-land problem, and I have taken the opportunity to study this problem in detail. For those who might have the ability to effect future structural change, I propose this thesis for consideration and implementation.

I would like to thank my mentor, Dr. Christopher Stowe, for his dedication and understanding in assisting me with this effort and providing the patient guidance not required but

badly needed to ensure completion. Lieutenant Colonel Winston Gould, USAF (ret.), provided critical advice to ensure that this research was focused and relevant, which protected the viability of the thesis and gave me new perspectives on the Air Force and this particular subject. Lieutenant Colonel Christopher Curtin, USMC, my faculty advisor, and Lieutenant Colonel Bradley Pennella, USMC, my former Battalion Commander, along with many other Marine Officers, leaned the heavy weight of decades of Marine fire support experience into my professional development and the formation of my individual perspective of the Marine Corps, and for that I am grateful. I would also like to personally thank the faculty, staff, and leaders of Marine Corps University and USMC Command and Staff College, both past and present, for providing the environment and opportunity to set forth this thesis that otherwise would not have come to existence in any meaningful form.

I owe a special thank-you to my peers, who tenaciously challenge me daily to seek the daunting heights of professional excellence that the deployed Lance Corporal deserves. Thank you to my parents, Paul and Christina, my five brothers, my sister, and their spouses, along with my many nieces and nephews; they will never fully understand how much their love motivates me to service. And to Mariana, thank you: you are the fresh air that motivates me to live.

Introduction: The strains of the strategic services

General Mark Welsh, former United States Air Force (USAF) Chief of Staff, sat down to his committee hearing on the Fiscal Year 2017 budget[1] and announced his plans to phase out the primary close air support (CAS) aircraft in the U.S. inventory due to constraints in the military budget.[2] In doing so, the Chief of Staff proposed the F-15 and F-16 platforms perform the CAS mission in the A-10's stead. The Chief of Staff's argument was nearly identical to the argument of General Wilbur Creech in front of the same committee nearly 35 years prior in 1982, when Creech suggested the F-16 could perform the A-10's mission.[3] In response to Welsh, Sen. John McCain, the Chairman of the Senate Armed Services Committee, disagreed with this plan, posing the question to Welsh why the military was not using those replacement platforms for CAS to the extent the A-10 is used in Iraq and Syria. McCain called the reasons for the phaseout of the A-10 an "embarrassment" and "disingenuous" given the relative cost-effectiveness and performance of the A-10 in CAS situations relative to the F-15, F-16, and F-35.[4] Such contention indicates that perhaps CAS is a problematic mission for the USAF, which is tasked with achieving air supremacy, dominance through strategic bombing, cybernetic operations, transportation of forces, and strategic deterrent via two legs of the nuclear triad.

The United States Military fights between air and land domains with two distinct forces that have two disparate strategic missions. This creates inefficiency that leaves the Joint Force Commander with patchwork solutions to fight the battle that occurs between two domains. Whereas the U.S. Military has mastered the fight between land and sea mediums, it has failed to appropriately address the gap that exists between the air and land mediums. The United States Military, with the authorization of Congress and the president, should form a new branch of service, an Aerial Corps, designed to bridge the land and air domains in order to more efficiently

execute the intermediary missions of close air support, airborne operations, and air assault under a single department dedicated to winning the battle between the air and land domains.

The National Security Act of 1947 established the USAF by creating the service from the United States Army Air Forces (USAAF)[i] as an independent branch of the military[5] in order to dominate the skies with aerial superiority and to provide strategic bombing as a psychological and material deterrent to the nation's enemies.[6] The USAF and its early advocates, such as Billy Mitchell, dedicated itself to bombing, strike, and pursuit capabilities,[7] insisting it could perform the strike (CAS) mission in support of land forces more effectively as an independent service. Once severed from the United States Army[ii], the USAF only reluctantly embraced the CAS mission for ground forces by preferring multirole aircraft to perform the mission, which led to disagreements with the Army.[8] Only once the Army threatened the USAF CAS mission by developing the AH-56 Cheyenne Helicopter to provide its own responsive CAS did the USAF develop an aircraft solely devoted to the CAS mission.[9] The USAF developed what would become the current primary aircraft in the U.S. inventory designed specifically for the CAS mission, the A-10C Thunderbolt II (unofficially called the "Warthog"). Designed to fly low and slow with high maneuverability and an ability to survive and loiter, purported to be capable of countering columns of Soviet tanks with massive firepower, the aircraft filled a gap in the USAF promise to provide CAS. Yet its existence was under assault almost from the moment it had been proposed.[10] By 1991, shortly after the Warthog's unqualified success in its first combat action during the Persian Gulf War, the USAF was already testing alternative platforms, such as the A-16 (a modified F-16), to replace the A-10.[11] With the development of the multirole F-35

[i] The United States Army Air Forces had previously been known as the United States Army Air Corps (USAAC) until 1942 when it was assigned more independence from the Army headquarters and redesignated the USAAF.
[ii] This paper will refer to the United States Army as 'the Army' (capitalized) and refer to specific foreign nations where necessary to form a distinction. When referring to a generic army, the term will not be capitalized.

platform, the USAF once again considered options for restructuring the A-10 program as early as 2003,[12] despite the A-10's subsequent success in Bosnia, Iraq, and Afghanistan. In consideration of the Fiscal Year 2015 budget during a period of "sequestration" since the advent of the Budget Control Act of 2011, the USAF again proposed removing the A-10 from service in favor of the F-35 in order to save $3.7 billion over five years.[13] Following congressional objections, and given the A-10's success in Libya and in Syria, Congress instead appropriated funds to refurbish the A-10, and the USAF once again abandoned plans to remove the aircraft from service until at least 2021.[14] The USAF continually strives for cost savings, sensitive to its relatively high operational budget required to execute its many strategic missions, thus preferring multirole aircraft to specialized platforms,[iii] particularly when that specialized platform focuses on the tactical fight and contributes little to the strategic fight.

The USAF being incapable or unwilling to support its primary CAS platform creates a lack of support for ground forces who need or want the support. The Army, however, presents its own challenges to the intermediary mission when it fails to prioritize its forces designed to operate in the air. When the Army seeks to streamline its budget, one of the first reductions proposed is its airborne capability. As a result of sequestration in 2011, the Army in 2013 reduced its jump slots by 2,600 across 24 units to a total of 49,000 by removing the XVIII Airborne Corps headquarters from jump status, and it deactivated its 4th Brigade Combat Team, 82nd Airborne and 5th Battalion, 101st Combat Aviation Brigade.[15] Airborne operations are not short of critics, as some analysts have questioned their effectiveness since achieving mixed

[iii] The A-10 can perform multiple missions in addition to CAS, to include air interdiction, strike coordination & reconnaissance (SCAR), and combat search and rescue (CSAR) missions. Notably, the A-10 is the only platform certified to perform the CSAR mission, with no aircraft identified to replace it, according to the Government Accountability Office (GAO). The aircraft is not considered multirole, however, because it is not designed to perform either offensive or defensive counter air (OCA/DCA) missions in addition to its air-to-ground mission.

results at the advent of the tactic in World War II. Dr. Marc DeVore has long criticized the Army's maintenance of airborne capability as less a result of effectiveness and more as a form of parochial institutionalization.[16] Although the 82nd and 101st Airborne Divisions have a distinguished history of combat service, most of that history has been achieved in a conventional manner, as ground forces achieving objectives without insertion via a combat jump. The 101st and 82d Airborne Divisions and their subordinates, despite participation in—and multiple deployments to—every major U.S. conflict since World War II, has just eight combat jumps[17] during that period.[iv] Although limited in its combat operations, the Army has maintained more or less than four brigades of airborne units since World War II, even increasing its airborne footprint despite relatively sizeable cuts to its standard divisions since the end of the Cold War.[18] Yet the capability to vertically envelop the enemy and conduct airborne joint forcible entry has been a deterrent to the nation's enemies,[19] and it has not proven to be a capability that the Department of Defense or civilian political leadership desires to be completely eliminated in the foreseeable future. Indeed, DeVore suggests the creation of a new branch of service as the strongest method of institutionalizing capabilities that are "either technologically most revolutionary or vital for national security."[20] Because the capability to conduct airborne operations is thus not deemed so vital, it has been institutionalized within the existing strategic branch of the Army. The danger to the viability of airborne operations, however, is that "too little institutionalization can impede innovation," resulting in "military inefficiencies and misspent resources."[21]

[iv] GlobalSecurity.org counts 34 American Military combat assault landings (defined under the provisions of Army Regulation 600-8-22, paragraph 7-25) since June 23, 1945. The number derived here includes all jumps in which units of 82d or 101st Airborne Divisions have participated since that date. 75th Ranger Regiment, part of Army Special Operations Command, has nine combat assault landings, more than 82d and 101st Divisions combined.

This paper is agnostic to the future of CAS or the military's airborne capability, but advocates that insofar as leadership prefers to maintain them, their effective employment depends on their 'institutionalization' in an independent branch of service that can bridge the gap between two strategic services that have at times advocated for their demise. The remainder of this paper will explore the structure, mission, and employment of that force, to be known as the United States Aerial Corps (USAC).[v]

A proposed structure for an Aerial Corps

A branch of service dedicated to the intermediary air-ground fight would organize the nation's CAS and airborne forces into a more efficient interface between the air and land domains, and it would liberate the land and air services to concentrate on their respective strategic missions. The proposed branch of service is best organized under the 'Department of the Air Force' to alleviate structural financial and logistical issues and to relieve the Army of its airborne and air assault missions. The mission of the United States Aerial Corps would be to operate in the air and land domains as an independent branch of the military within the Department of the Air Force to secure America's interests by providing aviation, aerial assault, close air support, assault support, combined arms, light maneuver, and security to the joint force (see Figure 1).

[v] Proposed name of the intermediary service. The formulation intentionally aligns with the naming of the United States Marine Corps, since both services perform the intermediary mission.

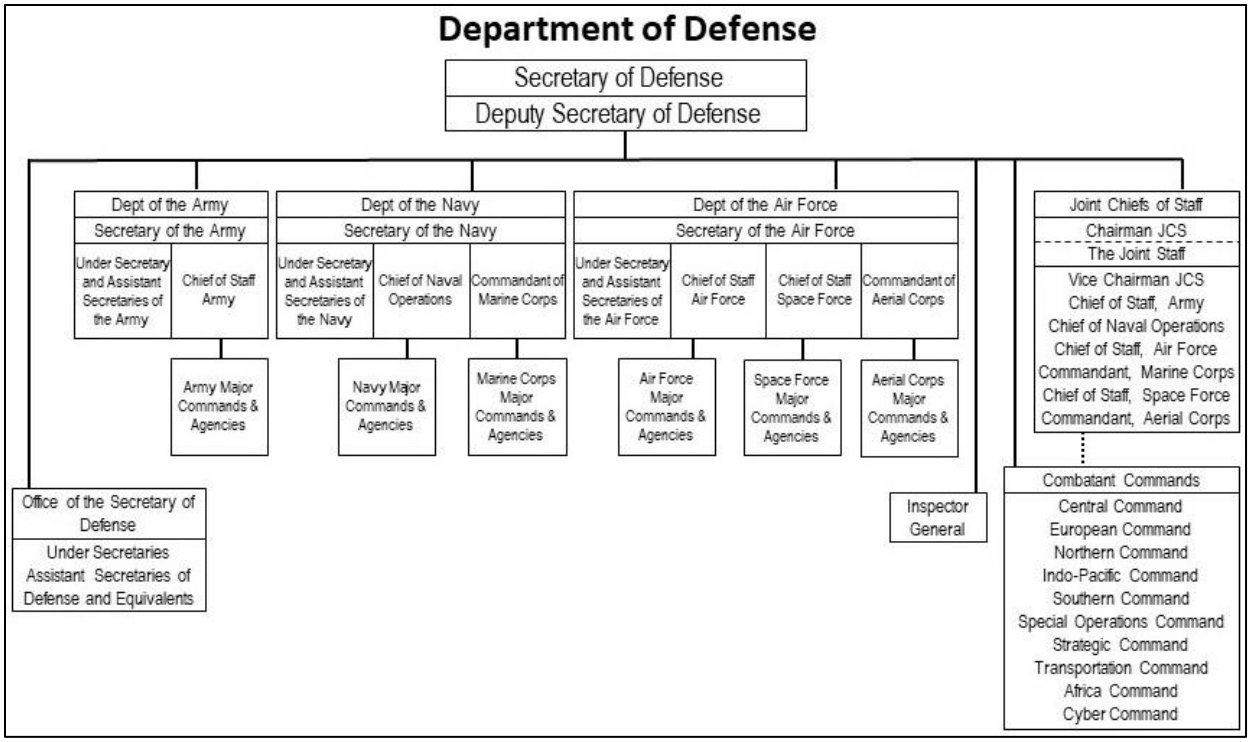

Figure 1. Proposed DOD organization chart with Space Force and Aerial Corps added

Source: Organizational & Management Planning, ODA&M, OSD, January, 2008. Adapted and updated from DOD Guidebook, accessed 16 Apr 2019, http://web.archive.org/web/20170610121924/http://www.netage.com/economics/gov/images-org/DoD-org-chart.pdf.

Ideally, the USAC would comprise a corps of all airborne and air-assault units of the Army; the tactical fighter squadrons of the USAF that employ the A-10 aircraft; and nearly all Army and USAF units that support the 82d Airborne Division aboard Pope Field, NC, to include a portion of USAF fixed-wing transport aircraft (see Table 1). This would provide the USAC with the mobility required to conduct exercises and operations that sustain and project its airborne capability.[vi] Because the preponderance of these units that would form the nucleus of the USAC are already in existence, this effort to realign the force would amount to a headquarters restructuring and the establishment of a new chain of command that relieves the USAF of conducting CAS as a primary mission and the Army of its airborne and air-assault missions.

[vi] Special forces units are beyond the purview of this paper. Although additional units in the future could include the CV-22 and special operations squadrons of the USAF or special operations units of the Army or USMC as deemed appropriate, at the nascent stages of the newly created service, designating special forces units is likely premature.

Although designed as a self-sustaining force capable of operating in and owning battlespace, the Aerial Corps would rely heavily on the USAF for aircraft logistics and finance while drawing a substantial portion of its ground logistics from the Army. This construct is similar in effect to the relationships the United States Marine Corps (USMC) maintains with the United States Navy (USN) and the Army. The net effect of such a restructuring would provide more efficient and dedicated forces to the intermediary air-land domain to achieve greater effects in the joint fight.

Table 1. Notional list of the components of an aerial corps and aerial corps reserve

Department of the Air Force, United States Aerial Corps Forces Assigned			
Originating service	**United States Army**	**United States Marine Corps**	**United States Air Force**
Units derived	XVIII Corps (HQ) -82d Airborne -101st Airborne (Air Assault) 18th FA Brigade 20th Engineer Brigade	Elements of ANGLICO	18th Air Support Opns Group 43rd Air Mob Opns Group 25th Fighter Squadron 66th Weapons Squadron 74th Fighter Squadron 75th Fighter Squadron 354th Fighter Squadron 357th Fighter Squadron
United States Aerial Corps Reserve Forces Assigned			
Originating service	**United States Army Reserve**	**United States Marine Corps Reserve**	**United States Air Force Reserve**
Units derived	81st Readiness Division	-none-	45th Fighter Squadron 47th Fighter Squadron 76th Fighter Squadron 303d Fighter Squadron

The Army's XVIII Corps could form the basis for a headquarters of the USAC. Based in Fort Bragg, North Carolina, the home of the Army's airborne capability, the headquarters unit exists as a rapid deployment, "strategic response force capability" and assumes a contingency mission.[22] Commanded by a three-star general, the XVIII Corps is well-suited to form the nucleus of a branch of service needed to address the gap between the air and land domains. Together with elements of the USAF and the Army, the U.S. Military could permanently devote

the force necessary to overcome the challenges that it currently fights with patchwork solutions derived from multiple services.

Why there are diverse branches of the military

The people of a nation expect their military to meet and defeat any challenge to sovereignty when diplomacy fails.[23] To defeat challenges to sovereignty, a nation diversifies its military in accordance with its need to dominate adversaries in each respective *medium*. The *mediums* are the elemental or cognitive arenas in which a nation can expect to be challenged by an adversary; these include air, land, sea, space, and cyberspace. A nation assigns its branch of services to the respective mediums in which those branches are expected to perform, outlining for those branches the *domains* in which the branches are to operate.[vii] The most basic and prevalent form of a nation's military is manifested in its land forces. More advanced and seafaring nations form a portion of their militaries in the nation's naval forces. As technology increased the ability to fly, so too did the need for nations to operate in the skies with their air forces. These are the strategic forces, those forces charged with dominating the mediums through which people move and operate. These strategic forces are most effective when they operate within their assigned domain. A nation's people, therefore, expects their nation's strategic services to dominate the mediums to which they are assigned.

Services must therefore dedicate their efforts to those assigned mediums, and resist the mission creep that might draw them into extending the battle out of their domains into other mediums. The navy, for example, cannot be expected to achieve air supremacy, as this

[vii] For the purposes of this paper, the difference between a *medium* and a *domain* is slight, but important. A strategic force is assigned to one medium, but its assigned domain might include more than one medium. For example, the Army is assigned a mission to battle in the land medium, yet its domain is not only the land, but also includes relatively smaller portions of the air, sea, space, and cyberspace.

undoubtedly would draw resources away from the navy's primary mission of naval supremacy. Yet the navy is not expected to *abstain* from operating in the air domain, as this would severely limit its ability to defend its fleets, and itself detract from its mission to dominate the seas. The navy therefore is assigned a portion of the aerial medium as part of its domain and can be expected to fly aircraft in order to protect its valuable assets at sea. The analogy continues for the army, which operates both in the air and at sea; and the air force, which operates in the aerial medium, but could perform missions on land or at sea if necessary, striking naval assets that threaten its own assets in the air, for example. Although some nations, to be sure, have tried to assign multi-domain responsibilities to their strategic forces, for example charging an air force with achieving naval air superiority, those missions are most efficiently left to the strategic forces assigned to those respective mediums.

How the United States operates in the mediums

The United States, like most nations, fields and operates the strategic services in the land, air, and sea. Recently, the United States has proposed the creation of a space force to meet adversaries in the space medium, which in years past has been limited by technological limitations and a desire not to militarize space.[24] The United States also fields and operates what might be called the intermediary services, those services charged with operating in more than one medium, not specifically for the purpose of dominating those mediums, but with the ability to transfer combat power efficiently between domains. The primary example of this is the USMC, which performs its amphibious and expeditionary missions as an intermediary force between the land and sea. Not every nation of the world that operates an army and a navy also

has a marine corps,[viii] and of those that do, fewer provide an amphibious capability that transfers combat power ashore.

The United States Army was created out of necessity for a land force to meet British forces in the American Revolutionary War. The Army operates as a conglomeration of its various specialties, each "branch" having been established as military necessity evolved. For example, although the Army traces its birthdate to Congress establishing ten "companies of expert riflemen" on 14 June 1775,[25] the Army Field Artillery Branch was not established until 17 November 1775. The Army Signal Corps was not formed until the Civil War, and the Civil Affairs Branch was not formed until the 1950s. While each of these branches perform discrete functions and specialized, technical missions in service to the Army, what they all have in common is they perform primarily in one medium, in service to accomplishing military objectives on land.

[viii] Approximately 110 nations operate a naval force, but only slightly more than 50 nations maintain naval infantry forces. (*Source: compilation of https://www.globalfirepower.com/navy-ships.asp and https://www.globalsecurity.org/military/world/marine-corps.htm*)

Table 2. Branch formation of the United States Army

Branch formation of the United States Army	
Basic Branch	**Date Formed**
Infantry	14 June 1775
Adjutant General's Corps	16 June 1775
Corps of Engineers	16 June 1775
Finance Corps	16 June 1775
Quartermaster Corps	16 June 1775
Air Defense Artillery	17 November 1775
Field Artillery	17 November 1775
Armor	12 December 1776
Ordnance Corps	14 May 1812
Signal Corps	21 June 1860
Chemical Corps	28 June 1918
Air Corps	*2 July 1926-18 September 1947*
Military Police Corps	26 September 1941
Transportation Corps	31 July 1942
Civil Affairs	17 August 1955
Military Intelligence	1 July 1962
Aviation	12 April 1983
Special Forces	9 April 1987
Psychological Operations	16 October 2006
Logistics	1 January 2008
Cyber	1 September 2014

Branch formation of the United States Army	
Special Branch	**Date Formed**
Army Medical Department	27 July 1775
Medical Corps	27 July 1775
Army Nurse Corps	2 February 1901
Dental Corps	3 March 1911
Veterinary Corps	3 June 1916
Medical Service Corps	18 May 1917
Medical Specialist Corps	16 April 1947
Chaplains	29 July 1775
Judge Advocate Gen Corps	29 July 1775

Source: U.S. Army Center of Military History, accessed https://history.army.mil/html/faq/branches.html

The exception to these branches was the Air Corps, established in 1926. This branch was originally established as the United States Army Air Service (USAAS) in 1918, subsequently as the United States Army Air Corps (USAAC), and finally as the United States Army Air Force (USAAF) just prior to World War II. Although the USAAF performed semi-independently of the Army, it remained a branch of the Army until Congress passed the National Security Act of 1947,[26] which formed the USAF as an independent branch of service co-equal to the Army and USN. What made the Air Corps unique from the other Army branches such that it required equivalent status to the Army's strategic service headquarters? Why did the Air Corps become an independent branch of service while the Field Artillery branch did not? The answer is found in the mediums in which these branches fight. Whereas the Infantry, Field Artillery, Signal Corps, Engineer Corps, Air Corps, etc., all perform or performed discrete functions for the

Army, only the Air Corps and the Cyber Corps[ix] perform their missions in another medium.[x] Airborne parachutists are not treated as a branch of the Army, because a soldier from any military occupational specialty (MOS) theoretically can become airborne qualified; to be airborne qualified is therefore treated as a special skill under the given MOS. Given the intensive training requirements, specially designed equipment, and dedicated airborne units that require parachutists to operate in multiple domains, the Army could benefit from making this special skill a branch of its own. Perhaps these parachutists would more efficiently perform their services by contributing to the joint fight on behalf of an independent branch of the military.

From the foundation of the republic, Congress recognized a need for an independent navy because of the many challenges presented to the young nation at sea.[27] Congress resisted the creation of a standing army, but recognized the need for a permanent navy, codified into the original Constitution, because of the specific threats in the sea domain.[28] It was not sufficient to authorize a branch of the Army devoted to maritime objectives. Establishing, building, and provisioning a navy was beyond the scope and purview of the army. The Department of the Navy was a cabinet-level position within the government, and it would not be until the mid-20th Century that the Department of Defense as a

[ix] The Army established the Cyber Branch on 1 Sep 2014 under authority of Section 3063(a)(13), Title 10, US Code. Just as the USAF was formed out of the Army, and the Space Force is proposed to be formed out of the USAF, it is likely that the future will portend a necessity for an independent branch of service dedicated to cyberspace as the fifth medium in which the US Military operates. Almost as soon as the US Military had begun to address cyber threats were there calls for a dedicated branch of service (see Caristi [2017]). Indeed, many leaders in the cyber community had called for a new federal agency to be responsible for all cyber security. In particular, Microsoft was a proponent of this effort, and Congress created the Cybersecurity and Infrastructure Security Agency (CISA) under the Department of Homeland Security (DHS) on 16 Nov 2018. The act gave CISA similar stature to the Secret Service or the Federal Emergency Management Agency, with a mandate to "improve the cyber-security defenses across other US federal agencies, coordinate cyber-security programs with states, and bolster the government's overall cyber-security protections in the face of mundane criminals and nation-state hackers." (Cimpanu, 2018) The individual branches of service, therefore, are poorly equipped to attempt to fight in the cyber domain when there is such strong mandate for a devoted service or agency to prosecute the cyber fight.

[x] The Aviation Corps, like the Air Corps, operates in the air domain, but its mission is dedicated to land-based objectives.

branch of military service. So dominant was the need for a maritime force that this service continued with equal stature to the War Department until the reorganization of the military forces in 1947. Yet it took four decade—from the advent of flight to the recognition of this need for the aerial medium—to formally recognize the strategic demands of all three mediums and their respective dedicated services.

As these three strategic services were created to dominate their respective domains, the United States also elects to maintain dedicated functions of the military that operate between mediums. These intermediary services, unlike the strategic services, are not essential for a nation to protect its national interests, but they are essential to employ its military effectively because they are responsible for transferring combat power between mediums. This is a function of the size of the U.S. Military as well as its mission, which has expanded in the 20th Century to become a global mission. Because of the many and varied missions of the Department of Defense, its budget tops $716 billion, with a work force of 2.87 million personnel that represents America's largest employer, and missions in more than 160 countries at 4,800 defense sites on seven continents.[29] This widely scoped mission requires robust subordinate strategic services, with efficient intermediary services that project power from one medium to the next. If the strategic imperative were not so great, the intermediary mission would not be so necessary. Smaller nations operating compact militaries with smaller strategic imperatives can afford to accomplish the intermediary mission without dedicated forces.

A nation would not want to limit its military from transferring power between domains, as wars tend to be dynamic and tend to change their character as belligerents seek to gain an advantage. A nation's military fighting at sea via its navy, for example, may seek to threaten its adversary by projecting power ashore to threaten that adversary. The nation's leaders thus

recognize and authorize the military to transfer such power, by using the services designed to transmit combat power by the most effective means available to do so. How might a military perform this transfer of force efficiently? The answer is primarily the intermediary services, those services that bridge the air, land, and sea domains. The primary example is in a nation's marine forces, which often serve as an amphibious force to project power from sea to shore (and perhaps vice-versa). Similarly, a coast guard might perform a law enforcement function that bridges the deep-sea domain of the navy and the homeland.

At present, the United States primarily transfers combat power in an amphibious manner from sea to land via the USMC. The nation maintains a capability to project amphibious power anywhere on the globe in order to defend its vital national interests. A marine corps is certainly not essential to executing this mission. Given enough personnel with enough firepower, perhaps with Army-embarked personnel, the Army and USN could perform the amphibious mission without the USMC. The Army could develop its own "amphibious branch" capable of executing this mission, as it had accomplished it in Normandy, the Pacific, and Italy in World War II. Employing two strategic branches of military power to accomplish the amphibious mission, with a unified command of the assault force, appears to be in the best practices of Joint Operations,[30] but what appear to be best practices on paper can be deceptive and extremely inefficient in practice. The level of coordination, planning, and training necessary to field and maintain this tactical, intermediary capability is elaborate and taxing, and it would be detrimental to perform given the two services' respective and dedicated strategic missions to dominate the land and sea mediums. The question remains: why would the Department of Defense want its subordinate strategic forces to operate in this manner when it can choose the more efficient route? The USMC properly performs this mission as an independent branch of the military that is

expeditionary in nature and dedicated to perfecting and performing amphibious operations. The United States, therefore, efficiently bridges the sea and land gap with a force dedicated to mastering the amphibious capability.

While the United States has perfected, or at least addressed, the amphibious bridge between sea and land with the USMC, it has simultaneously neglected, or not addressed, the 'avian' bridge between the air and land domains.[xi] Both the Army and the USAF already perform the intermediary avian mission by supporting one another. For example, USAF strike aircraft perform CAS and ground interdiction; or Army airborne forces perform vertical envelopment or air-assault missions. Or perhaps both services perform in their respective domains to achieve the same objective: USAF provides transport and air interdiction in support of achieving a broader U.S. Military land mission; or the Army might secure airfields suitable for USAF aircraft performing a greater strategic bombing mission. To accomplish these various missions outside each strategic service's assigned domains, however, requires both investment of resources in the cross-domain capability (e.g. the USAF's primary complaint against the A-10) and mastery of the specific skills and logistics required to perform these tasks (e.g. the Army's airborne capability). The Department of Defense's bridge between the air and land domains is thus neglected by dividing the responsibility between the two strategic branches, because this division of responsibility detracts from each strategic service's respective ability to dominate the land and air domains—just as a lack of a Marine Corps would hamstring the USN and Army in the sea-to-land, amphibious battle.

[xi] There is no suitable synonym that describes 'relation to the air and land' like *amphibious* describes 'relation to the land and sea.' The term *amphibious* at its etymological root comes from the Greek for 'both' (*amphi-*) and 'life' (*bios*) to describe a thing of dual nature. In that respect, *amphibious* is a misnomer to describe *only* those things related to land and water and more generally refers to things that are dual-natured, only adopting its land/sea connotation in Latin to describe those animals that live in both aquatic and terrestrial environments. If the sea and land gap can be called an 'amphibious' gap in homage to the nature of those amphibians, perhaps the air and land gap can be called an 'avian' gap in homage to the nature of flying creatures that nevertheless live on land.

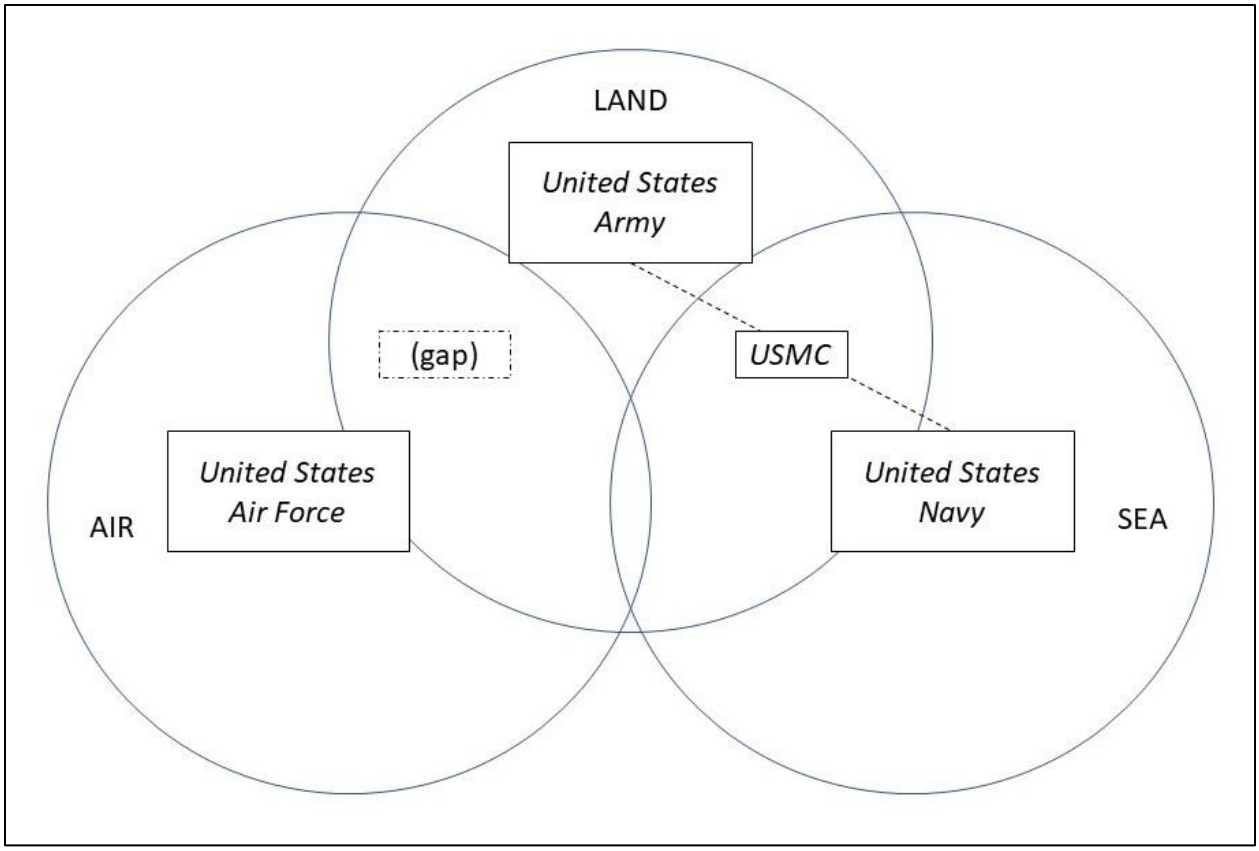

Figure 2. The gap between the air and land mediums. The USMC fills this gap between the land and sea mediums.

While the USMC maintains an amphibious character capable of conducting forcible entry globally, the USAC would similarly provide an avian character capable of conducting forcible entry through vertical envelopment. A compartmentalized, dedicated USAC would be devoted to the Department of Defense's specific cross-domain capability and develop the mastery required to enable the transfer of combat power from air to land. A future war might entail the USAC to conduct Joint Forcible Entry Operations (JFEO) to secure inland lodgments, airfields, and real estate necessary for projecting airpower forward while setting the conditions for heavy follow-on by Army land forces. Another service dedicated to conducting JFEO would diversify the Department of Defense's forcible-entry portfolio, provide greater options to the Joint Commander, and create a two-pronged, amphibious/avian threat for the nation's enemies, who presently need only guard against the amphibious threat. Such an independent USAC would not

be limited in its ability to provide fire support or logistics to defend and sustain itself, given the strong CAS and airborne capabilities that these existing, neglected units provide to their respective strategic service headquarters.

How the United States bridges the gap between domains

Since the Goldwater-Nichols Act of 1986, the U.S. Military has fought as a joint force, with task-organized forces designated to a Combatant Commander responsible for a geographic or functional command.[31] The benefits to operating in a joint manner are virtually self-evident, as it prevents stovepiped organizations that operate completely independently of one another in the national interest. A joint force brings many benefits, to include compatible equipment and streamlined doctrine, as well as clarified chains of command. The ability to select the right mixture and quantity of forces to achieve a military task, supplemented by interagency and intergovernment organizations, is a powerful means of achieving desired political ends with all instruments of national power. What the joint force does not, and should not, advocate is the complete homogenization of its various capabilities into one Department of Defense morass, a jack-of-all-trades monolith of bureaucracy. No airman is expected to be a submariner, and no naval aviator is expected to fly cargo aircraft for the USAF. On the contrary, the Department of Defense relies on the diversity of its subordinate military branches to excel in their respective domains, by specifically training its forces to perform their respective service branch's assigned mission. When tasked to execute a mission, the combatant commander reviews forces available, selects the best forces to perform the mission, and requests additional forces where the force requires that specialized capability. In this manner, the Department of Defense can field the best,

most well-trained air force, navy, or army forces efficiently without sacrificing combat effectiveness and capable of performing those geographical or functional missions.

In the organization, training, and equipping of military forces, the Department of Defense prepares its subordinate branches to adapt to any mission without limiting those branches from performing tasks in more than one domain. The USN's primary means of securing naval supremacy is through its capital ship, the aircraft carrier. Given the ability to project combat power, the USN does so with its surface and subsurface fleets, but its carriers also do so in the air medium, often embarking a carrier wing with up to 70 aircraft on those ships' deployments.[32] In the earliest days of carrier aviation, a professional debate ensued regarding naval aircraft and whether those aircraft more appropriately should operate under the air force.[33] In Great Britain, the Royal Air Force did assume authority of naval aviation to disastrous results from which it took decades to recover, a period of time that Great Britain arguably lost the advantage of carrier aviation to ascendant powers Britain, Japan, and the United States until the eve of World War II.[34] In a similar vein to naval forces operating in the air medium, the Army flies helicopters in support of its ground forces. Helicopters operating in the air medium does not equate to a task to achieve aerial superiority or supremacy in that medium; those missions are left to the USAF with offensive and defensive counter-air aircraft. It would be severely detrimental and inefficient to consolidate all helicopters under the purview of the USAF simply because helicopters by nature operate in the air medium, and doing so would hamstring the Army's ability to dominate terrain with combined arms. Each strategic service, therefore, is not forbidden from operating in more than one medium, but each is charged with dominating its assigned domain.

The U.S. Military performs its mission in all domains, and it operates in a cross-domain capacity by task-organizing its forces in a joint construct. This combination of military

capabilities into joint operations maximizes the military's capacity to operate in all domains effectively to accomplish an assigned mission. Between the sea and land domains, the USMC operates with combined-arms and maneuver, incorporating amphibious forces in the air, land, and sea to achieve results and transfer combat power between the two domains. Between the land and air domains, the military operates airborne and aviation assets in the Army and the USAF, but unlike the USMC, which services the sea and land domains, there is no comparable branch of service to house and direct these intermediary air and land forces efficiently. In a specialized capacity, the United States Coast Guard performs a law enforcement function in the maritime domain to defend the homeland, and it can be mobilized under the Department of Defense in a time of war. Other interagency organizations provide enabling services, such as the Federal Bureau of Investigation, Customs & Border Protection, and Central Intelligence Agency, without assuming the role of a military force, because they are not responsible for dominating a given domain.

Ideally, if resources were unlimited, the U.S. Military would field a strategic service in each of the five domains and operate an intermediary branch of service between the land domain and all other domains (air, sea, space, cyberspace). This ideal is most practical for the sea-land and air-land intermediaries, but is less practical for the space-land and cyber-land intermediaries given the relative immaturity of the space and cyber forces assigned to those domains. In the future, as technology advances and the ability to navigate those domains becomes simpler and demands greater protection from foreign attack, the need for the space-land and cyber-land intermediary forces will become more pronounced.

Is a joint force better served by multiple disparate services or one unified force?

A leading criticism against the creation of an aerial corps is that it would create another bureaucracy in a joint doctrine designed to streamline the existing bureaucracies. While this argument is not entirely without merit, it is somewhat misleading. In a massive bureaucracy such as the million-man Department of Defense, a hierarchical structure is the only practical way to achieve results.[35] In such organizations, particularly in the military, which relies on a rank structure to assign responsibility for the lives of its personnel, operation without structure is not only dangerous but *even less* effective. The disparate capabilities do not naturally unify around a common purpose or objective, but seek other structures in which to form, often where they can thrive with the most support and financial viability. This has been true of the Army Airborne forces. Instead of autonomously and logically organizing itself with its kindred aerial platforms, it remained a part of the Army when the USAAC was separated into its own branch of service. Meanwhile the CAS platform, the A-10, was born in the USAF and continually resides in the USAF, despite the platform detracting from the USAF's strategic mission, and despite (ultimately rejected) suggestions to give the A-10 to the Army when the USAF sought to cancel it.[36] In other words, the creation of a bureaucracy within the bureaucracy of the Department of Defense specifically for these air and land forces would not detract from the intermediary avian mission, but would facilitate those forces in the performance of their duties by marrying them together into an air-land function of an aerial corps. In doing so, these forces would hone and perfect their skills with dedicated leadership supporting the avian mission, thereby making the aerial corps more responsive to the other services in the joint fight. Moreover, dedicating an intermediary branch of service to the intermediary air and land battle would relieve the strategic services of the responsibility to provide those intermediary capabilities to the joint commander.

Each branch of service brings a unique capability to the joint fight. The combatant commander task-organizes his force to meet the demands of the mission. He can select primarily air or naval forces, vice land forces, if the mission or political limitations require it to achieve desired results, but he does not select those forces in order to blend their specialties together. Disparate forces enhance the mission by diversifying the force-multiplying effects of combined arms, not by seeking to perform similar missions. This is the reason that the military maintains the various branches even with the advent of joint doctrine, because those various forces must excel in their respective domains. Joint doctrine simply streamlines the gaps between the multiple branches of service by creating the unified command that can transfer military power among the many domains.

How a dedicated branch of service for the aerial corps better serves the joint model

A dedicated USAC that unifies the nation's airborne, air assault, and close air support capabilities frees the strategic forces to dominate in their respective domains. An unrestrained Army could focus on building land combat power and the logistics to sustain it without having to maintain aircraft or rely on the USAF to support airborne operations. Having transferred the bulk of its assault support aircraft to the USAC, the Army would be relieved of the training, maintenance, and logistics burden of those aircraft. The airborne forces would form the nucleus of the new branch of the military. Close air support would be consolidated into its own dedicated force of subject-matter experts and CAS would be more responsive for the other branches of service. An unrestrained USAF could focus on strategic deterrent and aerial domination while a dedicated task-organized force secured its interests on the ground. Although financially responsible for the USAC under the Department of the Air Force, the Secretary of the

Air Force would be able to justify increased funding to provide for that branch of service, and the department could spend more organic funds on its preferred strategic programs. Having a dedicated branch of service whose mission would likely perform vertical envelopment to secure inland lodgments and airfields would mean the USAF would no longer have to rely on the Army to perform that mission.

Joint doctrine is continuously evolving, but integration of forces is an increasingly essential theme in the answers to questions how the Department of Defense will carry out its mission in the future. In the contemporary and future environment where conflicts are not limited to geographic domains, military campaigns will become globally integrated operations (GIO) where "Joint Forces will leverage better integration to improve cross-domain synergy—the complementary vice merely additive employment of capabilities across domains in time and space."[37] Perhaps task forces will be formed and deployed rapidly and temporally to counter a crisis in a remote corner of the globe that does not adhere to traditional concepts of geography.[38] In this instance, having a dedicated branch of service accustomed to operating in multiple mediums and across domains would posture the joint force to adapt to this asymmetric threat. That branch of service is the United States Aerial Corps.

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