AU/ACSC/157/2000-04

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

NEW MISSIONS FOR THE CV-22 "OSPREY"

IN A CHANGING WORLD

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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April 2000

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (FROM - TO)
01-04-2000	Thesis	xx-xx-2000 to xx-xx-2000

4. TITLE AND SUBTITLE
New Missions for the CV-22 "Osprey" in a Changing World
Unclassified

5a. CONTRACT NUMBER
5b. GRANT NUMBER
5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Settergren, Daniel J. ;

5d. PROJECT NUMBER
5e. TASK NUMBER
5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME AND ADDRESS
Air Command and Staff College
Maxwell AFB, AL36112

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS
,

10. SPONSOR/MONITOR'S ACRONYM(S)
11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
APUBLIC RELEASE
,

13. SUPPLEMENTARY NOTES

14. ABSTRACT
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15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE	Public Release	37	Fenster, Lynn lfenster@dtic.mil
Unclassified	Unclassified	Unclassified			19b. TELEPHONE NUMBER International Area Code Area Code Telephone Number 703767-9007 DSN 427-9007

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Preface

During my last assignment on the J-3 staff of Special Operations Command Atlantic Command (SOCACOM), I had the opportunity to be involved in Joint Experimentation Workgroups at US Atlantic Command and Future Concept Working Groups at US Special Operations Command. I received numerous briefings on the technologies just around the corner and 20 to 30 years in the future. What I took away from these conferences was an understanding that the US military must take a proactive look at emerging technologies and the potential capabilities they may offer. It is my sincere hope that this paper will energize some thought and discussion within the special operations community in regards to revolutionary ways to employ the CV-22. Although the concepts listed here may prove to be impractical, they could be used as a starting point for fresh ideas.

I would like to thank Lt Col Mark LeSage, my Faculty Research Advisor for his great insight, support, and guidance. I would also like to thank Colonel Hayward S. Florer, Jr. and the staff of US Army Special Operations Command for the information they provided during an interview. Finally, I'd like to thank Mr. Otto Pernatto at the Naval Special Warfare Command and Lt Col Scott Moore at USSOCOM for providing insights into key issues facing special operations in the future.

Abstract

The CV-22 “OSPREY” will become operational within the next few years. Although it is seen as a replacement for the aging, but still capable, MH-53J PAVELOW, the CV-22 improves upon the basic operating capabilities of its predecessor. The OSPREY will also be able to perform some of the same missions of the MC-130 COMBAT TALON. The CV-22 must fill the operational missions and roles currently performed by the MH-53, but it is also capable of much more. The task put forth to mission planners, tacticians, and Air Force leaders is to envision new roles and missions for the CV-22 that take advantage of its unique capabilities.

After providing background information on the CV-22, the MH-53, and the MC-130, the author defines several likely threats that the military will face in the years to come. By reviewing documents such as Joint Vision 2010, Air Force 2025, and studies by the National Defense Panel and National Defense University, a common picture emerged of the threats and operating environments facing the US military in the next 10 to 15 years. Based on these scenarios the author answers the following research question: *Based on likely future scenarios, are there new roles or missions that take advantage of the unique capabilities of the CV-22 beyond those already in development?*

Part 1

Introduction

Research Question

The CV-22 OSPREY is scheduled to become operational in the next five years, combining many of the capabilities of the MH-53J PAVELOW and the MC-130 COMBAT TALON. Although the OSPREY is seen as a replacement for these aging aircraft, its unique capabilities may be able to extend its usefulness into new mission areas. New technologies and a changing global environment necessitate a fresh look at proposed missions for the CV-22. This paper is in response to a formal research request submitted to Air University by the United States Special Operations Command (USSOCOM) directorate of Operations and Plans (SOOP) in August 1999. Recognizing that the CV-22 may offer new capabilities to the special operations community, the USSOCOM staff asked the question: "Will the CV-22 simply be a 'long-range' Pavelow?" To help answer this question, this paper examines the most likely threats and military requirements of the next ten to twenty years and answers the following question: Based *on likely future scenarios, are there new roles or missions that take advantage of the unique capabilities of the CV-22 beyond those already in development?*

Conceptual Framework/Methodology

To answer the research question, this paper will attempt to identify new mission areas or roles for the US Air Force's CV-22 by examining the future of war, conflict, and military operations of the future, primarily the next 10 to 20 years. A growing number of papers, books, and articles have been written about the future and although there are many differing predications, there are also some common threads that run through most of them. By consolidating a number of common themes it will be possible to identify a few likely scenarios in which the US military will operate in the future. Based on these scenarios, the author will attempt to identify new mission areas for further study by the Special Operations community.

Scope of the study

While identifying new roles and missions for the CV-22, references will be made to new technologies such as non-lethal weapons that are currently unavailable. The author has participated in numerous Unified Command level Joint Experimentation and Future Concept Working Groups in which these types of capabilities have been discussed and identified as feasible within the next ten to twenty years; however, this paper makes no attempt to validate those capabilities. Additionally, the recommendations of this paper have not been constrained by the principle and collateral missions of US Special Operations Command (USSOCOM) currently listed in joint doctrine. For reference purposes, SOF mission criteria are listed in Appendix A.

Preview

This paper begins by describing the role of USSOCOM and Air Force Special Operations Command (AFSOC), the capabilities and mission of the MH-53J and MC-130, and the capabilities and the missions currently identified for the CV-22. After providing background information on special operations forces and aircraft capabilities, this paper will examine the future by identifying a number of likely future scenarios, which will be consolidated into a small number of common areas to which the unique capabilities of the CV-22 can be applied. Finally, the author will recommend new roles and missions for the OSPREY within the framework of these common scenarios.

Part 2

Background Information

United States Special Operations Command

US Special Operations Command is responsible for organizing, training, and equipping the designated special operations forces within the Department of Defense. Because of the unique nature of special operations the principle and collateral missions of the Special Operations Forces (SOF) community have been clearly identified in joint publications.

SOF Principle Missions

According to Joint Pub 3-05, Doctrine for Joint Special Operations:

> "SOF are organized, trained, and equipped specifically to accomplish nine principal missions: direct action, special reconnaissance, foreign internal defense, unconventional warfare, combating terrorism, psychological operations (PSYOP), civil affairs (CA), counterproliferation of weapons of mass destruction, and information operations. SOF's principal missions are enduring and will change infrequently, however, SOF's collateral activities will shift more readily because of the changing international environment."

Special Collateral Missions

Joint Pub 3-05 also identifies seven collateral missions for SOF:

> "SOF frequently conduct the following seven collateral activities: coalition support, combat search and rescue, counterdrug activities, countermine activities, foreign humanitarian assistance, security assistance, and special activities. SOF are not manned, trained, and equipped for collateral activities. SOF conduct collateral activities using the inherent capabilities resident in their primary missions. SOF may be tasked by the National Command Authorities(NCA), joint force

commanders, US ambassadors, or other government agencies to perform missions for which it is the best-suited among available forces, or perhaps the only force available."

What does AFSOC do? Missions

The Air Force Special Operations Command was established in 1990 as the Air Force component of US Special Operations Command. As such, AFSOC is responsible for providing aircraft, crews, and combat controllers/pararescue personnel to support USSOCOM and theater CINC missions worldwide. AFSOC's team of special operators brings a wide range of capabilities to the Department of Defense. In addition to the low-level infiltration, exfiltration and resupply missions of the MH-53 and MC-130, AFSOC aircraft also support psychological operations missions, and close air support (CAS) utilizing the AC-130H and AC-130U Gunships.

Current Capabilities/Missions of MH-53

According to the Special Operations Forces Reference Manual published by USSOCOM:

> "The MH-53J Pave Low helicopter is a night, adverse-weather special operations weapon system that was designed to be a flight lead platform for less capable aircraft. The primary mission of the MH-53J is to conduct covert low-level, long-range undetected penetration into denied areas, day or night, in adverse weather for infiltration, exfiltration, or resupply of special operations forces to include airdrops and heavy-lift sling operations. The aircraft can perform a variety of other missions to include shipboard operations, radar vectoring, and combat search and rescue."[1]

Figure 1 MH-53J PAVE LOW[2]

Current capabilities/Missions of MC-130

Also listed in the reference manual:

> "The mission of the MC-130E Combat Talon I and MC-130H Combat Talon II is to provide global, day, night, and adverse weather capability to airdrop and airland personnel and equipment in support of US and allied special operations forces. The MC-130 conducts infiltration, exfiltration, resupply, psychological operations, and aerial reconnaissance into hostile or denied territory using airland and/or airdrop. Both Combat Talons are capable of inflight refueling, giving them an extended range limited only by crew endurance and availability of tanker support. The MC-130E Combat Talon I is capable of air refueling helicopters in support of extended helicopter operations. MC-130 missions may be accomplished either single-ship or in concert with other special operations assets in varying multi-aircraft scenarios. Combat Talons are able to airland/airdrop personnel/ equipment on austere, marked and unmarked Landing Zones/Drop Zones, day or night. MC-130 missions may require overt, clandestine or low visibility operations."[3]

Figure 2 MC-130H COMBAT TALON II[4]

CV-22

History of the CV-22

Figure 3 Artist rendition--CV-22 insertion mission[5]

Although tiltrotor technology has been around since the 1950's when Bell and Boeing developed and tested their own prototypes, it wasn't until 1981 when the Secretary of Defense created a Joint Services Aircraft Program (JVX) and designated the Army as the executive agent. When the Army backed out of the program in 1983, the Navy was designated as the new executive agent and the aircraft was designated the V-22 Osprey in 1985. Following the first flight of the V-22 in 1989, Secretary of Defense Cheney canceled the program citing budget constraints. However, in 1990 Congress forced the DoD to fund research and development of the aircraft and in 1991 Congress authorized funding for the Air Force Special Operations variant of the V-22.[6]

Capabilities

Figure 4 CV-22 Flight Modes[7]

The CV-22 is a new generation of aircraft that can takeoff and land like a helicopter and cruise like a fixed-wing airplane. This ability allows the aircraft to operate from small, unprepared landing zones or aircraft carriers like a helicopter and than transition to cruise mode where it can fly at speeds comparable to the C-130, which is two to three times faster than a helicopter. As an added benefit, the CV-22 has a much greater un-refueled range than most helicopters. According to a draft tactics manual being developed for the CV-22 at HQ AFSOC, the "critical aircraft features of the CV-22 will include: long-range, high-speed, passenger load capability; vertical/short takeoff and landing (V/STOL) capability; air refueling as a receiver from strategic (KC-135, KC-10) and tactical (MC-130E/H/P) tankers; first-pass precision navigation; robust self-defensive avionics; day/night TF/TA radar; defensive armament and logistics supportability in the field. The aircraft will have a combat radius of 500 nautical miles. The CV-22 will be fully shipboard compatible with self-folding prop-rotors."[8]

Planned Roles and Missions

Current plans call for the CV-22 to perform many of the missions already performed by the PAVELOW and COMBAT TALON. Missions such as infiltration, exfiltration, resupply, and Combat Search and Rescue will its primary roles. AFSOC has also identified the potential for expanded roles in "counterproliferation of weapons of mass destruction, increased humanitarian assistance, and counter-drug operations."[9]

With the ability to fly at the speed of a C-130 and at ranges exceeding that of most helicopters, the CV-22 will be able to conduct missions that were impossible in the past. The 1980 attempt to rescue American's held hostage in Iran provides an excellent example of how the OSPREY will improve the operational capabilities of SOF. During the attempted rescue mission, MC-130 aircraft landed at a desolate location in Iran known as Desert One. Their primary objective was to provide a source of fuel for the Navy CH-53 helicopters as they traveled to their first night's hide site. Due to the range and speed of the CH-53s, the mission had to be planned for two periods of darkness. As history records, it was at Desert One that the mission failed due to a lack of useable helicopters and a tragic accident that occurred while helicopters were repositioning for their return to base. Had the refueling operation been successful, more risks in the original mission lay ahead. The greatest risk to secrecy was maintaining the element of surprise. In order for the mission to be successful, the helicopters had to be hidden during the day so that they could complete the surprise assault on the embassy on the second night. If this mission could be replayed with CV-22s in place of the CH-53s, the outcome would have, in likelihood, been very different. The CV-22 would have allowed the mission to be completed in one night without the need for a ground-refueling site, thereby eliminating many of the critical risk factors for the mission.

Deficiencies

Despite all of the capabilities designed into the CV-22, it does have some limitations. Its greatest shortfall is the size of the cargo compartment. Vehicles currently in use by the US Military such as the HUMVEE do not fit into the cargo compartment. Although this may seem like a significant problem, it exists because of design limitations required to make the aircraft shipboard capable. USSOCOM and Marine Corps are currently in the process of developing a new vehicle that will be compatible with the CV-22.

Notes

[1] SOF Reference Manual, p. 5-34
[2] MH-53J Photo, AFSOC Web Site, http://www.hurlburt.af.mil/index.html.
[3] SOF Reference Manual, p. 5-8
[4] MC-130H Photo, AFSOC Web Site, http://www.hurlburt.af.mil/index.html.
[5] CV-22 Insertion Mission, AFSOC Web Site, http://www.hurlburt.af.mil/index.html.
[6] Trask, p. 60
[7] CV-22 Flight Profile Photo, AFSOC Web Site, http://www.hurlburt.af.mil/index.html.
[8] AFTTP 3-1, Volume X (Draft), p. 11
[9] AFTTP 3-1, Volume X (Draft), p. 11

Part 3

The Future

Defining the future of military operations and conflicts

Predicting the future of military operations and conflict is not an easy task. The fall of the Soviet Union in the late 1980's took most of the world by surprise and left the US military to struggle with its role in the New World order. During the last decade, many agencies and writers have offered their own prophecies for the future. Unfortunately only time will decide who was right.

In order to give the Department of Defense some strategic direction, General John Shalikashvili, Chairman of the Joint Chiefs of Staff, directed the development of a "template" to guide the US Armed Forces into the future. In 1996 *Joint Vision 2010* was published and with it came a host of supporting and supplemental documents from the services and joint community.

A Joint Vision

Shortly after JV2010 was published, the Joint Chiefs also released a supporting document known as *Concept for Future Joint Operations: Expanding Joint Vision 2010*. This document cites a number of external and internal threats to the United States. The external threats include the proliferation of WMD, conflicts not directed at the US that could threaten US interests and the safety of its citizens, economic growth enabling more countries to confront the US regionally, increasing trends from non-state or criminal

groups threatening US interests, and terrorism. Drugs were cited as one of the major internal threats to the US. The document also warns that disaffected groups in the US, tempted to act in concert with hostile foreign powers, will continue to pose a threat. The report also recognized threats from natural disasters and traditional terrorist activities. [1]

An Air Force Vision

The same year, the US Air Force's Air University completed a project tasked by General Ronald Fogleman, Chief of Staff of the Air Force. During the 10-month project, students, staff, scientists, and technologists attempted to identify what technologies and capabilities would be required for the US military to remain dominant in air and space for the next 30 years. As reported in the 12 December 1996 issue of Air Force Magazine, Air Force 2025 identifies potential dangers including the "arrival on the world scene of a gigantic, hostile Asian mega-nation or, alternatively, a network of collaborative transnational corporations. The world of the future might well be plagued by widely dispersed weapons of mass destruction or swarms of robotic "insects" sent to attack cities."[2] This project consisted of thirty-three hundred pages in a ten-volume report, discussing future world scenarios and capabilities in great detail.

The report cites possible scenarios ranging from US preoccupation with small crises around the globe to worldwide commitments such as counterterrorism, conterproliferation of WMD, humanitarian assistance, and peacekeeping operations. In other scenarios, technology has grown exponentially with a few transnational corporations holding most of the power. In this last case, there are very few conflicts for the military so they are primarily used to guard access to resources, assets, and trade routes.[3]

The team also produced a scenario in which "a 'sino-colossus', incorporating the lands, people, and economies of China, Hong Kong, Malaysia, Singapore, and Taiwan"[4] arises to challenge a US that has turned inwards and cut defense spending due to economic problems at home. Finally, the report suggests that there could be an increase in the number of nation-states and a potential for coalitions and empires to emerge. It also predicts that the US will be threatened by WMD and information warfare attacks because they are relatively cheap to acquire and easily procured by small groups.[5]

National Defense University Predictions

Under the auspices of the National Defense University, a number of papers have been written to address the shape of future conflict and international politics. One of these papers, *The Global Environment* (part of the 1998 Strategic Assessment: Engaging Power for Peace), suggests that there will be no global challenger or hostile alliance in the near future.[6] However, it warns that rogues will continue to cause problems for the US. "Rogues need not be states. Separatists, militant fundamentalists, drug cartels, and other criminal and paramilitary groups can obtain the means to attack society and governments."[7] This report also warns of the growing availability and threat of WMD.

National Defense Panel

A December 1997 Report of the National Defense Panel, entitled *The World in 2020: Key Trends*, identifies four different "alternative worlds." In the first world, dubbed Shaped Stability, the international scene is fairly stable with "international cooperation on economic development and security issues."[8] Although this world is fairly stable, terrorism, organized crime, and environmental issues still plague the world scene.

Frictions in the form of "demographic pressures, shortages of natural resources, WMD, and continuing ethnic and national tensions will continue to arise."[9]

In the second world, "Extrapolation of Today," the world has become increasingly competitive with some countries remaining disadvantaged. In this scenario, "China has become the key economic and political state in the region."[10] Like the first world scenario, WMD will continue to be a problem and the United States is vulnerable to their use.

In the third world scenario, a regional alliance or single nation arises to challenge the United States. Known as "Competition for Leadership," this situation requires the US to enter into new security relationships and alliances. A worldwide increase in defense spending may create regional arms races. Recognizing the emerging threats, the US military "must now plan for the possibility of major combat operations against powerful enemies."[11]

The final world in this report, "Chronic Crisis," describes a deteriorating international environment characterized by weakened nation-states, fights over limited resources, and an eruption of nationalism and ethnic hatreds. As suspected, WMD and means to deliver them will be readily available. In the end, the US turns inward and focuses on domestic security.[12]

An Army Prediction

US Army Major General Robert Scales, Jr., was the general officer in charge of the US Army's program to test new technologies designed to revolutionize the future of ground warfare. As head of the Army's Force XXI program, Major General Scales developed a number of world scenarios in which he tested his high-tech force. Like

many of the authors and reports previously listed, MGEN Scales foresees the proliferation of WMD technologies, especially chemical and biological. He also noted that civil wars driven by ethnic or tribal rivalries will continuing to fester, resulting in mass refugee movements.[13] He does not expect threats to come from the "20 or so developed industrialized democracies, nor the large number of states at the other end of the spectrum."[14] Instead, he sees the greatest threat arising from the group existing in between these two extremes. "Some of these so-called "transitional states," located primarily in Europe, the Middle East and Asia, are already beginning to develop the economic means to generate income to support more sophisticated militaries."[15] MGEN Scales sees the potential for a few of these transnational states to gain enough political momentum to challenge democratic societies, especially the US.

Based on his observations, most states that will pose a challenge to the west in the future will not invest in "sophisticated aircraft or blue water fleets. Rather, most are purchasing or developing cheap weapons of mass destruction and methods of delivering those weapons."[16] There is already evidence that Far East armies recognize the potential uses for information warfare. Not only can they attack the US cheaply and with relative ease, they can use these technologies to improve their own command and control systems to allow more dispersed armies.[17] In the General's opinion, these asymmetric threats will make the transnational states a serious threat.[18]

Finally, MGEN Scales warns that a future enemy may try to protect himself or even the odds against the western armies by taking refuge and conducting warfare from urban areas. "An urban assault largely neutralizes American high-tech speed and mobility advantages. Urban fighting has always been one of the most destructive forms of

warfare. During World War II, the Russian army sustained over 300,000 casualties in the epic struggle for Berlin."[19]

A SOF Perspective

According to US Army Colonel Hayward S. Florer, Jr., the US Army Special Operations Command (USASOC) staff believes that there will be "less war fighting, more peacetime engagement, and regional instability in the future. Additionally, sub-national actors, terrorism, and asymmetric threats will characterize transnational dangers."[20]

Defining the most likely future scenarios

Based on the research, a number of recurring themes stand out for the future of warfare and military operations. First of all, the Department of Defense and the United States government must be prepared to deal with weapons of mass destruction. Although nuclear weapons will continue to be a problem, many of the reports recognized that chemical and biological weapons are cheap to produce and very little expertise is required to use them.

Secondly, the reports indict that while WMD may be employed by nation-states during civil wars or regional conflicts, the US must also be prepared for terrorist activities targeted against their interests around the world. The US will also face similar challenges from organized crime activities.

Finally, most of the reports reviewed in this study recognized that military operations in urban terrain (MOUT) will become the norm instead of the exception. Programs like the Army's Force XXI recognize the dangers inherent in these conditions and actively

test new employment methods to meet the challenges they pose. Although technology will give US forces a tremendous capability to visualize the battlespace, precisely target enemy sites, or respond to humanitarian needs, we must not forget that the same advances in technology in the hands of the enemy will tend to level the playing field. Although it was not previously mentioned, none of the reports cited above envisioned a renewed basing of US forces overseas, therefore expeditionary operations will continue to be the norm. To this end, rapid mobility and near-instantaneous power projection will be required.

Notes

[1] Expanding JV2010, p. 12-14
[2] Tirpak, p. 20
[3] Tirpak, p. 22-23
[4] Tirpak, p. 22
[5] Tirpak, p. 24
[6] Global environment, p. 74
[7] Global Environment, p. 77
[8] Transforming Defense, p. 3
[9] Transforming Defense, p. 3
[10] Transforming Defense, p. 3
[11] Transforming Defense, p. 4
[12] Transforming Defense, p. 4
[13] Scales, p. 21-22
[14] Scales, p. 31
[15] Scales, p. 31
[16] Scales, p. 50
[17] Scales, p. 52
[18] Scales, p. 107
[19] Scales, p. 176-177
[20] Colonel Hayward S. Florer, Jr., US Army Special Operations Command, interview by author, 9 March 2000, telephone conversation and email, Maxwell AFB, AL. Colonel Florer is the Chief of Staff for USASOC and former commander of Special Operations Command Atlantic Command.

Part 4

New mission areas for the CV-22

> *Our most vexing future adversary may be one who can use technology to make rapid improvements in its military capabilities that provide asymmetrical counters to US military strengths, including information technologies. Long-range precision capability, combined with a wide range of delivery systems, is emerging as a key factor in future war.*
>
> — Joint Vision 2010

Based on the likely scenarios highlighted above, it is now possible to discuss the role of the CV-22 in future operations. The OSPREY is poised to replace the aging MH-53s when it becomes operational in the next few years, bringing with it several improvements to the way SOF operate. The increased range and speed of the OSPREY will provide much greater flexibility in mission execution. As noted in the quote from JV 2010 above, long-range precision and a wide range of delivery systems will be critical in the future. The CV-22 will deliver the long-range precision while also providing new delivery methods.

There is little doubt that special operations personnel can and will play a vital role in each of the scenarios listed in the previous section. SOF provides the National Command Authority and Department of Defense with an ability to respond quickly and decisively without a large footprint.

Defining new missions

> *The natural tendency for planners will be simply to consider how a C-130 or SOF helicopter does the mission and then attempt to fit the CV-22 in the same mold. It is important that the planners and leaders think about the CV-22 as a completely different type of aircraft.*
>
> — Major Thomas Trask

Non-State Actors--Drug Cartels and Organized Crime

In 1996 Major Tom Trask, an experienced MH-53 pilot, presented a thesis paper on the CV-22 to complete his School of Advanced Airpower Studies requirements. In his paper, Maj Trask recognized the capability of the CV-22 in a "State Trooper" role. As the military becomes more involved in peace keeping operations and UN resolution enforcement (such as the no-fly zones in Iraq), Maj Trask suggested that, with a small team of "police" in the back, the CV-22 could respond to intercept helicopters and small airplanes. The capabilities of the CV-22 will allow the crew to track the aircraft, force it to land, or shoot it down. Once on the ground, the teams onboard the CV-22 could render assistance, detain, or arrest the occupants of the aircraft and seize their cargo. The speed, range, and sensor suite make the CV-22 an ideal platform for such an operation. In cooperation with US law enforcement officials, the OSPREY could also be used to combat drug traffickers and organized crime.[1]

In a variation to the trooper concept, he suggests that the CV-22 might also be useful in a "counter battery" role, allowing a team to be inserted on enemy artillery or mortar positions. [2] Major Trask's report also noted the potential for increased use in humanitarian missions. In addition to bringing supplies directly to where they are needed, without the need for airdrop, the CV-22 could also be used as a MEDEVAC

platform in areas that are not accessible by fixed-wing aircraft. His final recommendation was the potential for the CV-22 to be used as a fire support platform, providing mutual support for other CV-22s operating in hostile territory. [3]

Non-Lethal Weapons Platform

Although Major Trask recognized the ability of the CV-22 to provide fire support for other CV-22s, the OSPREY may prove to be an exceptionally flexible platform for employing non-lethal weapons as well. In addition to carrying troops or cargo, it may be possible to develop palletized systems that are fired, or employed through the rear cargo door. With an ability to fly slow or come to a near stop in flight, these non-lethal weapons can be delivered accurately in confined areas. This could be extremely beneficial in urban terrain where visibility is limited by buildings and other structures.

On October 3, 1993 a team of America's finest special operators conducted a mission in downtown Mogadishu, Somalia. Similar missions had been executed before with good success, but this day was different. The citizens of Mogadishu fought back when the US troops arrived and, in the process, shot down two helicopters with rocket propelled grenades (RPGs). In less than 24 hours eighteen US soldiers were killed and dozens were wounded while over 500 Somali men, women, and children were killed and over a thousand were wounded. In his book *Blackhawk Down*, author Mark Bowden repeatedly describes how Somali men, women and children filled the streets around the US team's objective area. The shear number of weapons fire overwhelmed the US troops. This type of mission could easily become common place in the future as conflicts spread to urban areas. In a situation like this, the troops need an edge over their adversaries, however casualties to non-combatants must be avoided to the maximum

extent possible. A situation such as this could benefit from non-lethal weapons designed to disorient unprotected personnel thereby giving the US troops the advantage they need to complete their mission successfully. The CV-22 could be used to employ such a device because it can adjust its flight profile based on the threat.

Search and Identification

The "robotic insects" mentioned in the Air Force 2025 report could serve more than one function. Essentially, these miniature robots are self-propelled sensors that may have an ability to transit information back to a monitoring/controlling station. These robots, used in conjunction with the CV-22, could be used to rapidly search wide areas for downed personnel, enemy weapon systems, or WMD production sites. Although these robots may eventually have the ability to work autonomously, there may be a transition period where they need to be deployed near the objective area and controlled from nearby—the CV-22's speed profile and range would make it an ideal platform for this mission.

Notes

[1] Trask, p. 46
[2] Trask, p. 47
[3] Trask, p. 48-50

Part 5

Conclusion and Summary

The first element of winning wars after 2010 against a major competitor will be to get to the theater of war very quickly to begin the process of the collapse of will from the moment you leave the continental United States.

— Major General Robert H. Scales, Jr. USA

Summary of Findings

Responding to USSOCOM's request for research into future employment options for the CV-22, the author set out to define a likely future threat environment from which new roles and missions for the Osprey could be identified. After reviewing the role of special operations and the capabilities of the CV-22 and the aircraft it is destined to replace, this paper presents the primary threats facing the US military within the next 10 to 20 years based on the predictions of military professionals and education institutions. In particular, three potential threats emerged from this study; 1) there will be a proliferation of weapons of mass destruction, 2) there will be a rise in the number of non-state actors, including drug cartels and organized crime that will threaten US security, and 3) because of the population growth, the US can expect to operate in urban environments. Based on this research, the author proposes three new missions for the CV-22.

Answer to the Research Question

Based on likely future scenarios, are there new roles or missions that take advantage of the unique capabilities of the CV-22 beyond those already in development?

In answer to the research question, and based on the scenarios developed above, the CV-22 does have a niche to fill in new mission areas as follows:

1. Threat: Non-State Actors—search and seizure platform
2. Threat: Urban Operations—non-lethal weapons platform
3. Threat: WMD—Micro-Robotic sensor transport/delivery/control platform

As technology expands to provide new engagement tools for the military, the OSPREY will stand out as a truly flexible platform from which to operate.

Recommended COA

US Special Operations Command and its components' (AFSOC, USASOC, NAVSPECWARCOM) staffs should examine the capabilities of the CV-22 closely. The new roles suggested in this paper may not prove to be feasible, but they may spark an idea or two that revolutionize they way SOF operates. To paraphrase the words of Major Trask, quoted earlier—the CV-22 is a completely different kind of aircraft and planners should not limit their concepts to traditional paradigms. It is time to put aside today's operational concepts and think outside the box with a close eye on what the future offers. Long-range planners and tacticians should seize the opportunity to identify and develop new concepts of employment and requirements. With only a couple years remaining before the arrival of the CV-22, time is running out for the identification and production of new equipment to supplement the capabilities of the OSPREY.

Two of the Air Force's core competencies are "Precision Engagement" and "Rapid Global Mobility."[1] The CV-22 can offer both, whether they are fulfilling the same mission as the MH-53/MC-130 or being utilized in a new role. This is an extremely versatile aircraft that can be considered an operational prototype for future V/STOL aircraft. The V-22 will be one of the most heavily tasked aircraft in the US inventory once the military understands its full potential.

Notes

[1] AFDD 1, p. 30, 33

Appendix A

Special Operations Mission Criteria[1]

"To provide clear guidance to commanders for planning and executing SO, the following set of operational mission criteria has evolved from combat experience.

• Is this an appropriate mission for SOF? SOF should be used against those key strategic or operational targets that require SOF's unique skills and capabilities. If the targets are not of operational or strategic importance, then SOF should not be assigned. SOF should not be used as a substitute for other forces.

• Does this mission support the theater campaign plan? If the mission does not support the JFC's campaign plan, then there are probably more appropriate missions available for SOF.

• Is this mission operationally feasible? SOF are not structured for attrition or force-on-force warfare and should not be assigned missions that are beyond their capabilities. Planners must take into consideration the vulnerability of SOF units to larger, more heavily armed or mobile forces, particularly in hostile territory.

• Are the required resources available to support the mission? Some SOF missions require support from other forces for success. Support involves aiding, protecting, complementing, and sustaining employed SOF. Support can include airlift, intelligence, communications, and logistic support. Even though a target may be vulnerable to SOF,

deficiencies in supportability may affect the likelihood for success or may entirely invalidate the feasibility of employing SOF.

• Does the expected outcome justify the risk? Commanders should recognize the high value and limited resources of SOF" and ensure that the benefits of successful mission execution are measurable and in balance with the risks inherent in the mission. Assessment of risk should take into account not only the potential for loss of SOF units and equipment, but also the risk of adverse effects on US diplomatic and political interests should the mission fail.

Notes

[1] JP 3-05, p. IV-4

Glossary

AFDD	Air Force Doctrine Document
AFSOC	Air Force Special Operations Command
CSAR	Combat Search and Rescue
CV-22	Air Force version of the V-22 “Osprey”
FLIR	Forward Looking Infrared Radar
GPS	Global Positioning System
IAS	Integrated Avionics System
IMC	Instrument Meteorological Conditions
IOC	Initial Operational Capability
JTTP	Joint Tactics, Techniques, and Procedures
LZ	Landing Zone
MATT	Multimission Advanced Tactical Terminal
MOOTW	Military Operations Other Than War
MRC	Major Regional Contingency
MV-22	Marine version of the V-22 “Osprey”
NAVSPECWARCOM	Naval Special Warfare Command
NBC	Nuclear, Biological, and Chemical
nm	Nautical Miles
NVG	Night Vision Goggle
SOF	Special Operations Force
TF/TA	Terrain Following/Terrain Avoidance
USASOC	US Army Special Operations Command
USSOCOM	United States Special Operations Command
V/STOL	Vertical/Short Takeoff and Landing
WMD	Weapons of Mass Destruction

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