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# AIR WAR COLLEGE

## RESEARCH REPORT



DEFENSE MANAGEMENT: HOW DO WE MANAGE IN AN ERA OF REDUCED BUDGETS?

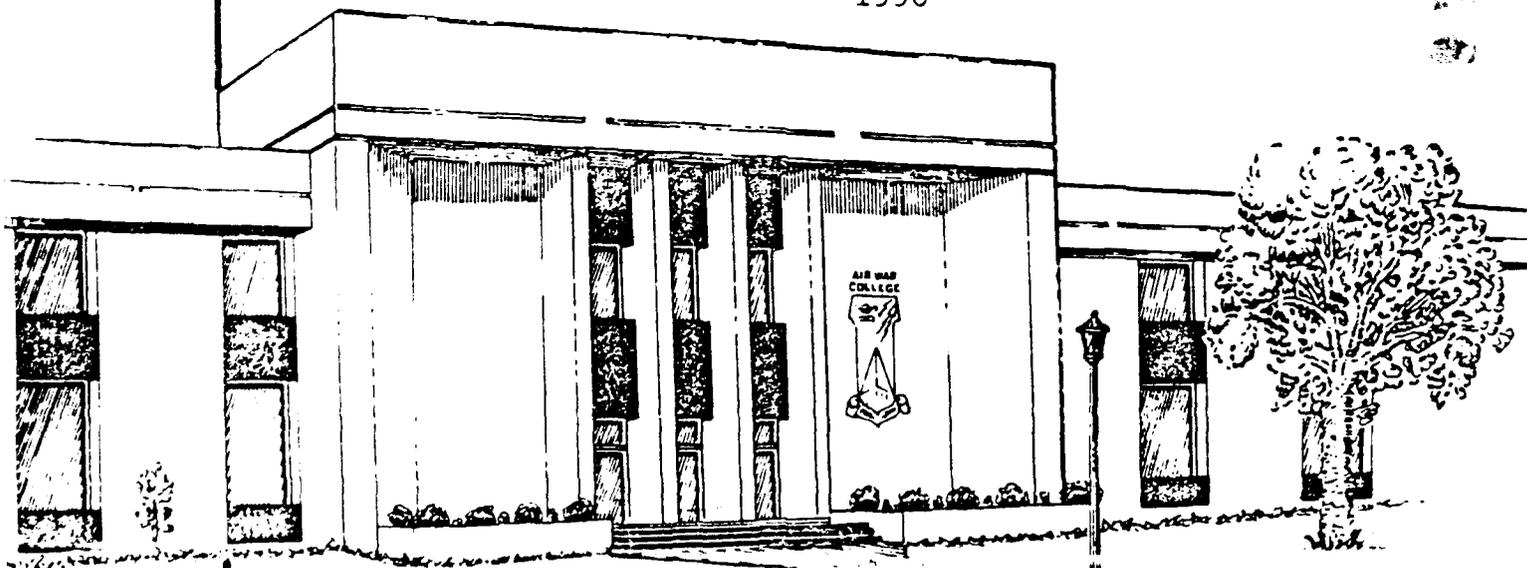
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1990



AIR UNIVERSITY  
UNITED STATES AIR FORCE  
MAXWELL AIR FORCE BASE, ALABAMA

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DEFENSE MANAGEMENT: HOW DO WE  
MANAGE IN AN ERA OF REDUCED BUDGETS ?

by

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A DEFENSE ANALYTICAL STUDY SUBMITTED TO THE FACULTY  
IN  
FULFILLMENT OF THE CURRICULUM  
REQUIREMENT

Advisor: Mr. Ted Kluz

MAXWELL AIR FORCE BASE, ALABAMA

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POINT PAPER  
ON  
DEFENSE MANAGEMENT DAS

- PROBLEM How can we effectively and efficiently manage defense in an era of budget constraint and shifting security threat?
  - Does history provide any applicable lessons or insights?
  - What ideas and perspectives of defense reformers merit consideration?
  
- FINDINGS A review of books by historians of military supply, acquisition and technology, and by current defense reformers yields a philosophy for intelligent defense management. It has three key components: defense policy, technology and organization.
  
- DISCUSSION Effective management starts with an accepted understanding of national security policy. This policy, then becomes the basis to select viable, technically superior and appropriate weapon systems. The defense organization, its people and procedures must be focused ultimately on providing the capability to maintain national security.
  - DEFENSE POLICY
    - Defense policy provides the baseline understanding that a given level of defense is needed and certain levels of modernization are prudent.
    - Defense policy must be based on a realistic analysis of threats to national security.
    - An integrated defense policy provides a sensible basis for coherent budget decisions.
    - The President and Congress must align personal goals with national security priorities.
    - Military capability should support security policy.
    - It's a fallacy to believe that more dollars equals better defense.

## -- TECHNOLOGY

- One way to recognize and evaluate potential weapons in emerging technologies is to think and write about future concepts of airpower application.
- While superior weapons favor victory, technological sophistication does not necessarily equate to superiority in war.
- Superior weapons are a product of both capabilities and the doctrine to exploit those capabilities.
- We need to encourage non-traditional uses of advanced technology to fulfill military missions in new and different ways at lower costs.
- We should embrace the "Law of the Third Best" to select workable technologies, at reasonable cost and availability.
- Selection of immature technologies inevitably results in cost overruns and schedule slips.
- Decisions on which technologies to pursue should be made by astute scientists and engineers who are unencumbered by a need to champion a pet project or parrot the consensus opinion.
- History shows that when military systems are designed and produced without benefit of the soldier's input the system is deficient.
- Improvements in capability must always be tempered by an evaluation of total costs.

## -- ORGANIZATION

- The DOD is burdened with the cosmetic solutions of previous reforms. Increased oversight and reporting are counterproductive to efficient management.
- An important goal of any organizational change must be to decrease bureaucratic friction. The concept of "jointness" holds the potential to override interservice rivalry and reduce the problems of overlapping roles and missions
- Fundamental organizational, cultural and procedural

changes in defense management can yield significant cost savings. Multi-year funding, increased time-on-station, and base closure are a few examples.

- Any reform will be resisted if viewed as a threat to an organization or individual. Positive incentives should be given to cost-conscious managers.
  - The PPBS system needs to include a mechanism to evaluate the results of plans and budgets. A budget cycle of two or more years would enhance this feedback loop.
  - The defense industry is not structured to operate effectively within the free market. Procurement regulations, policies and procedures should be tailored to suit the unique situation of the defense market.
  - The defense industry has as much to gain from improved acquisition policies as the government. The ideas of industrial leaders should be solicited and used.
  - The procurement practices under healthy budgets may be inappropriate and inadequate with today's leaner budgets. Simplified rules which provide the contractual flexibility to use the most beneficial contract for the situation are needed.
  - Trained, experienced and motivated individuals tend to be more productive and can reduce the need for excessive micromanagement and oversight.
  - The single, most influential player in defense management is the SECDEF. As the critical integrator he must have the trust of the President and establish honest relations with the Congress.
- CONCLUSION Defense can be managed more efficiently and effectively with fewer dollars. However, this requires a change in management philosophy.
- Care must be taken to introduce meaningful reform and not add further burdens under the guise of reform.
  - Defense reform must be initiated from the highest levels, then implemented and tracked by DOD, executive and congressional leadership over an extended period of time.

## BIOGRAPHICAL SKETCH

Lieutenant Colonel Lorelei A. Krebs (M.S., Wright State University) has been part of Air Force Systems Command since her commissioning in 1972. With assignments from laboratory to program office level she has a broad background in the various phases of research and development, as well as systems acquisition. She is a graduate of the Defense Systems Management College and is a level three certified acquisition manager. Colonel Krebs is a graduate of the Air War College class of 1990.

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CHAPTER 1

BOOK REVIEWS: THE LESSONS OF MILITARY SUPPLY

PURE LOGISTICS by George Thorpe, 1917

SUMMARY

But if we may judge of the manner from the silence of books on the Science and Art of War, the conclusion is irresistible that the military themselves know next to nothing about Logistics. (p.1)

Thus was George Thorpe's assessment of the attention given to logistics when he wrote his essay while a student at the Naval War College in 1914. He defines his essay as "a scientific inquiry into the theory of Logistics - its scope and function in the Science of War." (p. 5) Departing from the works of Jomini and Clausewitz he asserts that logistics is a separate, yet coequal arm of warfare along with strategy and tactics. He uses historical analysis to support his thesis that logistics encompasses far more than just transportation and supply and draws several conclusions. First, logistics includes all activities which are distinct from yet provide the means to carry out strategy and tactics. Second, the various logistical activities must be "conceived as an entity and organized for cooperation." (p. 11) Third, he points out that education is an extremely important logistical activity which leads to efficient operation of the total warfighting effort. And his final consideration is that the "preparedness" of the manufacturing community (machinery and personnel) to surge for wartime production should not be taken lightly.

## ANALYSIS

Stanely Falk who wrote the introduction to the 1986 release of this essay calls it "a minor classic" which "remains unrivaled as a systematic and structural analysis." (p. xxviii) Understandably Thorpe's essay does include some dated material, but this does not detract from the validity of his underlying premise. The notion that logistics is on an equal footing with strategy and tactics as part of a warfighting triad is even more important today than in 1917. The extensive support requirements for Today's high-tech military requires extensive support. Thus successful strategy and tactics are directly linked to a healthy logistics system.

Thorpe includes many activities under the heading of logistics which we don't normally associate with it - medical, personnel administration, communications, intelligence collection and distribution, education and training. (p. 10, 20) He says that the various components of logistics must be "conceived as an entity," (p. 11) an idea familiar to us today as a system of systems. When viewed in this way it is easier to appreciate the interconnectedness among the many logistical activities or subsystems and identify duplicative or overlapping tasks which rob the entire system of efficiency and economy. "Every department of Logistics must select and administer on the basis of economy." (p. 72) On reading his example of redundant hospitals in a single locale one can't but

think of the Washington DC area which holds both army and navy major medical centers as well as an Air Force Regional Hospital. He hit home on his call for interchangeable munitions and weapons. Commonality and interchangeability are key concerns today not only within the DOD but also NATO, especially in the area of communications. This allows reduced research and development investment, decreased unit production costs, less variety in parts inventories, and effective redistribution for maximum use of resources in war.

Historical analysis lead Thorpe to conclude that:

The great deficiency lay in the fact that Logistics was not organized under one head as a branch of warfare for analysis of the requirements of the campaign and cooperating response to such determined requirements. (p.19)

He therefore called for central control of the logistical activities with decentralized execution - "organized for cooperation". (p. 39) Today of course, this is the management concept practised by all successful organizations. It allows top leadership, who has the big picture, to set the goals, yet puts the details of execution in the hands of those with the experience, education and training to best achieve the goal in a timely and economical manner.

Effective decentralized execution relies heavily on education and training. In Thorpe's professional military experience he found that strategic and tactical problems were worked with only cursory attention to the attendant logistical

activities and their viability. Today's computer wargames do include logistics but often only in the narrow traditional sense.

Finally, Thorpe identified "factory preparedness" (pp. 71-73) as a key factor in peacetime logistics. The specifics he outlines are all recognized as common sense planning today, although, for reasons of economy and rapidly changing technology they are not necessarily feasible. He mentions that along with the availability of proper tools, blueprints plans and raw materials the "willing worker... indoctrinated with a strong desire for success of our combatant forces" is also essential. (p.68)

Thorpe's short essay justifies treatment of logistics as coequal to strategy and tactics. While his suggested organizations are dated, the basis for his theory is stronger today than in 1917. Recognizing the true impact of Logistics on warfighting ensures that it receives due consideration in planning activities for warfighting. The concept of uniting all support activities under the "Logistics system" is a logical point of view for those charged with streamlining armed forces in a fiscally and politically constrained environment.

SUPPLYING WAR by Martin Van Creveld, 1977

SUMMARY

... it sometimes appears that the logistics aspect of war is nothing but an endless series of difficulties succeeding each other. ... one sometimes wonders how armies managed to move at all, how campaigns were waged, and how victories occasionally won. (p. 231)

Most histories and analyses of warfighting concentrate on the strategies and tactics employed by brilliant (or not so brilliant) military leaders. The author, Martin Van Creveld, takes a different stance and examines European warfare as it has been shaped by the quality and quantity of logistics support. He starts with Gustavus Adolphus in the 1600s and moves through Napoleon's Russia Campaign, von Molke and the Schlieffen Plan, Rommel in North Africa, and Allied planning and execution of Operation Overlord. Inadequate logistics has been one of the major recurring "frictions" of wars, yet it has only been given "lip service" by most historians. In the author's estimation "logistics make up as much as nine tenths of the business of war." (p. 231) Yet, his evidence shows that support requirements for many campaigns were determined on an 'ad hoc' basis. Conversely, when detailed mathematical analysis is used to derive complicated support plans (ex. Overlord) there is always a "strong possibility that a fresh strategic or political requirement will render them worthless." (p. 236)

## ANALYSIS

Van Creveld's book leaves the reader with a greater appreciation and respect for the role of logistics in warfighting. Above all else, his chronicles of "moving armies and keeping them supplied." (p. 1) are evidence that logistical considerations are the key driver of military strategy and tactics. If Major Thorpe, were to write his book Pure Logistics today, he would certainly draw on the research of Van Creveld to support his thesis that logistics be considered coequal with strategy and tactics.

Before WWI Armies moved on their stomachs, i.e. food and fodder were the big supply problems. Keeping the troops on the march, subsisting at the enemies expense was the norm. Thus the time of the year was an important consideration in beginning a campaign. Armies did not normally fight during the winter. Walled towns were an excellent defense against the invader who was far from home if crops had been harvested.

By WWI a transition in the character of the logistics trail was evident. The requirements for continual replenishment of ammunition, fuel and spare parts now made it easier to sustain a slow moving army close to base. Whereas in 1870 ammunition accounted for only one percent of supplies, by WWII subsistence was only eight to twelve percent of all supplies. Technology provided many enhancements to warfighting

in terms of firepower, but all at the expense of tethering armies to their supply chain. Railroads and sea ports became increasingly important as lines of communication, but initially were not effectively exploited because little forethought was given to how supplies would be offloaded, stored, transported and distributed to the troops. Limited port facilities in North Africa greatly restricted the flow of supplies to Rommel causing him to backtrack many times. In his words,

... the battle is fought and decided by quartermasters before the shooting begins... and neither guns nor ammunition are of much use in mobile warfare unless there are vehicles with sufficient petrol to haul them around. (p. 200).

Van Creveld's book is a fascinating insight into the impacts of logistics and rounds out one's study of military strategy and tactics. In light of the ongoing reorientation of Eastern Europe and the Soviet Union, one can't help but reassess the way we prepare to fight and support war. Our training and logistics emphasize a major European war scenario. The more probable threat is Third World low level conflict. Perhaps we are again facing a transition in support concept comparable to that in the early twentieth century. Is our logistics concept adequate to support how we may fight in the future?

SUPPLYING WASHINGTON'S ARMY by Erna Risch, 1981

SUMMARY

Even by the time the war ended in 1783, Congress had failed to develop satisfactory administrative agencies capable of providing essential logistical support. (p. 6)

A former Army Chief Historian, Erna Risch presents a comprehensive overview of the supply organization which supported Washington's Continental Army. She addresses each of the logistics support services: The Quartermasters Department, the Commissariat, the Clothing Department, the Ordnance Department, and the Hospital Department. Her chronicles tell how the inevitable growing pains of these newly created departments resulted in significant supply deficiencies for the Continental army. Washington and others were known to have blamed "supply officers for impeding their battle plans."

(p.420) The author's commentary shows, that in addition to the management problems of the government agencies, the actions of the "Continental Congress, state governments, line officers, and the populace itself" further complicated the situation.

(p. 420)

ANALYSIS

This book is a fascinating account of our forefather's trials and errors as they attempted to build an organization to feed, clothe, arm, transport, and doctor the Continental Army.

An acceptable system to meet the requirements was never found due to a number of factors. These included such problems as: the general lack of experienced personnel, depreciating dollars, insufficient funds, limited readiness planning, weak organizational links, limited congressional powers, diversion of government-owned supplies and funds, and poor products.

In seeking to see what lessons this slice of American history might yield, the reader could probably find some parallels with the issues of logistical support today. On the other hand, the lessons are even more fundamental. This story would make an excellent "mistakes-to-avoid" case study for "Government Management 101." Regardless of the historical period, all government organizations must have certain basic elements to be healthy. Two of these are: a structure suitable to accomplish the organization's mission, and experienced personnel dedicated to the mission.

The system which supplied the Continental Army was fragmented. Washington had no single staff member ultimately responsible for orchestrating all the support requirements of the army. Many times he found himself acting as his own chief supply officer. Moreover, as the various supply departments were created, those in charge did not always have the authority to do their job. Organizations must be structured so that authority can be delegated to whatever levels are deemed

appropriate and that key individuals are held responsible for accomplishing their tasks.

A difficulty which many government organizations face is lack of success attracting and retaining experienced personnel. The low pay, limited promotion opportunity and the "unsavory notoriety [that] grew out of the inevitable investigations conducted to expose abuses and frauds" all contributed to the limited experience and dedication of the supply departments during this time. Even today, these same factors are still a detriment in the military acquisition arena.

Erna Risch has written an indepth, well documented study of the American supply system during the Revolutionary war. It is an excellent case study of the people and situations which shaped our first system to support a fielded army, Within the specific historical events the reader can identify organizational issues which are inherent in many government agencies.

BUYING AIRCRAFT by Irving B. Holley, Jr., 1964

SUMMARY

To survive in the ultimate competition of war, an air force must continue to perfect its techniques of procurement no less than its doctrine and strategy. (p. 5)

Historian Holley's study of aircraft procurement is part of an Army history series which presents a comprehensive account of various military activities during WWII. The author prefaces his discussion of specific procurement concerns (organization, contract negotiation, contract types, and specific clauses) with an indepth consideration of the many factors which directly impinge on procurement. He looks at how the aircraft requirement was determined; the status of the US aircraft industry just prior to WWII; the readiness and capacity of industry to absorb increased production; the role of foreign military sales; the relation of the army with executive and legislative agencies; and organizational restructuring.

Holley undertook this analysis with a belief that, "If a nation is to escape or even minimize the blunders of the past, it cannot neglect to study its mistakes." (p. ix) The most fundamental lesson learnt by the analysis of Army Air Force aircraft procurement during the WWII timeframe is that "the rigid, time-consuming contractual formalities that grew up in peacetime were utterly unsuited for the demands of war." (p.109)

## ANALYSIS

The corollary to this lesson is that the procurement practices which worked under the healthy budgets of the Reagan years may be inappropriate and inadequate for the leaner budgets induced by communisms failure. Procurement practices must respond to the changing socio-political realities. Ironically, we are revisiting some of the same issues, albeit from a different perspective, and are of may be even considering similar solutions to those of forty years ago.

The Army Air Service and the Department of War went through several organizational iterations. At one point the Material Center Commander was moved to Washington D.C. to be readily available to the Chief of Staff. This was counterproductive since now the Commander no longer had his finger on the pulse of contract activities. Thus a staff was added to keep the Commander updated. Over the years, Headquarters Air Force Systems Command (AFSC) also developed a large staff to keep the Commander informed on the status of all activites. It became a time consuming, reporting and coordinating level for all major aquisition programs with questionable value added to the process. Eventually the Material Commander was returned to Ohio. Similarly, between the Packard Commission and the Defense Management Review we have recognized and have taken steps to remove the redundant program oversight of the AFSC staff.

The accomodation of the procurement process to the extremely time-sensitive and vastly increased workload of the war was "limited only by the ability to break through peacetime habits of thought." (332) Under Secretary of War Patterson clearly recognized that, "War calls for the same boldness and imagination in procurement as it does in the...field." (p. 351) He made a significant impact on contract turnaround by delegating approval authority to the lowest practicable levels.

Perhaps today we need to break though certain habits of thought. Is full and open competition always the best option? During the war we tended to follow the most stringent provisions of the procurement statutes and to avoid the discretionary exception which were fiscally prudent - all to avoid a possible scandal. We have similar discretionary statutes today, and a similar reluctance to use them even if common sense dictates that competition is inappropriate to the situation.

Another deja-vu. The amended Defense Act of 1920 put the technical services in the "ambiguous position of serving to masters - The Chief of Staff on matters military and the Under Secretary on matters relating to procurement." (p. 475) The result was to cut off the Chief from the procurement picture. Today we are instituting a separate chain of authority for aquisition functions topped by the Service Aquisition Executive, an Assistant Secretary-level position. How will we

assure that our Chief is not also bypassed in our effort to streamline the aquisition of major weapon systems?

The WWII history of aircraft procurement provides the background to many issues that are still of concern today. For example: determining the number and type of spares on a new system; freezing design so that production can proceed; determining appropriate levels of profit; cost reimbursement versus fixed price contracts; the use of supplemental agreements; buy-ins; measurable source selection criteria; cost estimate validity; funding stability; and many more.

Holley's study should be mandatory professional reading for all who are engaged in the procurement of military systems. As a statement of aquisition heritage, it lays out the evolution of current procurement concepts. If read for its lessons, it could keep us from making the similar mistakes.

CHAPTER 2

BOOK REVIEWS: THE CHALLENGES OF TECHNOLOGY TRANSITION

FROM CROSSBOW TO H-BOMB by Bernard & Fawn M. Brodie, 1973

SUMMARY

The Brodies have condensed 2500 years of military weapons evolution into a concise, 300-page book. It is an insightful look at how science has shaped both the design of weapons and the tactics of their use throughout history. The authors start with Harpalus, who in 481 BC, designed a floating roadway to bridge the Hellspont for Xerxes' invasion of Greece. After a grand sweep of the Antiquities and Middle Ages through the 17th century, the majority of the book focuses on the weapons of the last two hundred years. The explosion of scientific thought and its technological applications has reached exponential proportions today. The authors conclude with a concern that we temper our choice of new military systems with a quantitative analyses of total investment and operational costs. And even more important, we must not lose sight of the most basic question, "the purpose or necessity for any given military posture, let alone any proposed military action." (p. 308)

ANALYSIS

The Brodies have written more than just an entertaining and informative account of military technological innovation. Time and again one reads of the reticence of scientists to work on implements of war. Scientists, by nature, are driven by a

curiosity to understand basic principles. During the latter stages of WWI the great physicist, Ernest Rutherford gave the following excuse for missing a meeting to discuss the submarine threat: "I have been engaged in experiments which suggest that the atom can be artificialy disintegrated....it is of greater importance than the war."(p. 234)

The scientists also seemed to share a sense of moral responsibility to censor any discoveries with potential destructive applications. Roger Bacon developed a formula for gunpowder in 1248, yet encoded it as a cryptogram. Leonardo da Vinci chose not to divulge his submarine designs, "on account of the evil nature of men, who would practice assassinations at the bottom of the sea..."(p. 10) In more recent times, when nuclear fission was discovered in 1939 scientists clearly recognized its military implications. Leo Szilard urged his fellow nuclear physicists to "consider a self-imposed secrecy on the future researches."(p.241)

While scientists eschewed the practical military application of their work, military leaders often hesitated to take advantage of the new ideas as they started to multiply in the 17th and 18th centuries. Napoleon, according the Liddell Hart, was "curiously indifferent to the opportunity of introducing new weapons, and his era of warfare was notably unproductive, though it coincided with the Spring of the Industrial Revolution."(p. 109) In the early 19th century,

British Admiral Jervis, First Lord of the Admiralty, felt that it was extremely foolish to "encourage a mode of war [torpedo submarines] which they who commanded the seas did not want, and which if successful would deprive them of it."(p. 118)

The character of warfighting nevertheless, has changed over the years. This is due possibly to the insight of the military engineer, or as Squires would suggest, the maestros of technology, who could relate basic science and technology with military necessity. Each new capability has expanded our strategic and tactical possibilities. Today, many of these new possibilities also carry a hefty price tag. In an era of shrinking budgets we can't let the "nice to haves" overrule fiscal responsibility. The systems analysis techniques that were developed during the 60's are standard tools to evaluate the life cycle costs of today's competing technologies. Yet, I wonder whether or not we have manipulated these statistical analysis tools to support the American thirst for the newest and flashiest toys? Are the capability improvements of our new systems justified by their exorbitant costs? Does our military posture dictate that the DOD pay the price to extend the fringes of technology?

HARPERS FERRY ARMORY AND THE NEW TECHNOLOGY by Merritt Roe

Smith, 1977

SUMMARY

Merritt Smith recounts the history of the national armory at Harpers Ferry, Virginia, from its establishment by President Washington in 1789 to its closure after John Browns raid. His historical analysis shows that Americans have not always welcomed technological innovation as is commonly believed. This is particularly true when traditions, beliefs and social values are threatened.

Smith contrasts the "aloofness from the forces shaping industrial civilization"(p. 326) at the Virginia armory with the "dynamism and devotion to progress"(p. 334) of the Springfield armory. The author shows that the societal influences of the South hindered factory innovation, while those of the North drove innovation. "In the end, the stamina of the local culture is paramount to explaining why the Harpers Ferry armory never really flourished as a center of technological innovation."(p. 335)

ANALYSIS

Change is basic to the twentieth century way of life. Technological innovation, fiscal necessity and socio-political mandate are the prime drivers of change in the military today.

The Harpers Ferry story touches on the interplay among these three determinants.

Smith's book poignantly demonstrates that it is difficult to manage change that is at odds with the social structure and its values. The very fabric of Harpers Ferry life was challenged by the government's push to upgrade the armory with modern methods of mass production. In the mind of the local community the armory represented their economic well-being. Armory superintendants were loyal to the community and its four influential families. Thus, they were not about to introduce the new manufacturing tools which would result in lower wages and a smaller work force. Indeed, the untimely death of superintendant Dunn was compelling reason to disregard the directives of the Ordnance Department.

We have seen similar forces at work in today's military - the "empire builders", those who resist attempts to consolidate and restructure because their personal power base is in jeopardy. On the political side, how many attempts have been made to close non-essential bases only to have the local congressman turn it around based on parochial concerns.

"The Armory at Harpers Ferry remained a chronic trouble spot in the government's arsenal program"(p. 323) because the Ordnance Department did not appreciate its unique social context. We see a similar problem today. In the mid-80s the

Packard Commission recommended use of an Acquisition Executive System to reduce the number of levels of control and oversight on major acquisition programs. Quite the reverse, confusion and additional layers of bureaucracy resulted from the two parallel chains of command. This was a flagrant disregard for the traditional military reporting structure.

Smith points out that the government has historically played a significant role in fostering new manufacturing technologies. At Harpers Ferry the inventor John Hall was employed as an on-site contractor. He had the government facilities at his disposal and was tasked to devise new and more efficient methods to produce standardized arms. In spite of his clever machines, the government never realized a return on their investment, i.e. reduced unit costs, because of its fluctuating order rate. The cost of rifles varied as much as 30 percent from year to year. Similarly today, we encourage contractors to develop and use more efficient manufacturing techniques through cost sharing programs such as the Industrial Modernization Incentives Program (IMIP). Yet, this is a risky capital venture for contractors due to DOD's cost based profit policy, i.e. as the contractors costs go down, so does his profit.

The problems faced by the government at Harpers Ferry in the 1800s are perennial. We have similar issues today, but with different actors. Today the DOD faces a fiscally induced

change. Jobs, both in the military and defense industrial sector are at risk, "empires" will be divided and toppled. Hopefully, a streamlined, efficient and effective management structure will emerge. There are questions we might ask ourselves based on the lessons of the Harpers Ferry armory. Are those who will implement the change the same ones whose "empire" is most threatened? Do the changes reflect the fiscal and socio-political realities of the defense management community? Are the changes well conceived so that they decrease bureaucratic friction? Is there a way to reduce the financial risk of defense contractors who opt for manufacturing innovation?

IDEAS AND WEAPONS by I. R. Holley, Jr., 1953

SUMMARY

Superiority in weapons stems not only from a selection of the best ideas from advancing technology but also from a system which relates the ideas selected with a doctrine or concept of their tactical or strategic application. (p. 14)

In this study of military aircraft procurement in the period surrounding WWI, Holley focuses on the critical link between doctrine and the development of new weapons. He identifies three shortcomings with the process of defining, developing and procuring our aircraft during that timeframe. First, he saw a failure to appreciate that "superior weapons favor victory." Decisions on design and production were made by design and production engineers without consideration of the real-time theater requirements. Second, he saw that "to adopt a new weapon without a new doctrine is to throw away advantage." The full capability of a weapon is exploited by a doctrine which drives the strategy and tactics of it's employment. And, the final difficulty he noted was a "failure to devise effective techniques for recognizing and evaluating potential weapons in the advances of science and technology." (p. 10) Without evaluation criteria, there is no consistent methodology to foster and apply those technologies which could result in superior weapons.

## ANALYSIS

Holley's historical study shows that the fledgling Air Corps grappled with issues familiar to us even today: the quality versus quantity debate; the interrelationship of doctrine, technology and experience; and effective organization for technology transistion. These issues form a resonating triangle where all three must be in harmony to produce the winning solution.

The WWI issue over superior weapons, or quality versus quantity, was a function of organizational structure. For example, we chose to build the British DH-4 and outfit it with the new American liberty engine. By the time we had redesigned the aircraft to accept the engine the British had switched to production of the more capable DH-9. The Bureau of Aircraft Production (BAP), pressed by the desire to freeze design and meet production goals, chose to build the inferior plane. The BAP and the Division of Military Aeronautics (DMA) were set up as two separate organizations with no established policy of coordination between them. The BAP's unilateral decision to "make a showing" did not recognize the operational (DMA) goal to maintain performance superiority over the enemy. Today we often operate on the opposite side of this issue and emphasize technological sophistication to the detriment of timely delivery to the field.

The mission of Air Force Systems Command is to deliver technically superior weapons systems to the operational commands. Producer, user and contractor work closely together to meet the operational requirements. However, our penchant to pursue the cutting edge of technology can overpower rational cost considerations. Technical sophistication does not necessarily equate to superiority in war. An expensive, highly sophisticated fighter or bomber might be just as useless in today's most likely engagements at the lower level of the conflict spectrum as a WWII model. Superior weapons are a product of both capabilities and the doctrine to exploit those capabilities.

Doctrine, the second leg of the winning triangle, is the distillate of practical experience. The author provides evidence that the Air Service was not organized to conduct in-depth, objective post-war (WWI) analyses of airpower contributions. Moreover, there were limited methods to secure and study the air doctrines of foreign countries. We embraced the generally accepted airpower roles of reconnaissance and ground troop support. But without any operational background in strategic bombardment we failed to expand our doctrine. Lacking even an elementary concept of aerial bombardment, we had no standard against which to select the best engineering concepts during or after WWI.

Today's technology explosion holds the potential for capabilities yet unaddressed in aerospace doctrine. We have an urgent need to think and write about the future concepts of aerospace power application in order to update our experience based on doctrine. The doctrinally prepared mind can then establish a rational decision matrix for selecting fiscally prudent and operationally suitable superior weapons on the basis of the best use of advancing technology.

The third and final side of the winning triangle is having an effective organization for technology transition. WWI saw tremendous growth in aeronautical engineering. Aircraft design was not static. An improved enemy design could render our aircraft obsolete overnight. For various reasons the operational staff failed to establish focused, coherent relations with the civilian scientific and engineering community. Thus they were unable to channel the talents needed to produce a warplane of entirely American design for WWI.

Today we have excellent communications and cooperation with the scientific community. The overriding factor which determines which technologies to pursue and systems to build is the military budget, in particular, the line item appropriation. The difficulty lies in the fact that militarily sound decisions can be changed for totally unrelated political reasons. There is probably no solution to this disconnect except to demand honesty from both groups. It would be

interesting to strip away the internal and external gamesmanship of defense planning and baseline requirements against a sane estimate of our national security threat. Perhaps then it would be easier to define the capabilities of a superior weapon, to know which technologies should be pursued and to have a doctrine which fits our world situation today. This is a purely utopian train of thought, but nevertheless, still worth thinking about.

THE TENDER SHIP by Arthur M. Squires, 1986

SUMMARY

We are in trouble if policymakers cannot count on competent execution of a technological change that is important to the future of our nation. (p. xvi)

This book is about how the government manages technological change. We don't do a good job according to author Arthur Squires. Based on 43 years of personal experience, he observes that there has been a degradation of integrity and proficiency in those who nurture and apply new technologies. He believes that we no longer have a viable structure to grow the "maestros of technology" - those often anonymous scientists and engineers who have apprenticed in the world of research and development and understand the subtleties of its management. He compares the management of both successful and unsuccessful programs and finds that today's rigid and top-heavy (i.e. tender) government bureaucracy fosters complacency and conformity and squelches knowledgeable criticism. Squires concludes his book with several ideas to create a "flexibly expansive, loose management structure that functions in an atmosphere of trust." (p. 206)

ANALYSIS

Squires is correct when he writes that the economic and military strength of the U.S. is threatened by a decrease in the experience, and probity of those who manage technological

change. The scientific community was once considered a bastion of integrity. In recent years however, it has been rocked by the scandal of researchers who have doctored their experimental results. Research, by nature, is fraught with uncertainties and dead ends, so that any attempt to control it with a rigid timetable is untenable. Scientists and engineers who find themselves pressured to meet a constraining schedule can be tempted to manufacture successes. Indeed, we saw this in the development testing of an army missile wherein a defense contractor rigged the test.

Millions of taxpayer's dollars have been wasted by the technically uninformed decisions of the multi-leveled defense management bureaucracy. Whenever a defense management decision is made without consideration of its technological implications there is the potential to waste time and money. For example, an extra 'bell and whistle' may be approved because it seems like a minor change in computer code. But the experienced software manager knows that if the decision is made after the software has been developed and tested, those few lines can mean big dollars and major delays.

The maestro knows when and how to apply the "Law of the Third Best." Technology is changing so rapidly that the ultimate system design, the "first best," is always just beyond reach and never gets built. "Second best" is the system which takes too long and costs too much to develop and field because

it relies on immature, unproven, or costly technologies. The "third best" choice is to select the technologies that will work, have acceptable costs and are available when we need them.

Squires outlines actions which the Government could take that would improve the efficiency in managing technology. His suggestions make sense and if implemented would be a step toward a healthy, diversified, technology base to tap for defense systems requirements.

A fundamental change in how the DOD funds basic research is long overdue. The author speaks of block research grants (as opposed to individual grants) to be given to universities. Peer review of the work would provide self-monitoring of its quality and usefulness. Currently, a significant portion of grant monies is earmarked by universities for overhead expenses. Under a block grant this money would be reserved for award to specific researchers for work which is germane to DOD objectives.

There are a limited number of companies qualified to manufacture the big dollar military systems. For example, only two companies manufacture engines for our fighter aircraft. But is anyone else thinking about the next generation of engines? The author contends that we should give qualified companies a percent of the Air Force budget for engine

procurement to spend on R&D for better engines. In this way companies can supplement their IR&D dollars and share the risk of developing new technologies with the potential user.

Squires feels that when it comes to the development activity for potential mega-purchases we should reassess our attitude toward cartels (groups of companies sharing their research results). He believes that they offer a way to nurture competition yet also encourage interchange among companies vying for the big ticket items. Indeed, we see the spirit of his recommendation in the DOD procurement concepts of dual sourcing and leader-follower relations.

In summary, Squires book does not offer any novel insights on managing technology change. A basic course on managing R&D will touch on all the observations and ideas that the author puts forth. However, for those inexperienced managers and policymakers who dabble in the technology arena, the book is an excellent basic source of information.

HARNESSING THE GENIE by Michael H. Gorn, 1988

SUMMARY

We were still in the throngs of World War II when Gen. Hap Arnold told Dr. Theodore von Karman to " [M]ake me a report. What I am interested in is what will be the shape of the air war, of air power, in five, or ten, or sixty-five years." (p. 13) Since Toward New Horizons was completed in 1945 under von Karman's leadership, the USAF has sponsored four additional major technological forecasts plus several smaller efforts.

In this monograph, Air Force historian, Michael Gorn outlines and examines the five USAAF/USAF science and technology forecasts from 1944 to 1986. Two themes emerge from this work. First, that:

... technology is for the Air Force at the very heart of its existence as an institution. As a consequence, the USAF and its predecessor organization have always recognized the singular importance of science to their survival. (p. v)

Second, the character of forecasting has changed over the past forty-five years from reliance on the expertise of prominent civilian scientists (the Scientific Advisory Board) to the use of military scientists and engineers.

In his concluding remarks, the author expresses concern with this shift away from the broad insight and judgement of independent civilian scientists. He recalls the observation of

Gen. Arnold that, "the technical genius which could find the answers...was not cooped up in military or civilian bureaucracy, but was to be found in universities and in the people at large."(p. 186)

### ANALYSIS

The historical perspective presented in this book is highly relevant to today's Air Force as we grapple with the problem of where to invest limited defense dollars to ensure that the lean AF of the future remains technologically superior. The military vision of Gen. Arnold coupled with the skills of Dr. von Karman set the standard for how to define and mold future airpower capability. Both men clearly understood that "scientific results cannot be used by soldiers who have no understanding of them, and scientists cannot produce results useful for warfare without an understanding of the operations."(p. 39) On a trip to Germany Von Karman visited the remains of a top secret German research institute at Braunschweig. Here he found evidence of advanced projects in ballistics, aerodynamics and jet propulsion. For whatever reason, this exciting work was never applied to military needs - if it had been, WW II may have ended differently.

In the first major technological forecast Von Karman and the USAAF SAG (Scientific Advisory Group, later to be called the Scientific Advisory Board or SAB) pooled together top US

senior scientists and had them predict the trends for new scientific knowledge. Then these trends were assessed for military usefulness, practicality and cost. Toward New Horizons was enthusiastically accepted by both the military and Congress and became the basis for air power investment funding. In 1964, Gen. Bernard Schriever structured an equally successful forecasting effort, Project Forecast. He effectively tapped the insight of top civilian scientists engineers in various technology arenas. Their ideas were reviewed by technically competent and operationally experienced members of the military. Finally, promising technologies were translated to military capabilities and evaluated for cost.

While succeeding forecasts also had the same general goals as von Karman's and Schriever's efforts, they deviated from the proven methodology in an important way. The New Horizons II forecast of 1975 was an in-house Air Staff study conducted by, and almost exclusively with, members of the DSC for Plans and Programs. Civilian scientists and the SAB were only used as consultants. The divorce of the civilian scientist was complete in 1986 when Air Force Systems Command conducted Project Forecast II. It was accomplished entirely by Air Force scientists and engineers. Von Karman supported the need for technically astute military personnel, but saw this only as a link to appreciate the practical strategic and tactical potential of emerging technologies. To do otherwise

immediately limits ideas to those that ensure existing projects retain their funding or pet projects are championed.

The dramatic restructure of the communist world and the significant US deficit make it an ideal time to reevaluate our defense investments. If we can return to the essence of von Karman's methodology perhaps it will be easier to choose those technologies which offer the greatest potential for military payoff. We might also take an objective look at some of our most far reaching and costly development programs. Perhaps we will find that we are expecting too much of immature technologies.

CHAPTER 3

BOOK REVIEWS: DEFENSE MANAGEMENT REFORM

THE DEFENSE INDUSTRY by Jacques S. Gansler, 1980

SUMMARY

The overriding fact is that the United States is spending more and more money on its defense posture and yet is building fewer and fewer systems and presenting less of a credible defense each year.  
(p. 219)

Gansler perceives that the underlying reason for this serious incongruity is that the defense industry is not structured to operate efficiently and economically within the free market. Yet, the laws, regulations, policies and practices controlling it are based on traditional free market tenets. The author presents his comprehensive analysis of the defense industrial operation supported by 25 years of experience in the military-industrial complex. He cites historical trends and specific examples to identify issues in research and development, market performance, industrial mobilization, subcontract management, sectoral differences, and multinational considerations. Gansler is optimistic that health and vigor can be restored to the defense base if corrective action is taken in the near future. To this end, he concludes his findings with seven suggestions to realign defense policy with defense economics.

ANALYSIS

Anyone who has experienced frustration working in the military-industrial complex will immediately identify with the

issues raised in The Defense Industry. Gansler has practical experience in the defense industry, an industry which he describes as fraught with serious problems which threaten US military responsiveness and warfighting capability. He begins the book with a macro view of defense industry economics compared to the economics of the free market and discusses areas of incompatibility. As an example, in the free market, demand is related to price; in the defense market, demand is determined by the "threat." (p. 31) Seen from this macro perspective it is immediately obvious that free market traditions don't describe the defense market. If the Government would recognize this fundamental difference, then its laws, regulations, and policies could be written in context of the unique business relationship between DOD and industry. The book is replete with convincing facts, figures, trends and examples which support the author's findings.

The author concludes his analysis with seven specific policy alternatives, which implemented, realign the defense acquisition policy. They are not off-the-shelf answers, rather they are biased, based on economic analysis and reflect the military acquisition practices of the 70's. Thus, each must be fleshed out with analysis, discussion and debate of its economic, legal, political and national security implications. Furthermore, Gansler's total focus and the resulting burden of change rests on government initiative. The defense industry,

motivated by profit, is also anxious to make changes. The best solutions will be found therefore, by soliciting and incorporating ideas from defense industrial leaders.

Any changes to the defense acquisition policy must recognize that the military-industrial complex operates within a unique business environment, one that will not perform economically or effectively in the free market. There is much friction within the defense acquisition process because Government controls defense industry by free market tenets. The Government then tries to reduce this friction with an ever increasing list of laws and regulations which further hinder the economical and effective operation of its defense contractors. Industry knows what the basic problem is. Government, both Congress and the DOD, must also recognize the basic problem and act on this knowledge to remove a major source of friction (i.e. streamline) in the defense acquisition process.

THE DEFENSE MANAGEMENT CHALLENGE by J. Ronald Fox, 1988

SUMMARY

My goal is to point the way to improving the management of billions of dollars spent annually on defense R&D and production programs. Defense acquisition contains much that is right... There is also much that is wrong. (p. 3)

The author, J. Ronald Fox believes that the weapons system acquisition process is far longer and more expensive than necessary. He begins his book with a concise historical overview of the defense acquisition process. Then he focuses on the roles and interfaces of key defense management players - the Congress, the Department of Defense, defense contractors and military and civilian managers.

Fox observes that even though there have been several attempts at acquisition reform, many have just been cosmetic solutions (such as a reorganization) which only added to the layers of oversight and reporting. The "underlying counterproductive incentives usually remain"(p. 51) and the cost overruns, schedule delays and late deliveries continue. He further notes that previous reforms have often stopped at the "public relations campaign...instead of monitoring... and following up to ensure lasting change occurs." (p. 321)

The key idea Fox transmits to his readers is that the Government doesn't take acquisition management seriously enough. This is best evidenced by the grossly deficient education,

training and career development for military and civilian managers at all levels. Until this area is addressed there will be "little accomplished in the way of lasting change."  
(p. 312)

### ANALYSIS

Fox has been involved with defense acquisition for almost 30 years. His book is a clearly written investigation of the challenges facing individuals in the defense management community today. He contends that one of the major underlying and undermining reasons previous reforms have not endured is that individuals in positions to implement the directed changes often had neither the appropriate training nor motivation to see them through.

Fox's call for a professional acquisition career path is a common sense solution which has only recently been embraced by military personnel. As late as the 70's, acquisition was viewed as either a career broadening assignment (single tour), or a mid-career transition option for scientists and engineers. It was not until the early 80's that the Air Force defined a viable career path and developed certification standards for acquisition officers. Presently, only a handful of officers meet the qualifications for the highest levels of certification. It will be another ten years before there is a sizeable cadre of of senior officers who have followed a

dedicated path to become professional acquisition managers. Efforts to establish a comparable program for Air Force civilians are progressing more slowly.

Hand-in-hand with an establish career path, there must also be positive rewards. Current personnel policies reward counterproductive management techniques. For example, the active manager who finds innovative ways to save money in one year is rewarded with a budget cut the following year - usually to bail out the manager who failed to make adequate contingency plans.

Education and training could be rewards in themselves since industry continually offers lucrative jobs to retired defense managers. However, congress has passed laws in recent years which limit the movement of government employees into the defense industry. Conversely, this along with the lower salaries, makes industrial managers hesitant to assume appointed positions within the DOD and robs the DOD of their experience and perspective.

The lack of competent, professional defense managers at all levels has institutionalized cost overruns and late deliveries. As various reforms and quick fixes addressed the specific problems, the amount of oversight (micromanagement) grew. And unfortunately those looking over the shoulder of the program manager don't always have the detailed insight to make

the smart decisions. We have in effect, given program managers full responsibility but only limited authority to execute their programs.

If we are to absorb the major budget cuts of the future yet maintain a viable fighting force, the defense acquisition community must be streamlined. We must ensure that the military acquisition career path remains viable and establish appropriate career opportunities for our civilians. Training must be rigorous and targeted to appropriate management levels. We must provide incentives for effective, cost-conscious managers. Program managers must be given authority commensurate with their responsibilities. And finally, as the level of expertise increases, the need for multilayers of inefficient micromanagement will disappear.

NATIONAL DEFENSE by James Fallows, 1981

SUMMARY

James Fallows, a journalist, wrote this book to offer the general reader insight into defense management matters and ultimately defense policy formulation. He touches on a number of topics, such as: defense planning; weapons system acquisition; "careerism" in the military; and the politics of nuclear strategy. He weaves these subjects together with three themes. First, he contends that defense planning is often centered on rigid numerical analyses which do not anticipate the uncertainties of the future. Second, war and its deterrence are fundamentally different from the other things people do, and so solutions from everyday life don't apply. And finally, increased defense spending does not necessarily equate to better defense. (pp. xiii-xv) He concludes his book by identifying four efforts to "impose more constructive patterns on national defense." (p.171)

ANALYSIS

This book is not written with the depth of understanding and breadth of experience of Gansler or Fox. Instead, Fallows addresses broad themes in national defense to give the average reader a feel for how defense policy is shaped. In his concluding remarks, he calls for an effort to "establish the conditions for greater coherence in the way that the nation

makes its choices for defense."(p. 171) Coherent choices are the result of having an integrated defense policy.

According to Fallows, the most pervasive problem in defense management is the lack of a sensible basis (i.e. policy) for defense spending. He believes that the defense budget is the result of a "ritual of indiscrimination with a heavy moralistic overtone..."(p. 177) Budget decisions are often reduced to a question of "more" or "less," a balance between the "left" and "right."

There are those who seem to believe that more dollars equates to a better defense and thus, they unquestionably support all new weapons systems. They see the military as the key political instrument in the international arena. Their logic might say, "Higher defense spending would help maintain the flow of oil from the Middle East" or "The Soviets are outspending us by x percent of GNP, therefore we should spend more." Their logic precludes any judgement of a weapon system's utility compared to the other choices available. More dollars relates directly to only one thing - higher taxes or tradeoffs with other federal programs. It has nothing directly to do with oil flow or maintaining a technology edge over the Soviets.

Equally indiscriminatory, are those who predictably oppose any new weapon system. They tend to see a very small role for

the military in international relations. They operate from the moral high ground of "war is abhorrent, cut defense and increase social programs." Programs get cancelled for fiscal reasons without concern for ways to improve our nation's defense. Less defense dollars does not necessarily make more available for alternative programs. Nor does it mean a leaner, meaner military force.

Fallows observed that, "when arguments about defense come unmoored from the facts, they stop being about defense at all. Instead, they concern other things, invariably at the expense of attention to real military values." (p. 180) How do we address defense issues in a rational, coherent way? Perhaps we need a baseline understanding that a given level of defense is needed, and that some level of modernization is prudent. Next we need a meaningful approach to make sensible comparisons among new weapon systems. This means that precise arguments must be based on the warrior's perspective and the practical value of any system to the total defense of the nation.

THE DEFENSE GAME by Richard A. Stubbing, 1986

SUMMARY

The formulation of US defense policy is at once a debate - concerning complex judgements as to military threats, requirements, strategies, and technologies - and a tug-of-war - between powerful and often unseen interests in the defense establishment. Thus, the defense program we create is in no way a rational blueprint leading from clearly identified threats to coherent military plans and efficient defense expenditures. (p. xii)

The author, Richard Stubbing, draws on two decades of OMB experience to expose the "inefficiencies of US defense spending." (p. xiv) In a book replete with case studies and anecdotes, he looks at how major decisions are made in the Pentagon - budgets defined and weapons chosen. Typically, he finds that "narrow interests can dominate the decision-making process for defense, obstructing the goal of a cost-effective military program." (p. xiv) Next, he addresses how the DOD manages its business, i.e. purchasing goods and services, awarding contracts and managing manpower. He believes that reform can significantly reduce the cost overruns and waste that he saw. Above all, the author feels that the key to defense management reform lies in having a Secretary of Defense with certain personal characteristics. From an evaluation of five SECDEFs, he concluded that the following elements are critical: "prior experience in defense; a collegial rather than autocratic working style; and experience in dealing with Congress and the press." (p. 400) And absolutely essential, the

President must have complete confidence in this person. The author concludes his book with a broad range of suggestions to correct inefficiencies in DOD's decision making and business management policies.

### ANALYSIS

In the first part of his book, Stubbing addresses four broad areas where internal debate and tug-of-war waste dollars: planning and budgeting processes; conflicting service priorities; major weapons systems acquisition; and the "soft underbelly"- small purchases, pay and manpower requirements.

In general, Stubbing writes of the same defense management issues that are also covered by other proponents of reform. The corrective actions he suggests are an iteration of the solutions that were espoused during the early eighties. Many have now been implemented. For example, raising of the base closure debate above the parochial concerns of individual congressmen; greater use of service contracts; past performance used as a consideration for contract award; establishment of independent test and evaluation organizations, increased emphasis on "jointness" across all aspects of the military mission; and more.

Stubbing's book contributes to the defense reform literature in two ways. First, his liberal use of case studies gives the general reader a sense of the complex nature and

multifauceted interplay of the forces which shape defense management. In particular, he shows that Congress is just as culpable as the DOD in the inefficiency and mismanagement problems of national defense. Micromanagement of multiple committees and subcommittees, decisions made for political ticket punching, manipulation of program schedules via budget fluctuations are some of the ways that Congress hurts defense management.

The author's second contribution is his survey of five recent SECDEF's, starting with McNamara and ending with Weinberger. Of all the players in the defense game, the SECDEF is the critical integrator. His ability to define broad military policy goals and maintain good working relations with each of the services, the Congress and the White House set the mood for all the internal and external interactions of the DOD.

As we make major force reductions and realignments over the next few years it's important that we continue to identify and correct the costly management inefficiencies that have grown over time. The key person in this effort must be the SECDEF. Congress, on the other hand, must recognize that there are some decisions that must be made for the good of the nation.

WILD BLUE YONDER by Nick Kotz, 1988

SUMMARY

Author Nick Kotz closes his book with the assertion that the defense acquisition system is "spinning madly out of control." (p. 250) He reached this conclusion after a detailed look at the Air Force's thirty year effort to build a new strategic bomber.

The B-1's development has been marred by political indecisiveness, bureaucratic obsessions, the Air Force overreaching, parochialism, partisan demagoguery, and an utter lack of consensus on the defense priorities and procurement strategies. (p. 249)

Kotz sees that billions of dollars have been spent on unnecessary weapons systems, which were justified at the expense of a coherent defense strategy. Furthermore, the author believes this has led to "a r mindless acceleration of the arms race." (p. 235)

Kotz concludes his investigation with several observations about the negative effects of defense management politization. First, he finds that there is a lack of "independent thinking, ...truly dispassionate advice" (p.245) given to the President and the Congress. Second, he sees that the military has engaged in the "corrupting practices of defense politics" to the detriment of their integrity. (p. 248) Conversely, Congress and the Executive Branch have abrogated their responsibility to make decisions based on national goals. And

finally, the national economy has been unable to support the transition of defense industry workers into rewarding non-defense jobs.

### ANALYSIS

Kotz presents a detailed, eye-opening example of the political pressures that occurred at all levels of management in the strategic bomber program and how these complex, pervasive forces drove the process towards goals that were inconsistent with national interests. Today we are entering an era of decreasing defense budgets and reduced tensions with the Soviet Union. It is imperative that we make smart defense investments that are not encumbered by the same types of political manipulation experienced on the B-1 program.

Kotz is correct when he observes that it is difficult for the decisionmakers to get candid defense advice. The DOD often couches its information in terms favorable to the political and economic climate. For example, after President Carter cancelled further B-1 development it was repackaged under other names like "advanced avionics" and "strategic bomber enhancements." The author calls for the establishment of a committee along the lines of President Eisenhower's Science Advisory Committee to provide "dispassionate advice." The likelihood of such a committee being able to isolate itself from lobby groups is slim. There is no evidence that its

findings would be received any more favorably than those already available through GAO reports and other special study groups.

Kotz is right on target when he says that the integrity of the an officer's professional judgement is suspect when tainted with political involvement. The military don't belong in the political game, especially not as lobbyists teamed with their contractors to subvert the decisions of the Commander-in-Chief. Rational decisions based on threat assessments and cost-benefit tradeoffs carry little weight in the political arena where contractor selection and basing decisions are trading cards for military appropriations.

The self-serving political influences that tend to dominate the defense aquisition process are insidious and difficult to overcome. It can only be done when lawmakers align their personal goals with national security priorities.

The crux of the political issue is that the economic health of many communities is tied directly to a local military installation or defense plant. A decision by the DOD to close a base or cancel a weapon system is quickly opposed by elected officials, even if analysis shows that it is a fiscally or technically sound move. This is because little thought is given to economic alternatives which might mitigate the financial blow to communities and individuals.

Kotz's study is a revealing look at the extensive role of politics on major defense investment decisions. Other authors (i.e. Gansler and Fox) have focused on different, but equally influential factors to the effective and cost efficient defense management. Their works, together with Wild Blue Yonder, provide a balanced picture of the forces driving the defense acquisition system today. The political consideration is probably the dominant shaper of today's armed forces. We must seek ways to depoliticize defense management so that sound financial investments can be made in the name of national security interests.

AFFORDING DEFENSE by Jacques S. Gansler, 1989

SUMMARY

Overall the United States is getting fewer and fewer weapon systems, at high cost - and these are not the most militarily efficient weapons, though their individual performance is very high. (p. 319)

In this, his latest book, Gansler steps back from the details of defense industrial economics which characterized The Defense Industry, and questions the affordability of our national security policy. He sees "an incongruity between our posture statements and the reality of our capability." (p. 3) Eschewing the extremes of isolationists and those who call for unilateral disarmament, he poses a more moderate approach to meet national security objectives in this era of escalating weapons costs. The basic problems he identifies fall in four major areas: deficiencies in military strategy, weapons selection, and budgeting; shortcomings in the process of acquiring weapons; growing industrial problems in the efficiency and effectiveness of weapons production; and growing personnel and facilities costs. (p. 6) He is particularly concerned that "if we are not extremely careful in the way changes to defense management are implemented, the result could be a system that is far worse." (p. 6) He examines each of these areas in detail, then concludes with several sensible ideas to match the weapons we buy to military strategies, trim

the fat from the military budget, and improve the overall efficiency and effectiveness of defense acquisition process.

### ANALYSIS

In this articulate and thought provoking book Gansler addresses the timely issue of effective defense management in an era of constrained military budgets. Two themes run through his assessment. First, there must be a positive relationship between our national security policy and the military forces we field. Second, fundamental cultural, organizational and procedural changes in defense management can yield significant cost savings.

Gansler is correct to ask the question, "Is the structure of the armed forces consistent with US national security posture?" The author's answer is "no." He believes that redundancy among the services, disconnects between requirements, costs and technologies, and a lack of feedback to the PPBS system are the prime culprits.

The author suggests more emphasis on "jointness" in planning, budgeting and selecting weapon systems. The JCS reorganization and increased role of the chairman are certainly steps in the right direction. A move toward centralized procurement decisions would provide a structure to identify and handle overlapping system requirements so that three functionally similar widgets aren't being developed. On the

other hand, all non-milestone decisions should remain in the hands of the service program manager who is responsible to bring the system in on-time and within cost.

Gansler also believes that a "joint" perspective will "ensure that nontraditional uses of advanced technology are encouraged" and can offer "the potential to fulfill a military mission in a new and different way at a much lower cost." (p. 334) He feels that the services are stuck in the rut of merely buying updated versions of the systems we already have - a new bomber, a new tank, etc. If a requirement is identified in terms of a mission (need real-time battlefield reconnaissance) versus a specification (procure 200 pairs of ruggedized 30X binoculars), then the industrial community can work with the government to define the most technically effective solution (scout, balloon, aircraft, satellite) unencumbered by the existing method of accomplishing the task. Moreover, now the government can assess the marginal value of the various designs against their costs.

A final reason our force structure becomes out of synch with the security threat is that the military budget can be manipulated by Congress without regard for the long term ramifications. We don't prepare a mission oriented budget that clearly relates to our national posture. And, once the dollars have been appropriated, there is no formal feedback as to how effective the decisions were. Gansler proposes that an

evaluation phase be added to the PPBS system so that the DOD and Congress can assess implementation against plans. If the DOD were on a multiyear budget cycle there would be more time to do this comparison.

A recognized expert on defense economics, the author estimates that annual savings of at least 17 percent (approximately \$50 billion) could be realized through changes in the way we manage defense. Gansler proposes a mix of specific reforms to remedy the problems which drive up the costs of our national security posture. He writes of such things as closing unneeded bases, delaying military retirements, reducing PCS moves, multiyear budgets, increased reliance on reserve forces, simplified procurement regulations, and a trained acquisition force. A key point to remember however, is that fundamental restructures of "the way the DOD does business" will encounter cultural resistance. Thus, any reform must be initiated from the top, and implemented and tracked by the leadership (executive, congressional and military) over an extended period of time. (p. 322)

Gansler wrote this book prior to the startling events in Eastern Europe and the Soviet Union. This reduction in the immediate Soviet threat reduces the pressure to push for the latest technological weapons and offers the opportunity to give serious consideration to Gansler's solutions. Hopefully the drawdown of forces and stretchout of new weapons acquisition

programs will be done with an eye to match remaining forces  
with a realistic security posture.