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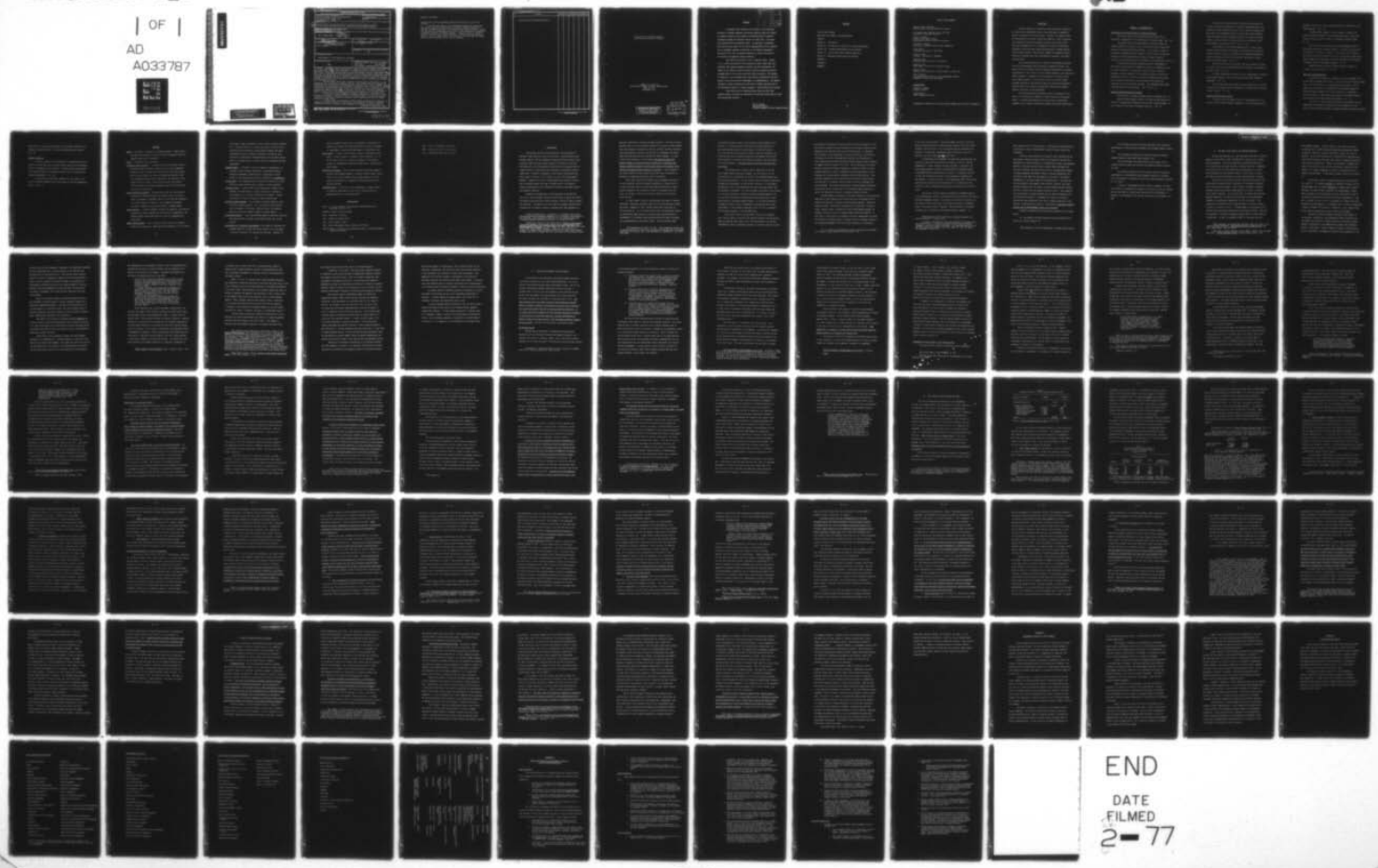

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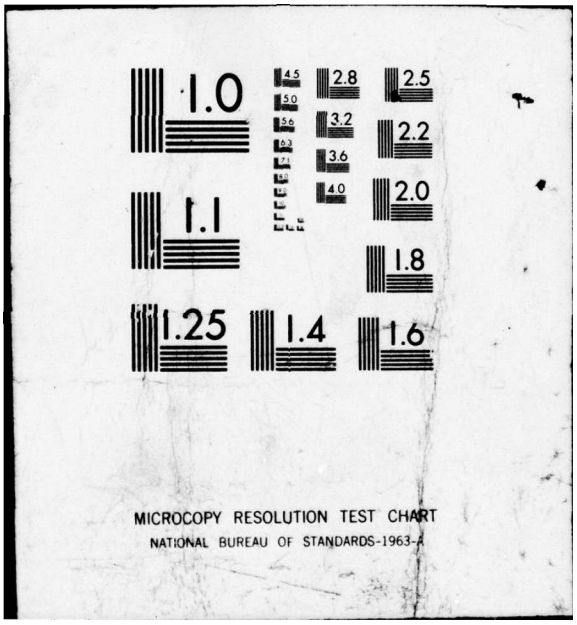
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13. ABSTRACT

Graduate education is essential to meet the nation's needs for an effective and responsible officer corps comparable to managerial groups in industry and civil government. However, the present system for determining the services' educational needs by a count of existing jobs requiring officers with graduate education has crucial flaws The panel recommends that it be replaced by a system of educational standards for each military occupational specialty, reviewed periodically by expert panels. The services' targets for educated officers should be integrated with their technological, strategic, and organizational plans.

The new system should lead to greater effectiveness and flexibility in the assignment and utilization of educated officers. The present levels of graduate education should be maintained by increasing participation in less costly off-duty, degree-completion, and cooperative degree programs to compensate for any reductions in the more costly fully funded programs. The cuts of up to 70% in the fully funded programs projected by OMB strike the panel as arbitrary and excessive. Efforts should also be made to recruit more officers with graduate degrees, especially in shortage fields.

An Educational Advisory Committee should be appointed in the Office of the Secretary of Defense to oversee the work of the expert panels, to provide continuing advice on the services' educational programs, and to improve relations with higher educational institutions.

A single office in each service should be made responsible for compiling information on officer education. The Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs) should designate the information needed, ensure its

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Abstract (continued)

comparability, and set comparable educational policies for all of the services.

A special task force of the Servicemen's Opportunity College and the services should be established to facilitate graduate education in ways which recognize the special circumstances and needs of officers, including the need for tranferring course credit, while maintaining the integrity of graduate education and degree programs. A special effort is needed to maintain the quality of off-duty education. Wherever possible, education should be taken on campus rather than on base, in classes taught by regular faculty, with civilian as well as officer students.

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May 23, 1975
Washington, D.C.

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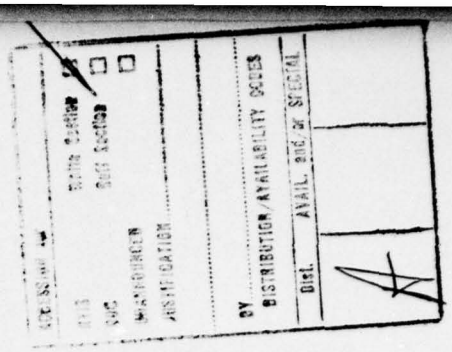

FOREWORD

In December 1974 officials of the Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs) asked the Academy to convene a panel for the purpose of providing advice on graduate education programs for military officers on active duty. The panel was presented with two principal tasks: to explicate a philosophy which can form the basis for the future implementation of the program, and to recommend possible alternatives to the Defense Department's bearing the full cost of graduate education in meeting the needs of the services for graduate educated officers.

The report of the panel is not a research report. Rather, it is a review and analysis of the principal issues, based upon data available from regular management channels and from information contained in the numerous reports bearing on military graduate education programs made by the services and other Federal agencies. The Academy is indebted to the ten-member panel that devoted considerable time and energy to the review and the development of recommendations. The members represent a diverse experience in the field of higher education and in the operational aspects of federal programs -- both military and civilian.

This review and the resulting report would not have been possible without the generous cooperation of officials within OASD (M & RA) and the military services.

Roy W. Crawley
Executive Director
National Academy of Public Administration

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HIGHLIGHTS

Graduate education is essential to meet the nation's needs for an effective and responsible officer corps comparable to managerial groups in industry and civil government. However, the present system for determining the services' educational needs by a count of existing jobs requiring officers with graduate education has crucial flaws. The panel recommends that it be replaced by a system of educational standards for each military occupational specialty, reviewed periodically by expert panels. The services' targets for educated officers should be integrated with their technological, strategic, and organizational plans.

The new system should lead to greater effectiveness and flexibility in the assignment and utilization of educated officers. The present levels of graduate education should be maintained by increasing participation in less costly off-duty, degree-completion, and cooperative degree programs to compensate for any reductions in the more costly fully funded programs. The cuts of up to 70% in the fully funded programs projected by OMB strike the panel as arbitrary and excessive. Efforts should also be made to recruit more officers with graduate degrees, especially in shortage fields.

An Educational Advisory Committee should be appointed in the Office of the Secretary of Defense to oversee the work of the expert panels, to provide continuing advice on the services' educational programs, and to improve relations with higher educational institutions.

SUMMARY OF RECOMMENDATIONS

Determining the Services' Needs for Graduate Education

The broader purposes of graduate education should not be discounted or neglected in the determination of service needs. (III - 13)

The present system for determining the services' needs for graduate education in specific jobs or billets has crucial flaws which preclude its being successfully modified. In its place, a system of educational standards should be adopted for each military occupational specialty, reviewed periodically by panels of experts from the services, other government agencies, industry, and universities. (III-1, 13)

An Educational Advisory Committee should be established in the Office of the Secretary of Defense to provide an independent source of review and advice on the services' higher education needs and programs to provide guidance to the specialized panels, to advise on educational goals for officers at the senior command and staff level, and to advise the Secretary on service educational policies and relations with universities and colleges. The Committee should submit a periodic report to the Secretary. (III - 15) (V - 2)

Reshaping Graduate Education Programs

The diversity of present programs should be preserved. (IV - 9)

Special efforts should be made to increase the participation of officers in programs less expensive than the fully funded programs, so as to sustain the net level of graduate education. (IV - 9)

Greater efforts should be made to enlarge the opportunities for and to increase participation in off-duty, degree-completion, and cooperative degree programs and other forms of partially-funded study. More stable duty assignments and more flexible daily work schedules should be permitted and encouraged, especially for study in shortage fields, so long as they do not interfere with the overriding operational needs of the services. (IV - 14) (IV - 21)

Alternatives to the Veterans Administration in-service educational benefits should be developed to encourage and to facilitate off-duty study by a system of voluntary salary deductions matched by service contributions, special scholarships, sabbaticals, tuition loans, and similar means. (IV - 15)

More attention should be directed, and more incentives offered, to recruit officers with graduate education and degrees, particularly in shortage fields. (IV - 12)

A modest experimental program of direct commissioning of officers with graduate degrees in the most serious shortage areas should be undertaken. (IV - 11)

The Air Force and Navy graduate schools should seek to economize by reducing the average time in residence and increasing their offerings of short courses. (IV - 19)

Maintaining Educational Quality

An effort should be mounted jointly by representatives of the services and the higher education community to monitor and maintain the

standards of quality in officer graduate education, especially in off-campus programs. (IV - 15)

The educational community should formulate, announce, and observe voluntary standards of good advertising practice, instructor selection, and the award of credit in offerings at military bases. (V - 4)

The time is ripe to extend to the graduate school level the Servicemen's Opportunity College concept of a network of institutions facilitating the transfer of credit. A joint task force of SOC and the services should be established to do so in ways that recognize the special needs and circumstances of officers and maintain the integrity of graduate education and degree programs. (V - 6)

Wherever possible education should be taken on campus, in a normal classroom situation. (IV - 21)

Improving Program Management

Four steps are essential if graduate education programs are to be monitored and managed effectively: (1) the provision of better information; (2) the enunciation of common educational policies; (3) the adoption by each service of comprehensive and comparable methods of monitoring these programs; and (4) the formation of a high-level advisory committee to facilitate closer working relationships between the services and the higher education community. (V - 1)

One office in each service should be made responsible for the compilation of educational information and its transmittal to the Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs).

That Office, in turn, should designate the information needed to discharge its responsibilities for setting Defense education policies. (IV - 8)

Needed Information

A study is needed of the consequences of graduate education obtained in various ways and at various career stages upon the subsequent service of comparable officer cohorts. Estimates should also be made of the relative benefits of retention and the costs of attrition and training replacements. (II - 5a)

A study should be made which compares the full costs of the Air Force and Navy graduate schools with those of civilian engineering schools. (IV - 17)

GLOSSARY

assets -- the number of officers with graduate degrees; usable assets -- the number with degrees in fields for which requirements have been formally specified or "validated"

billet -- an officer's job or position

cooperative degree program -- a program in which officers may study for a graduate degree (normally, a master's) by special arrangement between a service college (such as the Naval or Army War College) which officers attend for a year of professional military study and a degree-granting civilian institution. In addition to their regular military courses, participating officers take special courses offered by, and receive graduate credit from, the cooperating civilian institution.

degree completion programs -- programs under which an officer who has accumulated a substantial amount of graduate credit by off-duty study is assigned to a graduate school, on full pay and allowances, for a period limited to twelve or, more commonly, six months, in order to complete his studies and obtain a graduate degree

Delphi exercise -- a method, whereby, through the completion of successive questionnaires whose findings are reported back to respondents, the dominant and/or alternative views of a group of respondents are articulated

fully funded programs -- those in which officers are sent to graduate school for a period up to three years (the average is 1.5 to 2 years),

with salary, family allowances, tuition, travel, and other expenses paid. Officers enroll at a civilian university or one of the two service schools accredited to award graduate degrees (the Naval Postgraduate School at Monterey, California, and the Air Force Institute of Technology at Wright-Patterson Air Force Base, Dayton, Ohio) in an agreed field for which a military requirement has been established

graduate degree -- a master's or doctor's degree in engineering, the sciences, social sciences, humanities, international affairs, education, management, administration, journalism, and other fields of post baccalaureate study not classified as professional

lateral entry -- the commissioning of civilians as officers at a level above the normal entering rank of ensign or second lieutenant

off-duty courses -- courses taken after working hours, usually in the evening, in classes held at a nearby university or college or, more commonly, at a military installation ("on-base"). On-base courses may be offered by nearby or distant institutions

partially funded programs -- all programs of graduate education other than fully funded programs: i.e., all those in which officers are not assigned to full-time, continuous study, all expenses paid, for the period needed to obtain a graduate degree

professional degree -- a post baccalaureate degree in medicine, dentistry, veterinary medicine, nursing, other health fields, law, or the ministry

requirements or "validated" requirements -- the number of officers with graduate education in specified fields needed to fill the number of billets "validated" for officers thus educated. Allowing for

various redundancy factors such as assignments to operational or combat units in which few validated billets are found, the number of requirements is about double the number of validated billets

short course -- a brief, often intensive, course of instruction and/or study. A "short course" is isolated or self-contained; i.e., it is not taken as part of a cluster or program of courses which results in a designated professional qualification, certification, and/or degree

shortfall or shortage -- the difference between the existing number of officers with graduate degrees in required fields (fields in which billets have been validated) and the number needed to fill all positions designated (or validated) as requiring officers with specified degrees

validated billet -- a position or job designated by a formal process of review as requiring an officer with a specified level of graduate education in a specified field

Abbreviations

AFIT -- Air Force Institute of Technology, Wright-Patterson Air Force Base, Dayton, Ohio

BUPERS -- Bureau of Naval Personnel

DOD -- Department of Defense

GAO -- General Accounting Office

JCS -- Joint Chiefs of Staff

NPS -- Naval Postgraduate School, Monterey, California

OASD (M & RA) -- Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs)

OMB -- Office of Management and Budget

ROTC -- Reserve Officers' Training Corps

SOC -- Servicemen's Opportunity College

I. INTRODUCTION

The military services have been aware of the importance of advanced, formal education since the Civil War. During the past three decades, however, with the dispersal of American military forces around the globe, there has been a great increase in the need for officers with education at the baccalaureate level and above to prepare them for a great variety of roles beyond the traditional professional officer's combat mold -- technical, managerial, intercultural, and geopolitical. Today, about 15 percent of all officers on active duty hold graduate degrees.[1] Slightly over half of these degrees were earned by officers sent to graduate school full-time to prepare them to fill specific positions identified by their respective services as requiring officers with graduate education.

Because of the magnitude of the funds spent by the military services on officer graduate education ($70 million in fiscal year 1969), the General Accounting Office (GAO) undertook a review of these programs.[2] The focus was: (1) whether or not the needs for graduate education were inflated; and (2) whether officers so educated were used adequately in

[1]Some 45,000 officers. In addition, about 28,000 officers held post-baccalaureate professional degrees (e.g., in medicine, law, dentistry and theology). Data supplied by the Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), as of March 31, 1975.

[2]Comptroller General of the United States, Report to the Congress: Improvements Needed in Determining Graduate Education Requirements for Military Officer Positions, B-165558, August 28, 1970. The cost cited refers only to the "fully funded" programs -- those in which officers are assigned to graduate-degree granting institutions to take a full graduate program (from start to finish) with all costs borne by the military service.

positions identified as requiring graduate education. This was the first DOD-wide study of officer graduate education by an agency outside Defense. Since then subsequent inquiries by the GAO, the DOD, the House Appropriations Subcommittee on Defense, and the Office of Management and Budget (OMB) have been made about the operation of these programs. In order to gain fresh perspective on the issues, this panel was given the specific charge to review the present system and to recommend those changes considered necessary to meet most effectively the needs of the services for graduate level education of officers. A quick summary of the recent history of these studies and of DOD policy initiatives is necessary to understand the panel's point of departure.

Until 1964, each service managed officer graduate education by its own standards, without any general Department of Defense policy. In 1964, the Joint Chiefs of Staff established guidelines for identifying, determining, and reviewing the needs for graduate level education of officers. They did not specify, however, how such needs should be met.[3]

In 1966, Thomas D. Morris, then Assistant Secretary of Defense (Manpower), initiated a DOD-wide study of all officer education systems. The report, completed in 1967, outlines seven major objectives for officer education: (1) all officers should hold a baccalaureate degree; (2) differences among services in officer career patterns should be accommodated; (3) graduate level education should be used to increase the professionalism of the officer corps; (4) the principal needs

[3]JCS Memorandum 149, March 17, 1964. These guidelines implied that all graduate-trained officers (not just those who had been sent to graduate schools by the services) were to be considered as candidates fo fill identified needs.

for graduate education should be met through civilian academic institutions; (5) in-house service institutions should be used only to meet those graduate education needs unique to a military service; (6) more effective means should be found to identify, determine, and review military officer graduate education requirements; and (7) DOD should endeavor to establish long range requirements (into the 1980's) for officer education. The panel believes that these objectives are still valid.

The 1970 GAO report revealed several weaknesses in the DOD fully funded graduate education program: (1) the criteria for the identification of requirements for officers with graduate degrees were too broad and permissive; (2) the criteria were not applied consistently throughout the Department (or even within a service); (3) acceptable alternatives, such as work experience and short training courses, were not adequately considered; (4) little attention was given to the alternative of using civilians in positions requiring graduate degrees; and (5) there was considerable inconsistency among the services in certifying positions requiring graduate degrees. It is worth noting that, although the study focused on weaknesses in determining and filling requirements, it was neither inconsistent with, nor did it contradict the principal findings of, the 1966 DOD study.

The concern, both at the Secretary's level and in Congress, about service needs for officers with graduate education and appropriate means for meeting those needs, led to the establishment of a general, comprehensive policy on graduate education for military officers through

the issuance of Department of Defense Directive 1322.10 on March 27, 1971. This directive sought to provide guidance to the services along the lines suggested by the 1966 DOD study and the 1970 GAO study. It addressed the key issues of the educational criteria for positions, the effective utilization of officers with graduate education, and alternatives to fully funded education which would make graduate education more economical and dampen rising criticism of its costs. The following year the Deputy Assistant Secretary of Defense (Education) sponsored a study of officer graduate education in order to reexamine the basic philosophy for such programs and to assess service compliance with the DOD directive. This study was completed in 1973, coinciding with the first annual military training report to Congress, which included a section on graduate education programs. The study concluded that increasing budget constraints dictated the use of alternatives to fully funded graduate education as well as the improved utilization of graduate educated officers.

The Subcommittee on Defense of the House Committee on Appropriations continued to raise questions about the validity of requirements and the effective utilization of officers holding graduate degrees. Three more studies followed. The General Accounting Office undertook a follow-up study, issuing a report in March 1974, which acknowledged progress, but remained critical of the fully funded graduate education program.[4] In July 1974, at least partly in response to GAO and congressional criticism, the Secretary of Defense issued a revised directive on graduate education that tightened management and placed greater emphasis on alternatives

[4]U. S. General Accounting Office, Federal Personnel and Compensation Division, Letter Report B-175773, March 6, 1974.

to the fully funded program.[5] During the Summer and Fall of 1974 the National Security Division of OMB undertook a study of the fully funded program, as did the staff of the House Appropriations Subcommittee on Defense.[6] The OMB study recommended drastic reductions of up to 70 percent in the fully funded programs by FY 1977.

In undertaking its assignment, the panel was confronted with the strong criticisms and doubts about the validity or need for, and the management of, officer graduate education programs -- especially the fully funded programs. Neither the legislative nor executive branch is satisfied with the present state of affairs. To Congress, the GAO, and OMB, the objectives and costs of the programs are excessive and the products -- educated officers -- are inadequately used. The military services are concerned about the decimation of a program which they believe is vital to maintaining the quality and efficacy of the officer corps.

The military officer education programs are influenced greatly by the philosophies, policies, and practices of each service's distinctive personnel management system. In addition, the military in general, and the officer corps in particular, have become the target of increasing public criticism on a host of matters. The services may, in response, withdraw into a relatively self-contained military community. Or

[5]DOD Directive 1322.10, "Policies on Graduate Education for Military Officers," July 30, 1974.

[6]A draft of the OMB staff study was completed in September 1974, and made available to officials concerned with the general problem, although it was never formally published. The House Appropriations Subcommittee study was initiated in the late Summer of 1974; the report was completed in March 1975.

their relations with civilian society -- including civilian educational institutions -- may be reestablished on terms of mutual respect and confidence.

Given the time constraints of meeting a short deadline and the vast amount of material already extant on the subject, the panel has approached its task principally as a synthesizing, review, and assessment function. The panel and staff have received formal briefings from each of the military services and the Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), and held discussions with officials of GAO, OMB, and some members of the staff of the Defense Subcommittee of the House Committee on Appropriations. The panel has solicited material and comments from officials, scholars, and former officials familiar with the issues, and from younger military officers who have a concern with the graduate education system. (Also examined were the opinions of several hundred officers about the graduate education they had received.[7]) Throughout this inquiry, no serious question has been raised about the value of graduate education or the need for it among military officers. The problem is <u>how much is needed, and how, and at whose expense, should it be acquired</u>?

During its deliberations the panel has considered the following issues:

(1) the general rationale underlying post-baccalaureate education for officers (Chapter II);

[7]From responses to the 1973 Department of Defense Officer Survey.

(2) the means by which the services determine their respective requirements for positions whose incumbents need graduate degrees (Chapter III);

(3) the manner and adequacy of utilizing officers possessing graduate degrees to meet stated needs (Chapter III);

(4) the efficiency and effectiveness of the systems used to translate specific needs into officers with graduate education (Chapter IV); and

(5) possible alternatives to the present system of determining requirements, to the methods by which graduate education is acquired, and to the methods of utilizing officers with graduate education (Chapters III, IV, and V).

In spite of considerable diversity among its members, the panel has arrived at a consensus with respect to the nature of the key problems and how they might be resolved most effectively by the Department of Defense, with cooperation from civilian universities, the Congress, and OMB.

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II. THE NEED OF THE SERVICES FOR ADVANCED EDUCATION

The military services are a vast enterprise with some 2.1 million persons on active duty in 1974, 900,000 more in reserve, and 1 million civilian employees. They have a constantly changing workforce with over a million men and women entering or leaving each year. Commanding the military portion of this enterprise and maintaining it at operational readiness are some 300,000 officers on active duty in nine or ten ranks from second lieutenant or ensign through general or admiral.

The officer corps historically has reflected the broad national trends toward increased levels of education in the general population and in other executive groups. Thus, in 1900, 39 percent of leading business executives had some college education; in 1925, 51 percent; and in 1950, 76 percent. In the latter year, 20 percent also had some graduate education.[1] By 1964, 26 percent held a post-baccalaureate (graduate or professional) degree and, by 1972, 39 percent.[2] The proportion of officers who are college graduates rose from 47 percent in 1952 to 76 percent in 1971. A college degree is now accepted as the minimal basic educational qualification for entering officers. Many also hold graduate or professional degrees acquired before or after entering the services. In 1973, an estimated 45,000 or 15 percent had one or

[1]Mabel Newcomer, The Big Business Executive, New York, 1955, p. 69, cited in Richard Hofstadter, Anti-intellectualism in American Life, New York, Alfred Knopf, 1966, pp. 261-2.

[2]See John E. Steele and Lewis B. Ward, "MBAs: mobile, well situated, well paid," Harvard Business Review, January-February 1974, p. 101.

more graduate degrees: 41,600, a master's, and 3,800, a doctorate. In addition about 28,000 held post-baccalaureate professional degrees in medicine, dentistry, nursing, other health fields, law, and the ministry. As the armed services are a relatively self-contained institution with distinctive functions, they cannot be compared precisely to other American institutions. However, the incidence of graduate education in the officer corps, and its distribution, rising with rank, appears to be roughly comparable to that of the executive force in industry and government. In the panel's opinion, this is as it should be.

The services' needs for graduate education can be identified as a need for: (1) advanced training in substantive technical skills and knowledge; and (2) advanced education in broader theory, analytic thinking or problem solving, knowledge, and understanding. Though these two needs are distinguishable, they are functionally united in the effective officer and the effective military organization. A man who is trained in a skill but not so educated as to employ that skill prudently and intelligently is unadaptable and, in certain circumstances, a danger to himself and the public. Education, in turn, lacks social utility unless accompanied by specific skills and knowledge.

The need for advanced graduate training is most evident in the physical, mathematical, and engineering sciences underlying the development and operation of highly advanced and constantly changing weapons, transportation, and communication systems, and associated military technologies. However, advanced training in the biological, social, operational, and managerial sciences is also necessary to the

efficient and effective management, deployment, and operational readiness of these technologies and to the maintenance of an industrial and military base for rapid mobilization. The services cannot function without an intricate organization, massive in scale and meticulous in detail. Such an organization requires economic, sociological, and psychological information and the use of modern systems of financial, material, and human management that mesh smoothly with the systems of industry, government, and civilian society upon which the armed forces depend.

Many of the services' needs for advanced technical training have parallels in similar needs of "science intensive" industries or large-scale engineering projects. But many are distinctive, such as the maintenance of a mobilization base, the life and death nature of military operations, and unique features of special military technologies, organizations, conditions, and objectives.

The needs of the services for advanced graduate education are in part internal or strictly military and in part external or societal. It is this second aspect that transforms the services from being merely an effective military force into an institution that a free democratic people want, esteem, and trust.

Narrow skill can be ineffective without the broad judgment necessary to its measured use. Advanced education is one way by which officers can acquire such judgment. The higher the rank of the officer and the greater his or her authority and responsibility for setting and enforcing service policies, for participating in the formulation

and implementation of governmental policies, and for respresenting the services and the nation at home and abroad, the more important is it that he or she exercise such judgment. President John Kennedy told the West Point graduating class in June 1962:

> You will need to know and understand not only the foreign policy of the United States but the foreign policy of all countries scattered around the world....You will be involved in economic judgments which most economists would hesitate to make....
>
> In many countries, your posture and performance will provide the local population with the only evidence of what our country is really like....You will need to understand the importance of military power and also the limits of military power....
>
> That is why you cannot possibly have crowded into these four busy years all of the knowledge...which you must bring to these subtle and delicate tasks....And that is why you must go to school year after year so you can serve this country to the best of your ability and your talent.[3]

Unlike industrial and civilian government organizations, the services are largely closed systems, promoting from within their ranks and providing, except during emergencies, almost no lateral entry to senior levels. (One exception has been for medical officers.) Advanced education for officers can be obtained only by providing opportunities for mid-career education or by raising the educational and age requirements for entrance to the services to unrealistic and undesirable levels. (Congressmen and taxpayers, cadets and midshipmen would hardly want two more years of compulsory education added to the four already required at West Point, Annapolis, and Colorado Springs.) The provision of mid-career military and graduate education is a necessary concomitant of

[3] Public Papers of the Presidents, John F. Kennedy, 1962, p. 226.

a youthful, alert officer corps which, though generally closed to lateral entry, remains adaptable and open to new knowledge and ideas and to pertinent developments in industry, society, and international and public affairs.

Many -- not all -- officers wish to obtain graduate education. The proportion of those who have done so rises with each rank (this is also true in industry and in the civilian agencies of the federal government). In the early 1970s, some 39 percent of top industry executives, about 50 percent of generals and admirals, and 58 percent of the top three ranks of the federal civil service had a master's, law, or other advanced degree.[4] Hence, graduate education has become an asset to promotion, or is closely associated with other factors that lead to promotion; "77 percent of the selectees for brigadier general in the 1971 [Army] promotion list [had]...a master's, doctoral, or professional degree."[5]

Officers share the personal standards and aspirations of other Americans, who have proportionately more years of college and graduate education than the citizens of any other nation. The numbers of Americans with some graduate education, for decades, has been rising

[4]The industry figure comes from a 1972 survey reported in the Harvard Business Review, January-February 1974, p. 101; 1970 and 1973 figures of 48 and 58 percent, respectively, for generals and admirals are reported in Amos A. Jordan and William Taylor, Jr., "The Military Man in Academia," The Annals, March 1973, p. 144 and William J. Taylor, Jr. and Donald F. Bletz, "A Case for Officer Graduate Education," Journal of Political and Military Sociology, Vol. 2, No. 2, 1974, p. 261; the civil service figure is as of June 1971 (see Chapter III, footnote 17). The sharp rise in the incidence of degrees among generals and admirals reflects not only the disproportionate promotion of officers with graduate education but the disproportionate forced retirement of officers with less education during the overall reduction in the size of the officer corps.

[5]Major General Frank W. Norris, Review of Army Officer Educational System, 1 Dec. 1971, Volume I, p. 8-5.

more rapidly than those with high school or college education.

In addition to its direct, vocational value, graduate education is important to the services because it demonstrably enhances officers' self-respect and their ability to deal on an equal footing with their colleagues in government and society. To the extent that education heightens the sense of professional satisfaction of officers and renders them more likely to remain in the services, its cost is offset, and may possibly be recouped, by savings in recruiting and training new officers.

The services require a diminishing number of officers at progressively higher ranks; forced attrition achieves the necessary reductions. Most must expect to be retired after 20 to 25 years of service. At the age of 45 to 50, they do not wish to start a life of leisure and, with family responsibilities, they may be unable to do so on a pension of about half their basic pay. Most officers seek a second career, and graduate education helps to prepare them for it. In part for this important reason -- to make a service career of 20 to 25 years attractive to able men and women -- the services have rightly encouraged and assisted officers to obtain graduate education. Most executives in civilian employment have the opportunity, if they wish, to pursue graduate studies. To deny officers the same opportunity would be discriminatory, greatly damage morale, encourage resignations, and deprive the services of some of their best and most enlightened officers.

Because of the enormous interrelation of the military services and other segments of society, it is important that officers be as well educated as the executive and managerial groups with whom they interact.

The services depend, in large measure, upon civilian society for the scientific, engineering, and industrial talent and resources necessary to the development and production of their tools and weapons. They depend upon the civilian branches of government for the political direction, policies, and resources under which they operate. An officer force less educated than its civilian counterparts will be handicapped in its relations with civilians and unable to serve the society effectively.

An optimal system of advanced education is essential to sustain the needs of the services as well as the legitimate aspirations of officers. It should satisfy the larger needs of the nation for an effective, civilized, and responsible officer corps.

It may be asserted without equivocation that the nation cannot maintain the armed forces needed for its defense without graduate training and education. To deny graduate education to officers would be to undermine, indeed to destroy, the effectiveness of the military forces. Just as graduate education is essential to the well-being of the nation, so it is essential to the well-being of the armed forces.

III. ASSESSING REQUIREMENTS AND UTILIZATION

At the heart of the controversy surrounding graduate education for military officers are two closely related questions: (1) is the system of determining graduate degree requirements valid?; and (2) are officers with graduate degrees (especially those who are sent to graduate school with full pay and allowances to meet unfilled requirements) given assignments that make adequate use of their education? The panel concludes that the answer to these questions is "no." The panel believes that the present system for determining the services' needs for graduate education on the basis of specific jobs or "billets," has crucial flaws which preclude its being successfully modified. In its place, the panel recommends that DOD establish educational standards for each military occupational specialty, reviewed periodically by panels of experts from the services, other government agencies, industry, and universities. The basis for the panel's conclusions follows.

The Present System

DOD has general guidelines for determining which military positions are to be filled by officers with graduate education, and requires each service to identify, select, track, and utilize officers educated to fill those positions.[1] The directive specifies three criteria

[1]Department of Defense Directive 1322.10, "Policies on Graduate Education for Military Officers," July 30, 1974.

for determining whether or not various positions require an officer with graduate education:

(1) "Positions in which the primary duties...cannot be optimally performed except by individuals possessing qualifications that normally can be acquired only through graduate level education in a relevant field of study....Examples are positions requiring assignment of qualified physical, biological, and social scientists, engineers,...analysts, teachers...."

(2) "Positions which must be filled by individuals who are required to exert direct technical supervision over military and/or civilian personnel who are required to possess graduate level education....Examples are chiefs of laboratories, detachments, sections,...and similar organizations of a technical, analytical, developmental, research or instructional nature."

(3) "Positions which, for optimum effectiveness, must be filled by individuals who possess knowledge of a specified field of study to permit effective staff planning, coordination, and command advisory functions. Such knowledge would include the capability to comprehend theories, principles, terminology, processes and techniques which are necessary for effective appraisal and evaluation of complex programs."

The services have developed similar systems for identifying and "validating" their needs for officers with graduate education. The initial identification of billets requiring officer graduate degrees tends to begin at the lowest level of the chain of command and is subsequently passed up to successively higher authority for approval. When it reaches the service General Staff level, a special board (such as the Army Education Review Board) reviews the requirement and makes recommendations for the final determination by the General/Flag officer responsible for military personnel management. In this process, senior officers, qualified in the particular specialty under review (normally meaning that they hold graduate degrees in that field), are consulted.

Within the past several years, with urging from the Office of the Secretary of Defense and criticism by GAO, the House Appropriations Committee, and OMB, the services have tightened their validation processes. For example, every service periodically reexamines validated positions and makes a fresh determination of their need and relative priority.

Circumstances vary among, and within, the services by specialty field, but, in general, there must be about twice as many officers with appropriate graduate degrees as there are identified jobs. This results from personnel management considerations such as rotation into, and out of, operational assignments (e.g. between ship and shore duty), equitable distribution of overseas and hazardous or undesirable tours of duty, travel time between assignments, and fulfilling regulations governing special duty such as flying status. As a result, in fiscal year 1975, 44,671 validated requirements were needed to fill 23,773 validated billets.[2]

Once the needs -- by specialty, rank, and priority -- are determined, a review is made of officers with the requisite qualifications and their availability for assignment. In theory, but sometimes not in practice, this process facilitates the orderly rotation into and out of these positions and identifies those high priority positions for which qualified incumbents are unavailable or unlikely to be available in the near future. The need to match rank, type and field of degree,

[2] Military Manpower Training Report for FY 1975. According to OASD (M & RA) the number of validated billets has declined to 21,046 for FY 1976. These positions or billets do not include those designated for medical personnel (e.g. medical doctors or dentists), attorneys, veterinarians, or clergy. The principal categories are science, engineering, management, finance, education, and social science.

and availability accounts, in part, for the fact that, of over 45,000 officers with graduate degrees, only 34,187 were considered "usable assets" in 1975.[3] The difference between validated requirements (44,671) and usable assets (34,187) is the apparent shortfall (10,484) -- the number of officers that should be sent to graduate school if the requirements, at that particular time, are to be met.[4] Budget constraints, however, have precluded meeting more than about 40 percent of this shortfall through service-sponsored graduate education. The difference is made up principally by assigning officers who are less qualified (i.e., who do not have a graduate degree or do not have the specified degree) and by extending the tours of qualified officers who are incumbents of validated positions.

Closely related to the question of determining requirements for graduate education is the problem of insuring maximum use of officers with graduate degrees. Of the 45,000 officers holding graduate degrees, about a fourth, or nearly 11,000, are considered "unusable" -- i.e., their degrees are in fields which are not required, are in surplus, or the rank of the officers is inappropriate for the billets. This panel finds it anomalous that there are no validated billets requiring graduate education for general and flag officers.

The surplus of officers with degrees in different fields arises, in part, because all officers with graduate degrees in fields for which billets are validated, are considered available for assignment

[3] Military Manpower Training Report for FY 1975, p. VIII-10.

[4] Ibid.

to those billets. Until recently, the services tended to permit officers participating in degree completion and tuition assistance programs to choose their degree field.[5] This practice has since been severely restricted. For example, as of July 1, 1975, the Army will limit its degree completion program to those fields in which there are shortages of graduate educated officers.[6] As long as the services continue to rotate officers between operational and support assignments, the utilization of officers with graduate education will remain relatively low as measured and defined in terms of narrow, specialized assignments.

In summary, the requirements for officers with graduate education are now tied to service-determined needs for specific jobs. Positions identified by lower levels of command and approved by successively higher levels as calling for an officer with a graduate degree (usually a master's) in a particular field generate the number and type of degrees required. These are matched against the stock of officers with suitable degrees, rank, and availability for assignment. A "deficit" in some fields (especially the sciences and engineering) and "surplus" in others (such as business management and the social sciences) commonly arises, providing the rationale for posting officers to graduate school to make up any deficit.

Advantages and Shortcomings of the Present System

The current billet validation system has several advantages.

[5]GAO Letter Report, B-175773, March 6, 1974.

[6]Material submitted to the panel by the Department of the Army, February 14, 1975.

First, it is in place and operating. In the judgment of many of those responsible for its management, the system is considerably better than the rather vaguely defined targets or goals for officer education used until the early 1960's. The services recognize problems in the system, but believe that these deficiencies can be corrected by more precise determination of billet requirements and tighter control in the assignment of qualified officers to these billets.

Second, the system permits the determination and review of graduate education requirements at the most discrete level possible -- the individual job. Educational and personnel decisions can be related directly to the specifications of individual jobs and the peculiarities of the environment in which they are located. It was principally this advantage that led, in the early 1960's, to the initiation of the billet validation approach to determining the numbers of officers who should receive fully funded graduate education. Positions were coded for graduate education and meshed with the then Planning, Programming and Budgeting System (PPBS) of the Department with the encouragement of the Office of the Assistant Secretary of Defense (Systems Analysis).

Third, as generally practiced, validation uses a "common" standard or test of whether or not an incumbent needs a graduate degree. Obviously all master's degrees in a particular field do not represent identical skills and knowledge. But the degree is widely accepted as a benchmark, representative of a certain level of acquired skills and knowledge or potential for performance.

Fourth, since the 1970 GAO report, the management of the system has been improved considerably. For example, fully funded education is

now confined to shortage areas, with rare exceptions. Air Force officers are posted to validated billets immediately upon completion of their fully funded education; the Army is restricting even its partially funded, degree completion program to shortage disciplines; and previously validated billets are being more carefully reviewed in terms of need.[7]

Despite these advantages, the panel finds the system's shortcomings extensive and serious. To begin with, the credibility of the requirements and the system by which they are derived is weak. Studies by OMB, GAO, and the staff of the House Appropriations Committee raise considerable doubt about the essentiality of the graduate degree for all validated billets.[8] Although the panel did not systematically survey the documents used to justify graduate education for billets, illustrative examples supplied by the services were not convincing. The OMB study pointed to a likely cause:

> At all levels within an organization it is natural to desire the best qualified and best trained personnel. The validation process provides a local commander with an opportunity to obtain a more highly trained person. Thus, it will be to his advantage and to the chain of command above him to attempt to validate as many billets as possible.[9]

[7]Note the drop of more than 2,700 validated billets between FY 1975 and FY 1976. The Marine Corps has been cited consistently, in both OMB and GAO reports, as having exercised prudent management in the assignment of its graduate officers and in the determination of its requirements for graduate education.

[8]GAO, op. cit., OMB Staff Study (Draft), discussion with staff of House Appropriations Subcommittee on Defense.

[9]OMB Study (draft) p. 13.

Reportedly, the services now are applying more stringent criteria to the need for a graduate degree in specified billets. Unfortunately the Defense-wide policy directive, issued in July 1974, actually is less demanding in terms of the criteria for validating billets than was the 1964 policy memorandum of the Joint Chiefs of Staff.[10] In the 1974 directive, the first criterion specified the validation of positions where the optimal performance of duties requires graduate level education. The comparable criterion in the 1964 JCS policy called for the validation of positions where the satisfactory performance of duties requires graduate level education. The higher performance goal of the 1974 directive makes it easier to justify graduate education.

A second deficiency is that the billet validation requirement system is inconsistently applied throughout DOD. For example, the Army excludes, and the Air Force includes, ROTC instructors in determining their overall requirements. Billets having essentially the same duties have been validated by one command in a service and not by another; or by only one service.[11]

Third, the system assumes that graduate degrees are essential, rather than recognizing that some billets require only definable skills and knowledge which can be obtained without the degree, and may even be lacking with it. Therefore, in practice, the system tends to ignore equivalent skills or knowledge obtained in other ways. This shortcoming is being more widely recognized and remedied. The Army

[10]See DOD Directive 1322.10 (July 30, 1974) and JCS Policy Memo 149 (March 17, 1964).

[11]GAO Report, B-165558, pp. 15-16.

and Navy have begun to code some billets for education above the baccalaureate but below the master's degree level. DOD policy has not required graduate degrees: policy guidance has always been stated in terms of graduate education.

Fourth, the system has maintained a perpetual "shortage" in critical fields which is neither convincing nor acceptable. If the services truly needed degree-holding officers in these fields to maintain their operational effectiveness, they would have taken stronger steps to obtain them. For instance, in 1974 only 37 percent of the Navy's validated billets were filled by officers with the prescribed graduate degree.[12]

Fifth, the system increasingly stresses the technical aspect of advanced education and tends to disregard or discount its intellectually broadening features, because the former are more readily specifiable. Generals and Admirals, on the other hand, for whom intellectual scope is most important, are excluded from the pool of educated "assets." This has the additional disadvantage of narrowing the range of assignements for which an officer is eligible, if his graduate education is to be properly "utilized." Rear Admiral James Stockdale has testified to the short-sightedness of this narrow, statistical approach:

> I studied at Stanford for 24 months....I elected to take courses in philosophy, comparative Marxist thought, social history, etc. For seven year I used those courses daily in helping to organize and in fighting the anti-extortion battle in Hanoi. I knew more about Communist history and Communist

[12]From the December 16, 1974, response of Admiral C.N. Mitchell, Deputy Director, Naval Education and Training, to the House Appropriations Committee.

> dogma than the chief interrogator did. I could anticipate their programs and purges....yet you can search BUPERS records from one end to the other, and beside my name you'll probably see something like "no pay-back tour", or no utilization.[13]

Sixth, the system tends to be tied to the present distribution of jobs and the current service structure. What is needed is an adaptable, forward-looking system calculated to meet the needs of the services some years hence when officers will have completed their graduate education and the military will be operating with new equipment under new circumstances not reflected in the present disposition of billets. The panel approves the Navy practice of conducting Delphi exercises in each of its subspecialty areas to forecast likely changes in its future educational needs. These forecasts are then interpolated into the more static framework of current billet requirements.

Seventh, the validation system is cumbersome and costly. Billets are reviewed every year or two because specific jobs change, are eliminated, or transferred to another organizational unit. The determination and review process involves a great many people from the unit in the field up to the highest command, with considerable paper production at all levels. This process has been estimated by the services to cost anywhere from a low of three man-years to nearly $2,000,000.[14] Effective management and monitoring of the system would require reviewing a vast array of detail on over 21,000 billets.

[13]Naval Officer Professional Development Study (Bayne Report), May 31, 1974, Draft Executive Summary, p. I-D-14.

[14]Span of answers received by the panel, February, 1975.

On balance, the panel concludes that the shortcomings in the present system of determining the need for officers with graduate education decidedly outweigh its advantages.

Alternatives to the Present System

In considering possible alternatives to the present system, the panel considered a number of criteria for an ideal system: (1) administrative simplicity; (2) economy of operation; (3) responsiveness to the full range of educational needs; (4) credibility; (5) political acceptability; and (6) adequate utilization of educated officers.

The panel believes that the only two realistic alternatives are to modify the present system, or to replace it by a system of educational standards for each military occupational specialty. The panel favors the latter as representing a fundamental improvement which is practicable, adaptable, and more likely to overcome the shortcomings of the present system.

The case for modification of the billet validation system. One criticism of the present system could be met by the enforcement of tighter criteria for what constitutes a validated billet, and by applying these criteria uniformly within and among the services. Both steps would require more detailed review by upper echelons, including the Office of the Secretary of Defense. The criteria for determining billets requiring officers with graduate education could be changed from "essential for 'optimum' performance" to "essential for 'effective' performance." Judging from Congressional, OMB, and GAO criticism, such a change would be politically acceptable and should result in a reduction in requirements.

The new system would have to be monitored closely for consistency in application so that judgments of "effective" do not gradually inflate to "optimal" performance.

Another modification would be to have periodic reviews of all validated billets by independent specialists drawn from outside the particular command or service or the Department. This would render billet requirements more credible, but would make the system more cumbersome and expensive without altering its rigidity. This modification, too, might reduce the requirements for officers with graduate degrees.

A third modification would be to reduce the present emphasis on graduate degrees which precludes or inhibits the specification of lesser levels of knowledge that may often be sufficient. Both the Army and the Navy have taken commendable steps in this direction, which should be expanded.

Despite the improvements that could be effected by these modifications, the billet validation system would remain expensive and cumbersome and would continue to emphasize technical training at the expense of broader educational values. This last point merits further elaboration.

A growing concentration on technical training is already apparent. As funds for the fully funded program have been reduced, a rising proportion is being allocated to engineering and the hard science fields, for two reasons: (1) it is difficult or impossible for an officer to acquire a master's degree in engineering or science through an off-duty, degree-completion or other partially funded program; and

(2) the coupling of specific degrees to specific billets makes it easier to justify technical, rather than broader, educational requirements.[15] Thus, the most fundamental and enduring features of graduate education tend to be shunted aside -- that intellectual broadening which arises from learning basic theories, modes of analysis, and critical thinking, and which can enhance the ability to grasp and synthesize new knowledge, to discern and weigh alternatives, to understand critics and opponents, and to fashion innovative solutions. The panel is especially concerned that these vital aspects of graduate education not be lost or discounted in the requirements determination process.

A system of educational standards with independent, expert review. Because of the defects in the modifications that might be suggested, the panel recommends that the present validated billet system be replaced by a system of educational standards for each military occupational specialty. These standards would consist of: (1) the minimum knowledge and skills, education and training necessary for the effective performance of a particular specialty; (2) the percentage of officers in that specialty who should have graduate degrees; and (3) the mix of educational qualifications necessary for the effective staffing of the specialty. The system should project five to ten year targets, by occupational specialty, for the officer corps of the future. The targets should be educated officers, not validated positions, although

[15]The trend in the Army has been toward the social sciences and away from "hard" sciences and engineering, but the Army also expects to emphasize the latter fields as money for the fully funded program gets tighter (from service submission to the panel, February 1975).

the present concentration of officers in given functions and units could provide one basic element of the projections. The changing size and structure of the forces and changing educational patterns of recruitment would provide other elements. Special attention should be paid to forthcoming changes in technology, deployment, and the international scene. In short, the educational plans of the forces should be integrated with their technological, strategic, and organizational plans.

The feasibility of such projections has been demonstrated by the Navy, which, for several years, has obtained the judgment of expert panels on likely developments in emerging and existing subspecialties which, in turn, have influenced its quotas for educated officers as well as the curricula and course content of its graduate programs.

The system envisaged by the panel follows.

A panel would be established for each military occupational specialty, corresponding generally with the career areas in the Air Force, the subspecialty areas in the Navy, and similar specialty groupings in the Army and Marine Corps.[16] A number of areas (such as financial management/comptroller, manpower/personnel management, material support/logistics management) might be handled by DOD-wide panels. The panels would consist of recognized experts in the specialty, drawn from the services, industry, other government agencies, and universities. Not more than half of the members should come from the services. The

[16]See Appendix B.

panels would be convened for a short period every two to three years, depending upon the stability or volatility of the specialty. Each panel would review service-determined needs for graduate education, undertaking the following tasks:

-- Estimate the impending changes in that occupational specialty, especially those likely to affect its character and educational and manpower requirements;

-- Define the minimum knowledge and skills, education and training essential to the effective performance of the function/specialty;

-- Determine the percent of officers in that specialty who should hold graduate degrees or lesser levels of education, and the necessary mix of educational qualifications for effective staffing, judging from the nature of the function or specialty as performed in the military service and in comparable civilian settings.

An Educational Advisory Committee should be established in the Office of the Secretary of Defense to provide guidance to the specialized panels, advise on educational goals for officers at the senior command and staff level, and advise the Secretary on service educational policies and relations with universities and colleges. The Committee should consist of presidents of universities and university associations; deans of graduate and professional schools; recognized scientists, engineers, and scholars; distinguished executives from industry and other private and public agencies; and retired officers (but none on active duty). The goals set by the Committee should reflect the experience of civilian executives as well as the

special needs of the services. For example, it may be desirable to consider educational comparability as a goal for senior military officers. Currently 58 percent of both senior civil servants (grades GS-16 to GS-18) and senior military officers (generals or admirals) hold graduate or professional degrees.[17]

The Committee should give private advice which is, and is not, requested, which may, and may not, be accepted. It should submit a periodic report to the Secretary.

The panel believes that a system of educational standards by occupational specialty, with independent expert review, would overcome the shortcomings of the present billet system and have significant additional advantages. Panels of nationally recognized experts should remove, or reduce, the doubts engendered by purely service-determined requirements. Service-wide and often Defense-wide panels, whose members can compare the specialty with its civilian counterparts, can foster consistent and convincing educational criteria. Since the new system would emphasize skills, knowledge, and substantive education, not degrees, the requirement for degrees are less likely to be inflated and more likely to be credible. Where shortages are demonstrated, the greater credibility of this system should permit more successful justification for graduate education in the budget process.

[17]Civil Service data are as of December 31, 1971, as reported in Executive Manpower in the Federal Service, U.S. Civil Service Commission, January 1972, p. 18; the 1973 data for generals and admirals are reported in the Journal of Political and Military Sociology, Vol. 2, No. 2, 1974, p. 261.

Since the new system is not tied to individual billets but to broad occupational specialties, it would permit greater flexibility in the assignment and utilization of officers with graduate education. All officers, regardless of rank, would be utilized if assigned to an organization requiring their education. Utilization would not be restricted to the matching of a specific position and a specific degree. An officer would be utilized if assigned to an occupational specialty for which his education had been identified as necessary.

Finally, it would eliminate the validation and review of over 21,000 separate billets for the purpose of determining graduate education needs in DOD. Panels would be convened only once in two or three years to project occupational changes, review minimum skill and knowledge needs, and review degree requirements by occupational specialty. Thus, it should be possible for officials in the Office of the Assistant Secretary of Defense to maintain effective oversight of the entire system by examining broad occupational standards. The present system effectively precludes such oversight because educational needs are self-determined within each service. At present, an annual survey would be necessary to ascertain need and/or utilization, billet by billet.

As noted, the system recommended by the panel is not entirely new. A percentage system was used until the early 1960's to determine the number of officers who should receive fully funded education, and it is still used to determine the number who should attend professional military colleges. The forward-looking perspective is

already employed by the Navy. The Army has begun to code its requirements in terms of skills, knowledge, and courses rather than by degrees along. The Air Force Education Requirements Board presently uses expert panels, but all members are drawn from within the Air Force. Vice Admiral M. G. Bayne, who directed the "Naval Officer Professional Development Study" (May 31, 1974), also has recommended replacing billet validation with a percentage system:

> A major recommendation is made that professional education of naval officers, whether in graduate disciplines or in professional military education, be primarily justified by a philosophy which equates Navy professional education to other professions in U.S. society rather than by billet requirements. This philosophy suggests that somewhere between 35 and 50 percent of the executive talent of all sectors of our society, whether industrial, government, congressional, or military, are educated at levels above the baccalaureate, and that it is proper for Navy requirements for education to be based upon this national fact.[18]

[18] Naval Officer Professional Development Study (Bayne Report), May 31, 1974 (Draft) Executive Summary, pp. i - ii.

IV. HOW OFFICERS OBTAIN GRADUATE EDUCATION

The size and educational composition of the 300,000-man officer corps changes monthly with the departure of former officers, the addition of new officers, the acquisition of additional education by existing officers, and the de facto discarding or relegation of former education to a state of disuse. Available educational statistics have notable gaps and inconsistencies. They are best for graduate programs fully financed by the services and poorer for education acquired before commissioning, off-duty, or on temporary duty assignment. The changing educational status of the entire officer corps, or a represenative sample thereof, has not been monitored systematically. This should be done on a regular basis. Since some information -- e.g., the acquisition of off-duty education and the de facto loss of unused education -- can best come from officers, educational monitoring should include the direct periodic questioning of officers.[1]

A 1973 survey provides the latest comprehensive information on the number of officers with graduate degrees and the methods by which they received them (Table 1).

[1]This can be done either by a special recurrent survey akin to the 1973 graduate education survey or as part of the normal paperwork in processing forthcoming assignments, present duty performance, or participation in educational programs.

Table 1
Estimated Sources of Officer Graduate Degrees, 1973*

Source of Degree[a]	Number		Percent	
Pre-entry education		7,650		17
In-service education		37,750		83
Fully funded programs	(25,110)		(55)	
Off-duty course	(6,310)		(14)	
Cooperative arrangement	(2,860)		(6)	
Degree completion	(1,820)		(4)	
Other methods	(1,640)		(4)	
Total		45,400		100

Source: Officer Graduate Education Study, Draft, 1973.

Of the 45,400 officers with graduate degrees, 37,750 or 83 percent received their degrees while on active duty. The remainder obtained their degrees before entering the services (mainly by arrangements in which their commissioning from ROTC units was delayed to permit them to complete their graduate study). Those receiving degrees on active duty did so through the following five methods:

1. Fully funded programs have accounted for 25,110 or 55 percent of officers with graduate degrees. Under these programs, the entire cost of graduate education -- including full salary, family and housing

*Tabulation of highest degree held (41,660, a master's, and 3,760, a doctor's degree). The estimate of 45,400 officers with one or more graduate degrees may be high for two reasons: (1) an uncertain, small proportion held professional (medical, nursing, legal, and ministerial) degrees; and (2) as a higher proportion of officers with, than without, graduate degrees evidently responded, the extrapolation of their responses to the entire officer corps may have overestimated the total with graduate degrees.

[a]More precisely, the source of the latest or highest degree, since 3,140 officers held both a doctor's and master's degree and 3,210, more than one master's: or, 45,400 officers held at least 51,770 degrees.

allowances, tuition, and travel -- is provided for the one to three years of full-time study necessary to obtain a master's or doctor's degree in an assigned field. (A common arrangement is two years of study for a master's; in the Air Force, the modal period is 16 to 18 months.) Officers may attend a civilian institution or a graduate school operated by the Navy or Air Force. Some 7,180 officers with degrees from the latter two schools, and 17,930 with degrees from civilian institutions, were identified in the 1973 survey.

The two service schools, the Naval Postgraduate School at Monterey, California, and the Air Force Institute of Technology at Wright-Patterson Air Force Base, Dayton, Ohio, accredited by the Western and North Central Associations, respectively, as well as the Engineers Council for Professional Development, have been used most heavily by their sponsoring services. The Navy and Marine Corps have sent a minority, the Air Force a majority, and the Army almost all of its fully funded officers to civilian graduate schools (Table 2).

Table 2
Fully Funded Officer Enrollments at
Service and Civilian Graduate Schools
Fiscal Year 1975

	Officer Man-Years*			
Service	Service Schools**	Civilian Schools	Total	Percent at Civilian Schools
Navy	923	320	1,243	26
Marine Corps	42	20	62	32
Air Force	610	960	1,570	61
Army	51	998	1,049	95
Total DOD	1,626	2,298	3,924	59

*Or "training loads," in the services' language. The 3,924 total "load" may translate into an academic year enrollment of about 5,232 officers.

**Naval Postgraduate School and Air Force Institute of Technology.

The service schools at Monterey and Dayton show up as more expensive than civilian institutions in the DOD budget. One report put the annual cost per officer at $25,700 at the two service schools compared to $17,500 at civilian schools.[2] Other sources put the cost of producing a graduate degree in 1974 -- i.e., the cost, on average, of one and a half to two years of fully funded graduate education -- at $31,800 for the Army, $35,600 for the Air Force, and $54,400 for the Navy. These figures reflect the Army's primary reliance on civilian institutions, the Air Force's compressed period of education and extensive use of civilian institutions, and the Navy's heavy reliance on the Postgraduate School.[3]

[2]Calculated from figures in Officer Graduate Education Study, 1973, p. 7.

[3]Staff, DOD Committee on Excellence in Education, April 1975, and January 1975 McCullen "mini-study" (for Navy). The latter study put the Navy's cost per student-year at civilian institutions and at Monterey as follows:

	Civilian Institution	Monterey
Pay and allowances	$18,600	$18,600
Other costs	3,000[a]	11,300[b]
	$21,600	$29,900

a. Tuition. b. Per-student cost of faculty, administrative staff, and other operating expenses.

Thus, the average cost of two years' study at civilian institutions and at Monterey was $43,200 and $59,800, respectively. "But these costs do not reflect the fact that there are four times as many students enrolled in the high cost scientific and technical curricula at Monterey than at civlian institutions....To specifically tailor package courses at civilian institutions increases the cost by four to five times the [$3,000] tuition cost quoted above. For example, the specially tailored Defense Systems Analysis Course at the University of Rochester cost the services $13,000 per student per year tuition"(April 1975 personal communication). The Massachusetts Institute of Technology is charging $12,000 per vear tuition in its special two-year master's degree nuclear engineering course for Iranian students; in addition, the Iranian government will pay for the students' transportation, room, board, and other living expenses (Chronicle of Higher Education, May 5, 1975, p. 2).

Cost is one factor to which attention necessarily must be paid in setting officer education policy and in allocating funds among different educational programs and institutions. But program cost comparisons should be true comparisons in which the full costs are included. Of course, the out of pocket costs to the services of education at civilian institutions are reduced by heavy subsidies which these institutions receive from state and federal appropriations and private gifts and endowments.

2. Off-duty graduate courses are taken by many officers at neighboring institutions or at programs offered by institutions at military bases in the United States and abroad. Up to 75 percent of the costs of tuition may be paid by the services or the full costs may be covered by in-service educational benefits provided by the Veterans Administration. In fiscal year 1974, the services paid $18.9 million, or $930 per officer, toward the tuition of 20,310 officers enrolled in such off-duty courses (11,900 were Army, 7,370 Air Force, 620 Navy, and 420 Marine officers). An estimated $20 million in veterans benefits also was extended for the tuition and expenses of approximately 13,300 officers taking off-duty courses.

At an average of $930 tuition, an officer might take a half-time program of study; 33,600 officers studying half-time for four years would earn 8,200 master's degrees annually.[4] If these assumptions are roughly correct, they suggest either that: (1) there are more

[4]A full-time load of graduate credits may be reckoned as 10 credits a semester with 30 credits -- plus, often, a thesis -- yielding a master's.

officers with master's degrees acquired by off-duty study than are indicated in Table 1; or (2) interest in off-duty study has increased markedly of late due to reductions in fully funded programs and the wider availability of on-base offerings. Both explanations may be partly true. The Air Force gains about 2,000 degrees a year from off-duty programs, though few are in the sciences and engineering. Much off-duty education is interrupted, short of a degree, by changes in station.

3. Cooperative arrangements between service schools offering professional military training and certain civilian institutions have enabled several thousand officers to obtain a master's degree from the cooperating institution. While, and after, attending service school, the officer takes additional courses on his own time and may also submit a thesis to satisfy the degree requirement; the costs of the additional work may be shared by the officer and the service. Such degree programs have been arranged at various times between the Army War College and Shippensburg State Teachers College; the Army Command and General Staff College and several Kansas institutions; the Naval War College and the Industrial College of the Armed Forces and George Washington University; and by the Air War College and the Air Command and Staff College with Auburn University. Since the period of War College study is normally one year, that also may be the period for the cooperative degree, an arrangement which is feasible only in certain fields such as management or international relations and at certain institutions. Alternatively, the cooperative

arrangement may help an officer to gain course credit but not a degree, which he may obtain subsequently through a degree-completion program or off-duty study.

4. Degree completion programs help officers who have accumulated a considerable amount of credit by off-duty study to obtain a degree by a short period of full-time study. Study up to 20-26 weeks (depending on the service) or two academic quarters can be obtained on temporary duty assignment and above that period, but usually restricted to one year, by a permanent change of station, with full pay and allowances.

5. Other methods of obtaining graduate degrees include special grants and fellowships such as the Rhodes and Fulbright awards, National Science Foundation fellowships, and institutional fellowships.

Strengths and Weaknesses of Present Arrangements

The panel has been struck by the lack of comprehensive, comparable, and reliable information about officer education -- its costs and location and the number of officers involved, and by inconsistencies in the available information. For example, one estimate put the costs of degree-completion programs on a par with those of fully funded programs, a figure utterly out of line with the shorter term of the former programs and the smaller number of officers who have apparently participated in them. It has proved difficult to secure complete lists of the institutions attended by officers receiving fully funded education and the lists provided have included some officers who were evidently attending professional, not graduate, schools. The 1973 sample survey, which provides the latest comprehensive information about officer

graduate education and degrees, included an undetermined number of responses pertaining to professional education and degrees.[5] In addition, estimates derived from that survey about the number and sources of graduate degrees are contingent upon response rates and weighting factors that render them less than fully reliable, especially in heavily weighted extrapolations from small cells. Nonetheless, the survey furnishes important basic information and, conducted on a regular basis, could be made more reliable, chart trends, and help to guide policy. Unfortunately, it has been discontinued. It should either be repeated regularly or alternative methods should be found to compile comprehensive and reliable information about officers' educational qualifications, the means by which the education was obtained, and the costs.

The lack of uniform, reliable, comprehensive, and timely information stems in part, from inadequate communication between the personnel and education arms of the services and the inadequate reconciliation of their data and policies by the Office of the Secretary of Defense. A single office in each service should be made responsible for the compilation of education information and its transmittal to the Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs. That Office, in turn, should designate the information needed to discharge its responsibilities for setting DOD education policies.

[5]That is, postbaccalaureate degrees in medicine, dentistry, nursing, veterinary medicine, other health fields, law, and the ministry.

A major strength of present graduate education programs is their diversity: the variety of alternative programs, the variety of locations and institutions at which education can be pursued, and the decentralized character of officer educational decisions. These features are highly commendable and should be preserved. The diversity of programs is particularly important and every effort should be made to maintain it.

Elsewhere the panel recommends the replacement of the system of "validated billets" which provides the present justification for the programs of fully funded education. The cuts of up to 70% in the fully funded programs projected by OMB strike the panel as arbitrary and excessive. However, it is clear that these are the most expensive means by which officers secure graduate education and that, as a result of budgetary pressures, they are being reduced. Special efforts should be made to increase the participation of officers in less expensive programs so as to sustain the net level of graduate education until a more adequate determination can be made of the services' educational needs. The principal methods by which the educational qualifications of the services can be sustained within a stable educational budget are as follows:

a. The civilianization of officer positions requiring advanced education has been recommended in several studies. The use of civilians may be warranted particularly in positions requiring stable staff with expensive doctoral level education. Defense officials respond that "The determination as to whether a position should be

military or civilian is predicated on the factors of military essentiality... [including] rotation requirements" and not on educational factors.[6] But they add that it is important to retain within the officer corps and subject to military discipline and control the skills and education necessary to discharge effectively all of the military's functions. This issue has not been examined in any detail and the panel makes no recommendation on it.

b. Lateral entry by commissioning officers at a rank commensurate with their education and experience has been employed in wartime emergencies and to meet serious shortages, notably for lawyers and doctors. There has been such an increase in medical commissions (due in part, to the increased costs of malpractice insurance) that, in March 1975, the services had a waiting list of over 500 applicants and were within 507 of filling their authorized ceiling of 11,823 medical officers.[7] The depressed academic job market should now make the services more attractive to many university graduates. To be sure, other qualifications than education, including motivation, and a subsequent period of military training would be necessary, but the net cost should be below that of fully funded programs.

The principal obstacle to the direct commissioning of officers with graduate degrees is the adverse effect that is likely to have

[6]See Improvements Needed in Determining Graduate Education Requirements for Military Officer Positions, Department of Defense Report to the Congress by the Comptroller General of the United States, August 28, 1970, p. 34.

[7]See Everett R. Holles, "Doctors are Joining Services to Avoid Malpractice Insurance Costs," New York Times, March 22, 1975, p. 19.

upon the morale of other officers, due to the reduction in their prospects for promotion; the lower the rank that is offered, the less should be the effect upon morale. The strength of the commitment that an instant officer will have to the service is also questioned. This may be enhanced by careful selection, but the best test is the test of experience. Therefore, a modest experimental program of direct commissioning of officers with graduate degrees in the most serious shortage areas should be undertaken.

c. Pre-entry education supplied 17 percent of officers with graduate degrees in 1973: 4,355 by delayed entry from ROTC units and 3,290 by other routes of commissioning, including the commissioning of enlisted men through Officer Candidate School. One report notes that relatively few degrees obtained before commissioning have been in shortage fields such as engineering and business.[8] But, in fact, 29 percent were in these fields and another 12 percent in the physical sciences and mathematics (two fields in which fully funded programs contributed proportionately fewer degrees). Thirty-two percent of the officers with pre-entry graduate degrees held them in engineering, the physical sciences, and mathematics; whereas only nine percent of the degrees acquired by partially funded in-service programs (off-duty, cooperative degree, and degree-completion programs) were in these "shortage" fields. Thus, the enlargement of pre-entry programs seems

[8]See Officer Graduate Education Study 1973, Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), pp. 104-5.

to be a fruitful way to increase the supply of officers with degrees in the sciences and engineering. The Army is investigating this apporach in its ROTC scholarship program.

The attractiveness of a service career to a young graduate with a master's degree will presumably rise as opportunities in the civilian marketplace fall. The services can enhance that attractiveness by various incentives, of which the promise to make use of the officer's education is certainly one. If that promise cannot be given, what is the meaning of a "shortage" field? It is stated that officers entering with a graduate degree have a high attrition rate, but this rate should be reducible by reasonable incentives. On the contrary, one observer notes, "those with pre-entry credentials are almost penalized. Since their time in graduate school on educational delay does not count toward temporary promotion, they find themselves 2 to 3 years behind their contemporaries who entered the service right after graduation [from college] and were put through graduate school by the service." The panel concludes that more attention should be directed, and more incentives offered, to recruit officers with graduate education and degrees, particlarly in shortage fields.

d. Partially funded programs offer obvious economies and their expansion offers one way to maintain the educational level of the officer corps under conditions of budgetary stringency. That course, in fact, has been recommended by all three major studies of officer graduate education undertaken in recent years, though with perceptible differences of emphasis that may reflect the relative importance of advanced technical

education to each service and the relative investment each has made in a graduate school of its own. In 1971, Major General Frank Norris, U.S. Army, recommended that:

> Non-fully funded civilian educational programs (degree completion programs, advanced degree program for ROTC instructor duty, and cooperative degree programs...) be expanded as the principal means of acquiring advanced degrees in the next decade.
>
> ...when the needs of the service and the desires of the individual can be reconciled, officers...[should] be assigned to duties which will enable them to continue their advanced civilian education and acquire advanced degrees...[9]

In 1973, the survey team sponsored by the Office of the Assistant Secretary of Defense stated that "there is some potential for increasing reliance upon partially-funded, in-service programs. However, there are a number of problem areas....[These] programs account for only about one quarter of the total supply of graduate educated officers and seldom match service requirements by discipline."[10] In 1974, Vice Admiral M.G. Bayne recommended that the Navy place greater emphasis upon graduate education by nontraditional, external degree, and correspondence programs and that an investigation be made of "the possibility of shortening student time at NPS [the Naval Postgraduate School] by advanced completion of correspondence courses or by other nontraditional means."[11] A reduction in the average length of time

[9]Major General Frank W. Norris, Review of Army Officer Educational System, Volume I, Summary Report, 1 December 1971, p. 8-9.

[10]Officer Graduate Education Study 1973, pp. 105-106.

[11]Naval Officer Professional Development Study, 31 May 1974, Draft Executive Summary, pp. 11, 16.

spent at NPS would reduce the cost to the Navy of a given number of graduate courses, credit hours, or degrees.

The panel concurs with the recommendations of the three foregoing reports and urges that greater efforts be made to enlarge the opportunities for, and to encourage increased participation in, off-duty, degree-completion, and cooperative degree programs and other forms of partially funded study. More stable duty assignments and more flexible daily work schedules would help greatly. Such arrangements should be permitted and encouraged especially for study in shortage fields, so long as they do not interfere with the overriding operational needs of the services.

The successful expansion of partially funded programs, however, will accentuate several problems that must be confronted if both the volume and quality of education are to be maintained:

Off-duty and cooperative-degree programs do not offer the full range of curricula available on university campuses, particularly laboratory courses in engineering and the physical sciences that are of special importance to the military. Steps can be taken to expand the availability of such courses at selected installations where the necessary laboratory equipment is on hand or can be provided economically by kits and mobile facilities. But the opportunity to complete a degree program in the hard sciences at many installations inevitably will be limited.

The quality, or at least the repute, of certain on-base and cooperative-degree programs has been subject to repeated criticism. Some charges of poor quality are unwarranted and represent only the

critic's educational conservatism. Others, unfortunately, are all too warranted. One informed source stated that there was "absolutely no control" of the quality of off-duty offerings -- "it's a disaster. All that the [service] managers do is to see that they are available."

If these programs are to be expanded, steps should be taken to ensure that their quality is maintained, since to reduce the quality of education is to reduce its value to the services and the nation. Both the services and the educational community tend to place responsibility for the maintenance of quality upon the other, whereas both must share it. An effort should be mounted jointly by representatives of the services and the higher education community to monitor and maintain the standards of quality in officer graduate education, especially in off-campus programs. This may best be initiated by a joint effort which should lead to the formulation of criteria for acceptable education and by subsequent administrative measures to ensure that the criteria are met. The Educational Advisory Committee, recommended elsewhere in this report, could play an important part in instituting this study and/or implementing its conclusions.

Off-duty programs may be adversely affected by the termination of veterans educational benefits which the Ford administration has recommended. In that event, alternative programs should be developed to encourage and facilitate off-duty study by a system of voluntary salary deductions matched by service contributions, special scholarships, sabbaticals, tuition loans, and similar means.

e. Advanced education need not, does not, and should not always encompass a degree. While officers, like other Americans, may make too

much of the degree as a convenient, portable, and saleable credential, the services should distinguish the level of education which is necessary for military effectiveness from that which enhances an officer's personal satisfaction. When a year's training or several short courses suffice, two years' and a master's degree need not and should not be required. Therefore, more attention should be given, in the specification of educational qualifications and requirements, and in the provision of education, to education above the baccalaureate but below the master's level. The panel is impressed by the Army's present efforts to do this. Under the impetus of the Bayne study, the Navy also has found that an increasing number of positions, formerly held to require a master's degree, can be satisfactorily filled by officers with six to twelve months of designated graduate education.

Nonetheless, there are limits to the detail with which it is practicable, desirable, or meaningful to segment and monitor education. A four week course in statistics, public policy, or procurement may be very useful to the services. But a short course can have a short half-life unless it is integrated into a larger educational or professional framework. Academic men believe strongly in an integrated program of courses whose total intellectual value, signified by the degree, is greater than the sum of its separate credit hours; and many academic institutions compel officers, like other students, to enroll in a degree program. As a practical matter, the Army evidently has concluded that it is too expensive, in staff and computer time, to enter on, and retrieve from, personnel records units as small as a course. A package

roughly equivalent to a full academic semester seems a more functional unit from the standpoint of either higher education or personnel management.

f. The location of education can be germane to its economy or quality.

As has been noted, the service-operated graduate schools at Monterey and Dayton, relied on by the Navy and Air Force, respectively, appear, in selected statistics, to be more expensive than civilian institutions. But they are not necessarily more costly, when allowance is made for the public and private funds which reduce university tuition far below the true cost of graduate education. To determine the relative expense or economy of the two service schools, a study should be made which compares their full costs with the comparable costs of civilian engineering schools. A 1972 study evidently found the Air Force Institute of Technology to be less costly than civilian engineering schools.[12]

Both the service schools and civilian graduate schools have their critics and supporters. Critics question not only the expense but also the insularity and the narrow curriculum of the two service schools. Supporters affirm that their quality is excellent and that their curriculum is geared precisely to the needs of each service

[12] Report of a Study on AFIT Resident Programs and Cost, Air University, Air Force Institute of Technology, Wright-Patterson Air Force Base, September 18, 1972.

and includes classified information that cannot be duplicated at civilian institutions.[13] Critics assert that officers who attend civilian institutions take courses geared to civilian needs and to academic degree requirements and must receive subsequent on-the-job training in the services. Supporters reply that civilian institutions set the national standards of quality in all disciplines and offer precisely the kind of broadening experience that is needed to counteract the intellectual and social insularity of the services.

It is, perhaps, inevitable for a panel composed largely of civilian educators, to emphasize the values of free intellectual inquiry

[13]"The argument for NPS," writes a Navy spokesman, "goes far beyond the issues of broadening officers or classified subject matter. Courses such as Anti-Submarine Warfare, Electronic Warfare, Naval Intelligence, and Weapons Systems Technology cannot be duplicated by a civilian institution. The Operations Research Systems Analysis course at NPS is recognized as the finest military OR course in the U.S., Europe, or Japan....The Navy is the leader in the fields of Oceanography and Meteorology because of its NPS courses....Nor can OSD [the Office of the Secretary of Defense] directly control quality and course length [at civilian institutions] as it can in an OSD controlled institution at NPS. The entire curricula can be directly structured to provide a specific output by a specific date."

However, another Navy spokesman, Admiral Hyman Rickover, writes that "the Navy should give up the Monterey School and do all of its post graduate work at private colleges and universities. This proposal, despite the savings of funds and the better education made available, has never been acceptable to the Navy because it means letting go of another established institution and a comfortable faculty. However, I cannot conceive of a situation where the nation's academic capacity for post graduate study would be inadequate to support the needs of the Navy" (Memorandum for Director of the Naval Officer Professional Development Study, May 29, 1974).

represented by civilian graduate education. The panel is concerned about the viewpoint, often encountered in the services and among economy-minded officials of the Executive and Legislative branches, which conceives of, and justifies, graduate education solely as a form of technical training rather than of advanced education. Nonetheless, the panel recognizes the special functions of the service schools and, having visited neither institution, (though some members previously have visited both), the panel is reluctant to sit in judgment upon them.

The service schools however, cannot be immune from the need to economize which falls most heavily upon all fully funded programs. This can be done in part, as Admiral Bayne suggests, by reducing the time in residence. Officers might, for example, be assigned to the service schools only after they have accumulated one or two semesters of credit in off-duty and cooperative programs.[14] The schools also should seek to maintain or decrease their costs per student by increasing their offerings of short courses.

One learns from fellow students as well as from instructors; the character of education is determined by its instituional and social setting as well as its intellectual content. Military schools may approximate civilian institutions in their curriculum and perhaps in the quality of their instructional staff, if not the academic

[14]The Marine Corps strongly urges officers who wish to be considered for fully funded programs to show evidence of their eligibility by successfully participating in off-duty or part-time graduate education. Marine Corps Order 1560.19B, "Advanced Degree Program," February 15, 1973.

standing of the best faculty at leading universities. They can not approximate the social setting or student body of civilian institutions.

The graduate education taken on military bases in off-duty hours in classes offered by nearby or distant universities also commonly fails to provide a normal campus environment. Indeed, evening classes or extended programs arranged by special contract on campus can fail to provide that environment if taken en masse by a group of officers unleavened by civilian students. An example is a program taken at a civilian university by 30 Navy, Marine, and Coast Guard officers who were, to quote one of their number, "'locked up' in the same room together for 11 1/2 months. We took all our courses together. We mixed in no other classes with civilians and they never mixed into our classes." One informed source estimates that some 90 percent of off-duty courses are taken by Air Force officers at base facilities and only ten percent at neighboring campuses. The officer classes are sometimes leavened by local students and members of military families who also enroll, especially at isolated bases where these are the only graduate classes available.

Officers who enroll on campus, sitting beside civilian students in an ordinary classroom, can be reasonably certain that they are receiving instruction that meets the normal standards set by that institution. In addition, they can learn from and contest with their fellow students in an intellectual exchange freed from the normal military constraints of rank, discipline, and prudence. Education obtained

at military installations in classes composed solely or predominantly of fellow officers deprives the officer of the full benefits of normal university study. Whenever possible, graduate education should be taken on campus in a normal classroom situation; if possible, duty hours should be arranged so that officers can attend daytime as well as evening classes.

Service spokesmen counter that on-base study is more convenient for an officer who pushes himself to take courses after completing a full day's work. And, some add, officers have not always been welcome on campus: they have been spat upon at one leading university and locked out of class at another; hopefully, these are episodes from the past. Under normal circumstances, mature, married officers may not mix much with civilian graduate students outside of class. So much the more important, then, that they mix in class. The panel is not, of course, opposed to on-base education. The panel is opposed to poor quality and to segregated education.

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V. MANAGING GRADUATE EDUCATION PROGRAMS

A change in the method of establishing educational requirements and a greater emphasis on partially funded study are, by themselves, insufficient to remedy the shortcomings of current programs. New initiatives are needed by the Office of the Secretary of Defense to ensure adequate management of these programs and productive cooperation between the services and the higher education community.

Management needs. The various graduate education programs, described in the preceding chapter, do not constitute a single integrated system so much as an accretion of separate programs -- separately developed, managed, and monitored. This situation is likely to continue until more vigorous leadership is exercised by the Office of the Secretary of Defense. Four steps are essential if graduate education programs are to be effectively managed and monitored: (1) the provision of better information; (2) the enunciation of common educational policies; (3) the adoption by each service of comprehensive and comparable methods of monitoring these programs; and (4) the formation, in the Office of the Secretary, of an advisory committee to facilitate closer working relationships between the services and the higher education community.

The many studies of officer graduate education conducted in recent years attest to the need for strong, central policy leadership by the Office of the Secretary of Defense. If such leadership is to be forthcoming, adequate staff resources and support from high echelons

must be received by that office. Only the Office of the Secretary can promote the development of comparable information systems by each of the services; establish common service-wide educational policies and goals; independently monitor the effectiveness of each service's programs; and help to bring the best practices of each service to the attention of the others to that the management of all programs can be improved.[1] The Office also should help to bring together the extensive, but scattered, experience of the services with individual educational institutions and help to assure that the experience of one service is known to the others and is better used in counseling officers and servicemen, and in maintaining the quality of their education. The information and counseling provided to officers about graduate programs and institutions is evidently thinner than that available to servicemen taking undergraduate courses.

The panel recommends the establishment, in the Office of the Secretary, of an Educational Advisory Committee to provide an independent source of review and advice on the services' higher educational needs and programs. While the scope of this Committee may initially be limited to officer education, it may, in due course, usefully be extended to servicemen's education as well. It should provide a central point for advice on the problems arising in, and the policies governing, the relations between the services and higher

[1]For example, the Army has most fully investigated the feasibility of monitoring graduate education below the master's level and has been parsimonious in the use of its educational budget; the Navy has pioneered in gearing its educational programs to emergent, rather than current, needs; the Air Force has achieved high rates of utilization for officers with advanced degrees; the Marine Corps has set the leanest educational goals.

educational institutions, and provide policy guidance to the panels that set specific officer educational goals. The composition and functions of the Committee are discussed below.

Actions that Educators Should Take. Nationally, graduate education is dominated by private and state institutions. The scientific, professional, and scholarly associations in every field and discipline are private associations. Private agencies accredit educational institutions and programs. The private academic community sets the standards of graduate instruction, the standards for entering and graduating students, and the standards for the award of credit and degrees. The graduate education of officers must meet, or surpass, the standards set by the academic community if it is to meet the needs of the services, of individual officers, and of the nation.

Despite all efforts to facilitate on-campus attendance, many officers necessarily will pursue their studies at courses offered on base. Nevertheless, the quality of these courses, and the provision of additional opportunities for study by traditional and nontraditional means at many bases, remain largely the responsibility of the academic community, or a joint responsibility of that community and the services. The services should pay more attention to articulating their needs and to meshing these needs with the offerings of academic institutions.

The problems of maintaining educational quality are difficult and delicate. Certain bases are the scene of a hectic, unseemly competition between extension offerings of distant and local institutions. Officers have been ill-served by some institutions which cater to their educational needs as street vendors cater popcorn, peanuts,

and balloons. A document prepared by the Servicemen's Opportunity College (SOC) refers all too accurately to "The growing competition among institutions for students" and "The aggressive entrepreneurship of some institutions and the relative indifference of others to needs of military personnel and a lack of comprehensive policy and plan for relating military needs and civilian institutional capabilities..."[2] An Educational Testing Service study concludes that "some method must be worked out to monitor the activities of participating colleges in order to ensure their compliance with both the letter and spirit of the SOC agreement. It is imperative that such a monitoring system include procedures to insure quality control of teaching and advising" ("advertising" might well be added).[3]

At the request of the Servicemen's Opportunity College, the Educational Commission of the States has convened a task force of public officials and private educators to examine the inter- and intra-state traffic in higher education at military bases and determine what may, and should, be done to regulate it. Some of the best regulation is self-regulation. The panel urges the educational community to formulate, announce, and observe voluntary standards of good advertising practice, instructor selection, and the award of credit in offerings at military bases.

[2] A Revised Proposal for the Continuation and Extension of the Servicemen's Opportunity College (SOC), American Association of Community and Junior Colleges and the American Association of State Colleges and Universities, August 15, 1974, pp. 7, 5.

[3] David M. Nolan, An Evaluation of the Servicemen's Opportunity College, Educational Testing Service, Washington, D.C., May 1974, cited in A Revised Proposal..., op. cit., p. 15.

A troublesome problem hampering graduate education is the difficulty officers encounter in maintaining the continuity of their studies and in accumulating and transferring credit during their frequent changes of duty stations. The Sericemen's Opportunity College has helped to deal with this problem at the undergraduate level by its network of over 250 junior and senior colleges which have agreed to similar policies on admission, transfer, and residency requirements and the acceptance of credit recommended by the American Council on Education's Commission on Educational Credit, awarded by other SOC institutions, and attested by designated examinations. At many institutions, a serviceman can contract for a degree in a given program of study which he can pursue thereafter at cooperating institutions, receiving continuing counseling and, eventually, his degree from the institution where he initially enrolled. Though SOC may seek to extend its activities to the graduate level, the bulk of its energies and resources understandably have been devoted to college, junior college, and high school completion programs.

Some of the best graduate schools have been among the most conservative in their acceptance of credit from other institutions and their residence requirements are often inhibiting. Consequently, they have vacated much of the extension field to more enterprising institutions. A panel sponsored by the Graduate Record Examinations Board and the Council of Graduate Schools in the United States has issued a resounding call for more flexible approaches to graduate education

better adapted to the needs of older, working, and part-time students.[4] Servicemen as well as civilians would benefit from the wider adoption of its recommendations, and financial distress, if not an eagerness for educational reform, may induce more institutions to adopt them. Yet institutional change is slow. One graduate school spokesman, sympathetic to officers' problems, agreed that the time was propititous for new policies on the transfer and accumulation of credit. But he threw the problem back on the services which, he said, want to come to the graduate schools with a bagful of assorted credit, empty it on the counter, pay the posted price, and receive a degree. That, he said, would destroy the integrity of any degree program. The right way to proceed would be similar to that adopted by SOC: the student and graduate school would reach an understanding, at the time of initial enrollment, about a planned program of study; and, though the student might thereafter complete his studies elsewhere, if he fulfilled his part of the agreement, he should be able to receive his degree, with no loss of credit, from either the initial or the final institution.

The time is ripe to extend or adapt the SOC network concept to the graduate school level. A joint task force of the SOC and the services should be established to do so in ways that recognize the special needs and circumstances of officers and maintain the integrity of graduate education and degree programs. Any gains that result will be gains for

[4]See Panel on Alternate Approaches to Graduate Education, Scholarship for Society, A Report on Emerging Roles and Responsibilities of Graduate Education in America, Educational Testing Service, Princeton, 1973.

all graduate students: civilians as well as officers and enlisted men (who will of course, return to civilian life and will, in many cases, continue their education there). The services can help by lengthening assign . whenever possible, to accommodate off-duty study and by providing improved counseling for officers. The universities can help by honoring more graduate transfer credits earned under designated conditions in designated programs and institutions. First-rank universities can help by joining such a network and ensuring that requisite academic standards are maintained.

The services have sponsored a number of studies of officer graduate and professional military education. Nonetheless, the panel does not believe that, at senior levels, the services have given to graduate education the continuing attention and support it deserves. No doubt that is for good reasons, since senior levels of command have many other important matters to occupy their attention. Much the same can be said of the attention that higher educational leaders have given to the educational problems of the services. They have sponsored special programs to serve the needs of officers and servicemen, as they perceive them. But there is, at present, no established means whereby the educational programs, problems, and policies of the services are examined on a regular basis by leading educators or by the services themselves at the level of the Secretary of Defense. Though the services must rely upon the higher educational community for their officers, knowledge, training, and education, there is now no established body monitoring the changing needs of the services and their changing relations with educational institutions. The advisory committee proposed by this panel should help to meet those needs.

One cannot forget the painful events of recent

years when relations between the services and some of our leading colleges and universities -- which is to say, between these institutions and many of their own alumni and students -- were strained or ruptured. A renewal of relations between the military and educational communities must be based upon open covenants, openly agreed upon, and upon a mutual respect for their separate functions and responsibilities.

APPENDIX A

Biographical Sketches of Panel Members

Francis Keppel, Chairman of the Panel, is Director of the Aspen Institute Education Program. His former positions include Chairman of the Board and President of the General Learning Corporation, Assistant Secretary of HEW (for Education), U.S. Commissioner of Education, and Dean of the Graduate School of Education at Harvard University.

General Leo E. Benade, USA (Retired) is presently a Senior Consultant to the Fund Raising Division of the United Way of America. His former positions include Adjutant General, U.S. Army Europe, Deputy Assistant Secretary of Defense, and member of the National Executive Committee of the U.S.O.

Professor Junius J. Bleiman is presently Director of the Mid-Career Program of the Woodrow Wilson School, Princeton University, and Lecturer in Public and International Affairs. He retired from the military as a Lt. Colonel and during his military career served as the Assistant for Strategic Planning, Policy Planning Staff, Office of the Assistant Secretary of Defense (International and Security Affairs) and also taught in the Department of Social Sciences at the U.S. Military Academy. His community involvement includes his present position as Mayor of Princeton Township.

Bertrand M. Harding is a Consultant to the Consumer Products Safety Commission. He recently retired from the federal service and has been associated with a number of different agencies, including the Federal Aviation Administration, the Atomic Energy Commission and the Veterans Administration. He also served as the Deputy Commissioner of

the Internal Revenue Service and as Acting Director of the Office of Economic Opportunity.

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Roger W. Jones has served in a variety of positions in the federal government over a period of forty years. Twenty of those years were spent in the Bureau of the Budget. He also served as Chairman of the Civil Service Commission and Deputy Under Secretary of State for Administration. Mr. Jones was assigned to active duty with the Combined Chiefs of Staff between 1942-45. He is currently a member of the Board of the National Civil Service League.

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APPENDIX B

Occupational Specialties

On the following pages are listed the occupational specialties of the Army (46), Navy (24), Marine Corps (30), and Air Force (15). Many are not comparable to specialties encountered in civilian graduate education. The Army list contains all specialties, including combat arms specialties and service-peculiar specialties. A member of the Navy subspecialties obviously are service-peculiar or available at the graduate level only in a service school -- to a lesser extent this also is true of the Marine Corps and Air Force.

Following the listing by service is a table suggesting possible comparable clusters which might be examined for Defense-wide commonality. It seems likely that, ultimately, the number of occupational specialties related to graduate education can be reduced -- especially those requiring graduate courses of study not peculiar to particular service needs.

Army Occupational Specialties*

Air Defense Artillery
Armor
Field Artillery
Infantry
Engineer
Combat Commo-Electronics
Fixed Telecom Systems
Commo-Electronics Engineering
Audio-Visual Instructional Technology
Criminal Investigation
Personnel Administration
Personnel Management
Club Management
Tactical/Strategic Intelligence
Counter Intelligence
Cryptology
Operations and Force Development
Finance
Education
Atomic Energy
Automatic Data Processing
Comptroller
Foreign Area Officer
Information
Research and Development
Operational Research/Systems Analysis
Logistics Management
Procurement
Logistics Service Management
Supply Management
Transportation Management
Maintenance Management
Traffic Management
Marine and Terminal Operations
Highway-Rail Operations
Chemical
Communications-Electronic Material Management
General Troop Support Material Management
Food Management
Petroleum-Oil-Lubricants Management
Construction and Marine Material Management
Aviation Material Management
Armament Material Management
Tank/Ground Mobility Material Management
Munitions Material Management
Missile Material Management

*Note that the first six specialties are in "combat arms" having no true civilian counterpart. The last 20 are in the more general field of logistics/supply management.

Navy Subspecialty Codes

Politico-Military/Strategic Planning

Intelligence

Public Affairs

Legal

Religion

Aeronautical Engineering

Naval Engineering

Nuclear Engineering

Weapons Systems Engineering

Anti-Submarine Warfare

Physical Sciences

Applied Logistics/Systems Analysis

Meteorology

Oceanography/Hydrography

Electronic Engineering

Facilities (Civil) Engineer

Material Support (Supply management)

Computer Science & Management

Communications Technology

Communications Management

Financial Management

Military Sealift Command-Transport Management

Manpower/Personnel Management

Systems Acquisition Management

Marine Corps Occupational Specialties

Education Guidance Counselor

Education Testing and Evaluation Specialist

Education Curriculum & Instruction Specialist

Education Administration

Physical Education Specialist

Aero Engineer

Electronics Engineer

Ordnance Systems Engineer

Computer Engineer

Industrial Engineer

Nuclear Engineer

Communications Engineer

Management Officer

Personnel Management Officer

Comptroller

Data Systems Officer

Management Data Systems Officer

Operations Analyst

Defense Systems Analyst

Research & Development Officer

Systems Inventory Officer

Communications Manager

Material Management Officer

Statistics Officer

Meteorology Officer

Public Information Officer

International Relations Officer

Historiographer

Doctor of Judicial Science

Master of Criminal Law

Air Force Occupational Specialties

Administration

Civil Engineering

Communications-Electronics

Comptroller

Education/Training

Information and History

Intelligence

Logistics

Manpower

Operations

Personnel

Scientific and Development Engineering

Security Police

Special Investigation

Weather

Army	Navy	Marine Corps	Air Force
Personnel Administration Personnel Management	Manpower/Personnel Management	Personnel Management	Personnel
Finance Comptroller	Financial Management	Comptroller	Comptroller
Education Audio-Visual Instructional Technology		Education Guidance Education Testing and Evaluation Education Curriculum and Instruction Education Administration	Education/Training
Operations/Research/ Systems Analysis		Operations Analyst Defense Systems Analyst	
Research and Development		Research and Development	Scientific and Development Engineering
Foreign Area Officer	Politico-Military/Strategic Planning	International Relations	
Information	Public Affairs	Public Information Officer	Information and History
Automatic Data Processing	Computer Science and Management	Data Systems Officer Management Data Systems Officer	
	Meteorology	Meteorology Officer	Weather
		Management Officer	Administration
Tactical/Strategic Intelligence Counter Intelligence/ Humint Cryptology	Intelligence		Intelligence
Logistics Management	Material Support (Supply Management) Applied Logistics/Systems Analysis	Material Management Officer Systems Inventory Officer	Logistics

APPENDIX C

Policy and Management Initiatives to Improve Officer Graduate Education

DOD Initiatives

The first DOD Directive on Graduate Education, issued 27 March 1971, revised the JCS Directive of 1968 to address the 1970 GAO recommendations:

1. Active service obligation established as three years for each year of school with a maximum obligation of four years.

2. Utilization tour as soon after graduation as practical; as many repeat tours as good career development permits.

3. Officers receiving graduate education through other means (off-duty) will be considered assets to fill valid positions.

4. Annual review of validation criteria chaired by JCS to ensure uniformity of application.

As a follow-up to determine the effects of the new Directive, in early 1973, DASD (Education) sponsored a joint study on Graduate Education. The findings of this study provided the basis to revise the 1971 Directive and this revision was issued 30 July 1974 -- major changes included:

1. Obligated Service -- eliminated the ceiling of four years and allows services to require more active duty if training is longer than one year.

2. Alternative Funding -- reduce reliance on the fully funded program by increased availability of off-duty programs. Use tuition assistance and VA wherever possible. The officer shares part of the expense.

3. Utilization Tour -- as soon as practicable but no later than the second tour after graduation. As many additional tours as possible with a desirable minimum of two tours.

4. Experience -- use an officer's previous experience and training as a means of reducing or eliminating the need for formal education programs.

5. Collect and evaluate retention data to review selection criteria (years of service and grade) to ensure maximum return on investment.

6. If the graduate course is 26 weeks or longer, it is considered fully funded and all graduate education policies apply.

Army Initiatives

Army Graduate Level Civil Schooling Policy Revisions since March 1974:

1. Fully funded graduate study to include Advanced Degree Program for ROTC Instructor Duty (ADPRID) permitted only in disciplines in which the Army is short on graduate level educated officers. Only exception is for USMA faculty when an officer of the proper grade, education, and quality is not available.

2. Effective 1 July 1975 this shortage discipline policy will be applied to the Degree Completion Program (DCP).

3. Discipline studied must align with officer's OPMS specialty.

4. Resident study time generally restricted to 18 months in fully funded program, 15 months for ADPRID, and is normally 6-12 months for DCP.

5. Officers and enlisted men must be of high quality in performance and potential in order to be eligible for civil schooling.

6. The Army Enlisted Education Requirements Board (AEERB) is receiving field inputs on those enlisted positions requiring education above the baccalaureate level. This Board will formalize all enlisted education requirements.

7. All civil school graduates are utilized immediately in a position requiring an individual with that particular level of civil education.

Navy Initiatives

1. Average student load has been reduced from 1553 in FY 73, to 1058 in FY 76 -- a 31.8 percent reduction.

2. SECNAVINST 1520.4B of 31 December 1974, tightened the general criteria for educating officers beyond the DOD policy (minimum education required for satisfactory performance of duty vice essential for optimum performance).

3. BAYNE Study tightened specific criteria by developing specific lists of job functions that would require graduate education for each subspecialty area.

4. The Subspecialty Requirements Board (SRB) recommended by the BAYNE Study has been instituted. This Board of Flag Officers will meet biennially (starting 30 May 1975) to revalidate the entire subspecialty billet base, assign priorities among subspecialties, and restructure the billet base for maximum utilization of assets. It is estimated that careful restructuring alone will allow the Navy to fill the present validated billet base with about 1000 fewer educated officers thus reducing present shortfall.

5. Navy has identified billets that formerly required a masters level education which can be filled by an officer who has had a much shorter (6 - 9 month) specially tailored education/training package thus helping us remain within present limitations.

6. By deleting refresher courses, developing a continuing education program, streamlining curricula, adopting a personalized system of instruction, and liberally granting transfer credits, Navy has reduced significantly the time required on board at the Naval Postgraduate School.

7. The establishment of the Navy Campus for Achievement will allow more officers to pursue graduate education on their own, particularly in management areas, thus reducing full time, fully funded requirements.

8. Navy has developed a system of general codes (i.e., 9000P - masters level of education in any management discipline; 8130P - masters level of education in any one of nine different Weapons Engineering disciplines, etc.). This allows a much broader application of education, particularly in the senior grades where experience has significantly supplemented the original narrow education discipline.

9. Navy has identified billets (mostly at educational institutions) where the requirement is for a specific level of education regardless of discipline, thus allowing utilization of officers with degrees in fields not of interest to the Navy (i.e., Psychology, History, Forestry, etc.).

10. Inputs to management curricula have been drastically reduced, placing greater dependence on officers achieving this type education on their own, and allowing expansion of the scientific and technical programs where serious shortfalls exist.

11. BAYNE Study recommendation to have an independent committee of civilian professionals to advise Chief of Navy Education and Training was adopted. The Navy Graduate Education Program Select Study Committee is currently in session at NPS studying curricula offered there. They will recommend which Navy unique requirements can best be met by NPS and which requirements should be met at civilian institutions.

12. Navy has established a Subspecialty Community Management Branch in the Bureau of Personnel to monitor and ensure better utilization of graduate educated officers.

13. Subspecialty Selection Boards have been established to identify officers whose years of extensive experience in an area provides a near equivalent of graduate education. These officers are counted as assets when computing graduate education quota plans.

14. A number of other management controls have been or are being developed to greatly improve the efficiency and effectiveness of the Navy Graduate Education Program. The total effect of all these initiatives will not be apparent overnight. It will take several years to achieve a significant increase in utilization because of 3-year average tour lengths. It is strongly recommended that no additional reductions be made in graduate education programs until the effects of recent service initiatives can be measured.

Air Force Initiatives

1. Refinement of Advanced Academic Degree Management System -- December 1973:

    a. More stringent criteria for establishing requirements. Requirements reduced from 12,000 to 9,600 -- period FY 74 to FY 75.

    b. Work center concept vice individual billet for assigning validated requirements to organizations.

2. Modification of AFIT Dynamic Computer Programming Model -- August 1974:

   Matches previously declared unusable degrees against alternative requirements which increased usable degree inventory.

3. Air Force sponsored change to 10 USC 9301(b) and 4301(b) which passed as Public Law 93-169, signed by President 29 November 1973. Change removed the four-year limitation on service commitments for officers attending educational institutions. Estimated annual increase in educational investment in Air Force alone is $3.4 million.

4. Improved utilization of graduate degree holders, approximately 90% of AFIT graduates are now assigned to validated billets directly from school. 70% of validated billets now filled by officers with appropriate graduate degree.

5. Increased output of graduate degrees from non-fully funded sources. Fully funded program produced 50% of graduates in FY 69 -- only 33% in FY 75.

6. Reduced program length of seven resident programs by one academic quarter and another by two academic quarters. Reduced student load from 1,849 in FY 73 to 1,300 in FY 76. In FY 69, student load was 2,500.

7. Exploring avenues for increased inter-service use of AFIT and NPS.

8. Survey underway to determine significant contributions of officers with graduate degrees which can be attributed to their graduate education. So far $1 billion annual cost savings have been identified and/or avoidances attributed to AFIT graduates. In addition, Air Force Systems Command has reported that AFIT faculty and students contribute more than $4 million worth of research annually.

9. Implementing Advanced Degree Requirements Information System (ADRIS) which, by means of remote computer terminals, matches graduate degree resources and requirements. Has already helped personnel officers to better manage graduate degree resources.