EFFECTS OF CAREER DEVELOPMENT FACTORS ON THE MILITARY MANAGER IN THE SUPPORT ACTIVITY

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by

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In this study a civilian member of middle management examines the internal and external forces that bear on the military officer during his management duty tours in the supporting Shore Establishment, and influence his decision making behavior. It is found through a literature search that these motivational forces consist basically of: (1) the increasing complexity of career patterns,

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(2) promotion and attendant processes in an up or out situation, and (3) the policy of job rotation. By means of statistical analyses of data gathered by questionnaires, hypotheses are tested which lead to the finding that the most desirable military management billets perceived as springboards to promotion have average tour lengths significantly shorter than those of less desirable billets. It is concluded that the above situation could be rectified, and other problem areas resolved, through longer tour length assignments. The study applies, in general, to any joint military-civil service organization; however, primary interest is focused on Naval Air System Command activities.

Effects of Career Development Factors on the Military Manager in the Support Activity

by

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I. INTRODUCTION

The reader may legitimately ask the question: "Why should a civilian be concerned with Naval Officer career development?" If the question were phrased within the context of the Naval Operating Forces, the answer would clearly be that the civilian should not be concerned. If, however, the question were phrased within the context of the supporting Naval Shore Establishment, the answer must be that the civilian should be vitally concerned because he is part of a civilian-military team. William N. Price, writing in the Journal of Navy Civilian Manpower Management [1973, pp. 20-21], explains the roles of each member of this team as follows.

> The Department (of the Navy) is primarily a military organization. It may be said to consist of two parts: (1) the Operating Forces of ships, aircraft, and Marine combat units - all sea-going, even when temporarily based ashore, and (2) the supporting Shore Establishment. The Operating Forces are one hundred percent military manned, as they should be; military discipline, military procedures, military command and response are essential for successful combat operations. In the Shore Establishment, top management (below the civilian Secretariat, of course) is military. Other positions in the Shore Establishment are military for purposes of sea-shore rotation, for training, to insure combat readiness, to provide a required military background, to enforce military discipline, to comply with certain laws, to man positions at remote locations where civilians are not readily available, and for some positions "peculiarly military,"

such as members of military bands, legation guards, etc.

Continuity is an essential part of the military-civilian mix that is supplied by the civilian component. The typical Navy civilian employee is not mobile. He tends to stay in one geographical location, acquiring more and more knowledge of the local environment as well as of his particular job or discipline. Navy military, on the other hand, are very mobile, moving from one job to another, often widely separated geographically, every one to four years. Civilians therefore provide continuity and special expertise, while the military provide broad knowledge of the Navy and liaison between the Shore Establishment and the Operating Forces.

The two manpower systems have important differences. The military personnel system is highly centralized. Input is at the lowest level (recruit, midshipman, officer candidate), rank is in the man and based on his qualifications, and career progression is "up or out." The civilian system is primarily decentralized. Input is at any level, "rank" depends on duties assigned; i.e., it is "position oriented" rather than "person oriented." There is no requirement to advance or to get out.

The military officer is seen then, from the stationary viewpoint of the civilian manager, as one who comes into the top management jobs of the Shore Facility - stays for a relatively short period of time - and then moves on. What the military officer does during his brief tour is of vital importance to both himself and the civilian manager. For the military manager this period determines whether he will move "up" to a higher rung in his career ladder, or "out" to retirement. For the civilian manager this period often results in dramatic changes to his job

environment which may persist for substantial lengths of time. Most of the changes that occur are, without question, beneficial to all concerned. Some of the changes, however, are not beneficial - at least from the civilian viewpoint. The general purpose of this thesis is to examine some of the reasons for these perceived non-beneficial changes and to try to determine what might be done to eliminate them. The examination will focus on the external and internal forces that bear on the military officer during his management tour in a supporting Shore Establishment; and the impact these forces can have on the management decisions he makes. The enlightenment gained should give the civilian manager a better understanding of his military counterpart. This better understanding should improve communications which in turn should enable both parties to take action to preclude potential problem areas.

A. PERCEIVED PROBLEM AREAS

What, specifically, are some of the problem areas that have been alluded to? To provide an answer to this question the following three case studies are presented. In these case studies it is not intended to show that the decisions made by the military managers involved were good or bad; rather it is intended to show only how the civilian managers involved perceived these decisions, from their vantage point, at the time they were made.

1. Case Study I

Approximately seven years ago the author joined a new activity set up to design, develop and implement a management information system to provide uniform standard computer programs for Industrial and Fleet activities within the Naval Air Systems Command. Efforts centered on designing an Industrial Module, primarily for the (then) seven Naval Air Rework Facilities; and a Fleet Module covering Naval Air Station activities other than the tenant Naval Air Rework Facilities. An Executive Board consisting of Captain and Flag rank officers was established to review progress of the new management information system design, and to provide guidance on the course of subsequent effort. The management information system in planning was large and comprehensive, with implementation scheduled over approximately a ten-year time span. In November 1972, however, the Executive Board decided to curtail further development of the long-range plan except, essentially, those portions of the plan which had already entered the implementation phase. Hardest hit were the Fleet Module effort which, at the time, was almost entirely still in the design phase; and the Brand "X" computer procurement plans. Brand "X" was to be a set of new computer equipment required to operate the integrated management information system when it reached the implementation phase. It was proposed that the Brand "X" computers would be installed - and replace existing computers - at the seven

Data Processing Departments located at the Naval Air Stations that had Naval Air Rework Facilities as tenants.

The curtailment of the long-range management information system was generally attributed to the high cost of the planned program in relation to the declining budgets associated with the last years of the Southeast Asia conflict. Several events occurred soon after, however, which indicated that shortage of supporting funds might not have been the primary factor. Of these, two major events were that (1) the Naval Air Station Data Processing Departments, after having been reorganized into Data Processing Service Centers, were able to launch a program for a new computer procurement to replace their aging hardware, and (2) a Fleet-oriented management information system was initiated to service aircraft carriers and Naval Air Stations. The new computer procurement proved to be so similar to the Brand "X" plans that it quickly became identified as Brand "Y" to avoid confusion. The new Fleet-oriented management information system proved to be almost conceptually identical to the previously abandoned Fleet Module design.

On reflection then, a search was made for other than monetary factors that might have influenced the Executive Board's decision for curtailment. Two salient factors which came to mind were: (1) the discontinuity of the membership of the Executive Board, and (2) the demonstrated impatience of the Board with the long-range schedule of the plan.

Concerning the Board membership, it was noted that the original Board that met in October 1970 consisted of eight members. One year later the Board consisted of 11 members, with seven of the original eight in attendance. Two years later the Board had expanded to 14 members; of the original eight, four were in attendance. (Two of these four, however, were now attached to different Commands.) By June 1973 the Board stood at 12 members; only one of the three original remaining members was still with the same command.

Concerning the noted impatience with the long-range plan schedule, it had been observed that the Captain members of the Board had exhibited extreme interest in portions of the overall plan that would be implemented at their particular Command during their tour in office, and relatively little interest in portions of the program scheduled for implementation after their term. Flag officers present, however, were noted to take a significantly broader interest time-wise.

In summary then, it was perceived from the civilian standpoint that the Board decision for program curtailment may have been influenced by Board member discontinuity caused by the military billet job rotation system; and by rejection of long-range plans viewed as unacceptable to military managers who, because of the job rotation system, must be primarily concerned with achievement of short-range objectives.

2. Case Study II

In 1971 the author was assigned to assist one of the Naval Air Rework Facilities in development and implementation of a computer program to be used as a tool for improved selection and scheduling of aircraft for rework. The Aeronautical Engineering Department of the Naval Air Rework Facility involved had developed a computer program which made use of multiple regression statistical techniques to determine significant variables which could be used to determine the material condition of individual aircraft operational in the Fleet. Thus, by collecting a small amount of information, the Naval Air Rework Facility could predict ahead of time what the material condition of individual aircraft selected for rework induction would be when they arrived. This information, in turn, could then be converted into man-hours of labor, dollar value of labor, and dollar value of material that would be required to rework each aircraft. This information, in turn, could be used to set up a quarterly induction schedule that would be uniform and therefore more efficient than the existing system which treated each aircraft as if it would require the same amount of rework as any other aircraft. This latter system frequently resulted in "peak and valley" production schedules with their attendant inefficiencies. After the new system had been tested and found to be extremely accurate in its predictions and cost effective in its use, it was presented to the appropriate military manager in Washington, D. C., and accepted for immediate

implementation at all Naval Air Rework Facilities. Work began on the instructions which would officially implement the program, and training classes were set up and scheduled. At this point, however, the military manager who had accepted the program rotated on to a new billet and another military manager took his place. Shortly thereafter the new man announced that he was not willing to support the new program, and without this support it quickly died. The program had its share of opponents as well as supporters and it may well have been a good decision to kill it. It should be noted, however, that the military manager who originally accepted the new system later went on to Flag rank, while his replacement did not.

In summary, it was perceived by this civilian, for one, that the program may have lacked support from the incoming officer because he really had no interest in pushing a program started by his predecessor, and for which he could gain no personal credit during his tour in office. It was also perceived that, had the original officer remained in the billet for another year, the program would have been allowed to continue.

3. Case Study III

One aspect of the management information system arena noticed over the last seven years by the author has been resistance by almost all military managers to the restrictions imposed by the nature of standard uniform automatic data processing programs. The main objections

are that standard uniform programs take too long to develop and implement, are not flexible to changing demands, and take too long to modify. To circumvent this process the military manager often takes the shorter, quicker path to achieving his immediate objectives by developing his own local unique computer programs. While it cannot be denied that this action is necessary in many situations, it also cannot be denied that it often results in undesirable aftereffects. A General Auditing Office report [1975, pp. 9, 16 and 18] recently criticized the Navy shipyards for developing and using local computer programs to supplement or replace standard programs. From 1966 to 1971 the seven shipyards developed and used an estimated 1,500 local programs compared with about 280 standard programs. An investigation indicated that standardization efforts could reduce the number of local programs to 928 while raising the standard programs to about 300. The report further states:

> The Department (of the Navy) has not been successful in developing standard information and data processing systems primarily because its management philosophy allows commanders to unduly influence the design of standard systems to modify standard systems or to develop systems for local needs without regard to the Department's program objectives and management needs. System designers adhere more to the desires of individual commanders than to the Department's basic policies, principles, and procedures.

The author has observed several instances where individual commanders have, through great personal effort,

developed and implemented local unique management information systems. It has been noted, however, that these systems later tend to struggle due to diminished support after departure of the founding officer from the command. In the case of computer programs this can be very damaging in that these systems usually require a great deal of support after implementation if they are to remain viable.

The civilian perception of the above, then, is that military managers appear to have a strong motivation to accomplish visible tasks, preferably through their own creative action, during their term in office. It is also perceived that they may not be too concerned with possible troublesome aftereffects of their actions in that chances are they will have moved on to new billets before these problems become significant.

B. HYPOTHESES

From the above case studies, then, the military manager is seen as one who is placed in successively more responsible positions every few years where he must repeatedly exhibit high personal performance levels, or be forced to retire from the system. As he rises up the promotional ladder the number of available billets decreases; therefore, he must face increasingly stiffer competition as he progresses. Since he will be incumbent in his billet for only a short time he is motivated to take those actions which will produce positive accomplishments during his

term. He is more interested in creating or innovating an action than he is in following through on action innovated by a competitor. The aggregate of the above motivating forces results in the development of a strongly tactical view toward each assignment rather than a strategical view. This mechanism, if it exists, gives rise to a paradox. The military manager will have attained the highest positions of responsibility - those of a strategic nature - through the development and exercise of tactical skills.

Consideration of all of the above has led to the following train of thought: Strategic plans are affected most by certain key billets which carry the most management responsibility. Because of the visibility such a billet sheds on the performance of the incumbent officer, his chances for promotion should be greatly affected. The competitive demand for these key billets should therefore be very strong and possibly could result in a tendency for these jobs (up to but not including Flag rank billets) to have a significantly more rapid than normal turnover. If true, then the very jobs that affect long-range plans most would be the same jobs that have the shortest-term managers. This shortened time-span in office would serve to increase the pressure on the incumbent to "accomplish something" during his term which in turn would almost guarantee that long-range strategic plans would be sacrificed to accommodate short-range tactical goals. Based on this thought, it was decided to formulate the following two hypotheses

as the focal points on which to base an investigation which would serve as the specific goal of this thesis:

1. Hypothesis One

H1: Within available choices, certain Naval Shore Establishment billets are perceived by the military manager as being more desirable than others for promotion purposes.

2. Hypothesis Two

The testing of this hypothesis was to be contingent on whether or not the first hypothesis was found to be true.

H2: The most desirable military management billets perceived as springboards to promotion have average tour lengths significantly shorter than those of less desirable billets.

C. OBJECTIVES

This thesis addresses both a general and a specific objective. Within the general objective the thesis attempts to examine the internal and external forces that bear on the military officer during his management tour in a supporting Shore Establishment, and influence the decisions he makes.

Within the specific objective the thesis attempts to determine whether or not the two hypotheses described just above are true.

From the findings of both objectives the thesis attempts to draw conclusions with a view toward recommending actions that might alleviate some perceived problems and bring

better understanding between members of the military-civilian management team.

D. SCOPE

Conduct of the general objective was by literature search covering the broad scope of all military services.

The scope of the specific objective was narrowed to that comprising Aeronautical Engineering Duty Officers within the Naval Air Systems Command. Conduct of the specific objective was through statistical analysis of questionnaires.

The following pages will present first the findings of the literature search conducted for the general objective. Next will be presented the methodology and results of the statistical tests of the hypotheses conducted to achieve the specific objective. And finally, conclusions and recommendations drawn from the findings will be discussed.

II. LITERATURE SEARCH

The literature search made to examine the internal and external forces that bear on the military officer during his management tour in a supporting Shore Establishment, and influence his decision making, turned up material that centered on three themes: (1) the increasing complexity of career patterns, (2) promotion and its attendant processes in an up or out situation, and (3) the policy of job rotation. A review of findings in each of these three areas follows.

A. CAREER PATTERN COMPLEXITY

1. The Unrestricted Line Officer

Shepherd's thesis "Career Planning Information in Officer Professional Development" [1974, pp. 26-31] provided the following information.

> Career patterns continue to be a perplexing issue for the Bureau of Naval Personnel. As previously stated, formal patterns in the early Navy were of little consequence. The ladders of success were well worn. The missions and equipment were simple in comparison to today. Officers knew what was expected of them and knew when they should be in various positions within the Naval Organization. Contrast this simple career plan with officers entering the Navy today. They are faced with an immediate choice of which one of the seven major categories to enter, then selection of a specialty within that designator, and, finally, for the specialists in one of the four warfare areas, which of the twenty-three subspecialties under the OTMS concept to aspire to.

The Officer Personnel Newsletter offers this guidance: Career patterns are as varied as the backgrounds of the officers who represent the Navy and no one set of circumstances or assignments could ever be endorsed as "the only way to success." There exist, however, several basic requirements which of necessity are common to all successful unrestricted line careers. With this view in mind, the following comments are offered: Normally a newly commissioned officer is initially assigned to a billet at sea, and since his performance in this environment is the most important single criterion, his efforts should be devoted to performing those duties assigned in the most effective and preserving manner possible. Concurrently he should be preparing himself for billets of increased responsibility via correspondence courses, fleet schools, and on-the-job training. The junior officer's primary objective, quite naturally, is to prepare himself for a future assignment as a department head where he can apply that knowledge and experience gained during earlier assignments. Also, the junior officer should be planning during these formative years for later assignments to executive officer and commanding officer billets.

To reach the position of Commanding Officer of a surface vessel in the grade of Commander, a typical officer will have been examined by a minimum of nine boards, including statutory boards for rank and administrative boards for command, postgraduate school, etc., in addition to having passed a rigorous written and practical examination for command. At each screening point those officers not having passed the usual number of milestones are in a weaker position than their contemporaries, their performance notwithstanding.

Aviation officers are counciled with specific guidance for in-grade billets such as: Three basic tours are desirable in the grade of commander: A CO tour resulting from board action, an afloat staff or ship tour where a Flag Watch Officer or CDO qualification can be attained and a Washington tour if qualified and the individual has had no previous duty in Washington.

2. The Restricted Duty Line Officer

> Shepherd continues: Guidance to officers of the restricted line and staff corps is more detailed. Career patterns in these communities are well known and each officer is generally provided with a long-range planning document and directory of officers within his designator. This directory lists the incumbent in the billet and his expected rotation date. Officers are actively encouraged to use this information when planning and requesting future assignments.

Shepherd goes on to describe the career patterns of the Aeronautical Engineering Duty Officers who formed the sample population of the statistical analysis which is described later in this thesis.

> The relatively small size of the AEDO community permits a high degree of "personalized attention" to career planning that would be impossible to achieve in larger, less manageable groups. The career pattern of each 151X officer is continually under review to ensure that he is progressively accumulating the background and experience necessary for effective performance in future senior assignments.
>
> Each 151X officer should progress through a series of job assignments in such fashion that he naturally becomes aligned with a major AED command area. These command areas coincide roughly with the four major activity categories described earlier; namely, (1) Operational Support, (2) Naval Air Systems Command Headquarters, (3) Research, Development, Test and Evaluation, (4) Production/Rework.
>
> If assigned from headquarters to a rework activity, then the next assignment should be in operational support.
>
> Starting from an operational support assignment, the next assignment should be to headquarters, or to either RDT&E or Production/Rework followed by headquarters.

> If an officer starts early in his career, an opportunity exists for assignments in each of the four areas.
>
> Any of the four areas can serve as the starting point but the mandatory headquarters requirement might dictate the direction and the option.

Shepherd also makes the summary statement that with today's forms of specialization, including both operational, and managerial and technical, formal career patterns are a necessity. Within each specialty there will remain some flexibility. However, the intense and repetitive selection process will, much as with salmon spawning upstream, select out not only the poor performers but those who stray too far from the main stream.

3. The Military Manager Role

In addition to the above career planning complexities, the officer also faces problems associated with his increasingly important role as manager in the Shore Establishment. Paulsen, in his thesis "Military Managers in the joint Military-Civil Service Organization" [1965, pp. 2-3] writes:

> In the early years of our Navy, the Naval Officer was strictly a sea-going man and shore duties were handled by civilians. The many changes in the size, type and complexities of our ships, as well as the increasing importance of the supporting and technological aspects of warfare, have resulted in a tremendous expansion of both the shore and fleet organizations of the Navy. As the naval establishment becomes progressively dependent on complex technology, the importance of the military manager increases. The new tasks of the military require that the professional officer develop more and more of the skills and orientations common to civilian administrators and civilian leaders...the military

commander must become more interested and more skilled in techniques of organization, in the management of morale and negotiation.

The problems of the military manager in the joint military-civilian service organization are complicated by one factor not common elsewhere; he must manage his single workforce in a common mission under at least two different personnel and career systems. His civil service personnel must be managed under the Federal civil service system and his officers and enlisted men must be managed under a military system. Individual and group goals, motives, values and incentives tend to be different in each system.

4. Stress Factors

It is apparent from the above that the Naval Officer must grapple with a myriad of problems on a broad front during his career, and that the demands placed upon him can create a great deal of stress. Karge explored this area in his thesis "A Study of Executive Tension as it Relates to the Efficiency of the Naval Officer Corps." In the thesis, [1971, pp. D-1 and D-2], Professor William H. Church, staff advisor, added some comments on the effects that stress on the military manager can cause. His comments are repeated below:

Additional points of stress in the interpersonal relationships of those in the armed services include:

1. Relationships between civilian and military personnel.

2. Officer-enlisted relationships.

3. Continuous readjustment to new working environment and personnel.

4. Continuous pressure for "outstanding performance and conduct" with the up or out philosophy.

5. Fear of ruining career with one mistake.

It is pointed out in this study that some stress and even some fear of failure can constitute constructive stimuli to achievement. Some stress can be termed "normal." We define morale today as the inner urge on the part of the individual to do what the organization expects of him. People who have this trait can generally be classed as working under some stress to "live up to expectations." The big area of difficulty is the unnecessary stress caused by administrators or colleagues - either military or civilian - that fail to live up to some of what might be termed the responsibilities of a position of leadership and trust. These people either fail to learn enough about the areas in which they may be given authority and responsibility before "indulging" in decision making or they fail to recognize that a manager cannot be expected in today's complex world to know everything and should therefore call on qualified personnel within the organization for proper advice and counsel before reaching conclusions ... or decisions. Another "stress maker" is the vascillating individual who cannot make up his mind even with facts available and who unduly delays decision making essential to the routine of conducting business. The chain of command violator who feels no compunction about going over the heads of responsible subordinates for advice but wants everyone to strictly follow the chain of command to him is a much too familiar type of stress creator.

The officer who feels under stress to make a good showing to get a good fitness report sometimes has done irreparable harm to the organization and the people who serve around him. At sea he is an autocrat who doesn't trust anyone and who sets his own standards but frequently neglects to tell his subordinates just what these standards are. Two or three tours with officers of

this type does much to cause both officer and enlisted personnel to leave the service. Ashore these same officers will try to learn what higher authority wants of them and what they can do to "look good" in the eyes of the command and then run rough shod over personnel within the organization to attain objectives in which they have placed their own ego and personal aggrandizement above the needs of the organization as a whole. Unfortunately, these management "failures" are frequently promoted in this system. Further, some of them have so little sensitivity to a proper "human relations" approach that they are oblivious of the damage they cause. The civilian who builds an empire and who continuously places his own ambition ahead of the needs of the organization and who also rides rough shod over the men and women who oppose him is just as damaging to morale or the inner urge of those who if treated better would have faithfully exerted themselves to do what the organization expected and who with a little encouragement and understanding could and would strive for higher levels of attainment and production.

B. PROMOTION AND ATTENDANT PROCESSES

Concerning this area the literature search indicated that the interest lay in two main categories: (1) acquisition of desired duty assignments, and (2) adequate preparation for good performance within those assignments. Some mention was also made of the focus on short-term goals. The following discussion covers each of these three factors in turn.

1. Acquisition of Desired Duty Assignments

Shepherd (pp. 16, 27, 33, 34, and 56) wrote that:

Promotion and its attendant policies are always uppermost in any Naval officer's planning. Unlike his contemporaries in business or industry, where promotions are not an up or out situation, an officer

> "failed of selection" is with very few exceptions approaching termination of his naval career. By law an officer's career will be involuntarily terminated only after he has twice failed selection, and then the timing of his release is determined by his rank. Regardless of the circumstances no more disastrous event can befall a member of this highly competitive group.
>
> Career patterns are a critical problem largely because they form the common denominator for selection boards. Officers are promoted by boards who judge their performance of duty in relation to their contemporaries. In order to make this judgment equitable when dealing with thousands of officers, minimum standards of qualifications are established. Each subgroup of officers establishes within its field of expertise certain gates through which officers must pass in order to be considered qualified for higher responsibility within that field.

Shepherd goes on to make the point that, while a carefully planned career pattern and good job performance are vitally important for advancement, duty assignments also have a strong influence on promotion processes.

> The old Navy adages like "the good jobs seek the good men" and "superior performance in any billet will lead to success," should be considered inoperative. Anything less than factual information is insufficient and may be misleading advice to junior officers required to make decisions in the first five years of their careers that will ultimately govern the majority of their assignments in the following twenty-six. The Navy has gone on record to indicate that there are in fact assignments considered to be injurious to an officer's development.

On this point Shepherd quotes from the Bureau of Naval Personnel (Officer Distribution Division), The Officer Personnel Newsletter, June 1968, page 4.

> Occasionally an officer is well qualified for many jobs, and although a particular assignment at this point in his career has much more to offer in the way of professional development, the realities of "service needs" may dictate another assignment. If there is the likelihood that such an assignment will have an adverse effect on an officer's professional development, the Chief of Naval Personnel has the authority to note in his official record the reasons for such an assignment, making it clear that performance or lack of qualifications was not the determining factor. The determination as to the appropriateness of such an action is the prerogative of the Chief of Naval Personnel and will be exercised without requests from individual officers.

Shepherd administered a questionnaire to 1190 Naval Postgraduate School students, and officers at the Naval Recruiting Office in San Francisco, to determine their opinions concerning career patterns, selection boards and assignment policies. His summary of the 654 responses was:

> There are indications that the general population of officers is aware of specific requirements within their fields ... concerning specific billets officers felt they should have, 79.3% felt some billets were linked to consistent promotion and 74.7% classed individual billets as central to their career planning. In particular, 91.3% of the oldest and most traditional group, the surface warfare officers, were concentrating their career planning on specific assignments.

For additional information pertinent to duty assignment opinion, five of Shepherd's questions (with consensus replies) are excerpted below:

Question (17): Are there specific billets in your designator community which you believe have consistently high promotion probabilities?

Answer (17): Yes - 79.2%
No - 8.1%
Don't Know - 12.7%

Question (21): Are there any specific billets that are central to your personal career planning?

Answer (21): Yes - 74.6%
No - 25.4%

Question (24): Do you feel superior performance in a second team billet is equal to or greater than mediocre performance in a first team billet, for promotional opportunities?

Answer (24): Yes - 58.0%
No - 25.7%
Don't Know - 16.3%

Question (28): Do you believe selection boards are more impressed with:

Answer (28): Billets held - 19.9%
Performance - 62.2%
Don't know - 17.9%

Question (32): Given the choice my next billet would be:

Answer (32): Job which offers good promotion reputation 28.1%

Type of work I would particularly enjoy 59.8%

At location I would particularly enjoy 12.1%

The answers to the above five questions appear to indicate a certain degree of ambivalence concerning duty assignments. On one hand there is the recognition that certain billets have high promotion probabilities, while, on the other hand, there is a reluctance to accept these

billets if they do not fall in the type of work they enjoy. This may be due to the fear that such an assignment may lead to mediocre performance in a first team billet (one outside the field of expertise in which they feel comfortable), whereas it is preferable to stay within their comfortable field where there is a better chance for superior performance, even if the billet is of the second team variety. Allen and Loftus in their thesis "Career Development of the Navy Project Manager" [1973, p. 81] make an interesting comment on this point:

> BUPERS policy as promulgated by the individual detailers has always been that performance is to be the standard of measurement for promotion. But for the individual who is planning his own career development, the importance of the billet will play a deciding role. No officer with a good performance record will wish to select an assignment which has a reputation among his peers as "second team." According to RADM Rice's study, the "second team" nature of these billets will continue to be a problem until Navy top-level management takes positive steps to provide a climate for growth.

As the capstone to this section, CDR Charles Gibfried of the Naval Postgraduate School staff has contributed some heretofore unpublished material prepared for a term paper entitled "The Kiss of Death -- or -- Pre-selection by Duty Assignment." Some excerpts follow:

> It is the contention of this paper that the officer's duty station at the time of consideration for selection, in the case of the Supply Corps, is indicative of his opportunity for promotion. This apparently naive hypothesis means that the NAVSUP Office of Personnel (OP) has preselected or condemned the officer receiving orders to such a command.

> This conclusion, if true, is quite disturbing to a naval officer. It appears to be counter to all professional career guidance, naval folklore and inside advice given to junior officers over the years, such as:
>
> "It's performance that counts, son."
>
> "Be sure to get all your tickets punched."
>
> "There are no bad jobs; just bad performance."
>
> "You have to have a tour in Washington."
>
> However, when reconsidered these statements are not really false. Ticket-punching--or getting all the "right" duty stations and a variety of independent department head jobs can only happen with OP's cooperation. You will never have a chance to have your ticket punched or to qualify yourself for the next higher rank unless OP details you to that type of billet. It is performance that counts also. If one had not performed in the past, he could not expect that "career-enhancing" job now. And when you, as a senior commander, are condemned to a dead-end job, you must remember that it is your past performance that got you there.

Gibfried illustrated his point by making use of material obtained from the Register of Commissioned and Warrant Officers of the United States Navy and Reserve Officers on Active Duty (NAVPERS Publication 15018) of 31 December 1970 and 1971. This publication identified all the officers eligible for selection to the ranks of Captain and Commander. These names were matched against the currently assigned duty stations as listed in the Supply Corps Officers Directory (NAVSUP Publication 365) of November 1970 and 1971. He then constructed a diagram of the over-all naval command structure where senior Supply Corps Commanders were stationed during the selection year.

Commands were identified as RED-HOT if they had a 100% selection rate; GOLDEN if the selection percentage was in excess of 70%; NEUTRAL-WHITE if the selection percentage varied between 20% to 67%; and EDGED-IN-BLACK if their selection percentage was zero. He indicated that the performance percentages were chosen in relation to the 60% selection percentage during fiscal years 1971 and 1972. Gibfried continued:

> Studying the command performances, one cannot help but be surprised by the predominance of RED-HOT and EDGED-IN-BLACK commands. Most observers would expect the majority of commands to be either GOLDEN or NEUTRAL-WHITE, knowing rather intuitively that while some duty stations are better than others, opportunities for success exist everywhere. But apparently this is not the case.
>
> To fully appreciate the statistics which support this paper an old inventory control technique was applied to obtain a "distribution by value (in this case, selection)" on the eligible commanders; this is depicted in figure (2) [see Table I of this thesis]. Over the past two years 46.8% of the captains were chosen from the RED-HOT or "no-miss" commands; in other words, 20% of the eligibles wrapped-up almost 50% of the promotions. At the other end of the scale one-third of the commanders were at EDGED-IN-BLACK or "not-one" commands and were virtually never considered for promotion. The enormous proportion of officers at "not-one" commands is apparent. When combined with the NEUTRAL-WHITE 20% to 67% commands, one can see that two-thirds of the officers considered received only 28.6% of the promotions and the remaining 36.5% of the officers from the RED-HOT and GOLDEN commands garnered the remaining 71.4% of the four-striper spots.
>
> Selection to commander closely parallels the captain selection results. The distribution by selection represented in figure (6) [see Table II of this thesis] indicates

TABLE I

SELECTION TO CAPTAIN DISTRIBUTION

	COMMAND	ELIGIBLE NO.	TOTAL	%	SELECTED NO.	TOTAL	%	GROUP %
1.	NAVSUP	6	6	3.5	6	6	100.0	7.8
2.	Schools	5	11	6.5	5	11	100.0	14.3
3.	NAVSUPACT's	4	15	8.8	4	15	100.0	19.5
4.	AFS-Ship	4	19	11.2	4	19	100.0	24.7
5.	FMSO	3	22	12.9	3	22	100.0	28.6
6.	AEC/Weapons	3	25	14.7	3	25	100.0	32.5
7.	NRSO	2	27	15.9	2	27	100.0	35.1
8.	OPNAV	2	29	17.1	2	29	100.0	37.7
9.	NSC-Oakland	2	31	18.2	2	31	100.0	40.3
10.	SECDEF	1	32	18.8	1	32	100.0	41.6
11.	SECNAV	1	33	19.4	1	33	100.0	42.9
12.	SERVPAC/LANT	1	34	20.0	1	34	100.0	44.2
13.	POLARIS	1	35	20.6	1	35	100.0	45.5
14.	Maritime	1	36	21.2	1	36	100.0	46.8
15.	ICP's	8	44	25.9	6	42	75.0	54.5
16.	DSC's	11	55	32.4	8	50	72.7	64.9
17.	NSC's	7	62	36.5	5	55	71.5	71.4
18.	Ax-Ship	3	65	38.2	2	57	66.7	74.0
19.	CVx-Ship	5	70	41.2	3	60	60.0	77.9
20.	NAVCOMPT	2	72	42.4	1	61	50.0	79.2
21.	NFC/NRFC	2	74	43.5	1	62	50.0	80.5
22.	NSD's	2	76	44.7	1	63	50.0	81.8
23.	AIRPAC/LANT	2	78	45.9	1	64	50.0	83.1
24.	DSD's	2	80	47.1	1	65	50.0	84.4
25.	Joint Staff	5	85	50.0	2	67	40.0	87.0
26.	NAS-Major	5	90	52.4	2	69	40.0	89.6
27.	NAS-Minor	5	95	55.9	2	71	40.0	92.2
28.	SHIPYARD's	9	104	61.2	3	74	33.3	96.1
29.	DCASR's	3	107	62.9	1	75	33.3	97.4
30.	NRPO	3	110	64.7	1	76	33.3	98.7
31.	NSC-Norfolk	5	115	67.6	1	77	20.0	100.0
32.	ORDSTA's	7	122	71.8	0	77	0.0	
33.	NAVDistrict's	5	127	74.7	0	77	0.0	
34.	DEVCenter's	5	132	77.6	0	77	0.0	
35.	NAVBase's	5	137	80.5	0	77	0.0	
36.	TRACOM's	4	141	82.9	0	77	0.0	
37.	JCS	2	143	84.1	0	77	0.0	
38.	CNM	2	145	85.3	0	77	0.0	
39.	SYSCOM's	2	147	86.5	0	77	0.0	
40.	MSTS/MOT	2	149	87.6	0	77	0.0	
41.	SUPSHIPS	2	151	88.8	0	77	0.0	
42.	FAW's	2	153	90.0	0	77	0.0	
43.	MAG's	2	155	91.2	0	77	0.0	
44.	NX's	2	157	92.4	0	77	0.0	
45.	Miscellaneous	13	170	100.0	0	77	0.0	

TABLE II

SELECTION TO COMMANDER DISTRIBUTION

	COMMAND	ELIGIBLE NO.	TOTAL	%	SELECTED NO.	TOTAL	%	GROUP %
1.	NSC's	9	9	3.0	9	9	100.0	4.7
2.	NAVSUP	8	17	5.7	8	17	100.0	8.8
3.	OPNAV	6	23	7.6	6	23	100.0	13.5
4.	NAS-Major	5	28	9.3	5	28	100.0	14.5
5.	CNM	4	32	10.6	4	32	100.0	16.6
6.	MAG-VietNam	4	36	12.0	4	36	100.0	18.7
7.	Joint Staff	3	39	13.0	3	39	100.0	20.2
8.	NSC-Oakland	3	42	14.0	3	42	100.0	21.8
9.	NAVCOMPT	2	44	14.6	2	44	100.0	22.8
10.	NFC/NRFC	2	46	15.3	2	46	100.0	23.8
11.	NSD's	2	48	16.0	2	48	100.0	24.9
12.	NSO	3	51	17.0	3	51	100.0	26.4
13.	NPO/NRPO	2	53	17.6	2	53	100.0	27.5
14.	AEC/Weapons	2	55	18.3	2	55	100.0	28.5
15.	Misc. (9)	9	64	21.3	9	64	100.0	33.2
16.	Ax--ship	7	71	23.6	7	71	100.0	37.3
17.	CVx-ship	3	74	24.6	3	74	100.0	38.9
18.	LPH--ship	3	77	25.6	3	77	100.0	39.8
19.	POLARIS	2	79	26.3	2	79	100.0	40.9
20.	SERVRON	2	81	27.0	2	81	100.0	42.0
21.	Schools	19	100	33.3	18	99	94.8	51.3
22.	ICP's	14	114	38.0	13	112	92.7	58.0
23.	SYSCOM's	12	126	42.0	11	123	91.7	63.7
24.	FMSO	6	132	44.0	5	128	83.7	66.3
25.	DSC's	11	143	47.6	9	137	81.9	71.0
26.	NX's	10	153	51.0	8	145	80.0	75.1
27.	DSA	4	157	52.3	3	148	75.0	76.7
28.	DSD's	4	161	53.6	3	151	75.0	78.2
29.	TYCOM's	14	175	58.3	10	161	72.6	83.4
30.	Army	3	178	59.3	2	163	66.7	84.5
31.	NRSO	3	181	60.3	2	165	66.7	85.5
32.	Cx--ship	3	184	61.3	2	167	66.7	86.5
33.	NSC-Norfolk	5	189	63.0	3	170	60.0	88.1
34.	Navy Staff	2	191	63.6	1	171	50.0	88.6
35.	Commissary	6	197	65.6	3	174	50.0	90.2
36.	NAAS	2	199	66.3	1	175	50.0	90.7
37.	SUPSHIPs	5	204	68.0	2	177	40.0	91.7
38.	NAVBase's	8	212	70.6	3	180	37.5	93.3
39.	DCASO's	9	221	73.6	3	183	33.3	94.8
40.	MAG	3	224	74.6	1	184	33.3	95.3
41.	NAS-Minor	23	247	82.3	7	191	29.2	99.0
42.	SHIPYARD's	4	251	83.6	1	192	25.0	99.5
43.	MOT's	8	259	86.3	1	193	12.5	100.0

TABLE II (Continued)

SELECTION TO COMMANDER DISTRIBUTION

	COMMAND	ELIGIBLE NO.	TOTAL	%	SELECTED NO.	TOTAL	%	GROUP %
44.	ORDSTA's	8	267	89.0	0	193	0.0	
45.	Air Force	4	271	90.3	0	193	0.0	
46.	Instructor	4	275	91.6	0	193	0.0	
47.	TRACOM's	2	277	92.3	0	193	0.0	
48.	FAW	2	279	93.0	0	193	0.0	
49.	MCAS	2	281	93.6	0	193	0.0	
50.	NARF	2	283	94.3	0	193	0.0	
51.	CB's	2	285	95.0	0	193	0.0	
52.	Misc (14)	14	299	100.0	0	193	0.0	

> that 42% of the commanders were selected from RED-HOT "no-miss" commands and about one-half of the eligibles collected 75% of the promotions. The remaining half scrambled for 25% of the three-striper spots. Thirteen percent of the total were effectively eliminated as originating from "not-one" commands.

After cautioning that, although the pattern seemed clear, certain limiting assumptions had admittedly affected the results, Gibfried makes the following summary statement:

> Perhaps it would be well to consider briefly the logic behind the assignment-selection process. The statistics considered thus far are a direct function of OP's role in the officer's career development process. It is OP that must distinguish the hard chargers and the marginal performers from the bulk of officers forming the middle of the curve. Responsible billets are found for the hard chargers; jobs which qualify them to have their ticket punched to prove that they have continued to excell in a number of varied and challenging assignments.

> For the officer, the message is clear: performance at your current duty station is paramount. The past no longer counts. Past performance merely enabled you to be placed in a position to perform well once more in a new environment. An officer soon develops a reputation with those in OP who review his fitness reports and with other commands and commanding officers who hear of his exemplary accomplishments. The performance record and reputation enable one to obtain career enhancing billets where high performance is expected and will be rewarded. In that manner each officer is capable of building a career enhancing track record and reputation which will place him in commands where success is the rule.

2. Preparation for Performance in Assignment.

In this area the literature indicates that the military manager senses that he may be caught on the horns of a dilemma. As he progresses up the promotion ladder he finds that he needs more and more management-oriented education (of which he generally has little), and less and less of his engineering or scientific-oriented education (of which he generally has a substantial amount). Thus, in the management billets, he may feel that he lacks adequate preparation to allow him to realize his best potential performance in the job.

Professor William H. Church, writing in Karge's thesis [1971, p. D-3] indicated some of the stresses and tension this situation can cause:

> Top scientists at R&D activities have reported some special types of tensions encountered when some of the officers assigned as project directors "come aboard" the R&D activity with advanced technical degrees but no previous opportunity either to keep up with the field or to practice or operate in the technical research field.

In the words of one scientist: "When one of these officers has the misfortune to guess right on his first effort, he feels a compulsion to continue to attempt to make decisions in areas where he is competing with much more seasoned talent with a much higher probability of being correct. I wish you people would not teach them so much."

Having talked to many of the officers in charge of projects, a common reaction is that knowledge of how to persuade and lead people and knowledge of various effective methods of coordinating, organizing and controlling projects would have been more valuable than the intense exposure to quite so much technical material. As a minimum they indicated a need for management education on top of the technical background. The stresses felt by the scientists at the R&D activity are, of course, the same tensions professional civilian educators feel in military undergraduate and graduate educational programs if decision making goes on without a participative process that takes into full account variances in the approach to specific disciplines and curricula.

J. Ronald Fox, in his classic work "Arming America" [1974, pp. 191, 194, and 199] cites an example of the kind of position no military manager wants to finds himself in:

Dependence on rotation as an educational tool in itself does not take into account that even the most capable officers need appropriate training for management as well as operational assignments. Both the officer and the program to which he is assigned suffer when such training is lacking.

We visited one program office in which the chief of the financial management division was a qualified pilot. He admitted having no interest in procurement or financial management and could not understand why he had been assigned to the office. During the week in which we visited his division, we often found him chatting with fellow officers about his flying experiences.

At other times he sat at his desk gazing out the window. His assistant was a major who had been assigned to the program office several months earlier. The major spent long hours in the program office, reviewing financial information and preparing reports for the program manager and headquarters. Toward the end of the week, during an informal conversation, he asked if we could contact someone in Washington about his assignment. His background and training - including a Master's degree - were in the field of bioastronautics. Like his supervisor, he had neither training nor experience in business administration, financial management, or procurement.

For the past two decades many in the Defense Department have not recognized that business management skills are distinct from engineering and scientific skills. A general in one of the larger buying commands commented: One of the causes of our current problems arises from the fact that we failed to recognize that a program manager must be a business manager and need not be an expert scientist or an expert engineer.

Sushka, in his thesis "A Comparative Study of the Navy Project Manager and his Civilian Counterpart in Industry" [1976, pp. 62-64], wrote:

All personnel interviewed agreed that the project manager must be a generalist whether he be military or civilian. He should not be expected to be an expert in all the technical fields involved in the weapons systems but must have sufficient knowledge of each technical discipline to make trade-off decisions rationally. Beyond that he needs knowledge in the financial and business fields. All managers remarked that educationally he must have an equal background in engineering and business management.

Essentially, the degree to which the factors of higher education, operational experience and technical expertise exist in the project manager's background tend to influence his methods and manner of performance and ultimately project effectiveness. Taken separately, the education should be of suitable breadth to provide creditability, stature and self-assurance and should include

matters of contract law, business law and administration, financial management and engineering.

...the military line project manager usually comes to his project management job through a career progression that has continually put the opportunity to gain on the job acquisition experience and training required for project managers in jeopardy because of the forces created in pursuing the classic career carrot at the end of the stick: major combatant command. Instead of coming to his job with procurement experience, management education and weapons acquisition expertise to combat all the adversaries, the military manager arrives more as the operational warrior of the past and less the proficient project manager. He thus tends to be more conservative and less of a risk taker. He often shows less initiative and is less innovative than his civilian counterpart, as the background for taking risks and demonstrating something other than conformity often is lacking and is less adequate than that of the civilian manager in industry. That background and experience which is required to get the project management job done effectively and that which is the expected norm of a typical line captain's behavior as he proceeds through the prescribed stepping stones to Flag rank are often in conflict - often to the detriment of the overall project.

Allen and Loftus [1973, pp. 38 and 41] offered material that indicated there was some disagreement with the idea of increased management training. For instance, in 1969 - 1970 the Navy Weapon System Acquisition Management Study group determined that the curriculum at the Naval Postgraduate School should strengthen its Material Management electives and orient them to provide more emphasis on Weapons Systems Acquisition. In addition it was reported that the Superintendent of the Postgraduate School was developing a specific educational

program in support of project management consisting of formal education in engineering, science, or mathematics followed by graduate education in the field of management, business administration, or industrial engineering. It was considered likely that such a curriculum would attract many competent officers who were not necessarily motivated for engineering or science programs. After review, comments by high ranking officers on this recommendation were:

> The emphasis on managerial, as opposed to technical education, aroused some concern. Some felt that the program being developed at the Postgraduate School might prove so attractive as to lure officers away from technical curricula, to the detriment of providing adequate technical talent in general, and the restricted line in particular. While some felt that the emphasis should be on managerial education, as management problems seemed to be the most serious ones and the ones most frequently criticized in Navy programs, still others considered that a balance of both managerial and technical expertise was required. Another popular concept was that skills required of the project manager change as the project itself evolves through the design, development, test, and production phases with technical skills predominating during the early stages and managerial skills becoming more important as the project matures.

With respect to the Aeronautical Engineering Duty Officers (who hold most of the key management positions within - and several outside - the Naval Air Systems Command) the following information was found. The August 1975 issue of the Directory of Aeronautical Duty Officers listed seven Flag, 68 Captain, 123 Commander, 105 Lieutenant Commander, and 15 Lieutenant-grade officers and their

educational backgrounds. Table III shows a breakdown of the number and type of degrees held by these officers. The information shown is extremely impressive. Three hundred eighteen officers shared a total of 745 degrees; an average of 2.33 per man. Advanced degrees made up slightly less than half of the total number of degrees. Ninety-six percent of the officers held at least one advanced degree.

Brilliant though these statistics are, there is another statistic which tends to cloud them: only 20% of the total number of advanced degrees are in the management field whereas 80% are in the engineering and science field. While recognizing that this group of officers gains much management education from on-the-job experience and also from various training courses, it appears that today's increasingly complex managerial duties call for more of a technical-management balance in their formal education. Evidence that this has been recognized may have been indicated by the results of the most recent AEDO promotion announcements. Of 15 out of 38 Commanders selected for Captain, 33% had advanced degrees in management. Of 19 out of 48 Lieutenant Commanders selected for Commander, 42% had advanced degrees in management. Both figures are well above the 20% figure that would have been expected if the management degree had not been a factor in the selection process.

TABLE III

NUMBER AND TYPE OF COLLEGE DEGREES HELD BY
AERONAUTICAL ENGINEERING DUTY OFFICERS
AS OF AUGUST 1975

DEGREE AND FIELD	FLAG	CAPT	CDR	LCDR	LT.
DOCTORATE					
Technical	0	5	12	4	0
Management	0	0	0	0	0
ENGINEER					
Technical	1	6	17	26	0
Management	-	-	-	-	-
MASTERS					
Technical	7	50	79	71	13
Management	1	15	31	25	0
BACHELORS					
Technical	11	96	150	108	14
Management	-	1	1	1	0

3. Focus on Short-Term Goals

Relatively little information was found in this area although it may well be the one which deserves the most attention. Sushka [1976, pp. 26-27] touched on this briefly:

> Loyalty to any job for example is and has been of a short-term nature in the Navy and the short-term successes are the ones attributed to the individual Navy project manager. Long-term goals and ideas which more acutely affect overall project performance thus suffer by receiving less than their share of interest and enthusiasm.

J. Ronald Fox [1974, p. 198] comes down a bit harder on the subject:

> Program managers naturally want to impress their military superiors favorably in order to achieve high marks in their annual performance ratings. Since officers serve for a relatively short period in each assignment, each program manager attempts to produce spectacular results in the shortest possible time. We visited a number of military bases in Vietnam and Europe from 1969 to 1971. At each base the commanding officer gave us a briefing on program activities. Unfailingly, the briefing centered around graphs that began at a low point on the left side, signifying the time when the commander began his current assignment. From the beginning of his assignment to the present, the charts showed remarkable progress. At the time of the briefing, performance measured by the charts was at an all time high - in every single unit. Improvement was always attributed to the current commanding officer's management ability. We looked for one commander who might begin his briefing by remarking: "When I arrived at this assignment, my predecessor was doing an outstanding job. I am pleased to say that since that time I have continued what he was doing and have maintained the same high standards." We never found him.

> One colonel who had worked under three highly respected general officers over a period of five years pointed out that the present system for evaluating and rewarding performance precludes the pursuit of long-term goals. He claimed that each of the three general officers under whom he had served had "announced in staff meetings that they were not interested in long-term plans. Rather, they wanted to know what could be done tomorrow."
>
> One general officer expressed an even more cynical point of view: "Remember, in the Government it's the image, not the substance, that counts. If you're ineffective and your boss likes you, you're o.k. But even though you may be an effective producer, if your boss doesn't share that belief in the short run, you're in bad shape."
>
> There are few rewards in the military for the capable performance of a long-term task. A short-term task that is done well will be attributed to the present commander and will be mentioned in his annual performance rating. Maintaining stability in program management and progressing efficiently toward long-term program goals are not seen as "rewarding" activities. They may lead to the ultimate success of a program but they do not often lead to outstanding performance ratings for the responsible officer.

One reason that this vital subject has not been discussed more may be that it is considered as just another by-product of the policy of job rotation. This policy has received considerable attention over the years, and is the subject next discussed.

C. JOB ROTATION POLICIES

A relatively large amount of material, much of it critical in nature, was found concerning the policy of job rotation. The criticism stems from both the civilian and military sectors. Although there is a strong defense of

the policy, the general tide seems to be running in favor of making changes that would provide for longer average tour lengths than those now in practice. This final section of the literature search presents pertinent information found concerning job rotation: (1) civilian sector criticism, (2) military sector criticism, (3) military sector defense, and (4) optimum tour length.

1. Civilian Sector Criticism

The frequent rotation of officers has long been mentioned as a problem in the joint military - civilian service organization. The second Hoover Commission Report [1955, pp. 37-38] indicated that:

> The tenure of officer personnel in support activities is generally too short to provide either efficient management or effective training. The principal faults of present officer assignment practices are these:
>
> 1. An officer does not have a chance to learn an assignment before he is moved on to the next one.
>
> 2. The excessive rotation practices are a hardship on the officer and his family.
>
> 3. The excessive rotation practices are a hardship on the civilians who must maintain the continuity in the support activities and must instruct the new officers in their work.
>
> 4. Efficiency of the support activities suffers because of lost time involved in making the transition from one officer to the next and problems of long-term motivation because of sustained tenure.
>
> 5. It is an expensive practice - counting training costs, lost time, and moving and travel costs.

Rotation is very effective as a developmental device and is commonly used in business and industry for the development of top-level executive talent. But it is unrealistic to assume that the assignment of officers to support activities for exceedingly short periods of time either constitutes training or is of benefit to the support activities.

In their famous work, "The Weapons Acquisition Process: An Economic Analysis," Peck and Scherer [1962, pp. 93-94] had this to say about job rotation:

> The U.S. armed services have long believed in broadening the experience of their military officers by frequent rotation of personnel from one job to another. Traditionally, the rotation cycle has been three years or less. Rotation has many desirable aspects, particularly as a means of developing officers for broader executive responsibilities and preventing them from becoming stagnant, and in fact many large industrial corporations also move employees with executive potential frequently, although usually to another job in the same functional area. But since it usually takes one or two years for a person to obtain a thorough working knowledge of the technology and personalities involved in a complex weapons program, rotation can interfere seriously with the smooth administration of programs. The rapid turnover of U.S. weapons project officers has been the subject of much criticism. Schlaifer, for example, found unduly short tours of duty a serious problem in the development of U.S. aircraft engines during the 1930's. More recently, the Robertson Committee concluded that the duty tours of aircraft weapons project officers should be lengthened beyond the 26- to 32-month average which prevailed during the early 1950's. Yet our case studies conducted during the late 1950's indicated that rapid turnover of project officers remained a problem.

The Report of the Blue Ribbon Panel [1970, p. 1-3 of Appendix D] included the following data:

TABLE IV

OFFICERS PROMOTED IN 1969 TO GRADE O-7 -- NUMBER OF ASSIGNMENTS

SERVICE	NUMBER PROMOTED	NUMBER OF ASSIGNMENTS	AVERAGE PER OFFICER	AVERAGE MONTHS PER ASSIGNMENT
Army	59	1,360	23.1	13.1
Navy	39	893	22.9	13.6
Air Force	76	1,442	19.0	14.4
Total	174	3,695	21.2	13.7

TABLE V

TOTAL PERIOD IN DIFFENT TYPES OF ASSIGNMENT

SERVICE	OPERATIONAL/ COMMAND	SCHOOL	STAFF	TOTAL
Army	8 yrs 10 mos	7 yrs	9 yrs 2 mos	25.0 yrs
Navy	10 yrs 11 mos	4 yrs 3 mos	11 yrs 6 mos	26.0 yrs
Air Force	6 yrs 11 mos	3 yrs 3 mos	12 yrs 7 mos	22.0 yrs 9 mos
Total	8 yrs 3 mos	4 yrs 9 mos	11 yrs 3 mos	24.0 yrs 3 mos

The Blue Ribbon Panel [p. 137] also made the following comment:

> The system of rotation not only fails to provide management and leadership needed on the job, but also has deficiencies in accomplishing its stated purpose - the development of the officer himself. Men are not developed by being observers; they must have responsibility. From the point of view of the position to be filled, as well as the best interests of the officer himself, his job assignments should be of sufficient duration so that he can become thoroughly involved in the work and be fully responsible for results.

Berry and Peckham, in their thesis "Interactions of Navy Program Managers with Congressional Committees and their Staffs" [1973, pp. 55, 58, 59, and 66], relate the following:

> Congressional staff members, DOD civilian personnel and non-DOD personnel suggested that it often takes years for Congressional knowledge, combined with hard work, to create trust in the individual by the Congressional participants.
>
> Although many program managers can convince congressmen and Congressional staffs of their personal trustworthiness, this was described as normally taking a year or more. Congress must have time to assess the individual, to observe how he prepares for them and how he responds to them. Each program manager must "sell" himself to Congress and build his own trust.
>
> ... another reason given for a lack of trust in the program manager comes from not knowing the program manager well, and the feeling that he can't know his program thoroughly. Many complained that program managers who are in their jobs for three years or less don't gain sufficient knowledge to understand all the problems involved until it is almost time to leave for a new job.

In fact, Congressional personnel in general criticized the relatively short tours of the Navy in all billets that interact with Congress.

J. Ronald Fox [1974, pp. 183-184] stated that every industry manager he interviewed was unhappy about the frequent turnover of Government management personnel on program performance. He gave several typical comments such as follow:

> The change of military personnel every two or three years leads to lack of responsibility on the part of both government and industry.
>
> * * * * *
>
> There were three project managers on the [name] project, all of them general rank, in the space of the three years of the project. Each had a slightly different way in which he wanted to work with us.
>
> * * * * *
>
> [Name of company] would be in serious difficulty if they took their key trained men out of the project offices and periodically sent them to other places outside the field of project management. We simple could not tolerate that personnel turbulence and complete the programs on time or within the budget.

The most recent civilian sector criticism came from the Honorable Leonard Sullivan, Assistant Secretary for Defense (Program Analysis and Evaluation) as reported in the Program Managers Newsletter [Summer 1975, p. 28].

> There is something wrong with assuming that a military man is so competent that he can be a good program manager for a couple of years, then go on and be good at something else; then be a good General, and finally a good Chief of Staff. It is just not possible to find people with that degree breadth in the main. If it were possible to find them the government, the system would not pay them enough. I see no way to assume that we can get this magic competence that allows people to be equally good

at program management and fighting and comptrolling and R&D-ing along with everything else.

2. Military Sector Criticism

Criticism of the job rotation policy has been almost as voluble from the military sector as from the civilian. Paulsen [1965, pp. 6, 28] wrote as follows.

> The rotation of officers in the joint military-civil service organization is considered to be too frequent for either efficient management or effective training. The officer does not have sufficient time to learn his new assignment and the capabilities of his personnel before he is moved to his next assignment. The civil servants are required to maintain continuity in the organization; however, this task is extremely difficult when the people to whom they report are continually changing.
>
> Although the frequent rotation of officers is good experience and helps the individual develop, it adversely affects the efficiency of the organization. Even though he may be a competent officer, the learning time required for him to be a competent manager of the new organization may be in excess of one year. In the meantime, he is in danger of hindering the work, irritating his subordinates and exposing his ignorance by making judgments and decisions which he is not at that point qualified to make. Until he learns the competence of his staff, he does not know whom he can trust or how much faith to put in their recommendations. This tends to slow progress and limits the delegation of responsibility to appropriate levels. Another problem that may develop is the failure of the rotating manager to develop an adequate feeling for long-range planning. He may be inclined to make decisions on the basis of what is good for the organization now and give no consideration to the long-range effect of the decision. He seldom has the important motivational satisfaction of "seeing a job through."

> Although the civilian side of the organization is supposed to provide continuity, the different policies and procedures of each new officer keeps the organization pretty turbulent. Changes are sometimes made by incoming officers because of past methods of operating even though existing methods might be just as effective.

Paulsen [pp. 37-39] also reports the results of an opinion survey he conducted with officers of the Civil Engineer Corps and their subordinate civilian staff. Three of the questions and answers are given below, along with comments that accompanied them.

> Question (1): Does the rotation of officers every two years reduce the effectiveness of the joint military-civil service organization?

	Yes	No
Officers	46	41
Civilians	51	31

> Officer comments. Several indicated that the answer to this question would be "no" for lower ranks and "yes" for higher ranks. Some that answered "yes" stated that there are many advantages to this practice. The rotation of Military Managers provides a fresh look at old problems. They have no vested interest and can look at the problems from an objective viewpoint. Several that answered "no" said that three years would be better.

> Civilian comments. Concurred with comments of officers above. Generally agreed that three years would be better than two. In two years, an officer barely has time and opportunity to establish changes in procedure, organization and techniques in accordance with his ideas. Also, incompetent civilians stay in their jobs because effective removal action is not completed when supervisor is transferred and the man gets a new start with the next officer. If the tour of duty were three years, the officer would have to live with some of his decisions and would be able to improve them. Also after three years there would be less possibility of a new officer making major

changes, thus eliminating or reducing the usual two-year upheaval and change.

Question (2): With officers rotating every two years, do you think that it is possible for an officer to make improvements in the operation of the organization?

	Yes	No
Officers	82	5
Civilians	68	13

Officer comments. Several qualified their "yes" answer by saying that the amount of improvements he can accomplish in that time is limited. Others said that the amount he can accomplish depends on the officer. An officer can make improvements in two years by using his knowledge, experience and the sound application of management principles.

Civilian comments. Several said "yes" but limited. Some indicated that this causes more problems than anything else. One answered "no - only confusion."

Question (4): Do you think that changes are sometimes made by incoming officers because of their past methods of operating even though existing methods might be just as effective?

	Yes	No
Officers	78	9
Civilians	75	6

(No comments by either officers or civilians.)

Allen and Loftus [1973, p. 7] had this to add concerning Project Managers:

> Up to now the project managers have been selected from the available officers from the unrestricted and restricted line communities who are best qualified for the project in question. There has been no concerted effort to prepare officers who will have the specific mixture of knowledge, skill and experience required for the position. As a result the project manager usually spends the first six months filling in the gaps in his background. The impression that an

officer qualified for command of an operating unit should be equally qualified to be a project manager has not always proven true.

Sushka [1976, pp. 25, 26, and 111] agreed with the above:

> As with the many similar difficulties faced by both the civilian and military project managers, so also are there problem areas that have been and are unique to the military manager.
>
> For example, he is usually but a part-time representative to the project group to which he is primarily responsible. The concept of job rotation may have been useful in the past, however, the problem it now creates in the increasingly specialized field of procurement management makes the concept an anachronism of the 1970's.
>
> For instance, RADM R. G. Freeman, III, USN, recently said in a November 1975 speech, that the Navy is still not picking all its project managers with the right qualifications and education, experience and expertise. Instead, many officers are selected as project managers as a reward for prior excellence in operational performance, not in the systems acquisition field, and which in any case is not necessarily a measure of a good project manager.

On December 9, 1971, Admiral H. G. Rickover discussed the problem of personnel turnover during the Senate Armed Forces Committee Hearings on the Weapon System Acquisition Process.

> In the Defense Department there is the problem that those who are running the projects are around for only two to three years. The DOD looks for quick solutions to solve all its management problems. They designate technically inexperienced persons as "project managers." The problem is then considered solved and at once forgotten. But these managers do not have the technical skill to see to it that their project is properly conceived and carried out. Most have only

the shallowest knowledge of the theory of the techniques they must deal with and little experience with the practical problems involved. Under our rotation system, they are never kept long enough on the job to acquire such skill and knowledge.

As if this did not make their task difficult enough, they are subject to constant interference from upper echelon bureaucrats pushing their personal proposals, seeking to have their "advanced" concepts put into effect. With all these pressures upon him, the neophyte manager during his brief tour of duty will barely learn to understand these proposals, still less to weigh them and arrive at a judgment he can forcefully defend. Nevertheless, he must make decisions vitally affecting his project, decisions which may be technically unsound but will satisfy his superiors, and so will take effect. This is how a project becomes irrevocably set.

Before the results of the decisions are in, the manager will have moved and a new manager, equally unqualified technically, will take his place. Naturally the new manager will feel no responsibility for prior decisions and actions; his primary ambition will be to keep the project moving in the hope that it will not fail during his own tour. Thus responsibility cannot be fixed and there is bound to be little continuity in technical direction for most of the defense developments under way today.

The ultimate Navy criticism of the rotation system was perhaps expressed in the following excerpt from a December 1969 article by Kenneth Turan of The Washington Post.

Rear Admiral James Calvert, superintendant of the Navy Academy, announced at yesterday's annual Army-Navy Luncheon at the Touchdown Club that Coppedge, who has been athletic director since June 1968 will retire from the service in July to take the post as a civilian.

The admiral said the change to a civilian director is "absolutely essential, if the Naval Academy's program is to catch and overtake

those on our schedule in football and 20 other sports." Navy takes a 1-8 record, its worst in more than 20 years, into the November 29 game with Army.

Admiral Calvert emphasized that "by constantly changing our athletic director every two or three years we have destroyed continuity which is necessary to an effective athletic administration," and Coppedge agreed, saying "if you had a million-and-a-half dollar business, would you want to change bosses every three years for someone who didn't have any experience?"

Previously, the athletic director's post was simply another two to three year tour of duty for career Navy men. "Most directors come right from sea duty to this job," Coppedge said, "and it can take a full year to get to know the ropes. When I became director I barely knew the NCAA ground rules. How many people in the Navy do you think know about things like scheduling problems?"

3. Military Sector Defense

In addition to certain positive aspects of the job rotation policy noted in portions of the above criticisms, the Blue Ribbon Defense Panel Report [1970, Appendix N, pp. 35-36] contained the following which perhaps best represents the military sector defense of the system.

One persistent problem of the JCS, and, indeed, of all the military, is maintenance of continuity, or to turn the issue around, the lack of a corporate memory. Unlike a civilian organization, the JCS has no people with continuous memory of past operations beyond the last three years. Historical records are an inadequate substitute for a living memory for the purposes of the JCS.

A partial solution to the problem lies in a longer tenure for Joint Staff officers. There are powerful objections to this approach, however, the main one being that a longer than usual tour would break an officer's career pattern adversely. The average officer still tends to view service

on the Joint Staff as disadvantageous in a career sense, and consequently any lengthened tour would be resented. Even general officers expressed concern over career disabilities which can result from Joint Staff service. The solution to this problem lies in the Service career and promotion policies. Any longer tour system must be so arranged with the Services as not to affect adversely an officer's career.

Another objection, the official JCS one, to longer tours on the Joint Staff is that the Staff requires officers who have been in recent contact with the forces in order to inject realism into Joint Staff operations. They want an officer who is a well-grounded generalist, familiar with field operations as well as staff work. It is felt that a tour longer than three years might well lead to a loss of creativity and certainly of contact with the forces. This supposed reduction of quality would have to be balanced against the benefits of a longer tour with the Joint Staff.

There is a questionable aspect to this argument. The JCS claim that they must depend upon the Services to provide realism and to inject contact with the forces into the JCS decision-making process. At the same time, the JCS argues that its officers cannot have longer tours because of their need in their JCS duties for recent field contact. Also, this argument presumes that officers come to the Joint Staff direct from the forces, which is certainly no longer the norm. The JCS further point out that the problem is partially eased by bringing officers back for a second tour on the Joint Staff at some later stage in their careers. This is quite common now for senior officers, and many of the general officers currently on the Staff have previously served there as colonels or lieutenant colonels.

Perhaps the solution lies in some flexible formula for personnel tours. Inducements could be created to encourage officers to stay on longer, provided they are useful.

This would be especially so in the case of men who were approaching the end of their careers, so long as this prospect had not brought about a loss of motivation.

4. Optimum Tour Length

The literature contained a considerable amount of material concerning what the optimum tour length should be. Although there was a fairly wide range of opinions the general consensus appeared to favor a tour length of around four years. Following are some of the opinions found arranged in order of shortest to longest tour lengths.

In his opinion survey of Civil Engineer Corps officers and civilians, Paulsen [1965, p. 38] got the following response:

Question (3): What length tour of duty for officers would you consider optimum for efficiency of organization and providing executive development necessary for the officer to assume positions of higher responsibility?

	2 yrs	3 yrs	4 yrs	Over 4 yrs
Officers	22	60	5	0
Civilians	18	37	25	2

Officer comments. General feeling was that tours should be two years for junior officers up to lieutenant commander and three or four years for lieutenant commander and above. A few stated that it would depend on the billet.

Civilian comments. Same as officer comments. Although above numbers indicate the civilians tend more towards four year tours than officers do.

The Report of the 1969 - 1970 Navy Weapon Systems Acquisition Management Study group recommended that initial

tour lengths for project managers be established as three years, with extensions beyond this period depending on the status of the project.

On December 10, 1970, the House Committee on Government operations expressed some doubts about a three-year tour length:

> It is fair to ask whether the new call for expertise in program management squares with policy and practice regarding the rotation of military officers. The new goal is three-year tours of duty for program managers. It is difficult to see how three-year tours of duty for military officers will enable them to gain the degree of technical and managerial expertise that Mr. Packard emphasized so strongly. Development projects frequently are maintained for much longer periods. The concept of expertise that Admiral Rickover espouses, and Mr. Packard seems to endorse, is associated with rigorous technical training, career professionalism, and longer tenure than even a three-year tour of duty.

This opinion was consistent with that expressed 16 years earlier when the same Committee conducted hearings on the organization and administration of military research and development programs:

> There was much testimony concerning an optimum period for a tour of duty for a military officer in a technical assignment. Even the Department of Defense officials admitted that a two-year tour of duty was inadequate. Although a three-year tour is apparently recommended by departmental policy, various reasons were cited for failure to adhere to this policy. Evidence of this may be found in the testimony. The testimony of our leading scientist witnesses and witnesses from the Department of Defense appeared to favor a four-year tour of duty. Such a period would permit a thorough indoctrination of an officer who might become

competent enough to assume direction over certain elements of a research program.

Sushka [1976, pp. 89-92, and 107] gave the following information:

> In an October 1975 speech, Vice Admiral E. C. Waller, III, Director of Weapons System Evaluation Group and a former project manager quoted the current figures on the present average tour length of Navy project managers as twenty-seven months. This figure indicates that even five years after numerous directives were issued regarding increased project manager tour lengths, Navy project managers are still being rotated in and out of their jobs too quickly. Although the current average tour length of two plus years is greater than it was five years ago, it still does not approach the four to five years length recommended by almost every study group or commission assigned to investigate project management (e.g., Blue Ribbon Committee, LMI Reports, DOD Directives, etc.).
>
> This is not to say that many managers, both civilian and military felt that officer rotation was all bad. If carried out at a four to five year interval, most personnel interviewed considered the adverse impact to be negligible and offset by the fresh views, up to date technical education and fresh fleet experience that the new military manager would bring with him. It is rather the unplanned for or uncertain changes resulting in rotation after only two or three years that causes the difficulty and impacts upon the previously discussed areas of time (increases it), authority (lessens it) and risk taking (lessens it). Rotation is in fact looked at by many military officers as a positive motivational factor and an incentive but only if it is carried out in a prescribed four to five year interval with no sudden or unannounced changes.

J. Ronald Fox [p. 183] found that industry managers believed that four years was too short a time for the assignment of a government program manager to a program. They felt he should be there long enough to evaluate the present

program and help in the source selection process for the next one.

And finally, Berry and Peckham [1973, p. 73] indicated that Congress desired even longer tour lengths for officers dealing directly with them:

> It was suggested by many that tours in this type of duty should be open-ended; if any individual performs well in the system, consider the possibility of a six- or seven-year tour, with appropriate compensations, in order that the trust and knowledge developed can be utilized to good advantage by the Navy.

This completes the literature search conducted to satisfy the general objective of this thesis. It has examined the internal and external forces (career pattern complexity, promotion and attendant processes, and job rotation policies) that bear on the military officer during his management tour in the supporting Shore Establishment and influence the decisions he makes.

The next section concerns the specific objective of this thesis which is to determine whether or not the two hypotheses described in the Introduction are true.

III. TEST OF HYPOTHESES

In this section the methodology used to test each of the two hypotheses defined in the Introduction will be described and an analysis of the results given.

A. METHODOLOGY

The basic methodology used to test the hypotheses was statistical analysis of data collected by means of mailed questionnaires.

1. The Sample Frame

The sample frame chosen for the test was the Aeronautical Engineering Duty Officer (AEDO) community. This relatively small group of approximately 318 officers holds many of the key management billets within the Naval Air Systems Command Headquarters and Field Activities. They also hold key billets with Fleet Staffs and other headquarters such as the Naval Electrical Systems Command, the Naval Material Command, and the Office of the Secretary of Defense. The Directory of Aeronautical Engineering Duty Officers published each six months lists each officer, his social security number, date of rank, education degree major, duty station billet, month and year for present billet tour dates, rank, and year group. From the information contained therein it was found that there were a total of eighty-four Captain billets available, and only seven Flag

billets. Since the premise of the Hypotheses is that some billets are more desirable than others for promotion purposes, it was decided that these eighty-four Captain billets would provide an ideal group to study. Not only were these Captain billets well-enough known to the AEDO community to elicit meaningful opinions about them, but also their number was large enough to serve as a significant statistical base for testing both Hypothesis One and Hypothesis Two.

2. Data Collection

Data was collected by means of two questionnaires. These are described below:

a. Questionnaire One

Using information from the August 1975 edition of the Directory of Aeronautical Engineering Duty Officers, a questionnaire was designed which listed each of the eighty-four Captain billets and contained instructions for rating each billet with a numerical score for its desirability as a springboard to Flag rank. This questionnaire, along with its forwarding letter, is shown in Appendix A. The intended use of the questionnaire was to determine the mean score each billet received, and then to use these mean scores to rank each billet relative to each other in order of preference. This ranking could then be used to test Hypothesis One.

b. Questionnaire Two

This questionnaire was designed to collect data for use in testing Hypothesis Two. Basically it requested information on the terms of office of all incumbents holding

each of the eighty-four billets since 1960. This questionnaire, along with its letter of transmittal, is shown in Appendix B. The intended use of this questionnaire was to determine the average tour length of incumbents who had served in each billet. This information was then to be correlated with the information obtained from Questionnaire One in order to test Hypothesis Two.

B. DATA ANALYSIS

1. Ranking of Billets

Copies of the Appendix A questionnaire were mailed to all 67 Captains and 122 Commanders listed in the August 1975 Directory of Aeronautical Engineering Duty Officers. The 122 Commanders included 15 who had just been selected for Captain. In addition, the questionnaire was mailed to 19 Lieutenant Commanders who had just been selected for Commander. This mailing list was selected to encompass all those officers who are, or will be in the near future, in contention for the 84 available Captain billets. The response was extremely good. Usable questionnaires were returned by 62 Captains and 106 Commanders for a grand total response of 81%.

A number of the returned questionnaires contained remarks showing a high degree of interest in the project. In view of the valuable insight these remarks gave on the thinking and attitudes of the respondents, some of the more pertinent ones are included below:

Captain A: I am troubled by your request for an opinion concerning the relationship between an AED billet and Flag rank. I feel you are implying that the billet makes a Captain a Flag officer. If this is your thesis, it is not sound. There are an average of nine (six to 14) in the Captain year groups that have yet to be picked over to produce Flag officers. In each year group there are one or two officers that are superior quality (as measured by the fitness report system) and have been superior quality most of their 20 to 30 years of active duty (we usually make Captain around 20 years and Flag by 30). These individuals are the ones that make Flag. They do not make Flag by having served in a particular billet - they were potential Flag officers (because of the documented quality performance) before going into any billet. In other words, the man makes the job - not the job making the man. This kind of recognized quality Captain is selected for a job, recognizing the demands of a job, (and how important it is that the individual's probability of failure to perform well in that job is low) because he is the best available. When the job is less demanding and therefore less important, in the grand scheme of things, the poorer (lesser) quality Captain is assigned.

Captain B: Basic point not addressed is that people make Flag, billets don't. Sometimes people assignments are driven by other factors than billet desirability.

Captain C: It seems to me that "1s" would tend to be assigned to billets from which recent Flag selections have been made (PMA-244, CNAL Force Material Officer) instead of what you may have been seeking (assigning "1s" for lower, stepping stone billets which normally would be occupied by more junior Captains) - these good junior billets will probably get a "3."

Captain D: I don't really buy your assumption that duty assignment is an important factor in promotion to Flag rank for AEDs, hence my limited spread in marks. If assignment is a factor, it's not a constant one, i.e., a particular billet may provide good exposure one year and not the next, depending on what's going on.

Captain E: My marks are, of course, as "I see it." My gradings are to some extent biased by who now has the job and how well others, who have had the job in the past, have done in their "quest for the stars." (Also some bias must creep in on the jobs I have had myself!) I did not grade any job lower than 5 since I think, to some extent, the man makes the job. There is no job that rates a 6 or 7 if a good performer is put into it. (The less desirable jobs don't seem to go to the good guys -- or is it the other way around?)

Captain F: With the present push from DEPSECDEF Clements on Project Management, ideal timing is to be PM in funded program.

Captain G: (Fleet Staffs) are among the first positions to be filled. (Rework/Repair Activities) jobs get filled soon thereafter, but are premeditated. I provide this with a known bias. My background has kept me in touch with how the priorities have been given to selecting 06's and senior 05's for these positions. Those positions which are selected first are given to the highly desirable despite where they are currently assigned. A look at the statistics will show some officers move every year or two. Those are the ones in "favor." Any prudent group of Flags would use the same selection processes. Nevertheless, each billet has tremendous responsibility and an officer's achievement in the billet is related to his background, experience, ambition, and ingenuity. Some billets have more Flag visibility and therefore might seem more desirable. However, not all program manager jobs are a steal since there are often strong biases against the program in OPNAV - OSD - Congress that can cause any PM to pull his hair out.

Captain H: We might observe that the CO jobs tend to run to the upper half performers, as do the TYCOM jobs and a few others. So you quickly get involved with the "job makes the man" versus "man makes the job" syndrome. Then when you try enough correlation to make opinion, you find the sample size amazingly small (statistically insignificant)? All above is especially interesting when you mix it with the small opportunity for Flag (odds) and the special instructions to the Flag board each year. These special charges to

the board have been varied and have shown the effect of what is in vogue this year. Summary - best jobs as platform/springboard to Flag - any string of assignments with sustained 4.0+ performance, ending with the right kind of man fitting the right-talent-to-be-emphasized-this-year, and a good sponsor on the board; and good service reputation with the URL Flag officers on the board.

Commander A: You might consider screening out my reply along with all other passed over Commanders (after testing for significant difference) since I suspect we have a biased view, i.e., no Captain billet seems "undesirable" to us, but we don't pay much attention, anymore, to how one makes Admiral!

Commander B: Doesn't this merely measure the perception of the actual historic success rate of incumbents?

Commander C: There is a definite difference in assignment of a junior or senior Captain to billets that you don't account for.

Commander D: Having recent Naval Air Systems Command experience, I am familiar with the promotional health of most NAVAIR projects/billets. In my opinion, some may appear to be fertile from a promotion aspect but in fact are potential booby traps and lose desirability due to inherent management problems existing at this time. I have applied this dimension to my ranking.

Commander E: Most AEDO Admirals are selected from those officers who have spent a great deal of time in Washington. Especially those who have been successful as PMA's.

Commander F: You have undoubtedly detected that I value the NAVAIR program manager's jobs as best in this context. That's where the visibility is. That's where a good Captain sinks or swims. A super job as a PM is in my opinion a sure path to Flag rank. It is also a good way to an early grave. I wouldn't touch those jobs with a ten-foot pole.

The data contained in the returned questionnaires was computer-processed by use of the Statistical Package for the Social Sciences (SPSS) by Nie, Rent, and Hull (1970).

The mean score of each of the 84 Captain billets rated was determined for Captain responses only, Commander responses only, and for all responses in consensus. Table VI shows the relative consensus ranking of these billets. For added information, Table VI also shows the relative ranking of these billets as scored by Captains only and by Commanders only. A Chi-square test was applied to the ranked mean score data to test the hypothesis that the sample data came from a population having a normal distribution. It was concluded that, at the 1% level of significance, the sample distribution was consistent with the hypothesis that the parent distribution was normal.

Based on this finding, and for additional information, a t-test was made for each billet to determine if the mean score ratings assigned by the Captain-group differed from those assigned by the Commander-group. Table VI denotes, by means of an asterisk, those billets found to have a rating difference at the 5% level of significance. Appendix C shows the t-test computer print-out as well as the mean scores of the billets as graded by the Captain and Commander groups.

A final t-test determined that there was a significant difference between the overall mean score ratings of the Captain and Commander groups at the 1% level of significance.

2. Correlation of Billet Rank and Tour Length

Copies of the Appendix B questionnaire were sent to each of the 40 commands at which were stationed the

TABLE VI

RELATIVE RANKING OF AEDO CAPTAIN BILLETS

Consensus Mean Score	Consensus Ranking	Billet	Captains' Ranking	Commanders' Ranking	
1.407	1	COMNAVAIRLANT Force Mat Officer **	1	1	*
1.532	2	NASCHQ PM S-3A (PMA-244)	2	2	
2.018	3	NARF North Island CO	3	4	*
2.048	4	COMNAVAIRPAC Ast Force Mat **	4	5	
2.065	5	NASCHQ PM CRUS MSL (PMA-263)	7	6	
2.096	6	NARF Alameda CO	5	8	*
2.108	7	PMTC Pt Mugu Vice CDR	12	3	
2.119	8	NASCHQ PM Anti-Ship Wpn (PMA-258)	9	7	
2.150	9	NARF Norfolk CO	6	9	*
2.242	10	NAVAIRSYSCOMREPLANT CO **	10	10	
2.269	11	NARF Jacksonville CO	8	11	*
2.371	12	NARF Pensacola CO	11	14	*
2.452	13	NASCHQ PM Anti-RAD MSL (PMA-242)	15	12	
2.494	14	NASCHQ PM IR MSL (PMA-259)	14	13	
2.588	15	NADC Warminster Director	13	19	*
2.593	16	CARGRU 5 (CTF-77) ACOS MAT READ	16	15	
2.617	17	NASCHQ PM ASW ACFT SENS (PMA-264)	17	16	
2.772	18	NASCHQ AST DPY PRJ MGT F-14(PMA-241-1)	28	18	
2.780	19	NASCHQ DIR ACFT WPN SYS DIV (AIR-510)	22	20	
2.806	20	OSD (DDR&E) MIL AST-SYS ACQ MGMT	35	17	

TABLE VI

(Continued)

Consensus Mean Score	Consensus Ranking	Billet	Captains' Ranking	Commanders' Ranking	
2.831	21	NASCHQ AST MAT ACQ (AIR-05A)	18	23	
2.857	22	NAVAIRSYSCOMREPAC CO **	25	22	
2.890	23	SECDEF (RDT&E) OFFICE	30	21	
2.976	24	NAVPERS AED-AMD-AIRSYS	21	25	*
2.988	25	COMNAVAIRLANT ACFT MAT and ENG	23	24	
3.078	26	NASCHQ AED-AMD MGMT (AIR-980)	24	27	*
3.079	27	NAVELEXFLTSATCOMM PROJ MGT (PME-106)	26	26	
3.152	28	COMNAVAIRPAC ACFT PROG AND ENG	29	28	
3.162	29	NAEC Lakehurst CO	20	32	*
3.229	30	NAILSC CO **	19	38	*
3.238	31	NASCHQ DIR Avionics Div (AIR-533)	33	29	
3.305	32	NAVPRO Bethpage CO	34	33	*
3.307	33	NAFI CO	27	37	*
3.335	34	NPTC Trenton CO	31	36	*
3.339	35	NASCHQ Dir Airframe Div (AIR-530)	36	30	
3.398	36	ONR Wash Dep and Ast Chief	40	31	
3.479	37	NASCHQ Comptroller (AIR-08)	32	46	*
3.482	38	PMTC Pt Mugu Dir Proj Mgmt	44	34	
3.497	39	ICAF Student	43	35	
3.542	40	NAVPRO Burbank CO	39	41	

TABLE VI

(Continued)

Consensus Mean Score	Consensus Ranking	Billet	Captains' Ranking	Commanders' Ranking	
3.594	41	NAVPRO Dallas CO	41	43	
3.602	42	NAVELEXFLTSATCOMM Dep PM (PME-106)	45	42	
3.625	43	NASCHQ Dir Propul Div (AIR-536)	38	48	*
3.655	44	NASCHQ Dir Engineering Div (AIR-520)	54	39	
3.657	45	NATF Lakehurst CO	37	49	*
3.679	46	NATC Pax Sys Engineering Div	48	44	
3.702	47	NASCHQ Dir Acq Rsc (AIR-501)	55	40	
3.721	48	PMTC Pt Mugu Dir Sys Eval	53	45	
3.743	49	NASCHQ Av Ovhl Schd Dir (AIR-414)	42	52	*
3.778	50	NESCHQ Dep Com Logistics (ELEX-05)	51	50	
3.821	51	NASCHQ Dir Adv Sys (AIR-03P)	62	47	
3.867	52	NAVPRO Long Beach CO	50	54	
3.874	53	NAVPRO East Hartford CO	46	57	*
3.879	54	NAVPRO Columbus CO	47	56	*
3.946	55	NAVPRO Stratford CO	49	63	*
3.952	56	NASCHQ Dir P&P Div (AIR-302)	69	51	
3.970	57	NASCHQ Dir Armament Div (AIR-532)	59	55	
3.982	58	PMTC Pt Mugu Dir Fleet Sup	63	53	
4.000	59	NASCHQ Readiness Mgmt (AIR-00X)	57	61	
4.012	60	NESTED Det Pax CO	52	67	*

TABLE VI

(Continued)

Consensus Mean Score	Consensus Ranking	Billet	Captains' Ranking	Commanders' Ranking	
4.024	61	NASCHQ Dir Crew Sys Div (AIR-531)	60	60	
4.042	62	NASCHQ Prog Coord Sup Acft (APC-4)	64	59	
4.072	63	NAVELEXFLTSATCOMM APM ADV PROG(PME-106)	67	62	
4.073	64	NAVELEXFLTSATCOMM APM WHTCLD (PME-106)	68	58	
4.132	65	NRB London CO	65	66	
4.153	66	INSURV Wash DC Sen Mem BIS	70	65	
4.177	67	NADC Warminster Chief of Staff	56	71	*
4.214	68	NASCHQ GSE Proj Mgr (AIR-534)	61	72	*
4.232	69	NASCHQ Ship Instal Mgmt (AIR-537)	58	74	*
4.307	70	NAVMATCOMHQ Reliab and Maintain	79	64	*
4.321	71	NAVELEXSURVFOR DIR TAC EM-LASER	71	70	
4.321	72	NAVAIRSYSCOMREPLANT Rework Mgmt	72	69	
4.421	73	NADC Warminster Dir Air Vehicle Dept	73	75	
4.422	74	NAEC Lakehurst Engineering	66	79	*
4.473	75	NAVMATCOMHQ Dir Sys Eng	81	68	
4.491	76	NAVMATCOMHQ NAV P and P Dir	80	73	
4.491	77	NAVAIRSYSCOMREPAC Fleet Support	74	76	
4.545	78	NAVAIRSYSCOMREPAC Dpty	75	77	
4.594	79	MSDO Director	77	78	
4.633	80	NAVAIRSYSCOMREPLANT NAVPRO Mgmt	78	80	

TABLE VI

(Continued)

Consensus Mean Score	Consensus Ranking	Billet	Captains' Ranking	Commanders' Ranking	
4.867	81	NAEC Lakehurst GSE	76	81	*
5.145	82	Safety Center Dir OSHA	84	82	
5.211	83	ASO Phila Tech Dir	82	83	
5.309	84	NAVAIRSYSCOMREPAC QA	83	84	

* Significant difference at the .05 level between Captains' and Commanders' mean score ratings. See Appendix C for this data.

** Respondents indicated that these billets either are now, or have been, filled by Flag Officers.

84 AEDO Captain billets. Response was good with replies received from 36 of the 40 activities. The four abstaining were NAVELEXSYSCOMHQ, NAVMATCOMHQ, NAVAIRSYSCOMHQ, and SECDEF (RDT&E).

An analysis of the returned data was made on a billet-by-billet basis to determine the average tour length of the incumbents of each billet over the years since 1960. Only data that indicated a normal duty assignment was considered. All data which indicated "acting" or otherwise brief tours outside the indicated pattern was discarded. It was found that 44 of the billets yielded data from which a meaningful average tour length could be determined. These are listed below in Table VII.

TABLE VII

AVERAGE TOUR LENGTH BY AEDO CAPTAIN BILLET

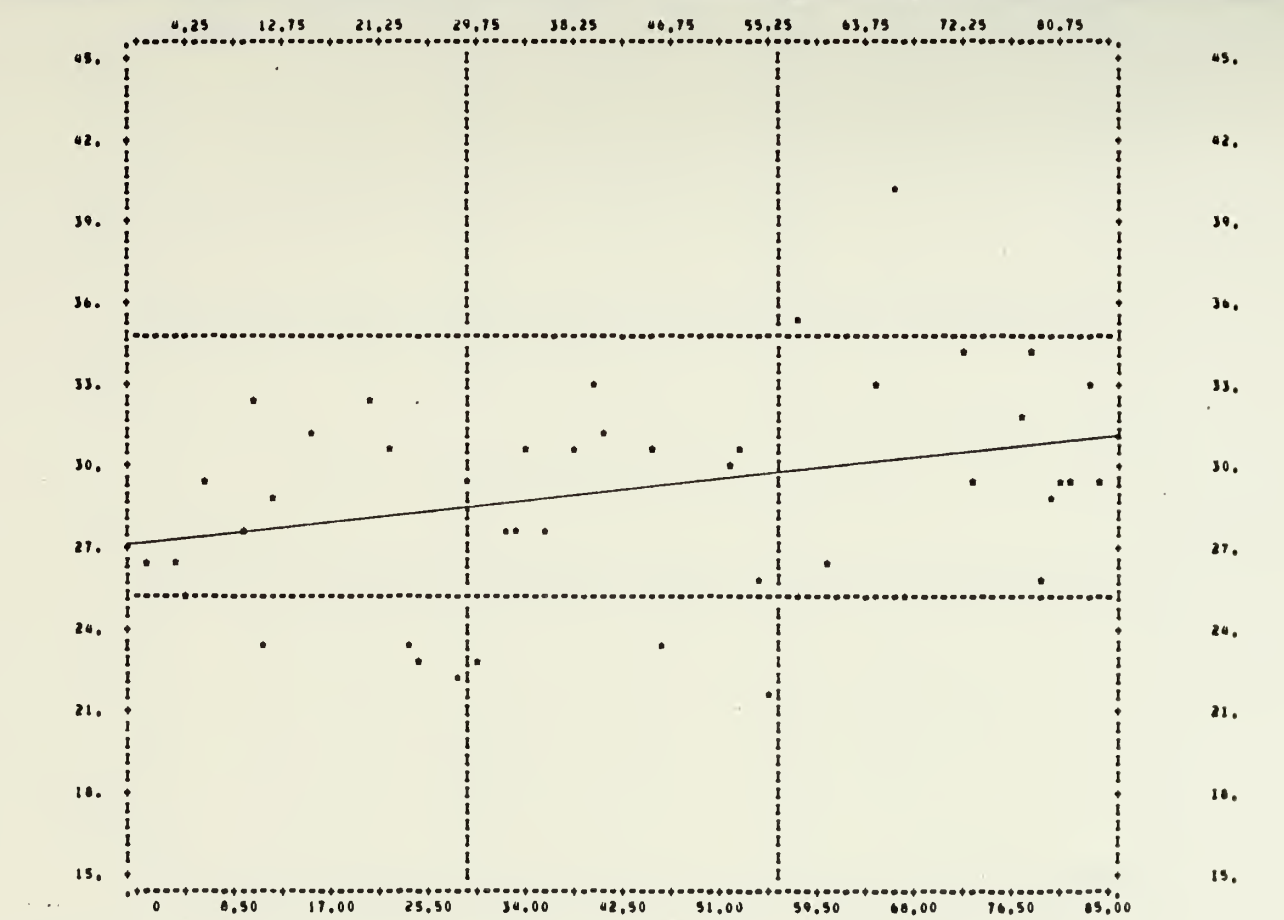
Consensus Rank	Billet	Months
1	COMNAVAIRLANT Force Material Officer	26.6
3	NARF North Island CO	27.0
4	COMNAVAIRPAC Assistant Force Material Officer	25.8
6	NARF Alameda CO	31.0
9	NARF Norfolk CO	27.7
10	NAVAIRSYSCOMREPLANT CO	32.6
11	NARF Jacksonville CO	24.0
12	NARF Pensacola CO	29.0
15	NADC Warminister Director	31.3
20	OSD (DDR&E) Mil Ast - Sys Acq Mgmt	33.0
22	NAVAIRSYSCOMREPAC CO	30.7
24	NAVPERS AED-AMD-AIRSYS	24.0
25	COMNAVAIRLANT Acft Mat and Eng	23.3

TABLE VII
(Continued)

Consensus Rank	Billet	Months
28	COMNAVAIRPAC Acft Prog and Eng	22.8
29	NAEC Lakehurst CO	29.5
30	NAILSC CO	23.3
32	NAVPRO Bethpage CO	28.0
33	NAFI CO	28.0
34	NPTC Trenton CO	30.8
36	ONR Wash Dep and Ast Chief	27.7
38	PMTC Pt Mugu Dir Proj Mgmt	31.0
40	NAVPRO Burbank CO	33.6
41	NAVPRO Dallas CO	31.3
45	NATF Lakehurst CO	30.7
46	NATC Pax Sys Engineering Div	24.0
52	NAVPRO Long Beach CO	30.4
53	NAVPRO East Hartford CO	30.7
54	NAVPRO Columbus CO	26.0
55	NAVPRO Stratford CO	22.0
58	PMTC Pt Mugu Dir Fleet Sup	35.5
60	NESTED Det Pax CO	26.8
65	NRB London CO	33.2
66	INSURV Wash DC Sen Mem BIS	40.4
67	NADC Warminster Chief of Staff	25.3
72	NAVAIRSYSCOMREPLANT Rework Mgmt	34.4
73	NADC Warminster Dir Air Vehicle Dept	30.0
77	NAVAIRSYSCOMREPAC Fleet Support	32.3
78	NAVAIRSYSCOMREPAC Dpty	34.3
79	MSDO Director	26.0
80	NAVAIRSYSCOMREPLANT NAVPRO Mgmt	29.2
81	NAEC Lakehurst GSE	29.5
82	Safety Center Dir OSHA	30.0
83	ASO Phila Tech Dir	33.2
84	NAVAIRSYSCOMREPAC QA	29.7

A linear regression analysis was made using the above data in order to determine if any correlation existed between consensus billet-ranking and average tour length. A plot of this regression analysis, along with accompanying statistics, is shown in Figure 1. From the plot, a Pearson's Correlation Coefficient of .31 was obtained, plus a positive-sloping linear regression line. To determine if the Correlation Coefficient was statistically significant the null hypothesis that there was zero correlation was tested. The null hypothesis was rejected because if it were true such a relatively high Correlation Coefficient would occur with probability less than 2%. Similarly, to determine if the slope of the linear regression line was statistically significant, the null hypothesis that there was zero slope was tested. Again, the null hypothesis was rejected because if it were true such a relatively high slope would occur with probability less than 2%.

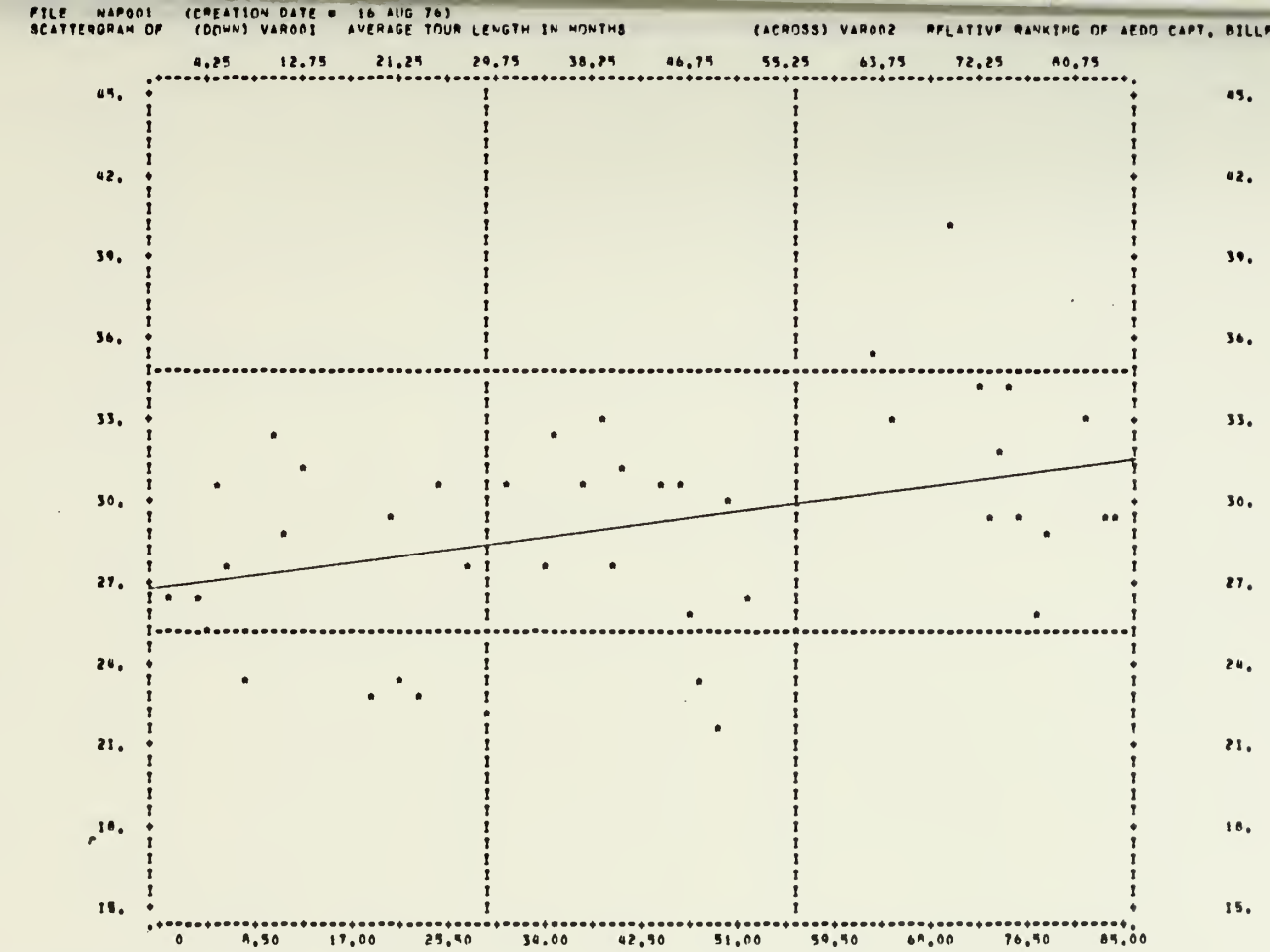
Because of the previously found difference in the mean score billet rankings by the Captain and Commander groups, it was decided to run a linear regression analysis against these groups separately. Figure 2 shows the linear regression plot and accompanying statistics for billet rankings determined by the Captain-group. Figure 3 shows the same for billet rankings determined by the Commander-group. The Captain-ranked data provided a higher Correlation Coefficient (.38) than the consensus-opinion data, while the Commander-ranked Correlation Coefficient (.26) was



STATISTICS..

CORRELATION (R)=	.31397	R SQUARED =	.09858	SIGNIFICANCE R =	.01897
STD ERR OF EST =	3.72275	INTERCEPT (A) =	27.17311	STD ERROR OF A =	1.09700
SIGNIFICANCE A =	.00001	SLOPE (B) =	.04646	STD ERROR OF B =	.02108
SIGNIFICANCE B =	.01897				
PLOTTED VALUES =	44	EXCLUDED VALUES=	0	MISSING VALUES =	0

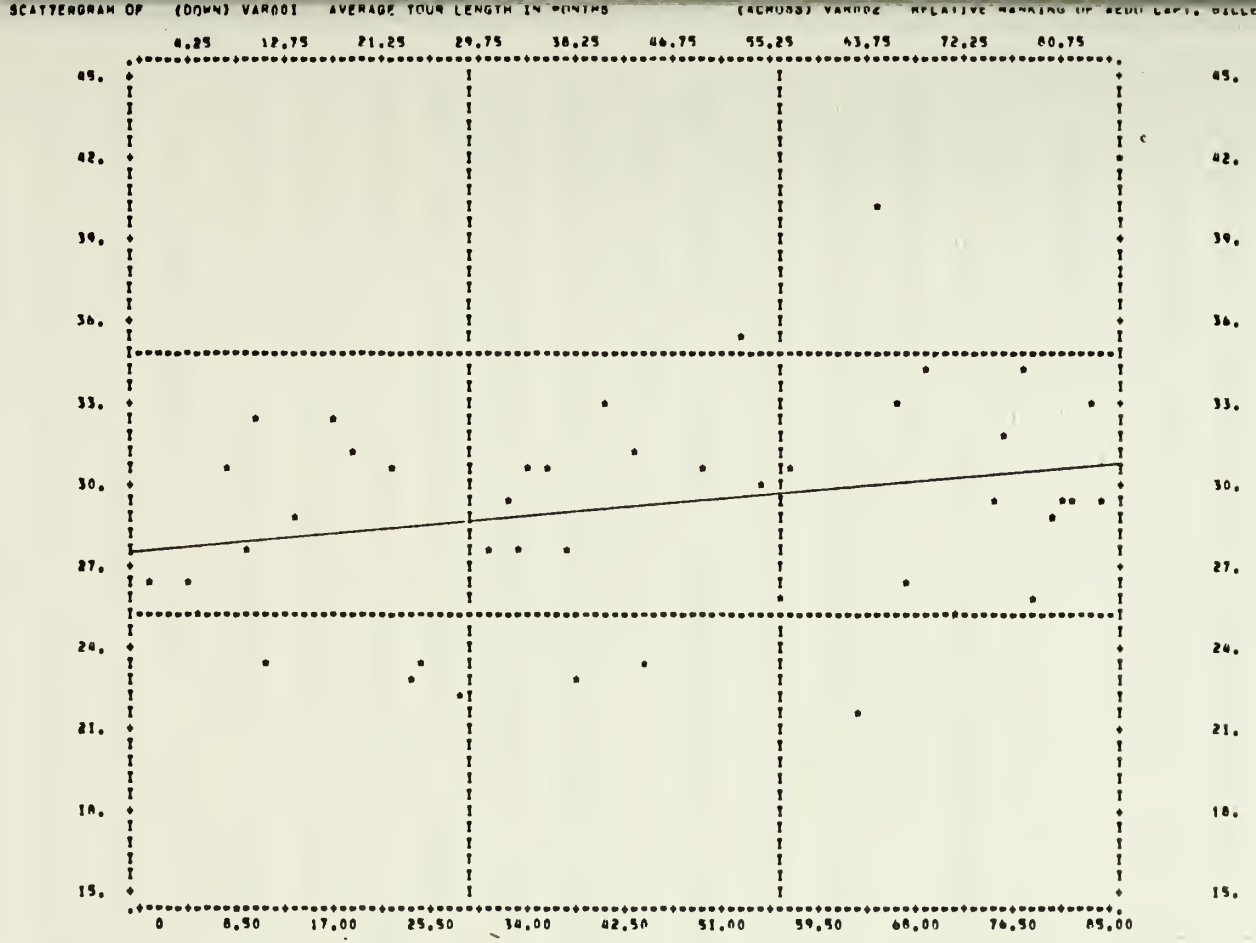
Figure 1. Linear Regression Analysis of Relative Ranking of AEDO Captain Billets versus Average Tour Length in Months - Consensus Opinion



STATISTICS..

CORRELATION (R)=	.37713	R SQUARED =	.14223	SIGNIFICANCE R =	.00581
STD ERR OF EST =	3.63920	INTERCEPT (A) =	26.85234	STD ERROR OF A =	1.05106
SIGNIFICANCE A =	.00001	SLOPE (B) =	.05639	STD ERROR OF B =	.02137
SIGNIFICANCE R =	.00581				
PLOTTED VALUES =	48	EXCLUDED VALUES=	0	MISSING VALUES =	0

Figure 2. Linear Regression Analysis of Relative Ranking of AEDO Captain Billets versus Average Tour Length in Months - Captains' Opinion



STATISTICS..

CORRELATION (R) =	.26461	R SQUARED =	.07002	SIGNIFICANCE R =	.04130
STD ERR OF EST =	3.78928	INTERCEPT (A) =	27.47259	STD ERROR OF A =	1.13577
SIGNIFICANCE A =	.00001	SLOPE (B) =	.03935	STD ERROR OF B =	.02213
SIGNIFICANCE B =	.04130				
PLOTTED VALUES =	44	EXCLUDED VALUES =	0	MISSING VALUES =	0

Figure 3. Linear Regression Analysis of Relative Ranking of AEDO Captain Billets versus Average Tour Length in Months - Commanders' Opinion

lower. The plots in both Figure 2 and Figure 3 exhibited positive slopes. Statistical testing showed that the Correlation Coefficients and linear regression line slopes were significant at the 5% level for both opinion groups. In addition, a statistical test determined, at the 5% level of significance, that all regression lines were linear.

C. FINDINGS

The results of all the above statistical tests tend to support the Hypotheses of this thesis.

With respect to Hypothesis One, the results of Questionnaire One showed that the available Captain-billet choices were ranked in a normal distribution by the respondents. The billets appearing in the tails of the distribution clearly indicate that certain Naval Shore Establishment billets are perceived by the military manager as being more desirable than others for promotion purposes. The most desirable jobs were found to be those that carried a high degree of responsibility and afforded a great amount of visibility to the incumbent, i.e., program managers and commanding officers of the larger activities, such as the Naval Air Rework Facilities. The least desirable jobs were found to be those that afforded lesser degrees of responsibility and visibility, i.e., department or division-head jobs at the larger activities. The most desirable jobs, then, tended to be of the "senior Captain" variety, and the least desirable jobs of the "junior Captain" type. The fact that an officer may progress from a "junior Captain" billet to a "senior Captain" billet and

thence to Flag rank may account for the finding that no billet was ranked any lower than "below average" for promotion purposes. This may also account for the finding that the Commander and Captain groups were significantly different in their billet rating opinions.

With respect to Hypothesis Two, the results of the linear regression analysis showed that there was an inverse relationship between the most desirable military management billets perceived as springboards, to promotion and average tour lengths. In the case of the Aeronautical Engineering Duty Officers, however, the actual effect of this relationship was small, i.e., the least desirable billets had average tour lengths only four or five months longer than the most desirable billets. (The average overall tour length was 29.2 months.) It was also found that the degree of correlation between billet desirability and average tour length was significantly higher when the billets were rated by the Captain-group than when they were rated by the Commander-group.

IV. SUMMARY AND CONCLUSIONS

A. SUMMARY

The information presented in this thesis is summarized below:

The military officer in general, and the Naval officer in particular, is faced with the following three basic factors which greatly influence his career behavior: (1) Career pattern complexity, (2) Promotion and attendant processes, and (3) Job rotation policies.

Career pattern complexity has increased markedly over the last decade and has led to some specialization away from the Unrestricted Line Officer and toward the Restricted Duty Line Officer. The emerging role of the military manager requires directing personnel in both the civil service and military systems; and exercising greater skills in management technqiues and practices. All the above has given rise to the following stress points: (1) relationships between civilian and military personnel, (2) officer-enlisted relationships, (3) continuous readjustment to new working environments and personnel, (4) continuous pressure for "outstanding performance and conduct" with the up or out philosophy, and (5) fear of ruining career with one mistake.

Promotion and attendant processes include: (1) the acquisition of desired duty assignments, (2) adequate

preparation for good performance within assignment, and (3) focus on short-term goals. Within available choices, certain Naval Shore Establishment billets were found to be perceived by the military manager as being more desirable than others for promotion purposes. There appears to be a growing awareness that as the military officer progresses to higher-level positions, he needs less of his technical training and more training in management skills. Promotion policies were found to orient the military officer to the accomplishment of short-term goals vice long-term objectives.

The policy of job rotation was found to have possibly the greatest effect on military officer career behavior. Basic criticism of the practice was found to be: (1) an officer does not have a chance to learn an assignment before he is moved on to the next one, (2) the excessive rotation practices are a hardship on the officer and his family, (3) the excessive rotation practices are a hardship on the civilians who must maintain the continuity in the support activities and must instruct the new officers in their work, (4) efficiency of the support activities suffers because of lost time involved in making the transition from one officer to the next and the problems of long-term motivation because of sustained tenure, and (5) it is an expensive practice - counting training costs, lost time, and moving and travel costs. Defense of the practice was that it is a very good tool for development of top-level executive talent, and brings a fresh new viewpoint to the solution of long-standing problems. Attention on the job rotation policy centered not

on it's abolishment, but on the question of longer tour lengths such as four to five years vice the two to three year length in general use. It was found that the most desirable military management billets perceived as springboards to promotion have average tour lengths significantly shorter than those of less desirable billets.

B. CONCLUSIONS

Taken as a whole, the material contained in this thesis seems to boil down to two main findings of vital concern:

(1) Career pattern complexities, promotion and attendant processes and job rotation policies have all combined to create a force which tends to work directly against the proven good management tenants of stability and continuity in the executive positions of greatest responsibility.

(2) The present emphasis on technical and scientific formal education in the backgrounds of military officers is not properly suited to support them in the top-level managerial positions they will occupy in the joint military-civil service support activity at the later stages of their careers.

The best avenue toward solution of the first problem appears to be through amendment of the job rotation policy rather than through amendment of career pattern complexities, or promotion and attendant processes. In today's world of ever-increasing complexity on every front, it is not likely that military officer career complexity can be simplified

to any degree in the near future. It is also unlikely that anyone would really want to make any sweeping changes to the present military promotion processes. Competition for available billets does serve as a natural selection process, and is desirable in so far as officers deserving of advancement are not lost through unavoidable assignment to a promotionally undesirable billet (if such billets actually exist). Amendment of the job rotation policy to provide for longer tour lengths in the senior military management support activity billets would, however, have a number of beneficial results. It would decrease the present number of re-adjustments to new working environments and personnel. It would give the officer more time to learn his new job before making key decisions, while at the same time holding him more accountable for the decisions he does make. It would encourage attention to longer-range objectives rather than to, primarily, short-range goals. It would decrease the number of moves of himself and family and save on relocation costs. And, from the civilian aspect, it would decrease the number of disruptive transition periods which precede and follow each change of command. The present mood of Congress, induced by the recent dramatic increase in military pension costs, is to possibly reorient the military to 30-year vice 20-year careers. If this change occurs, then it would appear that the added years of service might provide the opportunity to implement longer tour length assignments. Whether or not this occurs, however, it would

be in the interest of improving overall management in the shore establishment to make a study of what optimum tour lengths should be and how best to implement them.

With respect to the problem of preparation for management duties, it would appear that, after an initial grounding in the technical-scientific fields, more officers should be encouraged to take advanced degrees in the business and management field. To verify this, a study should be made to determine what the optimum mix of hard science - management formal education should be, and in what stages of the overall career pattern it should take place.

NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA - 93940 IN REPLY REFER TO:

APPENDIX A
QUESTIONNAIRE ONE FORMAT

Dear Sir:

I am writing this letter to request your assistance in a research program regarding Aeronautical Engineering Duty Officer career patterns. As a Professor of the Naval Postgraduate School, Monterey, California, I am conducting this research study under the sponsorship of the Naval Aviation Executive Institute of the Naval Air Systems Command.

I have enclosed a questionnaire entitled "AEDO Judgmental Perceptions of Captain Billet Desirability as a Springboard to Flag Rank." Your answers will provide invaluable data upon which a fundamental and unique baseline will be established. I will assure you that your personal identity and individual responses will not be released in any way. Only unidentified group information will be used in this study. The success or failure of this research effort will naturally depend upon your response.

The enclosed questionnaire probably will take about 15 minutes to answer. The document contains pertinent instructions for completion and return.

Thank you for your cooperation.

AEDO JUDGMENTAL PERCEPTIONS OF CAPTAIN
BILLET DESIRABILITY AS A SPRINGBOARD
TO
FLAG RANK

INSTRUCTIONS

The August 1975 AEDO Directory lists seven Flag Officer billets and 84 Captain Officer billets. Obviously, some of the Captain billets may be superior to others as a "springboard" to Flag rank. Several degrees of billet "desirability" for this purpose are given below, followed by a listing of AEDO Captain billets as shown in the AEDO Directory. Please enter the appropriate Number Code of billet desirability, as you see it, in the box at the right of each listed Captain billet. (Consider only the promotion potential factor; disregard all other factors such as geographic desirability, etc.) Space is provided at the end of the questionnaire to write in billets we may have missed, or that you would like to see. Space is also provided for your name if you care to include this information.

Please place an answer in every box provided, including that indicating your rank, and return the questionnaire in the enclosed reply envelope.

NUMBER CODE	BILLET DESIRABILITY
1	ONE OF THE VERY BEST
2	EXCELLENT
3	ABOVE AVERAGE
4	AVERAGE
5	SOMEWHAT BELOW AVERAGE
6	DEFINITELY BELOW AVERAGE
7	UNDESIRABLE

ACTIVITY	BILLET	DESIGNATOR	ANSWER
	FLEET STAFFS		
COMNAVAIRLANT	FORCE MAT OFFICER	1510	
	ACFT MAT & ENG	1512	
COMNAVAIRPAC	AST FORCE MAT	1500	
	A/C PROG/ENG	1512	
CARGRU 5 (CTF-77)	ACOS MAT READ	1510	
	FLEET READINESS ACTIVITIES		
NAVAIRSYSCOMREPLANT	CO	1500	
	REWORK MGMT	1500	
	NAVPRO MGMT	1510	
NAVAIRSYSCOMREPAC	CO	1500	
	DPTY	1500	
	FLEET SUPPORT	1500	
	QA	1500	
NAILSC	CO	1500	
MSDO	DIRECTOR	1510	
	REWORK/REPAIR ACTIVITIES		
NARF ALAMEDA	CO	1500	
NARF JACKSONVILLE	CO	1500	
NARF NORFOLK	CO	1500	

ACTIVITY	BILLET	DESIGNATOR	ANSWER
REWORK/REPAIR ACTIVITIES (con't)			
NARF NORTH ISLAND	CO	1500	
NARF PENSACOLA	CO	1500	
MATERIAL ACQUISITION			
NPRO BETHPAGE	CO	1512	
NPRO COLUMBUS	CO	1512	
NPRO DALLAS	CO	1512	
NPRO BURBANK	CO	1512	
NPRO LONG BEACH	CO	1510	
NPRO E. HARTFORD	CO	1510	
NPRO STRATFORD	CO	1510	
RESEARCH, DEVELOPMENT, TEST & EVALUATION			
ONR WASH	DEP & AST CHIEF	1510	
NATC PAX	SYS ENGINEERING DIV	1512	
NRB LONDON	CO	1510	
NAEC LAKEHURST	CO	1500	
	ENGINEERING	1500	
	GSE	1500	
NATF LAKEHURST	CO	1512	

ACTIVITY	BILLET	DESIGNATOR	ANSWER
RESEARCH, DEVELOPMENT, TEST & EVALUATION (con't)			
NPTC TRENTON	CO	1510	
PMTC PT. MUGU	VICE CDR	1510	
	DIR PROJ MGMT	1510	
	DIR SYS EVAL	1510	
	DIR FLEET SUP	1510	
NAFI	CO	1510	
NESTED DET PAX	CO	1510	
NADC WARMINSTER	DIRECTOR	1512	
	CHIEF OF STAFF	1500	
	DIR AIR VEHICLE DEPT	1512	
HEADQUARTERS/DEPARTMENTAL			
OSD (DDR&E)	MIL AST-SYS ACQ MGT	1510	
NAVPERS	AED/AMD/AIRSYS	1500	
SECDEF (R&D)	T&E OFFICE	1510	
INSURV WASH DC	SEN MEM BIS	1512	
SAFETY CENTER	DIR OSHA	1510	
ASO PHILA	TECH DIR	1510	
NAVMATCOMHQ	RELIABIL. & MAINTAIN.	1510	
	NAV P&P DIR	1510	
	DIR SYS ENG	1510	

ACTIVITY	BILLET	DESIGNATOR	ANSWER
	HEADQUARTERS/DEPARTMENTAL (con't)		
NAVELEXSYSCOMHQ	DEP COM LOGISTICS (ELEX-05)	1510	
NAVELEXSURVFOR	DIR TAC EM (LASER)	1510	
NAVELEXFLTSATCOMM	PROGRAM MANAGER	1510	
(PME-106)	DEP PM	1510	
	APM ADV PROG	1510	
	APM WHITECLOUD	1510	
NAVAIRSYSCOMHQ	AED/AMG MGMT (AIR-980)	1500	
	DIR P&P DIV (AIR-302)	1510	
	DIR ADV SYS (AIR-03P)	1510	
	AV OVHL SCHD DIR (AIR-414)	1500	
	PROG COORD SUP A/C (APC-4)	1510	
	AST DPTY PROJ MGR F-14 (PMA-241-1)	1500	
	PM ANTI-RAD MSL (PMA-242)	1510	
	PM S-3A (PMA-244)	1510	
	PM ANTI-SHIP WPN (PMA-258)	1510	
	PM IR MSL (PMA-259)	1510	
	PM CRUS MSL (PMA-263)	1510	
	PM ASW A/C SENS (PMA-264)	1510	
	AST MAT ACQ (AIR-05A)	1510	

ACTIVITY	BILLET	DESIGNATOR	ANSWER
	HEADQUARTERS/DEPARTMENTAL (con't)		
NAVAIRSYSCOMHQ	DIR ACQ RSC (AIR-501)	1510	
	DIR ENGINEERING DIV (AIR-520)	1510	
	DIR ACFT/WPN SYS DIV (AIR-510)	1510	
	DIR AIRFRAME DIV (AIR-530)	1510	
	DIR CREW SYS DIV (AIR-531)	1510	
	DIR ARMAMENT DIV (AIR-532)	1510	
	DIR AVIO DIV (AIR-533)	1510	
	GSE PROJ MGR (AIR-534)	1500	
	DIR PROPUL DIV (AIR-536)	1510	
	SHIP INSTAL MGMT (AIR-537)	1510	
	COMPTROLLER (AIR-08)	1510	
	READINESS MGMT (AIR-00X)	1510	
	MISCELLANEOUS		
ICAF	STUDENT	1510	

O T H E R S

WRITE-IN

(1) SOME WE MISSED

(2) SOME YOU WOULD LIKE TO SEE

_____	_____	____	☐
_____	_____	____	☐
_____	_____	____	☐
_____	_____	____	☐
_____	_____	____	☐

YOUR NAME: (OPTIONAL) _____

YOUR RANK:

☐ CAPTAIN

☐ COMMANDER

NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA - 93940 IN REPLY REFER TO:

APPENDIX B

QUESTIONNAIRE TWO FORMAT

Military Personnel Officer

Dear Sir:

The purpose of this letter is to request your assistance in a research program regarding Aeronautical Engineering Duty Officer career patterns. As a Professor of the Naval Postgraduate School, Monterey, California, I am conducting this research study under the sponsorship of the Naval Aviation Executive Institute of the Naval Air Systems Command.

The enclosed form(s) correspond to the AEDO Captain billets assigned your command, as listed in the August 1975 edition of the AEDO Directory. Information is desired concerning the time span of incumbency of the officer(s) who have held the billet(s) since approximately 1960 (excepting officers who temporarily served in an "acting" capacity). The time spans are needed to both month and year. Enclosed are form(s) on which to list the requested information, and an addressed envelope for their return.

Your answer will provide valuable data upon which a fundamental and unique baseline will be established. I will assure you that your responses will not be released in any way. Only unidentified group information will be used in this study. The success or failure of this research effort will naturally depend on your response.

Thank you for your cooperation.

Sincerely,

J.W. Creighton, Ph.D.
Professor of Management

JWC/pdh

COMMAND: _____

AEDO BILLET: _____

	NAME	DATE REPORTED (MO. - YR.)		DATE DETACHED (MO. - YR.)	
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____
8.	_____	_____	_____	_____	_____
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FILE NAP001 (CREATION DATE = 16 AUG 76)
SUBFILE CAPT CMDR

- T - T E S T -

GROUP 1 = FIRST 62 CASES
GROUP 2 = NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
VAR001 COMNAVAIRLANT FORCE MAT OFFICER												
GROUP 1	62	1.2419	.619	.079	2.21	.001	-2.00	165	.048	-2.20	162.18	.029
GROUP 2	105	1.5048	.921	.090								
VAR002 COMNAVAIRLANT ACFT MAT AND ENG												
GROUP 1	62	2.7742	1.193	.152	1.02	.903	-1.79	165	.075	-1.79	126.90	.076
GROUP 2	105	3.1143	1.179	.115								
VAR003 COMNAVAIRPAC AST FORCE MAT												
GROUP 1	61	1.8689	1.087	.139	1.47	.103	-1.43	163	.156	-1.50	145.32	.136
GROUP 2	104	2.1538	1.320	.129								
VAR004 COMNAVAIRPAC ACFT PROG AND ENG												
GROUP 1	62	2.9839	1.138	.145	1.25	.348	-1.38	162	.171	-1.41	140.04	.160
GROUP 2	102	3.2549	1.272	.126								
VAR005 CARGRU 5--CTF-77--ACOS MAT READ												
GROUP 1	62	2.5645	1.018	.129	1.42	.138	-.25	165	.804	-.26	145.95	.798
GROUP 2	105	2.6095	1.213	.118								
VAR006 NAVAIRSYSCOMPREPLANT CO												
GROUP 1	55	2.0364	1.478	.199	1.27	.302	-1.39	151	.167	-1.34	101.19	.183
GROUP 2	98	2.3571	1.310	.132								
VAR007 NAVAIRSYSCOMPREPLANT REWORK MGMT												
GROUP 1	61	4.2623	1.340	.172	1.25	.316	-.46	163	.644	-.45	114.73	.654
GROUP 2	104	4.3558	1.198	.117								

APPENDIX C - T-TESTS OF QUESTIONNAIRE ONE RESPONSE

FILE NAP001 (CREATION DATE = 16 AUG 76)
SUBFILE CAPT CMDR

- T - T E S T -

GROUP 1 = FIRST 62 CASES
GROUP 2 = NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
VAR008 NAVAIRSYSCOMREPLANT NAVPRO MGMT												
GROUP 1	61	4.5902	1.359	.174	1.32	.217	-.33	164	.740	-.32	112.00	.749
GROUP 2	105	4.6571	1.183	.115								
VAR009 NAVAIRSYSCOMREPAC CO												
GROUP 1	58	2.8966	1.734	.228	1.52	.068	.24	159	.807	.23	99.51	.818
GROUP 2	103	2.8350	1.408	.139								
VAR010 NAVAIRSYSCOMREPAC DPTY												
GROUP 1	61	4.5082	1.456	.186	1.15	.522	-.26	163	.793	-.26	118.70	.797
GROUP 2	104	4.5673	1.356	.133								
VAR011 NAVAIRSYSCOMREPAC FLEET SUPPORT												
GROUP 1	61	4.4590	1.373	.176	1.33	.203	-.25	163	.804	-.24	111.89	.811
GROUP 2	104	4.5096	1.191	.117								
VAR012 NAVAIRSYSCOMREPAC QA												
GROUP 1	61	5.1475	1.078	.138	1.06	.790	-1.50	163	.135	-1.49	122.95	.139
GROUP 2	104	5.4038	1.048	.103								
VAR013 NAILSC CO												
GROUP 1	61	2.6885	1.162	.149	1.38	.174	-4.10	164	.000	-4.28	142.11	.000
GROUP 2	105	3.5429	1.366	.133								
VAR014 MSDO DIRECTOR												
GROUP 1	59	4.5424	1.304	.170	1.24	.352	-.41	158	.685	-.39	111.39	.694
GROUP 2	101	4.6238	1.173	.117								

FILE NAP001 (CREATION DATE = 16 AUG 76)
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GROUP 1 - FIRST 62 CASES
GROUP 2 - NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR015 NARF ALAMEDA CO												
GROUP 1	62	1.8710	.914	.116	1.18	.486	-2.31	165	.022	-2.36	136.68	.019
GROUP 2	105	2.2286	.993	.097								
VAR016 NARF JACKSONVILLE CO												
GROUP 1	62	2.0161	.932	.118	1.30	.264	-2.47	165	.014	-2.56	141.70	.012
GROUP 2	105	2.4190	1.063	.104								
VAR017 NARF NORFOLK CO												
GROUP 1	62	1.9032	.918	.117	1.23	.381	-2.49	165	.014	-2.56	138.84	.012
GROUP 2	105	2.2952	1.018	.099								
VAR018 NARF NORTH ISLAND CO												
GROUP 1	62	1.7903	.926	.118	1.02	.923	-2.46	165	.015	-2.45	127.20	.016
GROUP 2	105	2.1524	.918	.090								
VAR019 NARF PENSACOLA CO												
GROUP 1	62	2.0645	1.038	.132	1.23	.379	-2.74	165	.007	-2.82	138.87	.006
GROUP 2	105	2.5524	1.152	.112								
VAR020 NAVPRO BETHPAGE CO												
GROUP 1	62	3.0484	1.165	.148	1.38	.145	-2.41	165	.017	-2.31	112.17	.023
GROUP 2	105	3.4571	.991	.097								
VAR021 NAVPRO COLUMBUS CO												
GROUP 1	62	3.6129	1.395	.177	1.95	.003	-2.28	163	.024	-2.10	98.86	.038
GROUP 2	103	4.0388	.999	.098								

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VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR022 NAVPRO DALLAS CO												
GROUP 1	62	3.4194	1.325	.168	1.83	.007	-1.55	163	.123	-1.44	101.11	.152
GROUP 2	103	3.6990	.979	.096								
VAR023 NAVPRO BURBANK CO												
GROUP 1	62	3.3710	1.218	.155	1.39	.140	-1.54	164	.125	-1.48	112.29	.142
GROUP 2	104	3.6442	1.033	.101								
VAR024 NAVPRO LONG BEACH CO												
GROUP 1	62	3.6613	1.342	.170	2.04	.001	-1.85	164	.066	-1.70	96.97	.093
GROUP 2	104	3.9904	.940	.092								
VAR025 NAVPRO EAST HARTFORD CO												
GROUP 1	62	3.5484	1.314	.167	1.86	.005	-2.93	165	.004	-2.71	99.95	.008
GROUP 2	105	4.0667	.963	.094								
VAR026 NAVPRO STRATFORD CO												
GROUP 1	62	3.6613	1.330	.169	2.12	.001	-2.60	165	.010	-2.37	95.32	.020
GROUP 2	105	4.1143	.913	.089								
VAR027 ONR WASH DEP AND AST CHIEF												
GROUP 1	62	3.4194	1.325	.168	1.29	.286	.15	164	.881	.16	141.24	.877
GROUP 2	104	3.3846	1.503	.147								
VAR028 NATC PAX SYS ENGINEERING DIV												
GROUP 1	62	3.6290	1.090	.138	1.05	.846	-.45	163	.655	-.45	131.16	.653
GROUP 2	103	3.7087	1.117	.110								

FILE NAP001 (CREATION DATE = 16 AUG 76)
SUBFILE CAPT CMDR

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GROUP 2 = NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR029 NRB LONDON CO												
GROUP 1	62	4.0484	.999	.127	1.67	.030	-.69	165	.488	-.74	153.30	.460
GROUP 2	105	4.1810	1.292	.126								
VAR030 NAEC LAKEHURST CO												
GROUP 1	62	2.6935	1.080	.137	1.19	.473	-4.07	165	.000	-4.16	136.93	.000
GROUP 2	105	3.4381	1.176	.115								
VAR031 NAEC LAKEHURST ENGINEERING												
GROUP 1	62	4.0484	1.093	.139	1.10	.662	-3.50	164	.001	-3.46	123.55	.001
GROUP 2	104	4.6442	1.042	.102								
VAR032 NAEC LAKEHURST GSE												
GROUP 1	62	4.5161	1.067	.136	1.02	.955	-3.26	164	.001	-3.26	129.28	.001
GROUP 2	104	5.0769	1.077	.106								
VAR033 NATF LAKEHURST CO												
GROUP 1	62	3.3387	1.086	.138	1.38	.172	-2.62	164	.010	-2.73	144.68	.007
GROUP 2	104	3.8462	1.275	.125								
VAR034 NPTC TRENTON CO												
GROUP 1	62	3.0161	1.208	.153	1.35	.176	-2.87	165	.005	-2.76	113.24	.007
GROUP 2	105	3.5238	1.039	.101								
VAR035 PMTC PT MUGU VICE CDR												
GROUP 1	62	2.0806	1.060	.135	1.19	.434	-.27	164	.784	-.27	119.67	.789
GROUP 2	104	2.1250	.972	.095								

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SUBFILE CAPT CMDR

- T - T E S T -

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VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	F 2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR036 PMTC PT MUGU DIR PROJ MGMT												
GROUP 1	62	3.5000	1.052	.134	1.21	.384	.18	164	.856	.18	118.69	.860
GROUP 2	104	3.4712	.955	.094								
VAR037 PMTC PT MUGU DIR SYS EVAL												
GROUP 1	62	3.7258	1.104	.140	1.47	.088	.05	163	.963	.04	110.28	.965
GROUP 2	103	3.7184	.912	.090								
VAR038 PMTC PT MUGU DIR FLEET SUP												
GROUP 1	62	3.9839	1.094	.139	1.25	.325	.02	163	.984	.02	117.75	.985
GROUP 2	103	3.9806	.980	.097								
VAR039 NAFI CO												
GROUP 1	62	2.9355	1.114	.142	1.12	.598	-3.44	164	.001	-3.39	122.52	.001
GROUP 2	104	3.5288	1.052	.103								
VAR040 NESTED DET PAX CO												
GROUP 1	61	3.7213	1.306	.167	1.49	.077	-2.47	161	.015	-2.35	107.51	.021
GROUP 2	102	4.1863	1.069	.106								
VAR041 NADC WARMINSTER DIRECTOR												
GROUP 1	62	2.2742	1.027	.130	1.24	.324	-2.82	163	.005	-2.90	140.45	.004
GROUP 2	103	2.7767	1.154	.114								
VAR042 NADC WARMINSTER CHIEF OF STAFF												
GROUP 1	62	3.8387	1.176	.149	1.15	.569	-2.75	162	.007	-2.79	135.78	.006
GROUP 2	102	4.3824	1.259	.125								

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SUBFILE CAPT CMDR

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GROUP 1 = FIRST 62 CASES
GROUP 2 = NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR043 NADC WARMINSTER DIR AIR VEHICLE DEPT												
GROUP 1	62	4.3710	1.163	.148	1.14	.542	-.45	162	.657	-.44	122.16	.662
GROUP 2	102	4.4510	1.087	.108								
VAR044 OSD--DDR AND E--MIL AST-SYS ACQ MGT												
GROUP 1	62	3.0645	1.389	.176	1.18	.466	1.95	163	.053	1.91	120.54	.059
GROUP 2	103	2.6505	1.281	.126								
VAR045 NAVPERS AED-AMD-AIRSYS												
GROUP 1	62	2.7097	1.077	.137	1.30	.264	-2.26	163	.025	-2.33	141.95	.021
GROUP 2	103	3.1359	1.229	.121								
VAR046 SECDEF--R AND D--T AND E OFFICE												
GROUP 1	62	3.0161	1.109	.141	1.48	.100	1.00	162	.321	1.04	147.78	.298
GROUP 2	102	2.8137	1.348	.133								
VAR047 INSURV WASH DC SEN MEM BIS												
GROUP 1	62	4.1774	1.167	.148	1.48	.096	.18	161	.857	.19	147.90	.850
GROUP 2	101	4.1386	1.421	.141								
VAR048 SAFETY CENTER DIR OSHA												
GROUP 1	62	5.2581	1.144	.145	1.00	.980	.98	163	.328	.98	128.59	.328
GROUP 2	103	5.0777	1.144	.113								
VAR049 ASO PHILA TECH DIR												
GROUP 1	62	5.1452	1.185	.151	1.21	.390	-.58	164	.560	-.57	118.80	.570
GROUP 2	104	5.2500	1.077	.106								

FILE NAP001 (CREATION DATE = 16 AUG 76)
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VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR050 NAVMATCOMHQ RELIAB AND MAINTAIN												
GROUP 1	62	4.5968	1.137	.144	1.17	.505	2.41	164	.017	2.45	136.52	.015
GROUP 2	104	4.1346	1.231	.121								
VAR051 NAVMATCOMHQ NAV P AND P DIR												
GROUP 1	62	4.6613	1.115	.142	1.03	.919	1.51	163	.133	1.51	130.07	.132
GROUP 2	103	4.3883	1.131	.111								
VAR052 NAVMATCOMHQ DIR SYS ENG												
GROUP 1	62	4.6774	1.083	.138	1.08	.748	1.84	163	.068	1.86	132.64	.066
GROUP 2	103	4.3495	1.126	.111								
VAR053 NESCHQ DEP COM LOGISTICS--ELEX-05--												
GROUP 1	62	3.6613	1.390	.177	1.02	.924	-.84	165	.401	-.84	127.22	.403
GROUP 2	105	3.8476	1.378	.135								
VAR054 NAVELEXSURVFOR DIR TAC EM--LASER--												
GROUP 1	61	4.2459	1.220	.156	1.28	.276	-.65	163	.514	-.63	113.81	.528
GROUP 2	104	4.3654	1.080	.106								
VAR055 NAVELEXFLTSATCOMM PROG MGR--PME-106--												
GROUP 1	61	2.9344	1.424	.182	1.16	.505	-1.04	163	.298	-1.02	118.40	.308
GROUP 2	104	3.1635	1.323	.130								
VAR056 NAVELEXFLTSATCOMM DEP PM--PME-106--												
GROUP 1	62	3.5161	1.156	.147	1.16	.534	-.71	164	.480	-.72	136.00	.472
GROUP 2	104	3.6538	1.245	.122								

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VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR057 NAVELEXFLTSATCOM APM ADV PROG--PME-106--												
GROUP 1	62	4.0484	1.220	.155	1.22	.380	-.21	164	.837	-.20	118.62	.841
GROUP 2	104	4.0865	1.107	.109								
VAR058 NAVELEXFLTSATCOM APM WHTCLD--PME-106--												
GROUP 1	61	4.0820	1.229	.157	1.29	.255	.08	163	.936	.08	113.31	.939
GROUP 2	104	4.0673	1.082	.106								
VAR059 NASCHQ AED-AMD MGMT--AIR-980--												
GROUP 1	62	2.7903	.926	.118	1.77	.017	-2.53	165	.012	-2.72	155.46	.007
GROUP 2	105	3.2476	1.231	.120								
VAR060 NASCHQ DIR P AND P DIV--AIR-302--												
GROUP 1	62	4.0968	1.036	.132	1.15	.560	1.33	165	.187	1.35	135.31	.179
GROUP 2	105	3.8667	1.110	.108								
VAR061 NASCHQ DIR ADV SYS--AIR-03P--												
GROUP 1	62	3.9516	1.047	.133	1.18	.478	1.17	166	.245	1.19	136.62	.235
GROUP 2	106	3.7453	1.139	.111								
VAR062 NASCHQ AV OVHL SCHD DIR--AIR-414--												
GROUP 1	62	3.4355	1.374	.175	1.00	1.000	-2.21	165	.028	-2.22	128.35	.028
GROUP 2	105	3.9238	1.378	.134								
VAR063 NASCHQ PROG COORD SUP ACFT--APC-4--												
GROUP 1	62	3.9839	1.094	.139	1.11	.667	-.52	163	.606	-.52	133.95	.602
GROUP 2	103	4.0777	1.152	.114								

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VAR064 NASCHQ AST DPY PRJ MGR F-14--PMA-241-1--												
GROUP 1	62	2.9677	1.055	.134	1.29	.277	1.69	165	.093	1.75	141.33	.083
GROUP 2	105	2.6571	1.200	.117								
VAR065 NASCHQ PM ANTI-RAD MSL--PMA-242--												
GROUP 1	62	2.4516	1.210	.154	1.45	.097	-.01	166	.994	-.01	109.84	.995
GROUP 2	106	2.4528	1.006	.098								
VAR066 NASCHQ PM S-3A--PMA-244--												
GROUP 1	62	1.3871	.754	.096	1.35	.198	-1.77	166	.079	-1.84	143.57	.068
GROUP 2	106	1.6226	.878	.085								
VAR067 NASCHQ PM ANTI-SHIP WPN--PMA-258--												
GROUP 1	62	2.0161	1.063	.135	1.12	.592	-.99	166	.321	-.98	121.81	.329
GROUP 2	106	2.1792	1.003	.097								
VAR068 NASCHQ PM IR MSL--PMA-259--												
GROUP 1	62	2.4032	.999	.127	1.13	.615	-.87	166	.387	-.88	134.12	.380
GROUP 2	106	2.5472	1.061	.103								
VAR069 NASCHQ PM CRUS MSL--PMA-263--												
GROUP 1	62	1.9032	.970	.123	1.34	.216	-1.50	166	.134	-1.56	142.98	.120
GROUP 2	106	2.1604	1.122	.109								
VAR070 NASCHQ PM ASW ACFT SENS--PMA-264--												
GROUP 1	62	2.5806	1.110	.141	1.05	.824	-.33	165	.743	-.33	125.73	.745
GROUP 2	105	2.6381	1.084	.106								

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GROUP 1 = FIRST 62 CASES
GROUP 2 = NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	F 2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR071 NASCHQ AST MAT ACQ--AIR-05A--												
GROUP 1	62	2.6774	1.037	.132	1.35	.204	-1.34	164	.183	-1.39	143.60	.167
GROUP 2	104	2.9231	1.204	.118								
VAR072 NASCHQ DIR ACQ RSC--AIR-501--												
GROUP 1	62	3.8065	1.084	.138	1.08	.724	.97	166	.331	.96	123.92	.337
GROUP 2	106	3.6415	1.044	.101								
VAR073 NASCHQ DIR ENGINEERING DIV--AIR-520--												
GROUP 1	62	3.7258	1.162	.148	1.15	.523	.63	166	.528	.62	120.65	.536
GROUP 2	106	3.6132	1.083	.105								
VAR074 NASCHQ DIR ACFT WPN SYS DIV--AIP-510--												
GROUP 1	62	2.7581	1.224	.155	1.01	.969	-.17	166	.861	-.18	128.53	.861
GROUP 2	106	2.7925	1.232	.120								
VAR075 NASCHQ DIR AIRFRAME DIV--AIR-530--												
GROUP 1	62	3.2742	1.104	.140	1.09	.735	-.57	166	.570	-.58	132.11	.566
GROUP 2	106	3.3774	1.150	.112								
VAR076 NASCHQ DIR CREW SYS DIV--AIR-531--												
GROUP 1	62	3.9194	1.045	.133	1.02	.910	-1.00	166	.320	-.99	126.73	.322
GROUP 2	106	4.0849	1.034	.100								
VAR077 NASCHQ DIR ARMAMENT DIV--AIR-532--												
GROUP 1	62	3.9194	1.045	.133	1.10	.695	-.47	166	.640	-.47	132.77	.636
GROUP 2	106	4.0000	1.095	.106								

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GROUP 1 = FIRST 62 CASES
GROUP 2 = NEXT 106 CASES

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
VAR078 NASCHQ DIR AVIONICS DIV--AIR-533--												
GROUP 1	62	3.0484	1.165	.148	1.19	.456	-1.52	166	.130	-1.56	137.04	.121
GROUP 2	106	3.3491	1.273	.124								
VAR079 NASCHQ GSE PROJ MGR--AIR-534--												
GROUP 1	62	3.9194	1.121	.142	1.04	.879	-2.58	166	.011	-2.59	129.88	.011
GROUP 2	106	4.3868	1.143	.111								
VAR080 NASCHQ DIR PROPUL DIV--AIR-536--												
GROUP 1	62	3.3710	1.012	.129	1.36	.188	-2.24	166	.026	-2.34	143.90	.021
GROUP 2	106	3.7736	1.181	.115								
VAR081 NASCHQ SHIP INSTAL MGMT--AIR-537--												
GROUP 1	62	3.9032	1.097	.139	1.01	.974	-2.96	166	.004	-2.97	128.44	.004
GROUP 2	106	4.4245	1.104	.107								
VAR082 NASCHQ COMPTROLLER--AIR-08--												
GROUP 1	62	3.0323	1.414	.180	1.02	.919	-3.16	165	.002	-3.15	127.15	.002
GROUP 2	105	3.7429	1.401	.137								
VAR083 NASCHQ READINESS MGMT--AIR-00X--												
GROUP 1	62	3.8548	1.316	.167	1.19	.465	-1.03	166	.303	-1.06	136.87	.292
GROUP 2	106	4.0849	1.435	.139								
VAR084 ICAF STUDENT												
GROUP 1	62	3.4677	1.576	.200	1.05	.820	-.19	165	.852	-.19	125.67	.853
GROUP 2	105	3.5143	1.539	.150								

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