THE CAREER PLATEAU AMONG PROFESSIONAL/TECHNICAL
SPECIALISTS IN THE FEDERAL GOVERNMENT

by

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(ABSTRACT)

The purpose of this study was to examine the
phenomenon of career plateauing from the point of view of
professional/technical specialists employed by the federal
government. Answers were sought to the following questions:
What effect, if any, does plateauing have on those
experiencing it? Does plateauing grow in importance and
effect over time? What can be done to alleviate any adverse
effects of plateauing?

A qualitative, descriptive survey was conducted wherein
thirty-five scientists and engineers participated in in-depth
interviews relating to their jobs and careers. The data
gathered was coded and displayed so that comparisons could be
made across the five groups which comprised the sample. The
groups were (a) younger, shorter plateaued, (b) older,
shorter plateaued, (c) younger, longer plateaued, (d) older,
longer plateaued, and (e) non-plateaued.

It was found that the younger, shorter plateaued
subjects who were in the early stages of their careers did
not experience negative reactions to plateauing. It did become problematic in mid career for some respondents but not for others. The career anchor (a concept developed by Edgar Schein) of the subject was the determining factor as to whether or not plateauing was troublesome. Those respondents anchored in technical/functional competence were either slightly or not at all concerned with their plateaued status. Those anchored in managerial competence were greatly concerned. By late career, the negative reactions to plateauing had abated for the managerially anchored and had disappeared for those anchored in technical/functional competence. Suggestions made by the respondents to mitigate any negative effects to plateauing were presented.
ACKNOWLEDGEMENTS

A paper such as this more nearly represents a collaborative effort than a sole endeavor. It can be completed only with the contributions of a number of people. It has been my good fortune to have been closely associated with five most talented individuals throughout the writing of this dissertation. Dr. Charles T. Goodsell, Dr. John A Rohr, and Dr. Orion F. White, Jr. were continually available to offer their encouragement to me and their ideas and knowledge to this effort. The unique contribution of each can be detected in the pages of this paper. Dr. Jimmie C. Fortune was invaluable in guiding me through the development of the research methodology. My greatest debt of gratitude is to my chairman, Dr. James F. Wolf, who displayed as much interest as I and who expended as much, if not more, energy than I during this particular project. To these fine scholars and friends I say, "Thank you -- the privilege and pleasure were mine."

In addition to my children to whom this dissertation is dedicated, there are two more "significant others" who should be acknowledged. The first is my father, , who at age eighty-four, exhibits the same love and pride in my accomplishments as he has throughout my
entire life. The second is my husband,

, whose extra effort and support during my doctoral studies will always be remembered and greatly appreciated.
This dissertation is dedicated, with love, to my children

'You are the sunshine of my life'
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INTRODUCTION

This study examined the phenomenon of career plateauing from the point of view of professional/technical specialists employed by the federal government who were structurally plateaued. The main purpose of the study was to learn what effect, if any, plateauing had on these people. An important sub-question was whether or not plateauing grows in importance and effect over time for those experiencing it. The final purpose of the study was to develop personnel policy or management strategy prescriptions based on information elicited from the research subjects.

OVERVIEW OF THE PROBLEM

Careers

The career is "the individually perceived sequence of attitudes and behaviors associated with work-related experiences and activities over the span of the person's life."\(^1\) It has been described as an on-going process which focuses "on the interaction of the individual and the

organization over time."² There is a distinction between the internal and the external career. The former refers to individual perceptions or "subjective meanings ... about critical occupational events in [person's] lives."³ The latter is "a set of actual job sequences that specifies a path through an occupation or organization."⁴ The career, then, can be viewed by the individual as his work-life experience and by the organization as the movement through a series of jobs. Career plateauing is definitely a "critical occupational event" in the work life of an individual. What is not known is whether it is a negative or a neutral event.

The Career Plateau

The career plateau has been defined as the "point in a career where the likelihood of additional hierarchical promotion is very low."⁵ Plateauing is a fact of organizational life. All workers plateau at some point in


⁴Ibid.

their careers. The typical pyramidal shape of the organization prevents a continuous upward climb for all workers.

There are two powerful trends which are creating an increase in plateauing in the federal government. The first is political and economic. There is a strong effort to reduce the number of federal workers at the middle manager levels of government. The second trend is demographic. The maturation of the baby boom generation (BBG) along with growing numbers of educated women and minorities seeking employment has increased the number of workers competing for the decreasing number of mid-level jobs. More workers are plateauing, and they are plateauing earlier in their careers than ever before. Career plateauing has become an issue of growing concern.

Many adverse effects of plateauing have been reported. Near found that the individual can suffer psychological effects such as denial, withdrawal from the job, and a desire to challenge the system. The organization can suffer negative effects such as reduced performance and increased

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costs.\textsuperscript{7} She further found that those who perceive themselves as plateaued may have lower aspirations toward advancement, may suffer impaired health, may have a high rate of absenteeism, and may not enjoy good relationships with their supervisors.\textsuperscript{8}

Most terms describing plateauing have negative connotations. Workers who are plateaued have been called "stuck," "immobiles," and "shelf-sitters."\textsuperscript{9} Plateauing has been called "the most serious personnel issue ... in the 1980\textsuperscript{9}". But is it?

Contrasting with the research which has uncovered adverse effects of plateauing is research which shows that some workers reach a plateau and that it is not problematic for


them. Both Ference and Viega suggest that plateauing is not inherently negative. Viega found that some people plateau effectively while others do not. Ference, et. al. learned that some plateaued workers continue to perform satisfactorily or better while others become unsatisfactory workers. In addition to the adverse effects which Near reported, she also found that plateaued workers did not differ significantly with regard to job satisfaction and motivation nor reported life satisfaction.

In sum, plateauing is a phenomenon which is occurring with frequency now. The instances of plateauing will increase because of the political/economic and demographic trends mentioned. What is not known is how serious a problem plateauing is and will be. It is the purpose of this study to find out why plateauing is a problem for some and not for others and what can be done to help those for whom it is a problem.

Types of Plateauing

Various types of plateauing have been identified. Dawson distinguished between the content plateau and the structural

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or organizational plateau. The former refers to a static situation within the job itself that proscribes changes in duties, knowledge, and skills. The latter refers to a lack of movement within (or, more specifically, up) the structural layers of the organization. The individual is plateaued because of the inflexible structure of the organization, not because of poor performance or inadequate talent. Near categorized plateauing as organizational, cultural, and individual. Causes of organizational plateauing include the pyramidal shape of organizations, economic conditions, and competition within the organization. Cultural plateauing results from cultural changes such as the decline of the Protestant work ethic, dual career families, and decreased commitment to work. Individual plateauing may be explained by lack of aspiration, motivation, or ability.

This research effort was confined to the study of structural or organizational plateauing. The federal government has certain job categories which lend themselves easily to the creation of organizational or structural plateaus. These job categories could be broadly defined as professional/technical and include such occupations as


engineering and scientific research. Employees within these job categories find that they have moved quickly to the "journeyman" or full performance level (usually GS 12) but that their chances of realizing further ascent up the organizational hierarchy level are minimal. By limiting the study to persons who were plateaued because of the structure of their organizations, a commonality was built into the research group. All subjects were plateaued because of organizational configuration, and personal or cultural factors were not important nor examined.

**IMPORTANCE OF THE STUDY**

Given the mixed results of previous research in the area, any work done to illuminate the concept of career plateauing further is useful. However, this research project stretched past the "useful" stage in four important ways.

1. **Timeliness** -- Career plateauing is increasing. It will continue to increase due to factors mentioned above such as the maturation of the baby boom generation (BBG), increasing numbers of women and minorities in the work force, and a decreasing number of middle management positions. Current, rigorous research is imperative.
(2) **Public Sector Focus** -- The majority of research efforts to date have been conducted in the private sector. Public sector efforts have been minimal, and those that have been done have been limited to the state and local levels.¹⁵ There is a pressing need for more research to be conducted in the public sector and an even greater need for research which examines plateauing as it affects the federal level.

(3) **In-depth Methodology** -- Although attitudes, behaviors, and so forth had been surveyed regarding the area of plateauing, an in-depth probe of plateaued employees has not been undertaken. It is important to gain an understanding of plateauing from the frame of reference of persons experiencing the phenomenon. Moreover, the elicitation of recommendations to alleviate adverse effects of plateauing from plateauees themselves is novel.

(4) **Comparison** -- The idea of talking with persons who had been plateaued for different lengths of time allowed for


insight regarding differing effects of short term and longer term plateauing.

RESEARCH QUESTIONS POSED

In order to meet the stated purposes of this study the following questions will be posed and answered:

(1) What effect, if any, does structural career plateauing have on the professional/technical specialists in the federal government?

(2) For whom is plateauing a problem?

(3) Why is plateauing a larger problem for some than for others?

(4) Does plateauing grow in importance and effect?

(5) How can the information collected in this study be used?

(6) If there are problems, what can be done to alleviate the adverse effects of plateauing on professional/technical specialists in the federal government?

ORGANIZATION OF REPORT

Chapter I has set forth the main purposes of this study. It has provided a definition of careers and an overview of the problem of plateauing. It has given a brief description of the conflicting views regarding plateauing found in the literature, and it has explained the different types of
plateauing. Further, it has set forth the reasons why this research project is an important one. Finally, the research questions posed and answered in the final chapter were listed.

In Chapter II a more extensive review of the literature will be undertaken. The literature on plateauing itself will be fully examined with an emphasis placed on types and causes of plateauing, a plateauing typology, effects of plateauing, plateauing in the public sector, and prescriptive literature relating to plateauing. In addition, other relevant literature which informs the findings and recommendations of this project will be examined.

Chapter III will discuss the methodology employed to conduct this project. An explanation of the study design will be followed by a description of the sample selection as well as the matrix used to divide the sample into sub-groups. The data collection process will be detailed as will the coding procedures and display formats used in the data analysis. An explanation of the usefulness of qualitative data and quantitative formats will be set forth.

In Chapter IV the findings of the research will be described. This discussion will parallel the four sections of the data gathering process and will set forth the emergent findings regarding the entire sample as well as each group
(broken down by age and length of time in plateau) within the sample. A comparison and reconciliation of the responses to focused and non-focused questions will be undertaken. Finally, a chart, followed by a discussion, of the key findings for the entire sample and for each sub-group will be presented.

Chapter V will present the conclusions drawn from the findings. These conclusions will address the research questions set forth in the introductory chapter. The answer to the final question will contain personnel policy prescriptions and management strategy recommendations based on the data gathered.
CHAPTER II
LITERATURE REVIEW

This chapter begins with a discussion of the broad concept of careers. There are three areas within the concept which are important to this study. The first area is that which gives insight into the definitional aspect of careers. The body of literature which is most helpful in this regard is that which differentiates between the internal and the external career. The chapter will then move into a discussion of the career stage literature and the career anchor literature because these areas hold particular import for the findings of this research project. The literature on career plateauing will then be discussed. The more significant works to date and those which are germane to the present endeavor will be highlighted. Finally, there is additional, relevant literature which will be examined in this chapter. This literature relates to such concepts as age and job satisfaction, tenure and job satisfaction, and good citizenship within the organization. This literature is included because it, too, informs the research findings.
The broad subject of careers boasts a body of literature which is vast. For the purposes of this study, there are three areas or sub-groups of this literature which are important. The first is that which offers some definitional insight into the concept of careers. Included within this area are those works which relate to the distinction between the internal and external career. The next two sub-groups are the career stage literature, and the career anchor literature.

CONCEPTUALIZATION OF CAREERS

What is a career? A career is different things to different people. Most simply, a career is what one does in a work setting over time. However, the concept of careers is not a simple one. For the individual, a career is a personal construct containing many facets of his identity. To some persons the career not only defines what a person does in the work setting but also, to a greater or lesser degree depending on the individual, who and/or what he is. Some persons give meaning to themselves as well as their work through their careers. In other words, they have difficulty separating "self" and "career or work self." Thus, they
measure their success or worth as a person against the success or worth they feel at work or within their careers.

To these people, perhaps, the distinction between internal and external career is not clear. An occurrence, such as plateauing, which takes place in the external career, can have an adverse impact on the person's sense of internal career, and thus, on his sense of self-worth.

Two authors who have contributed to the understanding of the concepts of internal career and external career are Douglas Hall and Edgar Schein. Hall stated, "The career is the individually perceived sequence of attitudes and behaviors associated with work-related experiences and activities over the span of the person's life." Contained within this definition are aspects of both the internal (subjective) and external (objective) careers. As Hall pointed out, attitudes are what the person feels, are subjective, are personal, and are internal. Behaviors are what the person does, are objective, are viewed by others, and are external.

Schein stated that the internal career is

"a set of activities designed to help individuals to develop a clearer self-concept around their own occupational activities, a set of plans that makes sense to the individual ... it is an experienced set of

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events into which people inject meaning. To study internal careers, one needs information from individuals about the subjective meanings they attach to critical occupational events in their lives.\textsuperscript{17}

He further stated that the external career is

"a set of actual job sequences that specifies a path through an occupation or organization ... To study external careers one needs information about actual sequences of positions that are defined within occupations or organizations."\textsuperscript{18}

John Van Maanen, too, discussed the internal/external career, postulating that both take "shape" along the dimensions of time and direction. The following graph depicts Van Maanen's concept of the shape of a hypothetical police career (one could easily substitute GS 7, 9, 11, 12 and so forth for the police ranks).


\textsuperscript{18}Ibid.
Van Maanen held that the shape of the external career is that sequence (time) of movements through the hierarchical steps of the organization (direction) which is observable. The shape of the internal career is a combination of the worker's aspirations and expectations (direction) and his personal sense of appropriate timing (time). It is when the external career shape and the internal career shape are not synchronized, when the external or actual and internal or
expected directions and timing are incongruent that problems may arise for the individual. Career plateauing is a phenomenon which has the potential of becoming problematic because of a lack of synchronization between the shape of the internal career and the shape of the external career.

In sum, a career is what it means to the person experiencing it and contains his work identity, roles, values, motivations, needs, expectations, and so forth. To the organization, a career is the movement through a series of jobs within that organization.

The distinction between the internal career and the external career is an important one for this research project. The methodology employed was designed to probe the meaning the research subjects gave to their work, jobs, or careers. The reason for this probing was to develop personnel policy recommendations to be used by managers and personnel policy makers in an attempt to minimize any adverse effects of organizational career plateauing (an external construct).

Schein wrote, "To correlate transitions in the external career with the perceptions and feelings that occur in the__________

internal career ... becomes one of the most important research issues." This study, indeed, correlates internal perceptions and feelings with a particular external transition -- career plateauing.

CAREER STAGES

Another body of literature which is important to the theoretical understanding of the findings of this research effort is that which deals with the stages of careers. The career stage literature finds its roots in the works of Erik Erikson who developed an age-related typology of life stages. Erikson wrote that, from birth through death, a person passes through distinct stages which are roughly correlated with age. He identified eight life stages and the developmental tasks that the person must accomplish during each stage.

The first four stages relate to early childhood and are not relevant to this study. The second four inform the concept of career stages. Erikson's life stages and their concomitant developmental tasks are presented below.

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<table>
<thead>
<tr>
<th>Stage</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescence</td>
<td>Achieving a sense of ego identity</td>
</tr>
<tr>
<td></td>
<td>Settling on an occupational identity</td>
</tr>
<tr>
<td>Young adulthood</td>
<td>Seeking intimacy</td>
</tr>
<tr>
<td></td>
<td>Creating commitments to work organizations, superiors, co-workers</td>
</tr>
<tr>
<td>Adulthood</td>
<td>Achieving &quot;generativity&quot;, i.e., productivity and creativity in the workplace</td>
</tr>
<tr>
<td>Maturity</td>
<td>Acquiring ego integrity</td>
</tr>
<tr>
<td></td>
<td>Experiencing satisfaction with life and work</td>
</tr>
</tbody>
</table>

It is from the middle to late life-stages that the concept of career stages was developed. Although there are numerous variations on the theme, the writings of some of the more well known authors are presented. It will become apparent that there is a common thread that runs through all of them—that careers tend to follow a similar pattern as people mature within the context of work and that there are certain developmental tasks that must be accomplished at each stage.

Edgar Schein developed a typology of career stages which he related to his concept of internal career. His nine stage theory is elaborate and complex. Although his stages refer

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Ibid. **22**
to the internal career, he held that they cannot be viewed in isolation -- that the dimensions of external career and what he called "inclusion or membership" (movement toward the inner core of the organization) are vital to the understanding of the tasks to be accomplished at each successive stage. An abbreviated version of Schein's typology is presented below.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth, fantasy, exploration</td>
<td>Developing knowledge of needs, talents</td>
</tr>
<tr>
<td></td>
<td>Finding opportunities for self-tests</td>
</tr>
<tr>
<td>Entry into work world</td>
<td>Exploring work possibilities</td>
</tr>
<tr>
<td></td>
<td>Choosing first job</td>
</tr>
<tr>
<td>Basic training</td>
<td>Socializing one's self into the organization</td>
</tr>
<tr>
<td>Full membership, early career</td>
<td>Performing effectively,</td>
</tr>
<tr>
<td></td>
<td>Accepting responsibility</td>
</tr>
<tr>
<td>Full membership, midcareer</td>
<td>Gaining independence</td>
</tr>
<tr>
<td></td>
<td>Assessing organizational opportunities</td>
</tr>
<tr>
<td>Midcareer crisis</td>
<td>Learning one's career anchor</td>
</tr>
<tr>
<td></td>
<td>Assessing realistically one's future</td>
</tr>
<tr>
<td>Late career, non-leadership</td>
<td>Maintaining technical competence</td>
</tr>
<tr>
<td></td>
<td>Learning managerial skills</td>
</tr>
<tr>
<td>leadership</td>
<td>Becoming responsible for organization</td>
</tr>
<tr>
<td></td>
<td>Handling high levels of power and responsibility</td>
</tr>
<tr>
<td>Decline and disengagement</td>
<td>Finding new sources of satisfaction</td>
</tr>
<tr>
<td></td>
<td>Assessing total career</td>
</tr>
<tr>
<td>Retirement</td>
<td>Maintaining a sense of identity</td>
</tr>
<tr>
<td></td>
<td>Achieving a sense of fulfillment</td>
</tr>
</tbody>
</table>

One of the early writers in the area was Donald Super. Between 1953 and 1977 he published numerous works on his research and refined his theory on the concept of career stages. His original work held to a rigid link between age and career stage, but his later work postulated that,

\[24\text{Ibid.}\]
although there is a connection between age and stage, there is a variation in the amount of time different people spend at the different stages. However, the developmental stages are sequential and loosely correlated with age.  

Super's career stages and some of the more important developmental tasks follow.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth</td>
<td>Developing a self-concept</td>
</tr>
<tr>
<td></td>
<td>Developing an orientation to the work-world and understanding the meaning of work</td>
</tr>
<tr>
<td>Exploration</td>
<td>Implementing a vocational preference</td>
</tr>
<tr>
<td></td>
<td>Committing provisionally to work</td>
</tr>
<tr>
<td>Establishment</td>
<td>Securing a permanent place at work</td>
</tr>
<tr>
<td></td>
<td>Stabilizing and advancing at work</td>
</tr>
<tr>
<td></td>
<td>Committing more strongly</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Continuing established patterns</td>
</tr>
<tr>
<td></td>
<td>Preserving achieved status and gains</td>
</tr>
<tr>
<td>Decline</td>
<td>Decelerating work pace</td>
</tr>
<tr>
<td></td>
<td>Retiring</td>
</tr>
</tbody>
</table>

---


26 Ibid.
Miller and Form's five stage model closely parallels Super's, but it is focused more on job behaviors than on the developmental process. Their five stages and the accompanying tasks are (1) preparatory, pre-work -- developing self-concept, considering job requirements and training, (2) initial work period -- examining self, roles, and occupations, entering training or labor market and obtaining work, (3) trial work period -- trying chosen work or changing work, stabilizing and seeking security, (4) stable work period -- continuing along established lines, and (5) decline -- slowing of work activity and retiring.27

Hall and Nougaim's schema also contains five steps or stages. It is based on changing or developing career concerns of workers as they progress within the organization. Their typology, like Miller and Form's, is quite similar to Super's. Their stages, along with the concomitant tasks are (1) pre-work -- preparing for work, entering the work-world, (2) establishment -- finding security within the organization, attempting to gain recognition (3) advancement -- striving for promotion and achievement, (4) maintenance--

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accepting career leveling, facing the possibility of a "terminal plateau," Seeking gratification elsewhere, and (5) retirement -- retiring.28

The following chart combines the above theories so that the reader can see the similarities among the different typologies. Ages (according to the authors) are shown in the table, but it is to be remembered that age is not a rigid concept in any of the stage theories -- it is an approximation.

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## Chart 1

### Summary of Career Stage Theories

<table>
<thead>
<tr>
<th>Age</th>
<th>Erikson</th>
<th>Super</th>
<th>Miller &amp; Form</th>
<th>Hall &amp; Nougaim</th>
<th>Schein</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Childhood</td>
<td>Growth</td>
<td>Preparatory, Pre-work</td>
<td></td>
<td>Growth, Exploration</td>
</tr>
<tr>
<td>20</td>
<td>Adolescence</td>
<td>Exploration</td>
<td>Initial work</td>
<td>Pre-work</td>
<td>Entry into work world</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>Trial work period</td>
<td></td>
<td></td>
<td>Basic training, Full membership, early career</td>
</tr>
<tr>
<td>30</td>
<td>Intimacy</td>
<td></td>
<td></td>
<td></td>
<td>Full membership, mid-career</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>Establish-ment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Advancement, Mid-career crisis</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Late career, leadership, non-leader-ship</td>
</tr>
<tr>
<td>50</td>
<td>Generativity</td>
<td></td>
<td>Stable work period</td>
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<td>55</td>
<td></td>
<td>Maintenance</td>
<td>Maintenance</td>
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<td>Decline and disengagement</td>
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<tr>
<td>65</td>
<td>Ego Integrity</td>
<td>Decline</td>
<td>Retirement</td>
<td>Retirement</td>
<td>Retirement</td>
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</tbody>
</table>
The different career stage theories are important to this study because they give an overview of the tasks a person will traditionally face during different periods of his career. Thus doing, they bound the span of time during which career plateauing might be most problematic to an individual. Whether the theory is based on life development (Erickson), internal career, external career, and inclusion (Schein), vocational preference (Super), job behaviors (Miller and Form), or career concerns (Hall and Nougaim), it offers an explanation as to why there are certain times within a career when plateauing will be either non-existent or non-problematic.

For example, in the early life and career stages such as growth, pre-work, or training, plateauing probably will not occur, and if it does, it is unlikely that it would be a consideration. In the next stages, when the individual is concerned with selecting a line of work, joining an organization, establishing a work identity, becoming stabilized within the organization, and so forth, plateauing is unlikely to occur because the worker has not been with the organization for a sufficient period of time. If it should occur, the accomplishment of the tasks which are congruent with the early career stages would probably mitigate any negative effects at that point. However, as the individual
becomes committed to the organization, seeks advancement, or faces a mid-career crisis, plateauing may be a traumatic event. Finally, once an individual enters a stage of decline or disengagement and his interests turn to areas other than work, plateauing may not have the negative effects on the worker that it could have had at an earlier stage.

Thus, by understanding the developmental tasks an individual faces, it may be possible to pinpoint the stages (and the concomitant, loosely correlated ages) which are the most susceptible to the adverse effects of career plateauing.

**CAREER ANCHORS**

In 1975 Edgar Schein published the results of a fourteen year study he had conducted using graduates of the Sloan Management School at the Massachusetts Institute of Technology (MIT). One of the most important concepts to emerge from the study was that of career anchors. In his 1978 book *Career Dynamics* Schein expanded on the theory.

Schein defined the career anchor as a pattern of "self-
perceived talents, motives, and values." The career anchor is made up of three components:

1. Self-perceived talents and abilities (based on actual success in a variety of work settings);
2. Self-perceived motives and needs (based on opportunities for self-tests and self-diagnosis in real situations and on feedback from others);
3. Self-perceived attitudes and values (based on actual encounters between self and the norms and values of the employing organization and work setting).

"The career anchor ... results from an interaction between the person with his needs and talents, and the work environment with its opportunities and constraints. During the first few years of his career, the person learns more concretely what he is good at, what he values, and what he needs ... The underlying syndrome of motives, values, and talents serves as a guide and constraint on career decisions ... The career anchor is not merely a motive ... it can be thought of as a 'master motive' or the thing the person will not under any circumstances give up."33

Schein found that the 44 subjects in his longitudinal study could be thematically grouped into five areas, and thus, he identified five career anchors:

**Anchor 1 -- Technical/Functional Competence:** People in this group were motivated by the challenge of the actual work

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31Ibid. p. 127.
32Ibid., p. 125.
they were doing. "Their anchor is the technical field, functional area, or content of their work."\(^{34}\) Schein held that they "actively disdain and fear general management, viewing it as a 'jungle,' a 'political arena,' and a type of work that does not permit the exercise of what they consider to be their skills."\(^{35}\) If they must manage it will be in the area of their technical competence. They also maintained a self-image which was tied to their ability to work well in their functional area. They wanted their talents to be recognized. Both Schein and Delong contended that people with technical/functional career anchors wanted interesting, challenging jobs, wanted recognition for the work they were doing, and might leave an organization if they were to be promoted out of their area of expertise.\(^{36}\) Their concept of success is greater proficiency in their functional area, but many fear revelation of this fact because they do not want to be seen as lacking ambition.

**Anchor 2 -- Managerial Competence:** Schein found that people anchored in managerial competence were interested in moving to higher positions within the organization, were not


\(^{35}\)Op.
\(^{36}\)op.

\(^{36}\)op.\(^{\text{cit.}}\), Delong.

\(^{36}\)op.\(^{\text{cit.}}\), Schein (1978).
tied to a particular functional area, and were motivated by the challenges of supervising others and the assumption of greater responsibility. He also found that these people needed to possess a combination of three abilities:

(1) "analytical competence -- the ability to identify, analyze, and solve problems in situations of incomplete information and uncertainty

(2) interpersonal competence -- the ability to influence, supervise, lead, manipulate, and control people at all organizational levels to help them achieve organizational goals

(3) emotional competence -- the capacity to be stimulated by emotional and interpersonal crises rather than becoming exhausted or debilitated by them, the capacity to bear high levels of responsibility without becoming paralyzed, and the ability to exercise power without guilt or shame."37

Schein stressed the importance of the person anchored in managerial competence possessing the three abilities in combination, i.e., being "simultaneously good at analyzing problems, handling people, and handling his or her own emotions in order to withstand the pressures and tensions of the 'executive suite'."38 DeLong held that it was important for these people to lead others, to move quickly up the organizational hierarchy, and to earn large salaries. It was also found that people with the 'need' to manage might move to other (sometimes smaller) organizations or take

37Ibid., pp. 135-136.
38Ibid., p. 138.
consulting jobs as a means of gaining more experience or variety to further their careers. Their success ethic is what has come to be viewed as the traditional one -- a continuous climb up the hierarchy of the organization.

Anchor 3 -- Security: The third anchor defined by Schein was security. People who were anchored in security were interested in stabilizing their life situation by tying themselves to one organization which offered them an adequate income, good benefits, and an acceptable retirement program. These people "will accept an organizational definition of their careers and will have to 'trust' the organization to do the right thing by them." The security orientation can take two forms -- the first is found among those people who seek security through a life-time career in one organization, "socializing themselves to its values and norms," and the second is found among those who transfer from one organization to another, but always within the same geographic location. Their feeling of security comes from a stabilized, settled family situation and integration within a

39 Ibid.

40 Ibid., p. 147.

given community. These people may find it difficult to perform at too high a level of responsibility within the organization because of either their reluctance to give up family time or because there is within them a degree of personal insecurity which limits the "emotional competence" which Schein found among those who possessed a managerial career anchor. They may also have difficulty in accepting their basic "success criterion: a stable, secure, reasonably well-integrated work and home situation" because it is not the "normal" success ethic of the managerially oriented.

**Anchor 4 -- Creativity:** In describing those people whose career anchor is creativity, Schein suggested that they seemed to possess a variety of values and motives which overlap with other anchors -- autonomy, managerial competence, technical/functional competence, and a desire to earn in order to become secure. However, the primary motive seemed to be "an overarching need to build or create something that was entirely their own product. It was self-extension ... that seemed to be the key to these people." They are entrepreneurs. Schein also stated that "they want a great deal of money ... a measure that the person uses to define his degree of success." The creativity-anchored

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person can function within the organization if he is given enough freedom to exercise his need for accomplishing something on his own. The question which arises is whether or not such a person will be content with managing the organization, product, or system he has created. Schein maintained that if a special role were developed for the person which would enable him to continue be creative, he might function well within the organization.45 DeLong held that "such people may spend their early years within an organization ... then break out on their own."46

**Anchor 5 -- Autonomy:** The person with this career anchor was primarily motivated by his own sense of freedom. He found organizational life "restrictive, irrational, and/or intrusive into his own private life."47 Many people in this group have left business or government organizations. They have looked for work situations in which they could pursue their professional or technical/functional competence. However, DeLong maintained that a career within an organization for an autonomy-anchored person was possible. He contended that many organizations and even specific jobs could provide the freedom necessary for such an individual --


that many positions "consist of various tasks that allow a person to work within the organization's structure while retaining the autonomy necessary to meet individual needs."\textsuperscript{48} Schein further found that these people have come to terms with the trade-off between prestige and a high income versus personal freedom and the pursuit of an individual life-style. Success, to them, is the attainment of a sense of freedom. Finally, he stated,

"...on the surface it is not too easy to differentiate the autonomy and creativity groups, because the entrepreneurs also enjoy autonomy and freedom as they become successful. But as one listens to the entrepreneurs, it becomes obvious that they are much more preoccupied with building something, whereas the primary need of the autonomy seekers is to be on their own, setting their own pace, schedules, life-styles, and work habits."\textsuperscript{49}

C. Brooklyn Derr used Schein's typology of career anchors to study the career patterns of 124 naval officers. He found that, although other anchors were provided as choices, "the five Schein categories accounted for most of the preferences."\textsuperscript{50} Using interviews and content analysis, Derr identified the career anchors of the officers and found

that they preferred technical and managerial roles, but had a strong security orientation. He found that there were few with autonomy or creativity anchors.\textsuperscript{51}

He did, however, discover the existence of another anchor within his group — that of the warrior. The warrior needs "high adventure ... as a basic psychological requirement ... demands lots of action ... and sometimes expresses this value by other attitudes and values; patriotism is the most frequent."\textsuperscript{52} Warriors are always ready to engage in combat, perceive themselves as technically outstanding, like to feel challenged and pushed, are physically fit, and use this fitness in accomplishing difficult tasks. However, Derr hypothesized that the warrior may be found only in the Navy (or in other high risk professions) because such people are unable to practice their craft elsewhere.

Derr discussed the concept of career anchor formation. Schein had previously held that it usually takes six to ten years in the workplace before a person is aware of his dominant needs, values, and abilities, but that once the anchor is established it is a rather rigid internal

\textsuperscript{51}\textit{Ibid.}

\textsuperscript{52}\textit{Ibid.}, p. 175.
construct. Derr believed that the development of one's career anchor is an on-going process consisting of different stages: pre-career anchor (early career stage), beginning career anchor (ages 29-35), and complete career anchor (early late-career). He stated that,

"The process apparently permits flexibility and change in response to the dynamics of life and work in the early stages, but the dominant trend of a person's needs, values, attitudes, and abilities becomes increasingly fixed over time and eventually guides life and career decisions ... there may be some optimal level of pattern formation that allows for a sense of wholeness and identity but permits flexibility." 

In addition to the above mentioned career anchors, other suggestions have appeared in the literature. For example, DeLong mentioned the possibility of identity (the status and prestige of belonging to a particular organization), service (the desire to help others and bring about change), and variety (the desire for many different types of challenges) being considered as viable anchors. Driver proffered identity-affiliation (a type of camaraderie found among the workers of a particular organization) as being another

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possibility. However, these and other authors all maintained that Schein's taxonomy contained the most frequently observed career anchors.

Derr also discovered the existence of what he termed "plastic man." Individuals within this grouping did not evidence "specific internal needs, values, and abilities that require certain skills ... [rather] their values led them toward making a commitment to doing their best, having interesting work, and being loyal to their employer." However, they were not career oriented. They focused instead on a series of work opportunities which were the ultimate factors in determining the direction of their lives. Their job orientation, as opposed to an integrated, progressive career orientation, led Derr to the conclusion that "plastic man" did not possess a career anchor.

Derr also described the two processes for determining the career anchors of his subjects. The first employed questionnaires, and the second used an interview format similar to the one used by Schien in his seminal M.I.T. study. Derr believed, in concurrence with DeLong, that the


interview is a more useful and reliable tool than the questionnaire in determining career anchors.\textsuperscript{58}

The literature on career anchors is particularly important for this research because of the great number of subjects within the study group who did not seem overly concerned with their plateaued status. The understanding of career anchors (the self-perceived needs, values, and talents) offers a potential explanation for the lack of strong concern about promotion among the scientists and engineers surveyed in this study. This lack is understandable when one considers the possibility that the career anchors of many of the subjects could be other than the managerial competence anchor which is the only one which places great emphasis on upward mobility. Those persons anchored in technical/functional competence, security, creativity, autonomy, and even the warrior image may well have found their success and satisfaction elsewhere.

\section*{LITERATURE ON CAREER PLATEAUING}

The literature on career plateauing has grown considerably in the recent past as the phenomenon itself and interest in it have grown. There are some works which hold

\textsuperscript{58}Ibid., p. 171.
more import for this study and its research findings than others and they will be discussed below.

**Definition**

The career plateau has been defined as the "point in a career where the likelihood of additional hierarchical promotion is very low." However, there are different types of plateauing, each with its own causal factors.

**Types and Causes of Plateauing**

One of the more important works on career plateauing, entitled *Managerial Career Plateaus*, was written by Stoner, Ference, Warren, and Christensen in 1980. It details an exploratory study the authors conducted in 1972 and 1973 and contains many points which are germane to the present research. These authors defined different ways of being plateaued.

"Some persons are organizationally plateaued because they have the ability to perform well in higher level jobs but are unlikely to be promoted because of a lack of openings; Some persons are personally plateaued because they are judged to lack the ability needed for


higher level jobs, or they are seen as not desiring higher level jobs.  

Near added a third type of plateauing -- cultural.  

This type of plateauing results from cultural changes such as the decline of the Protestant work ethic, dual career families, and decreased commitment to work. In addition, Dawson distinguished between the content plateau and the structural or organizational plateau. The former refers to a static situation within the job itself that proscribes changes in duties, knowledge, and skills. The latter refers to a lack of movement within (or, more specifically, up) the structural layers of the organization. The individual is plateaued because of the inflexible structure of the organization, not because of poor performance or inadequate talent.  

It is the organizational or structural plateau which is of interest to this particular project.  

"Everyone reaches the career plateau at some point, even the chairman of the board ... The reason this occurs is fundamental to the hierarchical approach to organizing; as long as most organizations look like pyramids, the  

61 Ibid., p.39.  


funnel effect on opportunities for advancement will mean that not everyone can reach the top, or even the levels immediately below it. 64

The federal government is traditionally and typically hierarchical in overall structure and in department or agency structure. Its basic form is pyramidal. In addition, the government has certain job categories which lend themselves easily to the creation of organizational plateaus. These job categories are designed so that once workers reach their "journeyman" or "full performance" level (usually at the GS 12 grade) it is almost mandatory that they move to a different career ladder in order to be promoted. In other words, their ladder is truncated and does not reach the top of the pyramid.

However, workers in these job categories, because of the nature of the particular organization or of governmental personnel policies, move from the bottom to the top of their truncated ladder very quickly. Thereafter, their chances of attaining higher status are minimal. They must either remain at their "journeyman" level indefinitely or attempt to transfer to a different career ladder which is beginning to narrow, but not quite so rapidly, at their grade level. Members of two of these job categories (scientists and

Plateauing Typology

In addition to their definitional contribution, Stoner, et.al. developed a conceptual model of plateaued persons. Their model is presented below:

<table>
<thead>
<tr>
<th>Current Performance</th>
<th>Likelihood of Future Promotion</th>
<th>Low</th>
<th>High</th>
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<tbody>
<tr>
<td>High</td>
<td>Solid Citizens</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(effective: plateauees)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Deadwood</td>
<td></td>
<td>Learners</td>
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<td></td>
<td>(ineffective: comers)</td>
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</tr>
<tr>
<td></td>
<td>(ineffective: plateauees)</td>
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</tbody>
</table>

The authors described the individuals within their model as follows:

*Learners or comers*—individuals who are seen as having high potential for advancement but who are presently performing below standard. The most obvious examples are trainees who are still 'learning the ropes.' Also included would be longer service managers who have recently been promoted to new positions which they have not yet mastered.

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**Stars**—individuals presently doing outstanding work and viewed as having high potential for continued advancement. These are the people on the 'high potential,' 'fast track' career paths. They are a readily identifiable group in most organizations, and they probably receive the most attention in developmental programs, managerial discussions, and so on.

**Solid Citizens**—individuals whose present performance is rated satisfactory to outstanding but who are seen as having little chance for future advancement. These individuals are, perhaps, the largest group in most organizations and perform the bulk of organizational work; little by way of management effort or research has been focused on them.

**Deadwood**—individuals who are seen as having little potential for advancement and whose performance has fallen to an unsatisfactory level. These people have become problems, whether for reasons of motivation, ability, or personal difficulty. Hopefully, a small group in most organizations, they are often the recipients of considerable attention, either for rehabilitation or for removal.\(^6\)

One of the conclusions of Stoner, et. al. is that "solid citizens" are effectively performing members of the organization while "deadwood" are not. Two of the major reasons why this typology is important to the present research project are (1) many subsequent authors and researchers have used the typology as a basis for their work and (2) one of the main purposes of the present study was to seek personnel policy prescriptions from the research

\(^6\)Ibid., pp. 19-20.
subjects in an attempt to prevent these plateauees from
moving from the "solid citizen" to the "deadwood" category.

The above mentioned authors stated,

"...there is considerable technology in place
for dealing with managers in three of the
categories, but very little for dealing with
managers in the fourth. There are training
programs for learners, development programs
for stars, and rehabilitation programs for
deadwood. Ironically, the largest group, the
effective solid citizens, are most frequently
left to fend for themselves."67

It is the hope of this researcher that some of the
personnel policy prescriptions elicited from the research
subjects will serve to remedy this situation.

Effects of Plateauing

There is another point that Stoner, et.al. make that is
echoed by other writers. "Plateauing is not inherently a
problem-creating situation; it is the normal result of
organizational staffing processes..."68

In 1981, Viega looked at various aspects of plateauing
and tested for differing attitudes and behaviors between
plateaued and non-plateaued workers. He, too, found that
some people plateau effectively, while others do not.69

67Ibid., p. 21.
68Ibid., p. 10.
In addition, Bardwick (along with most other authors on the subject) has pointed that all workers plateau at some point in their career — that the typical pyramidal shape of the organization prevents a continuous upward climb for all members of the organization. In other words, plateauing is a fact of organizational life, and should not be viewed as a personal failure.\(^7^0\)

Although Near found that there were significant differences between plateaued and non-plateaued managers (such as level of aspiration, level of education, state of health, type of relationship with their supervisors), she also found that they did not differ significantly with regard to job satisfaction and motivation nor reported life satisfaction.\(^7^1\)

Although other works could be mentioned here to underscore the point that there is inconsistency in the findings of studies on plateauing regarding the effects it has on workers, the above mentioned will suffice. These works inform the first stated purpose of this study, i.e., to develop a better understanding of career plateauing and the effect it has on persons who find themselves to be

\(^7^0\)Bardwick, Judith, The Plateauing Trap: How to Avoid it in Your Career ... and In Your Life, AMACOM, New York, 1986.

plateaued. The mixed results of these studies lead directly to the main questions of this study, "Does the plateauing which the research subjects are now experiencing affect them? If so, how?"

In 1981, Viega published the results of a study which compared the career patterns and attitudes of 1,243 plateaued and non-plateaued managers. Some of his findings hold import for the present research. For example, he found that "non-plateaued managers expressed the greatest confidence in their marketability ... such confidence is bolstered by continued career movement."72 He further found that "on the surface, the job satisfaction data suggest that plateauers ... appear to have adjusted effectively to their career status."73 These two findings seem to be confirmed by the findings of this research project.

In a recent (1986) empirical investigation of public program managers, Sylvia and Sylvia used a ten factor forced distribution Q-sort technique to measure reactions to plateauing. Although their questionnaire return rate was quite low (approximately one out of six), they did discover that, although the respondents realized that their fields did not offer much opportunity for advancement, "their reactions

73 Ibid., p. 576.
to this reality were mixed."\textsuperscript{74} Although some plateaued workers were negatively affected by their status, "others were either satisfied with their advancement or found other sources of gratification in existing work structures."\textsuperscript{75}

An interesting and somewhat surprising finding was presented in the report of a study conducted by Slocum, Cron, Hansen, and Rawlings in 1985. Their subjects were salespersons. They found that the plateaued persons were more satisfied with their immediate supervisors than non-plateaued salespeople. The authors speculated that this was because the plateauees had lower aspirations for promotion, had redefined their roles within their companies, and thus, were more satisfied with their present status.\textsuperscript{76}

In the research findings presented in his dissertation, Pelletier found that "neither career status nor level of aspiration affected managers' levels of job satisfaction, job involvement, or job performance."\textsuperscript{77} Nehrbass reported in his

\textsuperscript{74}\textit{Op.cit.}, Sylvia and Sylvia, p. 228.

\textsuperscript{75}\textit{Ibid.}, p.240.


\textsuperscript{77}Pelletier, Dennis, "Relationship of Career Plateau to Occupational Aspirations, Attitudes and Performance," (dissertation) 1983, p. 94.
dissertation that "recognizing that one is plateaued does not lead to a drastic reduction in job satisfaction or higher alienation." He further found that the accuracy of perception the worker holds regarding his plateaued status is important in relation to his job satisfaction. Workers who are plateaued and know it, workers who are not plateaued and know it, and workers who are not plateaued and do not know it do not seem to experience job dissatisfaction. However, workers who are not plateaued but perceive themselves to be so evidence job dissatisfaction which, at times, affects job performance. These findings may be explanatory regarding the present research. In other words, the relatively minimal amount of job dissatisfaction discovered in the research project may have some correlation to correct perceptions of the research subjects.

Plateauing in the Public Sector

The interest in plateauing in the public sector is relatively new. However, a few researchers have turned their attention in that direction. Sylvia and Sylvia (mentioned above) surveyed public program managers. They determined that their attitudes toward limited promotion potential in their fields were mixed. Rich examined the careers of 226


New York City Managerial Pay Plan workers. He concluded that horizontal mobility among agencies, divisions, or other units produced better managers, and thus, better bureaucratic leadership.\textsuperscript{80} Katz looked at two municipal, one county, and one state government in determining that job longevity does play an important role in the job satisfaction of the worker.\textsuperscript{81} Wolf discussed strategies for coping with plateauing among public sector managers,\textsuperscript{82} and Wolf, Neves, Greenough, and Benton examined public welfare agencies to discover the effects of demographic trends on, among other things, plateauing and promotional opportunities.\textsuperscript{83}

These articles indicate the growing interest in the phenomena of plateauing in the public sector. They also speak to the need for more research to be conducted in relation to plateauing and governmental entities.

\textbf{Prescriptive Literature}

Representative of the many works which offer prescriptions


\textsuperscript{81}Katz, Ralph, "Job Longevity as a Situational Factor in Job Satisfaction," \textit{Administrative Science Quarterly}, Vol. 23, July, 1978, pp. 204-223.


\textsuperscript{83}\textit{Op.cit.}, Wolf, et.al.
or recommendations for coping with plateauing are those of Stoner, et.al.\textsuperscript{84}, Bardwick\textsuperscript{85}, and Carnazza, Korman, Ference, and Stoner\textsuperscript{86}. These authors and others have suggested such measures, from the personal perspective, "as making the present job grow and growing with it, ... seeking internal transfer, ... building an image which justifies the job ... and building an outlet for the energies, enthusiasm, and need for gratification not being provided by the job ...", such as hobbies or other outside interests.\textsuperscript{87}

Bardwick urged the plateaued worker to look inward to cope with the plateauing phenomenon. For example, she suggested that one realize that all workers will eventually plateau and drop the belief in the cultural norm that holds that personal success or worth is measured by organizational position. She further made such recommendations regarding changes in attitude and behavior as "know the facts about ... plateauing ... and the emotional responses it brings, ... act to change your own commitments, goals, and values through new

\textsuperscript{84}Op.cit., Stoner, et.al.


behaviors, ... model being a satisfied, committed person, ... motivate yourself, ... create new ambitions, ... let go of past habits, ... be patient ..."88

The list of organizational strategies for coping with plateaued workers is long. Carnazza, et. al. found that "job quality" was the most important factor associated with effective plateaued workers. Their prescriptions evolve around an attempt on the part of the organization and management to provide jobs which are challenging, satisfying, and vital to the organization to mediate any negative effects of plateauing. They further found that

"to the extent an organization has effective programs that provide clear objectives, ensures that performance feedback is actually perceived, and makes the criteria of performance unambiguous, it can expect to influence the performance of its plateaued managers in a positive direction."89

Bardwick offered the following:

"1. Change the organization's climate through education.
2. Create an equitable personnel policy that ensures due process.
3. Change the structure of the organization.
4. Reduce the importance of promotion and increase the value of challenge.
5. Increase respect for plateaued people who are productive solid citizens.
6. Convey the organization's regard for employees who are individuals."90


There have also been suggestions made which suggest steps the organization itself can take. These steps would require adjustments within the organizational structure. They include such tactics as changes in organizational strategy; new configurations of centralization/decentralization, specialization, formalization, size, shape, information sharing; and a rethinking of such concepts as responsibility, power, decision making, and autonomy within the organization.\footnote{Op.cit., Bardwick. \ Op.cit., Slocum, et.al. \ Op.cit., Wright. \ Mullan and Gorman, "Facilitating Adaptation to Change: A Case Study in Middle-Aged and Older Workers at Aer Lingus", \textit{Industrial Gerontology}, Fall, 1972, pp. 20-39.}
OTHER RELEVANT LITERATURE

In an article on age-related differences in work attitudes and behavior, Rhodes, after an exhaustive literature search, compared findings of research on age and work satisfaction. The overwhelming evidence and conclusions from the studies found a positive correlation between age and job satisfaction. Rhodes' work confirms some of the findings of the present research -- that overall job satisfaction seems to increase with age despite career plateauing. In other words, plateauing was found to be of less concern to the oldest group within this research project.

Echoing Rhodes' findings were those of Gibson and Klein. These authors found, by administering 100-item attitude questionnaires to 2067 workers from two firms and by using analysis of variance to treat the gathered data, that "significant positive relationships exist between age and overall satisfaction ..." They further found, however, that "significant negative relationships exist between tenure [length of service] and overall satisfaction ..." This


95 Ibid., p. 418.
negative linear trend was apparent through the twelfth year of service and then it leveled out, causing the authors to hypothesize that (1) "a floor effect" occurs which holds that there are limits to the reduction of satisfaction, or (2) people adjust to a negative situation to bring their cognitions into line. These findings seem to concur with the findings of the present research in that the younger, longer-tenured research group expressed more dissatisfaction than did the older, longer-tenured group.

In 1980, Katz, using a sample of 3,085 municipal, county, and state government employees found that "job longevity [i.e., plateauing] moderated the relationship between task dimensions and job satisfaction ..."96 He found that after the third year on a job, correlations between task dimensions and job satisfaction became progressively weaker. A similar finding seemed to be emerging in the present study. Performing a variety of tasks was mentioned as significant to many of the research subjects. Fortunately, the respondents from all three research sites were in positions which, for the most part, afforded the opportunity to perform different tasks within their present work settings, thus, minimizing the effects of their plateaued status.

A final article which is useful to the present study is one written by Bateman and Organ concerning good citizenship within the context of the organization. They define organizational citizenship as behavior which is "above and beyond" specific task assignment, such as helping co-workers, promoting a positive work climate, minimizing complaints, and so forth. The authors found that promotional opportunities and supervision were more important than other factors which they tested (work, pay, co-workers) in producing citizenship behaviors. Since promotional opportunity is not available to the plateauees, considerate or supportive supervision, including recognition and non-promotional rewards, seems to hold promise for producing Stoner's "solid citizens" within the ranks of plateaued workers. Again, this theme appeared to be borne out in the present research project.97

SUMMARY

The first area of discussion was that of a definitional concept of careers and centered around the distinction between the internal and the external career. This area is relevant to the present study for three reasons: (1) in

order to understand a particular aspect of a problem (plateauing) it is important to have an understanding of the wider area in which that problem occurs (careers), (2) the methodology employed was designed to probe the perceptions, thinking, and attitudes of the research subjects in order to develop suggestions which will assist in negating the effects of plateauing, and (3) the suggestions which will be offered will be aimed not only at the individual (and his internal career) but also at the organization (and the external career).

Next, the literature on career stages was presented. This literature not only delimits the time when plateauing is most likely to be an overwhelming problem, but it also offers possible explanations for the minimal reactions to plateauing discovered in this research project. By understanding career stages and their accompanying developmental tasks (as well as the approximate ages of the persons at each stage) it may be possible to pinpoint those persons most likely to experience adverse effects of plateauing and to focus the developed prescriptions at those particular age/stage groups within the workforce. It may be further possible to refine the prescriptions so that they are "tailored" to particular age/stage groups.
Career anchors was the next area of discussion. The literature on this concept holds explanations for the reasons why plateauing did not present itself as an overwhelming problem for the majority of subjects within this particular study group. It is quite possible that if a person's career anchor is identified it can be predicted how much of a problem (if any) the plateauing phenomenon will be for him.

The chapter continued with a detailed explanation of career plateauing. The particular works chosen for discussion hold import for this research project for a number of reasons. They give a thorough explanation of career plateauing and the different types of plateauing along with the causal factors associated with each type. It was pointed out that, although there are numerous types of plateauing, this research project is concerned with the structural or organizational plateau.

Stoner, et. al.'s typology of plateauees is important because it is the basis of a number of other studies and because this research project is concerned with maintaining the "solid citizen" as a productive, effective, satisfied member of the organization. The prescriptions sought from the research subjects were sought to further this end.

A selection of works reporting some of the previously observed and researched effects of plateauing were also
discussed. These studies are necessary so that the reader will know that the empirical research to-date has produced mixed results, e.g., although plateauing is often thought of as a "bad" it can, in fact, be "neutral" when assessed from the point of view of the workers it affects.

The next group of works were discussed because they are either among the more important works concerning career plateauing or because they are important in understanding the findings of this research project. They either serve as baseline studies which other authors have used when conducting additional research in the area or they offer potential explanations for the results of the present research.

A group of works was discussed which focus on plateauing in the public sector. Although public sector plateauing has not had the attention it deserves, these works show that there has been some concern and research focused on that arena.

Literature offering prescriptions to cope with the adverse effects of career plateauing was examined. This literature will prove to be important when this researcher offers personnel policy prescriptions or recommendations based on the data gathered from the research subjects. These recommendations will be the result of a reflexive process to
be undertaken which will move among suggestions made by the subjects, previously proffered recommendations by writers, and prescriptions which are deemed viable by public personnel managers or personnel policy makers.

Finally, other relevant literature was discussed because the particular works chosen may aid in the understanding of some of the findings of this research project. For example, such things as age or tenure have been found to either mitigate or exacerbate the effects of plateauing.

In sum, once plateauing along with its causes and effects is understood, it is hoped that the time (stage) in a person's career when plateauing has the potential to become a disturbing problem can be identified. Those persons more likely to be affected by plateauing can be isolated through the understanding of the concepts of career anchors. Finally, prescriptions which are aimed at both internal and external career constructs can be offered to minimize the effects of plateauing.
CHAPTER III

METHODOLOGY

The purpose of this study is to gain an understanding of structural career plateauing from the frame of reference of professional/technical specialists in the federal government who find themselves plateaued. The basic methodology employed is a qualitative, descriptive survey. Denzin states that the qualitative research method "demands a commitment to enter actively the worlds of those studied...". Lofland suggests that the four essential elements in the collection of qualitative data are a "commitment to get close, to be factual, descriptive, and quotive."  

STUDY DESIGN

Since the purpose of the study is to gain an understanding of career plateauing from the viewpoint of those affected by the phenomenon, the researcher was


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particularly interested in determining what affect, if any, plateauing had on the attitudes, behaviors, thinking, and future plans of persons who had become plateaued. A special point of focus was whether or not plateauing grows in importance and effect over time as it is experienced by plateauees. Another purpose was to elicit personnel policy prescriptions from the research subjects. The basic approach used was fieldwork in the form of in-depth interviews, or more appropriately, dialogues.

These interviews or dialogues were "focused"\textsuperscript{100} in that they were designed to probe the meaning of "work" as it is perceived by the research subjects. However, to avoid any direction of the conversation (or "implantation" of ideas) on the part of the researcher, questions, as such, were not asked until the final portion of the dialogue. Thus, the information gained was truly "grounded" in the life-world of the interviewees.\textsuperscript{101}

The sample was made up of thirty-five scientists and engineers. These professional/technical people were chosen because they belonged to job categories within the federal government which lend themselves easily to structural

\textsuperscript{100}Op.cit., Denzin.

plateauing. Employees within these job categories find that they move very quickly to the "journeyman" level but that their chances of realizing the same rapid, or in many cases any, ascent up the hierarchical ladder are minimal.

The reason for choosing thirty-five subjects was twofold: (1) to attempt to collect and analyze data from a larger number of subjects would have been too time consuming given the amount of information which was sought from each person interviewed and the time needed to obtain and analyze the data, and (2) given what is already known about career plateauing, it was believed that "saturation" would occur after approximately this number of interviews. "Saturation" is a concept discussed by Glazer and Strauss and refers to that point in data collection where "nothing new" emerges.\textsuperscript{102} This, in fact, did occur.

The sample of thirty-five was divided into five subgroups of seven members each. This division was done so that a comparison could be made between groups. The first four groups contained plateauees of varying ages who had been plateaued for different lengths of time. This comparison was necessary so that it could be determined if there was a difference between younger and older plateauees as well as between persons who had been plateaued a relatively short

\textsuperscript{102}Ibid.
period of time and those who had been plateaued a longer period of time.

The fifth group was made of persons who were not plateaued. (By definition, these persons were of various ages, had been promoted past the journeyman level, and had been in their present positions for less than five years.) Their inclusion in the study served to have (to use the term very loosely) a "control" group or a group with which to compare all other groups. This group was used to determine if there was a significant difference between plateaued and non-plateaued workers with regard to perceptions, attitudes, satisfaction, expectations, and so forth. Also, their inclusion served to expand the generalizability of the research findings.

A description of each group follows:

GROUP A -- 7 subjects, 35 years of age or younger who had been at the GS 12 level between 5 and 7 years

GROUP B -- 7 subjects, over 35 years of age who had been at the GS 12 level between 5 and 7 years

GROUP C -- 7 subjects, 40 years of age or younger who had been at the GS 12 level between 10 and 12 years

GROUP D -- 7 subjects, over 40 years of age who had been at the GS 12 level between 10 and 12 years

GROUP E -- 7 subjects, of any age who held a rank above the GS 12 level (i.e., GS or GM 13, 14, or 15) who had held their positions for less than 5 years
The matrix developed is presented below:

<table>
<thead>
<tr>
<th>GROUP</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>AGE</td>
<td>35 and under</td>
<td>Over</td>
<td>40 and under</td>
<td>Over</td>
<td>Any</td>
</tr>
<tr>
<td>TIME-IN-</td>
<td>5 - 7</td>
<td>5 - 7</td>
<td>10 - 12</td>
<td>10 - 12</td>
<td>Under 5</td>
</tr>
<tr>
<td>GRADE</td>
<td>years</td>
<td>years</td>
<td>years</td>
<td>years</td>
<td>years</td>
</tr>
</tbody>
</table>

**SAMPLE SELECTION**

The sample of the thirty-five scientists and engineers was purposive in that the sites from which the sample was drawn were selected because of their accessibility and ease of entrée to the interviewer, and the subjects were picked based on their "fit" into the previously developed matrix. The sample was also a volunteer sample in that each person participated only if he desired to do so.

The subjects were drawn from two federal government agencies -- the United States Geological Survey, a bureau of the Department of the Interior (DOI) which is headquartered in Reston, VA and from two (Dahlgren, VA and White Oak, MD) of the six sites of the Naval Surface Weapons Center (NSWC),
a Naval Research Laboratory. Twelve hydrologists (Series 1355) from the Geological Survey and twenty-three engineers (both electronic--Series 0855 and mechanical--Series 0830) from NSWC were interviewed. Ten of the NSWC engineers were employed at White Oak, and thirteen were employed at Dahlgren.

Because of the restrictions of the Privacy Act,¹⁰³ the researcher was not able to examine personnel records. Rather, personnel departments at the agencies were given copies of the matrix and conducted computer runs by age, grade, and time-in-grade which produced lists of eligible candidates. The eligibles were contacted so that the nature of the project could be explained to them and so that their participation could be elicited. The names of those who volunteered to be research subjects were given to the researcher.¹⁰⁴

¹⁰³ 5 U.S.C. § 552a(b) provides, in part:

No agency shall disclose any record which is contained in a system of records by any means of communication to any person, or to another agency, except pursuant to a written request by, or with the prior written consent of, the individual to whom the record pertains.

¹⁰⁴ The persons contacting the research subjects were instructed to state merely that a graduate student was conducting dissertation research relating to scientists and engineers employed by the federal government. Such words as career, promotion, and plateau were purposely not used in eliciting the co-operation of research subjects.
There was no attempt made to control the mix within the cells of the matrix according to work sites. Once seven volunteers were identified for each matrix cell, those seven were the ones interviewed, and no others were sought. All of the subjects were male. This occurred purely by chance as females would have been interviewed had their names appeared on the computer lists. The subjects ranged in age from 32 to 63 years.

DATA COLLECTION

The Interview

Due to the degree to which the researcher had to interact with the subjects, an interview process was chosen. The interview took place at or near the person's work site. Extensive field notes were taken, and the interviews were tape recorded.

The interview began with an explanation to the subject about the nature of the project (dissertation research), and the subject was given a pledge of confidentiality or privacy. The subject was told that all data would be presented in aggregate form so that there would be no possibility of attribution of information to a particular source.

Each interviewee was then asked if he had any questions of the researcher. Frequently the subject asked how he had
been chosen to participate in the project, and he was satisfied with the explanation that his name had come from a computer list which had generated names of candidates meeting the age, grade, and time-in-grade criteria of the matrix. As a group and individually, the subjects were interested in participating in the project and were extremely thoughtful, open and forthcoming during the interview. Once everything was clear to the subject, the researcher began the interview or dialogue technique.

The first step process was the recording of demographic/biographic data, i.e., name, age, grade, time-in-grade, title or position, occupational series, agency, and work location.

The data gathering portion of the interview can best be described as a four step procedure. These four steps have been labelled "Important Aspects", "If I Were King", "Expectations", and "Promotion." These titles are no more than devices to facilitate references to each of the data gathering areas of the interview.

The "Important Aspects" step of the data gathering process was a structured exercise called Gestalt Role Strip. The initial step in this exercise is a "warm-up"
procedure in which the subject is asked to attain a state of deep reflection through the creation of a fantasy in his mind. The purpose of this fantasy creation is to get to a psychological level of thinking which is beneath the level of social role -- thus the name "role strip." In these interviews, the subject is asked to choose any animal he wishes and to imagine himself as that animal. After a short period of reflection, he is asked to discuss his animal fantasy with the researcher.

Once this state of deep reflection is reached, the subject is given five index cards and asked to write on the first card (in a word, phrase, or short sentence) that aspect of his job which is most important to him and to write the number "1" on the back of the card. On the next card he is asked to write the second most important aspect of his job and the number "2", and so forth through the five cards.

The subject is instructed to set aside one card at a time and asked to imagine what his job would be like if that aspect were to be taken away from him. He is then told to retrieve the cards, one at a time, without having had the

Therapy, Delta, New York, 1951 and Perls, Frederick, Ego, Hunger, and Aggression, Random House, New York, 1969. It is a technique used in individual and group sessions for the purpose of eliciting information without asking questions which would direct the interviewees' attention to a particular subject. It also enables the subjects to attain a deeper state of reflection.
aspects psychologically returned to him, and to place the cards on the desk, ranking each card in relation to the others. This time the rank ordering is written on the front of the cards. Some subjects changed their original ranking. Most did not. The subject is then instructed to pick up the cards, one at a time again, and to experience the aspect of the job written on the card as being psychologically returned to him and to reflect on what that means to him.

Subsequent to the final ordering a dialogue takes place in which the subject explains in detail the meaning of what he has written on the cards and why that particular aspect is important to him. This researcher took notes at that time to capture the meaning the subject gave to each aspect.

It was from these notes that the information written on the Contact Summary Sheet was taken. A contact summary sheet was constructed after each interview. According to Miles and Huberman, "A contact summary sheet is a single sheet containing a series of focused or summarizing questions about a particular field contact."

The next phase of the interview process involved a

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Gestalt technique called "If I Were King." The subject was asked, "If you were King, what three things would you do concerning your job?" Again, detailed notes were taken, and the information from the notes was transferred to the contact summary sheet.

In the third step, "Expectations", two non-directed questions were posed to the interviewee -- "Where do you see yourself in five years?" and "Where do you see yourself in ten years?" The notes taken during this portion of the conversation, too, were used as a basis for information written on the contact summary sheet.

In each of the above steps, the subject had the opportunity to address the issues of plateauing, promotion, lack of promotion, and career progress. However, if those issues were brought out, which they were in some instances and not in others, they came from the subject himself, not from the interviewer. This is in keeping with an idea basic to Gestalt Theory, i.e., that what holds meaning for a person will be "figure," and, therefore, will be in the foreground of his thoughts and will be discussed.108


108 Ibid.
In the final portion of the interview process, "Promotion," the attention of the subject was directed toward job advancement, and thus, career plateauing was overtly addressed. In this section the following structured questions were asked:

1. "When you think about where you are in your career, how do you think about it?"

2. "Is it important to you to be promoted?"

3. "Is important to you to perform different tasks, meaning a variety of tasks?"

4. "Is it important to you to be given more responsibility?"

5. "Is it important to you to supervise others?"

6. "Is it important to you to have your work recognized?"

In most instances, the yes/no answer was followed by a qualifier or an explanation which was noted.

The final question asked was:

7. "Is there anything you would like to add to what you have already discussed in this interview?"

The first question contained the word "career" in an attempt to broaden the interviewees' focus from the previously discussed "work" or "job." The question was designed to be as open-ended as possible so the answer would be "grounded" in the subject and not be formed by the words of the question itself.
The next five questions dealt directly with promotion or aspects of work in which one might expect to see changes if a promotion occurred. Questions #3–#6, however, served another purpose. They probed areas which (1) might be adjusted within the present job if a promotion did not occur or (2) which might mitigate negative effects of non-promotion. These questions were based on what seemed to be the most salient points regarding plateauing after an extensive literature review.

Question #7 was designed to enable the interviewee to address anything on his mind which had not been discussed in the preceding portions of the interview. In most instances, the subject answered this question by going back to one or more points he wished to clarify and/or to summarize what he had previously said.

These questions also served to bring the subject back up to the level of social role and as a validity cross check between the two levels on which the interview was conducted. Again, comprehensive notes were taken and transcribed in abbreviated form to the summary sheet.

Overall, the interviews lasted about one to one and one-half hours.
DATA ANALYSIS

Coding

The initial and most time consuming step of the data manipulation was the coding process. In order to ensure that any emergent theory be grounded in the data, no pre-selected categories had been given to the interviewees in the first three sections of the interview. In order to analyze the data, and in order to make comparisons across groups, however, the data had to be categorized. This categorization was accomplished through the use of a multi-step coding process. "Coding is not just something one does to 'get the data ready' for analysis...it is a form of continuing analysis..."

During the first step, each response from each interviewee from each of the four sections of the interview proper was placed on an index card. There were 175 cards (5 responses X 35 respondents) from the "Important Aspects" section. There were 105 cards (3 responses X 35 respondents) from the "If I Were King" portion. The "Expectations" component yielded 70 cards (2 responses X 35 respondents). Finally, the "Promotions" questions (6 responses X 35 respondents).

\[109\text{Op.cit., Glazer and Strauss.}\]

\[110\text{Ibid.}\]

\[111\text{Op.cit., Miles and Huberman, p. 63.}\]
respondents) were placed on 210 cards. The total number of cards to be coded was 660. The last question, dealing with any additional comments the subjects might have, was not coded. This information was captured by the researcher's note-taking.

Two coders, two "experts", and the researcher did the initial coding. Coders were chosen for their lack of familiarity with the subject matter to reduce the chance of preconception influencing their categorization. An unstructured Q-sort procedure was followed as each coder, working independently, was instructed to sort the cards from each section of the interview for each group of interviewees. For example, each coder sorted all of the responses for the "Important Aspects" section for Group A and then for Group B and for Group C, and so forth.

The coders were instructed to sort the cards into as many categories as they saw fit, grouping like responses together. Each coder was then asked to name each category, explain what that category meant to him, and explain the

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112 The responses placed on the cards were taken from the contact summary sheets, and thus, were an abbreviated version of the full answer of the interviewee.

rationale for his groupings. Each subsequent section was sorted by group.

Each "expert" was instructed to follow the same procedure. Unlike coders, "experts" were chosen on the basis of their familiarity with the subject matter. The decision to use both coders and experts was made to control for coder bias, to test for clarity of instruction regarding the coding process, and to check for reliability of the data generated through the coding. Finally, the researcher followed the same unstructured Q-sort procedure and developed a fifth set of categories. In addition, the researcher recorded the names given to each category by each of the five sorters, the explanation for each category, the rationale behind the creation of each category, and the names of the subjects whose responses were placed in each category by each sorter.

During the next step of the coding process, the researcher compared the five lists and from these developed twelve categories for the "Important Aspects" portion of the interview. The twelve categories emerged from the names of the categories, explanations and rationales of the five sorters. Twelve was the least number of categories that could be constructed and still capture each answer of all 35 interviewees. The final categories also represent the
optimum combination and/or collapsing of the categories chosen during the original five person unstructured Q-sort.

**Categories**

The final categories for the "Important Aspects" section as well as a brief explanation of their meanings and contents follows:

1. **Pay** — related to salary only and was discussed mainly in terms of necessity, adequacy, and equity

2. **Security** — meant to most "job security" in that there would always be a job; was often mentioned in comparison to insecurity in the private sector

3. **Location** — the two concepts under this heading are (1) location, meaning the geographic area of the country or state and (2) location, meaning proximity to home, and thus, a short commute

4. **Making a contribution** — doing something worthwhile or important for country, agency, specific project, or other people

5. **Freedom** — relative lack of constraints as to time, how to best do technical work, what projects to work on; lack of over-supervision

6. **Relationships** — encompassed liking and getting along well with co-workers and supervisors; friendships; knowing people in other agencies, countries with similar interests

7. **Environment** — both internal and external, i.e., external meaning geographic area and internal meaning physical space, equipment (much like organizational climate)

8. **Professional Growth** — learning, keeping up with the state of the art, improving personal knowledge through practice and training, maturing in job
9. Organizational Movement -- advancement in the organization; in here fell the comments about promotion

10. Fringe Benefits -- whole compensation package, i.e., medical, leave, etc.; retirement was especially important; travel associated with work was considered a "perk" or a fringe benefit

11. Work Content -- satisfaction with doing the job which was being done; found the work interesting and challenging; liked practicing their craft

12. Recognition -- meant status and prestige of being an engineer; having their talent or hard work recognized by co-workers, supervisors; rewards and awards for work well done

Seven categories emerged from the data in the "If I Were King" portion of the interview. They are as follows:

1. Improve working environment (office and lab space, equipment)

2. Improve management process

3. Remove constraints that interfere with technical work (outside rules, internal and external political processes)

4. Improve processes for dealing with peripheral concerns (supplies, travel, paper work) or provide clerical assistance

5. Increase pay or make comparable to the private sector

6. Improve promotion process

7. Implement equitable distribution of work, responsibility, and rewards

The data for the "Expectations" portion of the interview fell naturally along a seven-step continuum from remaining
with the agency to leaving the agency. The continuum depicts the imposition of conditions by the subjects and is as follows:

1. Remain, no conditions
2. Remain with new duties
3. Remain with new duties and a promotion
4. Unsure
5. Leave if no promotion
6. Leave, no conditions
7. Retire

In the final section of the interview, "Promotion", the three point continua which emerged for each question were quite apparent. In answering the question, "When you think about where you are in your career, how do you think about it?", the respondents talked about satisfaction. Therefore, the answers were categorized as:

1. Dissatisfied
2. Satisfied
3. Very satisfied

In responding to the questions regarding the importance of promotion, task variety, responsibility, supervision, and recognition, the subjects constructed their answers around
degree of importance. Therefore, the following categories were chosen:

1. Not very important
2. Important
3. Very important

Once the collapsing of categories was completed and the final categories were decided upon, the researcher, cognizant of the thinking of the other four coders in the development of the categories, resorted all the cards using a structured Q-sort procedure.114

The final step in the coding process was a check for clarity of instruction and correctness of coding. This was done by determining the percentage of inter-rater agreement.115 The original two coders were instructed to check the researcher's final coding to determine the number of times they agreed (or disagreed) with the researcher. The formula for inter-rater agreement is:

\[
\frac{\text{The sum of agreements}}{\text{The sum of agreements + disagreements}} \times 100
\]

114Ibid.

If inter-rater agreement equals 70% or higher, confidence can be placed in the correctness of the coding. Thus, inter-rater agreement speaks to reliability in analysis of the data.  

Inter-rater agreement for the "Important Aspects" section was 85.6%. For the "If I Were King" portion of the interview, it was 87.6%. For the "Expectations" area, it was 77.1%, and for the "Promotion" questions, it was 87.1%. No further coding or re-sorting was indicated.

Data Display

The data was arrayed in tabular form for ease of analysis. Two sets of tables were constructed for each portion of the interview process. The data which emerged during the "Important Aspects" portion of the interview was displayed in aggregate form (meaning an aggregate of the entire sample) on one table which contained the headings "Category," "Frequency," and "Percent." The second table separated the data into group responses so that a frequency analysis across groups could be made. This table took the form of a horizontal bar graph. The information from the remaining three sections of the interview process were was conducive to the same type of display. The "If I Were King"

\[116\text{Ibid.}\]
portion yielded one table which showed categories and aggregate responses in frequencies and percents and a horizontal tabular bar graph which showed comparative group responses. "Expectations" yielded two aggregate frequency/percent tables (one for each question posed) and two comparative group response horizontal bar graph. The information from the "Promotion" portion was arrayed on six frequency/percent tables (again, one for each question asked) and one comparative group response table in the same horizontal bar graph form. All together, fifteen tables were constructed.

The original research design called for the application of chi-squares or ANOVAS to the data. However, as the data emerged from the interviews, there were irreconcilable "0 cells" which made the application of these statistical tests impossible. Therefore, cross-tabulation of frequencies in the form of the frequency/percent tables and tabular bar graphs was determined to be the most viable treatment.\footnote{op.cit., Kerlinger.}

The use of these tables enables the reader to quickly compare the differences in frequency of mention of each category by the sample as a whole and the difference across groups within each category. Miles and Huberman state, "table construction is a creative...yet systematic task that
furthers your understanding of substance and meaning of your data base..."118

Qualitative Data/Quantitative Display

As was mentioned early in this chapter, the purpose of this study was to do a qualitative, descriptive survey of plateaued persons to gain an in-depth understanding of plateauing from the perspective of those persons. Although it was necessary to code, reduce, and display the data in a quantitative format for ease of analysis and interpretation, it is important to understand that the tables discussed above were just one form of data display and usage. The field notes and contact summary sheets were used throughout the analysis process to lend more description and clarity of meaning to the data arrayed in the charts.

It is in the field notes and summary sheets that the individual meaning given to statements made by the research subjects can be found. It is in these documents that the trends, patterns, and themes which emerged to be coded were first discovered. They offer the explanations -- the answers to the "whys" of this study. These records of actual words, with their descriptive phrases and quotations, were used not only in the analysis process but also in the remainder of the

118op.cit., Miles and Huberman, p. 211.
dissertation to give fuller meaning to the findings, conclusions, and recommendations.

Perhaps an example would best describe the way in which the qualitative data expands the quantitative. In answer to the question, "Is it important to you to be promoted?" only seven of the twenty-eight people in groups A through D answered, "Very important." This seemed surprising in light of statements in the literature on plateauing which hold that upward progression has come to be an expectation, the thwarting of which can cause serious problems for the individual as well as the organization. However, when the subjects were queried as to why promotion was not "very important" to them, almost universally they said that, should they receive a promotion, they would have to give up some of their technical duties (which they liked) in order to perform more managerial duties (which they did not like.) Thus, the qualitative explains the quantitative data.

SUMMARY

The analysis process used in this project, therefore, was a process of discussion, note-taking, summarizing, coding, re-checking, displaying, and, above all, constant cross-checking between the abbreviated quantitative displays and the fuller qualitative notes. The results of these many
forms of data gathering and analysis lend support to the claims of validity and reliability of the data and will be apparent in subsequent chapters of this study as the findings are reported.
In the preceding chapter the data gathering was described as a four step procedure, and each of the steps was labelled for ease of reference -- "Important Aspects", If I Were King", "Expectations", and "Promotion." In order to detect trends and patterns within the emergent data, data gathered during each step was categorized through the use of an elaborate coding process. The coding produced categories into which each of the responses of the interviewees could be placed.

This chapter will contain an explanation of the categories which emerged during each step of the interview or data gathering process. The categories will be discussed under headings which correspond to the labels above. Under each heading the combined responses of the entire sample will be set forth in tabular form. These tables will show aggregate frequencies and percentages. Again, under each heading, the responses will be displayed in tabular form by group, and they will be discussed by group. This second set of tables will allow for a frequency analysis across the five groups used in the sample so that a comparison of groups can be made. Thus, similarities and differences between groups
will emerge. A comparison of the answers to the questions from the focused and non-focused portions of the interview will be undertaken. Finally, a chart and a discussion of the key findings for each group as well as the entire sample will be presented.

**IMPORTANT ASPECTS**

In the first part of the interview or dialogue, each subject was asked to set forth and rank order the five aspects of his present job which he considered to be the most important. The categories into which the proffered responses were collapsed through coding are described below. The subject of plateauing was deliberately not mentioned so that, in keeping with the theoretical concept of grounded theory, all data would emerge from the subjects themselves.¹¹⁹ No predetermined topics were offered for discussion. The twelve categories which emerged in this area are set forth below in tabular form in descending order of mention. The tables contain aggregate frequencies and percentages for the entire sample.

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Content</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td>Relationships</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>Professional Growth</td>
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<td>60</td>
</tr>
<tr>
<td>Freedom</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Making Contribution</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Pay</td>
<td>15</td>
<td>43</td>
</tr>
<tr>
<td>Recognition</td>
<td>13</td>
<td>37</td>
</tr>
<tr>
<td>Organizational Movement*</td>
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</tr>
<tr>
<td>Security</td>
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<tr>
<td>Fringe Benefits</td>
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<tr>
<td>Location</td>
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<td>23</td>
</tr>
<tr>
<td>Environment</td>
<td>4</td>
<td>11</td>
</tr>
</tbody>
</table>

*(Organizational movement was the category which contained the responses relating to promotional opportunity.)*

The above chart draws an "aggregate profile" of the scientists and engineers studied during this research effort. When looking at which categories were mentioned most often as being important, it becomes apparent that promotion to a higher level with the concomitant increase in managerial
duties was not a driving force for technical specialists. Rather, their interest was in practicing their "craft." In each of the most frequently mentioned categories, personal satisfaction was derived from some aspect of the job. In the category of work content satisfaction was derived from the work itself. In the category of relationships, whether the focus was on friendships and close working relationships which provide for an enjoyable work setting or on interaction with those from whom knowledge of the subject area could be gained, the important factor was the enhancement of performance on the job. The professional growth category included such things as maturing on the job or gaining more work related knowledge. Freedom, too, meant mainly freedom within the workplace, and making a contribution focused on what one could give through his work. The overarching focus was the work itself, and special emphasis was placed on factors which enhanced the subjects' enjoyment of the work or their ability to do the work better.

EXPLANATION OF THE CATEGORIES

Work Content -- This category was the most often mentioned among the groups as a whole. Those who spoke of the importance of work content spoke of doing "interesting work," of being "challenged" on the job, of "liking the work that
they did." It was in the discussion around this topic that the "why" of a surprising lack of concern with promotion began to emerge. The GS 12's (the plateauees) were aware that, should they be promoted to the GS 13 level, the content of their work would change. They would spend more of their time on administrative and managerial tasks, and this prospect did not interest them. These people had been trained as scientists and engineers, that was their "craft," and that was what they wanted to practice. The trade-off between the scientific work at their present level and the managerial work at a higher level was well recognized. The respondents wanted to continue doing what they were doing and were willing to forego promotions, even if they were available, in order to do so.

**Relationships** -- Within this category were relationships of all types. The important relationships were with co-workers, supervisors, and people outside of the agency with whom the persons came in contact because of their work. The relationships took many forms -- pleasant working relationship, close friendships, contact with bright people from whom the subjects could learn, sharing a common interest, or opening the door to others in the same field in the agency, outside of the agency, at professional meetings or training sessions, or even from different nations.
**Professional Growth** -- This category included such things as increasing personal knowledge within the field, improving skills with hands-on experience, "maturing" on the job either technically or personally, branching into other areas, and growing in the overall knowledge and understanding of the "craft" of engineering or hydrology. "Keeping up with the state of the art" was a phrase which was often used. It was important to these subjects that their personal education and scope of knowledge continue to increase even though their formal education had been completed.

**Freedom** -- Freedom was spoken of in relation to work context -- freedom in choosing which work to do (which part of a project to work on), freedom in deciding how to work (how to solve a particular problem), freedom from over supervision, and freedom from unrealistic deadlines. It was also spoken of in relation to personal activities -- freedom in choosing work hours (flexitime) and freedom to pursue outside activities because overtime hours were not often expected of them.

**Making a contribution** -- The idea of contributing was viewed in two ways by the interviewees. The first group's responses were thematically grouped around the idea of "patriotism" --
of doing something worthwhile for the country. The subjects spoke of such things as "building safe weapon's systems," or, in the case of the scientists from USGS, "protecting and preserving the nation's rivers." They viewed their work not only as benefitting others but also as being very important. The second theme that emerged within this category was that of "mentoring." It was seen listed most frequently within the non-plateaued group, but it was important to many of the older and/or longer plateaued interviewees. Those who found pleasure in mentoring spoke of helping others through the sharing of knowledge and skills and enhancing others' work through assistance. The making of a contribution, whether helping others or doing something for the country, was viewed as serving a "higher good."

Pay -- Pay was discussed as a necessity -- as a prerequisite of any job. It was most often described as "adequate" or "fair." The general response of persons mentioning pay as an important aspect of their jobs was that they were not interested in living in high style, only in having their needs met. Frequently those who discussed pay spoke of the potential of earning more money on the "outside" (in the private sector). However, they chose to stay with the government because their perception was that the government afforded more job security than outside employers. The
assurance of a steady, adequate income was more important to them than the idea of higher pay in a riskier setting.

**Recognition** -- Many subjects spoke of recognition as an important aspect of their present job. They acknowledged that promotional opportunities were limited and looked to some form of recognition as a surrogate. There were different types of recognition mentioned -- awards or rewards (monetary or non-monetary), quality step increases (q.s.i.'s), and positive feedback from their co-workers and/or supervisors on work well done. In regard to feedback, the subjects wanted it to be true or sincere. Others felt that the recognition which they sought came from within, i.e., a personal sense of accomplishment or satisfaction in doing their work well or completing a project successfully.

**Organizational Movement** -- This category included those responses which referred to promotion, and there were few of them. The majority of those who mentioned continual hierarchical advancement within the organization were those subjects included within the non-plateaued group. The others who mentioned movement within the organization spoke of "inclusion" or becoming part of the organization, of learning its ways, of growing to fit the job they did or the position they held, or, finally, of growing into other jobs or
positions -- not necessarily at a higher level. Upward mobility was mentioned by very few of the respondents. This paucity of concern with rising above their present level within organization was the first inkling in the data gathering process that plateauing was not an overwhelming, omnipresent problem to the scientists and engineers within the research group.

**Security** -- Security meant job security in that those who mentioned it believed that employment was a "given." Those who discussed security spoke, like those who mentioned pay, of the "trade-off" between a lower salary and job security versus a high salary and uncertainty. Another point that was frequently made was that work was more enjoyable when the worker was not concerned with such things as the losing his job or procuring contracts. The security afforded the workers the opportunity to practice their "craft" exclusively. These people did not want to spend any of their time in the role of salesperson or contract procurement agent. They wanted to devote all of their time to their scientific or engineering endeavors.

**Fringe Benefits** -- Included within this category were such things as an adequate number of vacation days, a liberal sick leave policy, good health and other insurance benefits,
and, most importantly to many, a generous retirement package. The retirement benefits were often spoken of in comparison to what could be expected in the private sector. In this instance, the subjects spoke again of a trade-off between a secure future through government retirement versus a higher present earning potential in the private sector coupled with uncertainty. They viewed their present situation as "building for the future." The retirement benefits they expected to receive were seen as "delayed pay." Also mentioned as fringe benefits were things which might be called "perks" -- travel related to work, extensive training, or the opportunity to do what could be done nowhere else, such as spending lengthy periods of time aboard U.S. Naval vessels.

**Location** -- Location carried two different connotations. To some respondents, location meant "proximity to work." This proximity allowed them to decrease their commuting time to a minimum which decreased stress and afforded them more family and leisure time. To other respondents, location meant "geographic location." They spoke of liking such things as the eastern United States, a rural or an urban setting, being close to relatives, living in a pleasant community, and so forth. To both groups, working in a desirable location
enhanced their life style and improved their overall quality of life.

**Environment** -- To some research subjects the term meant internal environment, to others it meant external environment. Some subjects spoke of the importance of pleasant physical surroundings in the workplace. This meant, in different instances, sophisticated laboratory equipment, adequate working space, or comfortable offices. Those to whom the external environment was important cited the actual physical surroundings of the area. In some instances, it was difficult to decide whether the response given belonged in this category or in the category called "location." However, the coders believed that "location" had a much broader connotation that just physical environment.

**DISCUSSION OF "IMPORTANT ASPECTS"**

Table 2, depicting the data in tabular form, allows for a frequency analysis across the five groups as differences between groups regarding the most important job aspects are easily detected. Table 2 reveals which aspects emerged as the most important to each group and assists in drawing comparisons between groups.
Table 2

Comparison of Responses Identifying Category as Important by Group Members

<table>
<thead>
<tr>
<th>Category</th>
<th>Comparative Frequencies</th>
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<tbody>
<tr>
<td></td>
<td>Group A 35 &amp; under</td>
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<tr>
<td></td>
<td>plateaued 5-7 years (n=7)</td>
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<tr>
<td>Work Content</td>
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<tr>
<td>Relationships</td>
<td>2</td>
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<tr>
<td>Professional Growth</td>
<td>6</td>
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<tr>
<td>Freedom</td>
<td>7</td>
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<tr>
<td>Making Contribution</td>
<td>2</td>
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<tr>
<td>Pay</td>
<td>3</td>
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<tr>
<td>Recognition</td>
<td>5</td>
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<tr>
<td>Organizational Movement</td>
<td>2</td>
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<td>Security</td>
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<tr>
<td>Fringes</td>
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<tr>
<td>Location</td>
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<td>Environment</td>
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<td></td>
<td>Group B Over 35</td>
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<tr>
<td></td>
<td>plateaued 5-7 years (n=7)</td>
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<tr>
<td>Work Content</td>
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<tr>
<td>Relationships</td>
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<td>Professional Growth</td>
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<td>Freedom</td>
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<td>Making Contribution</td>
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<td>Pay</td>
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<td>Recognition</td>
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<tr>
<td>Organizational Movement</td>
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<td>Security</td>
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<tr>
<td>Fringes</td>
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<td>Location</td>
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<td>Environment</td>
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<td></td>
<td>Group C 40 &amp; under</td>
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<tr>
<td></td>
<td>plateaued 10-12 years (n=7)</td>
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<tr>
<td>Work Content</td>
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<tr>
<td>Relationships</td>
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<td>Professional Growth</td>
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<td>Environment</td>
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<td>Group D Over 40</td>
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<td></td>
<td>plateaued 10-12 years (n=7)</td>
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<td>Work Content</td>
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<td></td>
<td>Group E Non-plateaued</td>
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<td>years (n=7)</td>
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</tr>
<tr>
<td>Relationships</td>
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<td>Professional Growth</td>
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<td>Freedom</td>
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<td>Making Contribution</td>
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<td>Pay</td>
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<tr>
<td>Recognition</td>
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<tr>
<td>Organizational Movement</td>
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<td>Security</td>
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<tr>
<td>Fringes</td>
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<tr>
<td>Location</td>
<td>1</td>
</tr>
<tr>
<td>Environment</td>
<td>2</td>
</tr>
</tbody>
</table>
Group A -- 35 and under, plateaued 5-7 years

Group A was the youngest of the research groups and had been plateaued for the shorter period of time. The members of this group were focused on the doing what they were trained to do -- practicing their "craft." First, they wanted the freedom to use their training and skills without undue constraints. "Practicing pure science" was a term used by one of the interviewees to describe what freedom meant to him. Professional growth was another important factor and implied not only growing as a person but also growing as a scientist, i.e., increasing knowledge in the chosen field. Work content was a frequently mentioned area, and it, too, depicted an interest in the work performed. Receiving recognition for work well done was also important to this group of subjects. As stated earlier, recognition covered a variety of things, from awards to positive feedback to self-satisfaction. Although organizational movement was mentioned as important by two members of this group it was spoken of in terms of "learning the ways of the organization" or "inclusion" rather than promotion. The members of this group were focused on the work they were doing, had not yet begun to feel any dissatisfaction with their plateaued state, and were performing as "solid citizens" within the organization.
Group B -- Over 35, plateaued 5-7 years

Group B, also plateaued for a shorter period of time, was made up of older scientists and engineers. This group was strongly anchored in the work they were doing, with all seven members mentioning work content as an important aspect of their jobs. Four subjects saw professional growth as important. They spoke of such things as "keeping up with the state of the art" within their particular fields. The category of relationships emerged as an important part of work to Group B. Since these subjects were older, and thus, longer tenured, they had developed friendships and working relationships which were satisfying to them. Making a contribution also surfaced as one of the more important job aspects. Again upward organizational movement, or promotion was not sought after. The most frequent explanation was that promotion meant a shift in emphasis from a technical to a managerial role. They did not want this.

Group C -- 40 and under, plateaued 10-12 years

This group was the younger of the longer plateaued groups. Relationships, again in the sense of friendships, good working relationships, and interaction with people of similar interests from outside of their agencies were important. Work content was frequently mention by members of the group. Despite the fact they had been at the same grade
level for an extended period of time, they were satisfied because their work was interesting to them. As important as work content was the concept of freedom within the workplace. Again the theme of practicing their "craft" and doing so in their own way was evident. Pay and security were two more frequently mentioned categories. Because this group was older and longer tenured, their total time with the government was considerable. Therefore, adequate pay, job security, and time and money invested in an attractive retirement package had begun to emerge as important aspects of their work. Organizational movement was not mentioned by any of these interviewees as important. Receiving promotions was not an overarching concern.

**Group D -- Over 40, plateaued 10-12 years**

Group D, was the oldest of the study groups. Like Group B, all seven members of the group mentioned work content as an important aspect of their work. Professional growth was also important to these interviewees even though some of them were nearing the end of their careers. Again, relationships emerged as one of the more popular categories. Pay was spoken of in terms of "adequate" or "fair" or "assured", as mentioned above. These older subjects, like those in Group B spoke of family responsibilities in conjunction with their discussions of the importance of pay. Organizational
movement was mentioned by two members of this group as being important. Although they knew the chances of promotion were slim, they had not given up all hope of advancing.

**Group E -- Non-plateaued**

The subjects in this group were non-plateaued. By definition, they had been at their present grade level for less than five years, and that grade level was above a GS 12. Their ages ranged from 35 to 47. The most important aspect of their jobs was relationships. However, since the non-plateaued subjects all held managerial positions, the focus of their relationships was the people they supervised. Making a contribution was also important to them. They spoke of "mentoring" those under them and of assisting those they supervised in gaining knowledge and skills in their own particular work endeavors. Four members of this group mentioned the importance of organizational movement, i.e., the category which contained the concept of promotion. These men had passed through the "GS 12 barrier," and further movement up the hierarchy was hoped for or expected by the majority of them. **Professional growth, freedom, pay, and recognition** also were discussed frequently. They spoke of personal growth and freedom in the context of their managerial duties. The hoped for or anticipated promotions
would, for them afford higher salaries and the type of recognition they wanted.

**IF I WERE KING**

During the second phase of the interview process, the research subjects were asked, "If you were king, what three things would you do about your work?" This question was designed not only to see if the lack of promotional opportunity they were facing and the plateaued status they were experiencing would emerge as problem areas, but also to determine what aspects of their jobs they believed needed change or adjustment in order to develop personnel policy recommendations. During the coding process seven categories emerged which encompassed their responses. The categories, along with frequency and percent of response and aggregated in descending order, are set forth in Table 3.
TABLE 3
Frequency of Response to, "If you were king what three things would you do about your work?" (n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constraint Removal</td>
<td>25</td>
<td>71</td>
</tr>
<tr>
<td>Non-scientific Task Reduction</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Management Process</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>Pay Increase</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>Promotion Process</td>
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<td>34</td>
</tr>
<tr>
<td>Working Environment</td>
<td>11</td>
<td>31</td>
</tr>
<tr>
<td>Equitable Recognition</td>
<td>10</td>
<td>28</td>
</tr>
</tbody>
</table>

The above chart shows what changes were important to the subjects as a group. This phase of the interview process depicted men interested in performing their scientific duties and doing so in efficient and effective ways. They sought changes which would enhance their ability to work well. Promotion was mentioned 12 times by the 36 subjects. However, their concern with promotion had to do with the improving the selection process which would increase their chances to receive a promotion, not guarantee them one. It was not the overriding concern.
EXPLANATION OF THE CATEGORIES

Removal of Constraints -- This category contained all the responses which centered around the removal of constraints which could interfere with the technical work the subjects were performing. For example, many of the subjects spoke of "outside rules" which were imposed on them. By this they meant "rules" (i.e., policies or procedures) which were created at a level higher than the one at which they worked. These "rules" were (1) congressionally mandated and applicable to all Naval facilities or federal agencies, (2) created at the highest level of the particular organization (whether the U.S. Navy, NSWC or DOI), or (3) devised at any one of many intermediate levels within the agency which ranked above the level of the particular project on which the subjects were working. The interviewees believed that such policies and procedures, because they were not devised with their specific projects in mind, were frequently intrusive and had a negative effect on the day-to-day work. The external and internal politics and political processes which, at times, invaded the work environment were also described as offensive. A good example of perceived external hindrance were projects undertaken at the request of a member of congress or by a congressional committee. Another example were projects undertaken because of their ability to increase
overall appropriations rather than their scientific merit. Internal politics, typical office ploys such as self-aggrandizement, jockeying for position, putting personal goals ahead of project goals, back-biting, and so forth hindered the smooth functioning of projects. In sum, those who spoke of removing constraints which interfered with the technical work wished to create a pristine environment in which to practice "pure science."

**Non-scientific Task Reduction** -- Included within this category were suggestions for improving processes for dealing with tasks not directly related to scientific work. Many of the subjects expressed frustration with the processes in place for requisitioning and obtaining needed supplies and setting up travel necessary to their work. They also spoke of the time spent on what they viewed to be unnecessary or redundant paper work required by their superiors or agencies. The idea of more clerical help to lighten these burdens was frequently mentioned. The overall message emanating from this category, like the ones above and below, was that the scientist and engineers interviewed saw themselves as highly trained and skilled professionals whose time and talents were wasted when they were involved in tasks which removed them from the purely scientific arena. They did not enjoy
performing tasks which were non-scientific in nature and felt frustrated when required to do so.

**Management Process** -- Within this category fell the responses which dealt with the way projects were managed. Some subjects felt that the management processes could be improved. For example, at the NSWC sites a number of projects were directed by military officers, others by government personnel whose training was management *per se* and not science. The engineers believed that these supervisors did not have a good understanding of the scientific work involved and, at times, created unrealistic deadlines, cumbersome communication channels, or untenable working conditions. At both NSWC and DOI the subjects spoke of management processes which were imposed from "above" which did not suit their particular projects. Those who addressed this subject spoke of the need for input from the "hands-on" workers themselves in devising processes "custom" designed for each individual project. It was also brought out that, because of the lack of knowledge of the scientific area, some subjects felt that their particular managers or supervisors were not in a good position to make recommendations for promotion.
Pay Increase -- This category contained those responses which dealt with pay. In the previous step of the interview process, when pay was mentioned it had been described as "adequate" or "fair". However, it was most often mentioned in comparison with that in the private sector. The fact that the pay the subjects received was perceived to be adequate did not prevent them from expressing a desire for higher incomes. When discussing an increase, the salaries paid in the private sector usually formed the guidelines for the amount of increase deemed necessary. The interviewees saw themselves as highly skilled professional people who were performing a valuable service, and they wanted to receive more remuneration for their work.

Promotion Process -- This category involved the area of promotion. Again, most of the subjects accepted the reality of the promotion possibilities (or lack thereof) in their present positions. However, some spoke of "revamping" the system so that the chances of promotion were greater. The two major areas of discussion were: (1) extending the career ladder of scientific workers so that they could continue to perform scientific (and non-managerial) work at higher grade levels and (2) improving the selection process for those few chosen to move above the G.S. 12 level. Some of the subjects
believed that promotions were based on favoritism or office politics rather than merit.

Working Environment -- Included within this category were responses which addressed improvements in the working environment. Regarding offices, additional space and private offices were the major concerns. A few of the subjects called for personal computers at each desk. Regarding laboratory conditions, such things as updated equipment, more physical space per worker, and improved flow of work were mentioned. In both cases, the emphasis seemed to be less on personal comfort and more on enhancement of efficiency in performing work.

Equitable Recognition -- Implementation of equity in the distribution of work, responsibility, and rewards was the subject of this category. Some interviewees believed that work assignments, degree or amount of responsibility, and various types of rewards were distributed on the basis of favoritism or longevity rather than on merit, fairness, project needs, or as a means of recognition of work well done. They found this perceived practice to be personally upsetting as well as professionally ineffective.
**Table 4**

Comparison of Responses to, "If you were king, what three things would you do about your work?" (Group n =7)

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
<th>Group Definitions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>Constraint Removal</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
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<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
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<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
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<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
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<tr>
<td>Non-scientific Tasks</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
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<tr>
<td>Reduction</td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
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Table 4 shows the responses in each category broken down by group. It is possible to examine the table to determine which changes are most important to each group and to draw a comparison between various groups and among all groups.

**Group A -- 35 and under, plateaued 5-7 years**

Every member of Group A mentioned the removal of constraints which interfered with the scientific work at hand. Four members called for improvements in the working environment, and three discussed better processes for handling non-scientific tasks and/or distribution of work, responsibility, and rewards. Two spoke of a pay increase, and one response each was recorded for the improvements in management processes and in the promotion process. Again, the picture which emerged was that of scientists and engineers focused on the practice of their "craft" and disinterested in work which would take them away from their scientific endeavors. Personal concerns were minimally evidenced.

**Group B -- Over 35, plateaued 5-7 years**

The major concern of Group B, like Group A, was the removal of constraints which interfered with the technical work. Six of the seven group members discussed this concept. Four members talked of streamlining the processes dealing
with non-scientific tasks such as travel and supplies. Again, the main thrust seemed to be "making it easy for us to do our real job." The concept of personal concerns seemed to hold more import than with the preceding group. Three members mentioned the categories of pay increase and equity in recognition through the of distribution of responsibility and rewards (which to some meant more pay.) The ideas of improving management processes and of improving the working environment were each mentioned by two members of the group. Only one member mentioned improving the promotion process. Group B seemed to be a technically anchored group with its members interested in the smooth functioning of their scientific efforts. However, this group, although plateaued no longer than the previous group, was older and therefore at a more advanced career stage. They evidenced a stronger interest in personal areas, especially that of pay.

**Group C -- 40 and under, plateaued 10-12 years**

There were two areas of major concern among the subjects included within Group C. The categories which dealt with the improvement of promotion procedures and the improvement of management processes (especially those dealing with recommendations for promotion) were mentioned most frequently -- both by five members of the group. All of the members of this group were under 40 years of age, but they had been
plateaued between ten and twelve years. The idea of promotion emerged as a much stronger concept than it had with the previous two groups (those who had been plateaued between five and seven years.) The next category, that of improving the processes which dealt with non-scientific tasks, was mentioned by four members of the group. Removing constraints which interfered with technical work and increasing pay were each discussed by three members of the group. The concept of equity in work, responsibility, and reward distribution was mentioned by one member, and improving the working environment was not mentioned at all. These subjects were still scientific "craftsmen." They wanted the opportunity to perform well, but, as a group, the fact that they had been in their same positions for an extended period to time was beginning to draw their attention.

**Group D -- Over 40, plateaued 10-12 years**

This group was the oldest of the groups interviewed. The members had been plateaued between ten and twelve years. Five of the group members discussed the improvement of management processes as their greatest concern. Four of them indicated that changes in both the work environment and in the salaries they received were needed. Two mentioned the importance of a more equitable system of distribution of work, responsibility, and rewards, and of better ways of
dealing with supplies, travel, and routine paper work. One indicated that the promotion system required change. The greatest difference between this group and the preceding one was that they did not evidence an overwhelming concern with promotion. They seemed to have accepted their "terminal twelvitis." They, like the preceding group, called for a better management system, and they were equally concerned with personal comfort which could be accorded through a better working environment and with an increased pay scale. The picture emerges of men accepting of their positions, still glad to be working in the scientific field, but focused on making their work and out-of-work lives comfortable.

**Group E -- Non-plateaued**

The members of Group E were all non-plateaued managers who oversaw scientific projects and scientific workers. Their perspective was managerial. Their first concern was that of removing constraints which interfered with the technical work of those they supervised. Six of the seven mentioned this area as one needing change. Six also mentioned the area of dealing with non-scientific tasks. Four of these subjects spoke of the need for improved promotion processes. Here, however, they were speaking of themselves. They had already been promoted past the GS 12 level, but they seemed to desire and expect further promotions. Two interviewees indicated
that they would make changes in the pay process. The categories of equity in distribution of rewards, responsibilities, and work, of improving management processes, and of improving the work environment were each mentioned by one subject. Although this group spoke of the same concerns as the other groups, their perspective was different. As managers, they were interested in the smooth functioning of their organizations. However, they did not view equitable recognition through the distribution of work, responsibilities, and rewards, improving the management processes, or improving the working environment as areas which required change. They were the ones who did the distributing, devised the management processes, and created the environment, and they were satisfied.

**EXPECTATIONS**

During the next step of the interview process, the research subjects were asked two questions. The first was, "Regarding your work, where do you see yourself in five years?" The second was, "Regarding your work, where do you see yourself in ten years?" These questions were designed so that the respondents would, once again, have the opportunity to address promotion and plateauing if they so chose. If they did discuss these topics, it was hoped that a
determination could be made as to whether or not these areas were of sufficient concern to them to influence their decisions about future work endeavors. The categories which emerged from this step of the interview process fell naturally along a seven-step continuum. Tables 5 and 6 show the categories, frequencies of response, and percent of response in aggregate form along the continuum which emerged.

**TABLE 5**

Frequency of response to, "Where do you see yourself in five years?"
(n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Remain, no conditions</td>
<td>11</td>
<td>31</td>
</tr>
<tr>
<td>Remain with new duties</td>
<td>5</td>
<td>14</td>
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<tr>
<td>Remain with new duties and promotion</td>
<td>10</td>
<td>29</td>
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<tr>
<td>Unsure</td>
<td>0</td>
<td>00</td>
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<tr>
<td>Leave if no promotion</td>
<td>4</td>
<td>11</td>
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<tr>
<td>Leave, no conditions</td>
<td>3</td>
<td>09</td>
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<tr>
<td>Retire</td>
<td>2</td>
<td>06</td>
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</table>
TABLE 6

Frequency of response to, "Where do you see yourself in ten years?"
(n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Remain, no conditions</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td>Remain with new duties</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Remain with new duties and promotion</td>
<td>8</td>
<td>23</td>
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<tr>
<td>Unsure</td>
<td>3</td>
<td>09</td>
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<tr>
<td>Leave if no promotion</td>
<td>3</td>
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<tr>
<td>Leave, no conditions</td>
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<tr>
<td>Retire</td>
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When looked at as a group, the scientists and engineers surveyed seemed more likely to remain with their present agencies than to leave them. When asked where they expected to be in five years, 26 out of 35 respondents, or 74% of the sample, expected to be where they were. When asked where they expected to be in ten years, 21 out of 35, or 60%, expected to be where they were. Of course, some had mentioned factors which might cause them to re-examine their positions, but the overall thrust of their thinking was that they would stay. In contrast, when viewing both the five and
ten year time spans, and discounting those who would be
retired, only 10% of the interviewees saw themselves as
leaving "no matter what". In each instance, an additional
10% saw themselves leaving only if they did not receive a
promotion. For this 10% the lack of promotional opportunity
appeared to be problematic. In addition, when discussing the
five year time span, ten respondents indicated that they
expected to receive a promotion. Eight respondents indicated
that they expected to be promoted within ten years. Whether
their expectations were justified or not is not known.
However, if their expectations are not realized some members
of these groups, 29% in five years or 23% in ten years, could
move from the "remain" to the "leave" categories. In sum,
plateauing did not appear to be an overwhelming problem for
the majority of the sample. It did pose concern for a small
number of persons (10%), and it had the potential to create
problems for a larger group (approximately 25%).

EXPLANATION OF THE CATEGORIES

Remain, No Conditions

Those subjects who said they intended to remain with no
conditions attached meant that for the next five or ten years
they had no plans to make any career moves. They were
satisfied with their jobs, liked what they were doing, and it
was their present plan to stay with the agency which employed them. The fact that they had been plateaued between five and twelve years had not begun to have a negative effect on their overall job satisfaction. They either enjoyed their work, their job security, or one or more of the other factors previously discussed enough to envision themselves remaining where they were for at least the next five or ten years.

**Remain with New Duties**

The next group of subjects indicated that they would remain in their present positions under one condition— that they be given new duties to perform. They spoke of working on different projects or of receiving training which would broaden the focus of their work or enable them to do somewhat different work. A few spoke of being given some supervisory duties (such as those associated with becoming a program manager). Basically, these respondents were satisfied with their jobs as well as their grade levels, but they evidenced some concern about their work becoming stagnant to them if they were prevented from branching out in some manner. They saw diversity and variety as necessary to maintain their current level of interest and satisfaction.
Remain with New Duties and Promotion

The next group of subjects spoke of remaining with their present agencies if they were given new duties to perform and if they received a promotion. They, like the previous group, spoke of the importance of variety in the workplace. However, they believed that the variety they sought would come only through the opportunity to work at a higher grade level. The largest single group represented in this category were those subjects classified as non-plateaued. They had been receiving promotions throughout their careers and expected to continue to do so. The plateaued subjects whose responses fell into this category did not seem to believe their status was permanent or did not seem willing to acknowledge that it could be permanent. In other words, they had not accepted the fact they they might never be promoted.

Unsure

None of the subjects were unsure of where they would be in five years. They all indicated that they would remain or leave, with or without certain conditions. However, as they attempted to assess their status in ten year's time, some few indicated that they were unsure of what they might do. They indicated that, at the present time they were satisfied with their work, but that they could not make even an educated
guess as to what they might chose to do in ten year's time. They simply did not know.

**Leave If No Promotion**

The subjects whose replies fell into this category had made the decision that if a promotion were not forthcoming they would leave either the government or their particular agency. To them upward mobility was a factor important enough to outweigh other aspects of their careers. Although none of the respondents had a firm timetable in mind, each was able to say with certainty that if he had not been promoted within five year's time or ten year's time he would make a job change. None could envision himself in his present position indefinitely.

**Leave with No Conditions**

This group of interviewees had decided to leave "no matter what." Although their choice could not be attributed solely to their plateaued status, the concept of "no future" (meaning very little likelihood of promotion) seemed to play a part in their decisions. Like the preceding group, definite time frames were not mentioned by any of the subjects, but they were positive that a job change was what they sought.
Retire

The informants who saw themselves as retiring within five years or within ten years were approaching the end of their careers. They were of an age and tenure which enabled them to avoid making a decision about leaving because of lack of promotional opportunities. This is not to say they had not made the decision at some previous time. However, at the time of the interviews, they were committed to completing their careers in their present positions. They spoke of too much "invested" to be thinking of a career change. They were focused on receiving the retirement benefits for which they had worked, and their plateaued state was not a strong enough disincentive to forego these benefits. Some spoke of a second career; others, of leisure. All, however, planned to stay where they were until they could retire.

DISCUSSION OF EXPECTATIONS

Tables 7 and 8 show the responses broken down by group. It is possible to examine the tables to draw a comparison between various groups and among all groups regarding their future plans.
Table 7
Comparison of Responses to, "Where do you see yourself in five years?"
(Group n = 7)

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
<th>Group Definitions</th>
<th>Comparative</th>
<th>Frequencies</th>
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<td>E</td>
<td>Non-plateaued</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retire</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 8
Comparison of Responses to, "Where do you see yourself in ten years?" (Group n = 7)

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
<th>Group Definitions</th>
<th>Comparative Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remain, no conditions</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
<tr>
<td>Remain with new duties</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
<tr>
<td>Remain with new duties and promotion</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
<tr>
<td>Unsure</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
<tr>
<td>Leave if no promotion</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
<tr>
<td>Leave, no conditions</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
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<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
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<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
<tr>
<td>Retire</td>
<td>A</td>
<td>35 &amp; under, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Over 35, plateaued 5-7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>40 &amp; under, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Over 40, plateaued 10-12 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Non-plateaued</td>
<td></td>
</tr>
</tbody>
</table>
Group A — 35 and under, plateaued 5-7 years

All of the members of this group held the same personal expectations for themselves for the five year time span as for the ten year time span. In both instances, three subjects expected to remain with their particular agency, with no conditions attached, for at least the next ten years. One planned to remain, but he expected to be performing new duties. Two respondents indicated that they would remain having been given new duties and a promotion. Whether their anticipation of promotion was correct or not is not known. None of the subjects was unsure, planned to leave "no matter what," or planned to retire. Only one interviewee indicated that he would leave if he did not receive a promotion.  
(Note: It should be pointed out that if a subject, in this group as well as all others, indicated that he would leave if he did not receive a promotion within five years then, naturally, in ten year's time he would have already left because he had not received the promotion earlier.) Overall, the responses of this younger, shorter time-in-plateau group fell toward the "remain" side of the continuum. They did not seem pre-occupied with their plateaued status. It is possible that the length of time they had been plateaued was not sufficient to create problems for them. It is also possible that they were of an age and career stage that the
focus of the developmental tasks at hand was "establishment" or "advancement."  

Group B -- Over 35, plateaued 5-7 years

Like the preceding group, each subject in this group gave the same response for his expectations in ten years as he did for five years. None of the respondents was unsure of his status in ten years nor were any planning to retire. Not one interviewee said that he planned to remain solely with new duties. This may be explained by the fact that the experience of these older workers indicated that a variety of duties was to be expected. Two envisioned themselves remaining with new duties and a promotion. Again, it cannot be determined if their expectations of promotions were realistic or not. Two subjects planned to remain regardless of conditions. However, three members of the group planned to leave their agencies "no matter what" within five years time. Although this group had been plateaued no longer than the preceding group, they were older. It is possible that the time plateaued was more problematic for these older workers. Also, it is possible that they, finding themselves in a more advanced career stage, faced different developmental tasks -- "advancement" being one of them. For

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whatever reason, however, there is a shift toward the "leave" end of the continuum when comparing this group to the younger group which has also been plateaued five to seven years.

**Group C -- 40 and under, plateaued 10-12 years**

The members of this group had slightly different expectations for themselves for the five year time span than they did for the ten year time span. For example, three respondents planned to remain where they were with no conditions attached for five years, but only two had the same plans for ten years. None indicated that they were unsure of where they would be in five years, but one indicated that he was unsure when looking ten years ahead. No subjects planned to retire within either five years or ten years. Two subjects said that they expected to remain performing new duties in both the five and ten year time frames, and two indicated that they would leave if no promotion were forthcoming in five years and in ten years. (See Note under discussion of Group A.) None planned to leave "no matter what" during either time span. None anticipated remaining with new duties and receiving promotions during the five year or the ten year time frames. It is possible, that having been plateaued for a longer period of time, their understanding of promotional opportunities was more realistic than those of the preceding two groups.
Group D -- Over 40, plateaued 10-12 year

The interviewees in this group also had slightly different expectations for themselves in five years than they did in ten years. One saw himself remaining without any conditions attached for five years, but none saw themselves remaining with no conditions for ten years. One subject envisioned himself remaining and performing new duties for both the five and ten years time spans. None anticipated a promotion or were unsure of their status within five years, but one did expect a promotion and one was unsure of his status prior to the end of ten years. One respondent indicated that he would leave if no promotion were forthcoming in five years (of course, his response was the same for ten years). None planned to leave "no matter what" during either the five or ten year time frames. Because this was the oldest of the plateaued groups, retirement was a larger factor to them. In five years, two anticipated retirement, and in ten years, four did. The opportunity (or necessity) to retire in a relatively short period of time (when compared to the other groups) affected their decisions to remain or stay and the conditions needed to make the choice. They were of an age and career stage where "maintenance" or accepting their career leveling was a dominant task.
Group E -- Non-plateaued

As has been pointed out, promotion was an accepted fact of organizational life to the non-plateaued group. They had all passed through the "twelve/thirteen barrier," and most expected to continue their upward climb. Two informants had reached levels where they would be satisfied to remain under any conditions for the next five as well as ten years. One anticipated remaining with only new duties for both time spans. However, within five year's time, four anticipated receiving a promotion along with new duties. Within ten year's time, three anticipated receiving one or more promotions and the concomitant new duties. Only one subject was unsure of his plans ten years ahead, and none were unsure five years ahead. None anticipated leaving with or without a promotion in either five or ten years. They expected to continue to receive promotions. One planned to be retired within ten years. The biggest difference between this group and the plateaued groups was attitudes and expectations regarding promotion. Since their personal experiences had conditioned them to upward mobility, their expectations followed that course. Their developmental tasks seemed to be those of "advancing" or "organizational leadership."
In the final segment of the interview process, six focused questions were posed. The first of these questions was transitional. The question, "When you think about where you are in your career, how do you think about it?" addressed the subject of careers directly, but was open-ended. No pre-determined categories for response were designed. The subjects were given an opportunity to elaborate on their answers. During the coding process, however, it became apparent that the respondents were discussing "satisfaction." The categories used to tabulate their responses were "Dissatisfied," "Satisfied," and "Very Satisfied."

The next five questions -- "Is it important to you to be promoted?...to perform different tasks?...to be given more responsibility?...to supervise others?...to have your work recognized?" -- were directed in that they required a "yes/no" response. The interviewees chose not to answer with one-word. Rather they chose to elaborate on or explain why they said what they did. Therefore, the responses to these questions were also categorized by the coders. The categories used to best capture the full meaning of the explanations were "Not Very Important," "Important," and "Very Important."
Tables 9-14 below contain aggregate frequencies and percentages of response from the entire sample.

**TABLE 9**

Frequency of Response to, "When you think about where you are in your career, how do you think about it?" (n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissatisfied</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Satisfied</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>9</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 9 indicates that, overall, the research subject were more satisfied with their careers than not. Forty-three percent indicated that they were satisfied; and 24%, very satisfied, for a total of 70%. Only 29% described themselves as dissatisfied. (There seems to be a loose correlation between the 70% who were satisfied and both the 74% who planned to remain, with or without conditions, for the next five years and the 60% who planned to remain for the next ten years.)
TABLE 10

Frequency of Response to, "Is it important to you to be promoted?" (n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very important</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Important</td>
<td>17</td>
<td>49</td>
</tr>
<tr>
<td>Very Important</td>
<td>8</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 10 shows that when asked, "Is it important to you to be promoted?", 29% of the respondents said that it was not very important. The next 49% said that it was important. However, these were the members of the sample who listed or talked about other factors such as work content, relationships, and so forth, as being more important to them. Promotion was important, but the lack of it was not important enough to create insurmountable problems for them. The final 23% said that promotion was very important. As shown in the previous section, most of those viewing promotion as very important were in the non-plateaued group. (Also, there may be some correlation between this 23% and the 20% who planned to leave, with or without conditions, during the next five years.)
TABLE 11
Frequency of Response to, "Is it important to you to perform different tasks, meaning a variety of tasks?" (n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very important</td>
<td>2</td>
<td>06</td>
</tr>
<tr>
<td>Important</td>
<td>25</td>
<td>71</td>
</tr>
<tr>
<td>Very Important</td>
<td>8</td>
<td>23</td>
</tr>
</tbody>
</table>

The responses displayed in Table 11 show that an overwhelming 94% stated that it was important or very important to perform different tasks. The need for "interesting" and "challenging" work in the form of task variety seemed important to just about all, no matter what their age, career stage, or time in plateau.
TABLE 12

Frequency of Response to, "Is it important to you to be given more responsibility?" (n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very important</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>Important</td>
<td>15</td>
<td>43</td>
</tr>
<tr>
<td>Very Important</td>
<td>7</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 12 displays the responses to, "Is it important to you to be given more responsibility?" The 20% who indicated that it was very important was spread rather evenly across the four plateaued groups. The 34% who said that more responsibility was not very important, and the 43% who said that it was important (but not as important as other aspects of their work) were among those who explained their answers by stating that they already had a great deal of responsibility. Many believed that a promotion would only change the type, not add to the amount, of responsibility they were already handling.
The responses to the question "Is it important to you to supervise others?", are shown in Table 13. Over half of the interviewees, 54%, said that it was not very important. 24% indicated that supervision was important, but, again, not as important as other job factors. Only 20% found it to be very important. This seems to be in keeping with the concept of career anchors, or, more specifically, the difference between the technical/functional career anchor and the managerial career anchor. The description of the former shows supervision of others not to be desired, while the description of the latter shows it to be an important factor.

**TABLE 13**

Frequency of Response to, "Is it important to you to supervise others?"  
(n=35)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very important</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Important</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Very Important</td>
<td>7</td>
<td>20</td>
</tr>
</tbody>
</table>
Finally, Table 14 displays the responses to the question, "Is it important to you to have your work recognized?" Like the answers to the question about task variety, an overwhelming number, 97%, said that recognition was either important or very important. Again, age, career stage, and time in plateau do not seem to affect the need for recognition of work well done among this entire sample of scientists and engineers.

**DISCUSSION OF PROMOTION**

Table 15 shows the responses broken down by group. It is possible to draw a comparison between various groups and among all groups regarding their answers to the focused questions by examining the table.
<table>
<thead>
<tr>
<th>Question</th>
<th>Comparative Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response</strong></td>
<td>Group A (n=7)</td>
</tr>
<tr>
<td>D= Dissatisfied</td>
<td>1</td>
</tr>
<tr>
<td>S= Satisfied</td>
<td>4</td>
</tr>
<tr>
<td>V= Very Satisfied</td>
<td>2</td>
</tr>
<tr>
<td>When you think about where you are in your career, how do you think about it?</td>
<td></td>
</tr>
<tr>
<td><strong>Response</strong></td>
<td>Group A (n=7)</td>
</tr>
<tr>
<td>N= Not Very Important</td>
<td></td>
</tr>
<tr>
<td>I= Important</td>
<td>4</td>
</tr>
<tr>
<td>V= Very Important</td>
<td>2</td>
</tr>
<tr>
<td>Is it important to you to be promoted?</td>
<td>1</td>
</tr>
<tr>
<td>Is it important to you to perform different tasks?</td>
<td>4</td>
</tr>
<tr>
<td>V= Very Important</td>
<td>1</td>
</tr>
<tr>
<td>Is it important to you to be given more responsibility?</td>
<td>4</td>
</tr>
<tr>
<td>V= Very Important</td>
<td>2</td>
</tr>
<tr>
<td>Is it important to you to supervise others?</td>
<td>6</td>
</tr>
<tr>
<td>V= Very Important</td>
<td>2</td>
</tr>
<tr>
<td>Is it important to you to have your work recognized?</td>
<td>0</td>
</tr>
<tr>
<td>V= Very Important</td>
<td>0</td>
</tr>
</tbody>
</table>
Group A -- 35 and under, plateaued 5-7 years

The members of this group were basically satisfied with their careers as they were experiencing them. Six out of the seven respondents stated that they were either satisfied or very satisfied. Four subjects indicated that it was not very important to them to be promoted, while two said it was important, and one said it was very important. Six interviewees said that it was important or very important to perform a variety of tasks. Again, six said that they wanted to be given more responsibility. Once again, six responded that it was not very important to them to supervise others. All seven indicated that it was important to have their work recognized. The picture which seemed to emerge was that of young scientists possessing technical-functional career anchors (as evidenced by lack of interest in supervising others). The young scientists appeared to be attending to the developmental tasks common to those of a relatively younger age and in an early career stage such as "establishment," "stabilizing" and some "advancement" (as evidenced by seeking more responsibility). Task variety and recognition were important concepts to this group. Promotion, or the lack of it, did not seem to be an overriding concern. Plateauing had not yet become problematic to them.
**Group B -- Over 35, plateaued 5-7 years**

This group, when asked to focus specifically on their career status, expressed more dissatisfaction than satisfaction. Four respondents stated that they were dissatisfied with their careers. This contrasts significantly with the preceding group. It may be explained by the fact that the members of this group, although plateaued no longer than those of the previous group, were older and had most probably been with their present agencies for a longer period of time. Also, their older ages might have placed them in different career stages which presented different developmental tasks such as "advancement," "assumption of leadership positions" and so forth. Their plateaued state would thwart the accomplishment of these tasks. All seven members of the group said that being promoted was either important or very important to them. All seven also indicated that task variety and work recognition were either important or very important. Five wanted to be given more responsibility and to supervise others. This, again, might associate with the developmental tasks on which they wished to work but could not. The picture that emerged here was of longer tenured, more mature men who were of an age where the lack of promotional opportunity was beginning to become problematic.
Group C -- 40 and under, plateaued 10-12 years

The first group of the longer plateaued subjects evidenced some dissatisfaction with their careers. Three respondents reported that they were dissatisfied and four reported that they were either satisfied or very satisfied. Promotion was somewhat less important to these respondents than to the ones in the previous group. Five subjects stated that being promoted was either important or very important. Variety in task performance and work recognition remained important factors with five interviewees classifying these as either important or very important. More responsibility was deemed important by five subjects, and only three subjects found it important to supervise others. Again, the technical-functional career anchor seemed to outweigh a managerial orientation which would include supervision of others. The lessening of dissatisfaction, despite the longer time in plateau, and a smaller overall interest in promotion might be explained in one of two ways: (1) the subjects had come to accept the lack of promotional opportunity or (2) the subjects had focused on developmental tasks concomitant with their age and career stage other than "advancement," i.e., "maintaining technical competence" or "seeking security." The emergent picture of this group was of technically anchored scientists becoming cognizant of that anchor,
beginning to accepting the lack of promotional opportunities, and turning their attention to job factors other than upward mobility.

**Group D -- Over 40, plateaued 10-12 years**

The oldest group of plateauees evidenced even more satisfaction than the preceding group with only two members expressing dissatisfaction with their careers. Three subjects said that it was not very important to them to be promoted, four said that it was important, and none said that it was very important. Once again, task variety and work recognition surfaced as primary factors with seven respondents saying that both were either important or very important. A diminution in interest in additional responsibility and supervision was evidenced. Despite the longer time in plateau, the emergent picture of these older subjects was one of general acceptance and satisfaction with their careers. Again, the technical-functional competence anchor seemed to surface. They seemed to be working comfortably with such developmental tasks as "maintenance" or even "decline and disengagement" which would face the older worker. Although four subjects indicated that promotion was important to them, the lack of such promotion did not seem to be creating a difficult problem for them. They seemed to have accepted their plateaued state.
Group E -- Non-plateaued

The non-plateaued members of the sample responded quite differently to some of the questions posed in this section of the interview. For example, none expressed dissatisfaction with their careers. All seven indicated that they were either satisfied or very satisfied when they thought about their careers. Six out of the seven in this group said that it was important or very important to them to be promoted. Four stated that it was important to be given more responsibility, and three stated that it was not. Those who did not desire more responsibility (like many in the other groups) believed that they were handling substantial responsibility in their present jobs. Six subjects indicated that it was important or very important to them to supervise others. This group was similar to all other groups in that task variety and work recognition were important factors. Within this group, these two factors were either important or very important to all seven members. In attempting to draw a group picture, a managerial anchor seems to be more fitting to this group. This was evidenced by the greater interest in promotions and in the supervision of others. The developmental tasks facing these subjects seemed to be "advancement" and "leadership." As a group, these subjects had been more successful at accomplishing these tasks. This
might offer an explanation as to their greater sense of satisfaction.

**COMPARISON OF RESPONSES TO FOCUSED AND NON-FOCUSED QUESTIONS**

It was explained earlier that the first three sets of questions were deliberately designed to be non-focused or non-directed. Further, it was explained that through the use of Gestalt Role Strip an attempt was made to elicit answers to these three sets of questions at a psychological level below that of social role. These two techniques were employed to facilitate the emergence of data grounded in the research subjects themselves -- to discover what was "real" to them.

The final set of questions, however, were focused or directed. They were designed to return the subject to the level of social role. They were built on the variables relating to promotion most often discussed in the literature. Finally, they were designed as a validity cross-check. They were not designed as a form of survey research. The small size of the research sample and the limited number of focused questions proscribe this usage. The non-directed or non-focused questions serve as the data of the first source. The focused questions do, however, add to the data gathered in this research endeavor.
A comparison of the answers to the two types of questions will be undertaken in this section. The areas where the data arising from the focused questions supports that arising from the non-focused questions will be pointed out. Where there are areas of disagreement, an attempt at explanation or reconciliation will be made through reference to the pertinent literature or to the original contact summary sheets or field notes used in the data gathering portion of this project.

Satisfaction

When asked directly how they viewed their careers, the research subjects expressed more satisfaction than dissatisfaction (as evidenced by Tables 9 and 15). This information seemed to be supported by the information presented in Tables 5, 6, 7, and 8. When asked where they anticipated being in five and ten year time spans, more interviewees expected to remain with their present agencies than expected to leave.

When looked at by group, six out of seven members of Group A were either satisfied or very satisfied, and six also anticipated remaining with their agencies. Within Group B, four respondents expressed dissatisfaction, and three anticipated leaving within five year's time. Group C contained three members who were dissatisfied and two who
planned to leave if they were not promoted as well as one who was unsure of his plans in ten years. In Group D there were two who expressed dissatisfaction, and there were two who planned to retire within five years. Not any of the members of Group E said that they were dissatisfied with their careers, and none planned to leave except through retirement. Thus, it would appear that a strong correlation can be made between satisfaction and plans to remain or leave the agency. The answers to these two particular questions (one focused, one non-focused) seemed to support each other.

Promotion

When asked about being promoted, nearly 70% of the sample (or twenty-five out of thirty-five respondents) indicated that it was either important or very important to them. This did not appear to coincide with the amount of importance placed on promotion in responses to the non-directed questions posed earlier. For example, in the "Important Aspects" portion, the category which contained references to promotion, Organizational Movement, was eighth out of twelve categories. In the "If I Were King" section, Improving the Promotion Process was fifth out of seven categories. Only four and three respondents respectively indicated that they would leave if they did not receive a
promotion in five and ten years's time. However, this disparity can be reconciled in two ways.

First, the original field notes show that most interviewees said they would like to be promoted so that they could receive higher salaries and so that they would feel that their work efforts had been recognized. They also said that they realized that promotional opportunities were not abundant within their organizations. Because they enjoyed their work and felt that they were being paid fairly or adequately, the lack of promotional opportunities was not sufficient reason in itself to create insurmountable problems for them.

Second, a major dimension of organizational evaluation is ambition, and the desire for upward mobility demonstrates this dimension. Ambition is also a strong cultural value. Parents teach it, and it is interjected at an early age. Therefore, most people will respond affirmatively when asked if promotion is important to them. Both Schein and DeLong have pointed out, however, that people with technical/functional career anchors hold as their greatest ambition or greatest measure of success the attainment of higher levels of proficiency in their functional areas. Further, both authors have stated that technical people fear revelation of this fact because they do not want to be seen as lacking
ambition. Therefore, when asked if promotion is important, even technical workers will say "yes" because they wish to appear ambitious. Thus, the discrepancy between the answers to the two types of questions does appear to be explainable.

When examining the data, both focused and non-focused, it appeared that promotion was more important to Groups B, C, and E than it was to Groups A and D.

Task Variety

Both the directed and non-directed questions produced responses which indicate that variety in work performed was important. In the focused portion, thirty-three out of thirty-five respondents said that variety was either important or very important. The category which best captured the same topic in the non-focused portion was Work Content under the label of "Important Aspects." The majority of subjects who spoke of the importance of doing "interesting and challenging" work mentioned that the opportunity to work on many different projects (either simultaneously or in succession) was what made their jobs interesting and challenging. "Newness" or "varied experiences" were important concepts. This was true for all groups except

\[121\text{op.cit.},\text{Schein, 1978.}\]
\[\text{Op.cit.},\text{Delong.}\]
Group E, which placed less emphasis on variety in the non-directed portion than they did in the directed one.

Responsibility

The responses to the question of assuming more responsibility seemed to follow the same pattern in both the focused and non-focused portions. Twenty-two interviewees said more responsibility was either important or very important to them when asked directly. However, sixteen of these respondents were members of Groups A, B, and C (the youngest, shortest-tenured groups). In the non-directed part, seven members of Groups A, B, and C indicated that they would work toward more equitable distribution of work, rewards, and responsibility. Only three members of Groups D and E mentioned this as something they would change when asked to imagine themselves as "King." The differences between the two sets of groups seemed to be that the members of Groups D and E felt that they already shouldered enough responsibility. Many belonging to Group D, because of longer tenure, were program or project managers. Those belonging to Group E were in the general managerial ranks. The shorter-tenured members of Groups A, B, and C sought more responsibility. Thus, the data in both the focused and non-focused portions indicated that being given more responsibility was more important to the younger, shorter-
tenured groups than it was to the older, longer-tenured groups.

**Supervision**

Supervision did not stand out as a vital factor to the sample as a whole when that subject was addressed by the directed questions. Only sixteen respondents said it was important or very important to them. There was no question in the non-directed portion of the interview which addressed supervision. The fact that it was not brought out in the "Important Aspects" segment spoke to its lack of importance to the subjects. Therefore, this researcher believes that confidence can be placed in the responses to the directed questions. Interestingly, supervision was most important to Group E, the non-plateaued, managerially oriented group. It was next most important to Group B, the group who appeared most likely to leave and whose age and tenure were appropriate for recognizing one's career anchor.\(^{122}\) It could be concluded that those evidencing interest in supervision and/or leaving the organization were leaning toward a managerial career anchor.

\(^{122}\) *op.cit.*, Schein, 1978.
Recognition

All groups placed great emphasis on the importance of recognition when asked about it directly. Only one respondent in the sample indicated that it was not very important. Recognition was addressed either directly or indirectly in the non-focused sections. In the "Important Aspects" portion, recognition, unlike supervision, did emerge as important to a little over one-third of the sample. Three categories in the "If I Were King" area contained reference to aspects or forms of recognition -- pay increase, promotion process, and equitable recognition. Because recognition or some aspect of it emerged in numerous places in the non-directed portion and because it received an overwhelming positive response in the directed portion, this researcher would conclude that it held great importance for the interviewees. It would appear that, once again, the focused and non-focused portions were mutually supportive.

SUMMARY

The following chart presents the key findings for the entire sample and for each group within the sample. The chart is followed by concluding narrative which draws a "profile" for the sample and one for each group within the sample.
**CHART II**

*Chart of Key Findings*

**Key Findings for Sample**

* Not overly concerned with plateaued status
* Focused on doing scientific work
* Wanted reduction of time spent on secondary tasks through streamlining of administrative processes
* Sought continued growth through varied, challenging work
* Wanted recognition for work well done
* Evidenced career satisfaction
* Placed personal (career) concerns second to work concerns
* Were more inclined to remain with organization than leave

**Key Findings for Group A -- (35 and under, plateaued 5–7 years)**

* Not concerned with plateaued status
* Focused on doing scientific work
* Wanted reduction of time spent on secondary tasks through streamlining of administrative processes
* Sought continued growth through varied, challenging work and professional growth through inclusion and increased responsibility
* Wanted recognition for work well done
* Evidenced career satisfaction
* Placed personal (career) concerns second to work concerns
* Were more inclined to remain with organization than leave
Key Findings for Group B -- (Over 35, plateaued 5-7 years)

* Were substantially concerned with plateaued status
* Focused on doing scientific work but personal (career) concerns such as promotion were assuming importance
* Wanted reduction of time spent on secondary tasks through streamlining of administrative processes
* Sought continued growth through varied, challenging work but wanted professional growth through promotion
* Were deciding on career anchor -- technical versus managerial
* Wanted recognition for work well done
* Evidenced highest career dissatisfaction
* Were more inclined to leave organization than remain
* Were of an age where career move was possible

Key Findings for Group C -- (40 and under, plateaued 10-12 years)

* Were substantially concerned with plateaued status
* Focused on doing scientific work but personal (career) concerns such as promotion, pay, security, and fringe benefits were assuming importance
* Wanted reduction of time spent on secondary tasks through streamlining of administrative processes
* Sought continued growth through varied, challenging work but wanted professional growth through promotion
* Were deciding on career anchor -- technical versus managerial
* Wanted recognition for work well done
* Were second most dissatisfied group
* Were more inclined to remain with organization than leave
* Were of an age and tenure where career move was difficult
Key Findings for Group D -- (Over 40, plateaued 10-12 years)

* Were not concerned with plateaued status
* Focused on doing scientific work but personal factors such as pay, security, fringe benefits and retirement were important
* Wanted reduction of time spent on secondary tasks through streamlining of administrative processes
* Sought continued growth through varied, challenging work
* Had decided on career anchor -- technical
* Wanted recognition for work well done
* Evidenced renewed satisfaction with career
* Talked of leaving only through retirement
* Began to speak of "life after work"

Key Findings for Group E -- (Non-plateaued)

* Were not plateaued
* Focused on doing scientific work but personal factors such as promotion were important
* Were managerially oriented -- managerial tasks such as supervision were important but wanted reduction of time spent on secondary tasks through streamlining of administrative processes
* Sought continued growth through varied, challenging work and continued promotion
* Had decided on career anchor -- managerial
* Wanted recognition for work well done
* Had strong interest in and high expectation of promotion
* Showed highest career satisfaction
* Were more inclined to remain with organization than leave

Discussion of Key Findings

Overall, the research subjects were satisfied with the work they were doing and with their careers. As a group, plateauing was not an overwhelming problem for them. They
were scientists and engineers first and foremost. They believed that their work was vitally important, and their greatest concerns centered around ways to facilitate work proficiency. They had little patience with administrative tasks which took time away from their scientific endeavors. As long as their work remained interesting, either through variety or ever-increasing scope, they felt professionally satisfied. Their main personal concern was that they receive some type of recognition when they performed well. As a group, the subjects were stable with the majority intending to remain with rather than leave their organizations.

However, as the sample was broken down into groups and studied according to age and time-in-plateau, differences among the groups emerged. Advanced age or extended time plateaued appeared to create dissatisfaction in some of the research subjects.

The members of Group A (under 35, plateaued five to seven years) were strongly focused on the scientific work at hand. They were interested in seeing processes and procedures implemented which would free them to devote full time to this work. Their professional concerns had to do with assuming more responsibility and becoming integral "spokes in the wheel" of the organization. They were satisfied with their careers to date, and they expressed
little interest in promotion. Plateauing was not problematic
to them. They were stable and planned to stay with their
organizations.

The subjects in Group B (over 35, plateaued ten to
twelve years) were the least satisfied with their careers.
Although they were still interested in their scientific work,
personal concerns were beginning to come to their attention.
Promotional opportunities or change in work focus were
important to this group. They were of an age where career
anchor decisions would normally be made. They were also of
an age where leaving the organization was still possible (due
to less demanding outside responsibilities and shorter
overall tenure than the next two groups), and they appeared
more likely to leave. They were the least stable of all
groups.

Group C (under 40, plateaued ten to twelve years) still
enjoyed doing scientific work, but was less satisfied career-
wise than Group A. However, a career move was more difficult
for these men than for those in Group B. They were more
encumbered with outside responsibilities. Although they
spoke of the desire for promotions or making career moves if
promotions were not forthcoming, they appeared less likely to
do so. They had invested considerable time with their
organizations, and such things as pay, security, and years
toward retirement were important to them. Some members of this group appeared to be caught in a personal "tug-of-war."

Although plateaued for the same period of time as Group C, the older members of Group D (over 40, plateaued ten to twelve years) were either resigned to or accepting of their plateaued status. They were more satisfied with their careers and more focused on their scientific work and the concomitant work concerns once again. They spoke of retirement and looking back with satisfaction at worthwhile careers. They also looked forward to second careers or leisure. They were stable in so far as leaving was spoken of only in terms of retirement.

The non-plateaued GS 13's and above in Group E were the most satisfied subjects. Although the scientific work they did or supervised was important to them, they were managerially oriented. They evidenced some of the same concerns with the technical side of their work as the plateaued subjects, but they were more focused on management tasks. They had high desire for and expectation of future promotions based on their past experiences. They also evidenced stability as none planned to leave before retirement.

In sum, the sample was a group of satisfied, technically oriented scientists and engineers. The most satisfied
members of the sample were the non-plateaued managers. The youngest, shorter time-in-plateau group and the oldest, longer time-in-plateau group were the more satisfied of the plateaued groups. Dissatisfaction and desire for promotion (or other career movement) were evidenced by the other two plateaued groups. The data indicates that through an awareness of age, career stage, and time-in-plateau it is possible to pinpoint scientists and engineers for whom plateauing is most likely to create problems.

The significance of the findings presented in this chapter will be discussed in the next chapter. The discussion will address and be designed around the research questions posed in the introductory chapter.
CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

This chapter will present the conclusions drawn from the findings of the preceding chapter. The conclusions will be discussed as they relate to the purposes of the research project stated at the beginning of this paper: (1) to learn what effect, if any, plateauing had on professional/technical specialists in the federal government who had become structurally plateaued; (2) to determine if plateauing grows in importance and effect; (3) to elicit personnel policy prescriptions from the research subjects. Explanations for the conclusions drawn will be sought in the words of the research subjects and in the relevant literature discussed in Chapter II.

QUESTIONS AND ANSWERS

What effect, if any, did structural career plateauing have on professional/technical specialists in the federal government?

Plateauing had effects ranging from "none at all" to "serious" on the subjects of this study. The data collected in this study indicated for whom and at which times plateauing created the most difficulty. The data, along with
previous research and theory contained in the literature on careers and plateauing, explained the differing reactions to plateauing.

For whom was plateauing a problem?

Plateauing can be a problem for any worker. However, it was the least serious for managerially anchored workers in managerial jobs. It was not serious for all workers anchored in technical/functional competence. The technical/functional anchored persons for whom it was most serious were in their mid-careers. There were four plateaued groups interviewed in this study. The two groups which were most affected by the phenomenon were of those persons who were over 35 who had been plateaued between five and seven years and those persons who were under 40 who had been plateaued between ten and twelve years. The other plateaued groups (under 35, plateaued between five and seven years and over 40, plateaued between ten and twelve years) were much less affected by their status.

Why is plateauing a larger problem for some than for others?

The data and the literature indicate that there are many answers to this question. Synchronization of internal/external career, career stages, and career anchors offer the most useful explanations. The interviewees in
this study, when discussing what was personally most important now, offered valuable insight to the varied reactions to career plateauing.

**Internal/External Careers**

**Synchronization**

Synchronization between the internal career and the external career is important. Many of the subjects interviewed were experiencing a sense of disharmony or incongruency between their internal careers and their external careers. The internal aspirations and expectations they held were not synchronized with the timing and direction of their external careers.

Hall, Schein, and Van Maanen distinguished between the internal career and the external career and pointed out the importance of congruency between the two. The internal career is subjective and individualized. It is a combination of work related attitudes, aspirations, expectations, and events which are internalized and made meaningful by each individual. Thus, there are as many internal careers as there are persons experiencing career.

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The external career is a combination of observable job-related behaviors, actual job sequences, or movements through the organization. The external career is defined and directed by the organization and derives its meaning from its creators. It is neither personalized nor individualized. It is relatively universal within the organization. It is understandable to those within the organization and to many without.

Both careers contain a sense of timing. The proper timing of the internal career is injected by the individual experiencing the career. The proper timing of the external career is imposed by the organization. Problems occur when there is a lack of synchronization between the two. When the aspirations or expectations of the internal career are not met by the course or timing of the external career, as is often the case with plateauing, a sense of disharmony results.

The subjects who were under 35 and plateaued five to seven years were workers whose internal and external careers were congruent. They had entered the federal government in their early twenties at the GS 7 level and had moved relative quickly to the GS 12 level. They had been plateaued a short period of time. Their expectations and aspirations had, thus far, been met. They experienced no
adverse effects because of a lack of congruency between their internal and external careers. Their plateaued status was not a problem.

The Floor Effect

Studies have shown that there is a positive correlation between age and job satisfaction. The longer a worker remains in a job, the more satisfied he becomes. On the other hand, there is a negative correlation between tenure and satisfaction, i.e., the longer a worker remains in a job, the more dissatisfied he becomes. These two seemingly contradictory concepts were reconciled by Gibson and Klein who explained the floor effect. This concept holds that, although there is a negative correlation between tenure and satisfaction, after a period of time dissatisfaction ceases to grow. In other words, it floors out. There is a limit to the reduction of satisfaction persons can or will experience before they consciously or unconsciously bring their cognitions into line.

The oldest, longer plateaued subjects who were over 40 and plateaued ten to twelve years were of workers experiencing the floor effect. These subjects were not

\[124^\text{Op. cit.}, \text{ Rhodes.}\]
\[125^\text{Op. cit.}, \text{ Gibson and Klein.}\]
bothered by plateauing. Even though there was more disparity between the internal and external careers within this group than within all other groups, plateauing was not problematic for them. The members of this group reported high satisfaction. The dissatisfaction associated with plateauing (tenure) had floored out, and the job satisfaction associated with age had increased. Overall, they were more satisfied than dissatisfied.

An examination of the interests and concerns of the members of these two groups sheds further light on their career satisfaction and their lack of concern with their plateaued status.

The younger subjects were highly focused on the work they were doing and factors associated with their work which would enhance their ability to perform well. They wanted the working environment to be such that it facilitated their scientific efforts. They wanted the work to be interesting to them. They wanted to increase their knowledge of the particular scientific field they had chosen. They wanted the freedom within the work place to focus exclusively on scientific tasks. They did not want to spend their time performing housekeeping chores such as requisitioning supplies, making travel arrangements, and so forth.
When these subjects spoke of personal or professional concerns, their focus remained work related. They wanted to grow as scientists or engineers, and they wanted to learn the "ways of the organization." Growth to them had not yet become an upward hierarchical climb. What was, to use Gestalt terminology, "figure" to them was their work and the organization for which they worked. That is, their were mainly focused on the work itself, and other concerns consumed little of their attention. They had not begun to wonder where they were going. The older subjects shared many traits with the younger group. Specifically, they, too, were focused on the work they did. Work content, the working environment, and the removal of what they viewed as unnecessary constraints and unnecessary administrative tasks stood out as important to them. They were no more focused on changing the promotion process than were the younger ones. They maintained an interest in professional growth in that they wanted to keep abreast of the state of the art in their scientific fields.

They were different from the younger group in some ways, though. They spoke of personal matters such as pay or location. They also spoke of retirement and what they might be doing after retirement. Promotion was either a concept which had never been important to them, or it was an idea
whose "time had come" ... and gone. The older subjects spoke of having experienced satisfying and worthwhile careers. They did not evidence adverse reactions to their plateaued state.

The two groups of mid-career workers over 35, plateaued five to seven years and under 40, plateaued ten to twelve years, however, were considerably dissatisfied. When looking at their careers it is possible to understand how the timing of the internal and external career had become incongruent, and the flooring out effect had not occurred. Both groups were older and longer tenured than the members of the first group discussed. They were experiencing considerable internal/external career incongruency and the resultant dissatisfaction. However, they were younger and shorter tenured than the second group discussed. They had not reached the point where the dissatisfaction associated with tenure (plateauing) had floored out nor the point where satisfaction associated with age had begun to increase. Therefore, their overall dissatisfaction level was high.

An examination of the interests and concerns of the members of these two groups illuminated the subject further. They, like the first two groups discussed, continued to be oriented toward their scientific work and toward improving processes which would allow them to do their work better.
However, they were not as narrowly focused as the youngest group. Their interests had broadened to encompass other work-associated factors. For example, relationships were important to both groups. Security and fringe benefits were significant. A pay increase was, indeed, sought after. They had not, like the oldest group, reached the point where retirement was near enough to be real. Therefore, they were not thinking past the "here and now" of the career in which they were enmeshed, and that career was not moving smoothly for them.

The main difference between the two groups was their willingness to consider leaving the organization as a solution to their dissatisfaction. The younger individuals, plateaued a shorter period of time, and thus shorter tenured, were much more likely to make a career change. The members of the longer tenured group were aware of time and money invested toward retirement and the job security their present positions offered. Withdrawal from the organization was not an attractive option to them.

To discuss the non-plateaued subjects in the same context as the plateaued groups becomes meaningful when the synchronization of internal and external career is discussed. The members of this group were satisfied with their careers. They had received promotions past the GS 12 level, and they
expected to continue to be promoted. The external careers these workers had experienced and their internal careers were congruent. This group served as an example of workers whose internal and external careers were synchronized.

**Career Stages**

The concept of career stages further explained why plateauing presented greater problems for some workers than for others. Career stage theory holds that individual careers tend to follow a similar pattern as people mature within the context of work. Careers are composed of a series of sequential stages. Each stage is accompanied by specific developmental tasks that the worker must accomplish before comfortably moving on to the next stage. Career stage theory is not a strict construct. All persons do not face each and every developmental task suggested. However, the theory is useful in understanding how a person progresses through a career. The stages are loosely correlated with age.\(^{126}\)

It is possible to understand why plateauing is more problematic for the members of some groups than for others by examining the research groups through the "lens" of career stages and developmental tasks.

The youngest members of the study were of an age and stage where some of the developmental tasks, facing them were: socializing one's self into the organization; performing effectively; securing a permanent place at work; or attempting to gain recognition. Being plateaued would not prevent a person from accomplishing these particular tasks. Plateauing would not frustrate the maturing process within the work place at this stage of a person's career.

The older members of the next group, over 35, plateaued five to seven years, were facing different developmental tasks. Although in all instances there was some overlap of tasks due to an overlap of age and stage within the groups, the dominant focus of each group was different. Representative of the tasks facing the members of this group were such things as: assessing organizational opportunities; learning one's career anchor; assessing realistically one's future; stabilizing and advancing at work; attempting to gain recognition; or striving for promotion and achievement.

The dissatisfaction expressed by the majority of the members of this group was understandable. It is possible to see that the accomplishment of some of the developmental tasks facing them was thwarted because of their plateaued status. For example, realizing that the promotion and achievement for which one is striving is impossible because
of the structure of the organization is disappointing. In assessing organizational opportunities and assessing realistically one's future, the plateauees were able to accomplish the task, i.e., they could assess. However, they were then faced with what appeared to be a bleak picture, again because of the structural plateauing prevalent within their organizations.

Those subjects under 40, plateaued ten to twelve years, were of an age and stage where they would be facing some of the same tasks as the members of the preceding group. They would also be facing some more advanced tasks. The following are some of the tasks confronting this group: assessing realistically one's future; learning managerial skills; becoming responsible for the organization; handling high levels of power and responsibility; striving for promotion and achievement; accepting career leveling; or facing the possibility of a terminal plateau.

Again it is possible to see that some of the tasks could be accomplished by the members of this group, and some could not. A number of those which could be completed presented a discouraging picture to the individuals. Such tasks as assessing realistically one's future and facing the possibility of a terminal plateau, indeed, produced negative reactions in the plateauees. Learning managerial skills,
becoming responsible for the organization, handling high levels of power and responsibility, and striving for promotion and achievement are all tasks which were impossible for the members of this group to complete. Therefore, the natural progression through the stages of a career was prevented. These workers experienced problems directly related to their plateaued status.

The group of workers who were over 40 and plateaued ten to twelve years reported higher overall satisfaction than the two preceding groups. The tasks were ones which late career workers could accomplish. Some of the tasks facing these older workers were: maintaining technical competence; finding new sources of satisfaction; assessing total career; accepting career leveling; seeking gratification elsewhere. They did not face frustration at being prevented from completing these tasks. Being plateaued did not interfere with the developmental tasks at hand. Therefore, plateauing was not an overriding concern of theirs.

The non-plateaued subjects had moved rather smoothly through the career stages. They had not had to face such tasks as accepting career leveling or facing the possibility of a terminal plateau. They had the opportunity to complete all developmental tasks presented at each successive stage -- even such tasks as becoming responsible for the
organization, handling high levels of power and responsibility, and striving [successfully] for advancement and promotion. Their reported work satisfaction came from their smooth progression through the career stages and completing the developmental tasks they faced at each stage.

**Career Anchors**

Another career related concept which emerged from the data was that of career anchors. The theory behind career anchors offered a viable explanation for the differences in satisfaction/dissatisfaction, remaining/leaving, and many other opposites which surfaced in the interviewing process. Edgar Schein first presented his theory of career anchors in 1975.\textsuperscript{127} In this and subsequent works he defined the career anchor as a pattern of self-perceived talents and abilities, motives and needs, and attitudes and values.\textsuperscript{128} He stated, "The career anchor ... results from an interaction between the person with his needs and talents, and the work environment with its opportunities and constraints."\textsuperscript{129} He added to the definition by explaining, "The career anchor is not merely a motive ... it can be thought of as a 'master


\textsuperscript{129}\textit{Ibid.}, Schein, 1978, p. 126.
motive' or the thing the person will not under any circumstances give up."\textsuperscript{130}

In studying career anchor formation Schein found that a person spends the early part of his career discovering "what he is good at, what he values, and what he needs."\textsuperscript{131} C. Brooklyn Derr held that career anchor development is an ongoing process spanning a period of time from early career to early-late career. He believed that the process is flexible in the early career stages but that "the dominant trend of a person's needs, values, attitudes, and abilities becomes increasingly fixed over time and eventually guides life and career decisions."\textsuperscript{132}

In viewing the subjects within this study in the context of career anchors it was possible to gain more insight about their reactions to career plateauing. The under 35, plateaued five to seven years workers were satisfied with their careers to date. They were either in the pre-career anchor stage or in the early career anchor formation stage. They were focused on learning to do the work for which they had been trained and on becoming socialized into the organization. Their predominant abilities, needs, and values

\textsuperscript{130}\textit{Ibid.}, p. 128.
\textsuperscript{131}\textit{Ibid.}, p. 126.
had not yet solidified. They had not yet discovered their "master motive." Thus, they were not experiencing the frustration that can occur when there is a misfit between work and a fully formed, rigid career anchor.

The subjects who were over 35 and plateaued five to seven years were of an age where deciding on a career anchor was a developmental task they faced. The fact that so many members of this group indicated that promotion, increased responsibility and, most especially, supervision were important to them indicated that many were anchored in managerial competence. For them plateauing was a problem. Their abilities, values, and needs could not be fully utilized or met in their present positions. Workers with managerial anchors were frustrated by their inability to move up the organizational hierarchy.

The fact that more members of this group planned to leave the organization "no matter what" than did the members of any other group indicated that, as their career anchors became apparent to them, they realized that they were in the wrong place. Their driving force was to find a place where they could employ their managerial skills along with their scientific knowledge. They knew that their present organizations offered little opportunity for this. Their "master motive" dictated that they consider actions which
would permit the full realization of their overarching abilities, values, and needs. Promotion to the managerial ranks in their present organizations was one alternative but an unlikely one. Leaving became a viable choice.

Those workers who were under 40 and plateaued between ten and twelve years were of an age where their career anchor formation had either been fully accomplished or was nearing that stage. For those who had discovered that their main interest was in the technical area plateauing did not present disturbing problems. Yes, a promotion "would be nice," but, no, they would not give up their scientific work in order to obtain one (even if that were possible.) There were fewer in this group than in the preceding one to whom promotion, increased responsibility, and supervision were important. However, there were some to whom these aspects of work were becoming essential. Two subjects indicated that they would leave if no promotion were forthcoming. Meeting the needs of their managerial anchors was becoming the "thing [they] were least likely to give up."133 Some were still hopeful of being promoted to the managerial ranks within their present organizations. Others had given up this hope and planned to move out. The misfit between their career anchor and their present positions (which proscribed the practicing of

managerial skills) was problematic to them. The would-be managers in this group were dissatisfied because of their plateaued status.

It is possible that the subjects interviewed for this study had been part of a larger cohort whose managerially anchored members had previously left the organization. Those who remained were either anchored in technical/functional competence and not bothered by plateauing, or they were anchored in managerially competence, had not left earlier, and were suffering adverse reactions to plateauing.

The over 40, plateaued ten to twelve years subjects presented a different picture than did those in the two preceding groups. They were more satisfied, were not as interested in promotion, were not seeking more responsibility, and, almost unanimously, did not want to perform supervisory duties. Those who spoke of leaving did so in terms of retirement. These subjects were anchored in technical/functional competence, were performing duties which met their abilities, values, and needs most closely, and thus, were satisfied. Plateauing was not creating problems for them.

All of the members of the non-plateaued group reported career satisfaction. They exhibited the needs of managerially anchored persons -- continued promotion and
supervision of others (which can be translated into leadership role.) They had been able to match their work to their career anchors. They had not been forced to give up what was most important to them.

It is possible that some of the subjects remained in their positions because they were anchored in security, autonomy, creativity, or one of the other career anchors discussed in the literature review chapter. However, in analyzing the field notes and listening to the taped conversations, this researcher was confident that the majority of the subjects were technically(functionally anchored. Thus, plateauing was not an overwhelming problem to the sample as a whole. Those for whom plateauing was creating problems were those who wanted to perform tasks associated with managerial roles. Therefore, the researcher concluded that plateauing was most problematic to those people whose career anchor was managerial competence.

**Does plateauing grow in importance and effect?**

Plateauing does grow in importance and effect. It is not a problem for individuals in their early careers, and it becomes problematic to those in mid-career. The magnitude of the problem decreases and virtually disappears in late career.
Because this was not a longitudinal study it was not possible to investigate the subjects' reactions to plateauing at different times within their individual careers. Therefore, the study was designed so that the reactions of groups of people could be examined at particular career times.

Although there were differing reactions within the groups, there was a definite trend or pattern which emerged as to the importance and effect of plateauing within each group.

If the word "Time" is substituted for "Group" (i.e., Time A = Group A, Time B = Group B, and so forth) it will be possible to visualize the predominant trend or pattern. At Time A (or for the members of Group A) plateauing was not a significant problem. There were virtually no observable effects to the plateauee or to the organization. At Time B plateauing had taken on great importance. The effects to the individual (e.g., job and personal dissatisfaction) and to the organization (e.g., the threat of high attrition) were potentially serious. At Time C the importance and effect of plateauing were beginning to abate, but they remained serious enough to cause concern. At Time D the negative implications to both the individual and the organization had almost
disappeared. In graphic form the trend line would appear thus:

**GRAPH I**

**IMPORTANCE AND EFFECT OF PLATEAUKING**

**Neutral** -- No adverse effects on plateaued workers

**Time A**
(early career workers under 35, plateaued five to seven years)

**Time B**
(mid-career workers over 35, plateaued five to seven years)

**Time C**
(mid-career workers under 40, plateaued ten to twelve years)

**Time D**
(late career workers over 40, plateaued ten to twelve years)

**Negative** -- adverse effects on plateaued workers
The "why" of this trend is contained in the sections preceding this one. Succinctly and generally, at Time A the plateauee's internal and external careers are synchronized, his age and career stage are such that he is able to accomplish the developmental tasks at hand, his career anchor is but beginning to form, and his main focus is his work.

At Time B he is the least satisfied. This could be for one or more reasons. His internal/external career congruency may not be acceptable, his plateaued status may be preventing the successful completion of the predominant developmental tasks facing him, his career anchor may be becoming clearer to him, he may be performing work which does not suit that anchor, and/or his focus has broadened from merely work to professional work-related concerns such as promotion.

At Time C he is in relatively the same position, but his problems are lessening for one or more reasons. For example, he may have lowered his aspirations and adjusted his expectations so that his internal and external careers are more in line. He may have been able to accept the negative outcomes of the developmental tasks through which he has been working or he may be facing tasks which will produce positive outcomes. The formation of his career anchor is completed or nearing completion and he may have found that his present position enables him to meet his needs. His focus has
broadened further to include more personal concerns such as pay and security and to realize their value. He is still relatively dissatisfied, but his personal "maelstrom" is beginning to subside.

Finally, at Time D the plateauee indicates that his satisfaction level is high again. It may be that he has become more comfortable with the match between his internal and external careers through the lowering of his aspirations and expectations, as mentioned above. His career stage and age are such that his developmental tasks, such as maintenance or preparation for retirement, are relatively easy for him. His career anchor is fully formed, and if it is a technical/functional one, he is in the right place. His focus has broadened further to include contemplation of retirement, leisure, or a second career.

Any or all of these factors, individually or in combination, may create considerable problems for the plateaued worker. However, at given times within his career they create greater concern. As the worker matures, becomes more realistic in his expectations, works through his developmental tasks, recognizes his career anchor, and broadens his focus past work and career, he regains the earlier satisfaction he experienced or to find satisfaction of another kind.
Plateauing is not a problem for some people, i.e., those anchored in managerial competence and performing managerial work, and those anchored in technical/functional competence and performing technical work who are either in their early careers or their late careers. However, it is a problem for many technically anchored people in mid-career. For those for whom it is a problem it grows in importance and effect, but the negative effects of plateauing lessen over time. There is not a simple linear downward slope. Rather, there is a period when plateauing is of little consequence followed by a period when it is a serious problem. It remains troublesome for a time but begins to decrease in intensity. Finally, it loses its importance and the potential for producing adverse effects on the individual or the organization.

SIGNIFICANCE OF THE FINDINGS

Now that some of the factors that tend to exacerbate the negative effects of plateauing have been isolated, the question becomes, "How can this information be used?" It can be used by several groups of people in a number of ways which will be listed and discussed below.
The information aids in the attempt to discover of the underlying cause(s) for the adverse effects experienced by some plateaued professional/technical specialists.

One of the primary uses of this information is to aid in the discovery of the reason(s) for the adverse reaction to plateauing observable in some situations. It does not matter whether the scientist or engineer is attempting self-diagnosis or a manager is aiding his subordinate in assessing the situation. The important thing is that there is a menu from which to select in seeking to uncover the root cause(s) the dissatisfaction associated with plateauing. The plateauees and/or managers have a means of beginning their investigations.

Specifically, each or both can examine the fit between the timing of the worker's internalized career and the timing of the organization's externally imposed career. If incongruency is found, it can then be determined if anything can be done to more closely align the timing of both careers. For example, if no promotional opportunities exist, career counseling may help the individual adjust his aspirations and expectations so that his internal career clock is not running faster than the one which controls his external career.

If a fit does exist, the examiner(s) can then focus on career stages to determine if the individual is successfully completing the developmental tasks before him. If not, it
can then be decided what, if anything, can be done to aid in the process.

Career anchors would be the next area to explore. If the individual's abilities, needs, and values do not mesh with his present work and its environment, it can be decided if some adjustments can be made so that what the individual is doing is congruent with what he must do.

**Corrective actions can be sought which address the cause(s) in each individual situation.**

If the root cause(s) of the scientific worker's dissatisfaction are discovered, it then becomes possible to focus on solutions which will address those particular cause(s). If the organization has the capability to take some corrective actions which will aid its workers in dealing with negative effects of plateauing, it makes good sense to take only those actions which are tailored to the underlying cause(s). For example, if the scientific worker is anchored in technical/functional competence but has become disenchanted because his work is no longer interesting and challenging, new technical duties on a different project might offer the solution. Promotion to a managerial position, were one available, would not help. Conversely, if the worker's career anchor is managerial competence, new
technical work would not be the solution. Added responsibility in a supervisory capacity might be.

More examples could be given, but the one above serves to illustrate the importance of first, discovering the exact cause(s) of the worker's dissatisfaction and second, finding the individualized solution for that particular worker.

It is possible to know in advance specifically which times in a professional/technical worker's career are the most susceptible to negative reactions to plateauing.

In attempting to determine whether or not plateauing grows in importance and effect over time, it was possible to isolate those times when it appeared to create greater problems. Succinctly, plateauing did not have much effect in early career, was very troublesome in mid-career, and decreased in importance in late career.

When discussing time specificity, personnel policy makers should be added to the list of users of this information. It is important for the individual and his manager to be aware that there is a period of time in the middle of a career when plateauing will tend to be most troublesome. It is also vitally important that those who develop personnel policy for large organizations be aware of the time factor. For example, one of the solutions to plateauing that is often seen in the literature is job rotation. Job rotation may be very useful for an older
technical worker who has become bored with performing a limited number of scientific duties. However, for policy makers to develop policies which would mandate that everyone within the organization make some type of move every five years would be counter-productive. The early career worker who may have been with the organization ten years (five of them at the GS 12 level) is still focusing on such things as inclusion or socialization within the organization. He has not yet become bothered by his plateaued status, and he is not interested in being moved laterally at this time. For him, job rotation would be more hindrance than help.

Again, more examples could be presented to underscore the importance of timing, but they are not necessary at this point. What is important from the personnel policy maker's point of view is that he can focus his efforts to minimize the effects of plateauing on the mid-career years. Thus, much time and money can be saved on behalf of the organization, and unnecessary problems can be avoided for individual workers.

*It is possible to understand if there is a good fit between the professional/technical specialist and the organization.*

For the purpose of understanding, the personnel policy maker, the career counselor, the manager, and the worker should be included as users of the information discovered in
this study. In many of the steps of the personnel process, such as interviewing, hiring, training, career counseling, and so forth, it is important for all involved to have a realistic assessment of the fit between the individual and the organization.

A young, upwardly mobile scientist or engineer whose internal career is focused on the fast-track would not be suited for an organization whose technical career ladder is truncated and whose promotional opportunities are limited. A scientifically oriented but managerially anchored individual will not fit well into an organization whose structure historically or predictively will place him in a technical career plateau for an extended period of time.

Interviewing should uncover the expectations of the individual's internal career. A match with the organization's traditional or anticipated career path should be sought by the potential worker. It would be useful for any individual to have as clear a picture as possible of the course his career will take before he chooses to join a particular organization.

DeLong and Derr have both discussed the testing used in determining the career anchors of their research subjects.134

These or similar tests could be administered during career counseling sessions so that an individual/organizational match can be determined. Again, the scientifically trained worker will find assistance in determining if he is doing the right type of work in the right place.

Age is known and the probable stage can be assessed of any worker to understand what developmental tasks are facing him. It may be that the individual or his manager can take some action to ease his progress through those tasks which are problematic for him. Just understanding what is causing his frustration should be a help to the worker during difficult times.

Finally, the individual, manager, and career counselor can use this information to draw a career map of problematic/non-problematic times. Their individual and collective attentions can be focused on the predictively more difficult times as they each or all begin to take steps to address any negative reactions to plateauing.

Prescriptions for the formation of personnel policies and management strategies for scientists and engineers can be developed from the information elicited from the research subjects.

The final use of the information from this study will be discussed in the last section of this paper. It is in this section that the prescriptions or recommendations sought from
the plateaued scientists and engineers will be presented in conjunction with previously suggested actions found in the literature and suggestions from personnel specialists employed by the federal government. It is anticipated that once these suggestions for improvement are set forth it will be possible to tailor the corrective action to the specific problem. It is important to note that this study showed that there are many workers for whom plateauing is not a problem. These workers do not need corrective actions taken on their behalf.

GENERALIZABILITY

It was not the intention of this researcher nor the purpose of this study to develop findings which were statistically generalizable. The small, purposive sample chosen for investigation and the research methodology employed proscribe any claim to statistical generalizability. However, as Glazer and Strauss have pointed out, small substantive theories are the building blocks of large formal theories.\textsuperscript{135} It is in this sense that the findings of the study and the personnel policy recommendations set forth might be considered generalizable. It is hoped that individuals, managers, and personnel policy makers

\textsuperscript{135}\textit{Op. cit.}, Glazer and Strauss.
confronting the phenomenon of career plateauing in areas other than technical and for levels other than professional will benefit from the present findings and recommendations. It is hoped that what has been set forth in this paper will serve as the basis for further research in the area of career plateauing. It would be interesting and useful to learn how the findings relating to the concepts of internal/external career, career stages, and career anchors apply to individuals in other types of work endeavors. It would also be interesting and useful to learn if the recommendations offered by this research group can be applied to other groups of plateaued employees. It is hoped by this researcher that this is the case.

RECOMMENDATIONS

A review of the literature on the topic of career plateauing indicates that there is no shortage of suggestions for aiding the plateaued worker. The subjects in this study echoed some of the same suggestions. They also made suggestions of their own. In this final section the question, "What can be done to alleviate the adverse effects of plateauing on professional/technical specialists in the federal government?" will be addressed.
Carnazza, et al. found that job quality was the most important factor associated with workers who had plateaued effectively. They suggested that management strive toward providing jobs which were challenging, satisfying, and vital to the organization. The same theme was echoed strongly by the research subjects in this study. Seventy-four percent of the respondents named work content as an important factor. Performing interesting work, being challenged on the job, and believing that their work was important or contributory were all important aspects to the interviewees.

They mentioned other factors which would contribute to their satisfaction in the work place. One of these factors was freedom from over-supervision so that they could work in a way and at a pace which suited their particular personalities, knowledge, and sense of pride in a job well done. Closely aligned with the concept of freedom were two other frequently mentioned suggestions: (1) the removal of unnecessary constraints which interfered with what the scientists viewed to be proper scientific procedures and (2) the reduction of their time required for the performance of non-scientific (administrative) tasks. They also spoke of

136 op.cit., Carnazza, et al.
improving the working environment to facilitate the accomplishment of their scientific work.

Managers are the group most suited to make use of these particular recommendations. It is they who have the power to assign work, to move employees from one project to another when interest wanes or the challenge is gone, and to grant the freedom on the job that the workers seek. They, too, have the power to create the best working environment possible within budgetary and other constraints they face.

**Provide recognition.**

In both the focused and non-focused portions of the interviews, the idea of recognition surfaced frequently. When asked directly, only one subject in the entire sample said that recognition was not very important. The subjects spoke of various types of recognition -- awards, rewards (both monetary and non-monetary), and positive feedback from their supervisors and co-workers. The interviewees also indicated that providing recognition on an equitable basis was important to them. By this they meant that when awards were given, when new and attractive work assignments were made, and when recommendations or selections were made for the few promotional opportunities which were available, they should be based on past performance. They should be used as a form of recognition for work well done.
In 1985, Griggs and Manring conducted a study of over 900 scientists and engineers from ten separate organizations. NSWC was one of these organizations. In their report ("Reward and Recognition Practices for Technical Professionals") they stated, "...extrinsic rewards may be ... perceived as symbols which represent the value which the organization places on its technical professionals ... ."\textsuperscript{137} They further reported, "The question to be raised within organizations is the extent to which these rewards are perceived as being equitably distributed ... our interview data suggests that this equity issue may be a problem in some organizations."\textsuperscript{138} These findings support the findings of this present study, i.e., that recognition, through the means of rewards, conveys a sense of value to the worker and that equitable distribution of these rewards is of concern.

Again, managers are in a position to understand and make use of this finding and to pay attention to the equity issue. They are in a position to provide the positive feedback sought and to distribute monetary and non-monetary rewards on the basis of equity. In addition, personnel policy makers


\textsuperscript{138}Ibid., p. 37.
are in a position to develop broad-based policies which create objective standards for awards or rewards. These policies, because of their inherent objectivity, have the potential of dissipating the question of equity in distribution.

Be honest

The research subjects had a realistic idea of what their promotional opportunities were. They understood the limited potential for reaching higher levels, given the structures of their particular organizations. This fact speaks well of their organizations and any career counseling which they had received.

Previous research efforts have shown that an employee's correct perception of his plateaued status is an important factor in the amount of satisfaction he experiences within the context of his job. Nehrbass found that there were four types of plateaued workers: (1) those who were not plateaued and knew it, (2) those who were plateaued and knew it, (3) those who were plateaued and did not know it and (4) those who were not plateaued and did not know it. What he discovered in his research was that those who were not plateaued but did not know it were the most dissatisfied. In

139op.cit., Nehrbass.
other words, their incorrect perception of their plateaued status created problems for this group. Those who were not plateaued and realized it and the two groups who were plateaued did not evidence the same dissatisfaction.

A correct assessment of one's status and one's promotional opportunities is useful to the individual as well as the organization. In this area, it would be fairly easy for managers to inform their workers of their individual opportunities for promotion. If those persons to whom promotion is important have a realistic understanding of the chances of attaining such a promotion, they could then make reasoned, informed decisions about whether or not to remain with their present organizations.

Create innovative career paths

Both NSWC and DOI have dual-track career ladders whereby engineers and scientists can move beyond the "journeyman" level without entering the managerial ranks. However, according to the interviewees, these dual tracks exist more in name than in reality. The positions on the scientific ladders at the higher levels are so limited that no subjects considered them to be attainable.

When discussing promotion, one of the main concerns of the research subjects was that, should they move to the GS 13 level, they would necessarily give up their scientific work
to perform managerial and administrative tasks. This was not acceptable to most of them. In fact, there were two subjects within the sample who had, at one time, been promoted to the GS 13 level. Both had requested that they be re-instated as GS 12's because they disliked the duties associated with the higher grade.

Dual-track ladders provide a good solution for plateaued workers anchored in technical/functional competence who seek recognition through promotion and increased monetary rewards. They also provide a good solution for organizations which face high attrition due to lack of promotional opportunity. Although plateauing has proven to be a relatively insignificant problem for workers anchored in technical/functional competence, their need for recognition would be well served by the active implementation of dual career ladders.

Often policy makers believe that it is more cost effective to hire new engineers or scientists at entry grade levels than to pay their more experienced workers the salaries commensurate with higher grade levels. This is not necessarily the true.

One high-ranking personnel specialist at NSWC spoke of the "organizational hurt rate." This was the number of people who exited the agency times the number of years of
service they had completed. It is expensive to lose long
tenured employees. Each case of attrition produces tangible
costs such as time and money spent on training and intangible
costs such as loss of organizational memory. Dual-career
ladders offer one solution to organizations who suffer high
attrition due to lack of promotional opportunity.

A suggestion made by Smith and Waldie offers another
alternative which would address both of the above mentioned
problems -- the virtual non-existent access to higher levels
on the scientific ladder and the reluctance of the subject to
forego their scientific work. Smith and Waldie suggest the
creation of a multi-track system "which combines aspects of
the dual-track with rotational developmental assignments."140
A worker on a multi-track career ladder would advance to the
"journeyman" level in his own career group. Thereafter, he
would progress through a series of lateral assignments or
temporary details in other functional areas so that he would
broaden his knowledge of the organization as a whole.
Perhaps he would serve as a manager on an interdisciplinary
team. In addition to lateral assignments in similar
functional areas, the worker would also spend time in staff
positions.

140 Smith, Russ and Waldie, Margret, "Multi-Track Career
Ladders: Maximizing Opportunities," Review of Public
Therefore, from the organization's point of view, when a supervisory position became available the pool of eligible candidates would be increased. From the individual's point of view, when a higher level opening occurred, he would qualify for consideration for more positions.

This concept would address three concerns expressed by the interviewees. The first related to the belief that some supervisors (among them, some military officers) did not have the technical knowledge to properly manage a scientific unit. The second was the interest mentioned by the majority of the employees in keeping up with the state of the art through continuing education and training. The third was the desire for task variety expressed by the majority of the sample.

By means of rotation or special assignment in a multi-track system the scientists would have the opportunity to broaden their technical knowledge, to be constantly facing new challenges, and to learn management skills. To be selected to manage a special project would provide the sought-after recognition discussed earlier. It would also provide a learning experience so that the worker could decide, based on experience, if a managerial position were something he really wanted. Even if a promotion to a higher grade level did not occur, the multi-track ladder would meet many of the needs of the subjects.
Individuals, managers, and personnel policy makers alike can make use of this suggestion. Policy makers can create the system, managers can implement it, and individuals can take a pro-active stance in directing their own careers when they have the choice of options such a system would provide.

**Educate the employees**

Professional/technical workers need to be educated in two ways. The first is in the context of work. The subjects indicated that one of the more important aspects of their jobs was the opportunity they had for increasing their knowledge and skills — either through on the job training, special training programs, or contact with people from outside their agencies who could share knowledge and experience with them.

The second way is in the context of career. Some new and interesting information has emerged in this study. By sharing this and other information with workers, managers and career counselors could assist those experiencing negative reactions to plateauing in confronting and understanding the problem. It was previously suggested that the time-worn adage, honesty is the best policy, in letting present and potential employees know what type of career they can expect within the organization is good advice.
The employee has the need to know that his dissatisfaction may be caused by the lack of synchronization between his internal and external career, by the difficulty he is experiencing at a given career stage, or by the incongruency between his career anchor and the work he is performing. He then has the opportunity to work with his manager or career counselor in seeking solutions to his problems.

Perhaps the message to plateaued workers, in light of the present findings is "don't panic -- you'll get through it." This means that, even if no promotions are/will be available and leaving the organization is not possible, the plateaued worker will eventually return to a state of contentment. This will occur as the dissatisfaction he is experiencing because of plateauing floors out and is replaced by the anticipated satisfaction associated with age.

Promote the concepts of the "solid citizen" and the "good soldier"

In the literature review chapter of this paper, Stoner's typology of plateauees was presented. Contained within his typology were two types of plateaued individuals. One type he called "deadwood" and the other "solid citizens." The "deadwood" were ineffective plateauees in that they did

not perform satisfactorily and created problems for their organizations. The "solid citizens" were effective plateauees in that they performed satisfactorily or better and contributed significantly to their organizations.

By learning directly from the plateaued subjects what measures might lessen the negative effects of plateauing, managers, career counselors, and personnel policy makers alike will be able to take actions which will prevent organizational "solid citizens" from becoming organizational "deadwood." In addition, as the organization is able to eliminate some of the adverse effects of plateauing, the "solid citizen" will turn his attention to performing some of the good citizenship tasks which Organ and Bateman listed in describing their "good soldier," i.e., helping co-workers, minimizing complaints, promoting a positive work climate, and so forth. An organization comprised of "solid citizens" and "good soldiers" could prove to be the ultimate in organizational success stories.

\[\text{142} \text{Op. cit.}, \text{ Bateman and Organ.}\]
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