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# Identifying Potential Supervisors

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The Attitudes of Different Types of  
Ordnance Employees on the Characteristics  
Of Successful First-Level Supervisors

By  
Howard M. Vollmer  
and  
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BUREAU OF LABOR AND MANAGEMENT  
STATE UNIVERSITY OF IOWA  
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*Statement of Objectives*

1. To integrate instruction at the State University of Iowa in various subjects related to the field of labor and management; including personnel management, labor legislation, engineering, psychology, economics and industrial management.
2. To conduct, from time to time, conferences and meetings of employers and employees designed to discuss various problems confronting Iowa labor and management.
3. To engage in research in problems of labor and management on an industry-wide basis, attempting to study objectively those problems which concern Iowa labor and management. The findings will then be published and distributed throughout the state to Iowa labor, management, educational and public groups.

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## *Preface*

Selecting men for promotion to supervisory positions is a constantly recurring problem in business and industry. Some firms have achieved at least a partial solution through the evolution of what is often a complex and unwieldy system involving such factors as attendance records, merit-rating results, physical examinations, tests of all kinds, and a large measure of good judgment.

The study reported here is the first phase of a larger research program whose overall objective is the development of techniques for identifying desirable leadership characteristics for supervisors in selected occupational classifications. This phase was aimed at determining what characteristics are expected in a first-line supervisor by his men, his fellow supervisors, and his immediate superior.

We are indebted to the Ordnance Corps of the Department of the Army for making this material available for publication.

J. F. Culley, *Director*

Iowa City, Iowa  
1956



## *Foreword*

This report is a condensation of the findings of the first phase in the Ordnance Supervisor Selection Research Project. This phase was concerned with analyzing leadership requirements for first-level supervisors in the wide variety of occupational categories found in Ordnance installations. The application of these findings in identifying potential supervisors is now being tested in several installations. Since these findings are still in the test stage, the interpretations in this report are solely the opinions of the authors and do not necessarily represent any policy of the Office, Chief of Ordnance, or any other U.S. Government agency.

The authors wish to express appreciation to Dr. Kenneth B. Hoyt of the College of Education, State University of Iowa, for helpful criticism in the preparation of this report.

THE AUTHORS



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# Identifying Potential Supervisors

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## I. Introduction

### A. THE IMPORTANCE OF FIRST-LEVEL SUPERVISION

Since the publication of Chester Barnard's stimulating works,<sup>1</sup> industrial organizations have placed considerable emphasis upon the development of higher-level executives. At these higher levels more important decisions are made and policies are determined which significantly shape the goals and character of organizations themselves. Nevertheless, emphasis on executive development should not obscure the need for attention to the development of first-level supervisors at the same time. Several studies have shown that first-level supervision is also very important to the efficient operation of industrial establishments. Management neglects these considerations at their own peril.

For example, the studies of the Survey Research Center at the University of Michigan have shown that the character of supervision is related to group productivity among office workers in an insurance agency and among railroad track maintenance crews.<sup>2</sup> Supervision was also found to be related to employee turnover in an aircraft manufacturing plant.<sup>3</sup> Another study showed that character of supervision was related to the adaptability of work groups to changes in a clothing manufacturing concern.<sup>4</sup> Several investigations have emphasized the importance of first-level supervision to the coordination and smooth operation of industrial enterprises.<sup>5</sup> Two important studies have demonstrated the relationship between supervision and employee morale in the offices of an insurance company and in food production and service operations in the restaurant industry.<sup>6</sup> These investigations emphasize the importance of effective first-level supervision in achieving the goals of every industrial enterprise — high productivity, a stable workforce, adaptability to changes, coordination of operations, and high employee morale.

Special attention was directed to the development of first-level supervision as a result of the experiences of public and private agencies in participating in the production of war materiel during World War



II. It became more evident than ever before that achieving maximum organizational efficiency depended to a considerable extent on the effectiveness of first level supervision. Therefore, in the post-war period government agencies and private concerns were led to make a reassessment of the weaknesses in their first-level supervision. When a Senate Sub-committee investigated this situation in the federal civil service, they found the following deficiencies:

1. Technical proficiency of supervisory candidates is stressed to the detriment of leadership qualities and ability to get along with people. The practice of promoting the best workers to supervisory positions has proved disastrous in many instances. The experience of both private business and governmental organizations has demonstrated that technical skill in many supervisory positions is less important than the ability to lead employees. The established fact that the best work-producer need not be the best supervisor has been disregarded.

2. Seniority has been unduly emphasized. This limits the number of candidates with high supervisory potential, deters men of ability from remaining in the organization, and makes it virtually impossible to uncover obscure candidates.

3. Supervisors tend to be chosen without full and adequate consideration inasmuch as there is no reservoir of potential supervisors from which to choose when a vacancy occurs. The logical result is a lag in production and efficiency.

4. Organizational lines are seldom crossed. There is a tendency to fill a supervisory vacancy from within the particular section in which a vacancy occurs. The area of competition is thus somewhat substantially narrowed; this in turn narrows the field of applicants from which selection may be made.

5. Undue emphasis has been placed on personal knowledge of a candidate by the selectors to the detriment of those less well known. There is a lack of procedural method to determine ability of candidates not personally known.<sup>7</sup>

Consideration of deficiencies of this type led the Office, Chief of Ordnance to establish the Ordnance Supervisor Selection Research Project.

#### B. OBJECTIVES AND SCOPE OF THE ORDNANCE PROJECT

The overall objective of the Ordnance Supervisor Selection Research Project is to develop valid and usable techniques to identify Ordnance Corps workers who are best qualified in *potential leadership abilities*



for supervisory positions. The techniques developed in this program would *not* be expected to replace the personal judgment of management officials in supervisory selection. As yet, no one has ever found a satisfactory mechanical substitute for intelligent human judgment. This program was designed to develop tools which promotion officials may use as an objective basis upon which they may make their judgments on the leadership qualifications of persons under consideration for supervisory positions. These techniques would be supplementary to standard promotional practices.

This program is not designed to measure technical qualifications. The program does include: (a) identification of the desirable leadership characteristics for potential supervisors;<sup>8</sup> (b) construction and validation of techniques to measure these characteristics; (c) application of these instruments on a try-out basis in connection with supervisory pre-training.

In view of the above breakdown, the project was set up as a three-phase program. These phases are as follows:

a. *Phase I—Survey Research.* This phase was designed to determine what behavior and status characteristics<sup>9</sup> are expected in first-line supervisors by Ordnance Corps workers, by first-line supervisors themselves, and by the immediate superiors of first-line supervisors. This information was gathered by use of questionnaires and personal interviews at seven typical Ordnance Corps installations in different parts of the United States. The data were analyzed by sex, age levels, educational levels, type of work performed, etc., to determine whether different types of individuals expect different characteristics in supervisors. The results of this survey are presented in this report.

b. *Phase II—Predictor Research.* Systematic attempts are being made in this phase to discover how to measure the characteristics determined from Phase I as they may appear in workers under consideration for supervisory vacancies. Examination of written tests, situational tests, interview techniques, performance appraisal guides, etc., is relevant at this point.

c. *Phase III—Application Research.* These methods will be investigated for the integration of selection techniques with supervisory training. Also particular attention will be paid to adapting the total program to local conditions at Ordnance installations.

In basing this three-phase project upon original research within the Ordnance Corps, this program is following the example of private industrial firms like Lockheed Aircraft, Procter and Gamble, Wisconsin Electric, Detroit Edison, General Mills, Standard Oil of New Jersey,



and others, which have demonstrated a trend towards basing supervisor selection programs upon careful research within their organizations.<sup>10</sup>

Ideas on factors to investigate in Phase I were also largely based upon experiences in previous studies. For example, inquiry into "democratic" and "authoritarian" types of supervision was suggested by the important investigations of Lippitt and White, which studied the effect of similar types of leadership upon group productivity and morale.<sup>11</sup> As used in this survey, the factor called "democratic" and "authoritarian" supervision also is similar to what is called "initiating structure" in the leadership studies of the Personnel Research Board, Ohio State University.<sup>12</sup>

One project at Ohio State University investigated certain factors which lead to mental conflict in persons placed in positions of leadership.<sup>13</sup> One of these factors was called "conflicts in status." It was found that supervisors frequently were undecided whether they should consider themselves to be primarily a part of management or instead should consider their place to be with workers. This dilemma led to the inclusion in the Ordnance study of a question on whether supervisors should maintain their closest personal friendships with workers or with other supervisors.

Other factors included in this survey, such as sex, age, education, length of service, job knowledge, etc., have been common to almost every other major study of supervisor selection. Characteristics most mentioned by Ordnance employees as desirable in supervisors, such as "consideration for workers," "fairness toward workers," and "clarity in instructions," have also been investigated extensively in previous studies. The new approach used in the Ordnance survey is that *variations in these characteristics in the different work situations found within the Ordnance Corps* have been studied. The need for this type of "situational" approach to the study of leadership and supervision has been re-emphasized many times. For example, a recent discussion of "participation" and "human relations" in supervision pointed out:

The types of situations and groups in which participation and human relations may have an effect have not been carefully specified. Are the effects the same for men and women, for white- and blue-collar workers, and at all levels of the supervisory hierarchy? Some groups may regard participation and human relations supervision as a waste of time and as an indication of incompetent leadership.<sup>14</sup>

A few final words may be added at this point to indicate why it was considered to be important to solicit the opinions of workers, as well



as supervisors and managers, on what they expect in their supervisors. The idea of surveying workers, supervisors, and higher-level managers regarding characteristics considered desirable in supervisors has been used in studies conducted by private industrial, governmental, and academic organizations. The authors of one such study in a manufacturing company reported their approach to this problem in the following words:

Company X found out what a branch manager should be like by asking company personnel . . . . It was believed that specifications based upon the agreement of people *above, equivalent to,* and *below* the job level in question would yield a better basis for selection than any other.<sup>15</sup>

Sometimes studies have shown differences between what subordinates and superiors believe to be the characteristics most desirable in supervisors. In these cases, it becomes all the more important to solicit the views of subordinates as well as superiors in order to obtain a complete picture of what is needed to provide effective supervision. This problem was mentioned in a report of an Air Force survey of non-commissioned officers:

. . . Making use of the parallel between industry foremen and Air Force NCO's, it would seem that the finding that rank and status are related to views on supervision implies much for the consideration of management. Management criteria of successful supervision at the foreman level involves many instances of success or failure in meeting production quotas. This may be at considerable variance with worker (and union) criteria. The disparity might be a factor that accounts for the dissatisfactions workers feel for management and vice versa.

This is not to imply that management goals and supervisory criteria are unrealistic or incorrect. The main implications, it is believed, are for increased communication up the ladder from workers to foremen to management and to the necessity of at least explaining management views, if not attempting to justify them through education or indoctrination.

A greater harmony and understanding of management and worker views on foremen supervision . . . . would seem to contribute in the end to more effective supervision, measured in terms of worker satisfaction, reduced turnover, and increased production . . . .<sup>16</sup>

## II. *Methods*

### A. METHOD OF GATHERING INFORMATION

The information in this survey was collected by two principal meth-



ods: questionnaire survey and personal interview. Most of the information was the direct result of the administration of a questionnaire to 4,141 employees randomly selected in five Ordnance installations throughout the United States.

Three questionnaires were used in gathering the data. All three questionnaires had the same basic design but were oriented toward either managers, supervisors or workers.<sup>17</sup>

Each questionnaire included multiple choice questions and write-in questions designed to yield information on a variety of factors possibly related to successful supervision.

Managers, supervisors, and workers were separated by organizational level into groups of approximately eighty persons when filling out the questionnaire. This was done to allow each employee to feel free to give honest and complete answers without considering the presence of a superior or subordinate. No person was asked to sign his name to his questionnaire; in fact, instructions were issued for him *not* to sign his questionnaire. Upon completion of the questionnaire, the employee placed it in an envelope to be forwarded to the research headquarters.

Supplementary data were gathered by means of personal interviews with approximately seventy-five persons randomly selected at each of four installations throughout the United States.

The information sought in these interviews centered, for the most part, around the following three questions:

1. Without mentioning names, times, or locations, describe the *best* supervisor you have ever known in your work career (Ordnance or other).
2. In the same manner describe the *poorest* supervisor you have ever known.
3. Describe your feelings on what an *ideal* supervisor should be.

These questions served as the basis for all interviews. Other questions were the result of the answers to these basic questions.

Again, anonymity was an important part of the procedure. Every employee was assured that his responses would be kept strictly confidential and used only for the stated purposes.

The interviews were recorded verbatim by a stenographer. Upon completion, the interview transcripts were returned to the research headquarters for analysis along with questionnaire material.

The object of the interviews was to study intensely the attitudes of a limited number of employees. On the other hand, the object of the questionnaire was to make a limited study of the attitudes of many



employees. The high degree of correspondence found between these two techniques indicates the general reliability of the findings.

#### B. TYPE OF INFORMATION GATHERED

In this survey, information was collected concerning how the following characteristics contribute to successful supervision of Ordnance employees:

1. *Status Characteristics* of supervisors:
  - a. Sex
    - (1) Male
    - (2) Female
  - b. Age
    - (1) Under forty
    - (2) Over forty
  - c. Education
    - (1) High school
    - (2) College
  - d. Length of service
    - (1) Longest service in unit
    - (2) Shorter service in unit
2. *Behavior characteristics* of supervisors:
  - a. Type of leadership exercised
    - (1) "Democratic"
    - (2) "Authoritarian"
  - b. Orientation of friendships
    - (1) Toward other supervisors
    - (2) Toward workers
  - c. Extent of knowledge of workers' jobs
    - (1) Every job
    - (2) Most jobs
  - d. Knowledge of own job
    - (1) Moderate knowledge
    - (2) Extreme knowledge
  - e. Consideration for employees
    - (1) Moderate consideration
    - (2) Extreme consideration
  - f. Fairness toward employees
    - (1) Moderate fairness
    - (2) Extreme fairness



- g. Clarity in instructions to employees
  - (1) Moderate clarity
  - (2) Extreme clarity

The information on status and behavior characteristics of Ordnance supervisors was collected from the following types of data:

1. The *direction of employees' preferences* for different types of supervisors
2. The *relative degree of employees' satisfaction* with different types of supervisors
3. The *frequency of employees mention of different characteristics* as desirable in supervisors.

#### C. INSTALLATIONS SURVEYED

Installations were included in the Ordnance study from the North Eastern, Middle Atlantic, Middle Southern, North Central, Middle Western, Mountain, and Pacific Coast regions of the United States. Tables 1 and 2 indicate how installations selected to participate in the study were drawn from areas which were representative of thirty-four other Ordnance installations in regards to educational characteristics and urban-rural residence of the surrounding population. Considerations of this type were made in order to assure that the findings of this study would be generally applicable to Ordnance installations throughout the United States.



TABLE 1

MEDIAN SCHOOL YEARS COMPLETED BY PERSONS OVER 25 YEARS OF AGE IN THE COUNTY IN WHICH AN INSTALLATION IS LOCATED\*

<u>Installations not included in the OCO</u>	<u>Installations included in the OCO</u>
7.5	7.5
8.0	
8.1	
8.2	
8.3	
8.3	
8.6	
8.7	
8.8	
8.8	
8.8	
8.9	
8.9	
9.0	
9.0	
9.0	
9.1	
	9.3
9.4	
9.5	
	9.9
10.0	
10.0	
10.0	
10.0	
	10.0
10.2	
10.4	
10.6	
10.7	
10.8	
10.9	
	11.0
11.0	
	11.2
11.3	
11.3	
11.8	
11.8	
	11.9

\*Compiled from the U.S. Bureau of the Census, *Seventeenth Census of the United States: 1950, Population*, Vol. II (Washington: Government Printing Office, 1953), Table 12.



TABLE 2

PERCENT OF THE TOTAL POPULATION OF THE COUNTY IN WHICH AN INSTALLATION IS LOCATED THAT IS URBAN RESIDENT\*

Installations not included in the OCO	Installations included in the OCO
00.0	
21.2	
	25.7
31.2	
32.0	
34.1	
37.4	
37.8	
40.3	
40.7	
40.7	
42.6	
43.7	
44.4	
47.9	
48.2	
48.4	
48.5	49.7
	54.7
55.1	
60.9	
66.4	
67.3	
74.1	
77.2	
	79.3
81.2	
82.8	
	83.7
84.5	
85.3	
86.0	
	87.0
87.8	
	89.3
89.8	
90.0	
90.5	
93.2	
96.9	

\*Compiled from the U.S. Bureau of the Census, *Seventeenth Census of the United States: 1950, Population*, Vol. II (Washington: Government Printing Office, 1953), Table 12.



### *III. Findings*<sup>18</sup>

#### A. CHARACTERISTICS EXPECTED IN SUPERVISORS BY EMPLOYEES<sup>19</sup> AT DIFFERENT ORGANIZATIONAL LEVELS

Consistent differences between the preferences of workers and the preferences of supervisors and managers<sup>20</sup> occur in only three factors. Workers show a more frequent preference for supervisors to be selected from workers with the longest period of service, with supervisors and managers showing a decreasing preference in that order. Also workers tend to prefer their supervisors to maintain their closest friendships with workers; whereas managers tend to prefer supervisors to keep their closest friendships with other supervisors. The supervisors themselves tend to be divided on this issue. Also workers more frequently mention human relations abilities related to "dealing with people" when they describe the characteristics that are most important in their supervisors; whereas managers and supervisors emphasize administrative abilities (job knowledge, clear instructions, cooperation with superiors, ability to make decisions and to get out the work, etc.) more frequently than human relations abilities.

The greater emphasis of workers upon selecting supervisors from among employees of longest service may reflect a feeling among American workers in general that a promotion system based upon seniority offers the best possibility that promotions will not be arbitrary or based upon favoritism. Hence collective bargaining agreements frequently contain provisions that promotions are to be based upon seniority.<sup>21</sup> Therefore, wherever ability is considered alongside seniority in promotion systems, it is important for management to make clear to employees that objective standards are used to measure the ability factor.

Greater emphasis upon friendship and human relations characteristics on the part of workers in comparison with supervisors' and managers' opinions is consistent with the findings of other studies.<sup>22</sup> In this regard it is always important for management to recognize that workers characteristically evaluate their supervisors in terms of workers' interests rather than the interests of management. It is the joint task of workers and management in industry to come to closer agreement on how management interests in production, etc., and worker interests in human relations and job satisfaction may be reconciled.

#### B. CHARACTERISTICS EXPECTED IN SUPERVISORS AS RELATED TO THE PERSONAL CHARACTERISTICS OF WORKERS

There are significant differences in preferred characteristics of a



supervisor as related to the following personal characteristics of workers:

1. *Preference of male and female workers for male and female supervisors*

The majority of all workers prefer male supervisors. However, the preference of male workers for male supervisors is much higher than that of female workers for male supervisors. Female workers indicate a greater likelihood for acceptance of a female supervisor than males by their sizeable "no preference" response to the question of the preferred sex of supervisors. Therefore female workers being considered as potential supervisors should be oriented to meet initial resistance and prejudice from many female workers and almost all male workers.<sup>23</sup> Moreover female workers should be screened according to their ability to overcome these prejudices whenever they are considered as potential supervisors.

2. *Preference of male and female workers in regard to the amount of technical knowledge of workers' jobs expected in their supervisors*

The majority of workers prefer a supervisor who has a good technical knowledge of *every job* in the unit he supervises. This preference has been expressed in the following words:

He has to know the job he is supervising, at least as good as the man working for him. He has to understand the problems a man will run up against in a day's work. He can't expect miracles. You understand, I know only one trade and how things would apply in this particular trade. He has to know the entire mechanical business. Then he won't ask a man to do a job in fifteen minutes that takes two or three hours' time.

Female workers show this preference to a much higher degree than do male workers. Practically no workers indicate that knowledge of the workers' jobs is *unimportant* in a supervisor. Therefore, it is usually an important consideration when filling a supervisory vacancy in a group which is predominantly male that a potential supervisor know *every* job in the unit. This requirement is even more important for supervisors of female workers.

In a recent survey of civilian employees in an Air Force installation it was found that female employees desire their supervisors to have a complete knowledge of rules and regulations to a greater extent than male employees.<sup>24</sup> The greater preference for supervisors to know everything about the jobs and about rules and regulations on the part



of women may indicate their greater desire for direction from supervisors on these matters within a strictly defined framework of regulations, rather than "doing their own thinking" on the job. If this is a fair interpretation, it is compatible with the findings reported later in this section that male employees more frequently desire supervisors to consult them before making important decisions, whereas women characteristically desire definite direction rather than consultation.

3. *Preference of male and female workers in regard to the desired direction of their supervisor's friendships*

Male workers more frequently prefer a supervisor who maintains his closest friendships with workers rather than with other supervisors. Female workers tend to indicate no strong preference either way on this matter. It is therefore important to consider where a potential supervisor generally directs his friendships, i.e., toward other workers or toward supervisors. It is especially important in filling supervisory vacancies in predominantly male groups that a potential supervisor be a person who tends to direct his friendships toward workers. This characteristic is not so important in a predominately female group.

4. *Preference of male and female workers for "democratic" or "authoritarian" supervision*

Male workers prefer "democratic"<sup>25</sup> supervision. On the other hand, female workers slightly prefer more "authoritarian" supervision. Therefore, filling supervisory vacancies in predominantly female groups requires potential supervisors who have the ability to operate in a more "authoritarian" manner. For male groups potential supervisors should exhibit more "democratic" tendencies.

Taken as a whole, these differences between the sexes on the characteristics they desire in a supervisor may be seen as indications of basically different attitudes toward work on the part of males and females. Men in American society tend to be evaluated in terms of their success in their chosen occupation; whereas women are more frequently evaluated on the basis of social characteristics, appearance, etc. Therefore it is probably a rare woman who actually thinks of her work in terms of a "career." More often, work is a means to an outside end, such as supplementing the family income or meeting interesting people. On the other hand, men are more likely to look for satisfactions in their work itself. Thus it is understandable that male workers more frequently seek a share in work-related decisions and that they look for satisfying personal relations with their supervisors in the work situation; for to them, their work is a very important thing and not an avo-



cation. To female workers, close friendships with supervisors may not be as important as family relationships and other personal relations which are *not* connected with work situations. Also women are not so involved in their work that they want to share opinions with their supervisors on work-related matters. Individual differences in these generalizations of course occur. Nevertheless these considerations are of prime importance in determining the types of supervision that will be most effective with women as compared with men.<sup>26</sup>

5. *Preference of workers by age level for supervisors under forty and over forty years of age*

The majority of all workers indicate that the age of a supervisor makes no difference to them. However, when a preference is shown, it is high among workers *over* forty years of age for a supervisor *over* forty and moderately high among workers *under* forty for a supervisor *under* forty. The findings indicate that in groups composed mostly of workers over forty it is important to consider an older potential supervisor when filling a supervisory vacancy. Although they prefer younger supervisors, groups of workers mostly under forty will generally accept a supervisor qualified in other respects, regardless of age.

6. *Preference of workers by age level for "democratic" or "authoritarian" supervision*

Except for workers over age fifty, as the age of workers increases, preference for more "democratic" type supervision increases. This is probably not a function of age alone. As the experience and status of the worker increases, it is understandable that he would expect more consultation in supervisory decisions.<sup>27</sup> These factors rather than age alone probably account for the relation found between age and desired type of supervision. Exceptions to this are workers over fifty years of age. Since these workers began their careers in a traditionally more "authoritarian" period in industrial management, it is understandable that their strong attitudes in their younger days might influence their present opinions.

7. *Preference of workers by educational level for high school or college educated supervisors*

A majority of workers, regardless of their own educational level, prefer a supervisor who has at least a high school education. High school graduates show a high preference for a supervisor who has a high school education. When grammar school graduates indicate a preference, it is also for a supervisor who is a high school graduate.



College graduates show a high preference for college-trained supervisors. The findings indicate that, regardless of the educational level of workers, a high school-trained supervisor would experience general acceptance in most groups. However groups composed of college-trained workers more readily accept a college-trained supervisor.

8. *Preference of workers by educational level in regard to desired direction of their supervisors' personal friendships*

The majority of workers prefer to have their supervisors' personal friendships directed toward workers. However, as the educational level of the worker *increases*, this preference *decreases*.<sup>28</sup> Therefore, in filling supervisory vacancies among workers of high school level or below, it is very important to consider a potential supervisor who has the ability to maintain friendships among the workers. Among workers who are mostly college-trained, this ability is not as important.

9. *Preference of workers by length of service for selecting supervisors from workers with the longest service*

The majority of all workers prefer supervisors selected from workers with the longest service. This preference increases markedly for those workers having over five years of service. Practically no workers show a preference for a supervisor who has worked in a unit for a "shorter" period of time. These findings indicate that a potential supervisor is more acceptable to all workers if chosen from workers with the longest period of service. This is especially true in groups composed of workers with over five years' service in their work units.

10. *Preference of worker by length of service in regard to the amount of technical knowledge of worker's jobs expected in their supervisors*

The majority of workers prefer a supervisor who has a good technical knowledge of every job in the unit he supervises. However as the length of service *increases*, the preference for the supervisor to have a good technical knowledge of every job in his unit *decreases* slightly. Therefore it is important to find potential supervisors who have a good technical knowledge of every job in the type of unit they will supervise. For groups composed of workers with over five years of service, this consideration is not quite as important.

11. *Preference of workers by length of service in regard to the desired direction of their supervisors' personal friendships*

Preference for a supervisor to direct his friendships toward workers *increases* as the length of service of the worker *increases*. This is es-



pecially true for the group having over five years of service. A potential supervisor in all groups should be able to direct his friendships toward workers, especially if the group to be supervised is composed of workers with over five years of service. This ability is less important in groups with less than five years' service.

### C. CHARACTERISTICS EXPECTED IN SUPERVISORS AS RELATED TO THE OCCUPATION OF EMPLOYEES

The findings of the Ordnance Survey for different occupational classifications are presented in Profile Charts 1 through 17. The points indicated by the profile line for each factor represent the percentage of workers of a given occupational category who have made the response indicated minus the percentage of workers who have made the opposite response, calculated at twenty percent intervals. For example, if ninety percent of the male clerical employees in the survey indicated that they prefer a male supervisor and ten percent indicated that they prefer a female supervisor, the profile line would cross the line indicating preferred sex of supervisor at 8 for male clerical personnel.

Wherever a significant difference between the preferences of managers and supervisors on one hand and workers on the other hand occurred for a given factor, that difference is indicated on the profile chart by a broken line. Where no broken line occurs, the solid profile line indicates that there was no significant difference in the preference of workers, supervisors, and managers. Triangular symbols on the charts indicate the average preferences expressed by employees in all occupational groups on each factor. Inspection of where the preferences for employees in any one occupational classification differ from overall average preferences indicates significant situational differences in characteristics expected in supervisors by occupational classifications.<sup>29</sup>

The advantage of occupational profiles of this type is not only to present survey findings in an easily comprehended manner but also to develop a tool for assistance in the identification of potential supervisors within each occupational classification. Chart 18 is an example of a potential supervisor profile which is now in experimental use. By use of this chart an assessment may be made of the relevant characteristics of each worker under consideration for promotion to a supervisory position. In lieu of more objective testing devices (under development in Phase II of this project), present superiors of candidates in consultation with personnel technicians may rate each individual on the characteristics indicated on Chart 18. Profile lines may then be



drawn on this chart to connect the points indicated on the rating scales for each factor. The resulting profiles for each individual may then be compared with the "ideal type" profile for a supervisor in the occupational category under consideration, yielding a picture of the abilities of each individual in relation to the characteristics desired. As mentioned previously in this report, this system depends upon the good judgment of the individuals who rate the workers under consideration. Nevertheless, this is not considered a defect in the system, since the purpose of this phase of the project was to develop a technique *for a more objective basis upon which promotional judgments could be made*. Moreover, attention may be called to important factors by this method which otherwise might easily have been overlooked.

Since the findings previously reported indicated several important sex differences on supervisory factors, wherever significant numbers of female employees occurred in an occupational classification, separate ideal type profiles have been made for male and female employees. Where the sex is not indicated in the title of the profile chart, only male employees are included in the findings for that occupational classification.

Generally the findings reported in the profile charts may be understood in terms of the type of workers composing the occupational classification under consideration. For example, male workers show a more extreme preference for male supervisors than do female workers. Supervisors and managers, generally being males, tend to agree with male employees on this point. Occupational categories which traditionally include older employees and employees of longer service tend to prefer supervisors of these characteristics. In occupations requiring higher-educated workers, higher-educated supervisors are preferred. In all occupational classifications except technicians and instrument repairmen, workers express a moderate to high preference for supervisors to keep their closest friendships with workers. This may indicate that these more highly skilled semi-professional workers have less need for personal friendships with their supervisors because of the intrinsic satisfactions they may derive from their work itself. Although workers generally prefer somewhat of a balance between "democratic" and "authoritarian" supervision, it seems that in those classifications where more time is spent on working on an individual basis without close supervision, male employees were more likely to prefer "democratic" supervision, whereas women generally are more likely to prefer "authoritarian" supervision. Female workers likewise show a higher preference for supervisors who know every job in their work units and who treat them with impartiality and fairness. Male workers on the other



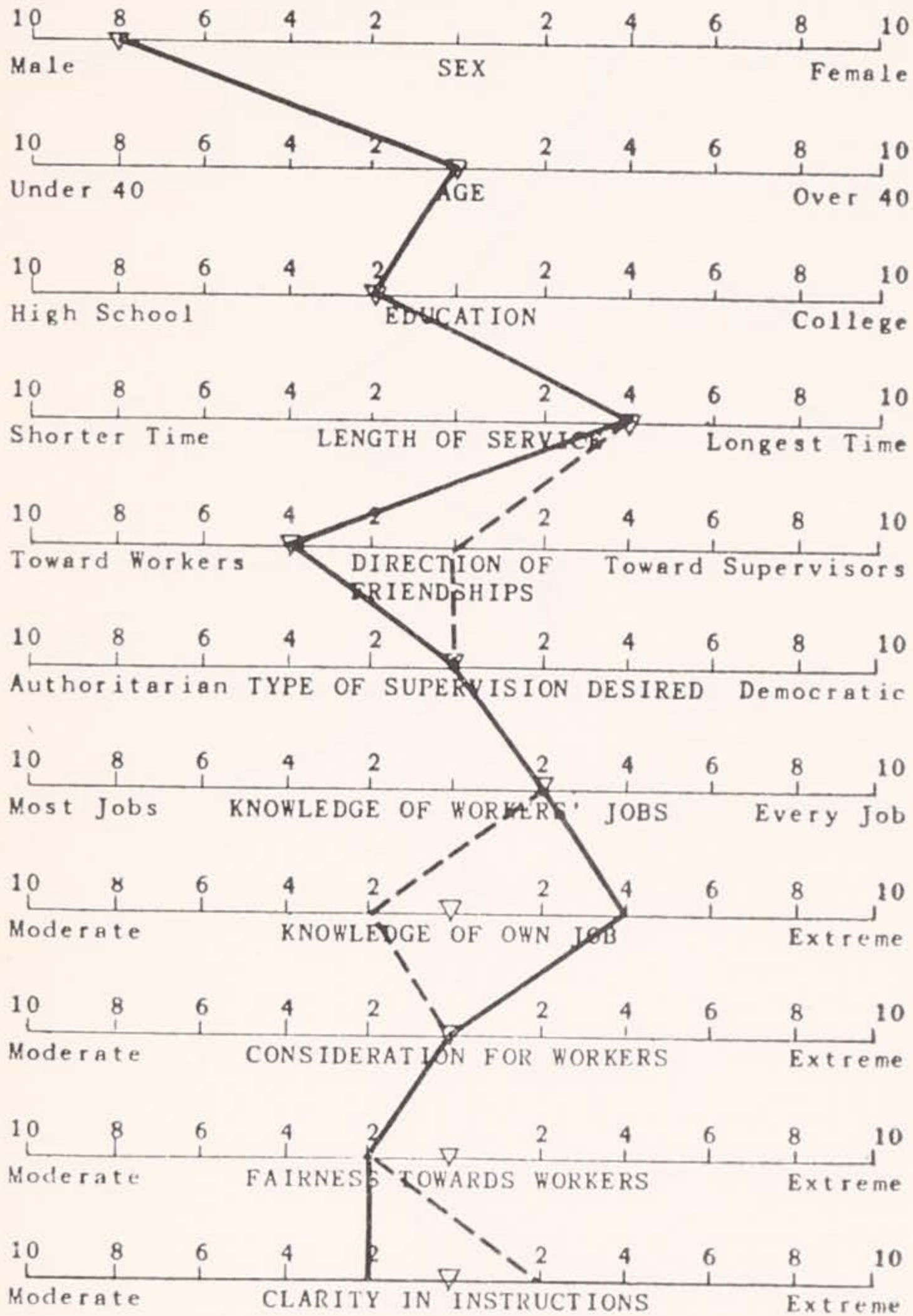
hand show more concern that their supervisor have outstanding knowledge of his own job and is able to communicate knowledge to workers in terms of clear-cut work instructions. In almost all classifications, consideration for the personal problems of employees was expected of their supervisors.

This cursory discussion of the findings for occupational classifications purposely avoids a detailed review of individual variations between occupational groups. Many of these variations might not occur in similar groups outside the Ordnance Corps. The only object in presenting these profile charts is to indicate general trends to look for elsewhere and to demonstrate one means of presenting such information and using it in the identification of potential supervisors.



CHART 1

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF MALE CLERICAL PERSONNEL



— indicates employees' opinions      - - - indicates deviation of supervisors' and managers' opinions from workers' opinions

▽ indicates average for employees in all occupations



CHART 4

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP COMPOSED OF LABORERS

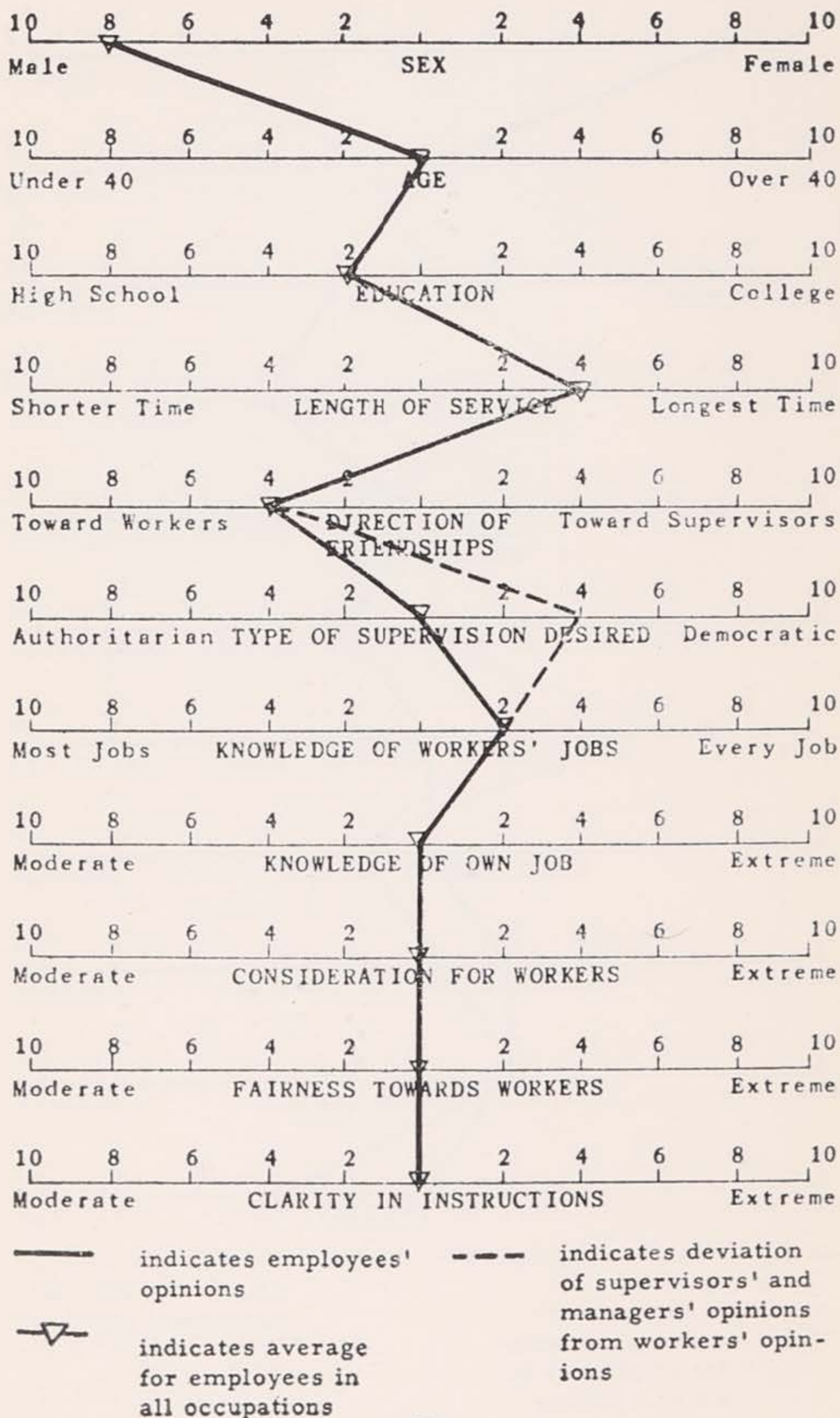




CHART 5

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP COMPOSED OF MALE WAREHOUSEMEN

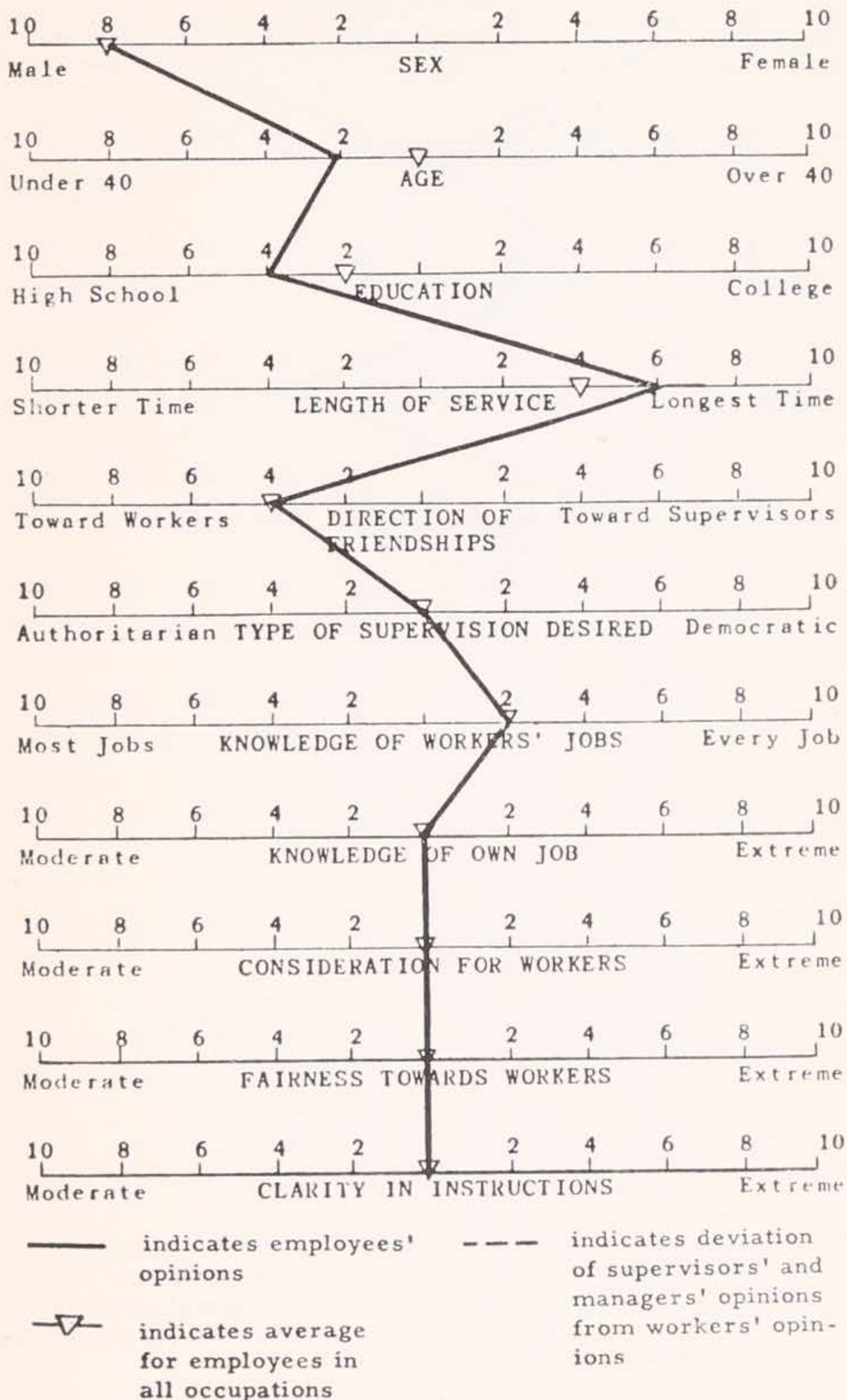




CHART 6

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF FEMALE WAREHOUSEMEN

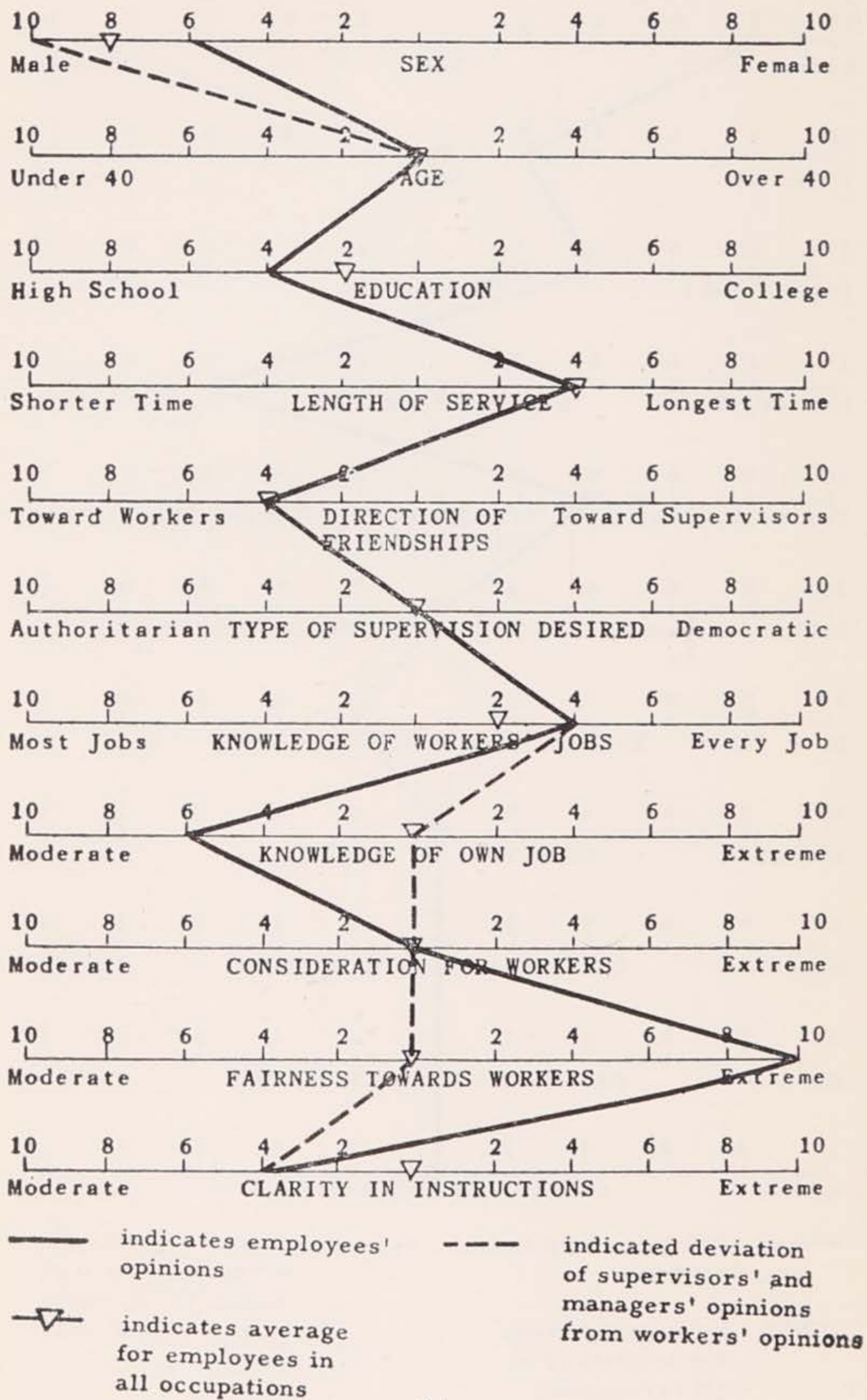
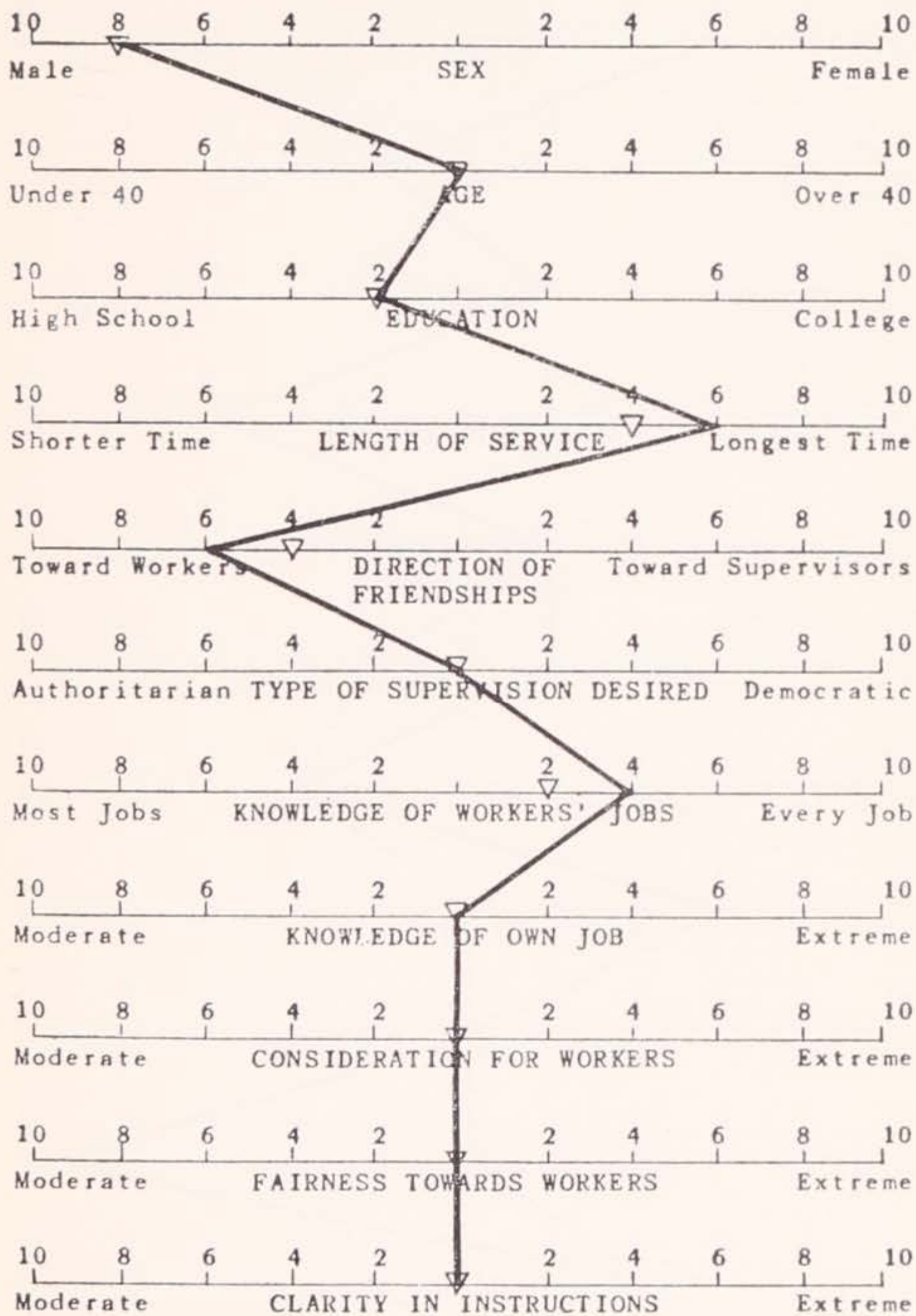




CHART 7

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF MALE PROCESSORS AND PACKERS



— indicates employees opinions

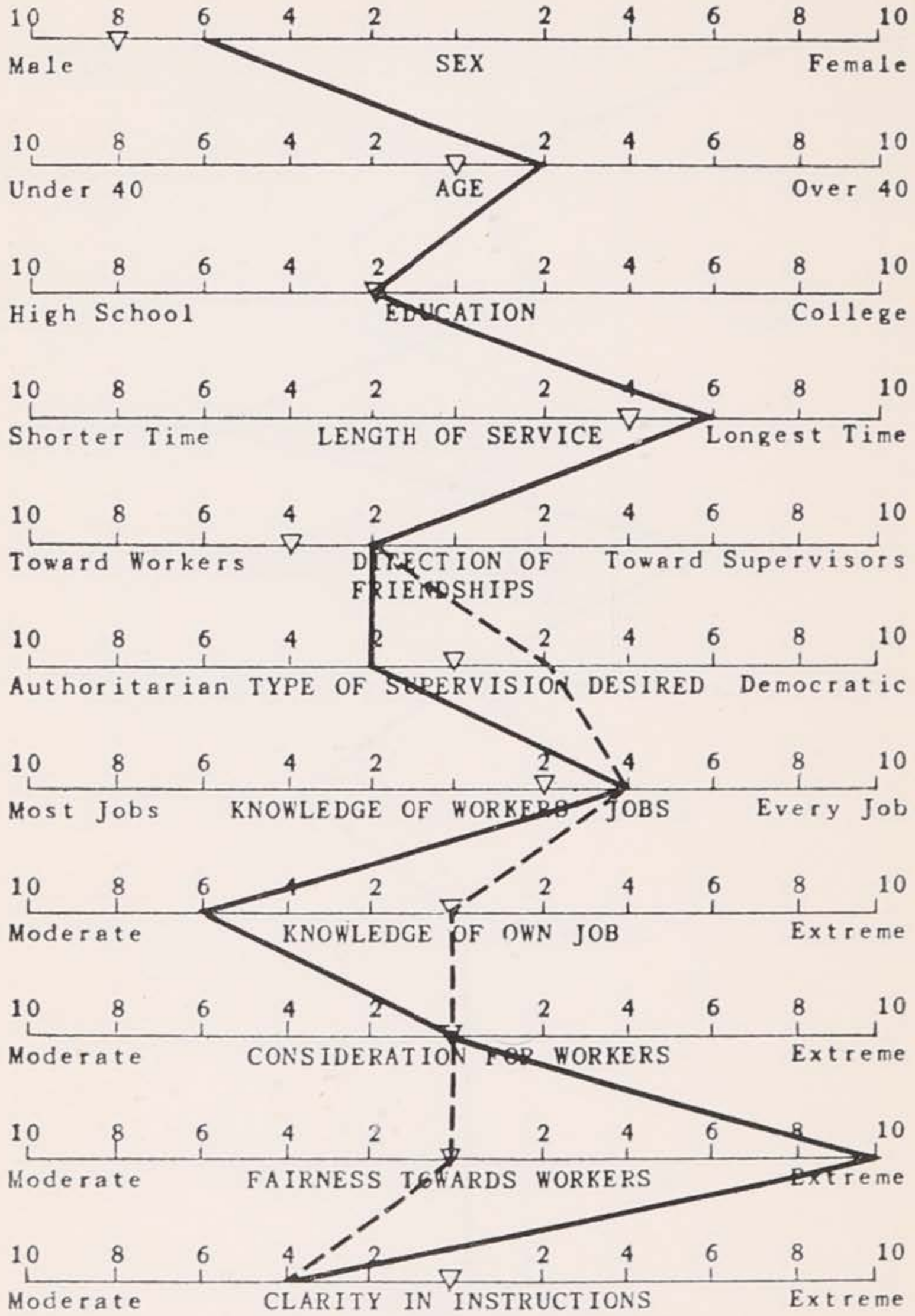
--- indicates deviation of supervisors' and managers' opinions from workers' opinions

▽ indicates average for employees in all occupations



CHART 8

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF FEMALE PROCESSOR AND PACKERS

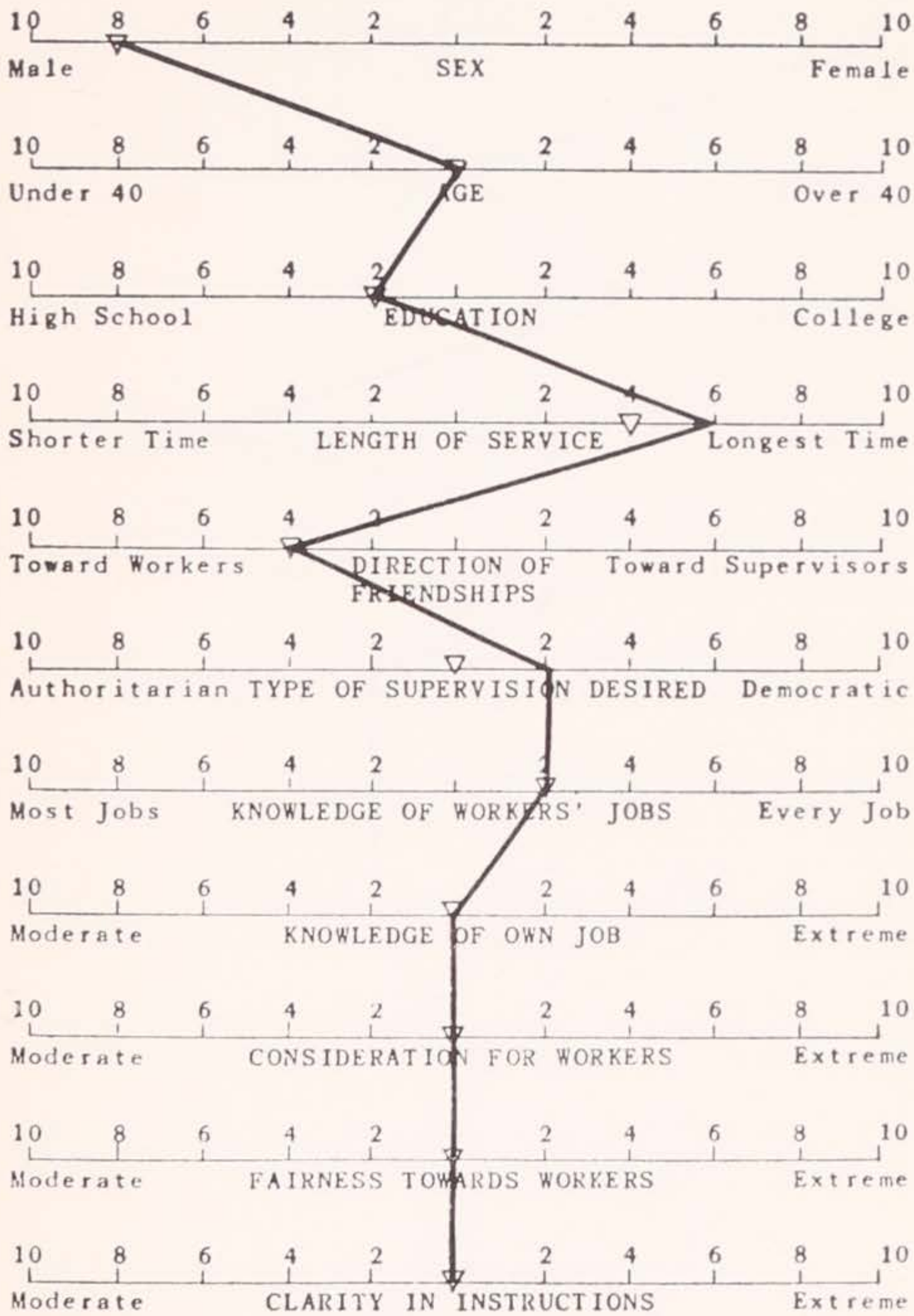


— indicates employees' opinions  
 - - - indicates deviation of supervisors' and managers' opinions from workers' opinions  
 ▽ indicates average for employees in all occupations



CHART 9

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF VEHICLE OPERATORS



— indicates employees' opinions

▽ indicates average for employees in all occupations

- - - indicates deviation of supervisors' and managers' opinions from workers' opinions



CHART 10

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF VEHICLE REPAIRMEN

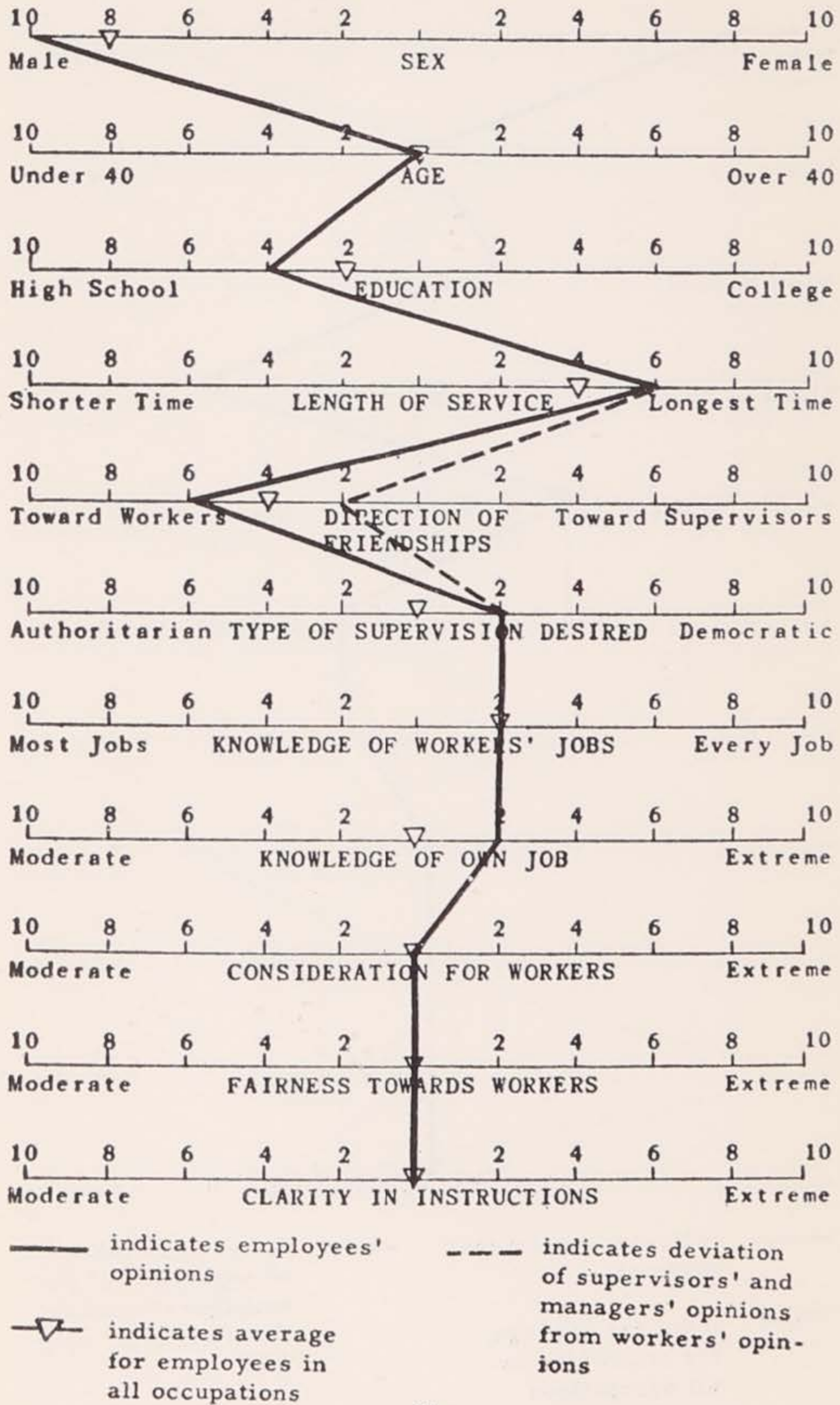
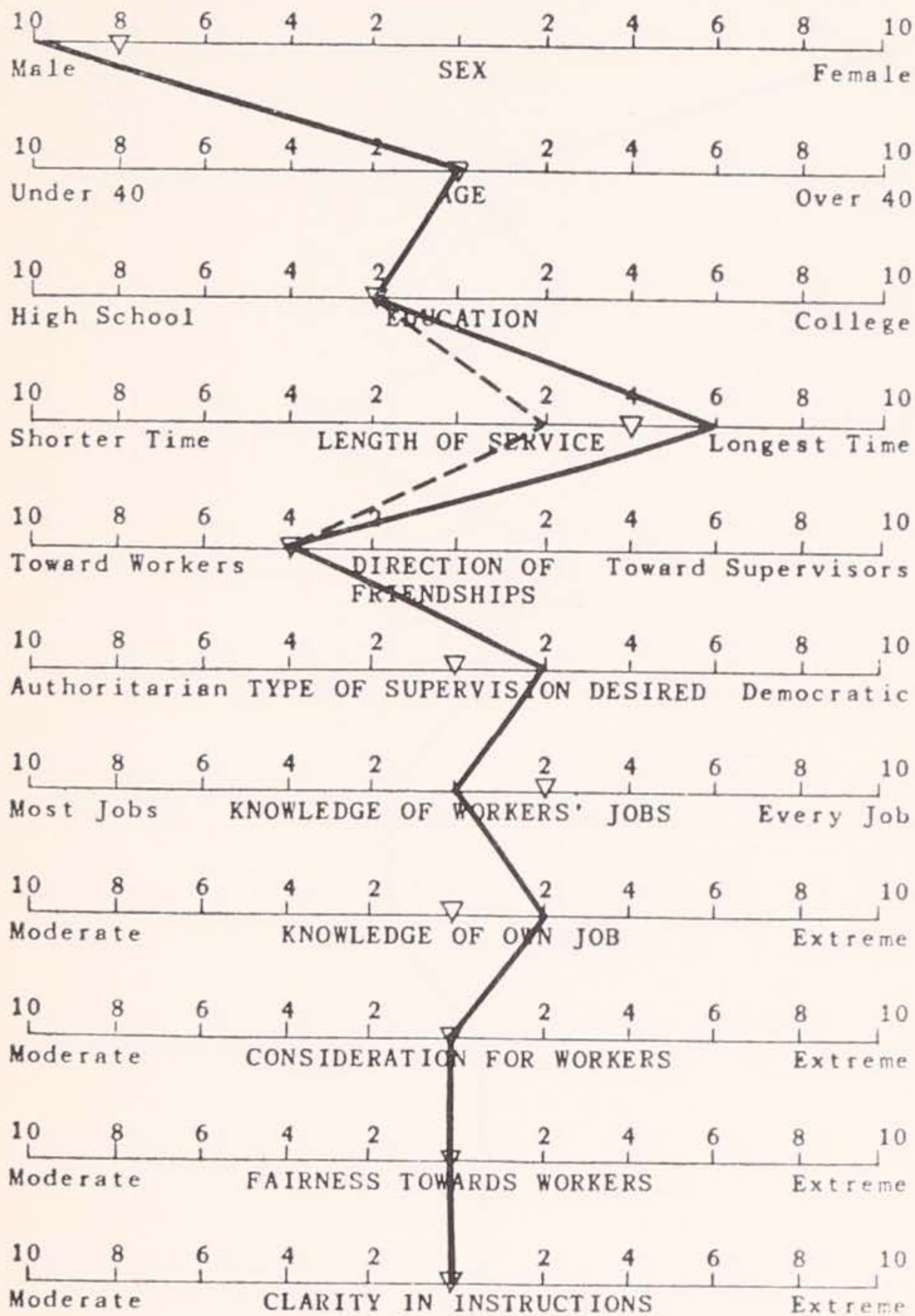




CHART 11

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF ARTILLERY AND SMALL ARMS REPAIRMEN

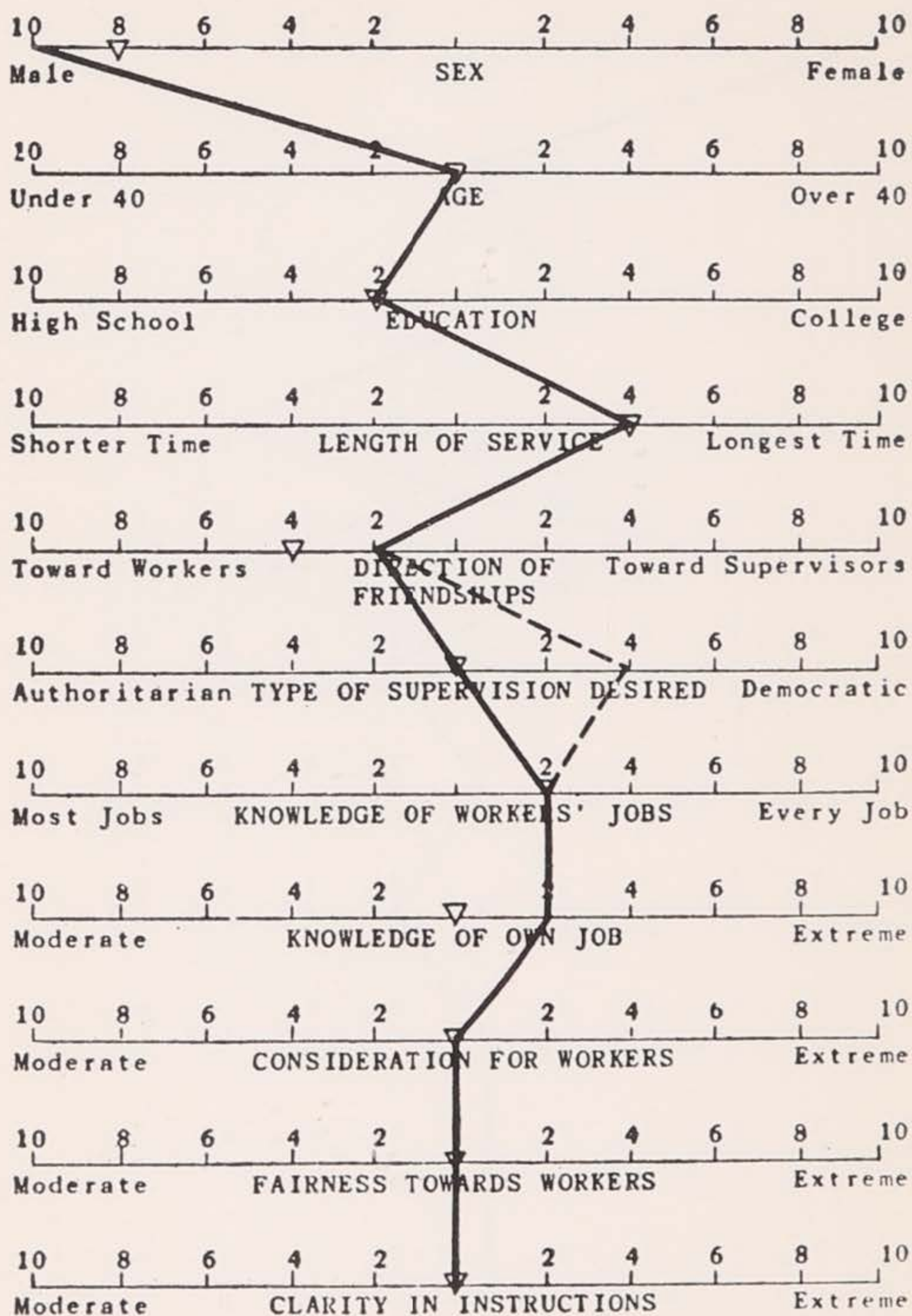


— indicates employees' opinions  
 - - - indicates deviation of supervisors' and managers' opinions from workers' opinions  
 ▽ indicates average for employees in all occupations



CHART 12

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF METAL WORKERS



— indicates employees' opinions

--- indicates deviation

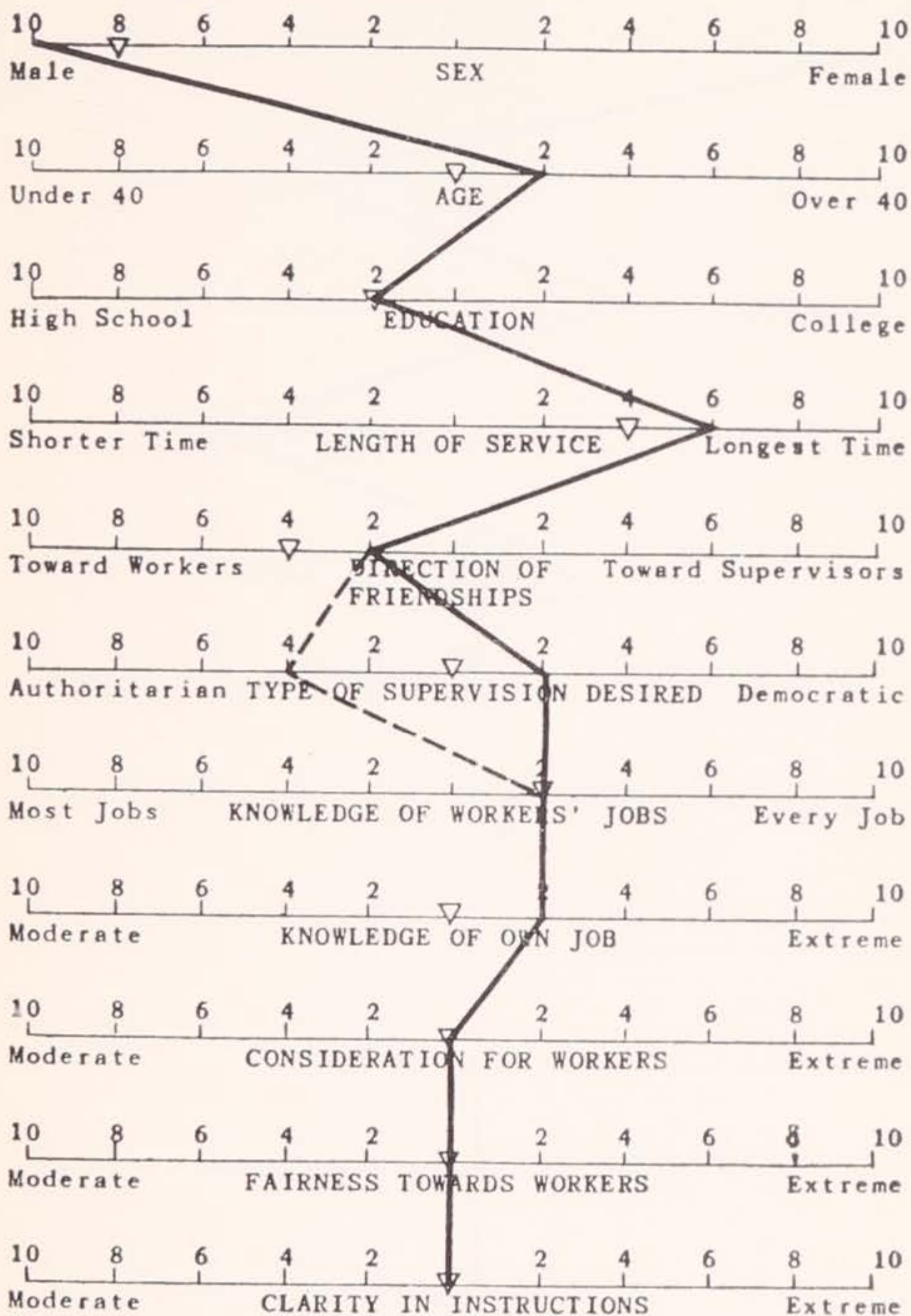
of supervisors' and managers' opinions from workers' opinions

▽ indicates average for employees in all occupations



CHART 13

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP COMPOSED OF MACHINE OPERATORS

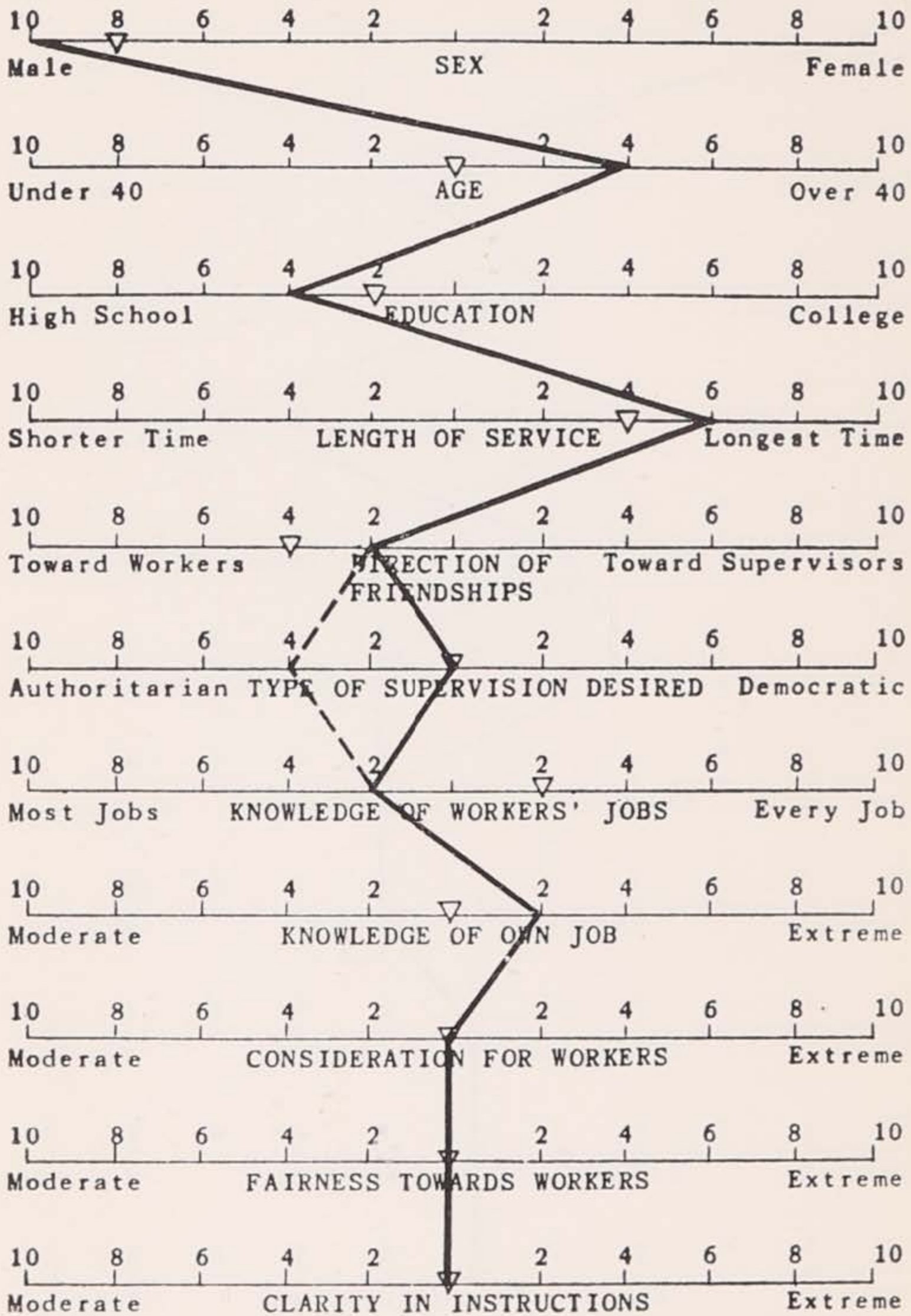


— indicates employees' opinions  
 - - - indicates deviation of supervisors' and managers' opinions from workers' opinions  
 ▽ indicates average for employees in all occupations



CHART 14

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF SHOP CRAFTSMEN

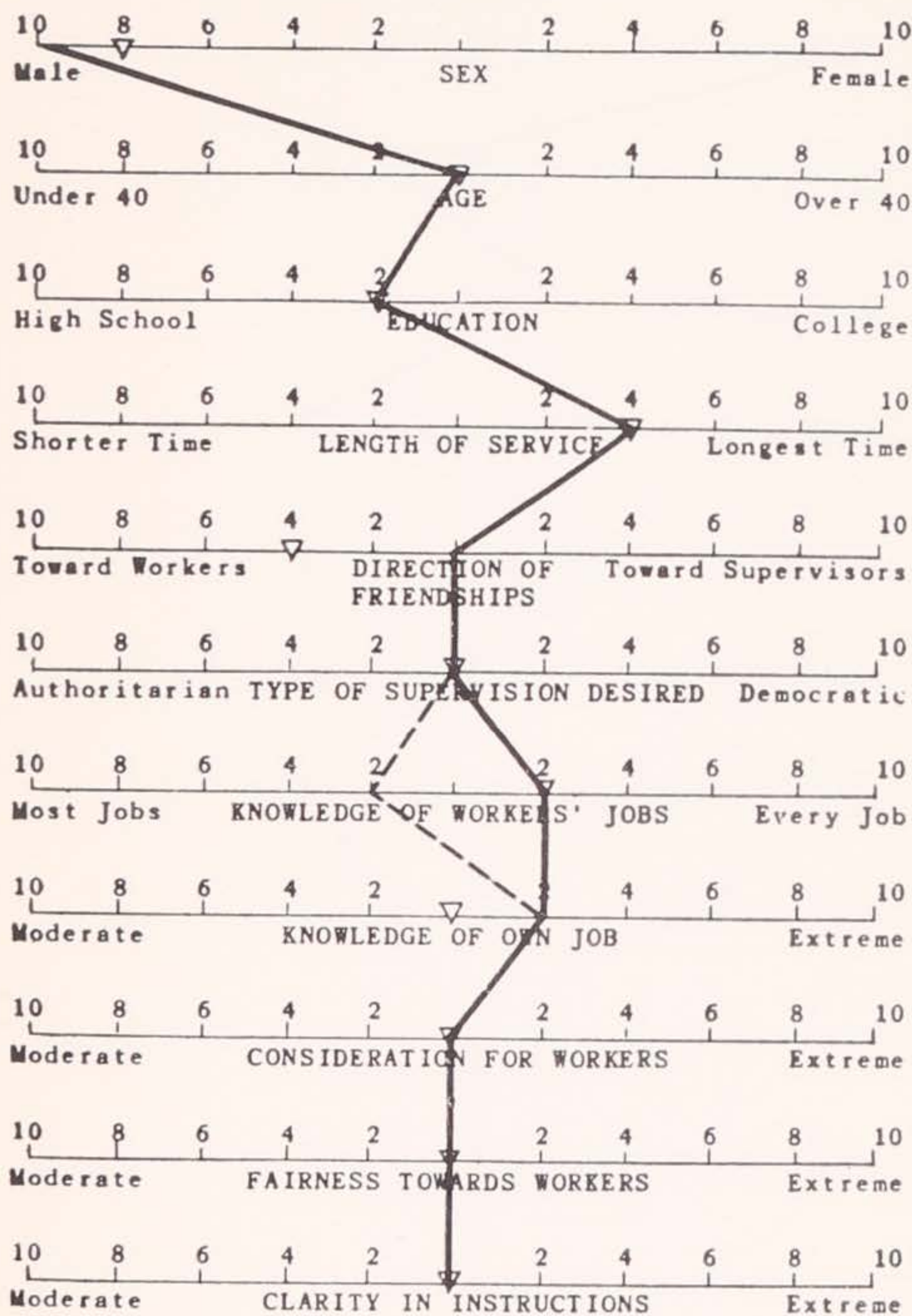


— indicates employees' opinions  
 - - - indicates deviation of supervisors' and managers' opinions from workers' opinions  
 ▽ indicates average for employees in all occupations



CHART 15

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF INSTRUMENT REPAIRMEN



— indicates employees' opinions

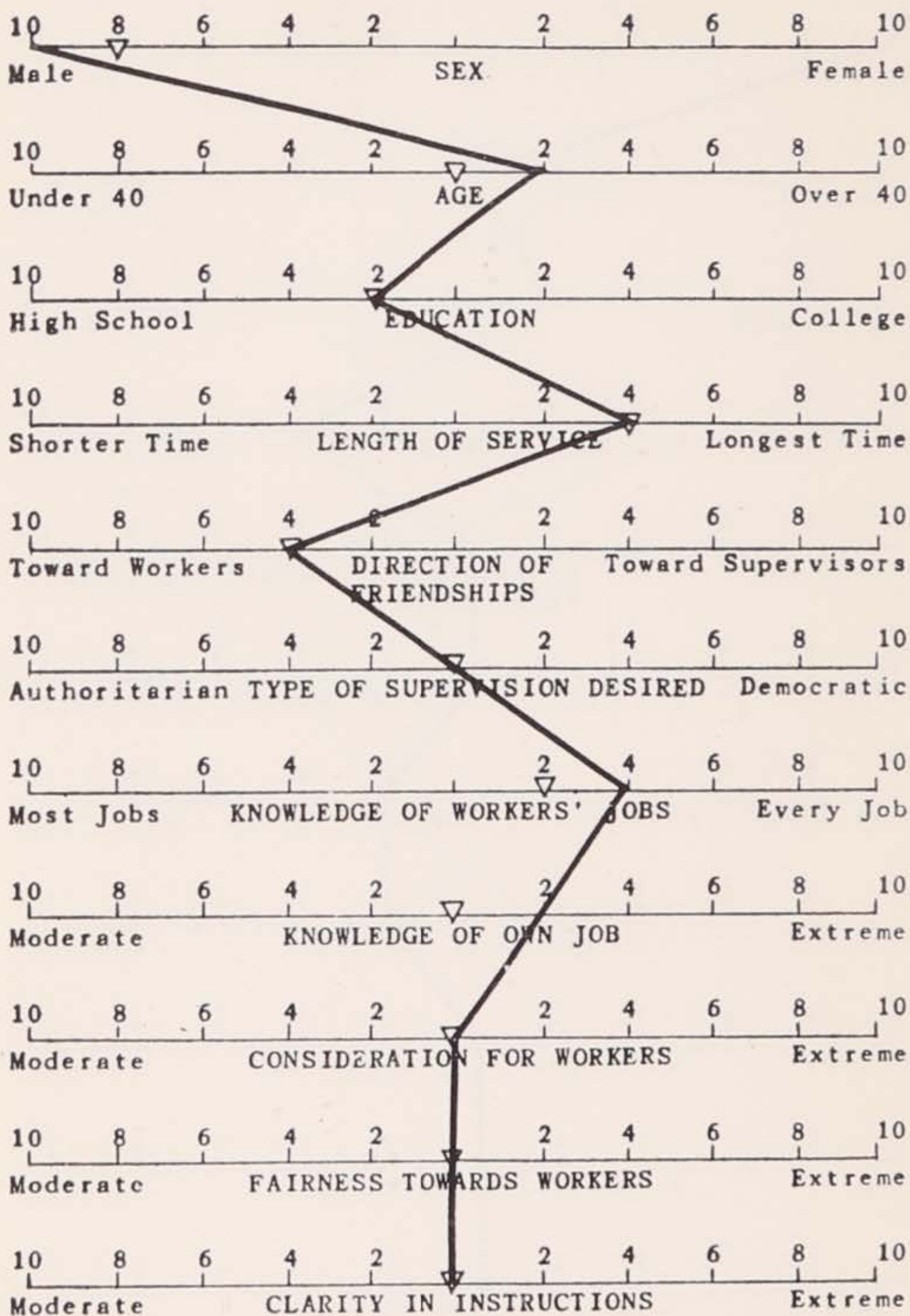
- - - indicates deviation of supervisors' and managers' opinions from workers' opinions

▽ indicates average for employees in all occupations



CHART 16

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP  
COMPOSED OF BUILDING TRADESMEN

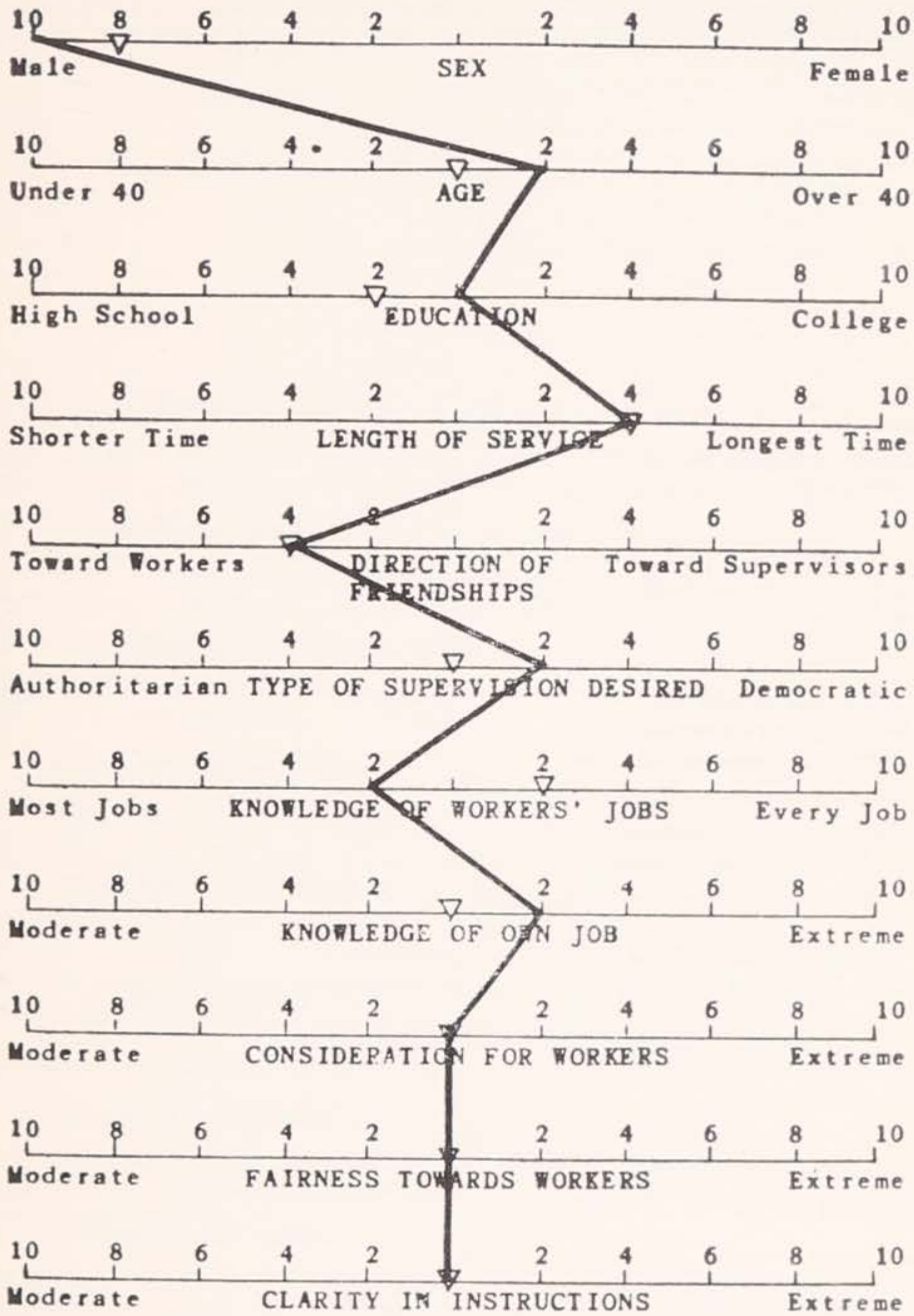


— indicates employees' opinions  
 — indicates deviation of supervisors' and managers' opinions from workers' opinions  
 ▽ indicates average for employees in all occupations



CHART 17

PROFILE OF THE IDEAL TYPE SUPERVISOR FOR A WORK GROUP COMPOSED OF ELECTRICAL REPAIRMEN



— indicates employees' opinions

— indicates deviation of supervisors' and managers' opinions from workers' opinions

▽ indicates average for employees in all occupations



CHART 18

POTENTIAL SUPERVISOR PROFILE

After this profile is completed it is to be placed over the center of the ideal profile with the extremes of this profile matching the points marked "6" on the ideal profile.

Male Female

---

SEX

Under 30 30-39 40-49 Over 50

---

AGE

High School College

---

EDUCATION

(Compared to average length of service of other workers in group)

Shorter than average worker Average Longer than average worker

---

LENGTH OF SERVICE

Would he/she tend to get along better with:

Workers Both Supervisors

---

DIRECTION OF FRIENDSHIPS

Would he/she want to make his/her decisions by himself or would he/she want to ask workers' opinions?

Usually by himself Sometimes asks Usually asks

---

TYPE OF SUPERVISION DESIRED

How many jobs to be supervised would he/she have technical knowledge of?

Most jobs Every job

---

KNOWLEDGE OF WORKER'S JOBS

How intelligent would he/she be in handling his/her job as a supervisor?

Moderately High Extremely

---

KNOWLEDGE OF OWN JOB

How considerate would he/she be for workers' feelings.

Moderately High Extremely

---

CONSIDERATION FOR WORKERS

How fair would he/she be in dealing with workers?

Moderately High Extremely

---

FAIRNESS TOWARD WORKERS

How clear out would he/she be in giving instructions?

Moderately High Extremely

---

CLARITY IN INSTRUCTIONS



#### IV. Conclusions

What are the implications of a study of this type for other public or private enterprises? Surely no one would be able to apply the profile charts or the other findings of this report directly to other types of situations. The findings themselves indicate that considerable situational variations may occur in what employees expect in first-level supervisors. Especially one would anticipate different findings on these matters where union organization is an important element in the work situation. Therefore, only further research could answer the questions of the applicability of the findings reported herein to other situations.

Nevertheless, when we look behind the data themselves to try to give some interpretation to their meaning, we may find some lessons of general value. To the research technicians in this study, the interviews conducted with employees and, to a lesser extent, the comments written in on the questionnaires provided important clues to the meaning of the responses to the survey. For example, it became evident that many of the things employees said they preferred in first-level supervisors were in reality reflections of the *different meanings* attached by workers to their jobs. Men who think of their work as a "career" may describe "the best supervisor I have ever known" in the following terms:

He didn't force workers to do things his way. He said, "Let's see if we can work this out together." He said, "If you have any ideas, let's hear them." He didn't have his way and that was all. . . . He would give work assignments and knew what he wanted; but he was willing to listen to what you wanted to say.

It is more common for women to think of their work in terms of the satisfaction derived from pleasant work relationships with other employees. One woman put it this way:

We like a supervisor to have a nice personality and to get along easy with the people under him. There is a time to work and a time to play. One should not work every minute. A little kidding makes the work load go much better.

Obviously, it takes a different type of supervision to motivate "career-oriented" and "personally-oriented" employees to put forth their best work efforts. With each different type of worker, it is necessary to "get inside" his experience and to attempt to appreciate the way he looks at work situations in order to effectively supervise his work activities.



Sometimes, however, management officials make a grave error at this point. They may assume that all there is to effective supervision is the clever manipulation of workers into thinking that management is very democratic and interested in listening to employees' ideas; whereas in reality they are merely practicing a phony "supervision by suggestion." One writer described this technique in the following terms:

The successful supervisor is frequently distinguished by his ability to make it appear that his wishes originated with the other person. The employee who usually displays a negative attitude is studied very carefully to find some way in which an idea he expresses, or something he says, can be interpreted to mean what the supervisor would like to have it mean. The supervisor then tries to get the employee to express the desired thought himself. When the worker can be made to feel that he himself originated the idea, he is committed to it in advance, and rejection of the supervisor's instruction is circumvented. At the same time the worker is made to feel personally adequate and even influential.<sup>30</sup>

One wonders how long workers can be fooled by this technique. We also might be concerned with the way workers would be expected to feel towards a supervisor after they finally discovered that he lacked sincerity in asking for their suggestions. It is probable that the use of manipulatory techniques of this type has caused the general mistrust of "human relations programs" by management in many union circles today.

On the contrary, it is evident that when many Ordnance workers, supervisors, and managers expressed a preference for supervisors to ask for workers' opinions in making important decisions, they were concerned with a genuine attempt on the part of supervisors to utilize the suggestions of workers as a means of gaining additional information and promoting positive cooperation. Elton Mayo described how this differs from manipulation:

Technical skill manifests itself as a capacity to manipulate things in the service of human purposes. Social skill shows itself as a capacity to receive communications from others, and to respond to the attitudes and ideas of others in such a fashion as to promote congenial participation in a common task.<sup>31</sup>

This type of social skill is apparently what is necessary everywhere in first-level supervision. Where a worker thinks of his job in terms of social relationships, the supervisor must have the skill to create an environment conducive to the development of these relationships in order to achieve the maximum value from workers' efforts. Where a worker thinks of his job in terms of a sharing of ideas and participa-



tion in decision making, the supervisor must be able to develop these interests in a genuine way to the mutual benefit of his employer and his employees. It is of prime importance to the efficient operation of an industrial enterprise to identify and develop potential supervisors with social skills of this type as they may be required in given work situations.

### NOTES AND REFERENCES

1. See especially C. I. Barnard, *The Functions of the Executive* (Cambridge, Mass.: Harvard Univ. Press, 1938).
2. Daniel Katz *et al.*, *Productivity, Supervision, and Morale in an Office Situation* (Ann Arbor, Mich.: Survey Research Center, 1950) and Daniel Katz, *et al.*, *Productivity, Supervision, and Morale Among Railroad Workers* (Ann Arbor, Mich.: Survey Research Center, 1951).
3. Elton Mayo and George Lombard, *Teamwork and Labor Turnover in the Aircraft Industry of Southern California* (Cambridge, Mass.: Harvard Business School, Business Research Studies No. 32, 1944).
4. Lester Coch and John French, Jr., "Overcoming Resistance to Change," *Human Relations*, I, pp. 512-532, 1948.
5. F. J. Roethlisberger, "The Foreman: Master and Victim of Double Talk," *Harvard Business Review*, XXIII, pp. 285-294, 1945; D. E. Wray, "Marginal Men of Industry: the Foremen," *American Journal of Sociology*, XLIV, pp. 298-301, 1949; P. A. Brinker, "Supervisor's and Foremen's Reasons for Frustration," *Personnel Journal*, XXXIV, pp. 101-103, 1955; F. C. Mann and J. K. Dent, "Supervisor: Member of Two Organizational Families," *Harvard Business Review*, XXXII, pp. 103-112, 1954; D. L. Bibby, "Building Satisfaction into the Supervisor's Job," *Personnel*, XXX, pp. 405-409, 1954; B. J. Muller-Thym, "Restructuring the Supervisory Job," *Personnel*, XXX, pp. 396-405, 1954; M. S. Viteles, "What Raises a Man's Morale," *Personnel*, XXX, pp. 302-13, 1954.
6. Nancy Morse, *Satisfactions in the White Collar Job* (Ann Arbor, Mich.: Survey Research Center, 1953); William F. Whyte, *Human Relations in the Restaurant Industry* (New York: McGraw-Hill, 1948).
7. U.S. Congress, Senate, *Supervisory Selection in the Federal Government*, Report of the Committee on Post Office and Civil Service, U. S. Senate, 82nd Congress, 2nd Session, on S. Resolution 53, Feb. 19, 1951 (Washington: Government Printing Office, 1952), p. 2.
8. "Potential supervisors" are defined as "workers who possess the characteristics desirable in supervisors."
9. "Behavior characteristics" are defined as "consistent actions which affect relationships with other employees," i.e., type of leadership exercised, direction of friendships, etc.; "Status characteristics" are defined as "personal characteristics which influence acceptance by other employees," i.e., sex, age, education, length of service, etc.



10. See M. M. Mandell, "Supervisory Selection Programs, a Study of Current Trends," *Personnel*, XXXII, pp. 107-117, 1955.
11. Lippett, R.; White, R. K.; "An Experimental Study of Leadership and Group Life," reported in *Readings in Social Psychology*, Newcomb, T. M.; Hartley, E. L. (ed.), (New York: Holt, 1947).
12. The approaches used by this group are explained in Morris, R. T. and Seeman, M.; "The Problem of Leadership; An Interdisciplinary Approach," *American Journal of Sociology*, LVI, pp. 149-155, 1950.
13. Seeman, M.; "Role Conflict and Ambivalence in Leadership," *American Sociological Review*, XVIII, pp. 373-379, 1953.
14. Broom, Leonard; Selznick, Philip, *Sociology* (Evanston, Ill.: Row, Peterson, 1955), p. 535.
15. Klumb, S.; Van Dusen, A. C.; "Employee Determination of Managerial Functions and Characteristics," *Personnel Psychology*, V, pp. 263-264, 1952.
16. Moore, J. V.; Smith, R. G.; "Some Aspects of Non-Commissioned Officer Leadership," *Personnel Psychology*, VI, p. 435, 1953.
17. "Workers" are defined as "personnel without supervisory responsibility employed by the Ordnance Corps"; "Supervisors" are defined as "personnel employed by the Ordnance Corps who are directly responsible for the work performance of assigned workers"; "Managers" are defined as "personnel employed by the Ordnance Corps who are directly responsible for the work performance of assigned supervisors."
18. The findings reported in this chapter refer to the *majority* of employees in each category. It should be kept in mind that there are individuals in every category who differ in their attitudes from the majority. These individual differences should never be de-emphasized.
19. "Employees" are defined as "civilian personnel at all organizational levels who are employed by the Ordnance Corps."
20. "Workers" are non-supervisory personnel. See footnote No. 17 in the section entitled "Methods."
21. For a discussion of this matter, see J. A. Lapp, *How to Handle Problems of Seniority* (New York: National Foreman's Institute, 1946).
22. See S. A. Stouffer, *Adjustment During Army Life*, Vol. 1 (Studies in Social Psychology in World War II, Princeton, N.J.: Princeton Univ. Press, 1950), p. 405; J. K. Bailey, "The Essential Qualities of Good Supervision: a Case Study," *Personnel*, XXXII, p. 318, 1956; J. M. Pfiffner and R. C. Wilson, "Management Mindedness in the Supervisory Ranks," *Personnel*, XXX, p. 125, 1954.
23. On these problems of women supervisors, see B. B. Gardner and D. G. Moore, *Human Relations in Industry* (Homewood, Ill.: Irwin, 1955), pp. 286-287.
24. J. K. Bailey, *op. cit.*, p. 316.



25. "Democratic" supervision is defined as "supervision in which the supervisor usually makes work-related decisions after consultation with workers"; "Authoritarian" supervision is defined as "supervision in which the supervisor usually makes work-related decisions *without* consultation with workers." Preference for "democratic" and "authoritarian" supervision were based upon the degree to which employees agreed or disagreed with the following four statements:
1. I would expect a good supervisor to take action without asking for my ideas.
  2. I would expect a good supervisor to say the work should be done his way.
  3. I would expect a good supervisor to ask for my ideas before taking action on important things.
  4. I would expect a good supervisor to take time to explain why the work should be done a certain way.
26. For additional discussion of these matters, see H. M. Vollmer and J. A. Kinney, "Supervising Women is Different," *Personnel Journal*, XXXIV, pp. 260-263, 1955.
27. Also there is indication that as age increases, job satisfaction tends to increase. As job satisfaction increases and workers become more involved in their jobs, it is understandable that they would desire more participation in decision-making relative to their jobs. See H. M. Vollmer and J. A. Kinney, "Age, Education, and Job Satisfaction," *Personnel*, XXXI, pp. 38-43, 1955.
28. The finding reported elsewhere that lower-educated workers tend to be more satisfied with their jobs than higher-educated workers, may indicate that lower-educated workers tend to desire closer friendships with supervisors because their world tends to revolve more around their jobs and they are more committed to their jobs than higher-educated workers. See H. M. Vollmer and J. A. Kinney, *op. cit.*
29. A listing of the occupations included within each occupational classification is contained in the Appendix of this report.
30. E. E. Jennings, "Supervision by Suggestion," *Personnel Journal*, XXXII, pp. 288-292, 1954.
31. Elton Mayo, *The Social Problems of an Industrial Civilization*, (London: Routledge and Kegan Paul, 1949), p. 12.

## APPENDIX

<i>Title of Occupational Group</i>	<i>No. Workers</i>
<i>Occupational options<sup>o</sup></i>	<i>Surveyed</i>
CLERICAL PERSONNEL (MALE)	
0203 Personnel Clerk	1
0301 Clerk, General	5

<sup>o</sup>Occupational options are indicated by Department of Army job family series code.



<i>Title of Occupational Group</i>	<i>No. Workers</i>
<i>Occupational options</i>	<i>Surveyed</i>
0305 Mail and File Clerk .....	3
0312 Clerk Stenographer .....	1
0322 Clerk Typist .....	5
0358 Tabulating Machine Operator .....	4
0360 Misc. Dup. Equip. Operator .....	1
0501 Accountant and Fiscal Clerk .....	4
0543 Payroll Clerk .....	1
0590 Time and Leave Clerk .....	4
1531 Statistical Clerk .....	2
2030 Storage Clerk .....	15
2040 Property and Stock Control Clerk .....	19
	<hr/> 65

CLERICAL PERSONNEL (FEMALE)

0203 Personnel Clerk .....	2
0211 Appt. and Status Change Clerk .....	1
0301 Clerk, General .....	31
0305 Mail and File Clerk .....	14
0309 Correspondence Clerk .....	7
0310 Stenographer .....	2
0312 Clerk Stenographer .....	12
0315 Dictating Mach. Transcribing Unit Supvr. ....	1
0320 Typist .....	15
0322 Clerk Typist .....	186
0351 Addressing Equipment Operator .....	1
0354 Bookkeeping Machine Operator .....	4
0355 Calculating Machine Operator .....	2
0356 Card Punch Operator .....	3
0358 Tabulating Machine Operator .....	17
0360 Misc. Dup. Equip. Operator .....	1
0364 Offset Dup. Devices Unit Supvr. ....	1
0380 Telephone and Telegraph Operator .....	1
0382 Telephone Operator .....	5
0385 Telegraphic Typewriter Operator .....	3
0501 Accountant and Fiscal Clerk .....	22
0540 Voucher Examiner .....	4
0543 Payroll Clerk .....	2
0544 Time, Leave, and Payroll Clerk .....	9
0590 Time and Leave Clerk .....	3
1531 Statistical Clerk .....	6
2030 Storage Clerk .....	6
2040 Property and Stock Control Clerk .....	98
	<hr/> 459



*Title of Occupational Group*  
*Occupational options*

*No. Workers*  
*Surveyed*

TECHNICIANS

0112 International Trade and Development Economist	1
0201 Personnel Technicians	5
0221 Position Classifier	5
0223 Salary and Wage Administrator	2
0303 Organization and Methods Examiner	12
0306 Records Manager	2
0801 General Engineer	3
0806 Materials Engineer	4
0818 Engineering Draftsman	7
0830 Mechanical Engineer	12
0836 Ordnance Design Engineer	9
0894 Welding Engineer	1
0896 Industrial Engineer	4
1060 Photographer	1
1102 Contract Specialist	2
1151 Commodity-Industry Analyst	1
1152 Production Specialist	11
1310 Physicist	2
1311 Physical Science Aid	5
1320 Chemist	8
1321 Metallurgist	4
1398 Laboratory Helper	1
1520 Mathematician	2
1530 Statistician	2
1610 Laboratory General Mechanic	2
1620 Instrument Maker	1
1626 Tool and Gage Designer	7
1670 Equipment Specialist	22
1710 Education and Training Technician	1
1711 Training Instructor	8
1820 Safety Inspector	1
2010 Supply Requirements and Distribution Technician	5
2020 Procurement Specialist	7
2050 Supply Cataloger	3
6703 Production Planner	19
6704 Production Estimator	1
6705 Production Expediting	27
	<hr/>
	210

LABORERS

0228 Janitor	13
3502 Laborer	171



<i>Title of Occupational Group</i>	<i>No. Workers</i>
<i>Occupational options</i>	<i>Surveyed</i>
6511 Munitions Handler .....	21
	<u>205</u>
<b>WAREHOUSEMEN (MALE)</b>	
6904 Tool, Stock, and Parts Keeper .....	41
6905 Warehousemen, Bin .....	5
6906 Warehousemen, Bulk .....	60
6907 Warehousemen, General .....	20
6908 Warehousemen, Receiving .....	26
6909 Warehousemen, Shipping .....	6
	<u>158</u>
<b>WAREHOUSEMEN (FEMALE)</b>	
6904 Tool, Stock and Parts Keeper .....	3
6905 Warehousemen, Bin .....	24
6906 Warehousemen, Bulk .....	15
6907 Warehousemen, General .....	5
6908 Warehousemen, Receiving .....	8
6909 Warehousemen, Shipping .....	2
	<u>57</u>
<b>PROCESSORS AND PACKERS (MALE)</b>	
4102 Painter (Spray) .....	20
4604 Boxmaker .....	18
4609 Cratemaker .....	1
4615 Nailing Machine Operator .....	1
7002 Packer .....	44
7004 Processor .....	35
7006 Mechanical Equipment Processor .....	25
	<u>144</u>
<b>PROCESSORS AND PACKERS (FEMALE)</b>	
4102 Painter (Spray) .....	2
7002 Packer .....	34
7004 Processor .....	28
	<u>64</u>
<b>VEHICLE OPERATORS</b>	
5703 Automotive Equipment Operator .....	10
5704 Fork Lift Operator .....	58
5706 Road Sweeper Operator .....	1
5708 Truck Driver .....	13
5709 Warehouse Tractor Operator .....	7
5725 Tractor Trailer Operator .....	1
	<u>90</u>



<i>Title of Occupational Group</i> <i>Occupational options</i>	<i>No. Workers</i> <i>Surveyed</i>
<b>VEHICLE REPAIRMEN</b>	
3809 Automotive Equipment Body and Fender Repairer . . . . .	5
3814 Automotive Equipment Radiator Repairer . . . . .	3
5807 Combat Vehicle Repairer . . . . .	72
5809 Combat Vehicle Fuel and Electrical Repairer . . . . .	1
5816 Automotive Equipment Tester . . . . .	2
5818 Automotive Fuel and Electrical Repairer . . . . .	1
5822 Automotive Equipment Engine Rebuild Repairer . . . . .	19
5823 Automotive Equipment Repairer . . . . .	66
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<b>ARTILLERY AND SMALL ARMS REPAIRMEN</b>	
6602 Artillery Assembler . . . . .	10
6605 Artillery Repairer . . . . .	36
6607 Small Arms Assembler . . . . .	12
6610 Small Arms Repairer . . . . .	14
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<b>MACHINE OPERATORS</b>	
3402 Automatic Screw Machine Operator . . . . .	6
3404 Boring Mill Operator . . . . .	9
3409 Drill Press Operator . . . . .	6
3410 Automotive Machinist . . . . .	6
3411 Engine Lathe Operator . . . . .	24
3415 Milling Machine Operator . . . . .	10
3417 Tool Grinder and Repairer . . . . .	11
3418 Tool Repairer . . . . .	9
3419 Turret Lathe Operator . . . . .	38
3424 Grinding Machine Operator . . . . .	12
3425 Honing and Lapping Machine Operator . . . . .	4
3429 Production Machine Operator . . . . .	25
3432 Gear Cutting Machine Operator . . . . .	2
3802 Drop Hammer Operator . . . . .	1
3812 Press Operator . . . . .	5
4618 Woodworking Machine Operator . . . . .	5
	<hr/> 173
<b>SHOP CRAFTSMEN</b>	
3405 Patternmaker, Metal . . . . .	1
3414 Machinist . . . . .	72
3416 Tool, Die, and Gage Maker . . . . .	15
4616 Patternmaker, Wood . . . . .	2
	<hr/> 90



<i>Title of Occupational Group</i> <i>Occupational options</i>	<i>No. Workers</i> <i>Surveyed</i>
<b>METAL WORKERS</b>	
3703 Welder .....	46
3704 Blacksmith .....	4
3706 Coremaker .....	1
3708 Foundry Worker .....	3
3711 Electroplater .....	2
3712 Heat Treater .....	5
3714 Molder .....	3
3719 Metal Surface Treater .....	1
	<hr/> 65
<b>INSTRUMENT REPAIRMEN</b>	
2613 Fire Control Equip. Maker, Inst., and Rep. ....	24
3306 Optical Instrument Repairer .....	11
3412 Instrument Maker and Repairer .....	4
4006 Grinder, Optical Elements .....	1
	<hr/> 40
<b>BUILDING TRADESMEN</b>	
3603 Mason .....	2
3806 Sheetmetal Worker .....	9
3807 Structural Ironworker .....	6
4102 Painter .....	10
4203 Pipecoverer .....	2
4206 Plumber .....	3
4207 Steamfitter .....	9
4607 Carpenter .....	11
5315 Millwright .....	8
	<hr/> 60
<b>ELECTRICAL REPAIRMEN</b>	
2502 Central Of. Tel. Equip. Installer and Rep. ....	2
2507 Telephone Installer and Repairer .....	1
2602 Electronic Test Equipment Maker and Repairer .....	1
2608 Radio Installer and Repairer .....	4
2805 Electrical Installer and Repairer .....	27
2806 Electrical Line Worker .....	3
2807 Electrical Motor Repairer .....	6
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